



## Nebraska's Focus on Pheasants 2011-2021

### 1. Executive Summary

The Focus on Pheasants initiative began in 2002 as a partnership among Nebraska Game & Parks Commission (NGPC), Pheasants Forever, and the Nebraska office of the United States Department of Agriculture. The Focus on Pheasants initiative was in response to continued statewide declines in pheasant abundance and sought to deliver tangible benefits to the greatest number of pheasant hunters and maximize educational opportunities for landowners and stakeholders regarding pheasant habitat needs. Between 2002 and 2007, Focus on Pheasants activities, not including those conducted by local Pheasants Forever chapters, have impacted over 45,000 acres at a cost of \$1.3 million and requiring 16,875 person-hours (**Figure 1**).

This revision of the Focus on Pheasants plan seeks to further build on this foundation by:

- 1) Creating new focus areas and customized incentive programs to promote habitat improvements,
- 2) Coordinating with biologists hired under Pheasant Forever's *Reload Nebraska* program (see below) to maximize effectiveness of habitat program delivery within focus areas,
- 3) Increasing youth pheasant hunting opportunities, and measuring the efficacy of using pen-raised birds in accomplishing this goal
- 4) Continuing research on the amount of habitat necessary to establish and maintain a huntable number of pheasants, and
- 5) Securing additional pheasant habitat through USDA conservation programs

Similar to the 2002 plan, the goal of the revised plan is to improve satisfaction for the greatest number of wild pheasant hunters over the next 10 years, while maximizing the educational opportunities for landowners and other stakeholders regarding the habitat needs of pheasants. The plan will also ensure that the improvements to hunter satisfaction are delivered in the most efficient and effective ways possible. Special attention will be directed towards ensuring that high abundance populations remain strong and the magnitude of natural population fluctuations is minimized.

Pheasants Forever's *Reload Nebraska* initiative will be integral to implementation of the plan, which will put more Farm Bill Wildlife Biologists on the ground to provide "one-stop-shopping" for landowners interested in conservation programs. *Reload Nebraska* will attempt to establish and improve 1.1 million acres in Nebraska, establish a landowner stewardship fund to improve existing habitat, deliver a conservation plan to every Nebraska landowner in the pheasant range, and expand opportunities for training and education.

Evaluation of the effectiveness and efficiency of the habitat management activities and incentive programs will also be strongly emphasized. Among the first steps will be the determination of manageable components of hunter satisfaction, and measuring the costs and benefits of improving hunter satisfaction.

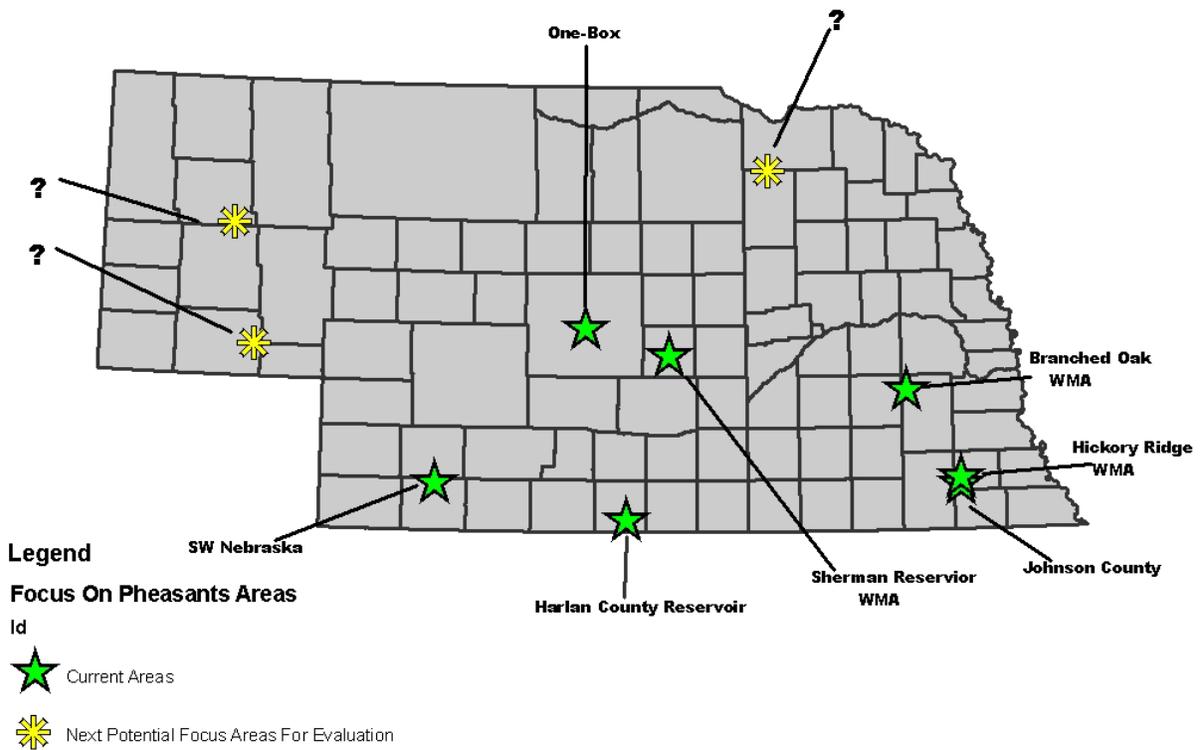
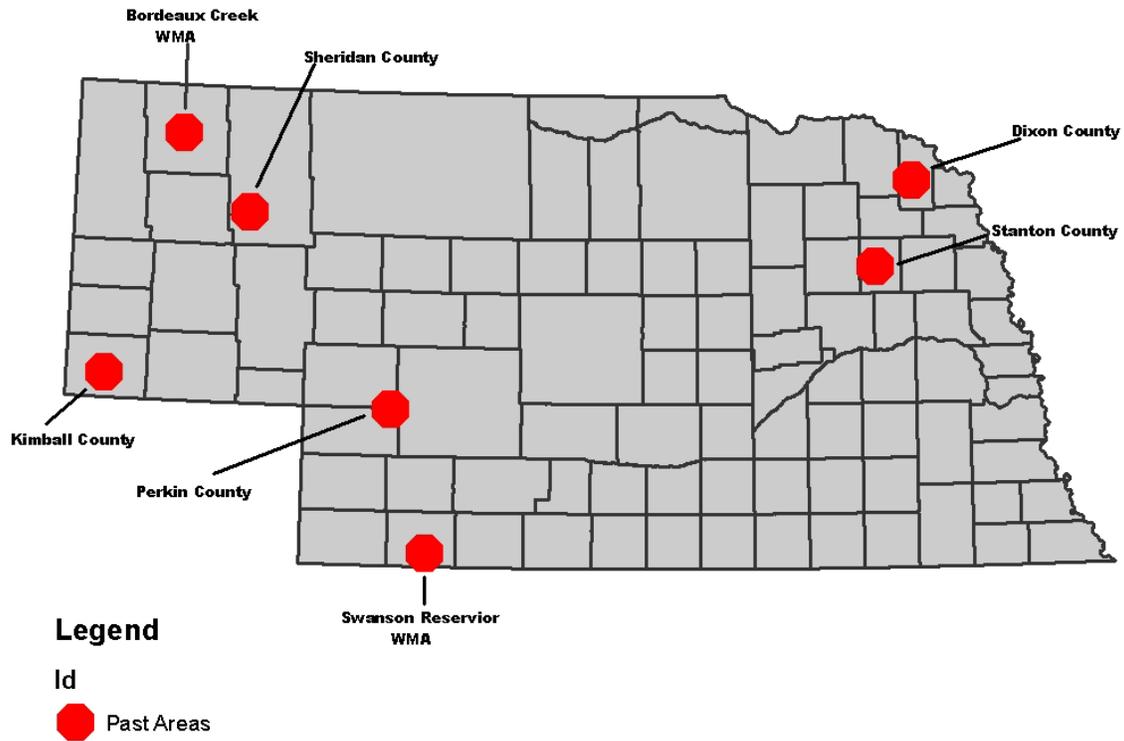


