NRCS
Alabama NRCS
Tech News
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NRCS Signs WRP Contract with The Nature Conservancy

USDA-Natural Resources Conservation Service (NRCS) joined hands with the Nature Conservancy in Alabama to restore and protect a portion of land along the Paint Rock River in Jackson County, Alabama. The Nature Conservancy placed 280 acres of land, known as the Whitaker Tract, in the Wetland Reserve Program (WRP). WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. NRCS provides technical and financial support to help with wetland restoration efforts. According to Jeff Thurmond, NRCS Wildlife Biologist, "The goal of WRP is to restore wetland vegetation and hydrology into farmlands that were cleared and drained many years ago. We want to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program."

With financial assistance from WRP, the canalized stream will be returned to its original, meandering course, bottomland hardwood trees will be planted, and ditches will be plugged to restore the stream to its natural environment. The Whitaker Tract will be used to demonstrate what can be done to protect land and streams.

WRP offers landowners an opportunity to establish long-term conservation and to install practices that protect wildlife. The Nature Conservancy is a nonprofit organization that preserves and protects land and waters, ensuring their wild state in perpetuity. NRCS provides free technical assistance and financial assistance through government programs to help people conserve, maintain, and improve natural resources and the environment. Thurmond says, "This is a great example of how agencies, with a common goal, can work together to protect land and streams."

NRCS Biologist Jeff Thurmond (l) and Jeff Danter, Director of the Alabama Nature Conservancy, complete the paperwork to enroll 280 acres of land in WRP.

CALENDAR OF EVENTS

Jan 11-13 - National SS and Design Core Team, Lincoln, NE
Jan 19 - State Committee Meeting, Montgomery, AL
Jan 31-Feb 1 - Ntl State Soil Scientist/Soil Data Quality Specialist Meeting, Laughlin, NV
Feb 5-9 - NACD Meeting, Atlanta, GA
Feb 17 - Irrigation Basics, Cullman, AL
Feb 18 - Irrigation Basics, New Brockton, AL
Feb 23 - Wiregrass RC&D Council Meeting, Headland Experiment Station, Henry Co., AL
Feb 23-24 - Forest Mgmt in Cons Planning, Bent Creek Lodge, Choctaw Co., AL
Mar 1-3 - Surveying 101, Auburn, AL
Mar 2-3 - Forest Mngt in Cons Planning, Troy, AL
Mar 8-10 - Ntl SS Schedule Analysis and Design Core Team, Lincoln, NE
Mar 15-16 - Sealing a Pond or Impoundment, Cullman, AL
Mar 16- 17 - Planning a Waste Mgmt System, Cullman, AL
Apr 12-13 - Sealing a Pond or Impoundment, Selma, AL
Apr 13-14 - Planning a Waste Mngt System, Selma, AL

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Choccolocco Creek Watershed Rehabilitation Project

By: Jeff Holloway, NRCS Resource Engineer, Oxford, AL

The Small Watershed Program (PL-566) has been amended to provide cost-share funds to assist with the rehabilitation of aging watershed dams. This amendment provides for NRCS to pay 65 percent of total project costs associated with the work needed to extend the life of qualified aging structures a minimum of 50 years. Local sponsors are responsible for the remaining 35 percent of the costs through cash contributions or "in kind" services.

In Alabama, efforts have been made to inform local watershed project sponsors about the program through public meetings and distribution of fact sheets. This effort has led to sponsors requesting rehabilitation needs assessments on four sites in the state (one each in Calhoun, Clay, Randolph, and Talladega Counties). The NRCS engineering staff completed the assessments and provided the sponsors with a report detailing needs and alternative treatments.

The site assessed in Calhoun County, Choccolocco Creek Site 11, is located near Oxford and is owned by the Anniston Water Works and Sewer Board. The site contains municipal and industrial water storage used by the board to supplement the primary water source and for future water needs. This site was designed and constructed as a moderate hazard site ("b") in the early 1970s. Developments downstream of the site, including homes and a water treatment plant in the floodplain, have increased the hazard class of the dam to a high hazard ("c"). The assessment report recommended modifying the dam to bring it in line with current high hazard design requirements.

