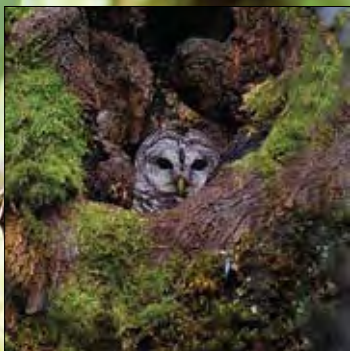


BRITISH COLUMBIA NEST RECORD SCHEME

58th Annual Report



2012 Nesting Season

BCNRS Participant Profile

Dirk Pidcock

As a child, the world of nature attracted Dirk like a magnet. Many days were spent exploring the banks of the Snake River on the Oregon side and sagebrush flats within reach of a bicycle ride. His mother groaned every time Dirk brought home another creature from the wild. Children had wonderful freedom in those days! The culture of his childhood in eastern Oregon embraced hunting and fishing with great passion. The imposing Snake River was alive with carp but also an occasional smallmouth bass or channel catfish could be caught. Dirk's big dream was to hook and land a giant Sturgeon, also found in this stretch of the river. One afternoon, something very big dragged his rod and reel into the river, never to be seen again. Dirk, the fisherman, was too busy looking for tadpoles to pay attention to the event.

Dirk's first exposure to a bonafide "naturalist" came years later, in his early 30s, at an ecology camp at the world famous Malheur National Wildlife Refuge. A compelling young assistant warden helped Dirk and others identify a number of bird species and spoke of urgent issues facing the survival of wildlife. Dirk was an easy convert. Bird-hunting was left behind.



In 1978, Dirk and his spouse, Karen, and three young children moved from Oregon to Sorrento, a small community on the southwest shore of Shuswap Lake. As an Anglican priest, he served as Director and was responsible for programme development. Courses on nature and spirituality were well received. Here he met outstanding birders such as Peter Hamel (also a priest) and David Love, who greatly inspired him. As his birding skills improved, Dirk led early morning field trips in spring and summer. Karen has always been a keen naturalist with a particular love of wildflowers. Together, they have led several and participated in many environmental workshops and conferences.

Kaslo, on the west side of the north arm of Kootenay Lake, has been home for over 20 years. With Dirk's encouragement and leadership, an active birding group has become established in the village. When he submitted an ad in the local newspaper to explore forming a local naturalist group, the gossip around the village quickly assumed that the new Anglican priest was promoting a nudist camp!

Important mentors and friends have been Linda Van Damme, Gary Davidson, and locally Gail Spitler. Building nest boxes and maintaining several "bluebird trails" at the north end of Kootenay Lake has been a major long-term project for Dirk. Over the years, he learned to be realistic about their use and suggests that the project should be renamed "swallow trails". Few, if any, Mountain Bluebirds use the boxes each year. But, cheers to both!

Dirk values the definition of amateur...meaning "lover of". Birding then, is for the love of it and for the health of his spirit. His birding activity has been severely curtailed this spring [2013] due to a struggle with chronic leukemia.

British Columbia Nest Record Scheme

58th Annual Report - 2012 Nesting Season



compiled by

R. Wayne Campbell, Linda M. Van Damme, Mark Nyhof, Patricia Huet



Biodiversity Centre for Wildlife Studies Report No. 16

June 2013

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The Creston Valley – A Rich Heritage of Nest Records

People live where they live for a variety of reasons depending on their stage in life. For decades **Linda Van Damme** worked in Nelson as a nurse and at every opportunity visited the **Creston valley** to enjoy the marshlands, forests, mountains, and open space of a broad valley. She often completed the 228 km (142 mi) round trip in a day but many times overnights to watch birds. In retirement, she made the easy decision to move to Creston and have one of the province's richest and most diverse wildlife landscapes at her doorstep. They aren't many days that she isn't in the field.

Her passion to document the valley's bird life in retirement became really focused and she worked steadily to write and publish information on the birds of the Creston valley. Following the adage "in order to do things, one must have stuff", Linda started amassing occurrence and breeding records gaining an in-depth knowledge of the area. She thought she might eventually write a comprehensive treatise on birds of the valley one day, and started leaving a trail of written works to highlight the significance of the region for birds. In 1996, she produced the first bar graph checklist for the valley (Figure 1) and since then has updated it three times.

Publications are built on data which take time and effort to collect. Although Linda enjoys birding, her real passion is nest-finding, and in the Creston valley that can last up to eight months a year! She started accumulating breeding records on her own on a casual basis in 1987 and from 1997 onwards really focused her efforts. She voluntarily communicated with many local birders, photographers, and farmers encouraging them to record information on nests and broods they discovered in the valley. These records were later sent to the British Columbia Nest Record Scheme. That 25-year effort has resulted in an impressive regional data set of **10,721 individual breeding records** for **153 different species!** This total does not include records submitted independently to the BCNRS by visiting birders or researchers. However, when combined, the Creston valley is one of the best represented regions in the province for breeding information on birds (Table 1).

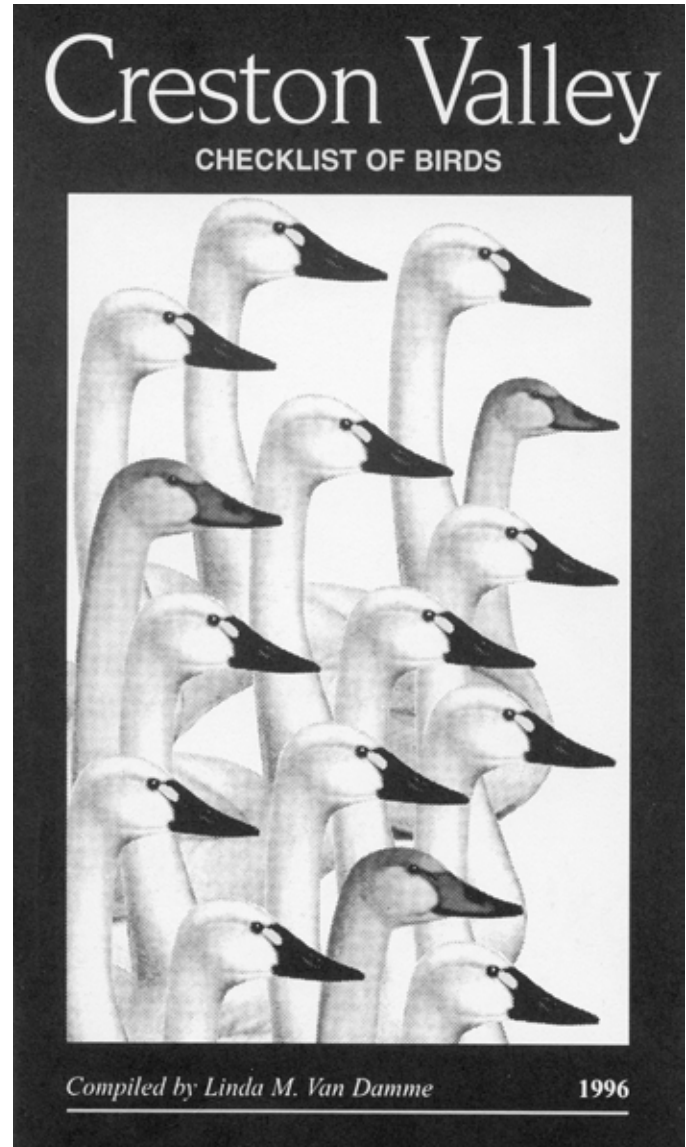


Figure 1. In 1996, Linda Van Damme published the first comprehensive bar-graph checklist on birds of the Creston valley which included 265 species of which 137 have been recorded breeding.

Table 1. Breeding records for the top 15 species of nonpasserines and passerines in the Creston valley.

Nonpasserine Species	Passerine (Songbird) Species
Canada Goose – 895	Tree Swallow – 1,479
Great Blue Heron (colonial) – 636	Cliff Swallow (colonial) – 538
Double-crested Cormorant (colonial) – 501	Barn Swallow (semi-colonial) – 410
Osprey – 444	Eastern Kingbird – 320 (Figure 2)
Western Grebe (colonial) – 390	American Robin – 296
Mallard – 320	European Starling – 274
Red-necked Grebe (loosely colonial) – 269	Yellow Warbler – 253 (Figure 3)
Wood Duck – 266	Cedar Waxwing – 153
Red-tailed Hawk – 190	Brown-headed Cowbird – 152
Redhead – 112	Bank Swallow (colonial) – 118
American Coot – 111	Red-winged Blackbird – 118
Common Goldeneye – 98	Violet-green Swallow – 89
Bald Eagle – 76	Black-capped Chickadee – 87
Ring-necked Duck – 76	Song Sparrow – 75
Pied-billed Grebe – 71	Chipping Sparrow – 68
Total 4,455	Total 4,430



Figure 2. The number of breeding records for Eastern Kingbird from the Creston valley is the highest reported for any locality in British Columbia. *Photo by Linda M. Van Damme.*



Figure 3. Riparian habitats throughout the Creston valley are favourite sites for nesting Yellow Warbler. The breeding population is among the highest in the province. *Photo by Linda M. Van Damme.*

Long-term volunteer monitoring of Great Blue Heron, Osprey, Double-crested Cormorant, Western Grebe, Red-necked Grebe, Red-tailed Hawk, Bald Eagle, Tree Swallow, Cliff Swallow, and Barn Swallow have contributed significantly to the totals.

The high number of Eastern Kingbird nests is largely a result of nests found and monitored by **Joanne Siderius** during her Ph.D. research in the valley. Species using nest boxes have been monitored by **Lorraine Scott, Sharon Laughlin, Carla Ahern, Pat Huet, Ed McMackin, Ralph and Elsie Gerein,** and the late **Vic Cousineau.**

For a number of years, **Cyril Colonel** and **Marcia Long** (Figure 4) have assisted Linda with waterbird and raptor monitoring. The names of 43 other individuals who contributed random breeding records have been acknowledged in the Creston Valley bird checklists for 2002, 2009, and 2012.

A unique component in the heritage of breeding records is the photo documentation **Cyril Colonel** submitted annually to the BCNRS. For eight years, from 2002 through 2009, he digitally recorded all nests of raptors (hawks, eagles, and owls), Great Blue Herons, and Double-crested Cormorants. He also prepared a special photo album on nesting Barn Swallows in 2004 and 2008 and produced a brochure to assist with the conservation of this insectivore in the Creston valley. An added dimension to Cyril's photos included documentation of changes in nesting habitat, on the ground and from the air.



Figure 4. Cyril Colonel and Marcia Long (left) have generously given time to help Linda Van Damme monitor nesting raptors and waterbirds in the Creston valley. *Photo by Ron Granger.*

The regional milestone approaching 11,000 breeding records for the Creston valley, reached by a small group of volunteers encouraged by one individual, should serve as a model for other regions of the province.

The 2012 Nesting Season

Weather – Another Unforgettable Year

For the third year in a row, weather played a significant role in the success of breeding birds (Figure 5) and their access to traditional nesting habitats, especially marshes and lakes. It also hampered trips by contributors to their favourite nest-searching areas and in some cases restricted travel to new locations. Several participants questioned the absence of duck broods in late spring/early summer and many submitted records for late broods, likely the result of a second nesting.



Figure 5. Although wetlands were affected by rising water levels in late May and June, some early nesting species, like Canada Goose, were able to successfully complete incubation before nests were flooded. *Photo by Lloyd Atkins, Vernon, BC, 2 July 2012.*

The nesting season in 2012 started early, in February, and continued through to early September. There was one late date of a newly fledged brood of Red Crossbills in November. Weather during the 10 months, especially during peak breeding season, changed dramatically as indicated by the following chronology of headlines and warnings on television, on the internet, and in newspapers:

April 27 – *Know Before You Go This Spring: Fifth-highest Snowpack in the Province since the 1950s.* Source: TMTVNews.com.

May 10 – *High Streamflow Advisory Issued: South Interior.* Source: BC River Forecast Centre.

May 22 – *Increased Flood Risk with Warmer Weather Forecast.* Source: BC River Forecast Centre. (Figures 6 and 7)



Figure 6. High water levels in sedge habitats adjacent to larger marshes, prevented species like Pied-billed Grebe, Sora, and Black Tern from nesting at some locations in 2012. *Photo by R. Wayne Campbell, near Douglas Lake, BC, June 2012.*



Figure 7. Many traditional colony sites for Black Tern were abandoned in 2012 due to high water. At some locations, however, a few terns built unusually large nests of sedges (lower right) in an attempt to anchor their nest. *Photo by R. Wayne Campbell, near Vanderhoof, BC, June 2012.*

June 4 – High Streamflow Advisory Issued for Kootenay Rivers; Prince George also Watching Rising Water Levels. Source: BC River Forecast Centre.

June 4 – B.C. Rivers to Rise with Heavy Rain. Source: Vancouver Sun.

June 5 – Flood Watch Issued for Rivers in the Kootenay Region Including: Duhamel Creek, Redfish Creek & Slokan River. Source: BC River Forecast Centre.

June 5 – Heavy Rains Predicted for East and West Kootenays. Source: Vancouver Sun.

June 7 – TransCanada Highway Closed Due to Mudslide. Source: Drive BC.

June 8 – State of Local Emergency Issued for the Goat River at Creston, BC. Source: TMTVNews.com. (Figures 8, 9, and 10)



Figure 8. Much of the riparian habitat in the Creston valley was unavailable to search for passerine nests due to unusually high water and flooding. *Photo by Linda M. Van Damme, Corn Creek Marsh, BC, 4 July 2012.*



Figure 9. Road access to some locations in the Creston valley in 2012 was closed due to severe flooding. *Photo by Linda M. Van Damme, 28 June 2012.*



Figure 10. Cavity-nesting species like Wood Duck (photo), Bufflehead, and Hooded Merganser seemed unaffected by weather as family groups were found throughout the spring and summer in high water situations in the Creston valley. *Photo by Linda M. Van Damme.*

June 17 – *High Streamflow Advisory Continues: BC Interior Including Kootenays.* Source: BC River Forecast Centre.

June 22 – *Rainfall Warning in Effect for Boundary, Slokan Lake, Arrow Lakes, West Kootenay, Kootenay Lake, East Kootenay.* Source: BC River Forecast Centre.

June 24 – *Official Expect B.C. Water Levels to Rise Even More: The Worst is yet to Come.* Source: Global News. (Figure 11)



Figure 11. High water at Beaver Ranch Flats (Guichon Creek), north of Merritt, prevented bulrushes from providing suitable attachment and protection for marsh-nesting birds like Eared Grebe, Pied-billed Grebe, Northern Harrier, American Coot, Black Tern, Marsh Wren, and Yellow-headed Blackbird in 2012. *Photo by R. Wayne Campbell, late June 2012.*

June 26 – *Saskatchewan Sends Crews, Equipment to B.C. to Help Fight Flooding.* Source: The Canadian Press.

July 4 – *Heavy Rainfall Threatens Kootenay Tailings Pond: Local States of Emergency Declared around Creston, Ymir, and Slokan Valley.* Source: CBC News.

July 9 – *Summer Weather Comes with Air Quality Alerts and Increased Risk of Wildfires: Temperature Records Broken for Six Locations.* Source: Global News.

July 10 – *B.C. Communities Continue to Deal with Flood Damage.* Source: The Canadian Press.

July 15 – *Precautionary Evacuations in Fairmont Hot Springs, B.C. due to Mudslide.* Source: Global News.

July 17 – *Homes Evacuated after Creek Spills its Banks in Thrums, BC.* Source: Nelson Star.

July 20 – *Hydro Struggles to Manage Historic Water Levels: Dams in Kootenay Region Particularly Stressed as More Rain Forecast.* Source: Vancouver Sun.

July 21 – *Historic Water Levels Put Hydro in a Quandary: Spillage from Dams Could Lead to Flooding.* Source: Times Colonist. (Figure 12)



Figure 12. Large numbers of waterfowl, including male and female Lesser Scaup, were found on Stum and Chapperon lakes in early July 2012. These unusual aggregations suggested that breeding had not been successful. *Photo by R. Wayne Campbell, Chapperon Lake, BC.*

Mishaps and Adventures

During every nesting season there are unexpected situations that confront participants. Events happen that are beyond one's control and interfere with quality field time. The 2012 season was no exception.