Figure 1. Past Focus on Pheasants Focus Areas (above), and current and potential future focus areas (below). Potential focus areas have not been evaluated yet for suitability.

## 2. Pheasants in Nebraska: An Overview

The ring-necked pheasant's tenure in Nebraska has recently surpassed the century mark, with the first reports of the species occurring around 1900 (Mathison and Mathison 1960). In its first hundred years of residency, the pheasant has become one of the most recognizable and culturally important wildlife species to the state's citizens. Communities throughout rural Nebraska have enjoyed the economic and social activity associated with pheasant hunting since the 1920s, and perhaps no other event has intermingled rural and urban Nebraskans (as well as those from other states) together as effectively as the opening day of pheasant season.

The cultural traditions surrounding pheasant hunting were forged during the peak of pheasant abundance in the state. Following their introduction into the state in the early 1900s, pheasant numbers apparently reached their zenith in the late 1940s, and have generally declined since. Pheasants harvested and hunter numbers have followed this same trend (**Figure 2**), and the benefits to rural communities generated by pheasant hunting have also been greatly reduced.

Although weather events and fluctuations in the distribution and abundance of predators have no doubt influenced this downward trend in pheasant numbers, there is little doubt that changes in land use practices have had more impact on pheasant populations than any other set of factors. During the period of peak pheasant abundance in the 1940s and 1950s, diverse agricultural operations were the norm, with each operation often consisting of small fields of grain and hay crops interspersed with pasture and idle ground (Taylor et al. 1978). This production system generated, by happy accident, nearly perfect conditions for sustaining high pheasant densities, providing good nesting, brood-rearing, escape, and winter habitats within close proximity. Currently, only parts of southwest and south-central Nebraska, as well as parts of the Panhandle, approximate these habitat configurations.

However, as agricultural technology advanced and markets became more globalized over time, land uses within the pheasant range became more efficient and less diverse. Field sizes grew, idle land became scarce, and weed control became more effective. Wheat, which once provided important pheasant nesting habitat throughout Nebraska's farmlands, has become much less common (**Figure 3**). As a result, pheasants are no longer a reliable by-product of cropland agriculture, and their numbers have predictably declined (Taylor et al. 1978). Clearly, the circumstances that once supported high pheasant densities have all but disappeared in today's agricultural landscapes.

If pheasants are to become abundant again, active management will be necessary. In most cases, direct economic gain derived from acres devoted to providing pheasant habitat will be reduced, so the ability to offer attractive incentives (financial or otherwise) to landowners in exchange for creating and managing habitat is critical. The most abundant and well-known sources of incentives are the U.S. Department of Agriculture's (USDA) conservation programs, which provide wildlife benefits on hundreds of thousands of privately owned acres in Nebraska each year. It has long been recognized that these programs (most notably, the current Conservation Reserve Program [CRP]) are the only government-derived incentives funded at a sufficient level to improve habitat (and thus pheasant populations) at regional and statewide scales for a relatively long-term period. The NGPC's traditional role in these programs has been to provide technical assistance to congressional and USDA staff during program development and implementation, and to help promote desirable program options to landowners. More recently, in partnership with organizations such as Pheasants Forever and NRCS, NGPC has been

providing direct technical assistance to landowners interested in habitat management for pheasants and other game species.

