Alberta Conservation Association
2008/09 Project Summary Report

Project name: *Waterfowl Nesting Habitat Enhancement*

Project leader: Velma Hudson

Primary ACA staff on this project:
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Partnerships
Delta Waterfowl
Alberta Fish and Game Association chapters:
-Fort Saskatchewan Fish and Game Club
-Wheatland Conservation and Wildlife Association
Ducks Unlimited Canada
Windsor Plywood

Key findings

- In 2008, 274 cavity nest boxes were maintained of which 72% had been used by ducks or owls.
- With volunteer help, we installed over 140 mallard nest tunnels in wetlands with poor natural nesting cover in the greater Edmonton, Red Deer and Lethbridge areas.
- Preliminary data indicates that 73% of mallard nest tunnels were used for nesting, and that all of these had a successful hatch.
- We use this project as a hands-on educational tool to engage youth, volunteers, and landowners in conservation. Approximately 1300 adults and more than 1100 youths have attended conservation seminars on waterfowl nesting needs since 1989.

Abstract
In 2008/09 we combined the components of two waterfowl population enhancement projects into one now referred to as the *Waterfowl Nesting Habitat Enhancement* project. The intent is to enhance nest success by providing artificial nesting structures in locations where natural conditions are poor. For mallards, we install nesting tunnels in wetlands with poor natural ground nesting habitat. Bufflehead and goldeneye both naturally nest in tree cavities, although in some areas, these natural cavities are not yet abundant in available aspen stands. In these areas, we install cavity nest boxes to provide secure nesting sites for these ducks. Approximately 140 mallard nest tunnels and 1200 cavity nest boxes have been installed in select areas of Alberta in partnership with Delta Waterfowl and Ducks Unlimited Canada (DUC). Annual monitoring and maintenance of nest structures is carried out by ACA staff and many volunteers.

Preliminary data suggests that 73% of nest tunnels were used in 2008 with all of these displaying evidence of a successful hatch. Last year 274 cavity nest boxes were maintained and 198 (72%) had been utilized by ducks or owls. This year's maintenance activities are in progress at the time of writing and will be completed by the end of March 2009.

Project overview / Introduction

In 2008/09 the *Mallard Nest Tunnel* project and the *Cavity Nesting Waterfowl Enhancement and Wetland Stewardship* project were amalgamated to create the *Waterfowl Nesting Habitat Enhancement* project.

ACA and Delta Waterfowl have partnered to install and maintain mallard nesting tunnels in areas where lack of secure nesting habitat limits duckling production. Delta pays for the construction of the tunnels and the ACA installs, maintains and monitors them with assistance from volunteers.

Certain areas within the central Parkland have sufficient deep-water ponds for rearing broods of common goldeneye and bufflehead, but lack an abundance of natural cavities within aspen stands that is needed for these cavity nesting species (Corrigan 2007). In select areas, cavity nest boxes are secured to trees and provide artificial nest cavities. ACA and Ducks Unlimited Canada (DUC) have partnered in the expansion and ongoing maintenance associated with the cavity nest boxes as well as partnering with land stewardship activities and public education.

Project objectives:

- Secure new nesting structure locations and maintain existing nesting structures to enhance reproductive success for mallards and cavity nesting waterfowl (goldeneye and bufflehead) in select areas.
- Increase the awareness of the habitat requirements for waterfowl with youth, volunteers and landowners, and encourage the retention of wooded margins near wetlands.
- Create awareness of ACA, DUC and Delta Waterfowl habitat programs and encourage landowner participation.
- Continue development of partnerships between ACA, DUC, Delta Waterfowl, and Alberta Fish and Game Association (AFGA) chapters, and other interested parties.

Methods

Mallard nest tunnels are installed by AFGA volunteers, interested landowners and ACA staff. Tunnels are located in semi-permanent or permanent wetlands on the water edge of the emergent vegetation zone. We do regular maintenance in late winter to replenish the flax straw insulation layer and slough grass nest bowl. Evidence of use is confirmed if a nest bowl or eggs, egg shell fragments and down are found. Hatch success is based on evidence of at least one egg hatching.

