

BRITISH COLUMBIA NEST RECORD SCHEME

53rd Annual Report - 2007 Nesting Season



R. Wayne Campbell, Michael I. Preston and Linda M. Van Damme

PARTICIPANT PROFILES

Each year is a challenge to maintain the support of long-time contributors and encourage new participation of younger individuals with an interest in recording information on birds breeding in the province. Over the 53 years that the BCNRS has been operating this balance has fortunately been continued despite the increasing number of other distractions.

Both of the participants highlighted this year have received sound mentoring themselves, have been long-time contributors, and both are actively mentoring others.

Hilary Gordon

Hilary, a resident of Revelstoke, had her initiation into the world of birding in 1988 when the late Doug Powell started leading field trips in the region. She was keen to participate as the outdoors had always been a part of her life and she wanted to learn more. Hilary soon realized what she had been missing and soon marveled at all the beautiful birds and many she had not seen before.

She soon joined other volunteers in conducting bird counts along a 12 kilometre stretch of the Columbia River flats organized by John Woods, a Parks Canada biologist. A technical report, authored by Ellen Tremblay, was later published.

She later moved to Salmon Arm where she met local birders Tom Brighthouse and Ted Hillary. With her Revelstoke experience Hilary was instrumental in organizing waterbird surveys along the southern Shuswap Lake waterfront in 1997. This information was compiled by Hilary and sent to the Biodiversity Centre for Wildlife Studies for archiving and use in conservation activities.

Doug Powell also introduced Hilary to nest finding and she soon became an active contributor to the *British Columbia Nest Record Scheme*. She has thoroughly enjoyed the challenge that finding birds' nests offers and over the past 20 years has had several highlights that are indelible in her mind. Once she finally located the nest of the elusive Common Yellowthroat but when she returned to get a photo the nest it was so well concealed she failed to find it again. She had often recorded Common Loons with their chicks but was thrilled when she saw her first loon nest, on Nicola Lake, with one egg. One of the biggest shocks was recording her first family of American Coots, with newly hatched young, of weird little red and black objects that looked like they were from another planet. One of her funniest nesting events happened at Malheur Wildlife Refuge in Oregon, when she exited the woman's washroom and had a fleeting glimpse of a White-headed Woodpecker who had excavated a nesting cavity excavated in the outhouse.

Hilary is a regional co-ordinator for the Biodiversity Centre for Wildlife Studies and patiently encourages people to send observations and breeding records to her so she can systematically organize the information before sending it on for processing. Much of what is known for the Shuswap Lake area is a result of the support of local naturalists and her commitment to bird conservation in the province.



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Compiled by

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CONTENTS

GREETINGS EVERYONE!	1
BRITISH COLUMBIA NEST RECORD SCHEME INSTRUCTION MANUAL.....	1
NEW NEST CARDS	2
A CATALOGUE OF BRITISH COLUMBIA FRESH-WATER BIRD COLONIES.....	2
THE 2007 NESTING SEASON	5
SUMMARY	5
NOTEWORTHY EVENTS.....	5
HIGHLIGHTS	7
FAMILIES AND SPECIES	7
COVERAGE	9
PARTICIPANTS.....	11
QUALITY OF INFORMATION	12
NOTES FROM THE FIELD.....	17
HISTORICAL INFORMATION.....	28
LIST OF SPECIES WITH TOTAL BREEDING RECORDS BY FAMILY	29
LIST OF ACTIVE (IN BOLD) AND HISTORICAL CONTRIBUTORS IN ALPHABETICAL ORDER.....	33
WILDLIFE WORKSHOPS AND EXTENSION	36
LONG-TERM MONITORING AND INVENTORY PROJECTS	36
NEST BOX TRAILS	37
WETLAND MONITORING.....	38
RING-BILLED GULL	38
WESTERN GREBE	39
GREAT BLUE HERON.....	39
OSPREY	40
BALD EAGLE	41
CLIFF AND BANK SWALLOWS	42
PURPLE MARTIN	42
RARE AND SENSITIVE SPECIES.....	43
FIELD TIPS AND TECHNIQUES	43
CORRECT TERMINOLOGY FOR THE AGES OF BIRDS.....	43
FLEDGE YOUNG.....	45
AGING WATERBIRDS.....	45
FROM THE SCIENTIFIC LITERATURE	46
APPENDICES.....	49
APPENDIX 1. PLUMAGE DEVELOPMENT OF YOUNG WATERFOWL	49
APPENDIX 2. GUIDE TO TIMING OF VISITS TO NESTS OF PASSERINE (SONG) BIRDS.	50
APPENDIX 3. STAGES OF NESTLING GROWTH	51
REQUESTING AND SUBMITTING CARDS	52
ACKNOWLEDGEMENTS	53
THE BRITISH COLUMBIA NEST RECORD SCHEME AND <i>WILDLIFE AFIELD</i>	54
BIODIVERSITY CENTRE FOR WILDLIFE STUDIES - OUR WEBSITE	54

GREETINGS EVERYONE!

With the continued support of our new and long time contributors to the **British Columbia Nest Record Scheme (BCNRS)** we have reached a new milestone of 53 years. We have successfully been able to maintain a method for recording information on nests and broods in the province (Figure 1).

Many new programs such as the recent *BC Breeding Bird Atlas* develop their own format for recording nesting information that may not complement existing long-established programs. Without the historical perspective analysis of information can be misleading.

If you are participating in the short term *Breeding Bird Atlas* project, we'd like to encourage you to continue sending nest cards to the BCNRS to build on our historical past.



Figure 1. For 53 years a small group of faithful volunteers have searched and watched for evidence of nesting, like this Mountain Chickadee with food for its young, and documented their observations on nest cards. Most of what is known about the distribution and breeding biology of birds in the province has originated from the British Columbia Nest Record Scheme. Mahoney Lake, BC. 1 June 2007 (Laure Wilson Neish).

Although we are behind schedule as often happens with volunteering, we are preparing a full history of the BCNRS from its inception in 1955 to 2007. When completed this report will be mailed to past and present contributors and you will be able to see how valuable the scheme has been and will continue to be in research activities, education, conservation, and management of birds in British Columbia.

BRITISH COLUMBIA NEST RECORD SCHEME INSTRUCTION MANUAL

The nest manual originally issued in 2002, and updated in 2004, has been completely revised and re-published in 2008 as **Biodiversity Centre for Wildlife Studies Report No. 1** (2nd edition). While copies have already been sent to contributors some may not have received the manual and others may not be aware that it is available. Copies can be obtained free of charge from the address above.

The new manual (Figure 2) provides guidelines, and reminders, of the kind of information that is important to document for each nest or brood and the format in which the breeding record should be recorded. This helps immensely in electronic data entry and analysis of information. It also adds a level of quality to each observation so its usefulness is increased, as is time in the field.

The 47-page manual is divided into 12 major headings: **Introduction, Participation in the Scheme, Study Areas and General Planning of Fieldwork, Timing Visits to a Nest, Code of Conduct, Filing in the Cards, Sending in Cards, The Data which Nest Record Analysis Provides, Field Tips and Techniques, Appendices, and Requesting and Submitting Cards.**

Some information has been extracted and included from the annual reports published since 1997 (e.g., diagrams for **Stages of Nestling Growth** and **Aging Waterfowl from Hatching to Adult Stage**; Figure 3). These will hopefully serve as a reminder to record the various stages of development for nestlings and broods.

Five Appendices include detailed lists of **Habitats and Codes, General Nest Location and Codes, Specific Nest Position and Codes, Nest Materials, Linings, and Codes, and Alphabetical List of Bird Species and 4-Letter Codes.** Once these standardized codes become familiar they can be used to save time when filling out cards.

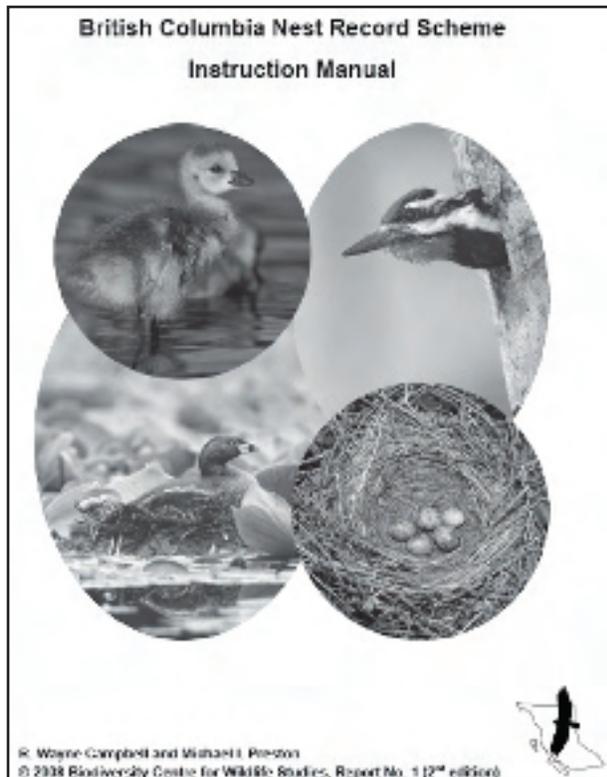


Figure 2. The revised British Columbia Nest Record Scheme Instruction Manual was recently published to help remind contributors of the kinds of information that should be recorded for each nest and brood and to standardize the way in which it is recorded.



Figure 3. To assist with developing a species breeding chronology for different regions of British Columbia, and altitudinal gradients, it is important to refer to the *Instruction Manual* for estimating ages of waterfowl broods. This brood of Canada Geese is classified as *Class1A where young are down-covered and from 1-7 days of age*. 100 Mile House, BC. 21 May 2006 (R. Wayne Campbell).

NEW NEST CARDS

Over the past several years a few contributors have become frustrated, and bewildered, with the amount of additional information that was requested in shaded portions of a single visit card. These two boxes contained spaces for coded information for ecological information and details for the location, specific location, and materials for a nest. Some filled in these areas but the additional work was too time-consuming. While this material is useful it can probably be completed more efficiently when dealing with an individual species summary.

The shaded areas of the card have been removed although the instruction manual still lists the codes for those who want to include them in the appropriate spaces. Contributors requested that new cards (Figure 4), instead, have a space for Universal Transverse Mercator co-ordinate system (UTM) details. This is a grid-based method of specifying locations on the surface of the earth.

A CATALOGUE OF BRITISH COLUMBIA FRESH-WATER BIRD COLONIES

In 1961 Dr. Rudolph H. Drent and Charles J. Guignet published a monograph "*A Catalogue of British Columbia Sea-bird Colonies*" that was a fairly complete record of marine bird colonies along the coast. The senior author knew the significance of having summary information available in a single volume for provincial and regional conservation and management activities. At the time information was received in "hard-copy" and was not available electronically. The task must have seemed overwhelming. Still, the publication created an awareness of sea-bird colonies in British Columbia and led to the protection of 80% of the entire breeding population mainly through sanctuaries and ecological reserves (Figure 5).

Like marine birds, diverse groups of fresh-water waterbird species are dependent on habitats such as marshes, lakes, and rivers, for the reproductive portion of their life cycle. Although many of these species are highly adaptable to constantly changing wetland conditions they are vulnerable to a host of human activities that in some cases may include nearby foraging areas.

While information for this group of waterbirds has slowly been accumulating for the past 40 years or so a concentrated effort to centralize information

Annals
British Columbia Nest Record Scheme

Species: <u>Hummingbird</u> Map Grid: <u>92B/6</u> Name of Observer: <u>Ron Jeffries</u>				
Locality: (place name and specific location) <u>CABORO BAY (University of Victoria - Finerty Gardens)</u> Elevation: <u>11</u> m	Cowbird Parasitism Yes No	REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)		
	NUMBER OF EGGS OR YOUNG per VISIT			
Habitat: (surrounding vegetation) <u>Urban campus - mixed Douglas-fir, w. redcedar and rebalden, ponds and gardens</u>	Day : Month : Year	Eggs	Yng.	
	<u>24</u> : <u>Feb</u> : <u>2008</u>	<u>-</u>	<u>?</u>	<u>adult ♀ feeding</u>
	<u>26</u> : <u>Feb</u> : <u>2008</u>	<u>-</u>	<u>?</u>	<u>"</u>
	<u>1</u> : <u>Mar</u> : <u>2008</u>	<u>-</u>	<u>?</u>	<u>"</u>
	<u>8</u> : <u>Mar</u> : <u>2008</u>	<u>-</u>	<u>2</u>	<u>large nestlings</u>
	<u>10</u> : <u>Mar</u> : <u>2008</u>	<u>-</u>	<u>2</u>	<u>ready to leave</u>
If more than 7 visits are paid to a single nest use another card for further visits				
General Location: <u>saddled on a bare</u>		NEST DESCRIPTION		
Position: <u>branch of live Douglas-fir</u>		Materials:		
<u>8 1/2' from trunk</u>		Height above ground/cliff-base/water <u>8.7</u> m		
UTM Zone <u>10U</u>		UTM Easting: <u>0476588</u>		UTM Northing: <u>5367556</u>

Figure 4. To encourage more efficient use of nest cards, and provide more information on the precise location of a nest or brood, the shaded portion of earlier cards have been removed and replaced with space to record details for UTM co-ordinates.



Figure 5. While a graduate student at the University of British Columbia, Rudi Drent had the vision to bring together historical information on all sea-bird colonies in British Columbia into a single publication. That effort eventually stimulated protection for 80% of the province's breeding population that includes colonies of the Rhinoceros Auklet, Cleland Island, BC 10 July 1970 (R. Wayne Campbell).

has been intensified over the past decade. This has included establishing electronic databases for both occurrence and breeding information as well carrying out specific conservation activities to enhance nesting sites.

At the present time only colonial-nesting species are being considered for "A Catalogue of British Columbia Fresh-water Bird Colonies" although the Biodiversity Centre for Wildlife Studies data entry program for solitary wetland nesting species (e.g., rails, bitterns, loons, wrens, etc.) continues.

The format will be modified from the sea-bird catalogue because of the size of the digital databases. Each species, however, will be treated separately with a discussion of its breeding season biology and ecology followed by an itemized list of all historical information by year.

Species presently being considered include **Horned Grebe, Red-necked Grebe, Eared Grebe, Western Grebe, Clark's Grebe, American White**

Pelican, Double-crested Cormorant, Great Blue Heron, American Coot (Figure 6), American Avocet, Bonaparte's Gull, Mew Gull, Ring-billed Gull, California Gull, Herring Gull, Glaucous-winged Gull, Caspian Tern, Black Tern, Arctic Tern, Forster's Tern, Marsh Wren, Red-winged Blackbird, Yellow-headed Blackbird, and Common Grackle.



Figure 6. Although the American Coot is usually considered a solitary nester there are many sites in British Columbia where the species nests in loose colonies. Dragon Lake, BC. 4 June 1999 (R. Wayne Campbell).

Initially, the task of collating information is overwhelming but over the years databases grow and soon there is enough supporting information to analyze the records with some confidence. While data is being entered electronically many old and new fresh-water colonies are being surveyed each year and some have had nesting platforms established to increase reproductive success for species showing declining numbers (Figure 7).

Breeding records for waterbird species added to the BCNRS in 2007 were from: **Paul Andrew** (Black Tern), **Brian Armstrong** (Black Tern), **Vicky** and **Lloyd Atkins** (Red-necked Grebe and Red-winged Blackbird), **Tom Brighthouse**, **Doug Ibbitson**, and **Ted Hillary** (Ring-billed Gull), **Gary Brown** (Black Tern), **Wayne** and **Eileen Campbell** (Red-necked Grebe, Eared Grebe, Western Grebe, Great Blue Heron, American Coot, Ring-billed Gull, California Gull, Herring Gull, Caspian Tern, Black Tern, Red-winged Blackbird, Yellow-headed Blackbird, and Common Grackle), **T. Cooper** (Black Tern), **Larry Davidson** (Great Blue Heron), **Ducks Unlimited Canada** (Black Tern), **Sheila Falle** (Great Blue Heron), **D. Lorne Frost** (Black Tern), **Jim Ginns** (Great Blue Heron), **Robert Harding** (Herring Gull), **David**



Figure 7. Continuing in 2008 will be the Biodiversity Centre for Wildlife Studies program of setting out permanent nesting platforms for Black Terns in wetlands where fluctuating water levels threaten nesting success. Here six platforms are being assembled to be set out on a marshy lake near Chetwynd, BC. 31 May 2007 (R. Wayne Campbell).

Hatler (Mew Gull), **Ted Hillary** (Western Grebe), **Dean Howell** (Herring Gull), **Paul Hunter** (Black Tern), **Walter B. Johnstone** (Black Tern), **Nancy Krueger** (Eared and Red-necked Grebe), **Steven Lawrence** (Bonaparte's Gull), **Robert E. Luscher** (Black Tern), **C. McNeil** (Herring Gull), **James A. Munro** (Eared Grebe, Western Grebe, American Coot, and Black Tern), **O. J. Murie** (Western Grebe), **Mark Nyhof** (Mew Gull), **Allen Poynter** (Red-winged Blackbird), **Michael I. Preston** (Black Tern), **Sheila Reynolds** (Great Blue Heron), **David Ross** (Eared Grebe), **Glenn Ryder** (American Coot), **Salmon Arm Naturalists** (Western Grebe), **Jim Switzer** (Black Tern), **John Wiebe** (Black Tern), and **Linda Van Damme** and **Cyril Colonel** (Red-necked Grebe, Western Grebe, Double-crested Cormorant, Great Blue Heron, Black Tern, and Forster's Tern).

THE 2007 NESTING SEASON

Summary

This was an “average” year for the British Columbia Nest Record Scheme for numbers of breeding records but still an exceptional year when compared to similar Nest Record Schemes in North America. Since 1997, when full and detailed annual reports were published, the number of records per year averaged **12,629** for the 11-year period (range: 5,326 to 27,645). The 2007 total was **12,839 records!** The high numbers again are due, in part, to the continuing program to transfer historical nests and broods to cards.

The quality of information that is being recorded is again very encouraging. Many cards have prints and diagrams, GPS locations, repeat visits, second nestings (Figures 8 and 9), detailed notes on habitat and behaviour, delightful stories, and full names of contributors.



Figure 8. A pair of Say's Phoebes successfully raised two families in a nest atop an electrical control panel on this old building in 2007. Near Vernon, BC. May 2007 (Lloyd Atkins).

The spring and early summer weather varied considerably around the province but it was generally wet and cool. At Quick, east of Smithers, Evi Coulson mentioned “*We had a record snowfall of 32” on 27- 28 October 2006. The snow stayed ‘till the end of April 2007. However, it was not such a cold winter, in fact it was thawing or raining almost every other week. Spring was wet and cool with late frosts. There was a hot spell in early June followed by extensive flooding in the Bulkley valley. Summer too was wet and cool with few sunny days and so was fall.*”



Figure 9. Following through with observations of second, and even third nestings, is a valuable part of the information that the British Columbia Nest Record Scheme stores. These Say's Phoebe nestlings are the second family raised by the same pair of adults. Near Vernon, BC. July 2007 (Lloyd Atkins).

This summary seemed to hold for many parts of the province, especially the northeastern region. Again, the number of nestlings found “dead” in nest boxes and on “bluebird trails” was “about average” but some regions reported a heavy infestation of bot fly larvae.

Another 10,000 single visit nest cards were printed and mailed to contributors in the spring along with the 55-page annual report. It appears that contributors are pleased with additional information that enhances their note-taking and contributes more to the kinds of information that are useful to scientists.

This year **12,839 breeding records** were added to the British Columbia Nest Record Scheme for **228 species**. Of these, **7,701 cards** were submitted by **221 active participants** for the 2007 nesting season. Another **5,138 nests and/or broods** were transferred from historical sources.

Noteworthy Events

No new species were discovered in 2007 but again there were significant range extensions, early breeding dates, nest discoveries for rare species, unusual nest sites, and new locations for colonial-nesting species.

Several articles appeared in the provincial journal *Wildlife Afield* related to breeding birds.

For some time naturalists and biologists have become concerned about the impact that **Bald Eagles** might have as predators on nesting **Great**

Blue Herons. The recent phenomenon is not fully understood and appears that it varies greatly throughout the province. In the Creston valley **Linda Van Damme** and **Cyril Colonel** spent 1,055 volunteer hours observing nesting colonies of Double-crested Cormorant and Great Blue Herons in the Creston valley between 2003 and 2007. In their paper [Bald Eagle Predation and Other Disturbance Factors at Double-crested Cormorant and Great Blue Heron Nesting Colonies in the Creston Valley, British Columbia](#) (Wildlife Afield 4:213-232, 2007) they only witnessed four attacks, two on cormorants and two on herons. They concluded “*Bald Eagle predation is a rare, but normal event in the dynamic life...*” of these birds.

Another article was a first for a marine-nesting species. **Samuel de Beer** discovered **Pigeon Guillemots** nesting on an active ferry travelling between islands on the Queen Charlotte Islands (Figure 10). In his article [Pigeon Guillemots Breeding on a Moving Vessel](#) (Wildlife Afield 4:259-262, 2007) he noted that this species is only known to breed in natural crevices and burrows and occasionally on human-made structures such as piers and wharves.

In the same issue Geoffrey Barnard documented another first with his article [Re-use of Rufous](#)



Figure 10. To get this photo of nestling Pigeon Guillemots huddled together in a dark crevice on this ferry deck Samuel de Beer pointed his camera into “a space” and flashed a shot. Skidegate Inlet, BC. 21 July 2007.

[Hummingbird nest by Anna’s Hummingbird in British Columbia](#) in Victoria (Wildlife Afield 4:256-258, 2007).

An important function of the BCNRS is to have on file notable changes in the breeding distribution of birds over time. While there is concern over declining species in southern areas of the province (e.g., Common Nighthawk, Olive-sided Flycatcher, Yellow Warbler, etc.) it usually takes the combination of large occurrence and breeding databases to help address the issue. The decline may be real but what is not considered is that the entire population may be shifting its range northward and the general population may not be declining at all. Perhaps this may in part be attributed to climate change. Therefore, two **Common Nighthawk** nests discovered in 2007 in northeastern BC is significant.