Since late winter, **Mark Nyhof** had eagerly anticipated his annual nest-finding trip on the mainland in early summer, retracing old routes and exploring new back roads. During June, the nesting season was winding down in the Victoria area and Mark was looking forward to a trip into the southern interior where lots was happening. The sojourn was to be nine days and the schedule was packed with visits to all his favorite spots. Things were going fabulously well until everything literally came to a screeching halt near McCaffrey Lake when the transmission in his SUV totally failed. After spending the night in the vehicle at the side of the road, Mark hitchhiked into Princeton and managed to find a tow truck to retrieve the SUV (Figure 13). The vehicle was towed to Princeton and then eventually to Summerland where it stayed for a while and then finally back to Victoria where it was repaired. While his SUV was touring the province, a very disappointed Mark returned by Greyhound to Victoria.



Figure 13. Vehicle transmission failure abruptly curtailed Mark's nest-finding trip in 2012. *Photo by Mark Nyhof, near McCaffrey Lake, BC, 12 July 2012.*

Wayne Campbell had a different adventure! After four decades of wading in marshes, Wayne had become familiar with soft, sinking, mucky bottoms, deep beaver channels, submerged tree trunks and branches, deep water drop offs, and underwater barbed-wire fence lines. But he never suspected that rock screes could pose a problem. While surveying a marsh in chest waders near Savona, he came to a spot opposite a hillside that showed small screes of boulders and broken rock fragments. The marsh, however, had a patch of open bulrushes with boulders scattered on the bottom. Wayne slipped on a large rock and went under. When he surfaced, only his hat (Figure 14) and canoe paddle were floating. Everything was soaked, including his small back pack with a camera. He scrambled ashore, checked the camera and tried to dry his notebook. The Nikon SLR camera didn't function but the memory card was salvaged. The next day he purchased a "point-and-shoot" camera that he sealed in a plastic bag for the remainder of the trip. He went to Kamloops and mailed the camera to the dealership in Richmond and spent much of the rest of the day drying the pages of his notebook. Two months later, Wayne learned the camera body could not be salvaged.

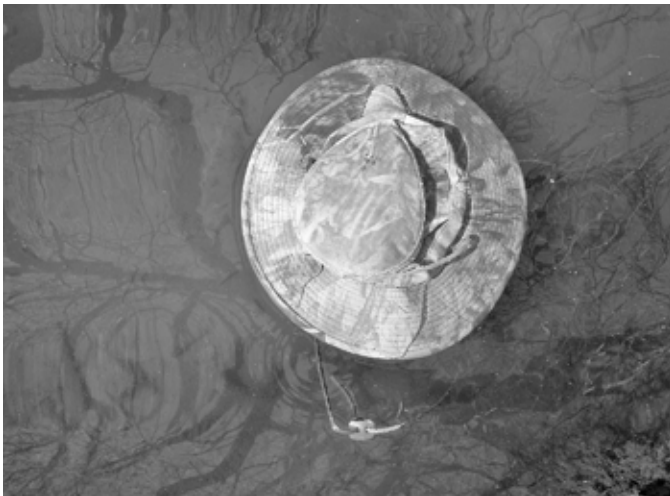


Figure 14. All that floated when Wayne resurfaced from his dunking in a marsh was his hat and canoe paddle. *Photo by R. Wayne Campbell.*

Photographer and naturalist **Bob Woodward** almost became marooned on a small island off southern Vancouver Island. In June, he landed on a small rocky islet to photograph Glaucous-winged Gulls, Black Oystercatchers, and Harbour Seals. He anchored his skiff, set up a blind, and crawled into it with great anticipation. About an

hour later he happened to notice that his nylon anchor rope was floating with the rising tide and his skiff was starting to float away. Fortunately, winds were light and he was able to wade and recover his transportation home.

Walter Scott set up a tripod mounted with a spotting scope to scan for waterbird broods in the area around Christmas Island in Shuswap Lake when he noticed a Song Sparrow fly into a patch of grasses with food in its bill. Convinced he was about to find a nest, he searched the area for 10 minutes before giving up. When he returned to his vantage point, his telescope was laying on the ground; bursts of wind had toppled the tripod. The fall was sufficient to knock the scope out of alignment. It took three weeks and \$150 to repair it! Walt commented "volunteering can be expensive."

Other experiences, usually not to be remembered, include: stepping in a fresh cow pie, being alarmed by a snake, finding a family of mice (Figure 15), encountering stinging wasps and billions of mites in nest boxes. Others reported snagging clothes on barbed wire, being chased by aggressive Canada Geese with a brood of tiny goslings, repairing a flat tire, losing a muffler (Figure 16), having a flying squirrel explode out of a nest box onto a shoulder en route to a nearby tree trunk, encountering a rattlesnake (Figure 17), and finally an ill-timed electrical storm that resulted in a power failure in a motel during the Stanley Cup playoffs!



Figure 15. It is always a shock to find fur rather than feathers when checking nest boxes and the experienced person knows that caution is necessary before handling any nest material. This surprised Deer Mouse retreated into its nest. *Photo by Vicky Atkins, Vernon, BC, 3 April 2012.*

Summary

It was another extraordinary nesting year and contributors maintained their efforts to find nests and broods despite the challenging weather conditions! Since **2008**, when the annual reports increased in size and were published with a spine (Figure 18), and later with covers in full colour, a total of **118,655 breeding records** have been submitted of which **59,733** (50%) are current for the last five years. During the same period, the number of pages in each report has increased to over 100 and the number of appendices has increased from four to seven to encourage contributors to improve the quality of their note-taking. Preparing each report now takes a full year to produce.



Figure 16. An observer was being guided by a rancher in his old pickup truck to a wetland on private property, his muffler fell off and filled the rest of the trip with noise and fumes. *Photo by R. Wayne Campbell, near Pritchard, BC, June 2012.*



Figure 17. A Say's Phoebe with food was seen flying into a crevice in this rock face. Anxious to count the nestlings, Wayne Campbell encountered a Western Rattlesnake, about 1m (3ft) long, curled up in the shade of a sagebrush plant. The number of young phoebes was not determined! *Photo by R. Wayne Campbell, near Ashcroft, BC, June 2012.*

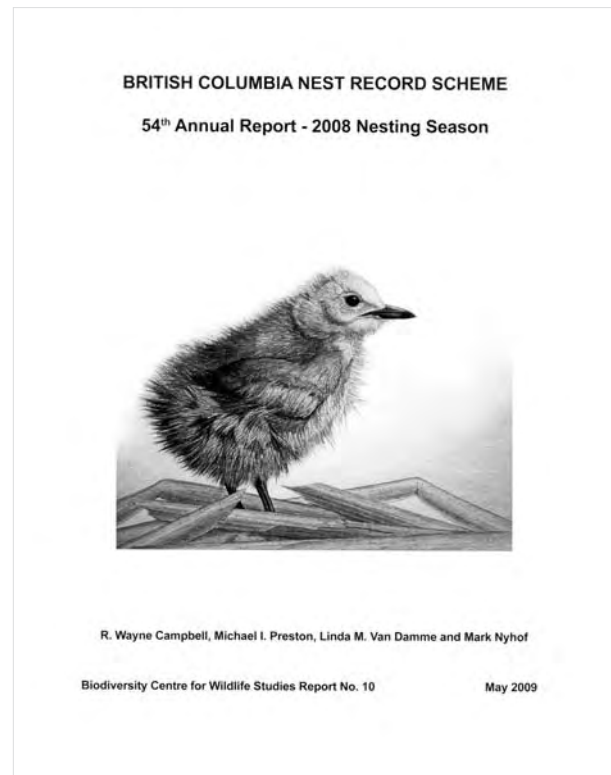


Figure 18. The 2008 annual report of the BC Nest Record Scheme, with the Black Tern chick on the cover, was the first to be bound and published with a spine.

In 2012, cards for **21,781** nests with eggs/nestlings or recently fledged and flightless broods were received for **226 species**, the second-highest number since 2008. Of these, 9,802 were historical records. The species total represents 72% of the 316 species breeding in the province. In total, 425 contributor names were listed on nest cards of which 308 participated in 2012.

A unique part of the BCNRS collection is the historical information that is being transferred from a wide variety of sources including old egg collections, field diaries, and recent literature. The number of historical breeding records extracted each year varies as time permits because these cards are being completed by volunteers. Over the past five years, however, **58,922 breeding records** have been historical in nature (Figure 19) for an average of 11,784 records per year or 32 individual records transferred for each of the 1,825 days!



Figure 19. Although most historical records are of colonial-nesting seabirds, hundreds of Pied-billed Grebe nests have been discovered and the data transferred to nest cards over the past two decades. *Photo by Doug Innes, Merville, BC, May 1992.*



Figure 20. The coastline of British Columbia stretches for 27,000 km (17,000 mi) and is dotted with about 6,000 islands, most of which are accessible only by boat. Most of the records for seabirds in 2012 were extracted from historical publications and notebooks. *Photo by R. Wayne Campbell.*

The total number of breeding species increased to **316**, with the addition of an historical nesting record of **Yellow-billed Cuckoo**.

British Columbia covers an area of 944,735 km² (364,800 mi²) and has a varied topography. Much of the province is inaccessible or uninhabited making remote areas difficult to search for breeding information (Figure 20). In 2012, about 23% of the NTS grids (10 km x 10 km) were represented with breeding records.

Correspondence (Figure 21), an important part of operating the BCNRS, is handled by Wayne Campbell and Linda Van Damme. Each year several months are spent answering letters, sending out cards and reports, completing missing information on cards such as NTS map grids, sorting images, compiling information for the annual reports, obtaining permission to publish photographs, and confirming incomplete information for mailing such as addresses and full names. In 2012, Wayne Campbell was a poor correspondent mainly because of the major commitment he made in 2010 to contribute to a book on the life and accomplishments of the late Dr. Ian McTaggart-Cowan (see sketch in *Wildlife Afield* 8(2):222-232, 2011). That project will be completed in 2013 and Wayne will return to a normal routine and timely acknowledgement of participation in BCNRS. **Thank you for your patience.**



Figure 21. After several weeks in the field, Wayne looks forward to the mountain of mail from BCNRS contributors to learn how the field season went and what discoveries were made. *Photo by Eileen C. Campbell.*

Noteworthy Events

New Breeding Species

One new breeding species was added in 2012, which brings the provincial total to **316**.

While Wayne Campbell was transferring historical breeding records from the field notes of the late pioneer and naturalist Delbert Boyd Ryder, details of a **Yellow-billed Cuckoo** nest were discovered. A male cuckoo was first heard and seen in the Mount Lehman area by Delbert on 5 June 1904. Throughout the rest of the month, a male or female was periodically seen and heard. Breeding was suspected and on 30 June a nest containing “fast growing young” was found in a rose bush.

Yellow-billed Cuckoo (Figure 22) was first reported in British Columbia near Vancouver in 1881 and through 1927 there were an additional 20 occurrences. Most of these were from the Chilliwack-Sumas Prairie-Huntingdon area in the lower Fraser River valley. In 1882, the species was assumed breeding near Kamloops but details are lacking.

Gary Breault and Wayne Campbell are presently updating the status of Yellow-billed Cuckoo for British Columbia. Their article will appear in an upcoming issue of *Wildlife Afield* and will include more details of the Mount Lehman breeding record.



Figure 22. Yellow-billed Cuckoo is the most recent species to be added to the list of birds breeding in British Columbia. *Photo by Gary Breault.*

Range Expansion and Isolated Nesting

Probably before humans appeared on the planet, the ranges of various species of birds expanded and contracted. This dynamic phenomenon can directly benefit a species, or in some cases impact a species with a narrow ecological niche such as **Spotted Owl**, when a more adaptable species like **Barred Owl** expands into their territory of old growth forests. **Brewer's Blackbird** (Figure 23) began moving eastwardly from the west coast of North America in the 1950s and by the early 2000s had reached the east coast. Currently, the rapid range expansion of the **Eurasian Collared-Dove** in North America has been nothing short of amazing!



Figure 23. Alteration of habitats by humans has allowed Brewer's Blackbird to expand its range 4,654 km (2,900 miles) across the contiguous United States in about 50 years. *Photo by R. Wayne Campbell.*

Birds expand ranges for a variety of reasons, the most important being the availability of new resources for foraging and breeding. Some species' ranges are expanding at an alarming rate where newly created niches occur. In 2012, there were many instances of species breeding in new locations and habitats. Some of the more notable examples follow:

Trumpeter Swan continues to be found in new nesting locations across northern British Columbia, but south of Prince George breeding has been suspected locally since the 1990s. For example, small numbers of Trumpeter Swans have been seen in isolated regions of the upper Columbia River valley with some regularity over the past two decades, but always as non-breeders



Figure 24. Non-breeding Trumpeter Swans have been seen in very specific locations in the upper Columbia River valley over the past two decades. *Photo by Douglas Leighton, Reflection Lake, BC.*

(Figure 24). In 2012, **Doug Leighton** changed that status. Between 5 May and 23 September he watched a pair of adults raise five cygnets at **McMurdo**, located about 17 km southeast of Golden.

On southern Vancouver Island, finding a **Cooper's Hawk** nest is relatively easy because the population is dense and many sites are in urban and residential habitats, which makes reporting them by landowners a regular event. Elsewhere in the province, nests become a challenge to locate. The species has been expanding northward over the past couple of decades so finding a nest at the periphery of its range is an exciting event. In 2012, **Lee Foster** found a nest with five downy young near **Vanderhoof** (see pages 84-85 for details).

By the late 1980s, there were only 17 sight records of **Broad-winged Hawk** for British Columbia and most of these were from the Peace River region. Over the next decade, the species expanded its breeding range in the northeast and isolated pairs were soon being reported in southern areas such as Prince George, Springhouse, Hat Creek, and Golden. In 2011, a pair of Broad-winged Hawks nested in the

West Kootenay region and in 2012 again nested successfully. Two fledged young were discovered by **Joanne Siderius** in a mixed deciduous-coniferous forest where a nest was discovered in 2011 (Figure 25).



Figure 25. While walking in a forested area and avoiding a Black Bear sow and her cub, Joanne Siderius located two Broad-winged Hawk fledglings calling constantly from different trees. *Photo by Joanne A. Siderius, 31 July 2012.*

Early and Late Nesting Dates

Semipalmated Plover continues to become well established in the Cariboo-Chilcotin region of the province (see *Wildlife Afield* 6(1):36-39, 2009). A new nest location was found by **Jim Sims** at a shallow, alkali pond near **Martin Lake** situated just north of the Tatla Lake airport. A nest with four eggs was discovered along the shoreline.

Arctic Terns once again nested at **Eagle Lake** in the western Chilcotin. They were first discovered at this southerly location in 2009 by Jim Sims (see *Wildlife Afield* 6(1):15-19, 2009). On 25 July 2012, Jim's neighbor **Margaret MacKenzie** observed three fledged young being fed by adults while perched on exposed rocks on the islet in the lake.

Sightings of individual and small flocks of **Black-necked Stilts** are now being reported annually in shallow wetlands from more widely scattered locations, including the Peace River region. This long-legged shorebird has nested unsuccessfully near 100 Mile House and Kelowna and successfully at Kamloops. On southern Vancouver Island, Black-necked Stilt is considered an exceptional find in spring. In 2012, **Daniel Donnecke** discovered two pairs at **Maber Flats** in Central Saanich and together they raised seven chicks to fledging (Figure 26).



Figure 26. The first known breeding of the Black-necked Stilt on Vancouver Island occurred in 2012. Two pairs successfully fledged seven young. Photo by Ted Ardley, Victoria, BC, 21 June 2012.

Keeping track of early and late nesting dates each year and the behaviour associated with establishing territories, contributes to assessing the impact that climate change and habitat alterations may have on breeding species. Birds provide many clues that nesting may be imminent such as pair formation, courtship activities, territorial singing and defense, and in the case of raptors perching near a traditional nest site.