Pheasant habitat is also a management goal on many of the NGPC's own public and private lands activities. Pheasant management remains a high priority on a number of Wildlife Management Areas across the state. However, while clearly vital to the agency's mission, these management activities have historically only affected a small percentage of the total landscape. Therefore, they have generally provided benefits at only a local level.

Despite these collective state and federal efforts (many of which are also shared and supported by private conservation organizations, most prominently Pheasants Forever, Inc.), statewide habitat conditions continue to slowly deteriorate, and pheasant numbers continue to decline. Given present agricultural landscapes, it is unclear if and when numbers will stabilize without some fundamental change in commodity production systems. With little margin for error remaining, those interested in maintaining the pheasant hunting tradition must use their limited resources in the most efficient manner possible and look for new ways to keep existing habitats intact and productive.

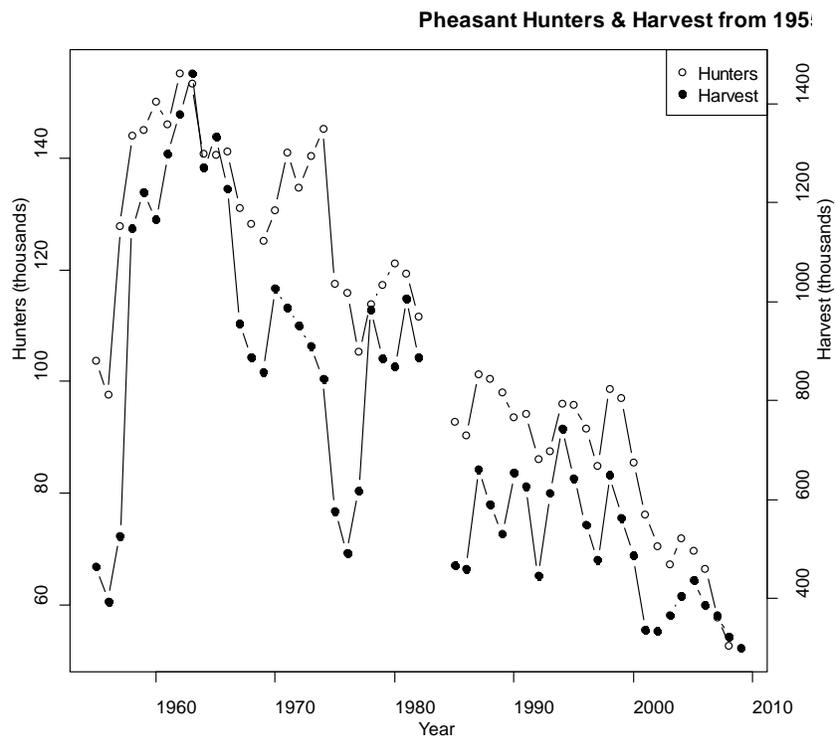


Figure 2. Hunters pursuing pheasants and annual harvest between 1955 through 2008.

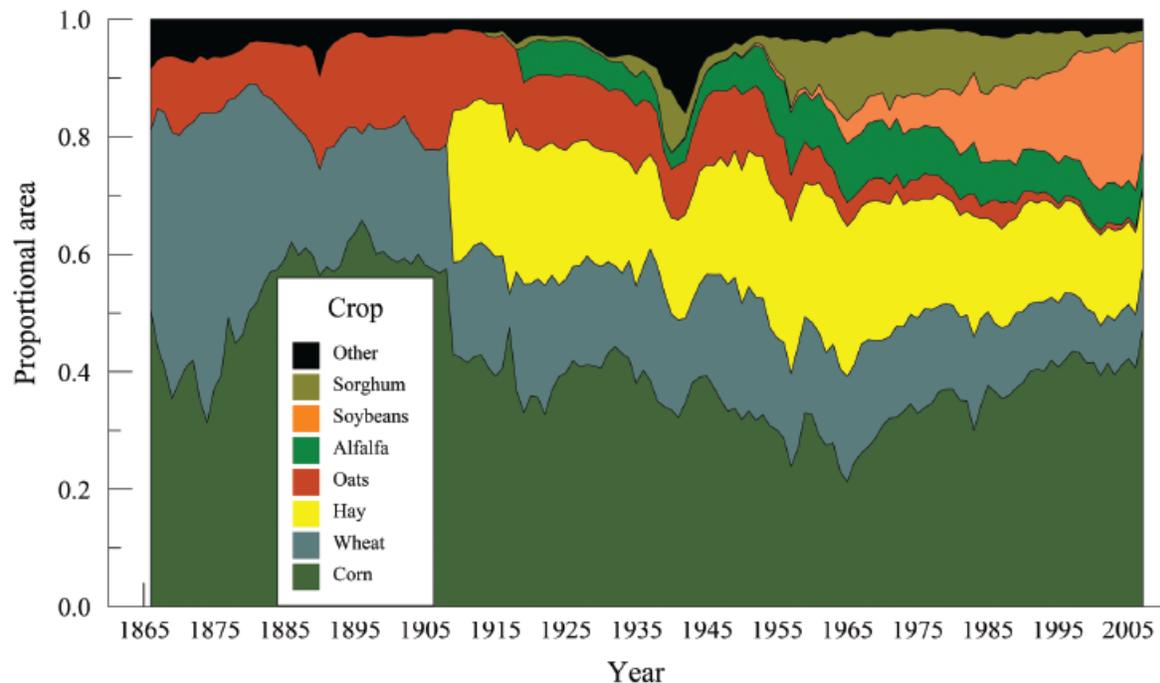


Figure 3. Proportion of Nebraska's cropland area in various crop types during 1865-2007 from Hiller et al. (2009), based on USDA National Ag Statistics Service data.

