

# Creating Wildlife Habitat Through Federal Farm Programs: An Objective-Driven Approach

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## Abstract

*Conservation programs administered by the United States Department of Agriculture under the Farm Bill have tremendous potential to impact wildlife habitat and populations on private land. Recent comprehensive reviews demonstrate that private landowners who participate in these programs have established habitats that may contribute to sustaining some regional wildlife populations. However, I argue that if Farm Bill conservation program lands are to consistently provide habitat that supports viable wildlife populations, conservation planners must have a better understanding of species-specific habitat requirements and ecological processes. Concomitantly, wildlife biologists also must have a working knowledge of the conservation programs, practices, and landowner needs and eligibility requirements. This understanding is then translated to changes on the landscape through comprehensive planning and implementation at the farm scale. I argue that, all too often, landowner's selection of conservation practices is program-driven. Program-driven implementation is less likely to result in quality wildlife habitat. I contend that the consistent application of an objective-driven approach to farm-scale conservation planning is more likely to produce habitats that sustain viable wildlife populations. Under this approach, landowner conservation objectives drive management practices and management practices lead to program selection, instead of program requirements driving management practices. (WILDLIFE SOCIETY BULLETIN 34(4):994-999; 2006)*

## Key words

*conservation planning, Conservation Reserve Program, Farm Bill, objective-driven, private land, wildlife habitat.*

The future of wildlife populations in America is in the hands of private individuals who own and manage forest, agricultural, and range lands to produce a myriad of goods, services, and intangible values. Approximately 71% of the contiguous lower 48 states are in nonfederal, rural land use. This nearly 566.6-million-ha land mass is largely held by nonindustrial private landowners and is composed primarily of forestland, cropland, rangeland, and pasture or hayland (United States Department of Agriculture [USDA] 2003a).

Land use in America is dynamic and constantly shifting between alternative uses; however, lands lost to development are seldom returned to production of renewable natural resources. Between 1982 and 2002, approximately 21.02 million ha of cropland and 13.4 million ha of grazing land were converted to urban, developed, and other land uses (USDA 2003a). As rural lands have been converted to other uses, commodity production on remaining lands has increased through greater efficiency or intensification. As an example, Green et al. (2005) reported that global increases in food crop yield per unit area have been achieved through increases in land under irrigation and use of nitrogenous and phosphate fertilizers and pesticides (Green et al. 2005). In the United States, agricultural intensification continues and natural communities, such as the mid-grass prairie (Johnson 2005) continue to be lost to agricultural production, to the detriment of wildlife populations (Peterjohn 2003).

Agricultural land use is influenced by technology, markets, information, experience, agricultural policy (regulations and incentives), and producer and societal values. Producers incur the costs of wildlife production and may find it

difficult to profit from these actions that benefit the larger society (USDA 2003b, Burger et al. 2006). Individuals who own and manage these lands most often have priorities that revolve around producing products to generate financial returns to sustain their livelihood. However, the manner in which these lands are used and conserved will determine if we, as a nation, meet societal objectives for natural resources conservation and environmental quality (USDA 2003a). Healthy and sustainable wildlife populations are an essential component of environmental quality that we, as individuals and as a society, value (Duda et al. 1998). Large-scale wildlife conservation will require integration of cost-effective and sustainable conservation practices into mainstream agricultural production systems (Peterjohn 2003, Burger et al. 2006). Thus, I maintain that the future viability of wildlife populations in the United States is inextricably linked to the land-use decisions of these private landowners.

## Farm Bill Wildlife Conservation Successes

Federal Farm Bill conservation programs provide a suite of policy tools that provide economic incentives for producers to integrate conservation practices into production systems. In 2000 the Natural Resources Conservation Service (NRCS), Wildlife Habitat Management Institute issued a report entitled *A Comprehensive Review of Farm Bill Contributions to Wildlife Conservation* (Heard et al. 2000). This report summarized much of the published scientific reports of conservation benefits of USDA conservation programs such as Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Environmental Quality Incentives Program, (EQIP), and Wildlife Habitat Incentives Program (WHIP). In 2005, an update to this report, entitled *Fish and Wildlife Benefits of Farm Bill Conservation*

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*Programs 2000–2005*, was completed as part of the USDA-NRCS Conservation Effects Assessment Program. Collectively, these reports documented that lands enrolled in federal conservation programs created substantial wildlife habitats that contributed to the maintenance or increase of some regional wildlife populations. The best-documented benefits occurred on CRP lands in the Midwest and Great Plains regions. Waterfowl, game birds, and grassland songbirds are among the suites of species that have most benefited from the CRP (Reynolds 2005). Conservation benefits of other programs (i.e., WHIP, EQIP, WRP, Grasslands Reserve Program, Conservation Security Program [CSP], etc.) are presumed but less well-documented than CRP (Heard et al. 2000, Haufler 2005).