Gary Breault, a resident of the Creston valley, was only two days into the New Year when he starting watching a pair of **Red-tailed Hawks** at their nest. He had an unobstructed view from his dining room window and watched activities through a spotting scope. He shares his observations over a four-month period from early nesting behaviour to fledging. Highlights are:

January 2 – *A Red-tailed Hawk sitting in its nest for about an hour in the morning. Nest is located in the crotch of a live cottonwood tree.*

January 6 – *The Red-tailed Hawks across the street have been fussing over the nest all morning. With one watching from a branch the other has been sitting as long as half an hour, then circling the tree returning to the nest. I haven't seen any nesting material being brought in but seems to be relocating what is there. Six of these flight and sit periods.*

January 7 to 12 – *Red-tailed Hawks generally arrive to the nest or nesting tree around 9:00-9:30 and do their daily routine till 1:00-1:30. They haven't missed a day yet.*

January 16 – *Red-tailed Hawks have been sitting in the tree guarding the nest each day 9-1:00 approximately but have not worked on the nest for 3-4 days that I've seen.*

January 31 – *Red-tailed Hawks working on nest again.*

February 7 – *Adult spent time in nest and not beside it.*

February 8 to 18 – *Although the Red-tailed Hawks have been near the nest or in it each day they haven't remained in it. Today (18th) for the first time the one was mounted twice in the nesting tree.*

March 4 – *Red-tailed Hawk on nest.*

April 2 – *Hatched (both adults looking proudly into nest).*

May 27 – *2Y fly to adjacent tree. After flying to the adjacent tree the 2Y I'm watching have been sitting hidden in the leaves while an adult sits in*

the open on the next tree standing guard. They are walking back and forth on a branch stretching their wings and shaking but not flying away. They haven't quite got their balance yet as they seem to be a little tipsy when stretching.

It's been two hours now and adult has joined them. After another 2hrs the adult leaves and one of the young has followed. It's doing a lot of gliding and circling and rapid wing beats now and then, the other young is stretching its neck to watch. The adult has returned to its open perch to watch while the first juvenile continues to practice landing and taking off. After 5.5 hrs the other juvenile finally takes the leap only to fly back to the nest.

Breeding periods for some species are certainly changing over time, so documenting early and late nesting dates each year remains an important commitment. There were some notable dates reported in 2012. In the past, **Great Horned Owl** was usually considered the first species to be reported nesting each year. Recently, however, **Anna's Hummingbird** has replaced it. The species is very well established, especially on southern Vancouver Island, and now may breed up to three times in a year.

December 28, 2011 to March 11, 2012

– Wayne Campbell observed a male **Anna's Hummingbird** “dive display” over females at a feeder in Saanich during late December 2011. The courtship activities continued into early January 2012 and mid-month he watched a female Anna's pulling lichens from a lilac bush in the yard. Although Wayne didn't find the nest, he suspected it was in a nearby Douglas-fir tree. On 11 March, a female was feeding two recently fledged young in a lilac bush. The earliest date reported for fledged young is 8 March (BCNRS 57th annual report-2012).

February 25 – Eileen Campbell noted a pair of adult **Bald Eagles** perched on their nest tree in urban Oak Bay during early January. Both adults were frequently seen over the next six weeks and on 25 February one was sitting in the nest, suggesting incubation was underway (Figure 27). The earliest nest with eggs for the province is 12 February.



Figure 27. In Oak Bay, on southern Vancouver Island, Bald Eagle was first seen sitting in its nest on 25 February. Photo by Mark Nyhof.

March 10 – **Great Blue Herons** returned to their nesting colony on English Bluff at the base of the BC ferry jetty near the Tsawwassen Indian Reserve (Figure 28).



Figure 28. Recording return dates for colonial-nesting species like Great Blue Heron is important information to note on nest cards as it has habitat management implications. Photo by Richard Swanston.

March 13 – Eileen Campbell observed a pair of **Bewick's Wrens** foraging and feeding two newly fledged young near a wood pile in her backyard in Saanich. The family remained in the yard for several days. The pair was singing constantly throughout January and must have started building their nest in early February. The previous earliest date for fledged young is early April.

July 1 – The breeding phenology of **Anna’s Hummingbird** is still being established as the species expands its breeding range in southwestern British Columbia. It is suspected the species may nest three times in a year. A piece of that puzzle was provided by Mark Nyhof in 2012 when he found a nest with eggs in Victoria in early July (Figure 29). Two nestlings were present on 14 July.



Figure 29. Late Anna’s Hummingbird nest with eggs. Photo by Mark Nyhof, Victoria, BC, 1 July 2012.

July 16 – A **Red-winged Blackbird** nest with one nestling close to fledging was discovered in a marsh in Lister by Linda Van Damme, six days later than reported for the latest fledgling dates of 6 and 10 July listed in *The Birds of British Columbia*.

August 13 – **Pied-billed Grebe** is an anomaly in the province because in some years it starts nesting in the second week of April and may still have half-grown young in early October. Keith MacDonald found a nest in the Nanaimo area in late July. About three weeks later, on August 13, “five cute little guys” were seen being fed by the adults (Figure 30). While not the latest breeding record in the province, the date is significant regionally for marsh management activities.



Figure 30. A Pied-billed Grebe with downy chicks in mid-August in British Columbia is unusual. Photo by Keith MacDonald, Nanaimo, BC, 22 August 2012.

August 19 to September 1 – The success of colonial nesting **Western Grebe** depends on weather and especially water levels. At Duck Lake, in the Creston valley, it was a late nesting season as chicks were hatching out during the week of August 19 to 25. On August 28, two adults were still attending nests. The last pair of grebes departed from the nesting area with two young on September 1.

August 22 – Usually by mid-August, **Western Wood-Pewee** young have all fledged and started their migration southward. In 2012, however, Linda Van Damme observed an adult Western Wood-Pewee feeding a fledged young in a willow tree at Duck Lake in the Creston valley. The latest date of fledged young attended by an adult is September 7 (BCNRS 55th annual report-2010).

August 28 – A female **Common Yellowthroat** was observed feeding a fledged young at Duck Lake by Linda Van Damme. Usually, by the third week of July, fledged young still being fed are a rarity. However, fledged young may take up to 34 days post-hatching to reach independence.

August 30 – Black-headed Grosbeak now arrives in the province earlier and its breeding season is extended. This season Marcia Long observed a male **Black-headed Grosbeak** feeding one fledged young at Arrow Creek three weeks later than previously recorded.

September 1 – Phil Ranson reported an adult **Eared Grebe** with a chick not more than a few days old at Rock Lake on Bechers Prairie near Riske Creek. While this is not the latest date for British Columbia, the chick would need 20 to 25 days to become independent of adults

and another 21 to 25 days to attain first flight. At the earliest, the young could leave Rock Lake on 20 October.

November 22 – On southern Vancouver Island, there was an exceptional crop of Douglas-fir cones in autumn and consequently many small flocks of Red Crossbills took advantage of this food source. A small flock of up to 12 crossbills remained in an area of Saanich from late September through late November. On November 22, Wayne and Eileen Campbell watched a male **Red Crossbill** feeding two newly-fledged young on the side of a bird bath in their yard. This date extends the potential breeding season by 1 ½ months.

Nesting Failures

Each year, nest success or failure is dependent on where individual species nest and major events such as weather. Some of the more important causes of nest failure are predation, abandonment, and fluctuating water-levels.

Nest Record Schemes are a major source of information which can assist researchers on understanding nesting failure. For example, ornithologists are currently looking at the role of weather during the nest-building phase to determine if more “insulation” is added during wet and cold seasons. Others researchers have determined that some cavity-nesting species, especially female American Kestrels, that use nest boxes near human activity such as noisy highways, have high corticosterone levels due to stress that impact nesting success. As well, parasitism by Brown-headed Cowbird on songbirds impacts nesting success. A list of host species for 2012 can be found on page 29 of this report.

Weather

Seasonal precipitation and temperature can affect the clutch size, nestling survival, and the number of young that successfully fledge. Weather, especially cold and rainy periods, can also have harmful effects on nestlings because of the inability of parent birds to find food. As well, the prevalence of ectoparasites such as mites, blowfly larvae, and fleas, may inhibit the growth of nestlings.

Some examples of nesting failure attributed to weather in 2012 are shown in Figures 31 to 34.



Figure 31. At some locations, first nesting by Tree Swallows resulted in broods of dead nestlings. Later, second nesting resulted in fierce competition between prospective nesting pairs for unused nest boxes. *Photo by R. Wayne Campbell.*



Figure 32. Skeletons of nestling Tree Swallows found in nest boxes at the end of the summer are evidence of an unsuccessful breeding season. *Photo by Vicky Atkins, Vernon, BC, 12 August 2012.*



Figure 33. Due to high water levels in many creeks and rivers, nest sites in drain pipe holes in concrete bridge abutments and walls could not be used for nesting by Northern Rough-winged Swallows. *Photo by R. Wayne Campbell, Cache Creek, BC, June 2012.*



Figure 34. The number of active Cliff Swallow nests on this storage building was reduced from 124 in 2011 to 33 in 2012. The local caretaker of the park thought it was due to the lack of food such as flying insects caused by cold and rainy weather. *Photo by R. Wayne Campbell, Fraser Lake, BC, June 2012.*

Predation

Predation, considered by scientists to be the major cause of nesting failure, can occur during the egg and nestling stage and may also include the sudden disappearance of adults. Usually the predator is not seen and the “best guess” is often recorded. Actual predation was not noted but several instances of finding egg and young remains in nests were reported. An **American Coot** nest was found by Wayne Campbell with remains of two predated egg shells (Figure 35). He suspects an American Mink may have been responsible (see *Wildlife Afield* 8(2):207-209, 2011) as crows and ravens usually fly off with the egg or if eaten on the nest platform usually show a triangular insertion point of the bill.



Figure 35. Remains of American Coot eggs likely predated by an American Mink. *Photo by R. Wayne Campbell, Bond Lake, BC, June 2012.*

Some predators noted while checking nest box trails over the years have included Gophersnake, American Kestrel, Northern Pygmy-Owl, Steller’s Jay, American Crow, Black-billed Magpie, Common Raven, House Wren, Deer Mouse, Northern Flying Squirrel, Red Squirrel, Common Raccoon, and Black Bear. Most instances have been found in boxes used by **Tree Swallows** and **Mountain Bluebirds** (Figure 36)



Figure 36. The irregular pattern on these Mountain Bluebird egg shells suggest they were eaten by a Deer Mouse. Also, some mosses were being added to the bluebird nest suggesting the mouse was in the process of building its own nest. *Photo by R. Wayne Campbell, Springhouse, BC, June 2012.*

Collisions with Vehicles

This situation will only worsen as urbanization spreads and more roads and highways are built. Mortality from vehicles occurs throughout the year and can be responsible for hundreds of deaths in a single impact, especially in winter when flocks of siskins, grosbeaks, and crossbills visit roads for salt. The critical period, however, is during the breeding season when recruitment occurs.

The obvious indication of mortality is finding dead birds, adults and young, on roadways. The less understandable situation is finding cold eggs or dead nestlings without any sign of predation or other contributing factor. For example, Mark Nyhof found four large nestling **White-breasted Nuthatches** dead in a nest box that was placed near the edge of a road (Figure 37). It is possible that foraging adults may have been killed by a passing car or truck. Newly fledged young (Figure 38) and inexperienced older young (Figure 39) are often found dead on highways.



Figure 37. Cold eggs and/or dead nestlings found in a nest for unknown reasons may be attributed to adults killed by vehicles while they are flying to and from the nest. *Photo by Mark Nyhof, Oliver, BC, 9 July 2012.*



Figure 38. This dead Mountain Bluebird had recently fledged from a nearby nest box. *Photo by R. Wayne Campbell, near Quilchena, BC, June 2012.*



Figure 39. Common Raven killed by collision with a vehicle. When the carcass was examined, it turned out to be a young bird of the year. *Photo by R. Wayne Campbell, near Vanderhoof, BC, June 2012.*

The behaviour of some species, like **Common Nighthawk** and **Common Poorwill** increase their probability of being hit by vehicles because they often roost during the day in gravel patches along roadways. Almost all fatalities examined have been males (Figure 40) as females are the ones attending nests and brooding young. See *Wildlife Afield* 3(1):32-71, 2006 for an update on the Common Nighthawk in British Columbia.



Figure 40. During the 2012 field season, Wayne Campbell found 11 dead Common Nighthawks along the edges of roads and highways. *Photo by R. Wayne Campbell, Monck Park, BC, June 2012.*

Unusual Nest Sites

Why birds select a particular spot to nest each year remains a mystery. But, every breeding season, nests are found in the strangest and most surprising places, and often by coincidence when doing other things such as gardening. A few odd sites or situations this year included the following:

Most **Great Horned Owl** nests in the province have been reported in abandoned nests of Red-tailed Hawk. Human structures are also used for nesting but few nests have been found in caves (Figure 41). With recent interest in preserving cliff faces for some nesting birds, sites for cave-nesting owls are important to have on file. Two such nest sites were found in 2012.



Figure 41. Adult female Great Horned Owl with large nestling in a sandstone cave. *Photo by Brent Wellander, Athalmer, BC, 9 May 2012.*

During long-term field work on Northern Flicker at **Bechers Prairie** west of Riske Creek, Professor **Karen Wiebe** keeps records of noteworthy birds she encounters. While checking trees for nest holes in an area that was killed by fire in 2010, Karen found a **Northern Hawk Owl** nest in an old Pileated Woodpecker cavity (Figure 42). The nest site was about 8 m (26 feet) above the ground. On 29 April, the female was in the cavity and the male was perched outside. He then brought a vole to the nest entrance. The clutch size and laying date are unknown. On 25 June, two juveniles were seen approximately 350 m (1,148 ft) from the nest tree.



Figure 42. It is surprising that the spindly-looking trembling aspen in the foreground had enough room to raise a family of Northern Hawk Owls. *Photo by Karen Wiebe, Riske Creek, BC, 20 June 2012.*

Over 95% of all **Rufous Hummingbird** nests in BCNRS files have been found saddled on the lower branches of conifers such as Douglas-fir, Western redcedar, Western hemlock, and Sitka spruce. Although shrubs are also used as nest sites, occasionally a female selects a nest site associated with human habitation. **Joanne Vinnedge** discovered a hummingbird nest in a snowmobile lean-to shed in **Fort St. James** that was built in a loop of nylon rope (Figure 43). Eventually, two young fledged successfully.



Figure 43. A female Rufous Hummingbird persevered in her “swing-like” nest, even though it was accidentally bumped when family members were adding gas treatment to the snowmobile machines. *Photo by Dexter Hodder, Fort St. James, 30 May 2012.*

Tom Godin, from **100 Mile House**, not only found an unusual nest site for two species, but both nested only metres apart in a canoe stored in the rafters of a lean-to attached to the workshop (Figure 44). A **Pacific-sloped Flycatcher** built a mossy-type nest in the stern of the canoe (Figure 45) while a **Dark-eyed Junco** built a grassy nest in the bow (Figure 46). Both species successfully raised young.



Figure 44. Two species laid claim to this canoe during the nesting season leaving the owner without water transportation until all young had fledged. *Photo by Tom Godin, Buffalo Creek, BC.*



Figure 45. A Pacific-sloped Flycatcher was the first to stake claim to the stern of an overturned canoe where a family was raised. *July 2012.*



Figure 46. A Dark-eyed “Oregon” Junco built its nest in the bow of a canoe 2.1m (7 ft) from the ground which is unusual for this ground-nesting species. *Photo by Tom Godin, Buffalo Creek, BC, July 2012.*

Over the past 50 years, **Say’s Phoebe** numbers have increased in western North America partly due to their choice of human-made structures in which they nest. These include a wide variety of buildings, bridges, mine shafts, and culverts where nests were built on rafters, girders, beams, shelves, electrical fixtures, ledges, drainpipes, and openings in eaves. In the **Creston valley**, a pair built a nest on an old car radiator (Figure 47) hanging in an abandoned building.



Figure 47. Say’s Phoebe will position its nest on almost any available base inside old structures, including this old Model T Ford radiator. *Photo by Linda M. Van Damme, Lister, BC.*

Evi Coulson supplied some interesting facts on the reuse of a nest by two very different species found at the home of her friend **Heather Cormack** who lives in **Quick**. In 2011, an **American Robin** nested on a roof beam under the corner of the soffit of this house (Figure 48). It was about 3.2 m (10.5 ft) from the ground. In 2012, a pair of **Steller’s Jays** built their nest on top of the old nest! There are less than a handful of nest cards all-time of Steller’s Jays nesting on buildings.



