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Tennessee Hosts 2011 ARRI Conference

By Chris Miller, OSM - Knoxville Field Office

Industry leaders, academics, citizens, state and government officials gathered together in August at Knoxville, Tennessee for the 2011 Appalachian Regional Reforestation Initiative (ARRI) conference. The three day conference focused on restoring forest ecosystem services using the Forestry Reclamation Approach (FRA). The conference consisted of field trips portraying the application and benefits of the FRA and presentations of the latest research concerning the FRA and its implementation.

On the first day of the conference participants went on a field trip to the White Oak Reforestation Project located on a Gatliff Coal Company permit. This site was reclaimed in 2004 using the FRA. This permit contains Tennessee's oldest FRA demonstration site. Many sites within this permit were visited during the field trip to portray the evolution of forest reclamation practices on mine sites.

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(Photo by Linda Keene) OSM's Appalachian Region Director, Tom Shope (right) presents the 2010 ARRI Excellence in Reforestation Regional Award to officials from Apogee Coal Company, LLC, Logan West Virginia. (left to right) Accepting the award are Kent DesRocher, Vice President and General Manager; Larry Damron, Senior Environmental Engineer; and Kevin Baker, Manager of Engineering and Environmental Affairs.

The first few stops of the day displayed early efforts of reforestation under the Surface Mining Control and Reclamation Act of 1977 (SMCRA). Heavy compaction and aggressive ground covers resulted in little tree growth and establishment. Clear differences were seen between the reclaimed mine vegetation and the surrounding undisturbed natural forest.

Next, four participants visited sites with low compacted soils and hardwood plantings.

To visually display the effect of grading on tree growth a site with gradual increased grading intensity across a slope was shown. It showed low tree growth that correlated with compacted soils.

Dr. Mary Beth Adams, USDA Forest Service, said, "This was a good demonstration of compaction effects and why FRA is so important."

Natural reforestation had occurred at the next stop where there was no grading or seeding. Tree species volunteered from the surrounding forest on this site contrasting with the neighboring traditional reclamation of aggressive grass seeding and compaction.

Chet Edwards, OSM, said, "This tour provided the opportunity to see the productivity of an FRA site verses one that did not use low compaction grading. The sites abutted each other so the comparison was readily apparent. Another significant feature was the demonstration area where competitive grasses has suppressed or arrested natural succession versus where ground cover requirements that were revised by TN were used. This demonstrated how ground cover affects tree growth very well."

The benefit of ripping compacted soil was the topic of the last stop of the day. Trees were noticeably larger on ripped areas than those on unripped compacted sites.

Conference presentations took place on the second day. Presentations ranged from practical FRA



The ARRI core team gathered for a photo at the conference. (Front row from left) Linda Keene, Mike Bower, Steve Felch, Chet Edwards, all from OSM, Richard Davis VA DMME, Chris Miller, Gail Smith, and Becky Hatmaker, all from OSM. (Back row) Mark Carney, MD Bureau of Mines, Victor Davis, Dr. Patrick Angel, both from OSM, Jon Lawson, VA DMME, Tim Brehm, OSM, Ken Coomer VA DMME, Selena Allen and Scott Eggerud, both from OSM.



The ARRI Academic Team posed for a photo at the August conference. (Seated from left) Dr. Mary Beth Adams, US Forest Service and Dr. Jennifer Franklin, University of TN. (Back row) Dr. Patrick Angel, OSM, Dr. Jeff Skousen, WVU, Victor Davis, OSM, and Dr. David Buckley, University of TN.

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implementation to today's current academic research.

The implementation presentations were in their own session and were geared toward coal industry participants.

The five steps of the FRA were outlined in separate presentations in order to easily address questions and comments from the industry's perspective.

Presentations from the science-based session were ongoing throughout the day and focused on new challenges and current research from the academic community. These presentations were ecologically based, reflecting upon Dr. James Burger's keynote address of pushing toward an ecosystem-based approach for mined land reclamation. Presentations ranged from "Nematode Colonization

of FRA Sites" (Smith and Bernard) to "Hydrology, Erosion, and Stability on Constructed Steep Slopes by the Forest Reclamation Approach in the Southern Appalachian Region" (Schwartz, Hoomehr, Jeldes, Wright and Drumm).

Thomas Shope, Regional Director, Office of Surface Mining and Reclamation presented the ARRI 2010 Excellence in Reforestation Regional Award to representatives from Apogee Coal Company, LLC at the onsite luncheon.

A field trip to a pre-SMCRA mine site rounded out the three-day conference. On this field trip, participants visited a site in which research plots of pine species and black locust were planted on un-compacted soil with no planted ground cover in 1959. Site preparation was similar to that of the FRA minus

ground cover. On this site, succession of the natural forest was so efficient that both pine and locust were noticeably absent. They were instead replaced by volunteer species from the neighboring forest. Further, the site is known to host one of the highest yellow-poplar site index values in the southeast; an index foresters use to estimate site productivity for certain species.