## Farm Bill Wildlife Conservation Failures

Although substantive wildlife benefits of Farm Bill conservation programs have been documented, millions of hectares of CRP do not provide quality wildlife habitat because of cover-crop selection or management regimes (Burger 2005, Rodgers 2005). The establishment of exotic forage grasses (Burger 2005), planting of off-site species (Rodgers 2005), and failure to consider ecological type and processes (Bidwell and Engle 2005) on conservation program lands has limited the wildlife habitat value and, in some cases, may have exacerbated regional declines in focal species. For example, Burger (2005) reported that more than 309,000 ha (23%) of CRP in the southeastern United States was enrolled in the exotic forage grass practice (Conservation Practice [CP] 1) or existing grasses (CP10), much of which was reenrolled CP1. Barnes et al. (1995) reported that grasslands dominated by exotic forage grasses such as fescue (*Festuca* spp.) do not provide suitable habitat for northern bobwhite (*Colinus virginianus*) and management regimes that involve disturbance, but not eradication, only produce marginal habitat improvements (Washburn et al. 2000, Greenfield et al. 2002). McCoy et al. (2001) documented successional changes in vegetation structure on CRP fields in Missouri over the 10-year life of the contract and reported that lack of appropriate disturbance regimes or application of inappropriate disturbance (mowing) diminished habitat quality for many early successional and grassland bird species. Although grassland birds are one of the suites of species that have shown positive response to CRP, establishment or encroachment of trees due to lack of management on CRP fields in Kansas (Rodgers 2005) and Oklahoma (Bidwell and Engle 2005) have threatened habitat quality for many grassland bird species. Collectively, these examples illustrate large-scale situations in which federal farm conservation programs do not achieve their wildlife habitat potential.

## Reasons for Failures

I argue that simply enrolling land in a conservation program and establishing a prescribed cover does not equate to wildlife habitat. The value of conservation program lands as wildlife habitat varies spatially, temporally, and among

species as a function of the size and shape of enrolled parcels, cover crop selected, the management regime imposed, and the landscape context in which the tract occurs (Bidwell and Engle 2005, Burger 2005, Clark and Reeder 2005, Farrand and Ryan 2005, Johnson 2005, Rodgers 2005). Despite overall conservation benefits of programs such as the CRP, Farm Bill conservation programs have not produced the wildlife benefits that they might have with more deliberate attention to program design and delivery (Burger 2000, 2005, Burger et al. 2006).

I contend that the failure of Farm Bill conservation programs to optimize wildlife benefits is an artifact of how the programs are designed and delivered across a range of organizational levels. Conservation programs will produce diminished wildlife benefits if wildlife habitat is not a programmatic or statutory objective of the federal program. This was illustrated in the CRP provision of the 1985 Food Security Act. Wildlife habitat benefits were expected, but soil erosion and commodity control were the statutory objectives and wildlife benefits were more ancillary or incidental than planned. As such, cover-crop options and management regimes were based more on soil erosion than wildlife criteria. Consequently, millions of ha were established in plantings of exotic forage grasses that produced minimal wildlife benefits (Burger 2005, Rodgers 2005). Wildlife habitat and associated populations are a societal benefit that should be explicitly identified in the statutory language of conservation programs. Statutory language establishes the programmatic objectives and national policies (rules) establish the sideboards within which conservation programs may operate at the state and local level.

Even when wildlife habitat is a statutorily stated goal, conservation programs may fail to produce wildlife benefits at regional and local levels because of state and local program adoption and delivery. Adoption and delivery of programmatic elements and practices tend to vary at the USDA state and local office level and may effectively limit wildlife benefits of a program within an individual state. As an illustration, Illinois, Iowa, and Kansas all have similar amounts of cropland (10–11.7-million ha; USDA 2000) and identical CP33 allocations (8,094 ha; Farm Service Agency [FSA] 2004); however, as of May 2006, Kansas and Illinois had fully enrolled their CP33 acreage, whereas Iowa has enrolled only 55% (FSA 2006). Similarly, approximately 34% of the Mississippi Alluvial Valley physiographic region occurs in each of Louisiana and Arkansas. However, Louisiana accounts for 50% of the total enrollment in the CP31–Bottomland Hardwood Tree practice, whereas Arkansas has only 13.3% of total enrollment (FSA 2006). This variation in participation among states within a region is at least partly attributable to state-specific priorities, adoption, and implementation of the federal program and illustrates the effect of state-level policies on wildlife habitat potential.