By the early 1970s there were only a handful of records for this bird in the vicinity of Fort Nelson. By the late 1980s the species was being heard or seen irregularly each summer and by the late 1990s and early 2000s it was present all summer and suspected of breeding. Therefore, a nest with two eggs discovered in a logging slash near Fort Nelson (Figure 11) in 2007 by **Emily Müller** was a great find.



Figure 11. Common Nighthawk “nest” with two eggs found in a small spruce plantation planted in 2005 near Fort Nelson, BC. 9 July 2007 (Emily Müller).

Another nighthawk nest, only the second for the southern Peace River region, was located by **Andrea Pomeroy** about 20 kilometres east of Chetwynd.

Long-term monitoring projects continued in 2007 with inventories of aquatic and terrestrial nesting colonies, hawk and owl nests, nest box trails, and surveys of isolated wetlands for terrestrial and aquatic species.

It has been decided to publish **Common Loon**

as a “*Feature Species*” in the autumn 2008 issue of *Wildlife Afield* instead as a separate monograph. The additional publication is too costly both in money and time to develop a working electronic database and write the account.

Other noteworthy events are highlighted in “*Families and Species*” and “*Participants*” below.

Highlights

Families and Species

The corrected provincial list, once taxonomic changes and historical records were examined more closely, stands at 312 breeding species.

The top four families represented in the top 10 species in 2007 were again colonial nesting birds and species associated with nest box trails. These groups were **Gulls and Terns** (3,181 nests), **Cormorants** (2,374 nests and broods), **Grebes** (1,181 nests and broods, and **Geese, Swans, and Ducks** (1,454 nests and broods).

The top 10 species included **Pelagic Cormorant** (2,031), **Glaucous-winged Gull** (1,810), **Eared Grebe** (931), **Ring-billed Gull** (650; Figure 12), **Black Tern** (475), **Tree Swallow** (469), **American Coot** (382), **Canada Goose** (357), **Mallard** (353), and **Mountain Bluebird** (282).



Figure 12. The colonial-nesting Ring-billed Gull was again in the top ten species for numbers of breeding records in 2007. Shuswap Lake, BC. 28 May 1994 (Linda M. Van Damme).

Of these, five were colonial nesting species that accounted for 46% of all current and historical nests and broods tallied in 2007. Individual nest counts and descriptions were submitted for all of these species.

Over 100 cards were received for 19 species. Some of these included both 2007 season cards and historical records such as **Bufflehead** (251), **Red-winged Blackbird** (238), **Herring Gull** (209), **Cliff Swallow** (194), **Osprey** (184), **American Robin** (179), **Double-crested Cormorant** (175), **Brandt’s Cormorant** (168; Figure 13), **Common Loon** (163), **Western Grebe** (127), and **Great Blue Heron** (114).



Figure 13. All breeding records in 2007 for Brandt’s Cormorant were transferred from historical sources. Starlight Reef. BC. 4 August 1969 (R. Wayne Campbell).

Five families, other than those previously mentioned, with over 300 breeding records included **Swallows** (892 records for seven species), **Bluebirds and Thrushes** (512 records for seven species), **Rails and Coots** (401 records for three species), **Blackbirds and Orioles** (388 records for eight species), and **Ospreys and Hawks** (334 records for nine species).

Significant numbers of cards received in 2007 for species that were either rare or under represented in the collection included **Bufflehead** (251), **White-tailed Ptarmigan** (10), **Clark’s Grebe** (1), **Ferruginous Hawk** (1), **Peregrine Falcon** (20), **Sandhill Crane** (21), **Greater Yellowlegs** (11), **Thick-billed Murre** (1), **Western Screech-Owl** (13), **Black Swift** (2), **White-headed Woodpecker** (2), **Orange-crowned Warbler** (25), **Western Tanager** (13), **Canada Warbler** (22), **Rusty Blackbird** (2), and **Common Grackle** (40).

A significant event in 2007 was the effort put into searching for **Canada Warblers**, and their nests, in northeastern British Columbia. During a three-week effort **Wayne** and **Eileen Campbell** located 108 birds and two nests (Figure 14). The purpose of the survey was to update the species account published



Figure 14. The second nest with eggs for British Columbia was located near Swan Lake south of Dawson Creek. The female flushed from her nest tucked under fallen trembling aspen branches. 27 June 2007 (R. Wayne Campbell).

in *The Birds of British Columbia* (see Feature Species – Canada Warbler by R. W. Campbell, M. I. Preston, M. Phinney, C. Siddle and J. Deal. 2007. *Wildlife Afield* 4:95-160, 2007) and determine if the wood-warbler was as threatened as populations in eastern Canada.

In addition, oil company worker, and keen birder **Hugh Fraser**, sent us his observations of broods he had recorded near YoYo and along the Clarke Lake Road east of Fort Nelson over the past 14 years. These, coupled with a few more historical records, increased the BCNRS collection from five to 34, an increase of 580%.

When the second volume of *The Birds of British Columbia* was published in 1990 the breeding range of the **Greater Yellowlegs** was restricted to the Cariboo-Chilcotin region of the province. Over the

following decade territorial pairs were being noted each summer farther north into the southern Peace River area and in early 2004 a brood was discovered feeding in a beaver pond north of Chetwynd. No nest, however, has been located with eggs.

In 2007, **Andrea Pomeroy** flushed an incubating adult (Figure 15) from its nest with four eggs (Figure 16) in a shrubby willow regenerating burn/clearcut east of Chetwynd. This is only the 12th nest with eggs ever reported in British Columbia.



Figure 15. Well-camouflaged Greater Yellowlegs incubating full clutch of eggs. 20 km east of Chetwynd, BC. 16 June 2007 (Andrea Pomeroy).



Figure 16. Nest and eggs of Greater Yellowlegs. 20 km east of Chetwynd, BC. 16 June 2007 (Andrea Pomeroy).

Ted Hillary watched an adult **Western Grebe** and adult **Clark's Grebe** swimming with a brood of two chicks near Christmas Island at the southern end of **Shuswap Lake**. To date all such occurrences have been of mixed pairs. **Tyler Innes** sent in cards for a very rare nesting of a pair of **Sandhill Cranes** on Vancouver Island, west of **Nahwitte River**, from 2004 to 2007. In **Creston**, **Marcia Long** photographed an

adult **Evening Grosbeak** feeding a recently fledged young (Figure 17), a rare observation.



Figure 17. Every breeding record for an Evening Grosbeak in British Columbia is noteworthy as the total number on file remains below 20.

Although the **Blue Jay** is expanding its range southward, and westward, each year breeding records are few in those areas. **Ralph Gerein** reported another breeding record of the Blue Jay for the **Creston valley**.

Margaret Hubble recorded the latest fledging date for **Cedar Waxwing** in the province. On 2 September she found a nest containing four nestlings on the shore of Okanagan Lake and the next day they fledged. The date of 11 September in *The Birds of British Columbia* was of a family group with already fledged young.

In 2005, **Christopher Buis** reported an early breeding date for a pair of **Wood Ducks** at **Mount Lehman** when he found an egg in a nest box on 17 March, 11 days earlier than reported in *The Birds of British Columbia*. In 2006, he checked the nest box on the same day and it already contained six eggs for a very early calculated egg-laying date of 11 March. He promised to report the first date for 2007! And he did! On 14 March the nest box contained three eggs that means clutch initiation would have to started on 11 March, the same date as the year earlier.

Brown-headed Cowbird parasitism was reported for a number of species including **American Redstart** (Wayne Campbell), **Black-throated Gray Warbler** (Ron Satterfield), **Canada Warbler** (Hugh Fraser), **Chipping Sparrow** (Wayne Campbell), **Common Yellowthroat** (Douglas Graham), **Dark-eyed Junco** (Wayne Campbell), **Golden-crowned**

Kinglet (Mark Nyhof), **House Finch** (David Schutz), **Hutton's Vireo** (Glenn Ryder), **Least Flycatcher** (Douglas Graham), **Orange-crowned Warbler** (Glenn Ryder), **Pacific-sloped Flycatcher** (Glenn Ryder), **Red-eyed Vireo** (Janice Arndt and Linda Van Damme), **Savannah Sparrow** (Wayne and Eileen Campbell), **Song Sparrow** (Wayne Campbell, Sheila Reynolds, Glenn Ryder, David Schutz, Richard Swanston, and Linda Van Damme), **Swainson's Thrush** (Glenn Ryder), **Warbling Vireo** (Chris Charlesworth), **White-crowned Sparrow** (Errol Anderson), **White-throated Sparrow** (Wayne and Eileen Campbell), **Willow Flycatcher** (Gary Davidson and Glenn Ryder), **Yellow-rumped Warbler** (Kevin Atkins, Figure 18; Gary Davidson, Jim Davis, and Linda Van Damme), **Yellow Warbler** (Wayne Campbell and Gary Davidson) and **Common Yellowthroat** (Linda Van Damme).



Figure 18. Fledged Brown-headed Cowbird being fed by adult Yellow-rumped "Audubon's" Warbler. Point Grey, BC. 19 June 2007 (Kevin Atkins).

Please complete two cards for each parasitized nest, one for the host and the other for the cowbird. For other species, like some waterbirds who have "dump" nests, individual cards would be helpful.

Coverage

In total 317 National Topographic Grids (28%) were represented in 2007, down 13% from 2006.

All south coastal areas, including Vancouver Island, the Gulf Islands, and the lower Fraser River valley from Tsawwassen to Hope, had nearly complete coverage. Manning Park, the entire Okanagan valley, accessible parts of the Cariboo-Chilcotin, West and East Kootenay, Thompson-Nicola, Shuswap Highland, the Prince George region were also well covered. Extensive field work

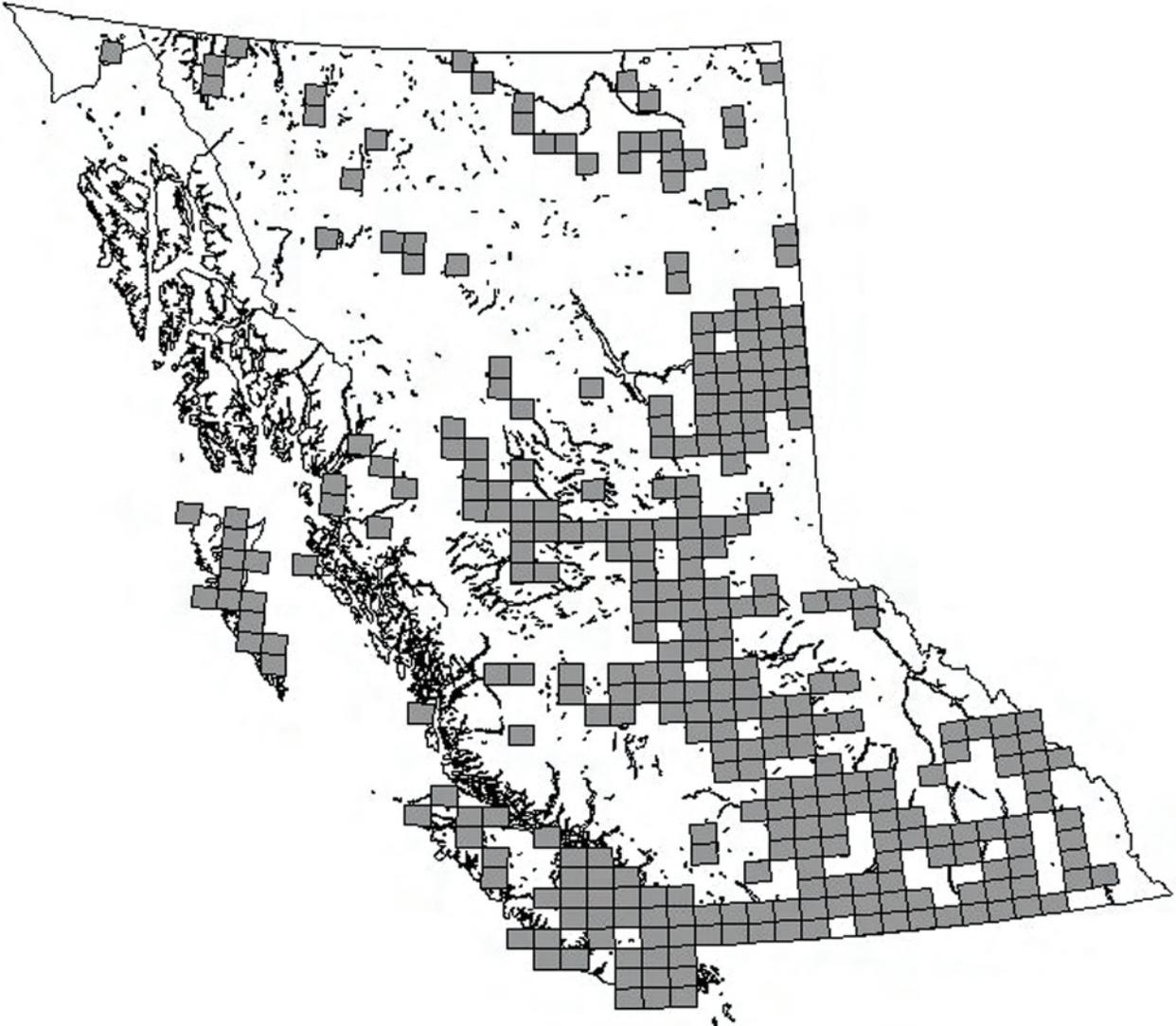


Figure 19. Provincial coverage for the British Columbia Nest Record Scheme in 2007.

on the distribution of the Canada Warbler (see *Feature Species – Canada Warbler*, Wildlife Afield 4:95-160, 2007) resulted in the best coverage for the Boreal Plains and Taiga Plains ecoprovinces of northeastern British Columbia since the BCNRS began in 1955.

Again, the entire north central portion of the province was poorly documented (Figure 19).

Seven grids all had more breeding records (e.g., 5,574) than the highest grid recorded in 2006. These included **Sunshine Coast** (92G/5 – 1,573 records), **Black Creek to Campbell River** (92F/14 – 899 records), **northern Gulf Islands** (92F/15 – 809 records), **Balfour to Bonnington** (82F/11 – 677 records), **Creston valley** 82F/2 – 582 records), **Boundary Lake** (94A/8 – 367 records), and **Barkley**

Sound (92C/14 – 479 records).

There were 75 map grids for which there was a single breeding record.

Back roads of **Vancouver Island** and the **Queen Charlotte Islands** were again explored by **Mark Nyhof**. High numbers of records were submitted for **Osprey**, **Mew Gull**, **Belted Kingfisher** (Figure 20), **Red-breasted Sapsucker**, **Hairy Woodpecker**, **Winter Wren**, **Golden-crowned Kinglet**, and **Townsend’s Warbler**.

Remote areas of the entire **Sunshine Coast** were represented by the nest-finding skills of **Doug Brown**.

The **Peace River region** from Dawson Creek and Swan Lake in the south, to Chetwynd and Hudson’s Hope in the west, the Alberta border in the east, and



Figure 20. Taking time to determine the activity of nest burrows of the Belted Kingfisher spotted while travelling around the province contributes to the species' breeding biology. Parsons, BC. 26 March 2007 (Michael I. Preston).

the Yukon Territory border in the north received the best coverage ever in 2007. While there were a few range extensions the most important information was filling in gaps for birds thought to be breeding in the region.

The intense monitoring program in the **Creston valley** was continued by **Linda Van Damme**, **Cyril Colonel**, and **Marcia Long**. Their efforts were focused primarily on breeding **Double-crested Cormorants**, **Great Blue Herons**, **diurnal and nocturnal raptors**, and **colonial waterbirds**.

The northern **Okanagan valley** was also well covered by **Vicky** and **Lloyd Atkins**, **Alice Beals**, and **Chris Siddle**. The **Cariboo-Chilcotin** was covered by **Beverly Butcher**, **Anna Roberts**, **Jim Sims**, and **Sandy Proulx**. **Salmon Arm**, and the extreme south end of **Shuswap Lake**, was well represented by the huge effort of **Ted Hillary**. **Chris Charlesworth** provided coverage for the second year in a row for the high elevation area of **Highland Valley** near Logan Lake.

Other areas especially well covered included **Nelson/Taghum** area (Avery Bartels and the Arndt family), **Harrison** and **Agassiz** (Janne Perrin and Jan Bradshaw), **Okanagan Valley** (Jim Ginns), **Mackenzie** (Vi and John Lambie), **Swan Lake** in Victoria (Geoff Barnard), **Revelstoke** (Orville Gordon), the **West Kootenay** region (Elaine Moore, Janice Arndt, Rita Wege, Larry Prosser, Lorraine Symmes, Marlene Johnston, and Gary Davidson), **Eagle Lake** (Eve Neale), **Kaslo** (Marlene Johnston), **Kamloops to Chase** (Jan Bradshaw), **McLeese Lake** (Sandy Proulx), **Parksville/Qualicum** (Allen Poynter), **Pemberton** (Ruth Hellevang), **Powell River** (Figure 21), **Prince George/Shelley** (Nancy

Krueger), and **Theodosia Inlet** (Ivar Nygaard-Petersen).



Figure 21. In the past the Sunshine Coast was not well represented for breeding records. Recently northern regions have been well covered by many keen observers. Powell River, BC. 10 May 1999 (R. Wayne Campbell).

Participants

With the increasing demands on naturalists and birders to volunteer their time in a growing number of projects related to “monitoring” and “biodiversity” we are encouraged that many understand the significance of maintaining a constant effort to support gathering of long-term, uninterrupted information. The *Feature Species* accounts published in the bi-annual journal *Wildlife Afield* (Figure 22) clearly shows the conservation potential for such patience.

Every nest card submitted has biological value. Some add to the information for common species, others may be unusual dates or nest sites, and others may be used to look at range expansion and contraction. This year 221 individuals sent cards and as usual a few passionate contributors spent a lot of time searching, and completing cards. It is interesting to note that once spring comes nest finding is a focal interest for most of these people.

Active field contributors in 2007 with over 100 breeding records included **Wayne Campbell** (1,475), **Wayne and Eileen Campbell** (755), **Tom Brighthouse**, **Doug Ibbitson**, and **Ted Hillary** (650), **Linda Van Damme** (493), **Glenn Ryder** (473), **Chris Siddle** (428), **Mark Nyhof** (364), **Sandy Proulx** (192), **Vicky and Lloyd Atkins** (155), **Ted Hillary** (148), **Jan Bradshaw** (135), **David Ross** (123), **Ivar Nygaard-Petersen** (119; Figure 23), **Chris Charlesworth** (117), **Beverly Butcher** (117), and **Vi and John Lambie** (103).

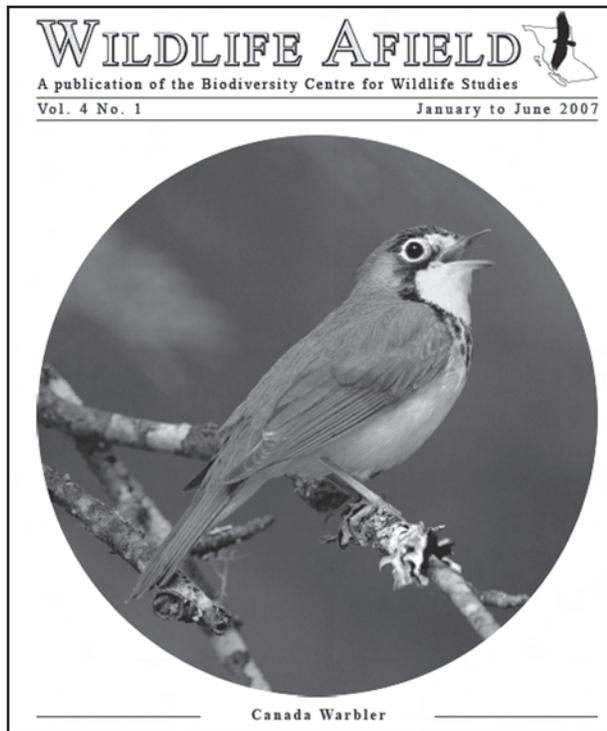


Figure 22. Although information from eastern Canada suggests that numbers of Canada Warblers are declining their true status in British Columbia was speculation. Without information, and to be cautious, the same trend was accepted for British Columbia.

Honourable mention has to go to **Myrna Blake** who participated for the first year and had 96 records from the Fort Nelson area. Many of these were photo-records.

Most hikers into alpine areas are not experienced birders and fewer still record what they see. **Ed Beynon**, fortunately, had his notebook when hiking near the headwaters of **Kain Creek** in the Purcell Mountains and picked up breeding records for **White-tailed Ptarmigan**, **American Pipit**, **Gray-crowned Rosy-Finch**, and **Golden-crowned Sparrow**.

Hilary Gordon continued to serve as a regional co-ordinator of breeding records for many observers in the **Salmon Arm** area.

Every breeding record is important whether an actual nest is found, a brood is seen, recently fledged young are watched being fed, or a nest is spotted that has adults present but the contents cannot be determined.