This summer, the water board, along with other project sponsors, formally requested assistance to rehabilitate the Choccolocco Creek Site 11. The site is in the process of being approved for project planning and design for FY2005. Work is currently underway on these two phases of the project.

A memorandum of agreement between NRCS and the water board is being developed, detailing the work to be completed by NRCS and the work to be completed by the board as part of their 35 percent cost-share.

The water board has completed an underwater investigation of the gate system on the riser using a dive team from the Birmingham Water Works. They are planning to conduct an internal inspection of the principal spillway pipe using a video camera mounted on a motorized wheeled "tractor" attached to cable. This will be used to document the condition of the existing concrete pipe.

NRCS will be completing surveys in January at the site to document the amount of sediment accumulated in the pool area over the past 30 years.

Additionally, it is likely that the auxiliary spillway at the site will need to be widened to meet high hazard design requirements. A geologic investigation is needed to determine the earth and rock characteristics in the proposed expansion area. Alabama NRCS will be conducting the geologic investigation in early January using a drill rig from South Carolina NRCS. Andy Hartman, a NRCS geologist in Chattanooga, Tennessee, will provide geologist services during the investigation.

After these preliminary steps are completed, public meetings will be held, alternative designs will be developed to bring the site up to current standards, an alternative will be selected, and the watershed plan will be amended. This work will be completed in the spring. The design alternative selected will be completed in the summer before the end of the fiscal year. Hopefully, after the design is completed, funds will be made available for construction in FY2006.

Ching Waste Management System Completed

By: Randall East, NRCS Resource Engineer, Grove Hill, AL

Third generation farmers Joe, Tommy, and Frank Ching recently completed the final part of the Comprehensive Nutrient Management Plan (CNMP) on their Mobile County farm. The final part was a system to return the nutrients from their lagoon treatment system to the land for use as fertilizer.

The waste management system on the Ching property was a joint project of the Juniper Creek Watershed partnership, including NRCS, Alabama Cooperative Extension System, Mobile Area Water and Sewage System (MAWSS), Mobile County Soil and Water Conservation District, Alabama Department of Environmental Management, Gulf Coast RC&D, and many others. The Ching property draines into Juniper Creek which ends up in Big Creek Lake, the water supply for the City of Mobile. Juniper Creek is on the 303(d) list for pathogens. When the CNMP is fully implemented, agricultural land will not be a major contributor of pathagens in the watershed.

A unique project, the Ching Waste Management Plan includes a rotational grazing system that features excluding animals from sensitive areas, gully erosion control, troughs, and a new waste treatment system. The waste treatment system features an unusual collection system. At the milking facility, the waste from the 150-head dairy is collected in a reinforced concrete tank and two submergible pumps transfer the waste to a geotextile bag for solids separation. Following separation, the wastewater enters a lagoon for final biological treatment of the effluent. The final step is to return the separated wastewater to the Ching's hayland adjacent to the lagoon at agronomic rates.

Many different ideas were investigated for the final application phase, from center pivot irrigation to a hose tow system. The Ching's decided to go with an Aerway* system with a Cadman* hard hose. This system greatly reduces odors normally associated with an agitated lagoon. Wastewater from the agitated lagoon is transferred to the field through a collapsible 5-inch hose. From the collapsible hose, the wastewater enters a hard hose that is connected to the airway distributor and towed behind a tractor. The Aerway brand system has a coulter that cuts through thatch in the hayfields allowing air and wastewater to enter the soil profile. The coulters are adjustable to vary the slot width cut in the field. Liquid waste is fed through a distribution system to the slots cut by the coulter. The application rate is maintained by the flow rate and travel speed of the tractor. Using this system, the Ching Dairy will be able to apply wastewater to their hayfields at the agronomic rates for Coastal Bermudagrass and winter annuals that were outlined in the nutrient plan.

