

Alberta Conservation Association (ACA)

Date: 2014-2015

Project Name: Demonstration Farm Project – Enchant Farm Upland Restoration

Wildlife Program Manager: Doug Manzer

Project Leader: Layne Seward

Primary ACA staff on project:

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Partnerships

- Scott, Ward and Cole Haggins
- Stamp Select Seeds

Key Findings

- We have established a partnership with a working farm to evaluate approaches for re-establishing vibrant upland bird densities while maintaining a profitable farming operation.
- We will trial a variety of enhancements to improve resources important for key life stages of upland birds, including nesting, brood rearing and overwintering.
- Chick survival is closely linked to insect abundance, so we will trial seed mixes designed to improve insect availability along field edges.
- We will monitor a range of non-target species to assess the impact of enhancements on amphibians, invertebrates and songbirds.
- We detected 54 bird and 2 amphibian species during baseline monitoring.

Introduction

Crop production has evolved dramatically since the post-war recovery following WWII. Advances in knowledge, equipment, irrigation and chemical applications have increased yields and decreased risk, but they have also negatively impacted upland bird populations. With more than 24 million acres now under cultivation in Alberta, hunting opportunity for upland game birds has diminished substantially.

We have entered a long-term working relationship with a farm to evaluate approaches for increasing upland bird densities while maintaining a profitable farming operation. Working closely with the landowner, we will trial habitat enhancements and progressive game management practices to increase the breeding density and reproductive output of existing game birds (grey partridge) as well as re-establish a pheasant population. We will also monitor a range

of non-target species to assess effects on amphibians, invertebrates and songbirds. We will trial enhancements that focus on improving habitat features important for nesting, brood rearing and winter survival. In 2014/15, the first year of the project, we focused primarily on collecting baseline data. The project is anticipated to continue for 10 years after our enhancements are initiated.

Methods

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

Baseline monitoring started in 2014 and will continue in 2015 for upland gamebirds, songbirds, corvids, waterfowl, birds of prey and amphibians. We are also collecting a small number of amphibian larvae from wetlands and submitting them to the Royal Alberta Museum for curation and evaluation of contaminants.

We propose to trial a variety of enhancements to improve resources important for key life stages of upland birds, including nesting, brood rearing and winter survival. 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, so we will plant shrubs in anticipation that we can create areas suitable for additional territories. Because 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) over the interim. We also propose to trial chemical applications within the crop along field edges to improve insect abundance near nesting areas.

Although pen-reared male pheasants have been used for shoots on the farm over the past few years, an established breeding population of pheasants does not exist on the farm. We will trial approaches for re-establishing pheasants, including comparing soft-release and hard-release approaches. The objective is to create a self-sustaining pheasant population that will provide a huntable harvest or will act as a source for the surrounding landscape.

Wetland areas can be important areas for producing insects, which are vital for chick survival, but they can also serve as refuge areas for pheasants during cold winter periods. We will increase the number of small wetland patches as well as establish a larger wetland cattail complex that will provide shelter for pheasants during harsh winter periods.

Results

Our initial year of baseline monitoring revealed a well-established population of grey partridge. Approximately 55 grey partridge pairs were counted in early spring 2014, which translates to a density near 10.1 pair/km² over the entire farm. No hen pheasants were detected, although we observed a male pheasant that we presumed was a pen-reared bird released the previous fall for a shoot. In total, we detected 54 bird and 2 amphibian species. Savannah sparrow was the most

common songbird species detected at point-count stations, followed by clay-colored sparrow and western meadowlark. However, clay-colored sparrow was the most common songbird species detected across the farm, followed by savannah sparrow and brown-headed cowbird. Blackbirds were the most highly represented songbird group, with six species identified. We detected 11 species of waterfowl, with mallard most commonly observed. We detected two amphibian species, tiger salamander and boreal chorus frog, at 10 wetlands surveyed. We collected and euthanized two sets of five boreal chorus frog tadpoles from two wetlands for curation by the Royal Alberta Museum.

Conclusions

Finding approaches that increase gamebird densities while allowing for a profitable farming operation are important for convincing landowners that both goals are attainable on the same farm. We anticipate that non-target species (songbirds, amphibians) may also benefit from enhancements that we trial, which will improve the abundance and diversity of wildlife on the farmed landscape.

Communications

N/A

Literature Cited

N/A

Photos



Grey partridge are “naturalized citizens” of Alberta’s agricultural prairie and parkland regions.
Photo: Doug Manzer



An American widgeon nest and eggs found in an idle field border on the demonstration farm. Field borders planted with a variety of grasses, legumes and shrubs increase food and cover for a variety of wildlife species. Photo: Kris Kendell



A centre-pivot irrigator on the demonstration farm. Trees and shrubs planted along the outer wheel track benefit from increased soil moisture and nutrients. Photo: Kris Kendell



Tiger salamander is one of two amphibian species detected on the demonstration farm. Photo: Kris Kendell