

Alberta Conservation Association 2015/16 Project Summary Report

Project Name: Demonstration Farm Project – Enchant Farm Upland Restoration

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Partnerships

Haggins family
Stamp Farms

Key Findings

- We established a partnership with a working farm to evaluate approaches for re-establishing vibrant upland bird densities while maintaining a profitable farming operation.
- We initiated a few small-scale plots to test seed-mix varieties for brood-rearing habitat and a sorghum mix to mimic winter escape cover in place of shrubs. We also mowed 29 km of decadent grass stripes to rejuvenate forb species.
- We developed four wetland plots late in 2015 with two designed to include cattail complexes, which will provide thermal cover for pheasants during harsh winter storms. Wetland design will also minimize the amount of crop lost to periodic flooding.
- Spring counts of grey partridge pairs doubled this past year from about 10 pairs/km² in 2014 to 21 pairs/km² in 2015.
- We detected 58 bird and 2 amphibian species during baseline monitoring on the farm over the past two years.

Introduction

Crop production has evolved dramatically since the post-war recovery following World War II. Advances in equipment, knowledge, irrigation and chemical applications have increased yields and decreased risk but have negatively affected upland bird populations. With more than 24 million acres now under cultivation in Alberta, hunting opportunity for upland gamebirds has greatly diminished.

We have entered into a long-term working relationship with a farm to evaluate approaches for re-establishing vibrant upland bird densities while maintaining a profitable farming operation. Working closely with the landowner and farmer leasing the land, we will trial habitat enhancements and progressive game management practices to increase the breeding density and

reproductive output of existing gamebirds (grey partridge), and we will re-establish a pheasant population. We will also monitor a range of non-target species to assess how our treatments affect amphibians, invertebrates and songbirds. We will trial enhancements that focus on improving habitat features important for nesting, brood rearing and winter survival. The initial two years of the project focused on collecting baseline data and will be followed by enhancements and monitoring over a 12-year period.

We are in the process of setting target densities for grey partridge that will be a function of habitat goals and harvest strategy. We will also do this for pheasants, although the first step for this species is re-establishing a breeding population at the site. The landowner has harvested male pheasants each year at the site, but these birds were released specifically for this purpose.

Methods

The demonstration farm is located near Enchant in a landscape highly fragmented by a mix of irrigated and dryland farming. The 1,340 ac farm has 893 ac of irrigated land under cultivation and is rented to a local seed producer. The cultivated land is divided among six fields, all with irrigation pivots.

We propose to trial a variety of enhancements to improve the resources important for key life stages of upland birds, including nesting, brood rearing and overwintering. For example, chick survival is closely linked to insect abundance, so we will trial seed mixes designed to improve insect availability along field edges. Shrub habitat is important for escape cover, especially in late winter when grey partridge pairs are selecting a territory. The farm has roughly 13 km of edge habitat with defined shrub growth that provides reasonable territorial habitat. One of our initial targets is to increase the amount of this territorial edge habitat to allow the partridge density to increase. Since shrubs take at least five years to establish, we will also trial annual seed mixes aimed at providing taller escape cover (e.g., sorghum, millet, kale). This will be important over the interim, but for some farms this may be the only option available for creating edge habitat. We also plan to trial chemical applications within the crop along field edges to improve insect abundance in areas frequented by broods.

Although released male pheasants have been used for shoots on the farm over the past few years, there isn't an established breeding population. We will work with the landowner to re-establish pheasants using soft-release methods, with the aim of creating a self-sustaining population.

Wetland areas can be important areas for producing insects, which are vital for chick survival, but these areas can also serve as refuges for pheasants during cold winter periods. We will increase the number of small wetland patches around field edges to help manage field drainage.

Baseline biodiversity monitoring is done each spring at sites throughout the farm and also at control sites off the farm to compare patterns over time. In the future, we will establish graduate student projects in partnership with universities to help evaluate specific questions.

Results

We counted 55 grey partridge pairs in early spring 2014 (10.1 pairs/km²) and 118 pairs in 2015 (21 pairs/km²). This doubling of the spring breeding counts likely resulted from favourable nesting and brood-rearing conditions in June 2014 followed by an easy winter leading up to the 2015 spring count. The fall 2015 brood survey recorded 775 grey partridge and 7 pheasants. The average covey size for grey partridge was 10.8, with an apparent fall density of 147.36 partridge/km².

We have detected 58 bird and two amphibian species at the farm over the past two years. Savannah sparrow was the most common songbird species detected at point count stations, followed by clay-colored sparrow and then western meadowlark. Blackbirds were the most represented songbird group, with six species identified. We detected 10 species of waterfowl, with mallard being the most common. Two amphibian species have been sighted at the farm: tiger salamander and boreal chorus frog. We anticipate that amphibian diversity will increase over the years as the availability of wetlands improves on the farm.

We planted approximately 1,500 shrubs in nine separate pods spaced 75–100 m apart to establish attractive new territorial sites for grey partridge pairs. We're trialing coco-discs at the base of shrubs for weed suppression and moisture retention. We mowed 29 km of 15-foot strips in decadent grass to invigorate new growth of forbs and grass to improve chick movement and insect abundance. We also planted strips of forage sorghum along field edges to mimic shrub habitat. Dirt work was undertaken by the landowner in fall 2015 to establish two cattail complexes, which will provide shelter for pheasants during harsh winter periods. These cattail complexes are designed to be shallow wetlands with ephemeral water levels.

Conclusions

Finding approaches that increase gamebird densities while minimizing impacts to farm operations is important for convincing landowners that both goals are attainable on the same farm. We also anticipate that overall biodiversity and pollinators will benefit from the enhancements that we're trialing.

Communications

- Participated as a host for Open Farm Days in summer 2015, opening the farm up for the public to visit and explore.

Photos



Alberta Conservation Association staff planting shrubs in a pod at the demonstration farm.
Photo: Layne Seward



A sorghum strip planted to provide additional thermal cover as a trial at the demonstration farm.
Photo: Doug Manzer