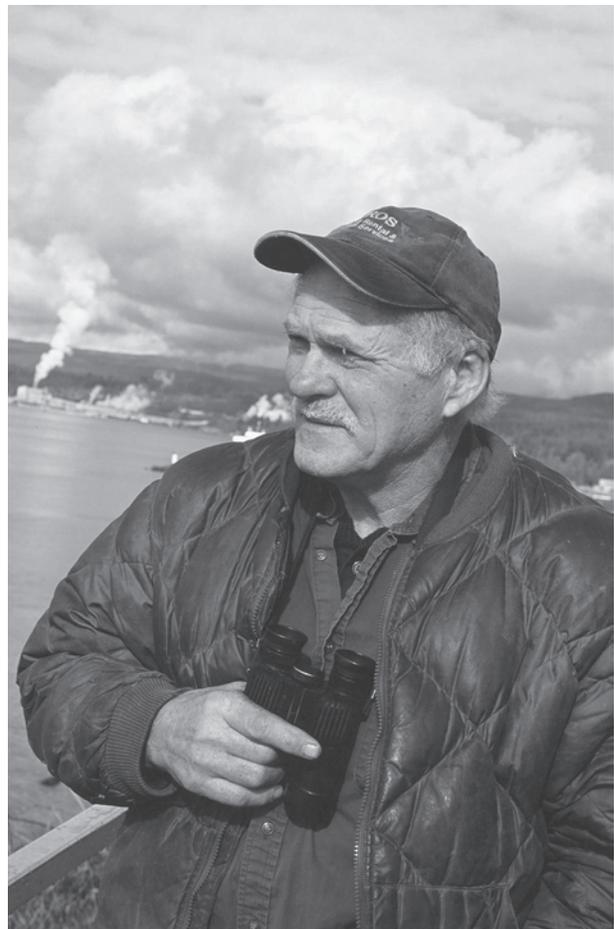


Figure 23. For the first time Theodosia Inlet, Stillwater Bay, and the Powell River area are being well covered mainly by the efforts of Ivar Nygaard-Petersen. Powell River, BC. 23 February 2005 (R. Wayne Campbell).

Quality of Information

Filling in the Blanks

The new nest cards (see Figure 4) have been designed to allow more space to complete important "cells" on the front and back of each card. This is most noticeable in "Habitat" (Figures 24 and 25) where three lines have been added and "Name of Observer(s)" where an additional five spaces will allow for the full name of the contributor.

The spaces for **Universal Transverse Mercator** (UTM) information on the bottom of each card for a nest or brood are an important addition. While hand-held **Global Positioning System** (GPS) units are growing in popularity (and prices are coming down as technology advances) more contributors are



Figure 24. Recording general or specific details of habitats surrounding a nest or brood is important. In this photograph Michael Preston documented the general habitat for a family of recently fledged Northern Hawk Owls near Kobes Creek, BC on 18 June 2007.



Figure 25. Most contributors are now spending the necessary time to record details of habitat in the immediate vicinity of a nest or brood. Some, like Howard Telosky, enhance the text with a print as in this Bushtit nest built in a small residential shrub in Campbell River, BC. on 23 April 2006.

taking time to fill in the three levels. One contributor thought it might be useful to know what “Zones” are in British Columbia.

The UTM co-ordinate system was developed by the North Atlantic Treaty Organization in 1947 based on an ellipsoidal model of the Earth. The surface of the Earth is divided into 60 zones, each 6° of longitude in width and centered over a meridian of longitude. Zones are numbered from 1 to 60

increasing in an easterly direction. Each longitude zone is further divided into 20 latitude zones each 8° high. Each is referred to an easting and northing co-ordinate pair.

There are five “Zones” in British Columbia, moving eastward from the extreme northwest (Zone 7) to the southeast (Zone 11) (Figure 26).

It is very encouraging each year to see more information being added to each card (Figure 27). What is recorded is a permanent record of the observation at the time. Needless-to-say, one can never return to the spot later to record the same information.

Again, the interest in recording additional information on cards is encouraging. Specific information is not “overload” information and our electronic databases have been developed to include and sort additional details that relate to the card. Especially helpful was the increasing number of participants who recorded the estimated age and sex (when possible) of broods and fledged young.

Please remember to print or write legibly within the spaces and use dark ink, not pencil.

The updated 4-letter species code, if preferred, is available in the revised British Columbia Nest Record Scheme Instruction Manual, 2008.

Also, when noted, please list the “race” or “subspecies” on the card. For example, if a **Yellow-rumped Warbler** nest is found please indicate either “**Audubon**” Warbler (AUWA) or “**Myrtle**” Warbler (MYWA). Other species with easily identifiable subspecies include **Dark-eyed Junco** (e.g., “**Oregon**” or “**Slate-colored**” Junco), **Horned Lark** (e.g., “**Arctic**” and “**Dusky**” Horned Lark), **Northern Flicker** (e.g., “**Red-shafted**” or “**Yellow-shafted**” Flicker), and **White-crowned Sparrow** (e.g., “**Gambel’s**” and “**Puget**” White-crowned Sparrow).

Colour phases are also important to record especially for raptors like **Red-tailed Hawk** and **Swainson’s Hawk**. The phases can be described as “**light**”, “**intermediate**”, “**rufous**”, or, “**dark**”. Most Red-tailed Hawks nesting in the Atlin area of north-western British Columbia are “**dark**” morphs.

Whenever possible, please try to describe the stage of development for nestlings (e.g., eyes closed, naked, some down on head, pin feathers, well feathered, left nest, etc.) or the estimated age of downy young, (e.g., loons, grebes, seabirds, waterfowl, grouse, ptarmigan, and shorebirds).

Please refer to **Appendix 1, 2, and 3** for drawings for different stages of development.

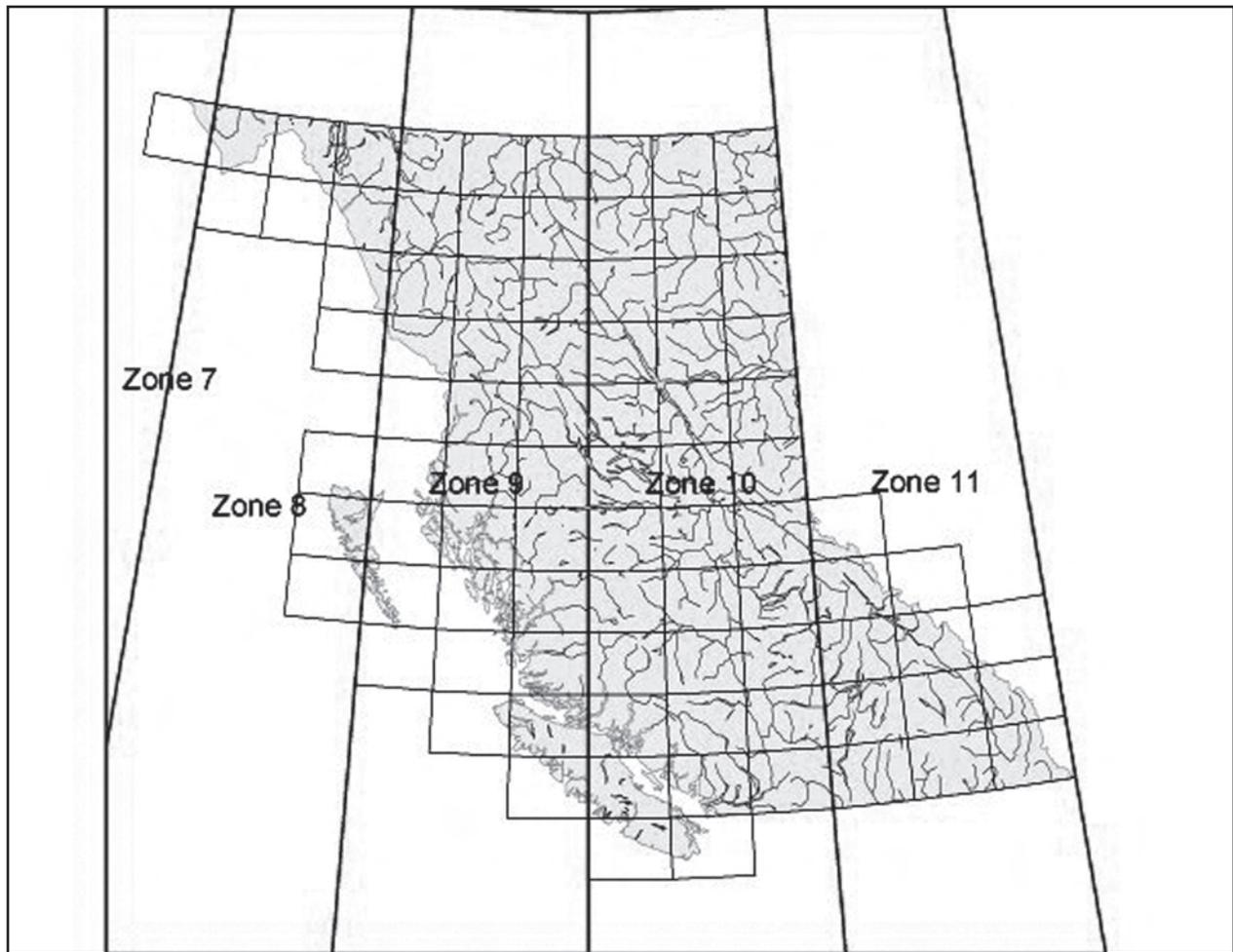


Figure 26. A general overview of the Universal Transverse Mercator (UTM) Zones for British Columbia.

Documentation with Photographs

The number of colour prints attached to nest cards increased again. Most of the images remain attached to the nest card but some noteworthy prints and digital images were added to the **BC Photo File for Wildlife Records**. Each record, however, is cross-referenced to the original submission.

Some contributors submit their information in the form of digital prints, fortunately with full details on the back. From nine prints sent by **Myrna Blake** for a Spotted Sandpiper nest near **Jackfish Creek**, BC, we were able to piece together the sequence for a successful nesting throughout June 2007 (Figure 28, a-e).

Cyril Colonel continued his personal project to document nesting sites for **Double-crested Cormorants**, **Great Blue Herons**, **Ospreys**, **Red-tailed Hawks**, and **Great Horned Owls**, in

the Creston valley. This permanent record is time-consuming and in many cases requires a lengthy walk into a site. Fortunately he has been mentored by Linda Van Damme so each photo-record is accompanied with all relevant information.

Participants who attached photos, or sent digital images, included **Kevin Atkins**, **Vicky** and **Lloyd Atkins**, **Myrna Blake**, **Jan Bradshaw**, **Wayne** and **Eileen Campbell**, **Jim Dubois**, **Margaret Hubble**, **Marcia Long**, **Emily Müller**, **Andrea Pomeroy** (Figure 29), and **Howard Telosky**.

All prints, digital images, and 35 mm slides are welcome and many are scattered throughout this report.

With the new cards we hope that more contributors will include GPS co-ordinates, or UTM scores, on cards. The more precise the location the more significant the record becomes.

ALL species that lay eggs in the nests of

British Columbia Nest Record Scheme						
Species: <u>AMERICAN ROBIN</u>		Map Grid: <u>82L6</u>		Name of Observer: <u>PETER BLOKKER</u>		
Locality: (place name and specific location) <u>15 KM N. OF VERNON ON HOUSE @ 5777 McCLURE RD</u>		Cowbird Parasitism		Yes	<input checked="" type="radio"/> No	
		NUMBER OF EGGS OR YOUNG per VISIT		REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)		
Altitude: <u>500</u> m		Day	Month	Year	Eggs	Yng.
Habitat: (vegetation type) <u>SMALL SUBDIVISION SURROUNDED BY ORCHARDS & FIELDS</u>		<u>30</u>	<u>05</u>	<u>07</u>	<u>4</u>	
		<u>31</u>	<u>05</u>	<u>07</u>	<u>1</u>	<u>3</u>
		<u>1</u>	<u>06</u>	<u>07</u>		<u>4</u>
T _____ C _____ S _____		<u>14</u>	<u>06</u>	<u>07</u>		<u>4</u> FLEDGED TODAY
Ecosection _____ Zone _____						
Subzone _____ Variant _____						
If more than 7 visits are paid to a single nest use another card for further visits						
NEST DESCRIPTION						
General Location: <u>UNDER ROOF OF</u>			Materials: <u>FORBES & MUD</u>			
Position: <u>PORCH ON SMALL LEDGE</u>						
<u>SAME LAST NEST AS</u>			Height above ground/cliff-base/water <u>5</u> m			
<u>FIRST BROOD</u>						
Gen. Loc. _____		Spec. Loc. _____		Materials: _____		

Figure 27. Peter Blokker, like a growing number of contributors, is filling in nest cards with complete information that becomes a permanent record for a species, at a precise location, in a defined time.

other species, such as **Brown-headed Cowbird**, **Redhead**, **Bufflehead**, **American Coot**, **Lesser Scaup**, **Canvasback**, and **Ruddy Duck**, should have two separate cards filled out. It is useful to put both species name on each card for easy cross-referencing.

Diagrams

The use of diagrams and sketches attached to cards, or from field notebooks, often enhance the value of a breeding record. These can be added to the back of the nest card, or submitted independently for archiving. Even specific details for common nests can be important especially with urbanization and lakeshore developments increasing in the province. **Elizabeth Abbott** located a **Spotted Sandpiper** nest (Figure 30) some distance from any settlement in 1994 and recently sent us a series of photographs and a detailed sketch (Figure 31) to show its exact location.

Ivar Nygaard-Petersen again completed very detailed diagrams for individual nest boxes for the **Purple Martin** colony at Myrtle Rocks near Powell

River. Many others added sketches of the precise location of a nest especially when it was situated in an unusual place.

Occasionally a small map helped with directions to remote nesting sites, especially for colonial species and other drawings showed the breadth of swallow nesting in large banks and cliffs.

Sketches of natural sites for some species, especially cavity-nesting raptors, are important to have as reference. For example, natural sites for **Barn Owls** nesting in southwestern British Columbia are not well documented (Figure 32). There are at least six known for southern Vancouver Island and perhaps 12 for the Lower Mainland. Interestingly some locations still active (in 2006) appear to fledge more young than nests in boxes or hay lofts.

Repeat Visits

The value-added information collected from repeat visits to a nest or nest site is invaluable and increases in importance over time. Most cards submitted are of single visits because people are usually travelling from place-to-place and cannot



Figure 28. Adults on territory, early June (top left), complete clutch of four eggs (middle left), two nestlings hatch on 25 June (bottom left), all hatched and still in nest on 26 June (top right), and fuzzy chicks 20 metres from nest on 27 June (bottom right). Jackfish Creek, BC (Myrna Blake).

return to visit the site again. This year many more nests had two to four additional cards stapled together to include all of the visits. A few followed raptor nests from start to end and submitted a “notebook” of information for the nest.

Individuals with 10 or more visits to a nest/brood included: **Bethany** and **Janice E. Arndt** (Figure 33), **Vicky** and **Lloyd Atkins**, **Jennifer L. Bergen**, **Myrna Blake**, **Wayne** and **Eileen Campbell**, **Cyril Colonel**, **Mark Hobson**, **Margaret Hubble**, **Pat Huet**, **Eve**

Neale, **Ivar Nygaard-Petersen**, **Laurie Rockwell**, **Ray Williams**, and **Marcus Womersley**.

A few people found nests, or watched broods, and were able to follow them for most of their breeding cycle. **Vicky** and **Lloyd Atkins** kept track of a brood of California Quail in Vernon for 53 days and like last year made 20 well-timed visits to follow a Great Horned Owl nest to success (Figure 34).

Repeat visits, well timed, can enhance the value of the record especially when clutch and brood sizes



Figure 29. Soon after hatching Wilson's Snipe chicks leave the nest and begin to feed nearby. Documenting the exact date when chicks are still in the nest, or eggs are hatching, assists with developing breeding chronologies for a species in different regions and altitudes in the province. 20 km east of Chetwynd, BC. 15 June 2007 (Andrea Pomeroy).



Figure 30. Adult Spotted Sandpiper on nest incubating eggs. Near Haywire Bay, BC. 9 June 1994 (Elizabeth Abbott).

are being determined, Usually 3-4 days between visits is required.

If more than a single card is required to record multiple visits, please staple them together.

Historical Nest Site(s) and Current Activity Information

Each year, traditional and well-known nest sites, such as birds of prey, colonial-nesting swallows, swifts, some waterbirds, colonial marine birds, American Dippers, and loons, may or may not be

occupied. If these sites are visited, and the nest (or site) is not occupied, it would be useful to complete a card indicating that it has been used in the past (or the previous year) but not in the present year.

These "negative cards" are very helpful when interpreting changes in local breeding distribution, effects of weather and human disturbance on breeding activities, loss of habitat, and perhaps the impact of environmental contaminants such as oil spills and chemical contamination.

For example, a small colony of **Common Grackles** nesting in a roadside cattail marsh near Grand Haven (Figure 35), and monitored since 1996, was abandoned in 2006. A card was completed for the latest date without occupancy with notes on a description of the site and why it was abandoned

Cyril Colonel, with field partner **Linda Van Damme**, who have an active monitoring program in the Creston valley, completed 19 cards with negative information for **Canada Goose** (in known Osprey nests), **Osprey**, **Red-tailed Hawk**, and **Great Horned Owl**.

Fortunately, most well established monitoring programs do record presence/absence but rarely are cards completed or summaries submitted.

All of these "nest" cards are filed for reference with the original active sites but are not included in the annual report summary.

Notes from the Field

Sharing stories from each breeding season has now become a popular segment in each annual report. In fact, some contributors have suggested a separate report that would include all stories for the entire year!

Many personal encounters and experiences were again recorded on cards, by telephone, e-mail and correspondence. Here are some of the more memorable ones.

The Bear Facts

Robert Allen from **Sechelt** writes: "On 9 May of this year [2007] the hen **Mallard** on our pond on Skylark Road brought out 12 little fluff balls. After a week or so, she was down to 11. All 11 have since survived and must be ready to fly away soon. We have been feeding them hen scratch twice a day until recently; now they are down to once a day but they seem to prefer the natural food on the bottom of the pond. For quite some time, the drake stayed on the pond as well and at one time, we also had another six "Freddie the Freeloader" drakes.

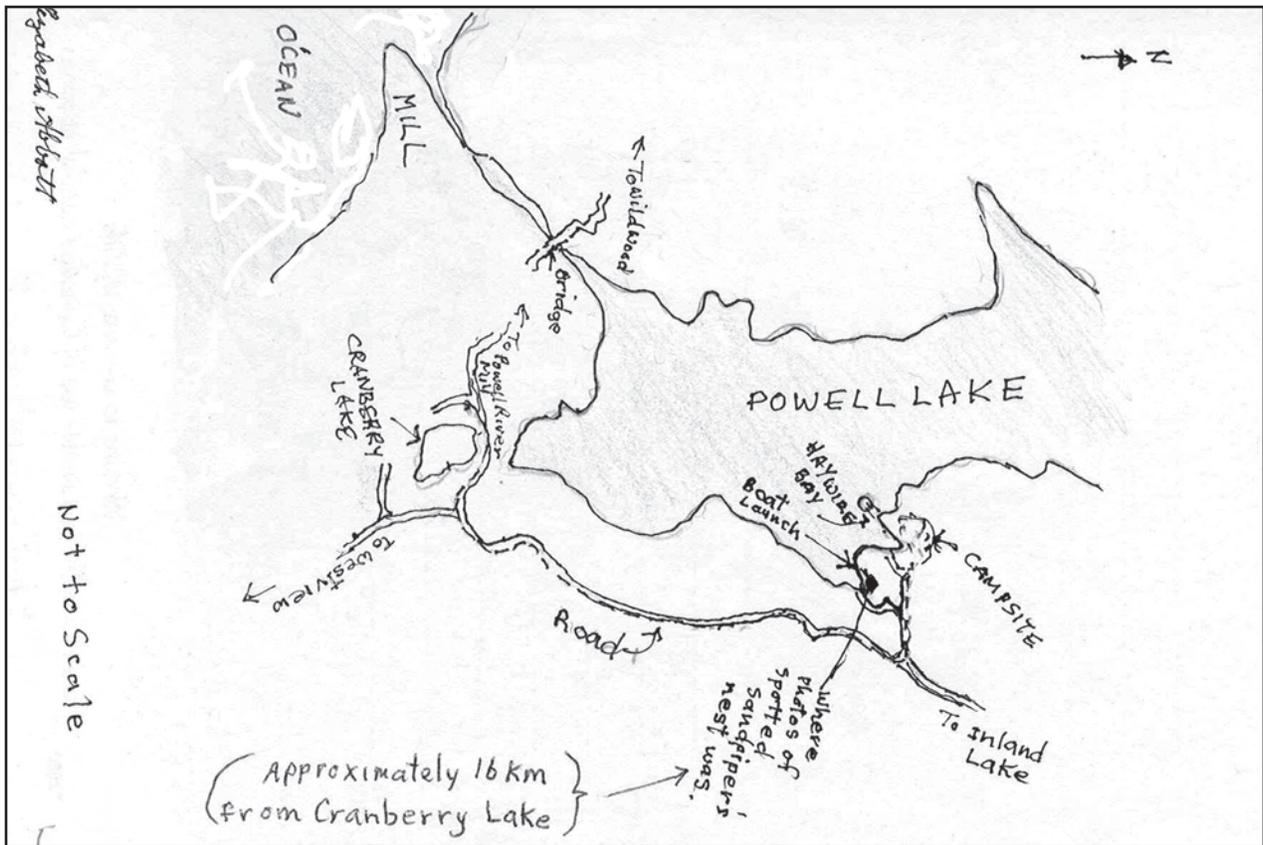


Figure 31. Diagram by Elizabeth Abbott to show precise location of a Spotted Sandpiper nest found near Haywire Bay on Powell Lake, BC in 1994.

For the past two weeks only the hen and her ducklings have been there. Yesterday morning a **Black Bear** decided that they all looked like an easy meal. He chased them through the pond but couldn't catch them. We thought that if they were able to fly, that would be the time, but it wasn't. The bear eventually gave up with no success.

There's been a lot of wing-flapping but no take-offs yet. One website I visited said they should be able to fly in 50 to 60 days and we are right around there now. Who knows? They may all be gone tomorrow."

Unexpected House Guests

Patty Axenroth from **Kaslo** writes on 13 June 2007: "I am very excited about the **jays [Steller's]**. They started making a nest the week of May 13 and it was completed by Friday May 18. I was gone 'till Friday May 18 and my husband jokingly said to me when I got home that "We've got squatters!" They built the nest with good-sized twigs on top of our skis (Figure 36). It is a great place cause you can see the nest but you can hardly see them in it. This past

week the eggs must have hatched because there is going in and out a bit, where before you never saw them going in and out. In fact, we had thought they left they are so quiet and unobtrusive. I kept hearing a type of jay sound up in the trees above our porch and thought it was the jay, but in fact it is a small warbler or vireo that every time the jay goes up there, it makes that noise and attacks him. So his nest must be up in that area. I will have to get my book out and identify that little bird.