When Alabama dairymen attended a demonstration of the system in November, the odor was almost unnoticeable. This will greatly benefit the Ching farm which is in an area that is rapidly becoming an urban environment. "This system makes the most sense for us," stated Joe Ching. "The ability to inject the waste will allow us to use what was once a liability as an asset as we meet the nutrient needs of our operation."

Auburn Extension Engineer Ted Tyson continues his research using geotextile bags at the Ching Dairy as he investigates methods to improve the efficiency of dewatering of the system.

* Trade names are used solely to provide specific information. Mention of a trade name does not constitute a guarantee of the product by the U.S. Department of Agriculture, nor does it imply endorsement by USDA or NRCS over comparable products that are not named.

Stream Restoration Under WRP

By: Mac Nelson, State Design Engineer, Auburn, AL

During the decades of the 1950's, 1960's, and 1970's, individual landowners, watershed districts, and other entities often drained wetlands and channelized streams to reduce flooding, bring more land into production, and improve crop yields. Since that era, society has become more conscious of the ecological, aesthetic, and recreational value of wetlands and streams. Also, land use has changed in many areas to pasture and other uses not requiring the level of drainage and flood control once needed for intensive row cropping.

Government agencies, private organizations, and individuals are now working to restore many of those wetlands and streams to their historic, undisturbed conditions. In some instances, government programs are available to assist in this restoration. One such program is the Wetland Reserve Program (WRP), administered by NRCS. Through this program, the government provides payments to landowners in exchange for long-term or perpetual easements on their property and the right to restore the property to its previous, undisturbed condition. Wetland restoration includes activities such as blocking drainage ditches to raise ground water levels, restoring channelized streams to their original alignments, and re-establishing native vegetation that is beneficial to wildlife.

One of the recent properties enrolled in the WRP program is located on Cole Springs Branch, a tributary to the Paint Rock River in Jackson County, Alabama. The Nature Conservancy (TNC) recently purchased this 329-acre property. TNC is a private organization whose mission is "to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the land and water they need to survive." Alabama NRCS personnel assisted TNC over the last three years by providing designs for stream bank stabilization measures at several locations on the Paint Rock River.

The WRP site lies adjacent to the Paint Rock River, with the river being the eastern boundary of the property. Cole Springs Branch runs through the middle of the property. The drainage area of the stream is 11.5 square miles. Much of Cole Springs Branch and its tributaries were channelized in the 1950's to provide flood control and ground water drainage for the flat to gently sloping crop land through which it flows. On the TNC property, there remains about 2,300 linear feet of channelized stream. The channel is straight in alignment, uniform in depth and cross section, and lacks the pools, riffles, and variability characteristic of natural

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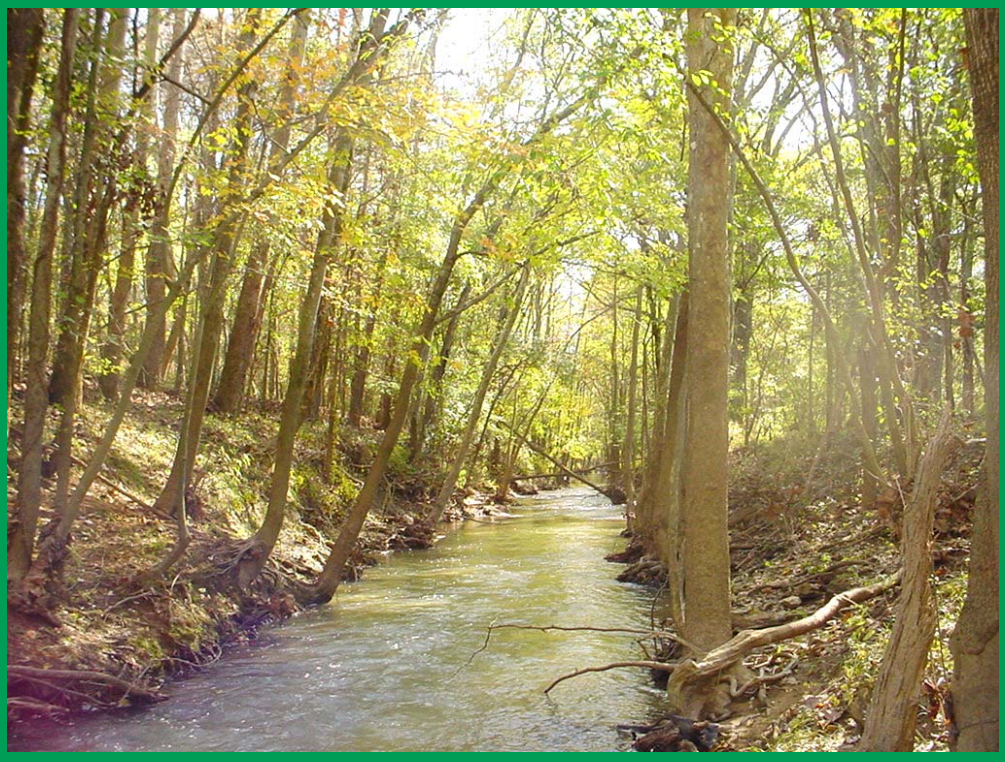
Stable natural streams exhibit established dimensions, patterns, and profiles that are characteristic of the stream type and the specific stream. One of the challenges associated with the restoration design is to determine the characteristics of the original stream and predict its stability under current watershed conditions. During the 50 or so years since the stream was channelized, urban development and other land use changes in the watershed may have resulted in modifications of runoff and sediment load. This in turn could adversely influence bank stability once flow is returned to the original channel.