Both new and old members of ARRI benefit from the annual conference, evidenced by the growing attendance each year.

Next year's conference will be held May 22 and 23 in Big Stone Gap, Virginia. Participants will visit the Powell River Project, which hosts research sites that were influential in shaping the FRA.



Photos:

(Above) ARRI conference attendees view an early effort of reforestation.

(Top right) Mark Carney, MD Bureau of Mines, checks into the conference with the assistance of two University of Tennessee students.

(Right) Another view of reforestation on the Gatliff Coal Company mine site.



Q and A with Bob Zik, Vice President, Gatliff Coal Company

Questions by Gail Smith and Linda Keene

Photos by Linda Keene

Q. How did your company come to use the Forestry Reclamation Approach (FRA) on your mine sites?

A. Vic Davis, from Office of Surface Mining Reclamation and Enforcement (OSM), worked with us as an experiment in 2002-2004 on our White Oak job. I was skeptical, but we would try. If it didn't work, it would just be a reseeding process and take a couple extra years for bond release. The process worked beyond expectations and we signed on the initial agreement. (Statement of Mutual Intent) It is a process to get implanted into the company!

Q. What are the most advantageous things your company has gained by using the FRA?

- A.
1. Increased production time for dozers (with the single pass
 2. Positive attitude from regulatory agencies
 3. Investing the future
 4. Being good environmental stewards
 5. Improved public image

Q. Have your operators/employees bought into the use/practice of FRA?

A. Absolutely. (The) majority of employees (are) outdoorsman. Once they see the advantages themselves and understand reforestation, they feel good and they buy into reforestation. The diverse habitat promotes wildlife, turkeys, deer, which they hunt.

Q. What are you doing to ensure FRA usage?

A. We put FRA in our permits and we are complying. We are holding Arbor Day events to promote reforestation. (It) gives us a positive public image. FRA takes time to implement. All our land use waivers are signed upon leasing the surface property. The leasing and waivers are signed four to five years prior to permitting. With a two year permitting process many permits we are now mining are under the old post mine land use waivers. Our new waivers are reforestation, if the landowners will agree. If the landowner wants to graze cattle, we have to go to hay and pasture or fish and wildlife. (If) Any changes the landowner wants compensation or additional restrictions; therefore we do not change existing permits due to the issue of changing waivers.

(Photo at right) Conference participants viewed reforested mine reclamation.



(From left) Bob Zik, Vice President, Gatliff Coal Company, welcomes Victor Davis, OSM, Knoxville, TN at the mine site during the ARRI conference tour in August.



The ARRI conference tour moved through the mine sites by bus, stopping at several places along the way. Tour participants listened to speakers describe the reclamation they saw.



Q and A with Geoffrey Lee Hill, Southeast Seedling Sales Coordinator, ArborGen

By Gail Smith and Linda Keene

Photo by Linda Keene

Q. How does ARRI and the FRA tie into your company?

A. One of our largest hardwood seedling customer segments is mine reclamation. Our seed sources cover the entire Appalachian coalfield region. Business wise ArborGen is proud to be a partner with ARRI and supports its mission. Personally my Mother's side of our family has been in West Virginia since the 18th century. I am a third generation WVU graduate and feel strongly about sustainable mountain forestry. Go ARRI! Go FRA!

Q. Have you increased your hardwood tree supply to meet operators' demands? Is your supply sufficient?

A. We have quadrupled our hardwood/ wildlife shrub species and volumes since 2000. We have also increased our pitch x lob, white pine, and shortleaf pine production. We usually try two or more new species annually. This helps us learn and

provide variety for our customers. In 2011/12 we have cucumber magnolia for the first time for coalfield reclamation. Three of our six nurseries grow hardwoods, all six grow pine. We can grow many millions additional seedlings in the future if demand increases.



(From left) Geoffrey Lee Hill and Danny Arnett Jr. man their ArborGen booth at the August ARRI Conference.

Q and A with Randy Stone, President, Stone Forestry Services

By Gail Smith and Linda Keene

Photo by Linda Keene

Q. How has the FRA affected your tree planting business?

A. Stone Forestry has been doing reforestation work for 25 plus years. We decided a few years ago that we wanted to be part of the reclamation process so FRA was a great stepping stone to expand into this important industry.

Q. What do you think your company could do to help with the implementation of FRA?

A. With all the years of tree planting that we have done all over the Eastern seaboard we think we can help people to reestablish the great forest that once existed.

Q. What can your company do to help industry?

A. We are bringing new options and ideas to the industry.



(Right) Randy Stone, President, Stone Forestry Services, talks with a conference attendee at the ARRI conference in August.

Q and A with Rick Williams, Reclamation Contractor, Williams Forestry & Associates

By Gail Smith and Linda Keene

Photo by Linda Keene

Q. How does ARRI the FRA tie into your tree planting business?

A. Williams Forestry & Associates has been promoting loose grading, reduced ground cover, and the planting of native hardwoods for over 16 years. The Appalachian Regional Reforestation Initiative, through its promotion of the Forest Reclamation Approach, has led to significantly more lands being restored to its original productivity.