I think we should start to hear the babies next week. Lorna from Kaslo brought in one of the nesting cards for me to fill out about the jays. I will start taking some pictures of the nest and hopefully the tenants. We have avoided using our back porch too much so as not to disturb the jays. I have never seen a jay nest in the wild before, and I am really excited that you say it is out of the ordinary. Our old outside cat died last year, and we replaced him with an indoor only cat, which has made a great difference on our birds in the yard.

And on 18 July: "Well, my poor jays! A squirrel got their eggs or babies. It came on the porch and my

* - of interest. Notes by Glenn R Ryder Cont

Date Sunday May 29th 1988. Area Fort Langley B.C.

This is a active nest female with (3) young in Cavity hole
She was inside with them But left cavity hole screeching loudly
as I intruded on her. Nest and young.

I climbed the Red Cedar tree up some 25 feet so I could
look into the Cavity hole a large catface on side of tree
a Natural Nest site in the
wilds.

X - Coyote signs about the area
of Barn Owl nest area
scats seen trails No Den
site is found in area.

R/B Nuthatch (1) Calling
in Barn Owl nest site.

It is Raining hard by
2:00 P.M I headed back
to my car and at 10 past
1.00 P.M It is a Torrential
downpour. I wait in the car
and the Rain keeps falling
at 2:00 P.M then It seems
to have run out.

I go back to checking the
wet woodlands for Jay Nests

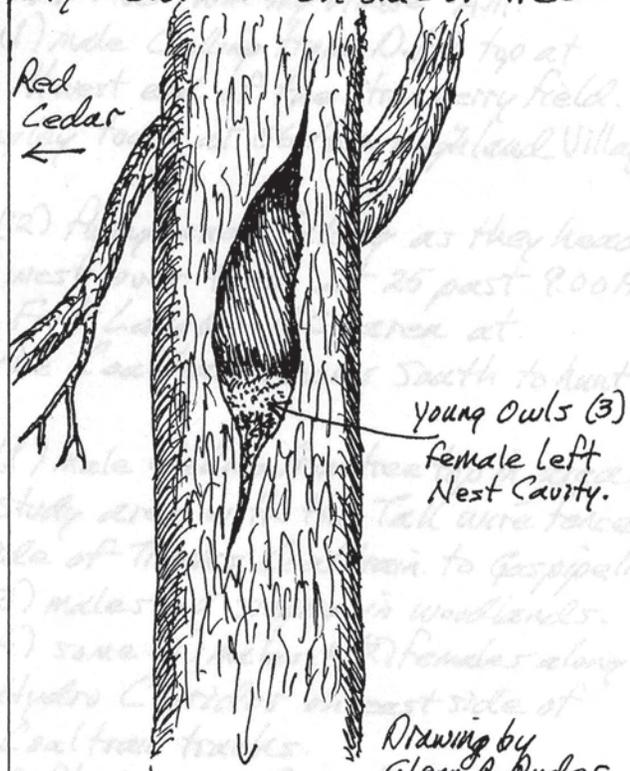


Figure 32. Sketch of a Barn Owl nest site in a natural cavity in a mature western redcedar tree found in 1988 near Fort Langley by Glenn Ryder.

husband heard the jays getting frantic. So he chased it away. The squirrel came back the next day, and then the jays were gone. They have not returned. So the squirrel got the eggs or small babies. I was so disappointed but I guess that is nature. Tom took the nest down for me and I will keep it with my nest collection. (I only have 3!) It is a very amazing nest -

with really big twigs outside and a small woven nest inside. There were only a few tiny eggshell pieces left on the deck. I was really looking forward to seeing the family grow up on our porch. A robin immediately built a nest on the skis next to the jays, but must have realized it was in an unsafe place, because they abandoned it within days of completing it."

British Columbia Nest Record Scheme						
Species: <i>PSFL</i>		Map Grid: 82 F/11		Name of Observer: J.E. Arndt 07-25		
Locality: (place name and specific location) 901 Hwy 3A Nelson (north shore)		Cowbird Parasitism		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)
		NUMBER OF EGGS OR YOUNG per VISIT				
Altitude: 560 m		Day	Month	Year	Eggs	Yng.
Habitat: (vegetation type) Rural - residential		19	JUN	2007	0	0
		20	JUN	2007	0	0
		21	JUN	2007	0	0
		23	JUN	2007	0	0
		24	JUN	2007	1	0
T _____ C _____ S _____		25	JUN	2007	2	0
Ecosection _____ Zone _____		26	JUN	2007	3	0
Subzone _____ Variant _____		If more than 7 visits are paid to a single nest use another card for further visits				
General Location: Nest box		NEST DESCRIPTION				
Position: Old robin nest on top of box		Materials: added by flycatcher: catkins, grass, hair lichen, moss, animal hair, man-made fibres.				
		Height above ground/cliff-base/water 2.5 m				
Gen. Loc. _____		Spec. Loc. _____		Materials: _____		

Figure 33. This is one of five cards stapled together for a pair of Pacific-sloped Flycatchers monitored by Janice Arndt near Nelson, BC. The birds used a nest box and Janice was able to follow progress from arrival and nest building to fledging during 34 visits.



Figure 34. Large nestling Great Horned Owls near Vernon, BC. May 2007 (Lloyd Atkins).



Figure 35. Up to six pairs of Common Grackles nested among patches of dead cattails in this tiny roadside marsh since at least 1996. Gradually the site was filled in with soil for houses and in 2006 it was abandoned. near Grand Haven, BC. 22 June 1996 (R. Wayne Campbell).

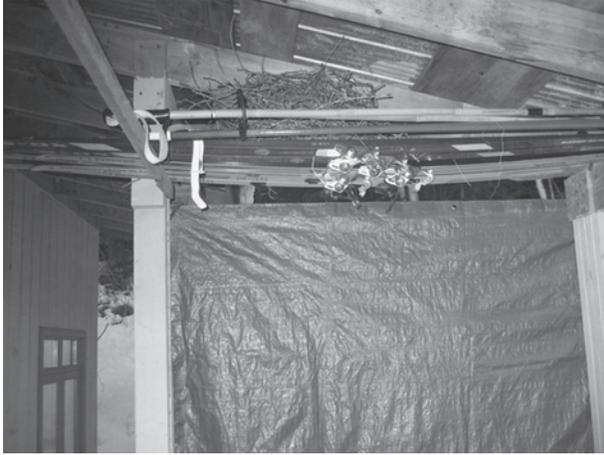


Figure 36. This unusually placed Steller's Jay nest, built on skis stored on the back porch of Patty Axenroth's home in Kaslo, BC during the 2007 breeding season, was predated by a Red Squirrel. 17 Feb 2008. (Patty Axenroth).



Figure 37. Although capable of flight, these juvenile Bald Eagles hung out at the nest tree waiting for the adults to bring food. 27 June 2007 Creston, BC. (Marcia Long).

Some Teenagers Refuse to Leave Home – Sound Familiar?

At one **Bald Eagle** nest in the **Creston valley**, **Marcia Long** and **Linda Van Damme** observed a juvenile eagle that seemed reluctant to leave home.

In mid-June two eaglets were observed perched on branches above the nest and by July 6th both were independently flying, but returned to the nest to be fed. On August 7th both juveniles were at the nest when the adult delivered food and there was quite a ruckus as the hungry birds tore at the prey. On August 16th, a single juvenile was still hanging out at the nest, loudly screeching and demanding to be fed (Figure 37). An adult flew by the nest with prey in its talons, and then circled back which prompted the hungry juvenile to follow and get its meal away from the nest. Four days later the juvenile was observed in flight over the wetlands but made no attempt to capture prey, returning instead to the nest tree and calling loudly for the adults to bring food. Its cries went unanswered. The juvenile was last seen at the nest on August 23rd, still convinced that adults would bring food if it begged loud enough! We were happy to see an empty nest on August 29th.

Bring on the Tour

Chris Charlesworth writes from Kelowna: *"I spent July 13 - 15 birding with Dr. Sakari Reitamo of the University of Helsinki. He's a world renowned Dermatologist who was giving lectures to Canadian doctors here in Kelowna. In his spare time he likes to photograph birds in flight so the doctor hired me to*

take him out for a few days. Some of the photographs he obtained on this trip will be used in a calendar of birds of the world in flight that he is producing.

On July 15th we started off at Chichester Bird Sanctuary again where Sakari got great photos of flying Red-winged Blackbirds as well as some foraging Cedar Waxwings. We found a very young American Robin sitting on the shore and to our dismay it leapt straight into the water! Sakari asked me 'can baby robins swim?' No sooner than I said no did the doctor have his pants off and was wading almost waist deep in muddy water.

The robin was rescued!"

Opportunistic and Persistent Magpie

While checking on a **Northern Flicker** nest that was repaired after a windstorm in 2006 in Vernon, BC, **Vicky** and **Lloyd Atkins** noted:

23 May - Black-billed Magpie pulled out 2 nestlings from cavity; 1 dies after an hour or so, with slight wounds (Figure 38). The other was returned to nest, as it was still alive.

24 May – 1 more dead nestling on ground; wounds to abdomen. Watched an adult remove a fecal sac so there is at least one young left.

Doin' the Hummer Stomp

Sandra Gray gives us a full preview of the arrival, feeding consumption, and nesting for **Rufous Hummingbirds** at her home in **Errington**, BC. The town is located in mixed woodlands at 150



Figure 38. Large Northern Flicker nestling pulled out of its nest by a Black-billed Magpie. Vernon, BC. 23 May 2007 (Lloyd Atkins).

m elevation in an area of larger acreages, open and forested, that have many water sources with very few neighbors that have hummingbird feeders. Her husband, Dan Gray, has shared in feeder duty and nest-watching.

As per the previous 15 years at this location, sugar water ratio was usually 1 to 4, with a 1 to 3 ratio at the beginning of the season when temperatures were still low. Rufous Hummingbirds have usually disappeared by the first week of July. In 2007, we continued to offer sugar water into the 3rd week of July with no measurable consumption the last week. One immature Rufous Hummingbird was seen in our veg garden several times into mid-August. Its' favorite feeding sites were sage, parsley, oregano, raspberry, lovage, chives and our blooming summer baskets.

February 24 – We put up our first feeder with 1.5 cups of sugar water after hearing reports that Rufous Hummingbirds had been sighted on southern Vancouver Island.

March 26 – Finally!, one male Rufous showed up today, very close to previous years' arrival dates. A few times over the last month Dark-eyed Juncos and Purple Finches were seen investigating the hummingbird feeders, but did not consume any noticeable amount. Bumble bees have been the most frequent visitors to the feeders.

March 27 – Yes ! the season has started ... 2 females appeared today.

April 6 – I hung up a second feeder with 1.5 cups of sugar water. I noticed today there was a small

amount of nest material at the exact same spot as a Rufous Hummingbird nest from 2005 which was built on a Christmas light string plugged into the soffet receptacle above the front door on the north side of the house. The old nest was attached to UL tag, old tape, wire & one light. I assume she is the same bird although she did not repeat in 2006. In 2005 it was a failure ... one egg did not hatch & the one chick that did hatch lived to ~1 week when the female abandoned the nest for no particular reason we could determine. By dark this new nest was considerably larger. The area is off limits now!

April 7 – The nest was full-sized tonight. The nest is attached to the wire but mostly to the 'Underwriters Lab tag' that is on electrical items ... also attached to a piece of plastic tape, long since gone of any sticky quality, that was left from the 2005 structure. Several times during the building I saw Mom flying around the perimeter of the house picking spider webbing from the siding, then land in the nest and attach the webbing here and there, a nip and tuck, then a 'stomping down kind of a dance' as she swiveled and fluttered in the nest. Then her beak was used to poke here and there inside the nest, much as when they adjust eggs ... quite the ritual.

April 8 – Mom perching in and defending nearby *Pyracantha* often. The last bits of lichen were attached to the outside and a few more strings of spider webbing as support.

April 12 – Rufous Hummingbirds have arrived in numbers! Very intense activity from 7:30-8:00 pm, with up to 5 males 13 females at one time, doubling & tripling at feeder ports. Nectar consumption- 1.5 cc per 24 hrs.

April 13 – 7am, mom incubating (Figure 39). 3rd feeder added (4 cc). Checked nest many times today, Mom was only gone for very brief visits to feeders. Frantic group feeding 7-8pm. Rain & windy.

April 15 & 22 – Mom sitting tight. Continued frantic group feeding 7-8pm. 2 cc per 24 hr.

April 28 – 3:15 & 4:15pm – mom feeding young.

May 1 – Mom feeding 2 chicks. 2.5 cc per 24 hr.

May 5 – Movement of chicks seen above edge of nest. Mom off nest more often & using *Pyracantha* as 'defense post'. Mom feeding at & defending all 3 feeders regularly. Hummer poop very obvious on

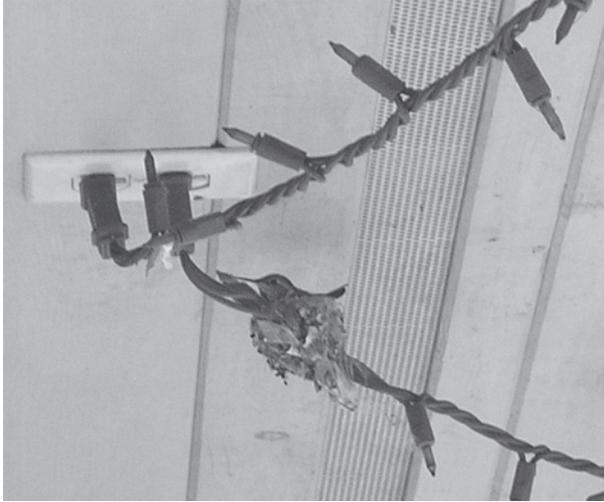


Figure 39. Rufous Hummingbird (Mom 1) at her nest on first day of incubation at Sandra Gray's front door in Errington, BC. on 13 April 2007.

soffet and nearby walls of house, messy! Apple, Pear, Cherry, Elderberry in bloom. 2.5 cc per 24 hr.

May 7 – Mom defending frequently! 2 cc per 24 hr.

May 13 – Chicks are wing-flapping & gaining strength (Figure 40). Mom in *Pyracantha* overnight, no room in nest!

May 17 – Nest listing to one side, stretched out & flatter. Chicks almost size of adult, throat spots, grey/green feathers. 2 cc per 24 hr.

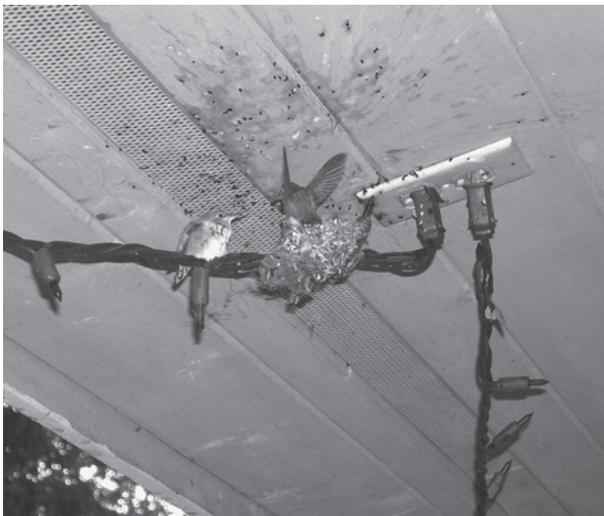


Figure 40. The young Rufous Hummingbirds exercise their wings as they ready themselves to leave the nest. Errington, BC. 21 May 2007 (Sandra Gray).

May 20 – Mom perches on wire to feed and preen chicks that are same size as mom. Mom flies by nest often encouraging flight & continues to defend *Pyracantha*. Very messy above nest from chick poop. Heavy rain overnight, feeders were very active with several obvious larger than adult sized chicks that were uncoordinated & fluttering/exercising often. 3 cc per 24 hr.

May 21 – at 7 & 9 am- mom feeding chicks on wire next to nest; 1:30pm- mom feeding 1 chick in *Pyracantha*, flying all over looking?? for 2nd chick. 6-8pm- feeding 1 chick in *Pyracantha*.

May 22 – Mom defending *Pyracantha* & closest feeder frequently. Only 1 chick visible in *Pyracantha*.

May 23 – Mom still defending *Pyracantha* & closest feeder but no chicks seen today; 5pm- nest has additional clump of lichen in center, larger at 8 pm. Mom not in *Pyracantha* during pm feeding frenzy. 2 cc consumption from 8 am-8 pm.

May 25 – Mom in *Pyracantha* several times. Nest same. 11am- Found *New Nest* at back deck door in metal wind chimes. Nest small & new with 2 white eggs. Not sure yet if this is another female but will refer to new nest adult as Mom 2. 1.5 cc per 24 hr.

May 26 – at 7am & 9pm – Mom 2 on nest, incubating. No Rufous Hummingbirds seen at front door nest or *Pyracantha* today.

May 27 – Mom 2 sitting tight. Fewer Rufous Hummingbirds overall. 1 cc per 24 hr.

May 29 – Mom 2 not on nest on 3 out of 8 times checked today. Using only 0.5 cc per 24 hr. of sugar water.

May 30 – Using only 0.25 cc per 24 hr. Very hot lately. Mom 2 nest site a very hot location on south side of house.

June 5 – Mom 2 sitting tight. Cool, rain. 2 immature Rufous Hummingbirds flying together in *Pyracantha* & vege garden, both came very close to me several times today & visited front door nest area several times. 1 dead male Rufous Hummingbird under feeder.

June 9 – Mom 2 incubating in the am; 12 pm- Mom 2 on side of nest, likely hatched; 4 pm- Mom 2 very delicately 'fussing with the nest contents'. Rain.

June 10 – Mom 2 on side of nest. Many Rufous Hummingbirds at 8 pm. 2 cc per 24 hr.

June 11 – Many frenzied Rufous Hummingbirds, immatures seen often.

June 12 – Mom 2 feeding young. Very active feeders, 3 cc per 24 hr.

June 14 – Mom 2 seen at side of nest 8 times. I was finally able to check nest only to get squirted in the face by hummer poop! 2 chicks. This nest site difficult to view due to disturbance when nearby deck door is opened so we mostly view from below on the driveway and have not used the deck door since incubation began.

June 15 – 2 cc per 24 hr

June 18 – 2 beaks visible above edge of nest.

June 20 – 2.5 cc per 24 hr

June 22 – 2 chicks ~12 days old.

June 25 – 2 large chicks moving around nest, wing-flapping, some color on head, ~2/3 size of adult. Heavy rain. 2 cc per 24 hr.

June 27 – 8am, 2 large chicks barely fit in nest (Figure 41); 4pm-after taking a few photos of nest from inside, 3' away, I opened the deck door hoping to get a better shot but immediately the 2 chicks flew away!! I retreated to the driveway and watched for the next hour. No chicks were seen back at the nest. Mom 2 returned 4 times over 30 minutes then seemed to give up. We watched the *Pyracantha* and both nest sites off and on until dark but did not see any Rufous Hummingbirds visiting.

June 29 – Fewer Rufous Hummingbirds overall. Occasionally adults & immatures in the *Pyracantha*. No visits were seen at front and back door nests. 1 cc per 24 hr.

July 2 – 1 cc per 24 hr.

In conclusion: Mom 1 and Mom 2 looked very similar but may still have been different birds. The timing of the 2 nests with defense behavior at the *Pyracantha* seems to suggest one female. Size varied among the numerous females and immatures at our feeders by up to 1/3. Both moms were smaller sized.



Figure 41. Rufous Hummingbird nestlings at Mom 2 nest near back door entrance moments before the chicks fledged. Errington, BC. 27 June 2007 (Sandra Gray).

The number of adult males was far less than females and immatures, with up to 5 seen regularly at one time. 1st nest at front door was very visible from the living room window and was closely watched. In contrast, the 2nd nest at deck door was only watched a few times per day, we could easily have missed 'nest events'.

Nest building was a very quick process, less than 4 days. Incubation: 15 and 14 days. Fledging: 23 and 18 days. 2nd nest chicks possibly fledged a bit early due to my attempt to get photos. Another factor may have been the extreme high air temperature at the nest site during hot weather days.

We have never had any Anna's Hummingbirds nesting here but a few have briefly come to visit feeders over the years. I always figured they were young looking for new territory. As well, no other hummingbird species seen at this location besides Rufous and Anna's.

Poop Free Zone

In many places across southern British Columbia, especially in urban parks where people visit in swarms, droppings of **Canada Geese** are not only unsightly but are unpleasant and impossible to

navigate through. This is very evident around the urban marsh in 100 Mile House each spring and summer (Figure 42).



Figure 42. Not everyone tolerates goose droppings in public places and in some locations, especially public beaches and parks; programs have been developed to discourage geese. 100 Mile House, BC. 9 July 1998 (R. Wayne Campbell).

People love the families of geese and controlling them was not an option. So, a clever bureaucrat suggested establishing a “**Welcome to the Goose Free Zone**” (Figure 43) that they cannot walk into. Perhaps they forgot birds could fly!! But, for the present, the enclosure is a huge success.



Figure 43. So people can enjoy life in an urban marsh, and relax in a “clean” environment, the town of 100 Mile House has developed a “Welcome to the Goose Free Zone” for visitors. 17 May 2007 (Michael I. Preston).

Fuzzy not Feathery

While searching for nests in **Campbell Valley Park** in south Langley, **Glenn Ryder** spotted a **Marsh Wren** nest that looked like it was new. He put a small mirror in the nest hole and with a penlight could see what appeared to be small young wrens. So he put his finger inside and felt a fuzzy object that started to “buzz”. WOW!

Soon he realized that they were not small birds, but bumblebees!! Soon 10 of them came out and swarmed around the nest. They appeared to be upset so he backed away and watched them from afar.