### 3. FOP 2002-2010: Accomplishments & Lessons

The Focus on Pheasants initiative began in 2002 as a partnership among the Nebraska Game and Parks Commission, Pheasants Forever, and Nebraska staff of the U.S. Department of Agriculture. These organizations had a common interest in restoring pheasant habitats and providing information to landowners, policy makers, and others working towards that same goal. Most projects and activities accomplished as part of this initiative would not have been possible without the cooperation of all the FOP partners, and keeping this partnership strong should remain the cornerstone for any future FOP efforts.

The Focus on Pheasants program has been involved in projects at focus areas, as well as through other habitat projects, such as the Early Successional Habitat Management program at WMAs and other satellite projects statewide. The 2002 Focus on Pheasants plan identified 6 priority FOP development areas: Stanton County (private land), Dixon County (private land), Branched Oak WMA (public land), Sherman Reservoir WMA (public land), Harlan County Reservoir (public land, US ACoE), and One Box Hunt (community-directed Focus Area in Custer County). Focus Areas were developed in each of these areas. Between its inception in 2002 and 2007, Focus on Pheasant initiatives affected over 45,000 acres and spent over \$1.3 million. Management techniques included disking, chemical application, drilling, broadcast seeding, adding food plots, removing trees, controlled burns, interseeding grasses and legume mixtures, stubble management, and restoration seeding, as well as other incentive-based practices. These activities required a minimum of 16,875 person-hours coded over the 6 year period. Additional funds were expended in noxious weed control and other herbicide treatment activities. In addition to management activities, over \$3,400.00 was spent on education and promotion of FOP initiatives, and nearly \$168,000.00 on research and evaluation. In 2010, there were 11 active FOP projects statewide,

affecting 1,354 acres and costing just over \$61,000.00. The above figures do not include dollars or acres resulting from Focus on Pheasants efforts by local Pheasants Forever chapters and, therefore, underestimate the true impact on the landscape.

The Focus on Pheasants program has many other notable accomplishments related to its work across the state. Among these accomplishments are habitat tours of the focus areas for landowners and resource professionals. During the 2004 and 2005 Stanton County tours, 250 people from 19 states and 25 government agencies attended. Additional tours have occurred across the state, including at Sherman and Harlan County Reservoir focus areas. Since 2006, FOP partners have hosted 134 habitat tours and prescribed burn workshops for 4,683 attendees. These tours and research related to FOP partnership activities have had a significant impact on USDA conservation program policy, resulting in the current emphasis on early successional habitats in programs like CRP. Another significant accomplishment was the cost savings related to habitat management activities resulting from Pheasants Forever chapter partners hosting “work days” at Focus Areas. For example, for several years, local Pheasants Forever chapters near Sherman Reservoir organized local farmers to disk with two passes over 300 acres in one day. The work of coordinating Focus Area activities with partners and of organizing habitat tours was facilitated with the hiring of a Coordinating Wildlife Biologist in partnership with Pheasants Forever. The “Want more pheasants?” pamphlet, containing a list of Focus on Pheasants accomplishments and lessons learned from early focus area projects, was distributed to all Nebraska landowners.

Although the results of research related to Focus on Pheasants habitat projects is important, a complete evaluation of the program should include lessons learned about the implementation process. Perhaps these implementation lessons are equally important, because they can help increase the efficiency with which the program is delivered. Among the lessons learned during implementation of habitat projects thus far was that landowner participation was contingent on incentive payments. For example, once incentive payments ceased, including annual rental payments from USDA through CRP, so did the management activities, and almost all of the FOP-CRP tracts in Dixon and Stanton Counties were returned to row crops. All of the wildlife benefits created by these programs were lost. Further, some early FOP efforts relying exclusively on disking and interseeding with legumes resulted in noxious weed problems that damaged relations with local landowners, communities, and USDA personnel, and made implementation efforts more difficult. In areas with histories of noxious weeds, alternatives to soil disturbance will lessen the likelihood of negative publicity that could make further work difficult, and will also make sure resources are spent on habitat creation and not weed eradication. These other management activities, such as spring and autumn chemical treatments, result in the desired habitat conditions, but with fewer issues with noxious weeds. These chemical treatments may also offer a longer term effect compared to disking and interseeding on introduced cool-season grasses. Chemical treatments can also extend the duration of the desired habitat conditions on disked and interseeded fields (e.g., Sherman Reservoir WMA). Many of the questions we have been able to address have been related to short-term effects. This short-duration research is a consequence of both the funding cycle and the time constraints of graduate student research. There needs to be a greater commitment to longer term research in order to address such issues as the duration of desirable and effective habitat conditions on future project areas. Finally, prior relationships with landowners were also important in the promotion of the Focus Area incentives. Such relationships were very productive in the northeastern Focus Areas and eased implementation efforts.

Detailed presentations of the results of research conducted as part of Focus on Pheasants implementation projects can be found in Negus (2006) and Matthews (2009), but a summary of their findings is provided below.

Negus (2006) investigated the impacts of disking and interseeding with legumes on the grassland bird community, particularly songbirds, in northeast Nebraska. His results showed that grassland bird species diversity, richness, and mean abundance were significantly higher in the disked and interseeded fields compared to the control plots. Additionally, nest densities were 3× higher in treated plots than in control plots. In this study, the habitat treatment resulted in a more diverse vegetation composition and structure, including forbs, weeds, and grasses of various heights. Several characteristics of the vegetation in treated fields were predictive of the presence of 7 of the 8 grassland bird species using the study site. Negus (2006) concluded that CRP land is essential breeding habitat of grassland breeding birds, but that periodic management is needed to maintain desirable characteristics common to newly seeded CRP.

