

# Mid-contract Management Opportunities on Conservation Reserve Program Lands

*By Wes and Leslie Burger*

## **Introduction**

In our May-June feature, entitled “Making Federal Farm Programs Work for You”, we described how Federal Farmbill conservation programs can be used to help landowners create and maintain wildlife habitat. The Conservation Reserve Program (CRP) was established under the Food Security Act (FSA) of 1985 with the purpose of assisting owners and operators of agricultural land in conserving and improving soil, water, and wildlife resources. Under the CRP, landowners voluntarily remove highly erodible land from agricultural production, establish a permanent conservation cover, and leave it out of production for a 10-15 year contract period. With a national enrollment cap of 39 million acres, the CRP has tremendous potential to create habitat on a huge scale.

The CRP has created millions of acres of habitat throughout the Midwest and Great Plains and has been credited with aiding in the recovery of some grassland songbird, prairie grouse, pheasant, and waterfowl populations. In the Southeast, the CRP has not produced the wildlife benefits observed in the Midwest, because cover plantings with poor or short-lived habitat value (for example, exotic forage grasses and loblolly pine plantations) have been widely used and active management is lacking. However, the wildlife habitat value of CRP varies greatly among regions, states, counties, and even individual farms within a county. Each individual CRP field’s wildlife value is related to the planted cover crop, stand age, management, and surrounding land use. Fortunately, even if habitat deficiencies exist, they can largely be corrected with some proactive management. Intentional management practices applied mid-way through the duration of the CRP contract — mid-contract management - can dramatically enhance wildlife habitat value. The purpose of this article is to inform landowners of available mid-contract management cost-share opportu-

nities, describe appropriate mid-contract management practices for various CRP cover plantings, and illustrate the process for modifying CRP plans to include these practices.

## **CRP in the Southeast**

As of February 2005, 3.2 million acres were enrolled in the CRP in 12 southeastern states (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, and WV). Mississippi (29%) and Alabama (15%) together accounted for nearly 45% of the total SE enrollment. Georgia, Kentucky, Tennessee, Louisiana, and South Carolina had moderate enrollments (6 - 10% of SE total), and the remaining 5 states collectively accounted for 16% of total enrollment. While most of the Midwest CRP was planted to grasses, more than 57% of CRP in the Southeast was enrolled in one of 4 tree cover practices (CP3 pine plantings, CP3a long leaf, CP3a hardwood plantings, and CP11 existing trees; Figure 1). About 19% of the total SE acreage was enrolled as CP10 existing grass, 4% in CP1 exotic forage grasses, 3% in CP2 native warm season grasses, and 12% was enrolled in various buffer practices, principally CP21 filter strips and CP22 riparian forest buffer. Given the popularity of CP3, CP11, CP1, and CP10 (much of which was previously enrolled as CP1), more than 68% of total enrollment in the Southeast is in practices that have limited or short-duration wildlife benefits.

## **Need for Mid-Contract Management**

Mid-contract management on CRP is essential for 2 reasons. First, mid-contract management can be used to control encroachment by undesirable invasive species like fescue, Bermuda grass, cogon grass, or low-quality hardwoods.

Secondly, mid-contract management is needed to maintain habitat quality over the life of the contract. Plant communities on CRP fields change in composition and structure over

the 10-year life of the contract, in a process known to ecologists as succession (see Figure 2). Annual weed communities, characterized by grasses, annual forbs, legumes, and bare ground, dominate newly established CRP fields. These annual communities are short-lived, lasting only one to two growing seasons.