Thieves are Cleverly Disguised

Adrian Leather writes about a scenario that happened on 20 May 2007 at a little un-named lake about 50 km west of **Quesnel**: “*We were enjoying the sight of a pair of **Red-necked Grebes** nest-building, one bird bringing along a package of aquatic vegetation and presenting this offering to its’ partner. Sometime later, an **Osprey** dropped suddenly from the sky, as if to dive for a fish, and dragged away part of the grebe’s nest. After carrying out this act of avian robbery, the Osprey flew up to its own nearby nest to carry out a bit of home improvement.*”

Expect the Unexpected

Trevor Forder writes from **Kelowna**: “*On April 29, 2006, I was surprised to see a **Common Raven** attack and carry off a female **Northern Flicker**. I was alerted to the situation by the distress calls and did not see how it actually first got hold of the flicker.*

It occurred near a nest cavity. The cavity is situated a few inches down from the top of a snag. I am suspecting that the raven was on top of the snag and grabbed the flicker as it exited the hole. When I ran to the area, the raven quickly flew away with the still squawking victim.”

Occupational Hazards of Nest-Checking

Chris Charlesworth writes of his close encounters while doing his nest checks in the **Logan Lake** area:

*” I revisited a **Willow Flycatcher** nest which was in the works last time I was up in the middle of June. There were 2 eggs in the nest and the female was incubating. I also found a **Swainson’s Thrush** nest with 3 young and female brooding. Just as I was looking at the nest I heard a noise above. I looked up and saw two **Black Bear** cubs clinging to the top of a spindly fir. Nearby a very large sow **Black Bear** (Figure 44) reared up on her hind feet and I promptly returned to the car. As I watched through the window she put her two front feet on a stump*

and did 'push-ups' to express her anger and power. Kind of exciting. Lucky I wasn't far from the car.

Soon after, I was confronted by a young Moose that decided it would like a close look at me."



Figure 44. Adult sow Black Bear at Highland Copper Mine near Logan Lake, BC. 10 October 2007 (Chris Charlesworth)

Grounded and Safe

Laure Neish from **Penticton** writes:

"I have been monitoring several nest cavities near Mahoney Lake Ecological Reserve in the south Okanagan. On April 24th I took a photo of an adult **Mountain Chickadee** looking out of its cavity (Figure 45). I went back today (June 1) and couldn't find the old aspen snag until I realized it had toppled over and was lying on the ground. How sad because both a Western Bluebird and the Mountain Chickadee had been nesting in the old tree stub. I stepped over the tree (diameter ~ 20 cm) and looked around but couldn't see anything. I wondered if a bird could continue to raise young under these new circumstances. The tree had fallen with the nest holes face down.

There was also a sapsucker nest tree nearby so I went over to sit on the ground and observe. During that time I could hear adult chickadee sounds and pipping but finally I got up to look and couldn't believe that there were 3 or 4 chickadee nestlings under the fallen tree in a small protected space. The parent was feeding them regularly and they made the usual excited loud baby bird noises each time. How cool! The young were quite well along as you can see from the photo and one was preening and moving about in the space (Figure 46). I didn't go too close once I realized they were there but took a couple of record shots. As such they aren't the best quality. I

also walked around in various locations with the hope of confusing any nosy predator following my trail.

Finding those nestlings was very encouraging. Unfortunately, I have no idea what stage the young were at when the tree fell. Oh and also, I noticed the chickadee pair mated again on a branch above the fallen tree with one bird quivering its wings."



Figure 45. Adult Mountain Chickadee peering out of nest cavity near Mahoney Lake Ecological Reserve in the south Okanagan. 24 April 2007 (Laure Wilson Neish).



Figure 46. Nestling chickadees protected under nest fallen tree near Mahoney Lake Ecological Reserve in the south Okanagan. 1 June 2007 (Laure Wilson Neish).

Close to Home

Joan Jochim writes about a Pacific-slope Flycatcher nest:

*“Our house sits on 3 acres of land on a hillside near **Dragon Lake** in the **Quesnel** area. About $\frac{3}{4}$ of our property is wooded with the remainder landscaped with extensive gardens of a great variety of shrubs, trees, perennial flowers and vegetables. Immediately to our south there is about 25 acres, mostly forested with some small clearcut areas. So, we have lots of good bird habitat.*

*We didn’t notice this little flycatcher [i.e., **Pacific-slope Flycatcher**] nest until it was completely built which I believe was in late June. It was situated on a wooden support beam 10’-12’ above the deck on the south end of the house, quite well protected from weather. We never saw squirrels or any predators attempting to get at the nest though I think it would have been easy for squirrels to do so. We often watched one of the parents perch on a weeping crabapple (about 25’ from nest) or in a young maple tree (20’ from nest) outside our dining room window, fly out after insects, then land again, twitching its tail, crest raised.*

Throughout July, there was considerable traffic through the door below and just a few feet over from the nest and the adult on the nest sometimes stayed put and sometimes flushed. We also often ate outside in an area 15’ from the house, directly in line with the nest. With all the traffic and visitors they had to put up with, I’d be surprised if they return to nest here next year. The chicks (Figure 47) fledged on August 3, the day after the picture of them in the nest was taken and we didn’t see them again, so only one brood was raised. The nest was made



Figure 47. Pacific-slope Flycatcher nest with young in protected area under Joan Jochim’s house. Quesnel, BC. 2 August 2007.

entirely of natural materials and gradually fell apart during some high winds in the fall. Though robins have nested on this beam, this is the first flycatcher family raised here.”

A Wise Move

Pam Milliren writes from **Rawlings**, BC about the rescue of a **Great Horned Owl** during the 2007 nesting season:

“The owl (Figure 48) we found in the middle of Rawlings, down by Kingpit, and from the size of it, I thought it was an adult. It was almost as tall as my knee. We saw it after dusk flopping in the middle of the road. So my vet tech experience said “hit by a car”, as I have seen many in the clinics with broken wings.

We toss a coat over him, bring him home, holding his feet the whole time, as well as gently keeping him covered with the coat and then put him into a large dog crate.... and when I was looking at him to assess him in the light, I started to notice all the baby fuzz . OH NO !! No baby should be that size !!!

We kept him overnight and then took him back to where we found him in the morning. We found 4-5 more of them on the ground. We put him near the other ones and backed off.”



Figure 48. Fledged Great Horned Owl found in the middle of a road and kept overnight for examination thinking it was hit by a car. The next day it was released in good health in the same area. Rawlings, BC. (Pam Milliren).

Rambling Rail Reared and Released

Irene and **Clint Davy**, who operate **the Gibsons Wildlife Rehabilitation Centre** on the Sunshine Coast, have many positive stories about saving the

lives of animals. Some are, however, challenging.

On 23 June 2007 a small **Virginia Rail** chick, about 2-3 days old, was brought into their house by a cat. The precocious chick can walk almost immediately after hatching and probably strayed from its wetland home. Its natural foods include small aquatic invertebrates such as snails, spiders, and fly larvae. Never-the-less Irene and Clint adapted the rail's diet and had to feed it for over a month until it could fly well. The, it was released healthy (and fat) in a nearby marsh.

Nuisance Bears and Nest Trails

A few contributors who monitor nest boxes reported damage to their boxes by Black Bears. These are frustrating events and most occur in outlying areas. **Jim Ginns**, however, had been checking a **Mountain Chickadee** nest in a box along Sutherland Road near Penticton throughout spring. On his card he noted: 26 March – pair building, 2 April – adult in box, 9 April – adult collecting dog hair (lining?), 7 May – 8 eggs, and 21 May – box destroyed by Black Bear.

Historical Information

While transferring breeding records from historical sources often what we think is new information is really **Old News** and frequently is an important reality check! The following text was extracted from the book "*Border Gold*" by Mae Atwood published in 1981.

"While the Deputy Minister of Agriculture visited Kettle River valley in 1883, he wrote the honourable J.H. Turner, Minister of Agriculture on June 13th. ---- "charmed with the beauty and variety of scenery. A trip down the Kettle River cannot be surpassed for a summer outing – an ideal trout stream teeming with fish – the country with game --- wild geese hatch in nests in the trees (Figure 49), appropriating disused nests of hawks – eggs in safety from rattlesnakes, coyotes".

About 40% of all breeding records in 2007 were from historical sources. This component of the **British Columbia Nest Record Scheme** makes it unique in North America as no such other program is actively transferring historical information. For example, since 1999 when accurate records were kept, **60,242 breeding records** (nests and broods) have been added to the master collection.

The task is not the most efficient use of time as many sources have to frequently be searched as each one may contain fragments of information that



Figure 49. Canada Geese usurped this stick nest occupied by Osprey in 2006. Creston, BC. 29 March 2007 (Linda M. Van Damme). After hatching the downy goslings must jump 17m (55 ft) to join their parents below.

is required to fully complete a single record.

More of Winifred Bennie's notes on breeding Common Loons on Nimpo Lake were transferred to cards. When completed she may have submitted more breeding records than anyone else in the province! We appreciate that she had the foresight to send in her field notes knowing that she was not able to find time to transfer the information to cards.

Some contributors recognize the intrinsic value of searching their notes for historical records and find the time to transfer them to standard cards. **Jan Bradshaw** started the long process and sent in cards from the Harrison/Agassiz, Maria Slough/Cheam, Shuswap Lake/Adams River, Chase, Celista, and Kamloops areas dating back to 1984.

We continued extracting breeding records from the field notes of the late **J. E. Victor Goodwill** but at a much reduced rate.

We continued to transfer data to BCNRS cards from egg and skin collections in North American museums including the **Academy of Natural Sciences of Philadelphia** (Philadelphia, PA), **Cowan Vertebrate Museum** (Vancouver, BC), **Field Museum of Natural History** (Chicago, IL), **James R. Slater Museum**, (Tacoma, WA), **Los Angeles County Museum** (Los Angeles, CA), **National Museum of Canada** (Ottawa, ON), **Smithsonian**

Institution, Washington, DC), **United States National Museum** (Washington, DC), **Museum of Vertebrate Zoology** (Berkeley, CA), **Royal British Columbia Museum** (Victoria, BC; Figure 50), **University of Michigan Museum of Zoology** (Ann Arbor, MI), and **Western Foundation of Vertebrate Zoology** (Camarillo, CA).

In addition, thousands of records were still being transferred from historical field notes and reports including quarterly reports for *Audubon Field Notes/American Birds*, British Columbia Fish and Wildlife Branch, British Columbia Parks Branch, Canadian Wildlife Service, Ducks Unlimited Canada, Maurice Ellison, David F. Hatler, Ethel Kippin, Patrick W. Martin, *Muskrat Express*, James A. Munro, Parks Canada, Michael S. Rodway, Glenn R. Ryder, Chris Siddle, John F. and Theodora C. Stanwell-Fletcher, *Victoria Naturalist*, and *Wandering Tattler*.

Many other breeding records were transferred from technical papers, consulting reports, and other sources of unpublished literature.



Figure 50. Oological collections at museums throughout the world with breeding information from British Columbia have been an important source of historical records. Victoria, BC. December 1972 (R. Wayne Campbell).

List of Species with Total Breeding Records by Family

Family Anatidae - Geese, Swans and Ducks (1,454): Canada Goose - 357, Mute Swan - 6, Trumpeter Swan - 2, Wood Duck - 73, Gadwall - 30, American Wigeon - 37, Mallard - 353, Blue-winged Teal - 32, Cinnamon Teal - 15, Northern Shoveler - 21, Northern Pintail - 22, Green-winged Teal - 30, Canvasback - 6 (Figure 51), Redhead - 13, Ring-necked Duck - 25, Greater Scaup - 1, Lesser Scaup - 4, White-winged Scoter - 5, Bufflehead - 251, Common Goldeneye - 34, Barrow's Goldeneye - 51, Hooded Merganser - 16, Common Merganser - 47, Red-breasted Merganser - 1, and Ruddy Duck - 22.

Family Phasianidae - Partridges, Pheasant, Grouse, Ptarmigan and Turkey (185): Chukar - 5, Ring-necked Pheasant - 19, Ruffed Grouse - 53, Spruce Grouse - 68, Willow Ptarmigan - 2, White-



Figure 51. While broods are regularly reported for Canvasback it seems that each year few nests with eggs are found. near Dawson Creek, BC. 1 June 2007 (R. Wayne Campbell).

tailed Ptarmigan - 10, Dusky Grouse - 13, Sooty Grouse - 13, and Wild Turkey - 2.

Family Odontophoridae - American Quail (25): California Quail - 25.

Family Gaviidae - Loons (163): Common Loon - 163.

Family Podicipedidae - Grebes (1,181): Pied-billed Grebe - 36, Horned Grebe - 16, Red-necked Grebe - 70, Eared Grebe - 931, Western Grebe - 127, and Clark's Grebe - 1.

Family Hydrobatidae: Storm-Petrels: Leach's Storm-Petrel - 1.

Family Pelecanidae: Pelicans American White Pelican - 2.

Family Phalacrocoracidae - Cormorants (2,374): Brandt's Cormorant - 168, Double-crested Cormorant - 175, and Pelagic Cormorant - 2,031.

Family Ardeidae - Bitterns, Herons, Egrets, and Night-Herons (116): American Bittern - 1 (Figure 52), Great Blue Heron - 114, and Green Heron - 1.



Figure 52. Listening for the “booming” call of the American Bittern is the first step needed to help find the nest of this rare and local species. Creston, BC. 23 May 2006 (Marcia Long).

Family Accipitridae - Osprey, Kites, Eagles, Hawks and Allies (334): Osprey - 184, Bald Eagle - 84, Northern Harrier - 2, Sharp-shinned Hawk - 2, Cooper's Hawk - 6, Northern Goshawk - 1, Red-tailed Hawk - 52, Ferruginous Hawk - 1, and Golden Eagle - 2.

Family Falconidae - Falcons (37): American Kestrel - 9 (Figure 53), Merlin - 8, and Peregrine Falcon - 20.



Figure 53. The traces of down on the head of this large American Kestrel nestling suggest that fledging time is near. Creston, BC. 13 July 2006 (Linda M. Van Damme).

Family Rallidae - Rails, Gallinules and Coots (401): Virginia Rail - 6, Sora - 13, and American Coot - 382.

Family Gruidae - Cranes (21): Sandhill Crane - 21.

Family Charadriidae - Plovers (67): Semipalmated Plover - 1 and Killdeer - 66.

Family Haematopodidae - Oystercatchers (37): Black Oystercatcher - 37.

Family Recurvirostridae - Stilts and Avocets (6): American Avocet - 6.

Family Scolopacidae - Sandpipers, Phalaropes and Allies (88): Greater Yellowlegs - 11, Solitary Sandpiper - 7, Spotted Sandpiper - 53 (Figure

54), Long-billed Curlew - 4, Wilson's Snipe - 9, and Wilson's Phalarope - 4.



Figure 54. The number of Spotted Sandpiper nests located in 2007 was impressive. Doig River, BC. 18 June 2007 (Michael I. Preston).

Family Laridae - Skuas, Jaegers, Gulls, Terns and Allies (3,181): Bonaparte's Gull - 16, Mew Gull - 16, Ring-billed Gull - 650, Herring Gull - 209, Glaucous-winged Gull - 1,810, Arctic Tern - 3, Forster's Tern - 2, and Black Tern - 475.

Family Alcidae - Auks, Murres and Puffins (16): Thick-billed Murre - 4, Pigeon Guillemot - 7, Marbled Murrelet - 1, Ancient Murrelet - 1, Rhinoceros Auklet - 1, Horned Puffin - 1, and Tufted Puffin - 1.

Family Columbidae - Pigeons and Doves (14): Rock Pigeon - 1, Band-tailed Pigeon - 9, and Mourning Dove - 4

Family Strigidae - Typical Owls (80): Barn Owl - 7, Western Screech-Owl - 13, Great Horned Owl - 35, Northern Hawk Owl - 2, Barred Owl - 8, Long-eared Owl - 9 (Figure 55), Short-eared Owl - 2, and Northern Saw-whet Owl - 4.

Family Caprimulgidae - Goatsuckers (4): Common Nighthawk - 3 and Common Poorwill - 1.

Family Apodidae - Swifts (3): Black Swift - 2 and Vaux's Swift - 1.

Family Trochilidae - Hummingbirds (32): Black-chinned Hummingbird - 1, Calliope Hummingbird - 6, and Rufous Hummingbird - 25.

Family Alcedinidae - Kingfishers (21): Belted Kingfisher - 21.



Figure 55. While most of the Long-eared Owls reported for British Columbia come from the Okanagan and Thompson valleys over the years a few other breeding sites have been discovered from the Creston valley north to Muncho Lake. Creston, BC. 15 April 1998 (Linda M. Van Damme).

Family Picidae - Woodpeckers (158): Lewis's Woodpecker - 5, Yellow-bellied Sapsucker - 9, Red-naped Sapsucker - 19, Red-breasted Sapsucker - 22, Downy Woodpecker - 12, Hairy Woodpecker - 35, White-headed Woodpecker - 3, American Three-toed Woodpecker - 5, Black-backed Woodpecker - 1, Northern Flicker - 40, and Pileated Woodpecker - 7.

Family Tyrannidae - Tyrant Flycatchers (126): Olive-sided Flycatcher - 2, Western Wood-Pewee - 4, Yellow-bellied Flycatcher - 2, Willow Flycatcher - 8, Least Flycatcher - 5, Hammond's Flycatcher - 2, Gray Flycatcher - 4, Dusky Flycatcher - 2, Pacific-slope Flycatcher - 7, Eastern Phoebe - 10, Say's Phoebe - 7, Western Kingbird - 52 (Figure 56), and Eastern Kingbird - 21.

Family Vireonidae - Vireos (16): Cassin's Vireo - 3, Hutton's Vireo - 2, Warbling Vireo - 9, and Red-eyed Vireo - 2.

Family Corvidae - Jays, Magpies and Crows (129): Gray Jay - 14, Steller's Jay - 15, Blue Jay - 10, Clark's Nutcracker - 2, Black-billed Magpie - 15, American Crow - 13, Northwestern Crow - 19, and Common Raven - 41.

Family Hirundinidae - Swallows (892): Purple Martin - 50, Tree Swallow - 469, Violet-green Swallow - 29, Northern Rough-winged Swallow - 28,



Figure 56. Humans and Western Kingbirds certainly share an urban environment as this nest jammed between a telephone pole and transformer shows. Near Vernon, BC. 10 June 2007 (Lloyd Atkins).

Bank Swallow - 28, Cliff Swallow - 194, and Barn Swallow - 94.

Family Paridae - Chickadees (77): Black-capped Chickadee - 31, Mountain Chickadee - 16, Chestnut-backed Chickadee - 29, and Boreal Chickadee - 1.

Family Aegithalidae - Bushtit (11): Bushtit - 11.

Family Sittidae - Nuthatches (25): Red-breasted Nuthatch - 12 (Figure 57), White-breasted Nuthatch - 2, and Pygmy Nuthatch - 11.

Family Certhiidae - Creeper (8): Brown Creeper - 8.

Family Troglodytidae - Wrens (60): Rock Wren - 1, Bewick's Wren - 4, House Wren - 23, Winter Wren - 23, and Marsh Wren - 9.

Family Cinclidae - Dipper (11): American Dipper - 11.

Family Regulidae - Kinglets (31): Golden-crowned Kinglet - 30, and Ruby-crowned Kinglet - 1.

Family Turdidae - Bluebirds, Thrushes and Allies (512): Western Bluebird - 26, Mountain Bluebird - 282, Townsend's Solitaire - 2, Swainson's Thrush - 17, Hermit Thrush - 3, American Robin - 179, and Varied Thrush - 3.



Figure 57. Adult Red-breasted Nuthatch feeding at least two nestlings at entrance to cavity. Kalamalka Lake, BC. 29 May 2007 (Lloyd Atkins).

Family Mimidae - Mockingbird, Thrashers and Allies (8): Gray Catbird - 8 (Figure 58).

Family Sturnidae - Starling and Allies (82): European Starling - 82.

Family Motacillidae: Wagtails and Pipits (4): American Pipit - 4.

Family Bombycillidae - Waxwings (12): Cedar Waxwing - 12.

Family Parulidae - Wood-Warblers (134): Tennessee Warbler - 1, Orange-crowned Warbler - 25, Nashville Warbler - 1, Yellow Warbler - 25, Yellow-rumped Warbler - 13, Black-throated Gray Warbler - 3, Townsend's Warbler - 30, American Redstart - 3, Northern Waterthrush - 2, MacGillivray's Warbler - 4, Common Yellowthroat - 3, Wilson's Warbler - 1, Canada Warbler - 22, and Yellow-breasted Chat - 1.

Family Thraupidae - Tanagers (13): Western Tanager - 13.



Figure 58. Gray Catbird nests are not easy to find and when located are usually deep in some dense shrub. Margaret Hubble was able to get a nice photo of a nest with four nestlings near Vernon, BC on 1 July 2007. (Margaret Hubble).



Figure 59. Four eggs is the usual clutch size for Vesper Sparrow in British Columbia. near Vernon, BC. 20 May 2007 (Lloyd Atkins).

Family Emberizidae - Towhees, Sparrows, Longspurs and Allies (190): Spotted Towhee - 12, Chipping Sparrow - 24, Clay-colored Sparrow - 1, Vesper Sparrow - 6 (Figure 59), Savannah Sparrow - 10, Fox Sparrow - 1, Song Sparrow - 75, Lincoln's Sparrow - 7, White-throated Sparrow - 4, White-crowned Sparrow - 7, Golden-crowned Sparrow - 4, and Dark-eyed Junco - 39.

Family Cardinalidae: Grosbeaks, Buntings, and Allies (18): Black-headed Grosbeak - 16, and Lazuli Bunting - 2.

Family Icteridae - Blackbirds, Orioles and Allies (388): Red-winged Blackbird - 238, Western Meadowlark - 1, Yellow-headed Blackbird - 8, Rusty Blackbird - 3, Brewer's Blackbird - 40, Common Grackle - 40, Brown-headed Cowbird - 48, and Bullock's Oriole - 10.