Matthews (2009) investigated whether pheasants showed similar responses to disking and interseeding as those observed for other grassland nesting species. The lack of long-term, persistent increases in pheasant abundance on CRP fields and its relation to habitat succession has been noted elsewhere (e.g., Rodgers 1999). Since disking and interseeding resets the successional clock, pheasant populations should show positive responses to periodic application of this habitat treatment. Matthews (2009) specifically looked at the effects of this management practice on nesting and brood-rearing habitat selection and the resulting success. He found that pheasant hens preferentially nested in disked and interseeded CRP fields compared to unmanaged CRP and other grasslands. Further, brood-rearing hens not only preferred managed CRP fields, but selected areas within fields that contained a high amount of interseeded forb and legumes. With respect to success (measured as nest and brood survival), nest survival was highest in managed CRP fields, and brood survival increased with the amount of time spent in managed CRP fields. Using these results, Matthews (2009) conducted a simulation analysis in which 2000 hen pheasants nested in disked and interseeded CRP, or 1000 hens in disked and interseeded CRP and 1000 hens in unmanaged CRP or other grassland, or 2000 hens in unmanaged CRP or other grasslands. The results of the simulation indicated that production of roosters was twice as high in managed CRP as in unmanaged CRP and other grasslands (**Figure 4**).

#### 4. Goals & Objectives

At the direction of the Pheasant Subcommittee of the Board of Commissioners of the Nebraska Game & Parks Commission, NGPC staff were instructed to review and update the Focus on Pheasants plan with the aim to manage pheasant populations and habitat, and investigate ways to improve the plan as it enters its 9<sup>th</sup> year.

The activities and projects identified were designed to serve the specific goal of **improving satisfaction for the greatest number of wild pheasant hunters over the next 10 years, while maximizing educational opportunities for landowners and other stakeholders regarding the habitat needs of pheasants**. Additionally, the plan will **ensure that improvements to hunter satisfaction are delivered in the most efficient and effective ways possible**.

Secondarily, the plan will attempt to **ensure that areas with high-abundance pheasant populations remain strong and that the natural fluctuations that affect all wild populations are of low magnitude**.

Although the following recommendations are designed to meet the above goals, it is clear that NGPC actions alone will not be sufficient to reverse regional or statewide declines. Increases in pheasant numbers will continue to rely on large-scale habitat improvements. Such large-scale improvements ultimately depend on the individual management decisions made by landowners within Nebraska's pheasant range. To help influence land-management decisions by private land owners, the recommended projects will demonstrate to them and others the necessary habitat components of pheasant production and methods used to create them.

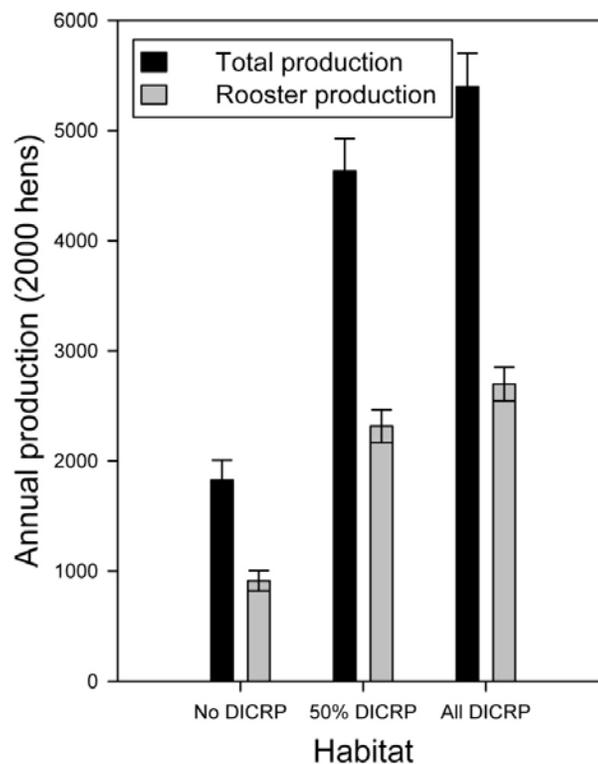


Figure 4. Simulation results from Matthews (2009) showing overall and rooster production of 2000 hens when nests are in unmanaged CRP (No DICRP), when nests are distributed evenly between managed and unmanaged CRP (50% DICRP), and when nests are all in managed CRP (All CRP).

## 5. Guiding Principles: Hunter Satisfaction, Partnerships, Flexibility, and Efficiency

Research indicated that **pheasant hunter satisfaction is directly related to relative hunter density, the number of roosters observed, and the number of roosters harvested** (Frey et al. 2003). Given these relations, efforts to increase public access in areas of highest wild pheasant abundance should provide highly satisfactory hunting experiences by spreading hunters over more area and, therefore, reducing hunter density, and by increasing the probability of seeing and harvesting pheasants. We are currently in the process of deploying a survey of Nebraska hunters to determine their satisfaction with their hunting experiences and with the amount of public access available.