Figure 48. Location of Steller's Jay nest under soffit of house that was previously used by American Robins in 2011. *Photo by Evi Coulson.*

As more concrete block retaining walls are set up around the province, some **Violet-green Swallows** are abandoning traditional nesting sites in rock cliff faces. Small colonies are now established at some of the longer and higher walls. With the recent concern in population declines in aerial insectivores, concrete retaining walls may have to be managed so hanging vegetation does not restrict access to nest sites (Figure 49).



Figure 49. Another year's growth of plants may cover the entrance to this Violet-green Swallow nest (arrow) situated in a cavity between adjoining blocks. *Photo by Vicky Atkins, near Vernon, BC, 3 July 2012.*

A pair of **Tree Swallows** did not mind nesting in an upside down nest box that was only a foot or so from the ground (Figure 50). The box was hanging by a single nail and fortunately the roof was secure enough to hold nesting materials. The box was used two years in a row, probably because the old nest was removed to allow access the following year.



Figure 50. For two years, a pair of Tree Swallows successfully fledged young from this hanging nest box. *Photo by R. Wayne Campbell, Riske Creek, BC, June 2012.*

Some birds are quick to accept nest sites that appear busy with human activity (Figure 51). At one log house building location in the southern Cariboo, four species were found nesting in an active and noisy construction site by **Wayne Campbell**. Two pairs of **Northern Rough-winged Swallows** and a pair of **House Sparrows** were nesting in holes in a concrete retaining wall, a nest with four eggs of a **Lincoln's Sparrow** was found in a weedy patch with grasses and small shrubs, and a pair of **European Starlings** was seen feeding young in a nest high up in a crevice of concrete blocks that serve as a counterweight for a construction crane.



Figure 51. Northern Rough-winged Swallow, Lincoln's Sparrow, European Starling, and House Sparrow were all found nesting in this busy construction site. *Photo by R. Wayne Campbell, near Elliott Lake, BC, June 2012.*

Barn Swallows are familiar birds and readily nest on an assortment of structures created by humans. It appears that any base that allows for attachment of mud pellets and will support the weight of a nest can be used including the pulley on a clothes line (Figure 52).



Figure 52. A pair of Barn Swallows chose a rather precarious spot to build this nest. *Photo by Janne Perrin, Harrison Hot Springs, BC, 11 June 2012.*

In British Columbia, **Bewick's Wren** nests primarily in cavities and crevices in buildings, living and dead trees, and posts and poles. Occasionally nests have been found in abandoned automobiles and work gloves hanging outside. For the second year in a row, a pair of Bewick's Wrens nested in the engine of an abandoned farm vehicle (Figure 53) in **Central Saanich**. In 2012, **Wayne Campbell** noticed that two broods fledged successfully from the same nest.



Figure 53. Presumably, the same pair of Bewick's Wrens used the engine of this old farm truck to successfully nest in 2011 and 2012. *Photo by R. Wayne Campbell, Central Saanich, BC, July 2012.*

House Wren will nest in almost any natural or human-made cavity, crevice, or cranny. The species is a common nester along Rose Hill Road south of Kamloops, using nest boxes, old tree stubs, woodpecker holes in trembling aspen trees, fence posts, abandoned farm buildings, and even an old water tower (Figure 54).



Figure 54. In 2012, a pair of House Wrens nested in this old water tower. *Photo by R. Wayne Campbell, near Kamloops, BC, June 2012.*

In the north Okanagan Valley, a pair of **House Wrens** took advantage of an available opening in a metal tubing signpost (Figure 55). **Vicky Atkins** spotted an adult on the wooden sign and noticed some twigs hanging down from an opening on the underside of a horizontal pipe (Figure 56). The nest was active!



Figure 55. In 2012, a pair of House Wrens nested in a hollow metal tube in this signpost. *Photo by Vicky Atkins, near Vernon, BC, 15 June 2012.*



Figure 56. Adult House Wren about to enter its nest in an opening on the underside of a hollow metal tube. Note nesting material (twigs) hanging down. *Photo by Vicky Atkins, near Vernon, BC, 15 June 2012.*

American Robin nests in a wide variety of natural habitats and has adapted its nesting habits to include many human-made sites. Many contributors reported robins nesting on their property this season, often on buildings or in trees and shrubs. **Marcia Long**, however, found one nesting in a hanging wooden flower container under the roof of a gazebo in **Arrow Creek** (Figure 57). Unfortunately, the nest was predated a few days after being discovered and a Red Squirrel was likely the culprit.



Figure 57. An American Robin sat quietly in its nest while Marcia Long worked for over an hour cleaning out flower boxes. It was only when the hanging container was accidentally bumped that the robin revealed its presence. *Photo by Marcia Long, Arrow Creek, BC, 28 April 2012.*

Mountain Bluebird does not excavate its own cavity but relies on humans for nest boxes and nature to produce a crevice in a tree, stub, snag, or rock face for nesting. Occasionally, the species will nest in an abandoned Cliff Swallow, Barn Swallow, American Robin, or Dark-eyed Junco nest. In 2012, **Wayne Campbell** found a new nest site in an opening between a stack of hay bales (Figure 58) on the **Douglas Lake Ranch**.



Figure 58. In 2012, a pair of Mountain Bluebirds successfully fledged five young from a nest deep in a crevice between bales of hay stacked in a field. *Photo by R. Wayne Campbell, near Douglas Lake, BC, June 2012.*

In 2012, nine **American Robin** nests were found in agricultural land in **Central Saanich** by **Wayne Campbell**. Six of these were in hawthorn trees, one was on a ledge inside a small farm outbuilding, one was in an ornamental hedge, and the final nest fledged at least two young from its position in abandoned farm machinery (Figure 59).



Figure 59. An American Robin built its nest on a ledge in this abandoned farm machinery in 2012. *Photo by R. Wayne Campbell, Central Saanich, BC, July 2012.*

Dark-eyed Junco is considered a ground-nesting passerine that is widely distributed throughout the province. Occasionally nests have been reported in flower baskets, trees and shrubs, and river banks. The highest nest found in British Columbia was 10 m (32 ft) from the ground. **Mark Nyhof** was surprised to find a nest straddled on a thin branch of a western hemlock tree, 9.1 m (30 ft) above the ground (Figure 60) near Victoria in 2012.



Figure 60. This Dark-eyed “Oregon” Junco nest (dark blob, upper centre) almost appears like a hanging vireo nest. *Photo by Mark Nyhof, Victoria, BC, 2 June 2012.*

About 90% of **House Finch** nests in the province are found in native and ornamental trees and shrubs. The rest have been found in a diverse range of human-created structures, from wall vents to bird feeders and hanging flower baskets. In late April 2012, a pair of House Finches was hanging around the Staples stationery store in **Victoria** as if on territory. The pair was still present in early May and the male was still singing vigorously. On 20 May, **Wayne Campbell** searched the “territory” and found a female sitting in a nest (Figure 61).



Figure 61. Female House Finch on its nest under a canvas awning in urban Victoria. *Photo by R. Wayne Campbell, 20 May 2012.*

Noteworthy Species Information Since *The Birds of British Columbia*

The unique component in the four-volume set *The Birds of British Columbia* (1990-2001) is the “Breeding” section which includes comprehensive information on breeding distribution, seasonality, highest breeding regions, breeding habitat, nesting elevation, extreme dates for breeding, and detailed summaries for nests, eggs, and young and hosts parasitized by the Brown-headed Cowbird for all species known to nest in the province. A major purpose of the BCNRS annual reports, especially since 1998, is to update breeding information since the publication of *The Birds of British Columbia* (Figure 62).

While bird distributions are changing constantly, the published breeding information is a long-term reference that changes much more slowly over time. No other published provincial or state bird book in North America has been able to reference a data source that is as comprehensive and current as the British Columbia Nest Record Scheme.



Figure 62. Hundreds of thousands of breeding records, accumulated since 1956 and stored in the BC Nest Record Scheme, has allowed a unique analysis of the breeding component for *The Birds of British Columbia* (1990-2001) for over 300 species of birds.

Some of the new information reported for 2012 has already been included under other headings in this section of this report, but following is a summary of an additional ten species.

While searching for historical breeding records of seabirds in museum collections and correspondence, **Harry Carter** found a new early breeding date for **Black Oystercatcher**. An adult and a chick were collected on **Mandarte Island** in 1862, 33 years earlier than previously known. See *Wildlife Afield* 8(2):195-201, 2010 for more details.

Pigeon Guillemot is the second seabird to have a new early breeding date for the province. Information from egg collections in the Natural History Museum in England revealed eggs were collected in 1858, 38 years earlier than previously known. See *Wildlife Afield* 8(2):195-201, 2010 for more details.

The mystery of the **Marbled Murrelet** and where it nests has now been solved and researchers are busy gathering information on nesting habitat and distribution of populations along the BC coast. The first North American nest was discovered on the ground in Alaska in 1931 and the first tree nest was found in a conifer in British Columbia in 1953. While transferring breeding records from **Glenn Ryder's** historical field notes, we found a nest record for an incubating adult (Figure 63) in the **Elk Creek** drainage near Chilliwack. It was built in an old-growth bigleaf maple, the second known deciduous tree nest. See *Wildlife Afield* 9(1):72-78, 2012 for a detailed report on this exciting discovery.

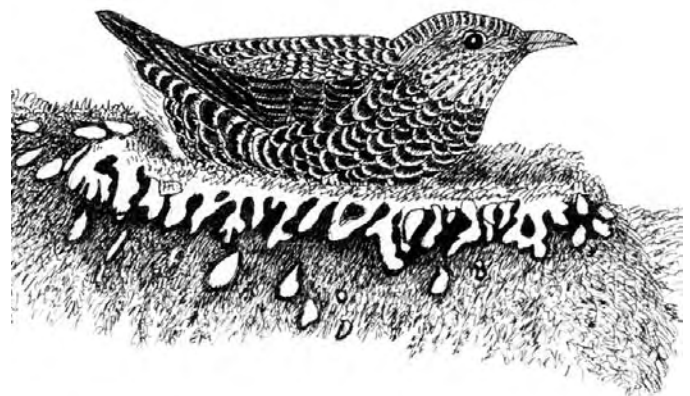


Figure 63. Adult Marbled Murrelet in its nest on a mossy bigleaf maple branch. *Drawing by Glenn R. Ryder, Elk Creek, BC, 12 June 1955.*



Figure 64. An industrial section of Richmond, BC, is the site of a new Caspian Tern breeding colony. *Photo by Richard Swanston, 10 June 2012.*

There are only three locations in the province where **Caspian Tern** are known to nest: Fraser Lake, Shuswap Lake, and Iona Island in Richmond. Two of these sites are on sand spits and one is on an island. A fourth site was discovered in 2012 at the Fraser River Terminals also in **Richmond** (Figure 64). The small colony was nesting on the roof of a warehouse building. It was first

reported on 20 May by **Mike Boyd** and monitored throughout the summer by **Richard Swanston**. It was estimated at least nine pairs were nesting (Figure 65). Many of the non-breeding Caspian Terns at the new Richmond colony are colour-banded and have been traced back to a large Caspian Tern breeding colony in the Columbia River, Oregon.



Figure 65. An adult Caspian Tern is about to settle on an egg (foreground). *Photo by Richard Swanston, Richmond, BC, 10 June 2012.*

The distribution of **Peregrine Falcon** nesting in the interior is poorly known and the records are from widely scattered locations. In April and May, **Janne Perrin** noticed a pair of adults flying, perching, and feeding around a cliff face near **Spences Bridge**. She was suspicious they were on territory. During the April visit she actually saw one falcon catch and eat a Violet-green Swallow. When Janne returned on 3 July, an adult with a fledged young were found together sitting on top of a rock (Figure 66).



Figure 66. Adult Peregrine Falcon (*Falco peregrinus anatum*) with a single fledged young. Photo by Janne Perrin, near Spences Bridge, BC, 3 July 2012.

Linda Van Damme shares some of the new information she gathered this season on five breeding species in the **Creston valley**. Small passerine nests seldom remain intact from one nesting season to another and typically a new one is constructed for the current season. Re-use of nest sites is an area that requires further documentation and is poorly known for most species.

There were two instances in which **Western Wood-Pewees** rebuilt nests in 2012 in the same locations as in 2011. One site was in the crotch of a leaning dead black cottonwood tree in a stand of young cottonwoods and the other was on a horizontal branch of an isolated live cottonwood tree. Both pairs of pewees were successful in

raising young to fledging.

For the third consecutive year, a **Willow Flycatcher** nest was rebuilt in the crotch of a snowberry shrub 1.2m (4ft) from the ground in a riparian area along the Kootenay River (Figure 67). Young fledged from this site in two of the three years and failed in 2011 when the nest was parasitized by Brown-headed Cowbird.



Figure 67. A Willow Flycatcher nest, composed mainly of dry grasses, was built in three consecutive years in the same snowberry shrub. Photo by Linda M. Van Damme, Creston, BC, 13 July 2012.

A large **Cliff Swallow** nestling was still being fed in the nest by adults on 28 August. At dusk on the same date, an adult entered and remained in the nest. The young swallow was still present on 29 August but had fledged by 1 September. This extends the previous fledging date of 27 August by three days.

Breeding evidence for **Pacific Wren** (formerly Winter Wren) in the Creston valley was unconfirmed at the time Volume 3 was published in 2000. Since then five breeding records have been documented; young were fledged in 2000, 2003, 2005, and 2008, and this season an active nest with four recently hatched nestlings was discovered along the bank of **Summit Creek**.

Wilson's Warbler has now been confirmed breeding in the **Boundary Lake** area within the Creston valley watershed. On 12 July, a nest with three nestlings and one infertile egg was discovered along the Boundary Lake Forest Service Road.

Highlights

Family and Species

Six families of birds had over 1,000 records and all of these had species that were colonial in nature. Combined, these families accounted for 69% of all cards submitted in 2012. Colonial-nesting gulls, mainly **Glaucous-winged Gull** (5,704 records; Figure 68) and **Ring-billed Gull** (1,612 records) accounted for 35% of all records. These totals represent actual nest counts, both historical and current. The remaining five families with highest numbers were: **Geese, Swans, and Ducks** (1,930 records for 21 species), **Cormorants** (1,588 records for 3 species), **Swallows** (1,582 records for 7 species), **Blackbirds, Orioles** and **Grackles** (1,361 records for 8 species), and **Storm-Petrels** (1,046 records for 2 species).

Other noteworthy bird family totals, excluding colonial-nesting species, were the **Bluebirds** and **Thrushes** (7 species with 740 records), **Osprey, Eagles, Hawks, and Falcons** (12 species with 460 records), **Towhees, Sparrows** and **Allies** (13 species with 292 records), and **Tyrant Flycatchers** (13 species with 241 records).

Each year, colonial-nesting birds collectively inflate family and species totals in each report. These include groups of birds that nest together on offshore islands (e.g., storm-petrels, gulls, and alcids), in fresh-water marshes (e.g., grebes, terns, and blackbirds), and in terrestrial habitats (e.g., swallows). To elucidate where some of these high numbers originated, the top five species for

historical records and those received in 2012 for colonial-nesting species are listed in Table 2. The top five solitary-nesting species for both categories are also listed.