Family Fringillidae - Cardueline Finches and Allies (70): Gray-crowned Rosy-Finch - 8, Pine Grosbeak - 1, Purple Finch - 4, House Finch - 40, Red Crossbill - 2, White-winged Crossbill - 1, Pine Siskin - 3, American Goldfinch - 9, and Evening Grosbeak - 2.

Family Passeridae - Old World Sparrows (21): House Sparrow - 21.

**Total nests/broods - 12,839; 228 species
(2007 season - 7,701; historical - 5,138)**

List of Active (in bold) and Historical Contributors in Alphabetical Order

A A.M. Alexander - 1, Robert W. Allen - 5, E.M. Anderson - 4, **Errol Anderson - 34**, **William J. Anderson - 1**, Paul Andrew - 17, **Anonymous - 13**, **Cathy Antoniazzi - 1**, **Brian Armstrong - 11**, **Bethany Arndt - 2**, **Janice E. Arndt - 35**, **Janice E. Arndt and Elaine Moore - 17**, **E. Arnold - 2**, **Kevin Atkins - 19**, **Vicky Atkins - 54**, **Vicky Atkins and Alice Beals - 49**, **Vicky and Lloyd Atkins - 155**, and **Tom Axenroth - 1**.

B British Columbia Fish and Wildlife Branch - 45, British Columbia Forest Service - 1, British Columbia Game Department - 113, British Columbia Parks Branch - 5, British Columbia Provincial Museum - 1, **Avery Bartels - 19**, **Alice Beals - 34**, Frank L. Beebe - 10, **Barbara Begg - 10**, Winifred M. Bennie - 19, **Edward G. Beynon - 11**, **Jennifer L. Bergen - 3**, Louis B. Bishop - 2, **Bob Blake - 2**, **Myrna Blake - 96** (Figure 60), **Peter Blokker - 7**, Donald A. Blood - 3, Donald A. Blood and R. Wayne Nelson - 1, **Ken Boothroyd - 1**, Jack Bowling - 7, Kenneth C. Boyce - 1, **Malcolm Boyd - 1**, **Jan Bradshaw - 135**, **Tom Brighthouse, Doug Ibbitson and Ted Hillary - 650**, Allan Brooks - 194, **Doug Brown - 77**, **Gary Brown - 23**, **Gordon Brown and Linda Van Damme - 1**, **Quentin Brown - 2**, **Christopher Buis - 1**, **C. Burns - 1**, **Herman Buschman - 1**, **Beverly H. Butcher - 117**, and Robert W. Butler - 282.



Figure 60. Myrna Blake documented most of her nests and broods by digital photography and for a first-time contributor tallied an impressive 96 breeding records. This nest and eggs of an Eastern Phoebe was a second nesting. Near Andy Bailey Creek, BC. 4 June 2007 (Myrna Blake).

C Eileen Campbell - 11, R. Wayne Campbell – 1,475, R. Wayne Campbell and Don Rosen - 3, R. Wayne Campbell and Ken Kennedy - 4, R. Wayne Campbell and Mark Phinney - 9, R. Wayne Campbell and Scott Thornton - 45, R. Wayne and Eileen Campbell - 755, R. Wayne and Eileen Campbell and John Deal - 1, R. Wayne and Eileen Campbell and Mark Phinney - 14, G. Clifford Carl - 1, Larry Carper - 1, Cynthia Carter - 1, Harry R. Carter - 1, Ron Carter - 1, Dan and Connie Chapman - 2, Chris Charlesworth - 117, Mike Chutter and Donald A. Blood - 1, Murray Clark - 3, Peter V. Clarkson - 1, June Cochrane and Keith Alexander - 1, Shirley Coffin - 1, Shirley Coffin and Larry Boan - 1, Cyril Colonel - 34, John Comer - 2, John K. Cooper - 1, John M. Cooper - 7, Evi Coulson - 3, Evi and Mel Coulson - 1, Vic Cousineau - 28, R.A. Cumming - 1, and H.H. Currie - 3.

D Ed Dahl and Frank Kime - 44, S.J. Darcus - 5, A.R. Davidson - 14, Gary S. Davidson - 57, Gary S. Davidson and Doug Brown - 9, John Davidson - 3, Larry Davidson - 38, Jim H. Davis - 3, Irene Davy - 1, Irene and Clint Davy - 3, Clifford Day – 20 (Figure 61), Charles de B. Green - 3, D. Donald - 1, H.S. Drinker - 2, Jim Dubois - 1, and Ducks Unlimited Canada – 67.



Figure 61. Clifford Day monitors nest boxes in the north Okanagan valley each year and finds some of the boxes crammed with twigs of the House Wren. Okanagan valley, BC. 3 July 2007 (R. Wayne Campbell).

E R. Yorke Edwards - 14, Peter Elliot - 13, David Ellis - 115, Joanne Emily - 1, G. and J. Erasmus - 2, and Colleen Erickson - 1.

F Andrea Fagan - 48, Sheila Falle - 7, John Fannin - 3, Randy Finlay - 1, Joyce Fitz-Gibbon - 2, Isabelle Foget - 1, Robert G. Footitt - 611, J. Bristol Foster - 5, Hugh Fraser - 11, D. Lorne Frost - 23, and Ralph Fryer - 1.

G Val George - 4, Ralph Gerein - 1, Valerie Getten - 2, Jim Ginns - 121, W. Earl Godfrey - 1, Luther J. Goldman - 2, J.E. Victor Goodwill - 62, J.E. Victor Goodwill and Ron Satterfield - 1, J.E. Victor and Margaret E. Goodwill - 1, J.E. Victor and Margaret. E. Goodwill - 1, Margaret E. Goodwill - 1, Hilary Gordon - 9, Hilary Gordon and Arne Moen - 6, Hilary Gordon and Ted Hillary - 1, Luther J. Gordon - 3, Orville Gordon - 24,

Ted Goshulak - 3, Trevor Goward - 1, Douglas J. Graham - 9, **Ron Granger - 1**, James Grant - 2, **Tony Greenfield - 1**, **Christian and Aileen Gronau - 1**, Charles J. Guiguet - 14, Charles J. Guiguet and Ewald Lemke - 12, Charles J. Guiguet and Patrick W. Martin - 2, and **John Gwilliam - 1**.

H David A. Hancock - 1, Lars Hansen - 1, **Willie Haras - 35**, **Robert Harding - 36**, M. Harris - 4, Carol Hart - 1, David F. Hatler - 4, David F. Hatler and Keith Hodson - 1, James Hatter - 1, W. Grant Hazlewood - 2, **Ruth E. Hellevang - 5**, R. Helset - 1, Edward G. Hennan - 17, Nathan Hentze - 2, Werner and Hilde Hesse - 1, **Ted Hillary - 148**, **Mark Hobson - 7**, **Bonnie Hooge - 1**, **Dennis Horwood - 1**, Dean Howell - 1, **Richard R. Howie - 12**, **Margaret Hubble - 5**, **Pat Huet - 3**, **Paul Hunter - 6**, and Jack E. Husted - 1.

I **Tyler Innes - 5**, **John Ireland - 1**, and **Jim Iverson - 1**

J Mary F. Jackson - 1, **Len Jellicoe - 1**, Dale Jensen - 1, Richard S. Jerema - 1, Leo Jobin - 30, **Marlene Johnston - 37**, and Walter B. Johnstone - 46.

K J.H. Keen - 1, K.E. Kelleher - 1, L. Kellogg - 1, **Ken Kennedy - 1**, **Bill Kincaid - 1**, **Bill and Cheryl Kincaid - 1**, David G. King - 1, **Sandra Kinsey and Laird Law - 2**, Ethel L. Kippin - 1,559, **Nancy Krueger - 21**, **Nancy Krueger and Cathy Antoniazzi - 3**, **Nancy Krueger and Elsie Lafreniere - 5**, **Nancy Krueger and Mark Phinney - 1**, **Nancy Krueger, Jack Bowling and Steven Lawrence - 1**, **Nancy Krueger, and Sandra Kinsey and Laird Law - 1**.

L **Elsie Lafreniere - 16**, Hamilton M. Laing - 4, **F. Lambert - 1**, **Vi Lambie - 1**, **Vi and John Lambie - 103**, **Steven Lawrence - 22**, **Adrian Leather, Alex Coffey, and Don and Joan Murphy - 27**, **Debbie Leather - 1**, **P. Leavens - 1**, Martin C. Lee - 1, **Janna Leslie - 2**, **Pat Levitt - 14**, **Marcia Long - 12**, **Kelsey Low - 1**, **J. Luce - 1**, Robert E. Lusher - 1, and **Agnes Lynn - 4**.

M Malcolm Macartney - 1, Ron MacKay - 1, A.C. Mackie - 1, Walter S. Maguire - 3, **Steven Manuel - 1**, **Tony Markle - 1**, Patrick W. Martin - 2, **Wayne Matkoski - 1**, Ron Mayo - 6, **Wally McCappin - 1**, Wayne McCrory - 7, **Carolynn McGhee - 1**, **Ed McMackin - 7**, Michael C.E. McNall - 3, **C. McNeil - 13**, **Martin K. McNicholl - 1**, Ian McTaggart-Cowan - 16, Arthur L. Meugens - 21, H. Middleton - 1, **S. Miller - 4**, **Robert Miller - 2**, **Jim Mitchell - 1**, **Richard Morley - 1**, **Emily Müller - 6**, David A. Munro - 20, James A. Munro - 422, James A. Munro and C. Quanstrom - 1, **William Munro - 1**, and O.J. Murie - 7.

N **Eve Neale - 14**, **Laure W. Neish - 3**, R. Wayne Nelson - 1, C.F. Newcomb - 1, **J. Newell - 4**, **Vera and Nick Nicholson - 1**, Doris Nye - 1, **Ivar Nygaard-Peterson - 119**, and **Mark Nyhof - 364**

O Derek O'Brien - 6, Frank Oldaker - 1, Kevin Olsen - 1, **Stan Olson - 1**, and **Rudi Omundsen - 1**.

P Tom W. Parkin - 1, Parks Canada - 1, D. Parsons - 2, Mary Pastrick - 5, Mary Patenaude - 1, Adrian B. Paul - 7, W. Adrian B. Paul - 1, Leon Pavlik - 1, Theed Pearse - 4, David and Lynne Pedley - 1, **Ed Pellizzon - 6**, **Janne Perrin - 61**, **Janne Perrin and J. Grieshaber - 1**, **Janne and Karl Perrin - 2**, **Karl Perrin - 2**, **M. Perrone - 1**, **Jim Peters - 1**, **Christy Peterson - 1**, **Mark Phinney - 3**, **Dirk Pidcock - 25**, **A. Pizzey - 1**, **Andrea Pomeroy - 6** (Figure 62), **G. Allen Poynter - 49**, **Joanna Preston - 9**, **Joanna Preston and Andrea Pomeroy - 2**, **Joanna Preston and Camila Morcos - 5**, **Joanna Preston and Colin Bailey - 6**, **Joanna Preston and Pete Balagus - 1**, **Joanna Preston and Tracy Anderson - 7**, **Michael I. Preston - 8**, **Michael I. Preston and Amber Robinson - 35**, **Michael I. Preston and Andrew Tyrrell - 13**, **Michael I. and Joanna Preston - 10**, **Shirley Prince and Shelley Penner - 2**, Prince George Naturalists Club - 1, **Tammy Proctor - 1**, and **Sandy Proulx - 192**.

R Kenneth Racey - 12, Helen Rachini - 1, Leah Ramsey and David Fraser - 1, A.L. Rand - 1, Sandy Rathbone - 1, Sandy Rathbone and George P. Sirk - 1, **Tony Reese - 1**, **Trish Reid - 1**, Tom E. Reimchen - 1, **Sheila Reynolds - 18**, **Derek**

Rhind - 1, S.N. Rhoads - 1, Diane Richardson - 1, **Leslie Richardson - 1**, **Dirk Rinehart-Pidcock - 12**, **Dirk Rinehart-Pidcock** and **Gail Spitler - 16**, **Anna Roberts - 122**, Leila G. Roberts - 47, Leila G. Roberts and Lyndis Davis - 1, Leila G. Roberts and Ron Satterfield - 3, Robin D. Robinson - 1, **Laurie Rockwell - 25**, Michael S. Rodway - 3, **Linda Ronayne - 1**, Royal Ontario Museum - 1, **Glenn R. Ryder - 251** (Figure 54), and **S. Rymar - 1**.



Figure 62. In her first year as a contributor Andrea Pomeroy located nests for hard-to-find species like this Common Nighthawk. 20 km east of Chetwynd, BC. 19 June 2007 (Andrea Pomeroy).

Salmon Arm Naturalists Club - 23, **Ron Satterfield - 7**, **David C. Schutz - 19**, **D. and L. Scott - 1**, **Lorraine Scott - 2**, **Lorraine Scott and Sharon Laughlin - 38**, Scout Island Nature Centre - 1, Mark Shepard - 343, Michael G. Shepard - 7, **Katherine Shewchuck - 1**, **Chris Siddle - 428**, **Ed and Hazel Silkens - 5**, **Fred Simpson - 3**, **Jim Sims - 9**, George P. Sirk - 1, Arnold Skei - 2, Peter Soles - 1, David J. Spalding - 14, John F. Stanwell-Fletcher - 6, John F. and Theodora C. Stanwell-Fletcher - 58, Ronald M. Stewart - 4, **David A. Stirling - 1**, **Richard Swanston - 4**, Harry S. Swarth - 6, Jim Switzer - 1, and **Lorraine Symmes - 11**.

TMike Tabak - 2, P.A. Taverner - 1, and **Howard A. Telosky - 4**.

VLinda Van Damme - 493, **Linda Van Damme and Cyril Colonel - 11**, Gerard F. Van Tets - 362, **Vancouver Natural History Society - 1**, **Janice Vathwood - 1**, and **Victoria Natural History Society - 8**.

WCarson Wade - 2, Lynn Wade - 1, Lynn and Carson Wade - 2, **Betty Walker - 6**, John G. Ward - 35, Wayne C. Weber - 6, Wayne C. Weber and D. Wilson - 2, **Rita Wege - 24**, **Rita Wege and Gwen Nicol - 3**, **Rita Wege and Janice Arndt - 1**, **Rita Wege and Larry Prosser - 20**, **Kim West - 2**, Edward G. White - 2, Mildred V. White - 1, S.D. Whitman - 1, John G. Wiebe - 3, A.L. Wilk - 1, **P. Ray Williams - 15**, **Ed Willis - 1**, **Marcus Womersley - 15**, **Jim Woodhaus - 2**, **Edward Woolman - 1**, and J. Wynne - 7.

Total Contributors - 366
(Active - 221; Historical: 145)

Total Contributors - 366
(Active - 221; Historical: 145)

Wildlife Workshops and Extension

Workshops and lectures continued with programs on **Salt Spring Island**, **Sidney**, and **Burnaby**. Taking time to explain the importance of the BCNRS, and its function in conservation, to groups has rewarding returns. Not only are more eyes in the field looking but also the way the information is gathered and documented is standardized.

LONG-TERM MONITORING AND INVENTORY PROJECTS

During each nesting season, there is a strong commitment by members of the **Biodiversity Centre for Wildlife Studies**, field naturalists, students, and the forest and mining industry to monitor colonial-nesting species, wetland species, raptors, and cavity nesting birds throughout various regions of the province. Roadside raptor counts and wildlife road mortality observations are included as part of a long-term wildlife monitoring program. Specific areas are surveyed each year and historical information is transferred into databases during the off-season.

In 2007, projects directly related to the **British Columbia Nest Record Scheme** included surveys of **raptor nests** (e.g., Bald Eagle, Red-tailed Hawk, and Osprey); **owls** (e.g., Barn Owl, Great Horned Owl, Northern Saw-whet Owl, Western Screech-Owl, and Barred Owl); **Common Loon** surveys; **colonial-nesting fresh waterbirds** (e.g., Western Grebe, Eared Grebe, Great Blue Heron, Double-crested Cormorant, Ring-billed Gull, Herring Gull, California Gull, Black Tern, Forster's Tern, and Red-

winged and Yellow-headed Blackbirds); **terrestrial bird colonies** (e.g., Purple Martin and Bank and Cliff Swallows); and **nest box trails** (e.g., Mountain and Western Bluebird, and Tree Swallow).

Here are some of the findings from the 2007 season.

Nest Box Trails

Thousands of nest boxes have been built and installed in various habitats throughout the province, which include wetlands, grasslands, and a variety of deciduous and coniferous forests, shrublands, rural and residential properties, and subalpine slopes. Although, boxes are often built to attract bluebirds, waterfowl and owls, an impressive number of other species benefit from using these artificial structures.

In 2007, the following **30 species** of birds and mammals were reported using nest boxes and platforms: **Wood Duck, Common Goldeneye, Barrow's Goldeneye, Hooded Merganser, American Kestrel** (see Figure 52), **Western Screech-Owl, Northern Saw-whet Owl, Northern Flicker, Pacific-slope Flycatcher, Say's Phoebe, Purple Martin, Tree Swallow, Violet-green Swallow, Black-capped Chickadee, Mountain Chickadee, Chestnut-backed Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, Pygmy Nuthatch, Bewick's Wren, House Wren, Western Bluebird, Mountain Bluebird, American Robin, European Starling, House Sparrow, Deer Mouse, Red Squirrel, Northern Flying Squirrel**

(Figure 63), and **Eastern Grey Squirrel**.

We are grateful to the following committed individuals who visit the nest boxes to monitor breeding activity and take the time to transfer this information to nest cards or summary sheets: **Vicky and Lloyd Atkins** and **Alice Beals** (north Okanagan valley), **Beverly Butcher** (Cariboo), **Wayne and Eileen Campbell** (Kamloops, and Dragon Lake), **Alex Coffey** (Dragon Lake), **Cyril Colonel** (Creston valley), **Vic Cousineau** (Lister), **Clifford A. Day** (Vernon), **Andrea Fagan** (Dragon Lake), **Jim Ginns** (Okanagan Falls), **Willie Haras** (Kamloops), **John and Vi Lambie** (Mackenzie), **Adrian Leather** (Dragon Lake), **Ed McMackin** (Arrow Creek), **Eve Neale** (Eagle Lake), **Janne Perrin** (Harrison Hot Springs), **Ivar Nygaard-Petersen** (Powell River), **Michael Preston** (BC general; Figure 64), **Sandy Proulx** (Buck Ridge, Marguerite, McCleese Lake, Meldrum Creek, 150 Mile House, and Riske Creek), **Dirk Pidcock** (Argenta and Duncan River valley), **Anna Roberts** (Meldrum Creek), **I. Laurie Rockwell** (Summerland), **Glenn R. Ryder** (central Fraser River valley), **Lorraine Scott** and **Sharon Laughlin** (Creston), **Ed and Hazel Silkens** (Campbell River), **Linda Van Damme** (Creston valley), **Betty Walker** (Galagher Lake/Oliver), and **Rita Wege** and **Larry Prosser** (west Kootenay).

Vic Cousineau, who monitors nest boxes in Lister, found that 75% of his boxes had wasp nests, which had to be removed on more than one occasion.

Most nest cards submitted for boxes included the actual **box number** usually printed in the upper left corner of the card. This is very helpful when analyzing



Figure 63. Vic Cousineau was one of the very few individuals to send “nest” cards for mammals. While monitoring nest boxes in Lister, BC he discovered a Northern Flying Squirrel peering out of some nesting material (left). When he looked more closely he found several small, naked young (right). 1 June 2007 (Vic Cousineau).



Figure 64. The Tree Swallow is the commonest species to utilize boxes for nesting in British Columbia. Westham Island, BC. 5 May 2007 (Michael I. Preston).

data because several different people may visit many of the trails during the summer. For example, the nest box trail extending from Kamloops east to the Pritchard area on the north side of the South Thompson River was checked by five different people in 2007.

Wetland Monitoring

One of the most threatened habitats in North America, including British Columbia, is marshes, sloughs, shallow lakes, river backwaters, and large permanent ponds. The BCNRS is in a unique position to evaluate changes in breeding birds, both in numbers and range expansion and contraction, because of its 53-year history.

This year the monitoring continued for the following species.

Ring-billed Gull

Ted Hillary writes “*The colony on Christmas Island, near Salmon Arm, was surveyed on May 21 by Tom Brighthouse and Doug Ibbitson. They came up with a count of 650 nests with approximately 1,300 eggs. Most of these were washed out in the high water. On July 9, I counted 29 young gulls, of various ages, on the north part of Christmas Island, some of which are still there, so there was some nesting success.*

There was also a family of Herring Gulls that I didn’t see until a young was being fed. It is not unusual to have one or more Herring Gull nests amongst the Ring-billed Gulls.”

Complete surveys for three major colonies (e.g., Shuswap Lake, Quesnel, and Fraser Lake) were completed. While Ring-billed Gulls were affected by fluctuating water levels other species that also nest at the same site (e.g., Herring Gull and California Gull) fared better. The Christmas Island site (Figure 65), near Salmon Arm, was surveyed independently by three groups including naturalists from the Shuswap area.

The colony at Quesnel is unique in that pairs are nesting in a “forest” of black cottonwoods, some of which have grown to 7 metres or more.



Figure 65. The human-created dredge spoil that created a small island in a bay at the south end of Shuswap Lake was quickly usurped by Ring-billed Gulls and used as a nesting site along with smaller numbers of Herring Gulls, California Gulls, Caspian Terns, and Western Grebes. 28 May 1994 (Linda M. Van Damme).

Western Grebe

One colony was successful and another was unsuccessful due to unstable water levels and windstorms.

Salmon Arm

Ted Hillary reports that 2007 was a very successful year for the Western Grebes in Salmon Arm Bay. There were at least 45 families with 85 young, compared to an average of about 55 young. Nesting started earlier than usual and by June 6 there were nests on Christmas Island (Figure 66), although most of these were washed out by high water after the third week in June. The grebes were also nesting in three other places around the western part of Salmon Arm Bay.