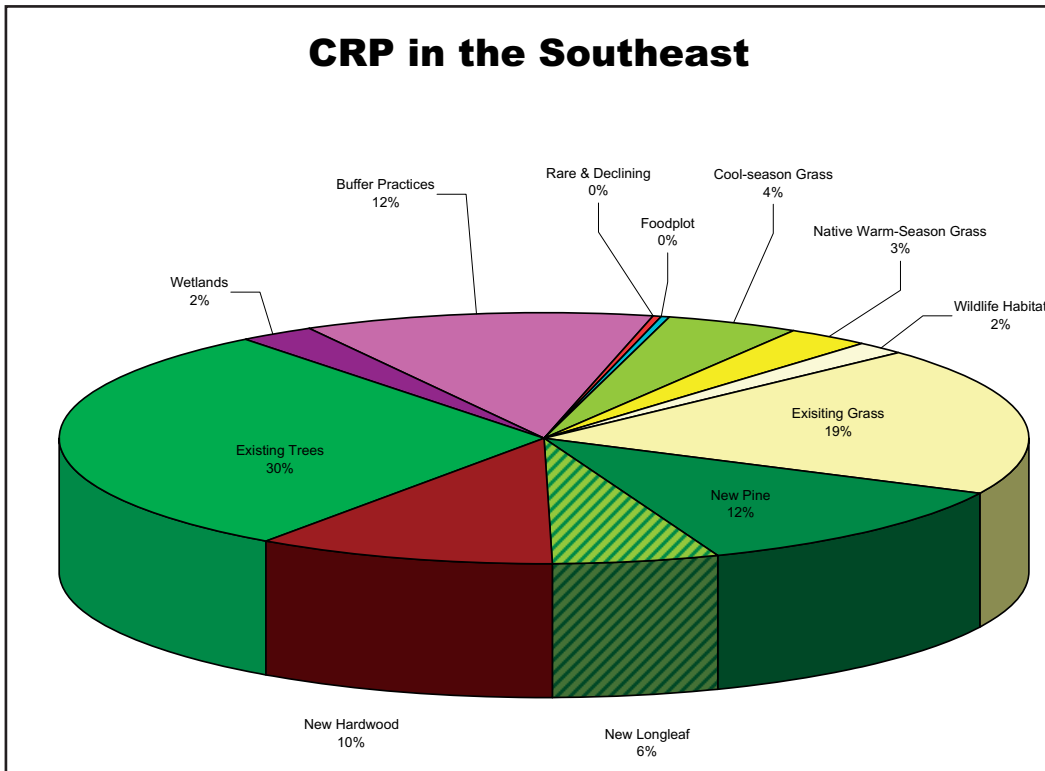
Gradually, annual plants are replaced by perennial forbs, grasses, and eventually, woody plants. These changes in vegetation composition are also accompanied by changes in vegetation structure. As the plant community ages, bare ground declines, litter accumulates, and vegetation density increases. In the Southeast, with long growing seasons, warm temperatures, and high rainfall, natural succession progresses rapidly.

Succession also occurs in CRP pine plantations (Figure 3). Herbaceous ground cover declines as the pines capture the site and close the canopy. Within 3-5 years after planting, loblolly and slash pine plantations provide little habitat for early successional wildlife. This state persists throughout the sapling and pole stage until the stand is thinned during mid-rotation. Following thinning, the canopy is opened and sunlight hits the forest floor, stimulating germination of grasses, legumes and forbs. However, if periodic disturbance is not applied, invasive shade-tolerant hardwoods, such as sweetgum and hickory, will take over, blocking out sunlight and excluding herbaceous ground cover.

Annual weed communities provide essential resources for northern bobwhite and other early successional species of wildlife in the southeastern U.S. Annual plants are prolific seed producers, providing seed-eating birds and mammals with abundant food resources. Also, annual weed communities are rich in insects that provide critical nutrients and energy for growing nestlings and chicks. As perennial communities replace annual plant communities, habitat quality



*CRP fields dominated by fescue provide low quality wildlife habitat.*



*Figure 1. Distribution of Conservation Reserve Program enrollment among various cover practices in the Southeastern US, as of February 2005.*

declines for these wildlife species. As wildlife consultants, we have repeatedly heard, "During the first couple of years after we put those bean fields in CRP, we were covered up with quail. But then they just disappeared." This is a predictable and natural response to the changing plant communities on CRP fields. Bobwhite and other early successional species can be maintained at high densities over the life of the CRP contract if planned, periodic disturbance is used to maintain essential plant communities in both grass and pine CRP stands.

