

The 4-H Motto

"Learn To Do By Doing."

The 4-H Pledge

I pledge

My **HEAD** to clearer thinking,
My **HEART** to greater loyalty,
My **HANDS** to larger service,
My **HEALTH** to better living,
For my club, my community and my country.



The 4-H Grace

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great
On this, our own fair land.
Teach us to serve thee joyfully,
With head, heart, health and hand.

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Alberta Agriculture and Rural Development
7000 113 ST RM 20 NW
EDMONTON AB CANADA T6H 5T6

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Check out our web site at: <http://www.4h.ab.ca> for an on-line version of this resource.
Email info@4h.ab.ca Phone 310-0000 (Toll-Free Rite Line) then **780-422-4H4H (4444)**.

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INTRODUCTION

Welcome to the 4-H NESTBOX project. In this project, you will learn about cavity-nesting birds and will be able to construct, set out, and look after your own nesting boxes and brackets. Nestboxes and brackets provide artificial “housing” for cavity-nesting bird species and are especially important for their decline has been the loss of many of their natural nesting sites and the out-competition by House Sparrows and European Starlings. Cavity-nesting birds require a cavity or hole to nest in. Some cavity-nesting species, such as woodpeckers, chickadees and nuthatches, are able to excavate (dig out) their own cavity. These are called primary cavity-nesters. Others such as bluebirds and tree swallows cannot excavate their own cavity, so rely on primary cavity-nesters to provide their sites for them. These birds are called secondary cavity-nesters. The use of nest boxes and brackets, therefore, will provide our native species with sites that might otherwise be unavailable. You do not have to be a carpenter or a professional bird watcher to have a successful nestbox or bracket trail. If you follow the guidelines on construction, placement and monitoring, you will most likely be successful at attracting at least one bird species. You will not only be helping the birds, but you will also be gaining a better understanding of wildlife in a fun and enjoyable way.

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OTHER ENVIRONMENT PROJECTS

You may be interested in completing “LIVING WITH WILDLIFE” and “WORKING WITH WLDLIFE” projects, and 4-H “PHEASANT PROJECT” and 4-H “ENVIRONMENT PROJECT”. Contact your district office for details.

ACHIEVEMENT DAY

Near the end of this project, club members should hold an Achievement Day where you will tour each member’s nestbox trail. You may give a short talk on the ecology, behaviour and conservation of the birds that have used your nest boxes and brackets, discuss the success rates of each box and comment on some interesting observations you have made, ways you can improve your trail, and how much time you spent on the project. Your record book, which will be nearly completed by then, should be on hand for other members to view.