Creating the conditions necessary for healthy and abundant pheasant populations can also positively affect hunter satisfaction. Since wild pheasants provide a more satisfying hunt, and stocking measures

have been repeatedly demonstrated not to be effective in increasing pheasant populations (cf. Wooley 2011), **the creation of habitats necessary for wild pheasants to survive and multiply should be the primary focus.** The abundance of nesting habitat (Riley 1995) and apparent declines in brood-rearing habitat (Warner et al. 1984, Riley and Riley 1999, Rodgers 1999) are the driving forces behind pheasant population trends in the agricultural landscapes of the Midwest. Therefore, the creation and improvement of nesting and brood-rearing habitat should continue to be emphasized through Focus Area and Early Successional Habitat programs. **Weedy, diverse grasslands are best suited to provide these habitats,** and are most easily created by fallowing crop fields and periodic disturbances to mature grasslands. As the research outlined above indicates, planting legumes, such as alfalfa, within grass stands at the time of disturbance creates a diverse habitat structure and provides habitat for insects (a critical food source for chicks) in the resulting plant community (Rodgers 1999). Alternatively, annual weeds can be allowed to naturally enter to provide these habitat conditions.

**Partnerships with stakeholders will continue to be critical** in increasing the abundance of breeding habitats. One of the most successful partnerships is the Farm Bill Biologist program with Pheasants Forever, NRCS, and the Rocky Mountain Bird Observatory. These positions, supported jointly by the partners, offer on-the-ground assistance in promoting and implementing conservation programs that benefit upland game and wildlife beyond Focus Area boundaries. One of the strengths of these partnership positions is that they offer “one-stop-shopping” for landowners interested in conservation program options. These biologists are able to work with landowners on federal, state, local, and Pheasants Forever programs. Additionally, they often have the ability to dove-tail conservation programs together for landowners to create broader, over-arching plans that provide greater incentives for landowners and greater benefits to wildlife habitats.

Pheasants Forever’s *Reload Nebraska* program will increase the partnership opportunities through its goals to:

1. Establish and improve 1.1 million acres of wildlife habitat on private and public lands in Nebraska.
2. Establish a landowner stewardship fund to improve existing wildlife habitat, and establish high quality nesting and brood-rearing habitat.
3. Deliver a conservation plan to every resident and non-resident landowner in the pheasant and quail range in Nebraska.
4. Expand opportunities for training and education, and about habitat programs and their benefits to landowners across the state.

Because of the need to form partnerships with a diverse assortment of agencies, conservation groups, and landowners, **flexibility in project design and delivery will be important.** No set of incentives or management techniques will be universally successful, and what is successful in one part of the state may not work in another. For example, seed mixes that work well in southeastern Nebraska may be ill-suited to conditions in the southwest. So partners should be encouraged to be creative in achieving project goals. Further, evaluation of the techniques used in successful achieving stated goals should be a part of new habitat projects.

The economic climate of the state, nation, and world, as well as mandated budget cuts, makes clear that any program aimed at increasing hunter satisfaction **must make wise use of limited resources.** Further, there are often several approaches that can be used to arrive at the same outcome. It is incumbent upon NGPC to **make sure that the course chosen is the most efficient and effective one.** This can be

accomplished through a structured decision making approach where pros and cons of each course can be compared and trade-offs between options made in a “common currency.” A necessary input into the structured decision making framework is the assessment of the costs and outcomes of the habitat manipulations and other strategies employed to achieve the goal of increasing hunter satisfaction. A part of this process will be to identify the best methods for assessing the outcomes of habitat projects.

## **6. Crafting Habitat through Focus Areas**

*Current Work.* Currently, there are Focus Areas in Johnson County, at Sherman and Harlan County Reservoirs WMA, at Branched Oak WMA, at the One-Box Hunt, and in southwest Nebraska. Additional early successional habitat work at WMAs that benefits pheasants, but does not directly fall under the Focus on Pheasants banner, is being conducted throughout the state. A brief summary of the current work is provided below.

Following tree removal, Branched Oak WMA staff has continued to perform woody regrowth control, while they also upgrade former crop fields to herbaceous vegetation consisting of grass-forb mixtures. They have also been disking existing, non-native grasslands and interseeding with legumes, forbs, and other grasses. Once these seedings are completed, management activities will focus on maintaining desirable habitat characteristics for pheasants and quail. Use of crow and whistle counts to assess population responses of pheasants and bobwhites, respectively, continue to be conducted each year.

In Johnson County, there are two focus areas, one on public land and one on private land. Given their proximity, they function as a single unit. The public-land Focus Area is located on Hickory Ridge WMA. Management activities on this site are aimed not only at pheasants and bobwhites, but also greater prairie-chickens, and include chemical treatments, burning, and disking/interseeding. The private land Focus Area was located in the southwest corner of the county on land enrolled in CRP. Mid-contract management activities, such as chemical treatments and interseeding, were conducted, and crow and whistle counts are ongoing.

The southwest Focus Area comprises portions of Hitchcock, Red Willow, and Hayes Counties in southwestern Nebraska. These efforts are supported by matching funds from Pheasants Forever, which will also administer landowner incentive payments. At the time of the preparation of this plan, 33 contracts with landowners had been signed, affecting over 4,300 acres. Activities include wheat-stubble management, milo management, rangeland grazing deferment, and prescribed fire. Additionally, surveys of hunter satisfaction were distributed throughout the focus area during the opening days of the season. Early results indicate a high level of satisfaction among hunters using the area. Hunter reported an average of 80 pheasants/hunting party seen while afield.

As stated above, although not formally a part of Focus on Pheasants, the Early Succession Habitat initiative accomplishes much of the same on-the-ground habitat creation as FOP projects using many of the same methods. Treatments used as part of this initiative include herbicide treatments, disking, interseeding, grazing, food-plot plantings, and prescribed fires. In 2010 alone, just over 42,000 acres on WMAs have been affected by some form of early successional management.