Fortunately, much of the original stream channel still exists, although it is partially filled with sediment deposits and spoil from the channel excavations. Extensive surveys are needed to provide data for determining the morphology of the original stream channel. Once the morphology of the original stream is determined, it can be compared with data from other streams of the same type to predict stability under present conditions of runoff and sediment load.

Since the restored stream length will be about two and one half times the length of the channelized stream, the flow gradient will be much flatter and the flow capacity significantly less than the current capacity. This will increase flow depths in the reach immediately upstream from the restored section. Water surface profiles will be performed to determine the magnitude and extent of upstream flow changes. Accurate information can then be provided to upstream landowners who may be affected by the restoration. NRCS and TNC will work with the affected parties to resolve their concerns and provide features in the restoration design to minimize or eliminate unacceptable upstream effects.

There are many other concerns to be addressed before construction begins. For example: How much of the sediment in the old stream channel should be removed and how much should be allowed to "flush out"? Should construction be in phases over multiple years or done all at one time? How much of the channelized section should be filled? These and other concerns will be resolved as the design progresses. This will be the first project of this type to be done by NRCS in Alabama and it has already generated a great deal of interest from groups involved in environmental protection and restoration. It is sure to be a challenging and very interesting project.



The existing stream channel is straight, uniform in depth and cross section, and lacks the pools, riffles, and variability of a natural stream.

From a Problem to an Asset

by Julie A. Best, NRCS Public Affairs Specialist, Auburn, AL

Lawler Farms in Lee County, Alabama, is a purebred Angus cattle operation. Bruce Randall, the farm manager, recently turned a problem into an asset on the farm.

There was a seeping spring that created a constant wet spot near one of the pastures. The water seepage made the area muddy, unsightly, and a problem. With the assistance of NRCS and the Lee County Soil and Water Conservation District (SWCD), the spring was developed as a source of water for the cattle.

A small clay core wall was constructed below the spring head using clay from a nearby site on the farm. A perforated collection pipe enclosed within a fabric filter sock was installed into the seep area. Small stone was placed around the pipe and non-woven filter cloth was installed over the rock. This allows the water to collect and drain into the pipe. The water flows by gravity to a watering trough for the cattle. The area over the pipe and core wall was then back filled and vegetated.