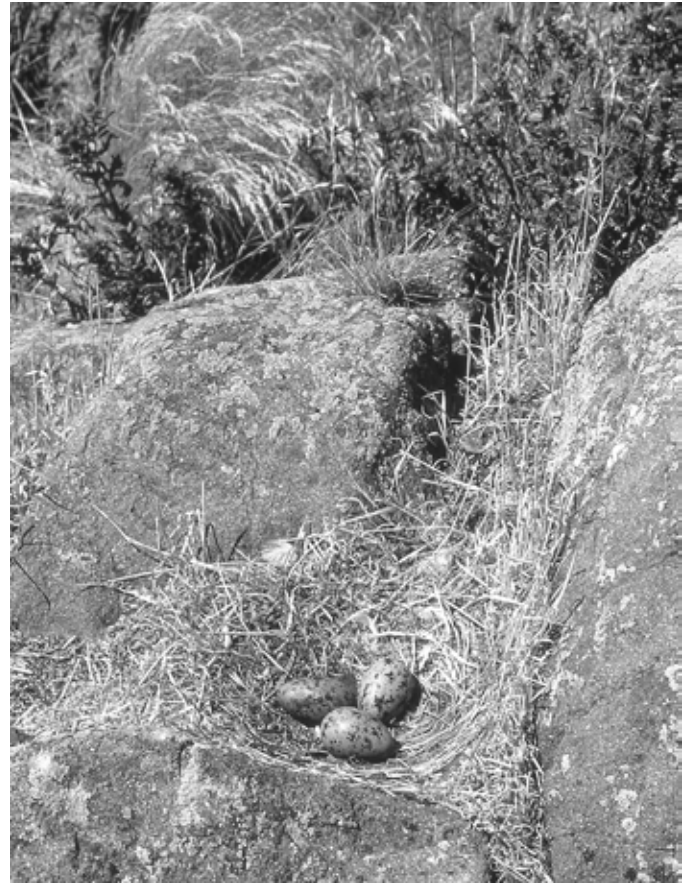


Figure 68. Glaucous-winged Gull is one of three species of seabirds of the 15 breeding in British Columbia that can be surveyed with precise nest counts. *Photo by R. Wayne Campbell.*

Table 2. Total breeding records received in 2012 for the top five colonial and solitary-nesting species.

Top Five Bird Species			
Historical Records		2012 Records	
Colonial-nesting	Solitary-nesting	Colonial-nesting	Solitary-nesting
Glaucous-winged Gull (4,391)	Black Oystercatcher (218)	Ring-billed Gull (1,612)	Tree Swallow (737)
Pelagic Cormorant (747)	Mallard (187)	Glaucous-winged Gull (1,313)	Canada Goose (545)
Leach's Storm-Petrel (728)	Wood Duck (142)	Yellow-headed Blackbird (958)	Mountain Bluebird (374)
Brandt's Cormorant (432)	Canada Goose (124)	Great Blue Heron (493)	American Coot (348)
Cassin's Auklet (266)	American Robin (66)	Cliff Swallow (398)	Mallard (268)



Figure 69. This female Mallard, with her brood of seven well-grown young, represents one of the most common breeding species reported each year. *Photo by Vicky Atkins, near Vernon, BC, 20 June 2012.*

The historical records for the five colonial-nesting seabirds were extracted from published reports, early surveys by naturalists, museum specimens, and diaries of bird collectors, now deceased. Historical records for solitary-nesting species were extracted from unpublished conservation projects and field notes.

Surveys of **Glaucous-winged Gull**, **Ring-billed Gull**, **Great Blue Heron**, and **Yellow-headed Blackbird** colonies accounted for high totals in 2012. Individual nests in accessible **Cliff Swallow** colonies were checked for contents by using a small mirror. Checking boxes on “bluebird trails” accounted for high numbers of **Tree Swallow** and **Mountain Bluebird** and as usual, **Canada Goose** and **Mallard** (Figure 69) are always in the top five because their broods are easy to spot for many months of the year and they have adapted well to human-altered habitats.

Locating nests on land is always a challenge and usually requires a lot of experience to be successful. If a 100 such nests are tallied in a year, it has been a great nesting season. Consequently, files for many passerines, are slow to build. Individual totals in 2012 are noteworthy for: **Barn Swallow** (249), **American Robin** (195), **Rufous Hummingbird** (69; Figure 70), **Brown-headed Cowbird** (79), **House Sparrow** (58), **Pacific Wren** (41), **Anna’s Hummingbird** (31), **Bushtit** (29), **Orange-crowned Warbler** (21), **American Dipper** (18), **Western Wood-Pewee** (14), **Hutton’s Vireo** (12), **Black-throated Gray Warbler** (10), and **Palm Warbler** (7).

Mark Nyhof found an impressive 52 **Rufous Hummingbird** nests on southern Vancouver Island and recorded full details for each nest such as tree/shrub species, height above ground, number of eggs/nestlings, and fledging dates. This is the highest number of nests reported in any year by a single person in the 58-year history of the BCNRS. In 2012, he also found and recorded particulars for an additional 50 nests that were still intact from previous years.



Figure 70. Some Rufous Hummingbird nests have unexpected surprises when found. For instance, a dead female was sitting in this nest without any apparent cause of death. *Photo by Mark Nyhof, Victoria, BC, 2 June 2012.*

Brown-Headed Cowbird Parasitism

The three species of cowbirds occurring in North America are **Shiny, Bronzed, and Brown-headed** and only the latter two are known to breed. Although Shiny Cowbird reached Florida in 1985, it has not yet been found breeding. The Bronzed Cowbird's range is limited to the southwest corner of United States and northern Mexico. Brown-headed Cowbird (Figure 71) is the most widely distributed species; it is resident across the southern United States, migratory throughout the rest of the continent, and reaches into southern parts of the boreal forest zone in the north. Since its arrival in British Columbia in May 1890, Brown-headed Cowbird has expanded its range to include the entire province.



Figure 71. An independent juvenile Brown-headed Cowbird should not be considered a breeding record as its origin is unknown. Such observations are added to the master occurrence database with a notation as to age and behaviour. *Photo by R. Wayne Campbell, Esquimalt Lagoon, 21 August 2009.*

Cowbirds do not build their own nests. They lay eggs in the nests of many other species of birds, mostly songbirds, and then rely on the host to incubate the eggs and rear the nestlings. Brood parasitism occurs in about one percent of bird species whereby the parasite benefits at the expense of the host. Research has shown that to maintain a stable population, a female Brown-headed Cowbird would have to lay about 80 eggs in her lifetime.

A female cowbird may lay up to 20 eggs during a breeding season, usually on consecutive days. Each egg, usually laid in a different nest, takes 20 to 40 seconds to deposit. The record is four seconds! If more than a single egg is found in a nest it is likely from different females whose territory overlaps.

Although cowbird eggs do not mimic host eggs they tend to hatch earlier. Brown-headed Cowbird nestlings grow faster and often crowd out the other chicks and take much of the food brought to the nest by the host. Some host species, such as **Eastern Kingbird, Mountain Bluebird, and Bullock's Oriole** have learned to reject Brown-headed Cowbird eggs by tossing out or carrying the egg(s) away.

While brood parasitism is known to occur in some waterfowl such as Redhead, those species are discussed under a separate heading "*Dumping Eggs in Nests of Other Species*" (see page 32).

Seventy-nine instances of songbird parasitism, either nests with eggs or nestlings or recently fledged young incapable of flight being fed by its host, were reported this season for 26 species. Host species listed in alphabetical order included: **American Goldfinch (1), Black-throated Gray Warbler (2), Brown Creeper (1), Chipping Sparrow (3), Common Yellowthroat (6), Dark-eyed Junco (8), Hammond's Flycatcher (2), House Sparrow (1), Orange-crowned Warbler (8), Pacific-slope Flycatcher (1), Pine Siskin (1), Red-eyed Vireo (1), Ruby-crowned Kinglet (1), Savannah Sparrow (1), Song Sparrow (12; Figure 72), Spotted Towhee (3), Swainson's Thrush (4), Warbling Vireo (1), Western Tanager (1), Vesper Sparrow (1), Willow Flycatcher (1), Wilson's Warbler (1), Yellow-headed Blackbird (2), Yellow-rumped Warbler (7), and Yellow Warbler (9).**



Figure 72. Song Sparrow was the species most reported as parasitized by the Brown-headed Cowbird in 2012. The cowbird egg in this nest is in the upper left corner of the photo. *Photo by Sharon Laughlin, Erickson, BC, 29 May 2012.*

About 27% (21 records) of all instances of parasitism were accounted for by **Song Sparrow** (12) and **Yellow Warbler** (9), well-known host species. Uncommon host species reported for 2012 include House Sparrow, Pacific-slope Flycatcher, Pine Siskin, and Yellow-headed Blackbird. Over the past decade or so, more instances of parasitism in marsh-nesting blackbirds are being noted as surveys of wetland-nesting birds are continued.

Evidence of parasitism included records extracted from historical notes as well as those found in the 2012 season. Two separate nest cards, one for the host species and the other for the cowbird, were completed. The following individuals are represented: **Errol Anderson, Barbara Begg, Eileen C. Campbell, R. Wayne Campbell, Joanne and Bruce Clayton, Gary S. Davidson, Lee Foster, J.E. Victor Goodwill,**

Charles J. Guiguet, John Hodges, Patricia Huet, Jeremy Kimm, Sharon Laughlin, Agnes Lynn, Keith MacDonald, Mike McGrenere, Karl and Janne Perrin, Neil Robbins, Robin Robinson, David and Adel Routledge, Mark Nyhof, Glenn R. Ryder, Michael G. Shepard, Glen Stanley, David Stirling, Linda M. Van Damme, Vancouver Natural History Society, Victoria Natural History Society, Williams Lake Field Naturalists, Scott Walker, Marcus Womersley, and David Wong.

Due to flooded situations, many shrubby and riparian habitats could not be searched for nests in 2012. For example, **Linda Van Damme** only recorded seven instances of cowbird parasitism in the Creston valley compared to 22 the previous year. **Mark Nyhof**, however, found 14 instances (18% of total) of parasitism for seven different species (Figures 73, 74, 75, and 76).



Figure 73. Willow Flycatcher clutch with a single Brown-headed Cowbird egg (top). *Photo by Mark Nyhof, Victoria, BC, 30 June 2012.*

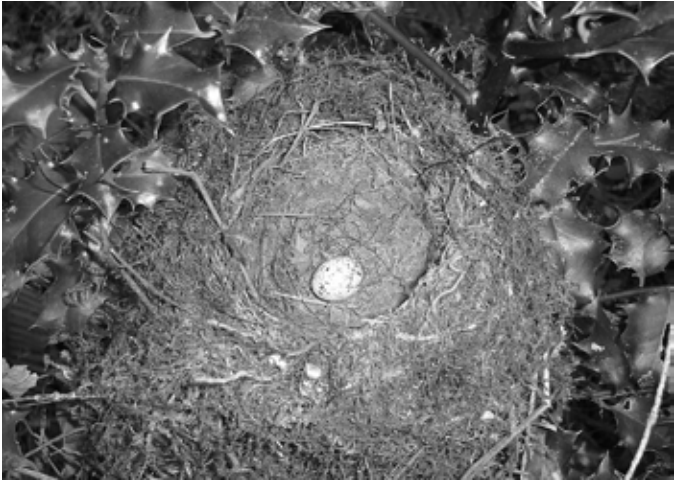


Figure 74. Occasionally a Brown-headed Cowbird egg is found in an abandoned nest of its host, such as this Swainson's Thrush nest. *Photo by Mark Nyhof, Victoria, BC, 16 June 2012.*



Figure 75. A recently fledged Brown-headed Cowbird begging for food from a Yellow-rumped (Audubon's) Warbler. *Photo by Mark Nyhof, near Midway, BC, 8 July 2012.*



Figure 76. Chipping Sparrow nest with two nestlings and a smaller, dead Brown-headed Cowbird nestling beneath them. *Photo by Mark Nyhof, Bridesville, BC, 7 July 2012.*

Note: Please fill out separate cards, one for the Brown-headed Cowbird and another for the host species. Each card is filed separately in the BCNRS which allows for a variety of different uses including mapping. Be sure to put both species names on the card. For example: Yellow Warbler/Brown-headed Cowbird or Brown-headed Cowbird/Yellow Warbler.

Dumping Eggs in Nests of Other Species

Some birds lay their eggs in other birds' nests, a behaviour known as "egg dumping." Most such clutches do not hatch successfully. Egg-dumping is most common in waterfowl and coots (Figure 77) but has been recorded in some shorebirds and seabirds. The reason for this activity is not fully understood but may be related to age of the bird, local weather, fluctuating water levels, availability of food, and other environmental factors.



Figure 77. In 2012, a surprising number of Ruddy Duck eggs were found in active nests of American Coot. *Photo by R. Wayne Campbell, near Springhouse, BC, June 2012.*

In 2012, many dump nests were discovered by **Wayne Campbell** and **Ron Jakimchuk** (Figure 78) while conducting surveys of wetlands in south-central portions of the province. Some of these nests contained eggs of three different species. It was suspected that unusually high water levels were partially to blame as there was less anchorage and protection for cattail and bulrush-nesting species, and as the season progressed birds seemed determined to start nesting.

A few nests were found abandoned while most had incubating adults for the "host" species. Species in **bold** in the following summary were the primary nest identified by construction, down in the nest lining, clutch size, and stage of incubation. Thirty-three dump nests include the



Figure 78. Ron Jakimchuk, a retired wildlife biologist assisted with nesting surveys of wetlands and marshes in 2012. *Photo by R. Wayne Campbell.*

following: **American Coot** with Ruddy Duck (13), **Brandt's Cormorant** with Glaucous-winged Gull (1), **Herring Gull** with Ring-billed Gull (1), **Lesser Scaup** with Ruddy Duck (1), **Mountain Bluebird** with Tree Swallow (1), **Osprey** with Canada Goose (1), **Pied-billed Grebe** with Ruddy Duck (2; Figure 79), **Red-necked Grebe** with Ruddy Duck (1), **Redhead** with Canvasback (1), **Redhead** with Ruddy Duck (1), **Redhead** with Lesser Scaup and Ruddy Duck (2), **Ring-billed Gull** with California Gull (2), **Ring-necked Duck** with Canvasback (1), **Ring-necked Duck** with Lesser Scaup (1; Figure 80), **Ring-necked Duck** with Ruddy Duck (3), **Wood Duck** with Northern Flicker (1), and **Wood Duck** with European Starling (1).

Coverage



Figure 79. Finding an empty Pied-billed Grebe nest platform with two Ruddy Duck eggs on it is highly unusual. The grebe chicks had already left the nest by late June and were swimming nearby being fed by an adult. *Photo by R. Wayne Campbell, near Springhouse, BC, 28 June 2012.*



Figure 80. A Lesser Scaup female laid an egg on top of a clutch of Ring-necked Duck eggs. The female Ring-necked Duck was incubating all eggs when the nest was discovered. *Photo by R. Wayne Campbell, near Douglas Lake, BC, June 2012.*

The two instances of eggs of a Northern Flicker and European Starling were found in Wood Duck boxes, both of which had been built on and covered with duck down.

Note: Please fill out a separate card for each species that can be identified from its eggs including repeating nesting information on each card. Each nest card is filed separately for each species in the BCNRS and aids in searching species for “dump” nests.

Extreme weather and participant mishaps contributed to less coverage in some areas of the province in 2012. Flooding restricted access to some traditional nest-searching sites and discouraged travel to new locations further afield such as the Peace River region. Many people reported that nest-finding days were lost due to local weather when heavy and persistent rain squalls occurred. Increasing travel and accommodation costs also contributed to less coverage.

There is no systematic coverage of the province each year as breeding records are submitted by volunteers enjoying field time in their favourite places. Personal projects (e.g., nest box trails, Osprey nests; Figure 81), surveys (e.g., wetlands), and conservation projects, however, provide long-term monitoring activities in traditional locations.



Figure 81. Keeping track of nests locally, such as this Osprey at the Vernon Yacht Club, brings some sort of systematic coverage to the province each year. *Photo by Vicky Atkins, Vernon, BC, 8 April 2012.*

About 23% of the 1:50,000 National Topographic Service map grids were represented for all nest cards included in this report (Figure 82). Seventeen percent were covered by participants in 2012.