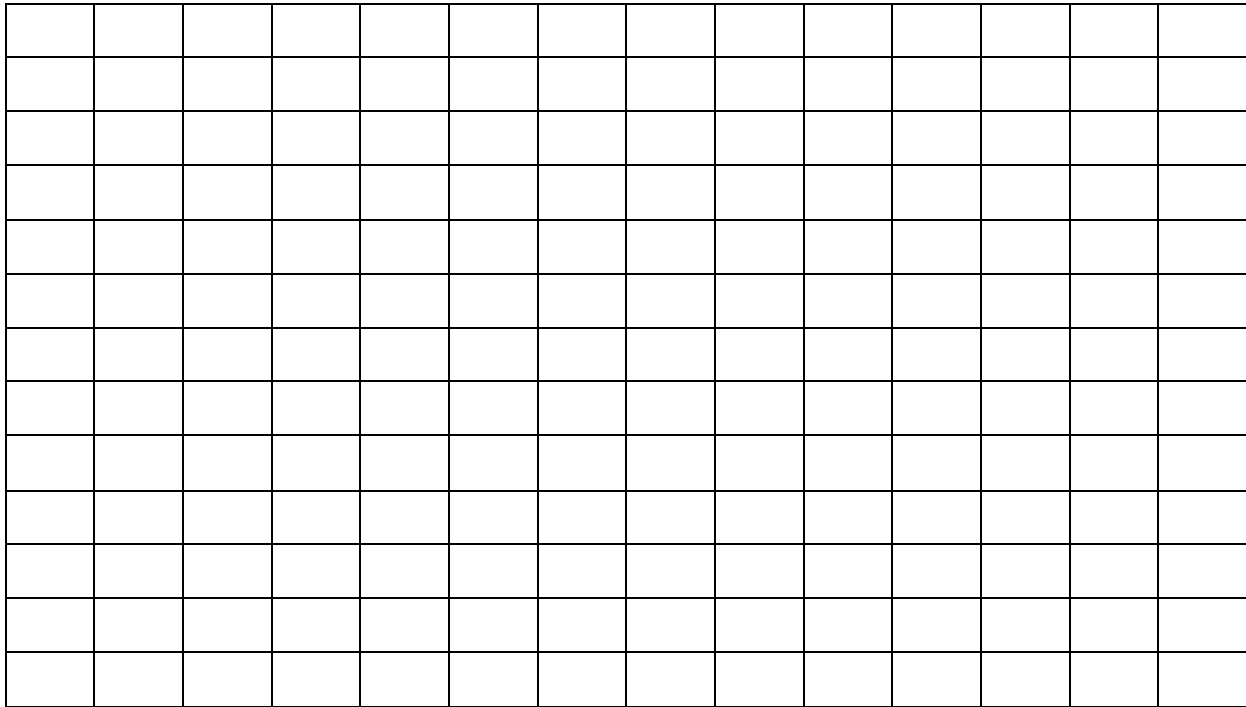
INDIVIDUAL PROJECT

Your project should consist of at least six boxes. Ten boxes will be the maximum number you should build under this program. You will want to read the introductory sections of the accompanying project manual entitled NESTBOXES FOR PRAIRIE BIRDS before starting the project. Plans for building nest boxes are included in this book.

During the course of the project, you will record observations on the ecology and behaviour of the birds which use the boxes or brackets. You will also record the activities in each box. Photographs of the habitat around each box and a detailed map of your trail will also be included.

NEST BOX TRAIL MAP

A map will help you determine the best locations for your boxes or brackets and will make it easier for others to find your trail. Try to make your map as detailed and as close to scale as possible.



LEGEND

- Fenceline
- Roads
- Buildings
- Pond or Lake
- River or Stream
- Shrubs or Aspen Trees
- Conifers (Spruce or Pine Trees)
- Identify location of each box by it's number

Outside edge of Farm Site ---

- | | | | |
|---------------------------|---|--------|---|
| Forage Crop | <input style="width: 100%; height: 15px;" type="text"/> | Barley | <input style="width: 100%; height: 15px;" type="text"/> |
| Summer fallow | <input style="width: 100%; height: 15px;" type="text"/> | Oats | <input style="width: 100%; height: 15px;" type="text"/> |
| Grassland | <input style="width: 100%; height: 15px;" type="text"/> | Wheat | <input style="width: 100%; height: 15px;" type="text"/> |
| Ungrazed | <input style="width: 100%; height: 15px;" type="text"/> | Other | <input style="width: 100%; height: 15px;" type="text"/> |
| (please indicate by color | | | |
| Pasture | <input style="width: 100%; height: 15px;" type="text"/> | | |

Scale: 1 cm = _____

LOCATING YOUR BOXES AND BRACKETS

You have set out each box in a certain habitat and at a certain site in hopes of attracting certain bird species. After you have placed your boxes, give one or two reasons for placing each of them as you have. At the end of the season, you can fill in the last column, indicating if you were indeed successful at attracting the bird you wanted. Be sure you carefully read through the species descriptions in the reference book so that you are not trying to attract a species that does not even occur in your area!

BOX NO.	SITE CHOSEN	DESIRED SPECIES	REASONS FOR CHOOSING THIS LOCATION	SPECIES ACTUALLY USING BOX
Example: Box #1	open fenceline along pasture	MB	1. Pasture provides plenty of food 2. Box in 2 km from nearest building	MB
Box # 1				
Box # 2				
Box # 3				
Box # 4				
Box # 5				
Box # 6				
Box # 7				
Box # 8				
Box # 9				
Box # 10				

OBSERVING THE ACTIVITIES AT YOUR NESTBOXES AND BRACKETS

By quietly observing your box or brackets from a safe distance (at least 10m), you can learn many fascinating things about bird behaviour. Using binoculars or a spotting scope will help you observe activities around the box without disturbing the birds. Before you begin these observations, you should carefully read the section “Setting Up A NestBox Trail” (p. 10, “Nextbox For Prairie Birds” manual). You may want to get more detail on your species from other books as well. Once a bird has taken up residence in your box or on your bracket, you should then study as much as possible about that species. See the species discussions in the manual for general information. Remember: it is more important that the birds are successful at raising a family than it is to collect information on them.