*Criteria for Future Focus Areas.* Knowledge gained during the selection of existing Focus Areas has offered insights into characteristics that are necessary for the Focus Area to be successful. Future Focus

Area site selection should involve a pre-selection survey of the general geographic area with consideration given to the following criteria:

1. There should be abundant potential habitat. We are currently investigating how the landscape context in which habitat work is conducted influences the outcomes of those efforts.
2. There should be a high likelihood that desirable habitat will persist for at least 5 years, so that the maximum amount of benefit for resources expended can be realized.
3. Prior relationships with landowners and conservation partners in the proposed area are essential. Such prior relationships allow partners to identify which landowners will be most interested.
4. Efforts should first be directed towards areas where a culture of conservation already exists among landowners. Identifying these areas will be assisted by the prior relationships outlined above.
5. Focus Areas should first be sought in areas where there has been success in enrolling land into the CRP program. Often these areas will form the backbone of land-management efforts and ensure that desirable habitat will persist, as discussed above.
6. Special attention should also be placed on locating Focus Areas in regions of the state where pheasant populations are already in good to excellent condition. Here efforts should be aimed at maintaining the populations and limiting the amplitude of annual population fluctuations.
7. Results from ongoing research into the effects of landscape context on the efficacy of land management for pheasants should also be integrated into the selection criteria when they become available. These results should help prioritize resource allocations to those properties that will offer the best potential return.

*Integrating FOP and the Reload Nebraska Plan.* Pheasants Forever unveiled an ambitious plan to restore pheasants and quail to their ranges in Nebraska at the 2009 State Habitat Meeting called *Reload Nebraska*. Among the goals of *Reload Nebraska* are to 1) establish and improve 1.1 million acres of wildlife habitat on private and public land, 2) raise \$20 million dollars to implement the plan's strategies, 3) increase the efficiency with which habitat programs are made available to landowners, and 4) expand opportunities to provide training and education about habitat programs and their results to landowners. Strategies outlined in pursuit of these goals include creating at least 40 new Farm Bill Biologists partnership positions, the creation of a landowner incentive fund to improve existing and establish new breeding habitat, the creation of a stewardship fund to manage Pheasants Forever properties, and provide support for habitat tours for landowners.

The *Reload Nebraska* goals and objectives have been designed in consultation with NGPC, and are intended to bolster and support the Focus on Pheasants plan. It is clear that the goals and strategies offer numerous opportunities for collaboration and partnerships. For example, Focus on Pheasants may use incentive dollars from *Reload Nebraska* to enhance existing incentives available through NGPC. Focus on Pheasant might also use *Reload Nebraska* dollars as match for Federal funds for joint habitat improvement projects. The Farm Bill Wildlife Biologists are also increasing landowner contacts and start building the relationships with landowners that are necessary for Focus on Pheasants to be successful. Finally, combining resources for the showcasing of habitat improvements through habitat tours for landowners will increase the number of such tours and educational programs that can be offered.

*Integrating FOP and the National Wild Pheasant Management Plan.* The Midwest Association of Fish & Wildlife Agencies (MAFWA) charged the Midwest Pheasant Study Group (MWPSG) with preparing a range-wide management plan in 2006. The MWPSG invited representatives from all states within the pheasant range to participate in the planning process, and the group has been meeting annually to determine an approach, and is currently drafting the plan for presentation to the Midwest Directors in 2011. The stated goal of the plan is to “restore and maintain self-sustaining wild pheasant populations in each state that further provide maximum recreational opportunities” (MWPSG 2010). Because the plan is intended to be a national plan, after the MAFWA directors approve the plan, it will be presented to the national Association of Fish & Wildlife Agencies (AFWA) for approval.

As with the *Reload Nebraska* initiative, the National Wild Pheasant Management Plan pursues similar goals. The plan will also provide habitat objectives that could be downscaled to the county level for determining minimum habitat needs. The MWPSG is also crafting a set of best management practices as part of the plan that could inform management decisions. Also, because the plan will be approved by the Directors of state wildlife management agencies, there is a good amount of political capital that can be brought to bear on implementation.

*Issues of Predator Control.* Depredation of nests, particularly for ground nesting species, has long been identified as one of the limitations on population growth. As such, attempts to reduce predator abundance have long been used to increase pheasant and other game bird production. These efforts have met with varying degrees of success, however. Early investigations demonstrated that predator removal could enhance nest success for pheasants. Most recently, South Dakota investigated whether block predator management was an effective method of promoting pheasant nest success (Anonymous 2010). Within their 36-square mile blocks, mammalian predators were trapped over the entirety of the nesting season. The results showed that predator control offered inconsistent benefits in terms of nest success. In some predator-controlled blocks, nest success was lower than in control blocks, where predators were not trapped. In Idaho, predator control on a more local scale was used to enhance survival of translocated wild and captive-reared pheasants (Musil and Connelly 2009). The local-scale predator control did not enhance the survival of captive-reared pheasants or translocated, wild hens, but did increase survival of wild, translocated roosters. Further, trapping efforts had only a small impact of the abundance of predators in the area.

Although predator-control efforts can reduce nest and brood predation, large-scale predator control programs are expensive, especially when they must be used continually for their positive benefits to be realized. Further, raptors are Federally protected and cannot be harassed or killed. Given this information, alternative strategies aimed at controlling mammalian predator abundance should be considered. Ideally, these strategies would encourage wider participation in the legal trapping of fur-bearers. First, the price of fur-harvest/trapping permits could be reduced. Given the prices trappers can obtain for skins, lower permit prices might make trapping more attractive because it lowers the break-even mark and, thereby, making trapping profitable sooner. Second, a program could be established whereby willing trappers could be informed of the locations of Focus Areas on public land and asked to focus their trapping efforts on and around these areas. Additionally, when enrolling landowners in incentive programs, they can be asked to allow trappers to access their enrolled properties for the purpose of predator control. Additional incentives for landowners could be provided for such access. Aside from added incentives for access, the above strategies would have few costs and lost revenue from lower permit costs could be recouped, at least partially, if more trappers buy permits at the lower price.