### **Mid-contract Management Practices**

Following the 2002 Farm Bill, each state was required to develop a set of mid-contract management guidelines that specified the types of required and optional management practices for use on CRP during the contract period. In general, some form of management was required for contracts enrolled in signups after 2002 (general CRP signups 26 and 29) and mid-contract management was optional on contracts enrolled in previous signups. Each

state established a set of required and optional management practices for each Conservation Practice (e.g. CP1, CP2, CP10, CP11). Cost-share is available for both required and optional management practices. To learn more about approved CRP mid-contract management practices and cost-share in your state, contact your local Farm Service Agency office.

### **Grass Plantings**

Exotic forage grasses, such as Kentucky Tall Fescue, Bermuda, or bahia grass, dominate much of the CP10 (existing grass) throughout the Southeast. CRP fields planted to these sod-forming grasses have dense vegetation with little bare ground and low plant diversity. Research in Kentucky, Missouri, and Mississippi has shown that fescue stands typically provide few food resources for bobwhite and other granivorous (seed-eating) birds. Additionally, the seed and insect resources in these fields may be unavailable to ground foraging birds because of the dense vegetation structure. CRP fields revegetated through nat-

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ural succession or with planted native species may provide better wildlife habitat than those established in exotic forage grasses.

The appropriate mid-contract management practice for grasslands enrolled in CRP depends on the structure and composition of the existing plant community; not all management practices are equal. Many landowners

feel like they are “managing” when they mow their CRP. In fact, mowing or clipping is the most common management practice implemented on CRP grasslands, but it has several disadvantages for wildlife. Mowing tends to reduce vegetation height, increase litter depth, accelerate grass succession, and decrease annual weed coverage. Disking, prescribed fire, interseeding of legumes, and selective herbicide are better management practices than mowing or clipping.

In CRP fields dominated by fescue or other exotic forage grasses, prescribed fire or disking may not be enough. Andy Madison and his colleagues in Kentucky examined the effects of fall, spring, and summer disking and burning, and spring herbicide (Roundup) treatments on bobwhite brood habitat quality in fescue-dominated, idle grass fields. They reported that during the first growing season following treatment, fall disking improved brood habitat by increasing insect abundance, plant species richness, forb coverage, and bare ground. However, the benefits of disking were relatively short-lived. During the second growing season after treatment, only

plots that had been treated with herbicide provided quality brood habitat. A similar study in fescue-dominated CRP fields in Mississippi reported that disking and burning improved vegetation structure for bobwhite broods during the first growing season after treatment, but the benefits were short-lived (1 growing season).

Herbicide treatment (i.e. 2 quarts Roundup(r) per acre) in combination with prescribed fire enhanced quality of bobwhite brood habitat for the longest duration. Herbicidal

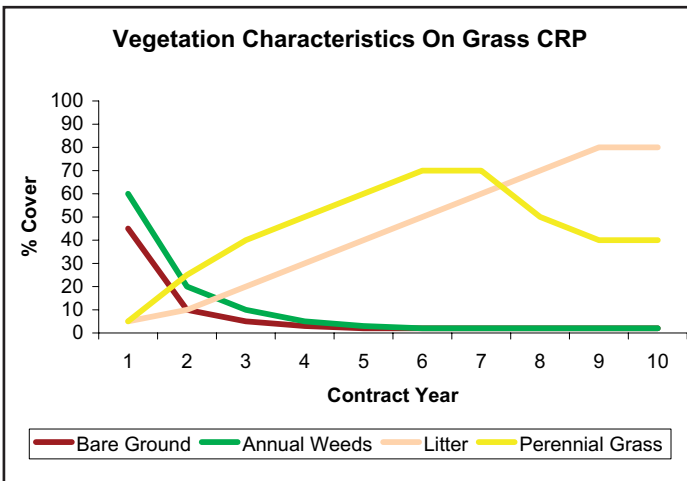


Figure 2. Changes in vegetation structure on grass CRP fields over the 10-year life of the contract.