Approximately one fifth of cavity nest boxes are visited annually throughout the late winter and early spring. Evidence of use is recorded and maintenance such as cleaning, replacing wood shavings, box relocation or replacement is carried out. During visits we locate prospective sites with good habitat and encourage property owners to participate in the program. ACA and DUC recognize cooperating landowners by providing cavity nest box guides, air photos of their property and other informative materials.

Results

One hundred and forty tunnels have been installed or provided to volunteers. Tunnel use for 79 tunnels monitored in 2007-08 was about 65% and of those used, hatch success was approximately 86%. This year 55 tunnels have been monitored to date with 40 used and evidence that suggests all of these had a successful hatch (see Figure 1).

We developed a volunteer field manual for mallard nest tunnel installation, monitoring and maintenance and are developing an MOU for the Delta Waterfowl partnership.

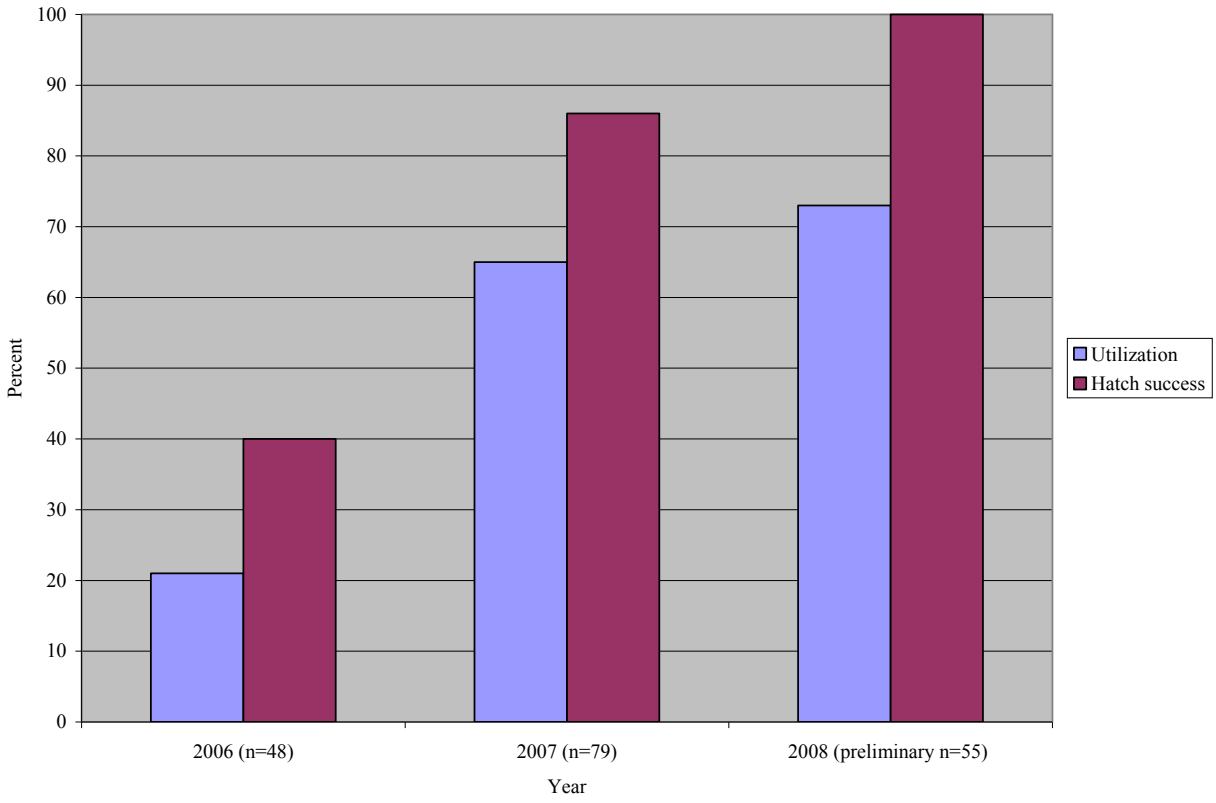

Figure 1. The proportion of used structures and the proportion of those that had at least one egg hatch for mallard nest tunnels checked for the nesting years of 2006, 2007 and 2008.