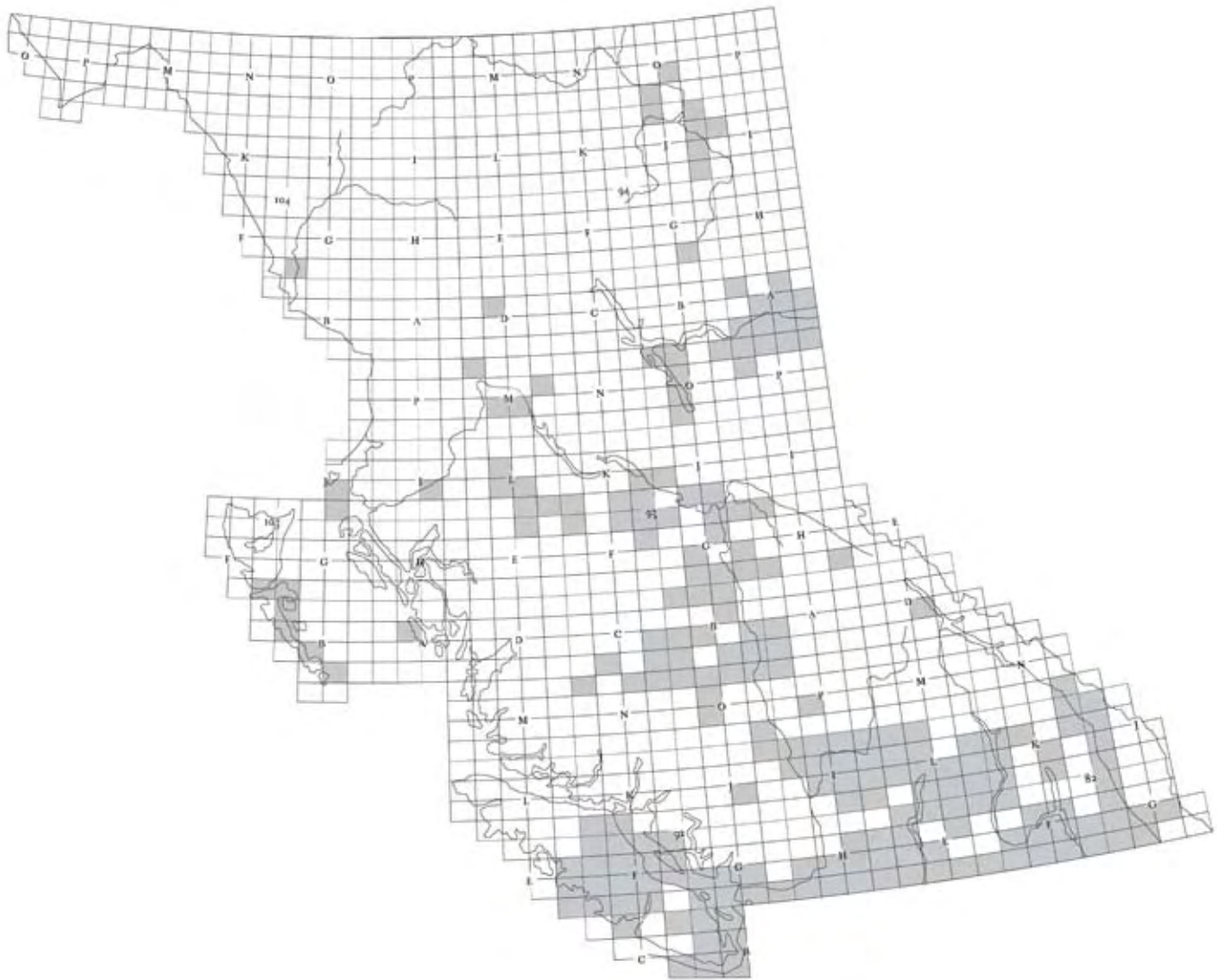


Figure 82. Provincial coverage for the British Columbia Nest Record Scheme in 2012 by 1:50,000 National Topographic System (NTS) grid cells.

Provincial coverage is linked closely to centres of high and concentrated human populations and desires of participants to explore new areas. Once again, most breeding records were from southern Vancouver Island, Lower Mainland, Okanagan valley, Creston valley, Shuswap Lake, Cariboo, Kamloops-Nicola region, Prince George, and Vanderhoof regions. All of the grids represented along the outer coast are from records transferred from historical sources. The shaded grids also do not indicate any level of relative coverage. For example, the region with the most thorough coverage in 2012 was the **Creston valley**. By September, when the season was over, 22 contributors had submitted an impressive **883 breeding records** representing **91 species**. Some of the notable breeding species were **Virginia**

Rail, Sora (Figure 83), **Northern Saw-whet Owl, Say's Phoebe, Pacific Wren, MacGillivray's Warbler, Wilson's Warbler, and Clay-colored Sparrow**.

Other specific areas that received substantial coverage included the northern **Okanagan valley** (Vicky and Lloyd Atkins and Laurie Rockwell), **Salmon Arm** (Ted Hillary, Tom Brighthouse, Ed and Monica Dahl, Hilary Gordon, and Orville Gordon), **Kamloops-Savona** and **Merritt-Douglas Lake** (Wayne Campbell), **Mackenzie** (Vi and John Lambie), **Springhouse and Mission Flats** (Beverley Butcher, Sandy Proulx, and Wayne Campbell), **West Kootenay** (Gary Davidson and Janice Arndt), **Harrison Hot Springs** (Janne Perrin), **southern Vancouver Island** (Mark Nyhof and Wayne Campbell), **Prince George** (Nancy



Figure 83. A surprise discovery when checking Red-winged Blackbird nests in a small patch of cattails was this Sora nest with a newly hatched chick. *Photo by Linda M. Van Damme, Lister, BC, 18 July 2012.*

Krueger and Elsie Lafreniere), **Surrey-Aldergrove** (Errol Anderson, Kevin Atkins, and Glenn Ryder), and **Cluculz Lake-Vanderhoof** (Lee Foster and Wayne Campbell).

Most of the entire province north of Prince George was poorly represented in 2012 although some historical information was transferred for the region.

For 2012, the top five areas with highest numbers of breeding records were from **Greater Victoria** (92B/6; 2,038 records), **Springhouse/Dog Creek** (92O/16; 1,224 records), **Fraser Lake** (93K/2; 1,009 records), **Salmon Arm/Shuswap Lake** (82L/11; 912 records), and **Creston valley** (82F/1 and 82F/2; 883 records).

When current and historical are combined, the top five areas with most breeding records were **Pachena Point** (92C/11; 3,377 records), **Greater Victoria** (92B/6; 2,167 records), **Springhouse/Dog Creek** (92O/16; 1,224 records), **Tofino/Cleland Island** (92F/4; 1,033 records), and **Fraser Lake** (93K/2; 1,009 records).

The five highest numbers of species for a general locality in 2012 were reported from **Creston valley** (91 species), **Central Saanich** (67 species), **Greater Victoria** (64 species), **Springhouse/Dog Creek** (53 species), and **Douglas Lake/Quilchena** (49 species).

Participants

People following their passion and remaining committed to a long-term program like the **British Columbia Nest Record Scheme**, is the keystone to its success. It remains a volunteer effort, from field work to producing the annual report. Financial support to publish and mail each report is from membership in the **Biodiversity Centre for Wildlife Studies** and private donations.

In 2012, **308** participants sent in breeding records. By the time 1 January 2012 arrived, some individuals had already noted displays of **Anna's Hummingbirds** on their new cards and were recording the first hoots of **Great Horned Owls**. By April, many species were already on nests in southwestern British Columbia and the nest searching began and in some areas continued for six months into early September. Needless-to-say, some completed nest cards did not arrive for processing until December.

Three individuals tallied more than 1,000 breeding records, all including nest counts for colonial-nesting marine and fresh-water birds. They were **Wayne Campbell** (4,452 nests; current and historical), **Michael G. Shepard** (1,744 nests; historical), and **Bob Woodward** (1,461 nests; current).

Finding and documenting 100 nests and/or broods in a nesting season is a challenge and in 2012 the following participants submitted cards for at least that many single breeding records: **Walter Scott** (701), **Linda Van Damme** (623), **Mark Nyhof** (516), **Glenn R. Ryder** (495; current and historical), **R. Wayne Campbell** and **Ron Jakimchuk** (417), **Vicky** and **Lloyd Atkins** (356), **Victoria Natural History Society** (298), **Bruce** and **Joanne Clayton** (279; historical and current), **Sandy Proulx** (189), **Gary S. Davidson** (160), **Vancouver Natural History Society** (135), **Janne Perrin** (101), and **Lee Foster** (100; see *Participant Profile*).

Individuals with over 100 historical breeding records for colonial marine birds included: **Michael S. Rodway** and **Moira J. Lemon** (984), **J. E. Victor Goodwill** (515), **Bristol J. Foster** and **Charles J. Guiguet** (465), **David F. Hatler** (461), **William A. Verbruggue** (405 records), **David F. Hatler** and **Desmond Belton** (326), **Michael G. Shepard**, **Betty L. Peers**, and **Marilyn A. Paul** (313), **Yuri Zharikov** and **Peter V. Clarkson** (272), **Rudolf H. Drent**, **R. Wayne Campbell**, and **Harry R. Carter** (237), **Gary W. Kaiser** and **J. Reeve**

(198), **Robin Best** (170), **Michael S. Rodway**, **Moira J. Lemon**, **B. Carter**, **Michael Force**, **D.** and **M. Grinnell** (150), **George Freeman** and **Roger Neufeld** (132), **W. Jack Schick** and **Charles J. Guiguet** (125), **Peter Clarkson** and **K. O'Reilly** (120), **Ewald Lemke** and **Charles J. Guiguet** (119), **David Stirling** and **Frank Buffam** (110), and **Michael G. Shepard**, **Desmond Belton**, and **Eileen C. Campbell** (107).

Historical information representing **117** individuals was transferred from field notebooks, reports, and technical publications. The records dated back to the early 1940s. Many of these totals were extracted from the **Canadian Wildlife Service** marine bird colony surveys coordinated by **Michael Rodway** and **Moira Lemon**.

Laurie Rockwell continued monitoring the rare and local Gray Flycatcher nesting population at Summerland. **Ted Hillary**, **Ed** and **Monica Dahl** tracked the success of Clark's Grebe breeding at Salmon Arm. **Vicky** and **Lloyd Atkins** continued to monitor urban and residential nesting Western Kingbirds. In 2012, they found kingbirds nesting behind transformers on poles (Figure 84), on collections of wires on poles (Figure 85), in trees (Figure 86), and even in Virginia creeper growing up a power pole (Figure 87).



Figure 84. Most Western Kingbird nests reported in British Columbia are built on wires and metal supports behind transformers attached to telephone poles. *Photo by Vicky Atkins, Vernon, BC, 5 July 2012.*



Figure 85. Telephone wires forming a solid base on which to build a nest are also used by breeding Western Kingbirds. *Photo by Vicky Atkins, Vernon, BC, 5 July 2012.*



Figure 86. Less than 10% of Western Kingbird nests in British Columbia are found in trees. *Photo by Vicky Atkins, Vernon, BC, 10 June 2012.*



Figure 87. Western Kingbird is adaptable in selecting a nest site which may include Virginia creeper growing on a power pole. *Photo by Vicky Atkins, Vernon, BC, 20 June 2012.*

Having the annual reports available on-line and people talking with one another about nests they have found in their yards, has encouraged some to contact the BCNRS through the Biodiversity Centre for Wildlife Studies. For example, an isolated Great Blue Heron nest found in a backyard in Saanich created quite a lot of excitement and enjoyment for **David** and **Margaret Berry** (Figure 88). A pair of herons arrived, built a nest in a tall Douglas-fir tree, and successfully fledged young. Perhaps this is the start of a new colony? The site will be checked in 2013.



Figure 88. Watching a pair of Great Blue Herons nesting in your back yard from courtship in May through to leaving their nest in July, was an educational experience for the Berry family. From left to right, Sue, David, Doug, and Margaret Berry. *Photo by R. Wayne Campbell, Saanich, BC, July 2012.*

We are grateful to participants who sent us clippings of nests and broods published in their local newspapers. An additional 21 breeding records, mostly Canada Goose and Mallard, were gleaned from this source.

Quality of Information

Recording as much information as possible for an active nest, flightless brood, or recently fledged young at the time of discovery is essential as most breeding records are single visits. The record is a permanent documentation of the event which cannot be duplicated.

Nest cards should be completed carefully, and if time permits, checked for accuracy before being submitted. This helps assure that the quality of information recorded is of a high standard.

Filling in the Blanks

Every titled space on a nest card has been designed with a purpose in mind, allowing each of the 25 cells to be examined separately for specific information. The format has changed little over 58 years and attests to the foresight of the pioneer coordinators including the late Dr. Timothy Myres (see *Wildlife Afield* 8:134-139, 2011).

Long-term data, gathered in a consistent manner, has shown a change in nesting habitats and behaviour for some species like American Bittern and Northern Harrier, a preference for human-provided versus natural nest sites

(e.g., Violet-green Swallow; Figure 89), changes in length of the breeding season (e.g., Anna's Hummingbird), number of broods per year (e.g., Mountain Bluebird), nesting success (e.g., Yellow-headed Blackbird), and range expansions and contractions (e.g., Least Flycatcher and White-throated Sparrow).

The spaces allotted for **Universal Transverse Mercator** (UTM) information on the bottom of each card for a confirmed breeding record are an important addition. Since hand-held **Global Positioning System** (GPS) units have grown in popularity, more contributors are taking time to fill in these spaces. The more precise the location, the more significant the information becomes.

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 of Zone 7 to the southeast Zone 11 (Figure 90).

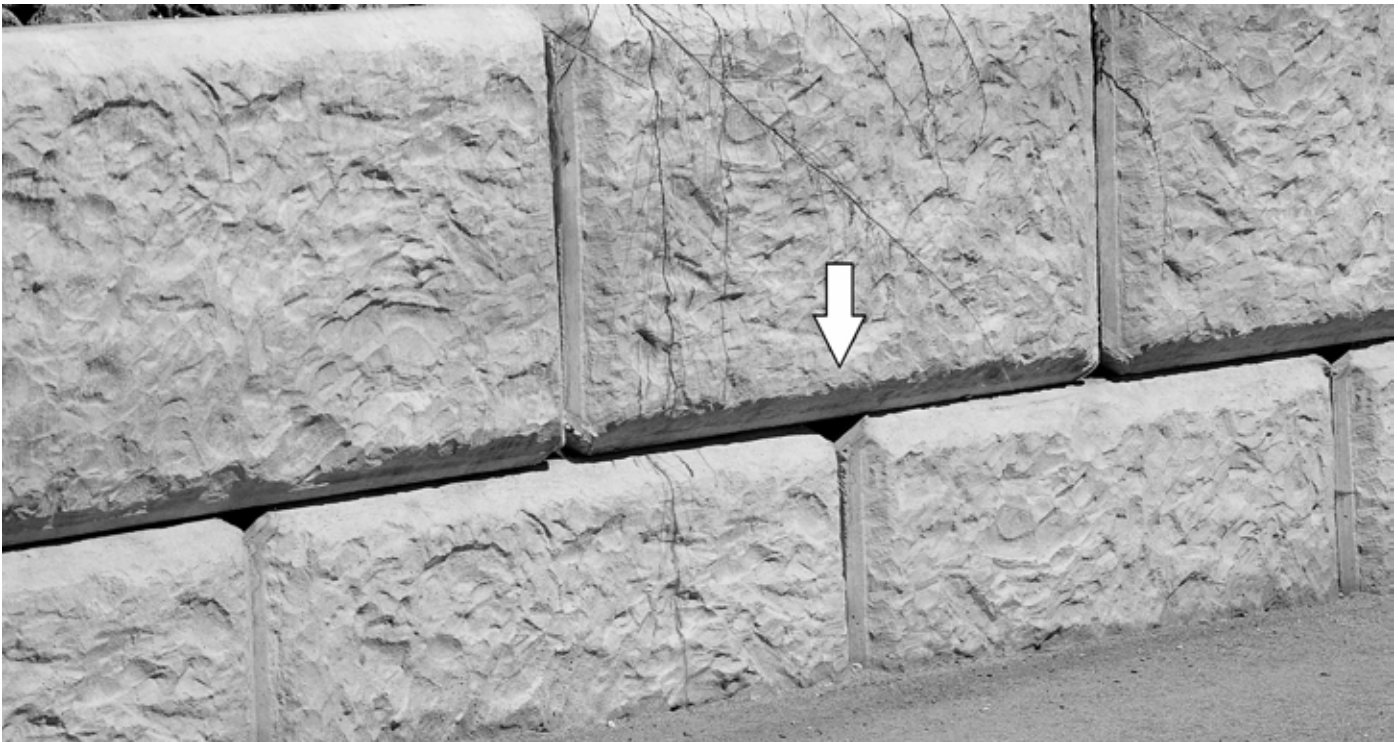


Figure 89. Information on the breeding biology of most cavity-nesting species is poorly known because of where they nest. Until Violet-green Swallow started nesting in holes between concrete retaining walls, it was one of our weakest datasets for this group of species. *Photo by Vicky Atkins, Vernon, BC, 15 June 2012.*