On July 4, Ted saw four families with seven young and continued to see new families into August, over a six-week period. And, on July 6, he watched two young riding on the back of an adult **Clark's Grebe** being fed by an adult **Western Grebe**. Hybridized grebes in the Salmon Arm Bay are not all that unusual.



Figure 66. In some years small numbers of Western Grebes are able to complete their nesting cycle on "Christmas Island" away from their traditional breeding grounds at the extreme south end of Shuswap Lake. Salmon Arm, BC. 23 May 1993 (R. Wayne Campbell).

What Ted found exciting this season was observing a pair of Clark's Grebes courting at the beginning of July and although he did not observe any results of this courtship behaviour, it does raise the possibility for Clark's Grebes to successfully breed in the Salmon Arm Bay.

Duck Lake, Creston

Linda Van Damme completed her 13th year of monitoring Western Grebes but no young were observed this season.

A stable water level is important for reproductive success and must be shallow enough to allow the grebes to pull vegetation into nesting mounds and stable enough to prevent flooding of nests during sudden increases in water levels. This season water levels were not low enough to allow the milfoil mat to develop and attain a mass where grebes could nest. It was a tumultuous season with high winds and although the grebes attempted to build nests, they were not successful.

Great Blue Heron

Keeping track of Great Blue Heron nesting sites continued at key locations throughout the province.

In the Creston valley, **Linda Van Damme** and **Cyril Colonel** documented the breeding season from the arrival of the first adults to the fledging of the last young, a period of 174 days. Details were recorded on all aspects of colonial nesting activities that occur throughout the season. They were able to compile their observations of **Bald Eagle** and other predatory activity at the colony over the past five seasons and publish their findings in (*Wildlife Afield* 4:213-232).

Cyril continued to photo document nesting activity of the colony, including habitat changes and colony expansion (Figure 67).

Reporting small and large **Great Blue Heron** nesting sites continued throughout the province. All colonies were photographed, copies of which have been added to the **BC Photo File for Wildlife Records** and cross-referenced to nest cards. Photo-documentation usually included a series of images that included the entire colony site as well as individual trees with nests and GPS location.

Some heronries are not reported to the BCNRS and each year information is sent elsewhere, both within and outside the province. The efficiency and conservation value of having information centralized is obvious so please, as time permits, report any nesting activity to us.



Figure 67. An aerial photo of the Great Blue Heron nesting site at Leach Lake, BC. The colony has been outlined to show the historical boundary and the expansion of the colony in 2007. 20 July 2007 (Cyril Colonel).

Osprey

Annual monitoring by long-term contributors continued in select regions of the province while many others recorded nests found on their trips to other parts of the province. Some of these latter sites are isolated, but important, as they contribute to the general breeding distribution and allow for assessment of centres of abundance. It is quite obvious that numbers decrease with latitude northward.

Results for areas regularly surveyed in 2007 are as follows:

West Kootenay (Arrow Lakes)

Gary Davidson has monitored Osprey nests along Highway 6 which traverses sections of the Upper and Lower Arrow Lakes since 1994. The majority of nests are built on transmission poles in the BC Hydro right-of-way corridors.

Along the 55 km stretch between Nakusp and Fauquier, there are 49 towers that have a nest structure. Some are in disrepair and not usable at present. In 2007 Gary noted the presence of at least one adult on 31 of these nests at least once during the season. Presumably, some of these did not result in eggs being laid. But on a mid July survey, adults were still present on 21 of these nests. By season's end, however, he only observed young on 15 nests. A total of 22 young were observed. 2 nests produced 3 young; 4 nests produced 2 young; the others just one each. It is interesting to note that only 3 of the 15 productive nests were north of Burton. This despite the fact that Burton is

considerably more than half way to Fauquier. Burton to Fauquier is less than 20 km, yet this section had 12 nests producing 19 young.

West Kootenay (Balfour to Waneta)

Rita Wege, Elaine Moore, Janice Arndt, and Larry Prosser, after completing their 10th consecutive year in 2006, (see *Ten years of monitoring nesting Ospreys (Pandion haliaetus) in the West Kootenay region of British Columbia*, Wildlife Afield 3:125-133, 2006) decided that continuing their long-term monitoring of Osprey would be a valuable contribution at a time when climate change and global warming, increasing resource extraction, water quality, and urbanization are public concerns.

Their survey area, due to its length from Balfour to Waneta and along the Kootenay and Columbia Rivers, is divided between two teams who cover their respective areas three to five times a season.

The 2007 season started with 59 potential nest sites (nesting material present) of which 32 proved to be active nests (active nest-building, copulation, incubation, and/or young seen). Out of these 32 nests, 23 were seen to have young in them. A total of 37 young were seen, giving an average of 1.6 young per nest, very close to the 11-year average of 1.7 young per nest. Canada Geese made use of 34 nests, out of which only eight were later used by Osprey and from which young were fledged successfully. Of the 23 productive nests, 18 were on man-made structures (including one on a platform on top of a tree!) and only five were natural sites.

Creston Valley (US Border to South Kootenay Lake)

Linda Van Damme and **Cyril Colonel** completed their 10th consecutive season of monitoring Ospreys. Nests are built on power poles in the agricultural lands, black cottonwood trees along the Kootenay River system and on human-made structures such as navigation lights at Kootenay Landing. A severe windstorm on June 29th wreaked havoc throughout the area and a number of nests or nest trees were lost during this storm.

The new pole installed by Fortis BC in West Creston in the autumn of 2006, was claimed by the pair who occupy this territory and two young were successfully reared (Figure 68). Cyril continued to photograph habitat features and new nest sites. He has now compiled 227 individual colour photos that provide a historical record of all nests in the Creston valley over the past decade. The 2007 season ended with 30 productive nests with an average of 1.6 young/nest.



Figure 68. Poles with no electrical current are often installed so Osprey have a safe site on which to build their large stick nests. Canada Geese are also attracted to these elevated sites which force the Osprey to build a new nest, often on energized poles. Near Creston, BC. 23 April 2005. (Cyril Colonel).

East Kootenay (Cranbrook, Wasa and West Wardner)

Sheila Reynolds and **Judy Winterbottom** completed their second year of monitoring the local Osprey nesting population. Nests are located on active power poles, power line towers and in ponderosa pine tree snags. This season, they were successful in locating eight additional nests with a tip on another nest to check in 2008 near St. Mary's Lake. Over the Thanksgiving weekend in October, they located this nest so now have a head start for the 2008 season.

At the Galloway Mill site, two poles have been installed for nesting Osprey and both sites successfully raised two young. The workers at the mill site were very helpful by checking to see if the nests were active in early spring. They were also eager to discuss the birds and offer suggestions on other nest locations.

The big windstorm on June 29th caused damage to five nests that were abandoned following the storm. The season ended with a total of 15 nests that were monitored with 12 fledged young. Now equipped with a digital camera, Sheila plans to photo document all nests in 2008 for a historical record.

Mackenzie

Seven nests were monitored again by **John** and **Vi Lambie** around lakes and other wetlands in the vicinity of Mackenzie.

Salmon Arm

Many people, including **Edward Hillary**, sent cards for nesting Ospreys around **Salmon Arm** including the government wharf, Christmas Island, and the marina. When all "pooled" the full story of the bird's arrival, nesting, and departure period is well documented.

Incidental Monitoring

Monitoring single nests at traditional sites is also useful and with each year the records become more important (Figure 69). While many of these sites are reported each year more northern, and scarcer nests, are more challenging to locate and often too expensive to get to again. Still, this year we received noteworthy range extensions.

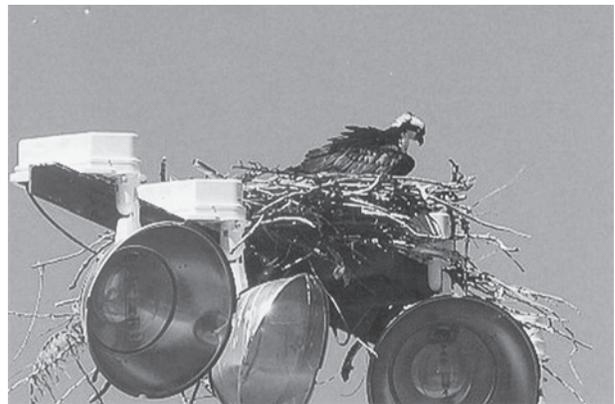


Figure 69. Sometimes well-known nests of Ospreys are not reported because contributors think others will fill in cards. Lloyd and Vicky Atkins, fortunately, made excellent notes on the nest in the Vernon Army Camp in 2007. Vernon, BC. June 2007 (Kevin Atkins).

Bald Eagle

There are a number of contributors who each season continue to monitor historical nest sites and to search for new ones. Although Bald Eagles may re-use a nest over many years, they also build alternate nests. Also pairs reaching maturity seek out a territory in which to build for the first time, so a number of new nest sites were discovered in 2007.

Some contributors initiated nest cards to document the period of time Bald Eagles spent in their nesting territory over the winter months, before actual nesting begins.

While nest cards were received from throughout the province coastal areas of the province, the Okanagan and Thompson valleys, Creston valley,

and Columbia valley were best represented.

In the Columbia Basin a separate study was initiated by Fish and Wildlife Compensation Program in Nelson to document Bald Eagle nests (see 2007 report: Bald Eagle and Great Blue Heron Inventory and Stewardship in the Columbia Basin - www.fwcp.ca). Out of 43 nests located, 37 were active (12 in the West Kootenay and 25 in the East Kootenay).

Cliff and Bank Swallows

More contributors are now noting the precise location of terrestrial bird colonies (Figure 70) and are submitting nest cards with photographs of each site. A few are also able to actually check individual nests with a “nest snooper”.

Also, more time was spent trying to get an estimate of the number of active versus inactive nests and burrows at each colony by counting attendant adults.

Continuing in 2007 was the effort that some people put into describing the precise location, with numbers, of Cliff Swallow nests on bridges. On their cards they recorded the number of active nests on the “east side”, “west side”, and “under” the bridge. This becomes very important when we use information to assist the provincial Department of Highways with their decisions on when and where to wash-down bridges and nesting swallows.



Figure 70. Some Bank Swallow colonies in British Columbia are threatened from human activities including indiscriminate removal of sand. This small colony, near Savona, BC, is located in a layer of sandstone in a gravel cliff, and is gradually being encroached upon as a garbage dump. 28 May 2007 (R. Wayne Campbell).

Purple Martins

The Purple Martin continues to explore new areas of the province (e.g., Salt Spring Island and Swan Lake in the Peace River) and hopefully some may decide to breed.

While information was received for some of the monitoring programs none was as thoroughly documented as for the colony at Myrtle Rocks south of Powell River (Figure 71). Clyde Burton banded the nestlings and Ivar Nygaard-Petersen completed four pages of notes on the contents of each box. Of 35 boxes, eight could not be opened for inspection, eight had eggs or young, three had rotten eggs or dead nestlings (Figure 72), and the remainder were empty.



Figure 71. Five Purple Martin nest boxes on pilings at the marine colony at Myrtle Rocks, BC. 1 June 2007 (Ivar Nygaard-Petersen).



Figure 72. Four dead nestling Purple Martins, about five days old, discovered in a nest box. Myrtle Rocks, BC. 28 July 2007 (Ivar Nygaard-Petersen).

RARE AND SENSITIVE SPECIES

Now that a data-sharing policy has formally been adopted by the Board of Directors of the Biodiversity Centre for Wildlife Studies (see **Making a Wildlife Data Centre Work: History, Objectives, and Solutions** by Michael I. Preston and R. Wayne Campbell, *Wildlife Afield* 4:191-212, 2007) requests for sensitive information can now be documented and processed following an established protocol. In the past such information was “on hold” until a policy was implemented and personnel from government, industry, conservation organizations, and consultants had their input.

In addition, public information in files of some provincial and federal government agencies, and non-profit groups, is not being released for their sensitivity to disturbance and other associated human activities.

Some species of interest in 2007 included **Canada Warbler**, **Bay-breasted Warbler**, **Cape May Warbler**, **Black-throated Green Warbler**, **Baltimore Oriole** (nesting), **LeConte’s Sparrow** (nesting), **Barn Owl** (nesting), **Sage Thrasher** (nesting), **Vaux’s Swift**, **Short-eared Owl** (nesting), **Sandhill Crane** (nesting), **American Bittern**, **Long-billed Curlew** (nesting), **Common Nighthawk** (nesting), **Yellow-breasted Chat** (Cariboo), **Western Screech-Owl** (nesting), **Yellow Rail**, **Swainson’s Hawk** (nesting, Peace River), **Broad-winged Hawk** (nesting), **Forster’s Tern** (nesting), and **Western Toad**.

FIELD TIPS AND TECHNIQUES

Correct Terminology for the Ages of Birds

There is some misunderstanding and confusion among naturalists (and biologists) in using the proper term when describing the different ages of birds. For example, do you call a bird in the nest a young, a fledgling, or a nestling? And what do you call a bird that has left the nest but may be two or three years old but still does not show all of the adult features. Do you call it an immature, a young, or a sub-adult or to be more precise a second-year winter bird?

Using the proper terms when recording information helps with interpreting sightings and breeding records. There is quite a difference between a young, a fledgling, an immature, or sub-adult bird and recording the precise age can provide value-added data for an observation.

The definitions and photographs below may help clarify recording ages of birds and hopefully encourage observers to be as specific as possible with their field notes.

Young – a general term used while the adults protect and feed their offspring from the time of hatching to independence. It usually includes both the nestling and fledgling periods but is frequently used to refer to a bird in all stages of growth to maturity (Figure 73). To be more accurate it is recommended to use the specific terms below.



Figure 73. It is more accurate to call this “young” Red-tailed Hawk an immature as it is in the process of acquiring adult plumage. Victoria, BC. 27 June 2007 (R. Wayne Campbell).

Nestling - the full time from hatching until its departure from the nest without human interference or other disturbance.

This can range from a few hours or a day for precocial birds hatched and entirely covered with fuzzy down (e.g., Common Loon, Eared Grebe, Mallard, Sora, and Ruffed Grouse) to many days in the nest for altricial birds that are born naked with traces of natal down (Figure 74) and spend much longer periods in the nest. The latter applies especially to songbirds (Passerines).

Even though young may appear very large, and well feathered, in the nest they still remain nestlings until their first trip out of the nest (Figure 75).



Figure 74. The nestling period for an American Robin, from hatching to leaving the nest (*i.e.*, fledging), is about 14-15 days. Creston, BC. 29 June 2006 (Marcia Long).



Figure 75. The nestling period for a Bald Eagle, from hatching to first leaving the nest, lasts between 70 and 77 days (10-11 weeks). Near Copper Island, BC. 26 May 1996 (R. Wayne Campbell).

Fledgling – the short period when a young first leaves its nest until it is independent of all parenting care, especially being fed (Figure 76).

This time varies considerably between different species. For example, young American Kestrels depend on their parents to feed them for 12-14 days after fledging while young Prairie Falcons may continue to be fed by their parents for up to 35 days.

It is important to record any feeding activity because fledgling periods are quite well known for some species and the information can be used to calculate a bird's full breeding period.

Some birds (*e.g.* swifts) have no fledgling period and fly directly from the nest being completely independent.



Figure 76. These recently fledged Eastern Kingbirds, still being fed by their parents about 10 metres from their empty nest, have another few days before they become totally independent and can be called a juvenile. The observers noted on the nest card that the fledglings had short tails. Near Vernon, BC. 8 July 2007 (Kevin Atkins).

Juvenile – a young bird that is independent of its parents (Figure 77), and is able to care for itself (*e.g.*, feeding), but has not completed its post-juvinal (*e.g.*, after breeding or post-nuptial) moult which may extend, depending on the species, into late October and November.



Figure 77. This juvenile Glaucous-winged Gull left its natal colony in late July and a month later is feeding independently of its parents. Esquimalt Lagoon, BC. 30 August 2006 (R. Wayne Campbell).

Immature – a young bird that has completed its post-juvinal moult (*e.g.*, starts soon after independence) and until it acquires its adult plumage. For some groups of birds (*e.g.*, eagles and gulls; Figure 78) this stage may last from two to five years.



Figure 78. This Glaucous-winged Gull, an immature, is starting its second year of life and in another year will moult into the more familiar adult plumage. Esquimalt Lagoon, BC. 31 August 2006 (R. Wayne Campbell).

Sub-adult – a young bird that requires more than one year to mature. The term is really a more precise term for the various stages of a bird as an immature.

Most small birds, especially songbirds, acquire their adult plumage in the spring following the summer in which they hatched. Some groups of birds, including albatrosses, shearwaters, eagles (Figure 79), and gulls, may require up to four or five years to get their adult plumage.

Adult – a bird's final, and breeding, plumage (Figure 80). Sometimes, however, an immature or subadult-plumaged bird may breed and nest. Adults change their plumage no more than twice a year, usually before and after nesting.

Fledged Young

To enhance the value of collecting breeding information, and time in the field, please fill out cards for fledged young even though a nest has not been found. A recently fledged young sitting on a branch, or one that has been out of the nest for awhile, but is being fed by its parents, is noteworthy.

Most contributors can identify young birds but it is important to record the stage of development. Descriptions could include downy tufts of down on head, stubby or bob-tail versus short/long tail, gape colour (often yellow), adults feeding away from the nest, ability to fly, well or not at all, spotted breast, or the bird's behaviour such as begging for food.

The recently published **British Columbia Nest Record Scheme Instruction Manual** gives six



Figure 79. This Bald Eagle is actually a sub-adult because it has remains of brown feathers in its head and tail. After 4-5 years these areas will become pure white. Sechelt, BC. 4 June 1996 (R. Wayne Campbell).

examples of fledged young for which nests cards should be completed. They include young with tufts of down, stubby-tails, yellow gapes, being fed by parents, or well fledged but in juvenile plumage and known to have been raised locally.

The instruction manual is available free-of-charge from the Biodiversity Centre for Wildlife Studies or from editor@wildlifebc.org.

Aging Waterbirds

Broods of waterbirds, especially cygnets, goslings, and ducklings of waterfowl (Figure 81), can be aged quite accurately following the criteria on plumage development shown in Appendix 1 (see page 49). This additional information allows the hatching date to be calculated and other analysis such as correlating weather in a particular season to productivity and laying times. Also, knowing the age of waterbirds is very helpful when developing profiles for regional breeding chronologies.

The drawings in Appendix 1 can be reduced and added to field notebooks for quick reference.



Figure 80. The pure white body of this Trumpeter Swan identifies it as a full adult. Cranberry Lake, BC. 22 January 2001 (R. Wayne Campbell).



Figure 81. Female Bufflehead with a 1-7 day-old brood of five. Cypress Creek, BC. 27 June 1998 (R. Wayne Campbell). The plumage development for the ducklings are rated Class 1A that is the duckling is all down-covered. In this Class (1A) the ducklings range in age between 1 and 7 days old.

FROM THE SCIENTIFIC LITERATURE

Keeping up with the volume of new information appearing in reports and scientific literature both in hard copy and electronic form is a full-time job that is quickly becoming an overwhelming task. However, to make informed decisions concerning conservation of species occurring in British Columbia requires paying some attention to published material.

A few articles with implications for breeding habitats, breeding birds, and nesting success in British Columbia are included below.

Yellow-breasted Chat and Gray Catbird Productivity in a Fragmented Western Riparian System

Researchers Tawna Morgan, Christine Bishop, and Tony Williams studied the effects of riparian habitat fragmentation on productivity of Yellow-breasted Chats and Gray Catbirds in the Okanagan valley, BC.

While there was no direct evidence that habitat fragmentation decreased productivity nesting dates were later in isolated habitat patches than in continuous patches.

Wilson Journal of Ornithology 119:494-498, 2007

Reproductive Success of American Kestrels: the Role of Prey Abundance and Weather

It is a popular belief that reproduction of birds is food-limited and success varies with food supply. A study carried out on American Kestrels by Russell Dawson and Gary Bortolotti in northern Saskatchewan provided subtle but significant results. Reproductive success did not depend on abundance of prey (e.g., small mammals) but availability of prey as influenced by weather. So, variation in weather affected reproductive success more than variation in prey abundance.

Condor 102:814-822, 2000

Black Tern Habitat Selection and Factors Affecting Nest Succession Northwestern Minnesota

Since the 1960s **Black Tern** populations have declined at many traditional sites in North America. Of concern at the moment is developing a wetland management program that involves bringing together historical and current information into a

common forum to discuss factors that affect the species' nesting success.

Four state biologists, headed by Stephen J. Maxson, studied habitat selection, nest success, and factors affecting nest success in Minnesota over a four-year period. They found that nest locations associated with bulrushes and sedges were preferred although there was also a strong correlation with cattails. Nests that failed to hatch were depredated. Finally nest success was higher for nests with larger clutch sizes and for nests located farther away from other nests.

Waterbirds 30: 1-9., 2007

Mechanism of Egg Recognition in Defense Against Conspecific Brood Parasitism: American Coot (Fulica americana) Know Their Own Eggs

Many contributors have probably wondered over the years if some species of birds can actually identify their own eggs when another bird of the same species adds its eggs to the "host" species. Behavioural ecologist Bruce Lyon looked at this issue. He altered eggs in **American Coots** (Figure 82) between pairs of nests to alter frequencies of host and "parasite" eggs and then used the two for recognition.

His results showed that eight of 12 nests (66%) given equal frequencies of host and parasite eggs showed evidence of true recognition. As well, birds sometimes recognize parasitic eggs without rejecting them.

Behavioral Ecology and Sociobiology 61:455-463, 2007



Figure 82. Field studies near Riske Creek, BC showed that adult American Coots could recognize their own eggs, and differentiate between addition eggs added by the same species, without rejecting them. Burnaby Lake, BC. 24 May 1970 (R. Wayne Campbell).