After reviewing an NRCS guide, Randall opted to use a large tire as a water trough. The tire trough serves two purposes—it recycles an old tire and it serves as an excellent watering trough. The tire trough proved to be very economical. Randall estimates that a trough of comparable size would cost about $150. Once the tire was on the farm, Randall used a tractor front-end loader to move it around. He used a chain saw to enlarge the tire opening for livestock access. The bottom of the tire trough sits on a concrete slab. He seated the tire on the slab before the concrete hardened, applied a marine sealant, and then filled in around the bottom of the tire with more concrete. This made a stable trough that the cattle cannot move. The trough contains a fill pipe and an overflow pipe that is connected to a drainage pipe that carries overflow water away from the trough.

To provide a stable surface for the watering facility, a heavy-use area extends a minimum of 10 feet around all sides of the trough. The heavy use area consists of a non-woven geotextile fabric beneath a minimum of six inches of crushed stone and gravel. "The heavy use area stays very clean," says Randall. "The manure that does accumulate on the area decomposes very quickly." He says that the developed spring and the tire water trough are helping improve the water quality in the pasture. "The cows still have access to the small stream that flows through the property, but they prefer to drink water from the trough. The tire is doing all that I need it to do. It provides a dependable source of clean water. I plan to install more," says Randall.

Eddie Jolley, NRCS Conservationist Agronomist, says, "It's not uncommon for livestock to have direct access to springs as their water source, but this results in springs becoming quickly contaminated with livestock manure and turns the spring area into a mud hole. Proper spring development involves protecting both the spring and its water quality from environmental damage and contamination as well as improving livestock access to the water." Randall says, "The spring development is really paying off during dry weather. The spring-fed trough provides a good source of water during the dry season."

Before beginning a spring development project, it is important to consider:

- What water sources are available?
- How much water will they provide?
- What types of materials and equipment are required and what are the costs?
- What impacts will the development have on wetlands, threatened, or endangered species?

This is just another example of how NRCS/SWCD technical assistance and programs help farmers turn problems into assets.

Water from a seeping stream , that was diverted to a water trough created from a used tire , now provides clean, quality water for cattle.

Pros and Cons of Longleaf Pine Spacing

By: Mark J. Hainds, Research Coordinator, The Longleaf Alliance, Andalusia, AL

Initial spacing or "stocking" of planted pines is a current topic of discussion among many foresters, landowners, and wildlife managers. The best number of seedlings or trees per acre (TPA) still varies widely based upon soil productivity, objectives, ownership, and other pertinent factors.

For several decades, southern pines were planted at high rates for two primary reasons:
1. maximizing short-term volume production, or
2. inadequate regeneration methods often resulted in low survival rates. For those interested in volume production, it is important to recognize the emphasis on the "short-term." When trees are carried for longer periods of time (more than 15 years), plantings with fewer TPA will often produce as much wood as the same acre(s) planted with much higher initial stockings. For example, a landowner with 300 TPA will often have as much wood at 20 years as the landowner who planted 800 TPA. The biggest difference is the value of the resultant wood products. The 300 TPA stocking will have a lot more chip-n-saw or sawtimber, while the 800 TPA will probably be all pulpwood. Given this scenario, the landowner with the lower initial stocking will grow more dollars than the landowner with higher stocking levels.

As for the second reason—fear of planting failure (especially with longleaf)—a tremendous amount has been learned over the previous decade. If we take advantage of this knowledge, most planting failures can be avoided.

On the majority of agricultural sites, a landowner should achieve one year survival rates in excess of 80 percent on their first attempt. There are certainly exceptions to this rule. I visited one site in Geneva County that had been planted three times to longleaf pine for a total of 1,500 TPA planted. Two years after the final planting, this landowner had fewer than 20 surviving TPA. Prior to these tree plantings, this particular site received an untold number of chicken litter applications resulting in toxic concentrations of several soil nutrients. Southern pines could not grow on those soils and the initial planting rate wasn't going to change the outcome.

I have visited other sites in Autauga, Montgomery, and Escambia Counties where longleaf plantings were almost complete failures. These particular fields were low-lying sites with high water tables, heavy soils, and mottling at a few inches in depth. These sites were well suited for pitcher plants, cypress, ash, or other hardwood species, but not longleaf pine. Once again, the landowner could have spent additional dollars with a higher planting rate, but it wouldn't have affected the outcome.