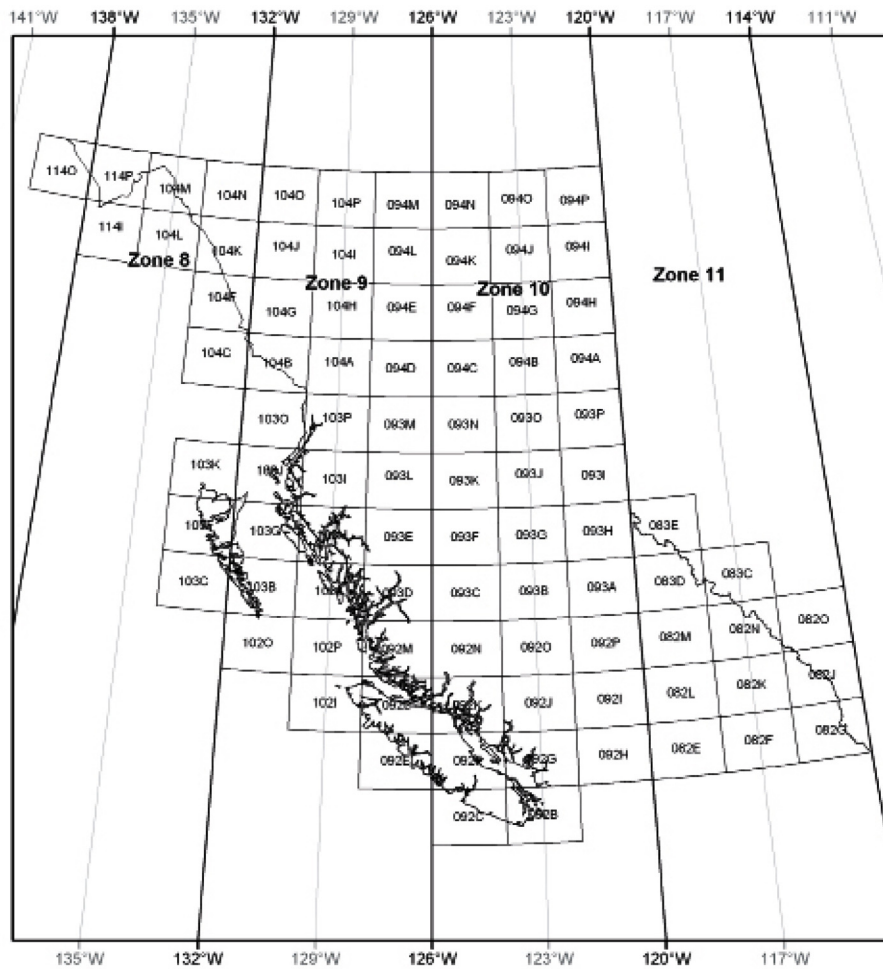


Figure 90. The Universal Transverse Mercator (UTM) Zones for British Columbia.

To save time, many people are using the **4-letter codes** for birds on their nest cards. While this is fine, it is important that a standard reference for British Columbia is used to eliminate possible sources of error.

This system was established in the 1970s for *The Birds of British Columbia* project. Updated 4-letter species codes, if preferred, are available in the revised *British Columbia Nest Record Scheme Instruction Manual* published in 2008 or in the provincial checklist *The Birds of British Columbia* (see Biodiversity Centre for Wildlife Studies Special Publication No. 3, Victoria, BC, 14 pages, 2007). Four-letter codes for subspecies are available in *British Columbia Birds – 2005 Species List* (see Biodiversity Centre for Wildlife Studies Special Publication No. 4, Victoria, BC, 20 pages, 2005; Figure 91).

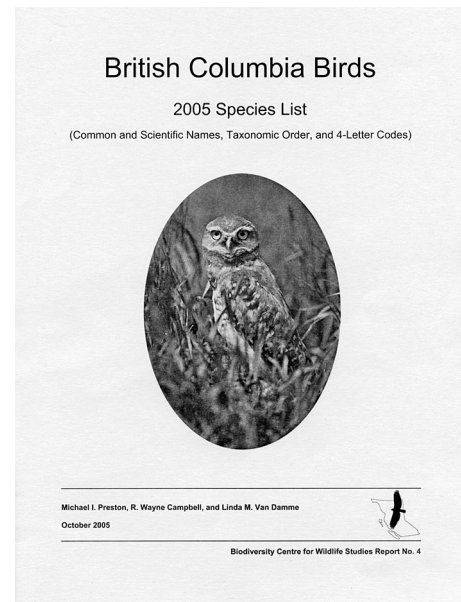


Figure 91. The standard 4-letter code for over 550 species and subspecies of birds in British Columbia is available for reference in the publication *British Columbia Birds – 2005 Species List: Common and Scientific Names, Taxonomic Order, and 4-Letter Codes*.

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

Also, when noted, please add the “race” or “subspecies” on a 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** (Figure 92). 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 as well as a few in the vicinity of Fort Nelson.



Figure 92. This montage of the Swainson’s Hawk family at Vernon, BC, clearly shows the different colour phases of the adults. Prepared by Lloyd Atkins, August 2012.

Please remember that the former **Blue Grouse** is now two separate species: **Sooty Grouse** on the coast and the **Dusky Grouse** in the interior. Also, the former **Winter Wren** occupying most of British Columbia is now called **Pacific Wren**. In the northeast corner of the province, it is still called **Winter Wren**.

All species that lay eggs in the nests of other species, such as **Brown-headed Cowbird**, **Redhead**, **Bufflehead**, **Common Goldeneye**, **American Coot**, **Lesser Scaup**, **Canvasback**, **Ruddy Duck**, and **American Bittern** should have two separate cards filled out. It is helpful to put both species’ names (i.e., 4-letter code) on each card for easy cross-referencing.

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, ready to fledge, recently 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, 3, 4, and 6** for information on assessing different stages of development.

The **Additional Information** section on the back of each card was used for a wide variety of reasons in 2012 and a few of these are described.

Allen Poynter added important details for a fledged **Northern Goshawk** he found on the late date of August 17 near **Gibsons**. He noted: *This juvenile bird hit an upper window & broke neck. It was still showing down feathers and yellow gape. Looked to be fresh out of nest. Had seen adult several times in same location, hunting & flying over spring & summer. Fairly obviously a nest in area.*

Gary Davidson, always alert to new breeding records, was given a verbal report of a family of owls on private property in **Nakusp**. He visited the property on June 23 and found only an adult **Great Horned Owl**. Three days later two fledglings were seen by the property owner confirming the record and species. Gary completed a nest card with the names Darren Hewat and Ken Cross as observers.

Terry Hurst, from **Vernon**, recorded his observations on May 26 for an **American Crow** nest: *About 2 wks ago there was a monstrous racket from several crows and I ran out with a couple of pots to scare them away. The marauders bit the heads off two of the babies already the size of quail which I found on the ground. There’s*

at least one left. Mother constantly scolds me whenever I'm outside.

Vicky and Lloyd Atkins used the open space on the nest card to record autumn information on a pair of **Osprey** nesting atop a floodlight at the army camp in **Vernon** (Figure 93). They wrote: *Young coming back to nest many times – seen young and/or adults until Sept 16. On the same date they noticed that sticks had been added to a second floodlight about 23 m (75 ft) from the original pole.*

Ted Hillary provided follow-up information for a **Great Horned Owl** nest he was watching near **Salmon Arm**. On June 4 the nest was empty but he noted: *Last week the oldest of the young owls flew off and an adult went with it. A couple of days later a second young flew off and the other adult went with it. Neither adult returned and the two youngest owls were left on their own and died, presumably starved to death.*

John and Vi Lambie followed a family of **Common Loons** at **Mugaha Marsh**. As the first flight of the young approached, they added these extra notes: *The 2 young were observed daily at the banding station. When one young and the adult left the 2nd yng tried to leave but ended up on the road. It was released back into the pond where it was raised. This happened again, but we assume it finally made it and we did not see the loon family again on the pond.*

Laurie Rockwell added follow-up comments on a **Gray Flycatcher** nest he was monitoring near **Summerland**. He wrote: *June 17, 2012 – No sign of nest or remnants on branch or on ground. No eggs or shells found. This has happened very infrequently in 23 years and I cannot even imagine how or why...*

During the spring and summer of 2012, **Laurie Rockwell** assisted a Ph.D. student **Catherine Dale**, with her research project on cavity-nesting birds. Additional information added to the back of a nest card for **Western Bluebird** included the comments: *She told me that this pair had helpers feeding at the nest – both a fledgling from their first brood and a second-year male (offspring from last year). Also, on July 4th, there were 4 nestlings and 1 egg; on the 6th, no eggs. She presumes that the egg hatched, the nestlings died, and were removed by a parent*

We did not include cards in the report that contained behavioural observations such as singing on territory, in appropriate habitat, flying with food, carrying nesting material, present in area for several days, or courting as positive evidence of breeding. Although this information is useful, it was entered directly into our general wildlife databases. All of the records in this year's report contain confirmed breeding evidence that included a nest with eggs and/or nestlings, recently fledged young, or broods with young unable to fly.



Figure 93. Adult Osprey with three large young in nest atop a floodlight. *Photo by Vicky Atkins, Vernon, BC, 29 July 2012.*

Documentation with Photographs

The number of colour prints attached to nest cards, or sent as digital images on compact disks (CDs), was a great help in preparing this report. In 2012, we received nearly 450 such photos. All of the prints remain attached to the nest card for future reference while most digital material was archived for future reference. A few noteworthy records were added to the BC Photo File for Wildlife Records (see *Wildlife Afield* 8(1):123-125, 2011). Each record, however, is cross-referenced to the original nest card.

We are grateful to receive photographs that document remote unnamed locations (Figure 94), general habitats, unusual nest sites, and participants in the field. Such documentation is of immense help, especially when volunteers working with the BCNRS need to describe the **precise location** for a nest or try to categorize a particular **habitat**.



Figure 94. This small, unnamed cattail patch is located along Commonage Road near Predator Ridge, BC. Additional details provided in the photograph of the specific habitat are value-added information. *Photo by Vicky Atkins, 4 July 2012.*

The value-added use of photographs accompanying or cross-referenced to nest cards can also be beneficial in many other ways such as clarifying the position of a nest, describing habitat, identifying or confirming species and eggs, identifying the specific nest substrate, and documenting mortality and abnormalities.

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

Diagrams

Simple diagrams, detailed maps, and hand sketches added directly on the back of nest cards, or attached by staple and cut to size (4 x 6 inches), can be very helpful for future reference. This is especially valuable when a detailed sketch is provided for an area when major exploration has been conducted for which there is no precise reference material. Also, small sketches of habitat associations for wetlands are invaluable, especially with the current interest in climate change and the noticeable loss of water in some marshes over the past few decades.

Below are a few samples of different drawings that were included with cards for the 2012 breeding season (Figures 95, 96, 97, and 98).

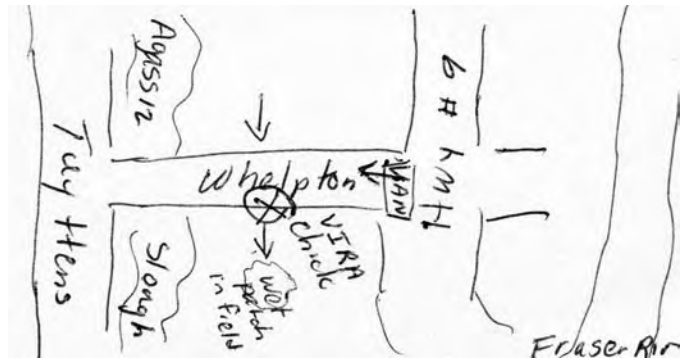


Figure 95. While travelling near Agassiz, BC, a black, down-covered Virginia Rail ran across the road in front of Janne Perrin's van and almost became a fatality. Her sketch, made on August 15, 2012, shows the exact location of the encounter as well as associated wet habitats nearby.

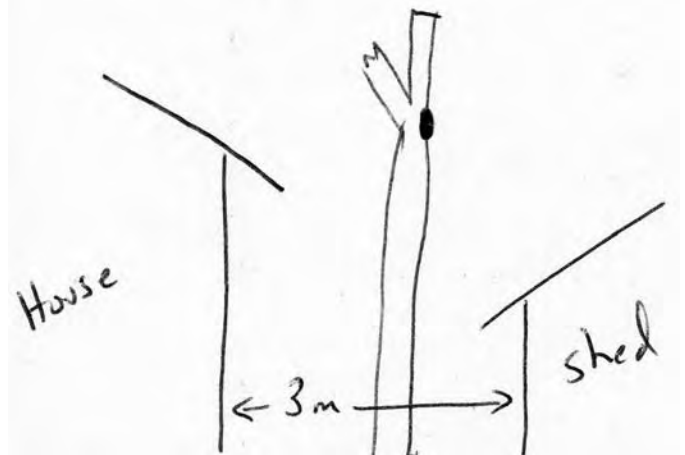


Figure 96. This diagram shows the nest site for a pair of Black-capped Chickadees that used a birch snag in a suburban garden in Nakusp, BC, that was only three metres between buildings. *Sketch by Gary Davidson.*

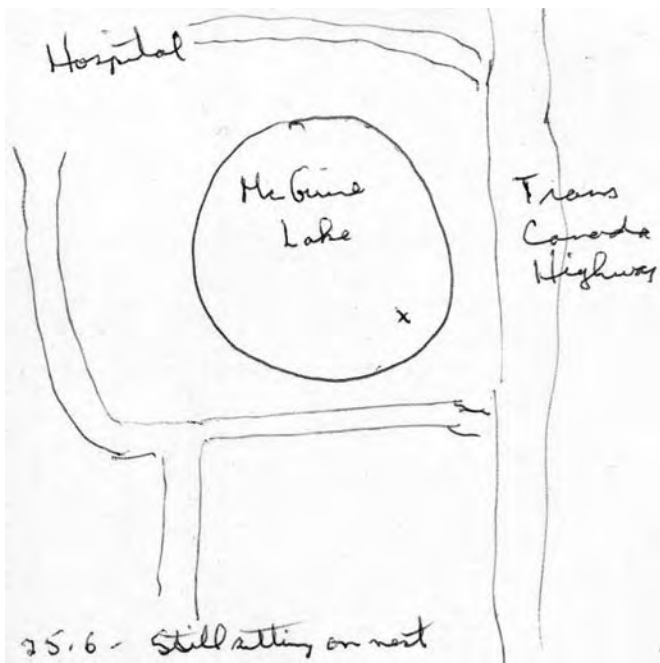


Figure 97. Ted Hillary found a Red-necked Grebe nest at McGuire Lake, near Salmon Arm, with an adult incubating on June 25. Since the lake is a local name, and not formally gazetted, his diagram is helpful in pinpointing the location.

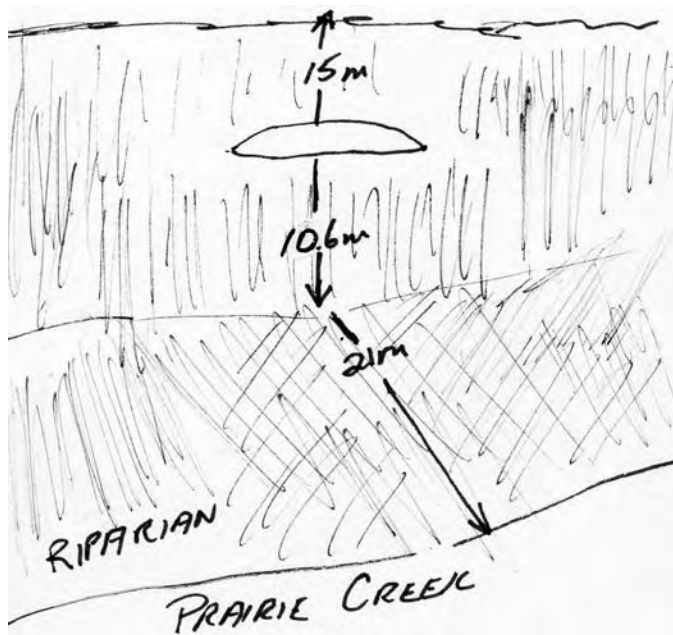


Figure 98. Laurie Rockwell's sketch of a cliff-nesting Great Horned Owl site near Summerland gives a perspective for the habitat the pair selected.