Q. What do you think your company could do to help with the implementation of FRA?

A. Each year Williams Forestry & Associates plants millions of high value native hardwoods and shrubs. The successful survival and growth of these new stands of hardwood forest are

the best evidence Williams Forestry & Associates can provide to support the fact that FRA works. Williams Forestry and Associates will continually work to promote the Forest Reclamation Approach through all of its contacts with coal operators, landowners, and state and federal regulatory agencies.

Q. What can your company do to help others in the industry consider using FRA?

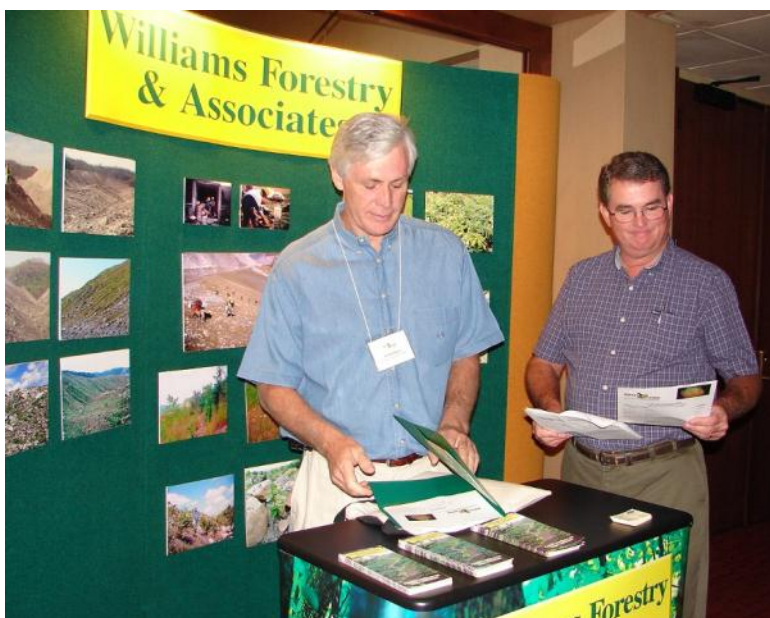
A. We will continue to meet with coal operators, landowners, and regulatory agencies to promote the implementation of FRA.

Q. Have you increased your hard wood tree supply to meet operators' demands?

A. Williams Forestry & Associates purchased Native Forest Nursery three years ago to grow hardwood seedlings for our planting needs on mine lands. Due to the efforts of many individuals, including ARRI, the desire and need for more hardwood seedlings has increased. We have increased our production of native hardwoods to meet these new opportunities.

Q. Do you have anything else you would like to share with our readers?

A. Williams Forestry & Associates has been in business for over 33 years and is the leader in reforestation of mine lands with over 39 million trees planted on reclaimed surface areas. Williams Forestry & Associates' Native Forest Nursery specializes in growing native hardwood seedlings used for mine reclamation in the Appalachian Region. Our company has been an active proponent of loose grading, reduced ground cover, and the planting of high value hardwoods for over 16 years. The Office of Surface Mining and the Forestry Reclamation Approach has greatly assisted the efforts of promoting the creation of forestry sites that will one day be productive and diverse forests. It is the goal of Williams Forestry and Associates to partner with Coal Operators and ARRI to promote the restoration of mined lands.



(From left) Rick Williams, Reclamation Contractor and Paul Ensminger, Nursery Manager for the seedling nursery, Williams Forestry & Associates, review conference material during the ARRI conference in Tennessee.



Photos by Linda Keene
(Left) Yellow-poplar seedling on Gatliff Coal Company mine site.
(Right) Tennessee mine site planted in 1959.





Group photo at top right by Scott Eggerud
All other photos by Linda Keene
The forest depicted in these top three photos is a pre-SMCRA mine site planted in uncompacted soil in 1959. The tree species used in planting were black locust and pine species, although many other species are now present. The ARRI conference members enjoyed hearing about the history of this mine site and took a walk through the forest to view the tree species.



Above and right photos are of trees growing on the mine sites at Gatliff Coal Company in Tennessee.

Above right is the ARRI booth that was on display at the August 2011 ARRI conference.



Appalachian Regional Reforestation Initiative



The Appalachian Regional Reforestation Initiative was started in 2004 with the goal of encouraging the planting of high-value hardwood trees on reclaimed coal mine sites using the Forestry Reclamation Approach. The initiative is a coalition of the States of the Appalachian, the Office of Surface Mining and their partners in industry, environmental organizations, academia, local, State and Federal government agencies and local citizens who have come together to support this valuable initiative.

For more information on ARRI see our website at: <http://arri.osmre.gov/>

GOALS OF ARRI

- Plant more high-value hardwood trees on reclaimed coal mined lands in Appalachia.
- Increase the survival rates and growth rates of planted trees.
- Expedite the establishment of forest habitat through natural succession

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