Previous cavity nest box results indicate use by waterfowl begins at 10% in the initial year of installation and increases to 95% by year six (Potter 1996). In 2008, 274 boxes were maintained of which 198 (72%) had been utilized by ducks and owls. We will monitor approximately 260 boxes in February and March of 2009 and replace missing or damaged boxes.

We made presentations on cavity nesting waterfowl habitat to two adult groups and held a cavity nest box construction workshop with 20 youth and 5 adults. We also led three field trips involving 33 participants. Five more presentations are booked for February and March 2009. In cooperation with DUC, we produced the "Nest Box Guide for Waterfowl" and printed 300 copies.

Summary information / Conclusions

This year's mallard nest tunnel utilization and hatch success is slightly higher than commonly found on similar projects in other areas (Thomson 1994, Eskowich, 1998). Cavity nest box use and hatching rates are consistent with our data from previous years (Potter 1996).

A major benefit of this program is the engagement of volunteers, landowners, and youth. This educational component encourages a conservation ethic through practical means that people of all ages can participate in and understand.

Communications

- Nest Box Guide for Waterfowl, Alberta Edition
- Field trip / presentation – Red Deer Naturalists
- Field trip – Buffalo Lake Naturalists, Potter's Seep
- Field trip – Potter Conservation Easement
- Presentation and cavity nest box construction workshop –Alberta Fish and Game Association – Ponoka chapter
- Alberta NAWMP Partnership April 2007-March 2008 Progress Review – Honor Roll – Jim Potter.
- Magazine articles – Ducks Unlimited Canada – Conservator, April 29, 2008. "On the Fly", *Potter property showcases Encana Ducks partnership* and "Flyway", *Nest boxes give central Alberta ducks helping hand*" - *Habitat Stewardship Pilot Program*.
- Display booth at the Pine Lake Conservation BBQ & Information Session.
- Mountain View Gazette article, September 16, 2008, "Preserving Wetlands near Pine Lake".
- Red Deer County News article October 3, 2008, "Lord Love a Duck".

Literature cited

Corrigan, Robert M. 2007. Effectiveness of nest boxes in influencing population trends for common goldeneye (*Bucephala clangula*) and bufflehead *(B. albeola*) in the Buffalo Lake moraine. MS Thesis University of Alberta, Edmonton. 120 pp.

Eskowich Kim, D. McKinnon, G. Brewster, K. Belcher 1998. Preference and use of nest baskets and nest tunnels by mallards in the parkland of Saskatchewan. Wildlife Society Bulletin 26(4): 881-885

Potter, James R. 1996. Nest Box Program. Unpublished Report. Natural Resources Service, Red Deer, AB. 27 pp.

Thomson, Bob, E. Stams, K. Schmitt 1994. Duck nesting tunnels experiences in 1993/94. Unpublished Report. Ducks Unlimited/Alberta Prairie Care, Red Deer, AB. 8 pp.

Fort Saskatchewan Fish and Game volunteer checking to see if mallards used this nest tunnel, and whether evidence of hatched eggs is present (Photo:Gord Blize)

Peering through a mallard nest tunnel with evidence of a used nest bowl (Photo: Gord Blize)

Close-up of a newly constructed cavity nest box (golden eye, or bufflehead) that has not yet been mounted to a tree (Photo: James Potter)

Hen bufflehead and ducklings in a cavity nest box (Photo: James Potter)