Even when wildlife benefits are a statutory objective of the federal program and state offices adopt an effective set of practices and practice standards, conservation programs may not produce wildlife habitat because delivery is ineffectual at

the local county USDA Service Center level. United States Department of Agriculture conservation programs will consistently produce quality wildlife habitat only when wildlife is a statutory objective, state USDA offices adopt a sound set of practices, and delivery at the local level is effective.

## **An Evolving Program**

Federal Farm Bill conservation programs have evolved over the past 2 decades, and wildlife habitat has become a more prominent programmatic goal with each successive Farm Act. In the 1996 and 2002 Farm Bills, wildlife was elevated to coequal status with other objectives of the CRP, providing statutory justification for development and delivery of conservation practices explicitly designed to enhance wildlife habitat quality.

Additionally, as state wildlife resource agencies have forged cooperative working relationships with USDA Farm Service Agency (FSA) and NRCS state offices, state-level adoption of federal programs have become better tailored to address state and regional wildlife conservation concerns. State NRCS technical committees have provided a venue for communication among stakeholders and have contributed to more effective policy at the state office level. However, challenges in effectively delivering conservation programs at the local level persist and have been exacerbated by the burgeoning work load of delivering numerous conservation programs (i.e., CRP, WRP, EQIP, WHIP, and CSP) addressing a myriad of conservation objectives (i.e., water quality, soil erosion, wildlife habitat, etc). Much of the technical assistance work load associated with program delivery falls to local NRCS district conservation staff and biologists.

## **Conservation Program Delivery**

### ***Natural Resources Conservation Service's Role***

The NRCS is the agency within USDA that is tasked with providing technical assistance to private landowners who voluntarily participate in conservation programs. The NRCS provides technical assistance for programs administered by NRCS (i.e., WHIP, EQIP, CSP, WRP) as well as some of the programs administered by FSA (i.e., CRP). This assistance is very influential in determining the practices ultimately implemented. Missouri CRP participants stated that NRCS recommendations were the most important factor influencing selection of established Conservation Practices (Kurzejeski et al. 1992). However, CRP participants were largely uninformed of additional state-supported incentives for establishing wildlife-friendly cover plantings (CP4) on CRP (Kurzejeski et al. 1992). As such, adoption of these practices was limited. Similarly, Esseks and Kraft (1989) reported that the number of visits to the county Agricultural Stabilization and Conservation Service (now FSA) office was the most important factor affecting the landowner's level of knowledge of CRP. More recently, Allen and Vandever (2003) reported that 73% of respondents felt that USDA furnished an appropriate level of

consideration for wildlife in CRP enrollments and 82% felt they were provided an appropriate amount of assistance in regard to wildlife habitat. However, 38% of respondents felt they had been only partially informed about why specific CRP management practices were required to maintain or improve wildlife habitat and 7% alleged they had not been informed about these requirements at all (Allen and Vandever 2003). I argue that the quality and kind of conservation technical assistance provided in county USDA Services Centers will have strong bearing on the future viability of wildlife populations in agricultural landscapes. Workloads associated with program delivery and personnel availability will influence the amount of effort county personnel are able to allocate to conservation planning.

### ***Conservation Planning***

Comprehensive conservation planning is a core component of the NRCS mission (NRCS 2005). The agency is committed to providing technical assistance based on sound science and suited to producer's specific needs (NRCS 2006). Through the Conservation Technical Assistance program, NRCS provides conservation technical assistance to land-users, communities, and governmental agencies in planning and implementing conservation systems.

In 1995 NRCS instituted an ecosystem-based approach to technical assistance for the management of natural resources (NRCS 1995). The objective of this directive was to provide ecosystem-based assistance to help individuals and entities improve ecosystem health, restore damaged ecosystems, and sustain natural resources (NRCS 1994). Wildlife resources are an important component of agricultural ecosystems and wildlife conservation currently is a statutory objective of numerous USDA conservation programs. As such, wildlife conservation is now an integral component of NRCS natural resource conservation planning.

The ecosystem-based approach to natural resource technical assistance is predicated on the knowledge that ecosystems are hierarchical, complex, and dynamic (NRCS 1995). Increasingly, ecologists, wildlife biologists, and natural resource planners must understand that the health of local wildlife populations, communities, and ecosystems is influenced not only by local environmental conditions and land use, but also by the structure and composition of the landscape at larger spatial scales. As such, maintenance of viable populations of many species requires conservation planning at the watershed, region, or continental scale.