Unmanaged CRP grassland characterized by dense broomsedge and thick accumulation of litter.

treatments to control invasive exotics or enhance wildlife habitat quality are approved mid-contract management practices on CP1, CP2, CP4, and CP10 in most southeastern states (see Table 1). However, the specific approved uses of herbicide vary among states and conservation practices. For example, in some states, herbicide can be used on CP10, but not CP1 or CP2. In other states, herbicide can be used for control of noxious weeds or invasive species, but not for whole field conversion. In a few states herbicide can be used for exotic forage grass eradication, but must be applied in a rotational strip fashion over a several year period. The specific herbicide, rate, and timing of application will differ depending on the type of exotic vegetation present. In general, fescue can be controlled with either a spring or fall application of 1.5 - 2 quarts/ac of glyphosate (Roundup(r)) or 1 - 1.5 quarts glyphosate + 11 - 33 oz Journey(r)(glyphosate + imazapic)/ac. Bermuda control will require a summer application of 16 - 22 oz imazapyr (Arsenal(r)/Chopper(r))/ac. Following herbicidal control of exotic forage grasses, the site can be naturally vegetated from the existing seedbank or native legumes and warm-season grasses can be established. Tom Barnes at the University of Kentucky has developed several fine extension publications detailing specific herbicide prescriptions for fescue, bahia, and Bermuda grass control and NWSG establishment methods. Additionally, Craig Harper at the University of Tennessee has produced an excellent landowners' guide to NWSG establishment, including herbicide prescriptions (<http://www.utextension.utk.edu/publications/pbfiles/PB1746.pdf>). Before using herbicide on



*CRP field managed with fall strip-disking provides brood habitat and nesting habitat for bobwhite.*

CRP contracts be sure to speak with your local USDA Service Center (NRCS and FSA offices) to determine approved practices and available cost-shares. Ask for a copy of the approved mid-contract management guidelines for your state. If the local USDA representative does not have this document, ask them to request a copy from the state office

In CRP fields that were planted to native warm season grasses or naturally revegetated, simply disking and/or prescribed burning can dramatically enhance habitat quality by reducing litter accumulation, creating bare ground, and stimulating germination of annual weeds and legumes. Often legumes, including partridge pea, clovers, and various lespedezas exist in the seed bank and are just waiting for the right conditions to germinate. The scarification and mineral soil provided by disking and prescribed fire create the right conditions for germination. Under these conditions prescribed fire or disking can produce a diverse plant community rich in legumes, annual weeds, and native grasses at an appropriate density for bobwhite and other early succes-



*Prescribed burning on grass CRP fields reduces litter, creates bare ground, and stimulates diverse community of native grasses, forbs, and legumes.*

sional species. However, in some locations, seed banks can be impoverished or dominated by undesirable agricultural weed species due to a history of intensive row cropping. In these circumstances, interseeding of legumes, including partridge pea, clover, or lespedeza, can substantially enhance habitat quality. Interseeding of legumes is an approved mid-contract management practice on most Conservation Practices in about 3/4 of southeastern states.

Light disking or strip-disking is an approved mid-contract management practice on CP1, CP2, CP4, and CP10 in most southeastern states. The specific manner, extent, and intensity permitted vary among states. However, across all states, the disking must be accomplished in such a manner as to not compromise the erosion controlling objectives of CRP. Rotational strip-disking on the contour is an effective way to accomplish disking without creating an erosion problem. The NRCS-WHMI has developed a publication describing rotational strip-disking. You can access this document at <http://www.whmi.nrcs.usda.gov/technical/fieldb/order.html>. Look for the publication entitled "Light Disking to Enhance Early Successional Wildlife Habitat in Grasslands and Oldfields: Wildlife Benefits and Erosion Potential".

In most Southeastern states, prescribed fire is an approved mid-contract management

practice on both grass (CP1, CP2, CP4, CP10) and pine (CP11 and CP3 longleaf) conservation practices. Prescribed fire should be applied in a rotational fashion, burning on a 2 or 3-year rotation. A 3-year rotation can be accomplished with whole field treatments, or partial field burns. A whole field rotation would be accomplished by burning 1/3 of the total number of your fields each year. Each field would then be burned every 3rd year. A partial field 3-yr rotation would be accomplished by burning 1/3 of each field, each year. This can be done in strip or block fashion. Individual burns should be 3 - 30 acres. Larger fields (> 30 acres) should be subdivided and burned in a partial field prescription.