If sites are chosen carefully and established protocols for site prep, planting, seedling quality, and herbaceous release are followed, success should be achieved on the first attempt. Avoid wet agricultural sites and take a soil test. Don't plant into established perennial pasture grasses. Don't plant into neutral or basic soils (soils whose pH is greater than or equal to 7.0). Also, keep an eye out for excessive concentrations of soil nutrients where landowners had cattle catch-pens/corrals or they applied chicken litter liberally.

Some of the reasons we advocate planting fewer TPA are:

1. A longer period before crown closure, thus, more herbaceous growth and more wildlife.
2. More rapid diameter growth and a shorter period of time until trees reach larger and more valuable product classes.
3. Avoidance of pulpwood thinnings on small tracts of land. While pulpwood is still relatively easy to sell on larger tracts of land, a forced thinning is oftentimes a liability to landowners with a 10 or 25 acre tract.
4. Reduced cost of establishment. It's much cheaper to purchase and plant 400 TPA than 726 TPA.

Another consideration is wood quality and resultant stumpage value. Some people worry that wood quality will suffer if the initial stocking is too low, and this does appear to be a valid concern for individual "wolf" trees or "old field" pines. However, Dr. David South of AU School of Forestry and Wildlife Science has argued persuasively that it is unlikely that landowners will see a decline in stumpage value due to increased knottiness or fewer rings per inch.

From our viewpoint, 200 TPA is sufficient, especially where the landowner is using frequent prescribed fire that should help "prune" lower branches in young longleaf stands. Owing to the more challenging nature of planting old field sites, we still recommend planting with an initial stocking of 500 TPA, but don't worry as long as the survival is better than 40 percent.

On cutover sites, many local foresters have reduced their initial planting rates from 805 TPA (6'x9') or 726 (6x10') to 545 TPA (8'x10'). On the Dixon Center, we achieve 90%+ survival so consistently that we now plant most of our longleaf tracts at 435 TPA (10'x10').

For silvopasture stockings (wood products and grazing), wide rows and stockings under 300 TPA are fairly typical. Organizations with ecological or wildlife management objectives topping their list plant as few as 200 TPA.

Dr. David South is a leading proponent of planting fewer, higher quality seedlings per acre. Much of the information in this article can be expounded upon by Dr. South (e-mail: southdb@auburn.edu, phone 334-844-1022). While The Longleaf Alliance has been promoting the planting of fewer trees per acre based upon what we are seeing in the field, Dr. South has reviewed much of the available literature summarizing the pros and cons of tree spacing.

As Dr. South may tell you, a primary factor affecting how many seedlings are planted per acre is "tradition." The forestry community tends to be fairly conservative and slow to change, even when faced with new dynamics in the marketplace or new landowner objectives that are not consistent with production forestry techniques.

In the future, when a landowner approaches you with an abiding interest in quail, aesthetics, or other wildlife species, remember this simple equation: Fewer Trees = Better Wildlife Habitat

For current information on longleaf pine or The Longleaf Alliance contact us at 12130 Dixon Center Rd., Andalusia, AL 36420, website: www.longleafalliance.org, email: hainds@alaweb.com, phone: 334-427-1029, fax: 334-427-1030.

Southeast Regional Soil Judging Contest Held at AU

NRCS employees Lawrence McGhee, Greg Brannon, Doug Clendenon, and George Martin served as judges for the SE Regional Soil Judging Contest hosted by Dr. Joey Shaw, Associate Professor and other Auburn University staff in October. Professional Soil Classifiers Association of Alabama (PSCAA) members also participated and helped sponsor a banquet for the contestants and coaches. Twelve universities participated in the contest. The North Carolina State team took first place honors, followed closely by Virginia Tech, the University of Georgia, Tennessee Tech, and the University of Kentucky. These top five teams are eligible to participate in the National Contest, which will also be hosted by Auburn University in April 2005. We want to express a special thanks to Dr. Joey Shaw and his staff for a very well run and successful event.

North Carolina State Team won the 2004 Southeast Regional Soil Judging Contest.