In recognition of the scale-dependent nature of conservation planning, the NRCS Watershed Science and Wildlife Habitat Management Institutes recently published and distributed *Conservation Corridor Planning at the Landscape Level: Managing for Wildlife Habitat, Part 613 National Biological Handbook* (NRCS 2004). The Corridor Manual provides an overview of principles of landscape ecology and illustrates how these principles can be applied to conservation planning at watershed and larger spatial scales. This document was produced as a training tool to equip NRCS personnel in large-scale conservation planning. However, the success of any area-wide conservation planning process is

ultimately a function of the success of planning and implementation of conservation practices at the farm scale. The objective of this publication is to suggest a philosophical framework in which wildlife conservation technical assistance is provided at the farm level.

Ensuring that conservation systems provide wildlife habitat and support viable populations requires an understanding of the habitat requirements of the focal species, assemblages, or communities and the ecological processes that create and maintain desired plant communities. To effectively integrate wildlife habitat into conservation plans, I argue that resource planners must have an operational understanding of key ecological principles including, but not limited to, life-history characteristics, seasonally varying habitat requirements, natural succession, hydrology, disturbance regimes, and landscape-level processes. This understanding is then translated into changes on the landscape through comprehensive planning and implementation at the farm scale, within the context of the larger landscape (watershed, physiographic region, etc). The NRCS National Planning Procedures Handbook (NPPH; NRCS 2003) characterizes conservation planning as a 9-step process, preceded by preplanning activities and followed by post-implementation evaluation. The planning process involves identifying resource concerns, documenting resource conditions, understanding landowner objectives, defining management alternatives, development of a conservation management system, implementation, and evaluation. The Conservation Corridor Handbook illustrates this process for area-wide planning.

### ***Objective-Driven Versus Program-Driven Conservation Planning***

I contend that the reality of conservation planning at the field-office level and the adoption of practices by producers differs dramatically from that described above. Frequently in implementation of Farm Bill conservation programs, selection of conservation practices is program-driven. That is, the landowner decides to enroll in a specific program and then management practices are driven by the requirements of that program. These management practices may or may not meet his or her stated or unstated objectives; they are simply required by the program in which he or she has elected to enroll.

I believe there are a number of reasons why a program-driven approach often is employed by producers or landowners. First, they may not have clearly defined or be able to articulate their conservation objectives. Second, producers may lack an understanding of the range of programmatic options and conservation practices available. Third, NRCS field-office personnel may be brought into the planning process only after a program enrollment is under way. Fourth, field-office personnel may be so overwhelmed with the workload associated with program delivery that they are able to invest little time in conservation planning. Fifth, to accomplish delivery of programs during brief sign-up periods, field-office personnel may simply recommend simplistic prescriptions using “canned” templates instead of

developing prescriptions that accomplish producer objectives. Finally, field-office personnel may lack the technical knowledge necessary to formulate sound conservation plans that address the producer’s resource concerns.

The NPPH and the Corridor Manual provide a clear alternative to this program-driven approach. Using this process, the producer’s or client’s objectives are clearly defined, an alternative landscape that meets the objectives is visualized, the management practices required to produce this landscape are identified, and programs under which these practices can be implemented are selected. Often a given management practice or cover planting can be established under more than one program. However, the various programs may differ in their eligibility requirements, cost-share, incentive payments, or duration. In many cases conservation practices from multiple programs are required to meet objectives. Alternative plans under which the same practices are implemented using different programs allow the producer to optimize his or her economic as well as conservation objectives. Under this approach objectives drive management practices and management practices lead to program selection, instead of program requirements driving management practices.

Clearly, objective-driven planning is much more complex and time-consuming than simply signing up for a conservation program and planting the required cover crop. However, this approach is consistent with NRCS’s commitment to ecosystem-based assistance, it follows NRCS’s planning procedure, and it produces the additional benefits of providing quality wildlife habitat, improving overall local environmental quality, maximizing financial incentives, and achieving producer objectives. Moreover, consistent implementation of objective-driven selection of conservation programs and practices is more likely to fulfill the statutory objectives of wildlife habitat enhancement for Farm Bill conservation programs.

### ***Program Delivery***

Delivery of Farm Bill conservation programs through an objective-driven approach will require a level of technical competence in wildlife biology that may not currently exist at the field-office level. All NRCS district conservationists have formal training and technical expertise in some resource conservation discipline. However, this expertise often is in soil science, agronomy, or range management. To be effective, district conservationists or other resource planners involved in program planning and delivery of USDA conservation programs need an understanding of basic wildlife ecology. Conversely, wildlife biologists working with agricultural producers need a thorough understanding of federal farm programs and the NRCS planning process.