Mid-contract management guidelines for prescribed fire vary among states. Be sure to contact your local USDA Service Center to determine approved practices in your state. In all states, prescribed burns must be conducted in accordance with NRCS practice standards and state-specific prescribed fire laws to qualify for cost-share. Although these standards and laws differ among states, in general, landowners wanting to prescribe burn should do the following things first: 1) develop a written, notarized fire prescription that details ownership, acreage, location, fuel type, purpose of burn, ignition method, weather parameters under which the burn will be conducted, control and suppression methods available on site the day of the fire, smoke management screening, and contact information for individual responsible for the fire; 2) secure a burn permit from your state Forestry Commission the day of the fire; 3) ideally have a certified prescribed burn boss on site the day of the fire; 4) execute the burn in a prudent fashion within the constraints of the parameters specified on your written burn plan.

### **CRP Pine Plantings**

Starting with CRP signup 15, participants that wanted to re-enroll CP3 pine tree plantings (as CP11) had the opportunity to increase their chance of having their bid accepted by increasing the Environmental Benefits Index (EBI) of their offer in two ways. Prospective program participants could agree to thin the pine planting within the first 3 years of the sec-

ond contract period and convert 15-20 % of the stand to early successional habitat.

Numerous studies have shown that thinning can greatly improve the wildlife habitat value of a mid-rotation (12 - 20 yr old) pine plantation, particularly for many regionally declining species such as bobwhite, Bachman's sparrow, and brown-headed nuthatch. As succession progresses in a pine stand, forage quality and bird diversity decline. Thinning during the mid-rotation period reduces pine stem density and opens the canopy, allowing sunlight to reach the forest floor and a rich herbaceous ground cover to develop. However, it also facilitates invasion by some hardwoods, such as sweetgum. In the absence of any further management, thinned pine plantations will develop a dense midstory of hardwood brush that excludes the herbaceous ground cover and diminishes wildlife habitat quality.

Selective herbicide (impazapyr) used in conjunction with prescribed fire will control invasive hardwoods and encourage a lush ground cover of native grasses, forbs, and legumes. The combination of selective herbicide (Arsenal(r)) and fire is called Quality Vegetation Management (QVM). In most southeastern states, prescribed fire, disking, and herbicidal control of invasive species (including hardwoods) are

cost-shared mid-contract management practices on CP11 pine. Studies of Mississippi bird communities in thinned mid-rotation pine plantations have demonstrated that species including bobwhite, brown-headed nuthatch, Bachman's sparrow, indigo bunting, and eastern wood pewee were more abundant in stands treated with Arsenal(r) and fire. QVM also enhances deer habitat quality, providing 4 times more herbaceous and understory leaf biomass, 5 times more digestible proteins, and 38 times more carrying capacity for white-tailed deer in a

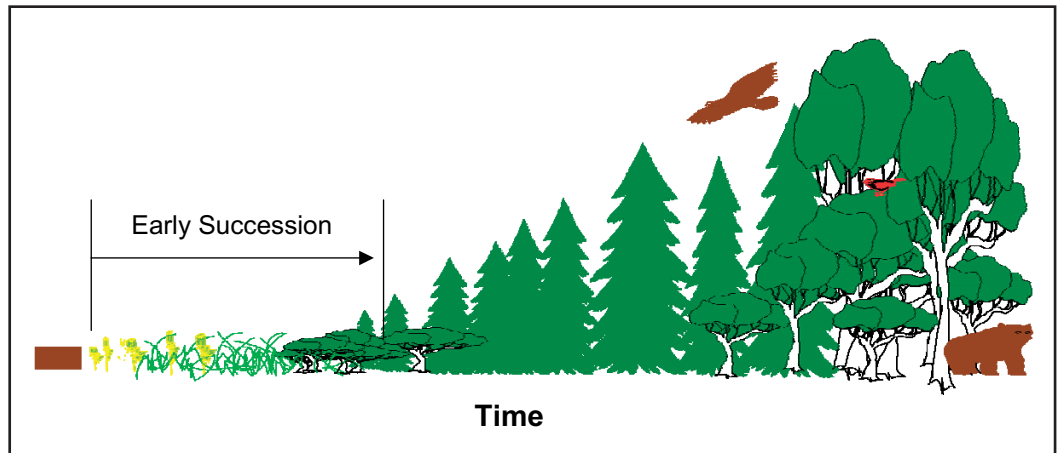


Figure 3. Illustration of ecological succession.