Status of Breeding Black Oystercatchers, Haematopus bachmani, in the Strait of Georgia, British Columbia

Some conservation agencies may be using the **Black Oystercatcher** as an indicator of coastal ecosystem health. Biologists Robert Butler and Todd Golumbia compared results of surveys in the Strait of Georgia between 1987, 1997-1999, and 2005-2006. They found that the numbers of oystercatchers has increased from 64 to 80 pairs. The reasons for the increase are unclear.

Northwestern Naturalist 89:57-60, 2008

Comparison of Coastal Fringe and Interior Forests as Reserves for Marbled Murrelets on Vancouver Island

Currently much of the protected habitat available to **Marbled Murrelets** on Vancouver Island occurs in narrow strips along the coast. During a two-year study of three watersheds, Dr. Alan Burger and his assistants determined that this represented suboptimal nesting habitat. Densities of predators and fewer potential nesting platforms of epiphytes were suggested as reasons.

Their conclusion: "*When possible, reserves for Marbled Murrelets should be placed in interior and not shoreline forests.*"

Condor 102:915-920

Preventing Raptor Electrocutions in an Urban Environment

Electrocution of raptors on poles supporting overhead electric lines is recognized as a potentially significant source of mortality. In past years most of the concern has centered around raptors nesting in rural areas but raptors also live in urban areas. In British Columbia these may include the following nine species: **Osprey, Bald Eagle, Sharp-shinned Hawk, Cooper's Hawk, Northern Goshawk, Red-tailed Hawk, American Kestrel, Merlin, and Peregrine Falcon.**

A study by James Dwyer and William Mannan on Harris's Hawks in urban Arizona has implications for species in British Columbia, especially buteos. Their results showed that the risk of electrocution was related to proximity of nests to potentially lethal poles. They recommended "*all potentially lethal poles within 300 m of the nests of urban-nesting raptors be retrofitted through the addition of insulation or through increased spacing between conductors*".

Journal of Raptor Research 41:259-267, 2007

Effects of Predator and Food Provisioning on Black Tern Chick Survival

Declines reported for breeding **Black Terns** (Figure 84) in North America may partly be due to low breeding productivity that limits population growth.

Shane Heath and Frederick Servello designed an experiment to suggest mitigation measures to enhance chick survival rates and factors contributing to chick mortality.

The researchers placed predator enclosures around 31 nests and with modifications in the second year of their study only one nest (7%) was depredated compared to 54% the first year.

While predation is the primary determinant of chick survival the “enclosures” was effective at protecting and retaining chicks until fledging at 70% of nests.

Wilson Journal of Ornithology 120:167-175, 2008

Visits to White Pelican Nest Colonies at Night Reduce Researchers Impacts on Nesting Success

As part of an environmental contaminant study

at Pyramid Lake, Nevada, federal government and university biologists Stanley Wiemeyer, Edward Murphy, and John Miesner collected **American White Pelican** eggs for analysis. A major concern was disturbance to the nesting colony for egg collecting activities.

They monitored disturbed and undisturbed activities in subcolonies during daylight and evening trips. Their results showed that visits for sample collections should be done at night to reduce gull predation and heat stress on eggs and nestlings.

Northwestern Naturalist 88:129-134, 2007

Documentation of a Polygynous Gray Catbird

Polygyny, when a single male forms a long lasting association with one or more females at the same time, is rare in most birds. The Gray Catbird is considered a typical monogamous species with the male feeding the nestlings during the early nesting period and the female does most of the brooding.

Daniel Hanley and his co-authors noted the second occurrence of polygyny in the Gray Catbird.

Wilson Journal of Ornithology 119:499-502, 2007



Figure 84. The Black Tern nesting platforms put out in wetlands in 2007 were well-used. At one site, two adults landed on a platform less than one minute after it was anchored, and 26 days later, it contained two chicks and a pipping egg. Near Dawson Creek, BC. 27 June 2007 (R. Wayne Campbell).

APPENDICES

Appendix 1. Plumage Development of Young Waterfowl

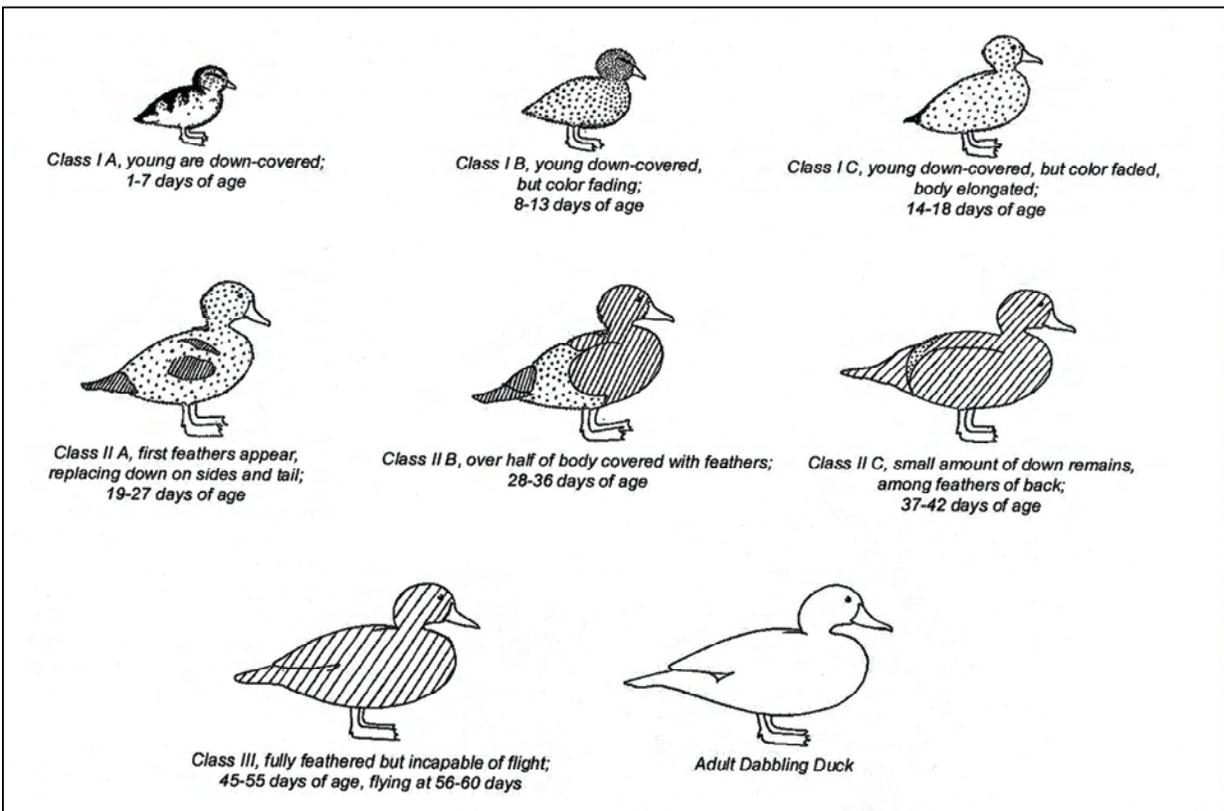
In the spring of 1997, the first B. C. Nest Record Scheme manual was issued by the WBT Wild Bird Trust of British Columbia, along with participating partners, as WBT Wildlife Report No. 1. An important omission in that manual was the inclusion of plumage changes of waterfowl developed by J. B. Gollop and W. H. Marshall in their 1954 publication *A Guide for Ageing Duck Broods in the Field*. This information, when recorded on nest cards, is very useful in determining breeding chronology and mortality figures as the young pass from the downy stage to the flight stage. Brood ages are recorded at three stages of growth as follows:

CLASS I – (Levels A, B and C) – downy stage that covers the period from hatching to the time body feathers begins to appear among the down. It usually lasts about three weeks.

CLASS II – (Levels A, B and C) – this stage, from about the fourth week through the sixth week, covers the period when the body feathers gradually replace the down plumage.

CLASS III – (Single Level) – this stage of development, which lasts for about 10 days, includes the period when the young appear fully feathered just before their first flight.

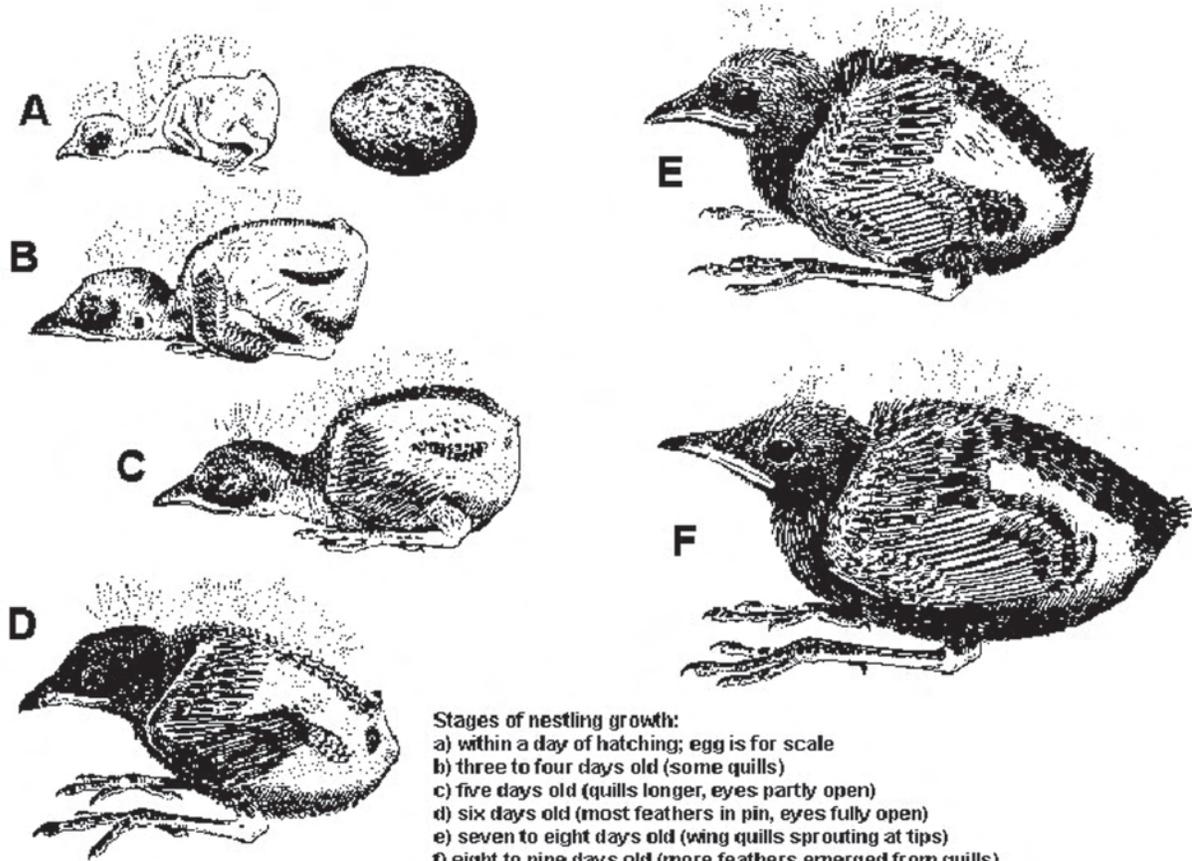
Information for each brood can simply be recorded on each nest card as I-A, I-C, II-B, III, etc. The drawings, which have been modified from Frank C. Bellrose's *Ducks, Geese and Swans of North America*, should be used as the reference.



Appendix 2. Guide to Timing of Visits to Nests of Passerine (Song) Birds.

Contents of nest when found or last visited	Next visit should be	Notes needed at next visit
Nest under construction	2 - 4 days later, to determine laying schedule	No. of eggs, warm or cold; parent at nest or not
1 - 3 eggs	3 - 5 days later, to confirm completion of clutch	No. of eggs, warm or cold; parent at nest or not
4 - 7 eggs	3 - 5 days later, to check clutch size	No. of eggs, warm or cold; parent at nest or not
Eggs and newly hatched young	6 - 8 days later, to check survival of young	Number, size, and degree of feathering on young
Young, naked or downy	5 - 7 days later, to check survival of young	Number, size, and degree of feathering on young
Young, pin-feathered	3 - 5 days later, to check survival of young	Number, size, and degree of feathering on young
Young, mostly feathered	2 - 4 days later, to check on fledging	Number and flying ability of young
Young which fly when approached	7 - 10 days later, to check on reuse of nest	
Evidence of Failure (if nest contained eggs or live young at an earlier visit)		
Evidence of failure	Notes needed	
Broken eggs	Evidence of predator (tracks, droppings, condition of nest)	
Dead young, in or near nest	Evidence for desertion (young unharmed), or predation (young injured, predator sign)	
NOTE: Most passerines have a clutch of 4 – 7 eggs, laid at daily intervals; incubation periods of up to 12 – 15 days; nestling periods of 11 – 19 days (open nesters near lower figures, cavity nesters near upper figures)		

Appendix 3. Stages of Nestling Growth



Stages of nestling growth:
a) within a day of hatching; egg is for scale
b) three to four days old (some quills)
c) five days old (quills longer, eyes partly open)
d) six days old (most feathers in pin, eyes fully open)
e) seven to eight days old (wing quills sprouting at tips)
f) eight to nine days old (more feathers emerged from quills)

REQUESTING AND SUBMITTING CARDS

BCNRS ADDRESS

B. C. NEST RECORD SCHEME
P.O. Box 32128
3651 Shelbourne Street
Victoria, B. C. V8P 5S2
Tel\Fax: (250) 477-0465
e-mail: datamanager@wildlifebc.org

All enquiries including requesting and submitting cards can be sent to the address above.

Single nest and colonial cards, as well as an updated Instruction Manual, are available at no charge from the address above. Due to fieldwork commitments we suggest that you request material before late-May.

Our web site (www.wildlifebc.org) presently has instructions and materials available to participants.

We prefer to have nest cards completed and submitted by October 1 so the growing task of compiling and publishing the report can be completed by the end of the year and distributing the annual report can begin in spring the following year. This year, compiling 12,000+ cards into species, grid, and contributor categories, and entering the information electronically, took over three months of volunteer work - part time!

For species acting as hosts for **Brown-headed Cowbird** eggs or young please fill out a separate card for the **BHCO** and cross-reference it to its host. For young or recently fledged BHCO young be sure to indicate if the young were in the nest (*i.e.*, nestling) on the front of the new nest card.

Other species, including some waterfowl, are also parasitized during their nesting season. For example, it is not uncommon to find Ruddy Duck eggs in Redhead nests or American Coot eggs in Lesser Scaup nests. If this is noticed please complete separate cards for each species and cross-reference to each nest or brood.

Common species (*e.g.*, **Canada Goose**, **Mallard**, **Ruffed Grouse**, **California Quail**, **Northern Flicker**, **Black-billed Magpie**, **Northwestern** and **American Crow**, **American Robin**, **Song Sparrow**, **Dark-eyed Junco**; Figure 84), and **House Finch** and common and introduced species (*e.g.*, **Rock Pigeon**, **European Starling**, and **House Sparrow**; Figure 85) are still important to record.



Figure 84. Finding nests for common species is often challenging and should be reported. The record may be a range extension, one of a few records for a little known subspecies such as this "Slate-colored" Dark-eyed Junco, or may contribute to the overall breeding chronology for a species. 20 km east of Chetwynd, BC. 16 June 2007 (Andrea Pomeroy).



Figure 85. Despite being common, and often abundant in British Columbia, little is known about House Sparrow breeding biology. This nest with eggs was discovered in a box put up for a Northern Flicker in Fort St. John, BC. 16 June 2007 (Andrew Tyrrell).

Also, **PLEASE** use a dark ballpoint pen or dark ink (not pencil) and write clearly.

We really appreciate receiving cards as early as possible. This gives us a chance to start the compiling process and data entry to produce the map, and prepare lists of species and contributors.

ACKNOWLEDGEMENTS

All cards (current and historical) were sorted and compiled by **Jim McCammon** and **Eileen Campbell**. In addition, Eileen entered appropriate information into an Excel spreadsheet for use in preparing the geographical representation, species, and contributor portion of the report.

We appreciate that contributors made a big effort to submit cards for fledged young this past season. We are also grateful to many contributors who added prints to their cards, or included digital images via CD, DVD, or e-mail (Figure 86), to more fully document the breeding record and to share their images in this report. All photographers are acknowledged with their images in each figure caption.

Elaine Moore, Sheila Reynolds, Ted Hillary, and **Gary Davidson** provided text for their segment in the Osprey monitoring section.

Contributors who submitted cards in species order, stapled cards together for multiple visits, and added stories to the back of cards certainly made our task easier.

Mark Nyhof graciously provided the cover illustration.

THANK YOU to our contributors and hope that the 2008 nesting season is exciting and filled with



Figure 86. Many contributors sent images that were either attached to their nest cards, or were included on an accompanying CD or DVD. This image of Colin Bailey moving a Ruffed Grouse chick off the road was sent via e-mail, another popular and efficient method of sending photos. From this picture, the age of the chick can be verified with the age provided on the nest card. Near Spruce Ridge, BC. Summer 2007 (Joanna Preston, Jacques-Whitford AXYS).

This report can be cited as: Campbell, R.W., M.I. Preston, and L.M. Van Damme. 2008. British Columbia Nest Record Scheme: 53rd Annual Report – 2007 Nesting Season. Biodiversity Centre for Wildlife Studies Report No. 9, Victoria, BC. 54 pp.

British Columbia Nest Record Scheme and *Wildlife Afield* – 2007

In addition to providing specific information on individual species, nests, and colonies, participants in the British Columbia Nest Record Scheme often discover or learn new things about the biology and natural history of breeding birds in the province. These findings have important implications for our understanding of bird biology, life history, management, and conservation, and there is huge value in publishing those observations. In 2007, the Biodiversity Centre for Wildlife Studies published 13 articles in *Wildlife Afield*. The articles are:

- Barnard, G.W., and R.W. Campbell.** 2007. Re-use of Rufous Hummingbird nest by Anna's Hummingbird in British Columbia. *Wildlife Afield* 4:256-259.
- Calderwood, D., and D.E. Waite.** 2007. Observation on fish-eating by Song Sparrows in British Columbia. *Wildlife Afield* 4:282-284.
- Campbell, R.W.** 2007. Northern Rough-winged Swallow nesting in an American Beaver lodge. *Wildlife Afield* 4:90-92.
- Campbell, R.W., M.I. Preston, M. Phinney, C. Siddle, and J. Deal.** 2007. Featured species - Canada Warbler. *Wildlife Afield* 4:95-160.
- Conway, Z., D. Conway, and E. Coulson.** 2007. Successful relocation of a Cedar Waxwing nest with eggs. *Wildlife Afield* 4:83-84.
- Davidson, G.S.** 2007. First breeding record for Chestnut-sided Warbler in British Columbia. *Wildlife Afield* 4:277-278.
- de Beer, S.** 2007. Pigeon Guillemots breeding on a moving vessel. *Wildlife Afield* 4:259-262.
- Gronau, C.W.** 2007. Annual chronology and nesting success of Common Loons on Anvil Lake, Cortes Island, British Columbia, 1984-2007. *Wildlife Afield* 4:54-57.
- Johnson, V.** 2007. Noteworthy breeding records of the Northern Saw-whet Owl in Castlegar, British Columbia. *Wildlife Afield* 4:265-267.
- Malt, J.M., and D.B. Lank.** 2007. Observing wildlife in the crowns of old-growth trees using motion-sensitive cameras. *Wildlife Afield* 4:43-53.
- Van Damme, L.M.** 2007. Noteworthy breeding records of the Northern Saw-whet Owl in the Creston valley, British Columbia. *Wildlife Afield* 4:80-82.
- Van Damme, L.M.** 2007. Bald Eagle predation and other disturbance factors at Double-crested Cormorant and Great Blue Heron nesting colonies in the Creston valley, British Columbia. *Wildlife Afield* 4:213-232.
- Van Damme, L.M.** 2007. Current breeding status of the Baird's Sandpiper (*Calidris bairdii*) in British Columbia. *Wildlife Afield* 4:273-275.

Chris Charlesworth

Chris was born and raised in the beautiful Okanagan Valley where he presently resides in Kelowna with his girlfriend Kat and their furry (indoor) cat, Gizmo.

Getting his start in birding at the young age of nine, Chris cannot remember his life without birds. As a boy he lived beside the Chichester Bird Sanctuary (in Kelowna) where he spent most of his free time chasing migrant warblers for a good look and documenting nesting activity in the marsh. Fortunately, Chris was taught the ways of detailed note taking by one of his mentors Chris Siddle, and today still maintains a strong interest in recording daily what he observes.

As Chris got older he began leading natural history trips throughout the Okanagan Valley for the local naturalists club. In the mid-1990s he began compiling the Kelowna Christmas Bird Count, a task which he still enjoys today. Over the years he has worked with many biologists as a field technician, taking him to all corners of British Columbia.

In 2000, Chris formed a company *Avocet Tours* that, in the beginning, was just a way for him to travel to different places and see new birds. Each year he now leads numerous trips throughout North America with *Avocet Tours* and participants enjoy his birding skills and his sensitivities to their personal interests in enjoying all aspects of natural history encountered. Chris also acts as a tour leader for a well-known European tour company, *Limosa Holidays*.

Chris has contributed to the *British Columbia Nest Record Scheme* for nearly 15 years and looks forward to every breeding season with anticipation and the prospects of what discoveries the year will bring.

Recently Chris has accepted the task of regional coordinator for the Central Okanagan Valley for the *British Columbia Breeding Bird Atlas* project.

Chris is a faithful contributor to the Biodiversity Centre for Wildlife Studies having contributed 30 notebooks of bird observations over the years from around the province. He regularly contributes book reviews to *Wildlife Afield* and has published significant field observations (see *Observations of Breeding Dusky Flycatchers in the Central Okanagan Valley of British Columbia, Wildlife Afield* 1:59-61, 2004).

We are fortunate to have a young person, like Chris, who is experienced and passionate about birds, and other wildlife, and willing to share his findings with others. More importantly he has a rare gift of maturity and patience to mentor younger, aspiring naturalists.