I argue the key to delivering Farm Bill conservation programs in a manner that consistently produces wildlife benefits is to bring wildlife expertise to the planning and delivery process at the local level. Nationally, NRCS has about 150 wildlife biologists on staff. With approximately 3,140 counties nation-wide, these 150 biologists cannot

possibly be involved in all the program planning and delivery that occurs at the local level. Increasing the wildlife benefits of these programs will require innovative solutions. Effective conservation planning may require teams of resource professionals that bring the desired set of skills to the planning table.

Creative solutions may involve partnerships between NRCS, state wildlife agencies, and nongovernmental organizations, such as Ducks Unlimited, Pheasants Forever, Quail Unlimited, and the National Wild Turkey Federation. As NRCS continues to face limited staffing levels due to insufficient technical assistance funding, wildlife biologists on joint appointments between NRCS and state wildlife agencies can help to address both work-load and technical-expertise needs. This model has been effective in Missouri and Kentucky. There is a growing opportunity to develop cooperative agreements through Technical Service Provider (TSP) arrangements or contributory agreements. As an illustration, in Ohio and elsewhere, Pheasants Forever has positioned Farm Bill Biologists in USDA Service centers through both contributory agreements and TSP arrangements. The NRCS, at the national level, is committed to cooperative conservation (NRCS 2006). State wildlife agencies need to proactively pursue such cooperative arrangements. This will require that these wildlife agencies recognize the conservation potential within the Farm Bill and develop effective working relationships with state NRCS offices from the State Conservationist level down to the local county office.

## Summary

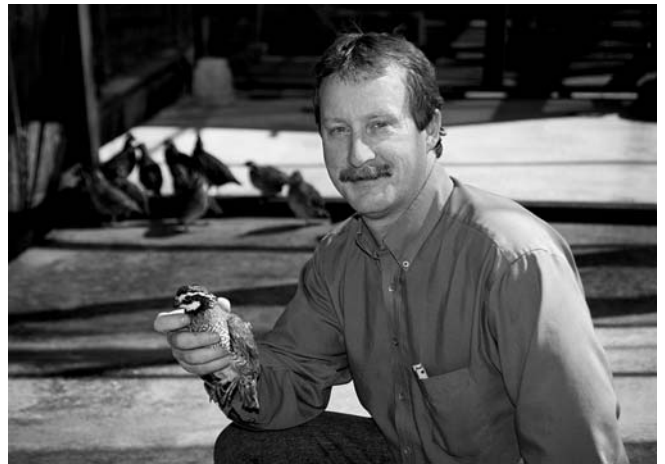
Farm Bill conservation programs have tremendous potential to create and maintain wildlife habitat and populations in agricultural landscapes. However, habitat quality produced by these programs has varied regionally and temporally, sometimes to the detriment of wildlife populations. Effective delivery at the field-office level is critical to

ensuring that conservation programs achieve wildlife conservation objectives. Program-driven selection of conservation practices is unlikely to produce quality wildlife habitat, achieve landowner objectives, or accomplish statutory program goals. This paper presents an alternative, objective-driven approach to farm-scale conservation planning, based on the NRCS planning model. Under this approach, landowner objectives drive management practices and management practices lead to program selection, instead of program requirements driving management practices. Successful implementation of objective-driven planning requires an understanding on the part of conservation planners of the habitat requirements of the focal species or communities. Similarly, it requires an operational understanding on the part of wildlife biologists of the eligible practices within programs. This understanding is then translated to changes on the landscape through comprehensive planning and implementation at the farm scale. The planning process outlined in this article is not new. In fact, it originated with NRCS and is institutionalized within NRCS training, policy, and procedures. However, there often is a breakdown at the local level in implementation of this process for wildlife conservation planning. I suggest that this breakdown is partially attributable to insufficient staffing and technical wildlife expertise at the local county level. Effective conservation planning that incorporates wildlife habitat needs and is consistent with NRCS planning procedures may require additional expertise and staffing at the USDA Farm Service Center field-office level. Technical Service Provider arrangements and contributory agreements may provide mechanisms to infuse needed assistance in the planning process. There are increasing opportunities to develop such arrangements; however, the success of these ventures will require building effective working relationships between state wildlife agencies, non-governmental organizations, and NRCS.

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*Special Section Associate Editor: Gray.*