Unthinned, closed canopy CRP pine plantation provides poor habitat for bobwhite and other wildlife.



*Thinned CRP pine plantation managed with selective herbicide and prescribed fire provides excellent habitat for bobwhite.*

Mississippi research area.

### **Practice Standards**

To encourage and assist land owner/operators with conducting mid-contract management on CRP land, cost-share assistance has been available for both new and existing contracts since February 2004. Cost-shares vary among states, but are typically 50% of actual costs of implementing the practice, up to some maximum per acre amount. For example, in Mississippi, light disking is cost-shared at 50% of cost up to \$9/ac, prescribed fire is 50% of cost up to \$10/ac, and herbicide is 50% of cost up to \$50/ac. There is a cap of \$100/ac total mid-contract management cost-share over the life of the contract. However, because few landowners are aware of the availability of this cost-share, participation has been relatively light.

To apply any mid-contract management practices on CRP and receive the cost-share, contract holder must modify their CRP Conservation Plan of Operation (CPO). This requires visiting the USDA County Service

Center (NRCS and FSA offices), describing to the FSA personnel the management practices you wish to apply, and developing a written prescription and schedule of activities. This prescription and schedule will be incorporated into your contract CPO. Mid-contract management practices must be conducted outside the primary nesting season (varies from state to state, but typically runs from April - August). The FSA personnel will involve the NRCS District Conservationist to provide technical guidance in developing an approved CPO.

All mid-contract management practices must be conducted in accordance with NRCS National Practice Standards. NRCS has developed practice standards for every approved management activity. These practice standards detail the manner and circumstances under which the practice can be applied. See <http://www.nrcs.usda.gov/technical/Standards/nhcp.html> for information on NRCS National Practice Standards. Each state has developed a state-specific version of the national practice standard for each management practice. You can see your state-specific practice standards on the USDA-NRCS Electronic Field Office Technical Guide (eFOTG) at <http://www.nrcs.usda.gov/technical/efotg/>. Additionally, the USDA-NRCS office in your county will have a hard copy of the national and state FOTG. You will be more likely to achieve your wildlife habitat objectives if, early in the process, you involve a competent wildlife biologist who is knowledgeable of federal farm programs. Many states have NRCS area biologists



that can work with you to develop a sound plan. Additionally, state natural resource management agency biologists may be able to provide this technical assistance. Increasingly, private consultant wildlife biologists are available that understand how these programs work and can provide sound technical assistance.

### Summary

In the Southeast we have more than 3.2 million acres of CRP. Often these lands are not achieving their wildlife habitat potential. This is primarily attributable to selection of poor cover crops and lack of active management. However, excellent wildlife habitat can be produced on these acres with planned periodic disturbance. USDA mid-contract management guidelines provide the opportunity and financial assistance for CRP contract holders to dramatically enhance habitat quality on lands enrolled in CRP. Look into mid-contract management options in your state and start achieving the wildlife habitat potential inherent in your CRP lands.

**Wes Burger** is a Professor of Wildlife Ecology in the Department of Wildlife and Fisheries at Mississippi State University. Wes received a dual major B.S. in Biology and Mathematics from Murray State University and a M.S. and Ph.D. in Wildlife Biology from University of Missouri-Columbia. His research interests include bobwhite population ecology, impacts of federal farm programs on wildlife populations and response of early successional bird species to forest and agricultural management regimes.

**Leslie Burger** has B.S. and M.S. degrees in Biology from Murray State University and University of Missouri, respectively. She has conducted field research from the Galapagos Islands to Hudson Bay, and several places in between. She has held professional positions with the Missouri Department of Conservation as an assistant research biologist and Vertebrate Ecologist. She currently works full time home schooling the Burger's three sons.

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