The record pages are organized into a number of topics. Following is a list of suggestions for organizing your observations.

DESCRIPTION: What is the physical appearance of the bird; its size, shape, color, type of beak and feet, special markings, differences between sexes?

MIGRATION: Is the bird a resident or a migrant? If it is a migrant, record when you first see it in the spring and note when the species departs in late summer or early fall.

ABUNDANCE: How many of this species have you seen during the breeding season? Are they common birds? Un Alberta? In your area? Do they tend to move about in flocks, or are they solitary? Do they concentrate their activities in certain locations or habitats?

TERRITORY: How much area does the pair claim as their own? How do they defend this territory? Are others of their own kind allowed to come into the territory? Are other species of birds kept out? Do they defend their territories against other intruders (e.g., cats, people, horses, etc.)? Describe some of the interactions you observe.

COURTSHIP: Describe the courtship activities that you observe. Some of these activities are very complex and difficult to distinguish. Try to identify some of the behaviors associated with selecting a nest site, selecting a mate, courting and mating. Some of these behaviors will include special flight patterns, such as hovering and fluttering the wings, and such displays as bowing to each other and rubbing bills. Where is most of this activity concentrated?

NEST BUILDING:

Describe the type of nest the species makes. What materials are used? Is the base material different from the lining? Does the cup part of the nest take up the whole floor area, or is it placed in one corner? How long does nest building take? Does it appear that the birds abandon the nest at times? Which of the parents constructs the nest?

BREEDING:

How many eggs are laid? How frequently are the eggs laid? What is the egg color and size? Which parents incubate?(Both?) For how long? What happens to the egg shells after hatching? Who carries out the fecal sacs, and for how many days is this done following hatching? Are the young fed by both parents? Does one parent capture food and transfer it to the other to feed the young? Is the food prepared in any way before it is fed to the young? Are the young brooded after hatching? For how long? What is the role of the male in rearing the young? What happens when the young fledge?

FEEDING:

What kind of food does the bird eat? What habitat does it hunt in? How is prey captured? How frequently does it feed? Are the young fed by both parents? Does one parent capture food and transfer it to the other to feed the young? Is the food prepared in any way before it is fed to the young? Are the young fed after they fledge?

FLEDGING:

Do the young stay around the nest site after they have fledged? If so, for how long? How long does the family unit stay together?

OTHER:

Have you made any other observations which don't seem to be covered in the above categories, or have you observed some behaviour which is puzzling?

KEEPING TRACK OF YOUR TRAIL

Keeping a careful record of the activities in your boxes or brackets makes a project of this kind much more interesting. You can keep records of which boxes or brackets are used by what bird species and of the egg-laying, hatching, fledging, etc, dates. Not only is this information interesting, it is also important for specific studies. Much has been learned about the breeding biology of cavity-nesting species through observations on nestbox trails.

You will be using this record book to collect your information. While most of the terms found on the record form are self-explanatory, this quick review should ensure you fill it in correctly.

- 1) **Nestbox Number** – the number that you have assigned to your box.
- 2) **Year** – the year in which the information is collected.
- 3) **Land Owner** – the person on whose land the trail is located.
- 4) **Location** – given by land location and the distance from the nearest town.
- 5) **County or municipal district** – the county that your box is in.
- 6) **Latitude and Longitude** – determined by looking at a topographical map.
- 7) **Habitat** – can be chosen from the following list
- 8) **Box Height** – the distance between the bottom of the hole and the ground.
- 9) **Mounted-On** – from this list:
 1. Grassland
 2. Cereal Crop
 3. Hayfield-Forage Crop
 4. Summerfallow
 5. Farmyard
 6. Urban Yard
 7. Urban Park
 8. Golf Course
 9. Cemetery
 10. Lake or Pond Site
 11. Stream Bank
 12. Mixed Forest
 13. Deciduous Forest
 14. Coniferous Forest
 15. Brush/Shrubland
 16. Badlands
 17. Alpine Tundra
 18. Acreage (no farm buildings)
 19. Other (specify)