## 7. Supporting Research and Activities

*Identifying Manageable Components of Hunter Satisfaction.* Having set hunter satisfaction as a goal, it is important to identify which aspects of the hunt influence satisfaction. Moreover, those aspects of the hunt that can be managed by NGPC must be identified so that they can be addressed. Towards this end, NGPC is preparing a survey of Nebraska hunters that will measure the level of satisfaction with the Nebraska hunting experience, and also identify factors, such as hunter demographic characteristics, costs of permits, harvest success, and the distance hunters have to travel to hunt, that are predictive of satisfaction. This survey will be sent to Nebraskan and non-resident hunters in early spring 2011 and then at least once every 5 years. This periodic survey should allow us to track satisfaction through time and, as efforts to manage components of hunter satisfaction progress, determine other factors that may emerge as important predictors of satisfaction.

*Measuring the Costs and Benefits of Improving Hunter Satisfaction.* The improvement of the efficiency with which increases in hunter satisfaction can be delivered should be an ongoing process. As discussed previously, there are often multiple avenues to the same destination, each with their own attendant costs. In some cases, some of the paths do not arrive at our ultimate goal at all. It is important to identify those paths that provide the greatest benefit for the lowest cost to prevent wasted resources. We will continue to evaluate the effectiveness of habitat projects, and will also evaluate attempts to directly manage hunter satisfaction. Below is an ongoing research project and an upcoming program that represent the kind of evaluations discussed above.

Assessing local and landscape constraints on habitat management of upland game. Ongoing research conducted in cooperation with the Nebraska Cooperative Wildlife & Fisheries Research Unit at the University of Nebraska, Lincoln. The primary objective of this research is to determine to what extent factors at local, regional, and landscape levels affect the efficacy of habitat management activities at Wildlife Management Areas. The results of this research can then be used to prioritize areas in which the optimal conditions exist for upland game restoration activities.

Assess efficiency of enhancing youth hunter satisfaction using pen-reared roosters. Although captive-reared pheasants do not aid in the restoration of wild populations, these birds do provide opportunities to introduce young people to pheasant hunting. If declining trends in active hunter numbers are to be reversed, new hunters must be recruited. Such recruitment efforts underlie NGPC's Hunter Recruitment, Development, and Retention plan. The opportunity to shoot at live birds in the field can lead to a satisfying hunting experience for new hunters, and can increase the likelihood that they will hunt again. In this case, increased success and opportunity for young hunters should increase satisfaction. One method of providing opportunities to harvest birds to young hunters is to release captive-reared birds at selected Wildlife Management Areas (**Table 1**) ahead of the youth season. Which method of release (e.g., periodic Surrogator releases vs. adult roosters released the day before) and incentives necessary to encourage adults to take youth hunters afield (e.g., allowing mentors to hunt with youths on these areas) can be evaluated to determine which combination increase satisfaction the most, and whether the costs warrant the expenditures for the given increase in satisfaction. Follow-up research can be used to determine if youths who participated in the program were more likely to hunt again compared to those who did not.

In addition to the above assessments, future research and evaluation should focus on measuring the relative costs and benefits to various management activities for improving habitat to determine which

practices and incentives are the most efficient at increasing the wild pheasant population. It will also be important to determine how wild pheasants are using the habitats created by management activities throughout the year. This information will inform efforts to provide sufficient habitats for all aspects of the annual cycle. Given the focus on hunter satisfaction, it will also be important to measure the response of pheasants to hunting pressure on public hunting lands. By determining pheasant movements during the hunting season, we can determine not only the impacts of harvest on local populations, but also the impacts of pheasant movements on hunter satisfaction.

Table 1. Potential Youth Hunter sites by Technical Section District.

Sites	Districts					
	I	II	III	IV	V	VI
WMAs		Pressey, Davis Creek, Sherman	Grove Lake, Don Dworak	Clear Creek	Pawnee Prairie, Oak Glen, Pawnee	Alexandria, Alexandria SW
Other Sites					Mead Experimental Farm, Missouri River Mitigation Areas	

**8. Potential Limitations and Caveats**

There are two primary limitations associated with activities related to implementation of this plan. First, is the issue of weeds. As was observed in the northeast, disturbing soils with a history of noxious weeds can result in considerable added expense and the loss of support of the landowners and local communities. Further, non-noxious, broad-leafed weeds that provide breeding habitat remain unacceptable to several key stakeholders and could limit support for implementation programs. Second, there is considerable expense involved, in terms of both money for incentive payments and staff time related to promotion, administration, and implementation.

In an era of shrinking state budgets, we can expect fewer resources with which to conduct implementation projects in the future. Therefore, it will be critical to make sure dollars spent on habitat restoration activities are used efficiently. An adaptive management/structured decision making framework for assessing the outcomes of land-management and satisfaction-enhancing activities will help ensure that decisions are made with the best information possible and with full knowledge of the costs associated.

Finally, it must be recognized that the majority of our efforts occur on private property and, as such, depend on the cooperation and land-ethic of the landowners. In some cases, the desire of the landowner to manage for upland game is overridden by economic concerns that depend on commodity prices and events in agriculture markets worldwide. Therefore, there is always the possibility that habitat created could be lost before the full benefits for pheasants are realized. Nearly all of the Focus

on Pheasant areas in the northeast were lost when corn prices made the plow more profitable than the pheasant.

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