- 10) **Floor Size** – the total floor area (in cm²).
- 11) **Hole Size – the diameter of the entrance hold (in mm).**
- 12) **Species** – may be abbreviated. MB (Mountain Bluebird); TS (Tree Swallow); HS (House Sparrow); ES (European Starling); BCC (Black Capped Chickadee); ect.
- 13) **Number of Eggs, Number hatched, etc.** – fill in after each phase has been completed.
- 14) **Date Hatched** – the day the young hatched.
- 15) **Cause of Nest Failure** – if a nest was started in a box, but young never fledged, list one of the following reasons: House Sparrow, Other Birds, Mammals, Vandalism/Disturbance, Weather, Parasites, Structural Failure, Other.

NESTBOX RECORDS

Fill in one form for each box that is used. If possible, include a photo that shows the box and the surrounding habitat.

Example

Nestbox No.: 001234 Year: 1985
 Landowner: John Doe
 Location: SE $\frac{1}{4}$ 255 S 39 T 26 R-W 5 Meridian
8 km E and 8 km S of Lacombe
 County: Lacombe Altitude: 1029m
 Latitude: 52° 23' Longitude: 113 ° 36'
 Habitat: Pasture
 Box Height: 125 cm Mounted on: Post
 Floor Size: 161 cm² Hole Size: 40 mm
 Date Box Put Up: April 15/85

	<u>First</u>	<u>Second</u>
Species	MB	TS
No. Eggs	7	6
No. Hatched	6	6
No. Fledged	5	-
Date Hatched	June 5	July 27
Cause of Nest Failure		All young died-cold weather

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED
May 10	8: 00 a.m.	M.B. ?	Male MB near box. No nesting material. Both male and female near box. Female observed sitting on fence while male hovered near her.
May 11	10:00 a.m.	M.B.!!	Nest almost complete. Both adults nearby/
May 15	8:00 a.m.		Nest complete. Cup at back of box.
May 17	7:00 a.m.		1 egg. Male appeared upset when I approached.
May 18	7:30		7 eggs. Female left nest as I checked box.
May 24	8:00 a.m.		Female incubating. Did not leave the nest.
May 30	10:00 a.m.		5 young. 2 eggs. Just hatched. Male with fecal sac.
June 5	4:00 p.m.		6 young. 1 infertile egg removed. Both parents busy feeding young. Male dove at me.
June 10			5 healthy young. 1 dead, removed. House Sparrow came near box, and was chased away by male.
June 16	10:00 a.m.		All young fledged. Box cleaned out. 2 young seen near box in tree-calling to parents.
June 23	8:00 a.m.		T.S. near box.
June 25	2:30 a.m.	T.S.?	T.S. nest almost complete. I brought a handful of chicken feathers – They took them out of my hand!
June 30	3:30 p.m.	T.S.	1 egg. No adult seen.
July 5	8:00 a.m.		2 eggs. Both adult on box lid. Mal bowing to female.
July 7	7:00 a.m.		

Box #1

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #2

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #4

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #5

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #6

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #7

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #8

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #9

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

Box #10

Nestbox No.: _____ Year: _____
 Landowner: _____
 Location: _____¹/₄ _____ S _____ T _____ R-W _____ Meridian
 _____ km _____ and _____ km _____ of _____
 County: _____ Altitude: _____
 Latitude: _____ Longitude: _____
 Habitat: _____
 Box Height: _____ Mounted on: _____
 Floor Size: _____ Hole Size: _____
 Date Box Put Up: _____

	<u>First</u>	<u>Second</u>
Species		
No. Eggs		
No. Hatched		
No. Fledged		
Date Hatched		
Cause of Nest Failure		

OBSERVATION NOTES

DATE	TIME	SPECIES	ACTIVITIES OBSERVED

SUMMARIZING YOUR WORK

These last pages are for you to summarize the activities on your trail.

Describe some of the interesting experiences you had on your trail:

What did you enjoy most about this project?

How could you improve your trail?

Will you relocate any of your boxes next year? If so, where will you move them to? If not, why?

Did you have any boxes which were put in good locations, but did not attract the desired species? If so, suggest why this may have happened.

Why is it important to save forests that have snags and dead trees in them?

Why are cavity-nesting birds important?