Providing detailed directions, and distances from known locations in simple diagrams to sites that are not gazetted, such as "Meadow Slough", "Jim's Pond", "Km 33 Slough", and "Manfred's Peak", adds immeasurable significance to the breeding record.

Repeat Visits

The additional information collected from well-timed repeat visits to a nest, or nest site, is invaluable and increases the biological value of the record (see Appendix 2). Most cards received each year are of single visits because people are usually travelling from place-to-place and cannot return to re-check the site. The number of cards in 2012 with follow-up visits was encouraging. The following people made an especially big effort to make additional visits to nests to determine the outcome: **Vicky and Lloyd Atkins, Barbara Begg, Ed Beynon, Gary Breault, Beverley Butcher, Wayne Campbell, Joanne and Bruce Clayton, Ted Hillary, Pat Huet, Kevin Knight, Marcia Long, Janne Perrin, Laurie Rockwell, and Linda Van Damme.**

Please record **Canada Goose** activity at **Osprey** nests even though the contents of the nest cannot be determined. Repeat visits, spaced a few days apart, may suggest occupancy of the site by geese at the expense of Osprey. Over time, site occupancy and Osprey success can be interpreted from such documentation.

Historical Nest Site(s) and Current Activity Information

Each year, many well-known and traditional nest sites that are used in consecutive years, especially by birds of prey, colonial-nesting herons, swallows, swifts, some waterbirds, colonial marine birds, American Dippers, and loons, may or may not be utilized. If these sites are visited, and the expected nest (or site) is not occupied, it would be worthwhile to complete a card indicating that it has been used in the past (or the previous year) but not in the present year. These "inactive" nest cards are filed for reference with the original "active" sites and are included in the annual report summary when precise locations (e.g., GPS co-ordinates) are given or in the case of nest box trails when the number of the box is recorded. In the latter case, occupancy of the box by bees, wasps, earwigs, squirrels, or mice (Figure 99) or a damaged box may be the reason for it not being occupied. Vicky and Lloyd Atkins, once again, faithfully recorded such information in 2012.



Figure 99. This nest box was usurped by a Deer Mouse before birds had a chance to use it. *Photo by Vicky Atkins, near Vernon, BC, 3 April 2012.*

The “negative” cards are very helpful when interpreting changes in local breeding distribution and nesting success, 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.

Additional comments on the history of a location, if known, are useful to add to the nest card for some species (Figure 100).



Figure 100. This Osprey nest, located in the north Okanagan valley, has a documented history of both occupancy and breeding success over the years. *Photo by Vicky Atkins, 9 June 2011.*

Historical Information

Tracking details for breeding records from historical sources can be a true test of patience and perseverance (Figure 101). Provincial and state bird books summarize records without detail such as clutch and brood sizes and specific details about nests and their position. Often breeding information is simply listed as “There are breeding colonies [Yellow-headed Blackbird] in parts of the Okanagan Valley”, “Nesting [Sora] – Exeter Lake, July 7, 1938 – young”, or “Nesting [Ruddy Duck; Figure 102] – 149 Mile Lake, August 2, 1937 – 6 nests, eggs.” Such listings may or may not provide a source for the record, therefore completing a nest card requires searching for more details.



Figure 101. A small but significant source of historical breeding records was extracted from private egg collections. Often collectors had to be contacted for additional information as egg labels, as shown in this photograph, were mainly for display purposes. *Photo by Lee Foster.*



Figure 102. One of the primary functions of a nest record scheme is to document in detail all of the historical and current information related to a breeding record. In most cases, historical information is only available in original field notes. For example, in this Ruddy Duck nest, it is valuable to know that the eggs were freshly laid in an empty American Coot nest constructed of *Scirpus* stems and that no parasitism was noted. *Photo by R. Wayne Campbell, Douglas Lake, BC, 27 June 2012.*

Recently, details for two nests of Varied Thrush (Figure 103) were transferred from historical literature to BCNRS cards. The process was quite involved. Allan Brooks published the earliest record for British Columbia in 1895 in the British journal *Ibis* [37(4):512-513] with the title “Nesting of *Geocichla naevia* in British Columbia” and followed up with a second paper “Notes on the nesting of the Varied Thrush” published in *The Auk* [22(2):214-215]. Neither record was listed in the provincial bird books *A Distributional List of the Birds of British Columbia* by Allan Brooks and Harry S. Swarth [1925] or *A Review of the Bird Fauna of British Columbia* by J. A. Munro and I. McTaggart-Cowan [1947]. Sometimes a museum collection or journal article is cited that would

help determine the original source of the record. In the case of the early Varied Thrush records, the original name of the species was published as *Geocichla naevia* and over the next century the genus changed to *Zoothera* and then *Ixoreus*. Once this issue was resolved, we had to request a copy of the original article from the United Kingdom. That took several weeks!



Figure 103. Taxonomy for birds is changing constantly and becomes a real challenge when trying to identify a species so that early breeding records can be transferred to nest cards. *Photo by R. Wayne Campbell, Victoria, BC, 7 May 1993.*

In 2012, **9,802** new historical breeding records were found in a variety of sources. See Table 2 for a list of the top five colonial-nesting and solitary-nesting species. As expected, seabirds again dominated the lists. In total, **170 species** were represented in the historical cards. Species with significant numbers were **Double-crested Cormorant** (226 records), **Fork-tailed Storm-Petrel** (226 records), **Black Oystercatcher** (218 records), **Ancient Murrelet** (188 records), **Wood Duck** (142 records), **Band-tailed Pigeon** (29 records), **Mute Swan** (17 records), **Mew Gull** (17 records), **Western Screech-Owl** (16 records), and **Northern Goshawk** (5 records).

Most of the historical records were transferred by Wayne Campbell and Linda Van Damme.

Total Breeding Records – Family and Species

Family Anatidae – Geese, Swans, and Ducks

(1,930): Canada Goose – 669 (Figure 104), Mute Swan – 32, Trumpeter Swan – 1, Wood Duck – 222, Gadwall – 29, American Wigeon – 35 (Figure 105), Mallard – 455 (Figure 105), Blue-winged Teal – 15, Cinnamon Teal – 13, Northern Shoveler – 3, Green-winged Teal – 5, Canvasback – 33, Redhead – 10, Ring-necked Duck – 49, Lesser Scaup – 11, Bufflehead – 70, Common Goldeneye – 23, Barrow's Goldeneye – 82, Hooded Merganser – 34, Common Merganser – 76, and Ruddy Duck – 63.



Figure 104. When a large number of Canada Goose goslings are with a pair of adults and appear to be the same age, it cannot be assumed they are from the same brood. The notation on the nest card was 24 young, all Class IB, with two adults. *Photo by Marcia Long, Creston, BC, 9 May 2012.*



Figure 105. Even in silhouette, identification of the species and the age of broods can be determined for this family of Mallard (front) and American Wigeon. *Photo by Vicky Atkins, Tompson Lake, BC, 4 July 2012.*

Family Phasianidae – Partridges, Pheasant, Grouse, Ptarmigan, and Turkey (155):

Chukar – 2, Ring-necked Pheasant – 23, Ruffed Grouse – 72, Spruce Grouse – 15, Rock Ptarmigan – 1, White-tailed Ptarmigan – 7 (Figure 106), Dusky Grouse – 19, Sooty Grouse – 15, and Wild Turkey – 1.



Figure 106. In many cases, hatched egg shells found without attendant adults, as in this White-tailed Ptarmigan nest, can later be identified from close-up photographs. *Photo by Brent Wellander, near Telegraph Creek, BC, 5 August 2012.*

Family Odontophoridae – American Quail (94): California Quail – 94.

Family Gaviidae – Loons (40): Common Loon – 40.

Family Podicipedidae – Grebes (432):

Pied-billed Grebe – 63, Horned Grebe – 4, Red-necked Grebe – 50, Eared Grebe – 207, Western Grebe – 104, and Clark's Grebe – 4.

Family Hydrobatidae – Storm-Petrels

(1,046): Fork-tailed Storm-Petrel – 280 and Leach's Storm-Petrel – 770.

Family Phalacrocoracidae – Cormorants

(1,588): Brandt's Cormorant – 432, Double-crested Cormorant – 375, and Pelagic Cormorant – 781.

Family Ardeidae – Bitterns, Herons, Egrets,

and Night-Herons (580): Great Blue Heron – 566 and Green Heron – 14.

Family Cathartidae – Vultures (2): Turkey

Vulture – 2.

Family Accipitridae – Osprey, Kites, Eagles, Hawks, and Allies (436): Osprey – 206 (Figure 107), Bald Eagle – 120, Sharp-shinned Hawk – 1, Cooper's Hawk – 14, Northern Goshawk – 7, Broad-winged Hawk – 1, Swainson's Hawk – 1, Red-tailed Hawk – 84, and Golden Eagle – 2.



Figure 107. The navigation light in Kootenay Lake has been used by Ospreys as a nest site for many years. *Photo by Cyril Colonel, near Kootenay Landing, BC, 15 July 2012.*

Family Falconidae – Falcons (24): American Kestrel – 13, Merlin – 5, and Peregrine Falcon – 6.

Family Rallidae – Rails, Gallinules, and Coots (431): Virginia Rail – 19 (Figure 108), Sora – 38, and American Coot – 374 (Figure 109).



Figure 108. Spotting this Virginia Rail (centre) on its nest among dense cattails was the highlight of a birding day at Colony Farm. *Photo by Dave Schutz, Coquitlam, BC, 27 April 2012.*



Figure 109. Some American Coot nests found in 2012 had elaborate entrances to their nests. *Photo by R. Wayne Campbell, near Douglas Lake, BC, June 2012.*

Family Gruidae – Cranes (25): Sandhill Crane – 25.

Family Charadriidae – Plovers (108): Semipalmated Plover – 1 and Killdeer – 107 (Figure 110).



Figure 110. The displaying Killdeer at its nest with four eggs suggests that hatching is imminent. *Photo by Vicky Atkins, Oyama, BC, 15 May 2012.*

Family Haematopodidae Oystercatchers

(220): Black Oystercatcher – 220.

Family Recurvirostridae – Stilts and

Avocets (28): Black-necked Stilt – 27 and American Avocet – 1.

Family Scolopacidae – Sandpipers,

Phalaropes, and Allies (73): Solitary Sandpiper – 1, Spotted Sandpiper – 56, Long-billed Curlew – 10, Wilson's Snipe – 3, and Wilson's Phalarope – 3.

Family Laridae – Gulls, Terns, and Allies

(7,540): Mew Gull – 19, Ring-billed Gull – 1,612, California Gull – 6, Herring Gull – 42, Glaucous-winged Gull – 5,704, Caspian Tern – 16, Black Tern – 140, and Arctic Tern – 1.

Family Alcidae – Auks, Murres, and Puffins

(807): Common Murre – 3, Pigeon Guillemot – 92, Ancient Murrelet – 188, Cassin's Auklet – 266, Rhinoceros Auklet – 247, and Tufted Puffin – 11.

Family Columbidae – Pigeons and Doves

(42): Rock Pigeon – 3, Band-tailed Pigeon – 31, Eurasian Collared-Dove – 6, and Mourning Dove – 2.

Family Cuculidae – Cuckoos (1): Yellow-

billed Cuckoo – 1.

Family Tytonidae – Barn Owls (17): Barn

Owl – 17.

Family Strigidae – Typical Owls (162):

Flammulated Owl – 1, Western Screech-Owl – 17, Great Horned Owl – 88, Northern Hawk Owl – 4, Spotted Owl – 2, Barred Owl – 22, Great Gray Owl – 6, Long-eared Owl – 11, and Northern Saw-whet Owl – 11 (Figure 111).

Family Caprimulgidae – Goatsuckers (11):

Common Nighthawk – 11.

Family Apodidae – Swifts (1): Black Swift – 1.

Family Trochilidae – Hummingbirds

(126): Anna's Hummingbird – 35 (Figure 112), Calliope Hummingbird – 1, and Rufous Hummingbird – 90.



Figure 111. These nestling Northern Saw-whet Owls will soon leave their nest cavity, which has been home for the past two months. *Photo by Linda M. Van Damme, Lister, BC, 22 May 2012.*

Family Alcedinidae – Kingfishers (6): Belted Kingfisher – 6.

Family Picidae – Woodpeckers (165): Lewis's

Woodpecker – 15, Williamson's Sapsucker – 2, Yellow-bellied Sapsucker – 1, Red-naped Sapsucker – 18, Red-breasted Sapsucker – 16, Downy Woodpecker – 17, Hairy Woodpecker – 25, American Three-toed Woodpecker – 11, Northern Flicker – 44, and Pileated Woodpecker – 16.

Family Tyrannidae – Tyrant Flycatchers

(241): Olive-sided Flycatcher – 8, Western Wood-Pewee – 20, Alder Flycatcher – 9, Willow Flycatcher – 15, Least Flycatcher – 7, Hammond's Flycatcher – 8, Gray Flycatcher – 2, Dusky Flycatcher – 1, Pacific-slope Flycatcher – 24 (Figure 113), Eastern Phoebe – 1, Say's Phoebe – 11, Western Kingbird – 83 (Figure 114), and Eastern Kingbird – 52.



Figure 112. The number of Anna's Hummingbird nests reported each year is impressive. The information has been very helpful in developing a precise breeding chronology for the species, including the number of broods a pair may produce in a year. *Photo by Keith MacDonald, Nanaimo, BC, 8 May 2012.*



Figure 113. Over one-third of all Pacific-sloped Flycatcher nests found in British Columbia have been built on human-made structures. As a result many nests are accessible and repeat visits are adding valuable information on the species' breeding biology. *Photo by Karen McGregor, Kimberley, BC, 8 July 2012.*



Figure 114. The nest site for Western Kingbird varies around the province, so documenting the specific location by photograph is value-added information. *Photo by Marcia Long, Lister, BC, 18 July 2012.*

Family Vireonidae – Vireos (51): Cassin's Vireo – 3, Hutton's Vireo – 12, Warbling Vireo – 21 (Figure 115), and Red-eyed Vireo – 15.



Figure 115. A Warbling Vireo sitting in its nest. *Photo by Linda M. Van Damme, Summit Creek, BC, 4 July 2012.*



Figure 116. Almost any tree or tall shrub with a dense mass of branches can be used for nesting by Black-billed Magpies. This well-hidden nest is near the top of the photo. *Photo by Vicky Atkins, Vernon, BC, 1 May 2012.*

Family Corvidae – Jays, Magpies, and

Crows (172): Gray Jay – 12, Steller’s Jay – 28, Clark’s Nutcracker – 3, Black-billed Magpie – 31 (Figure 116), American Crow – 21, Northwestern Crow – 23, and Common Raven – 54.

Family Alaudidae – Larks (3): Horned Lark – 3.

Family Hirundinidae – Swallows (1,582):

Purple Martin – 14, Tree Swallow – 774 (Figure 117), Violet-green Swallow – 76, Northern Rough-winged Swallow – 27, Bank Swallow – 34, Cliff Swallow – 408, and Barn Swallow – 249.



Figure 117. This male Tree Swallow was still adding grasses to its nest in mid-May. *Photo by Vicky Atkins, Vernon, BC, 16 May 2012.*

Family Paridae – Chickadees (96): Black-capped Chickadee – 36, Mountain Chickadee – 12, and Chestnut-backed Chickadee – 48.

Family Aegithalidae – Bushtit (48): Bushtit – 48.

Family Sittidae – Nuthatches (35): Red-breasted Nuthatch – 31, White-breasted Nuthatch – 2, and Pygmy Nuthatch – 2.

Family Certhiidae – Creepers (17): Brown Creeper – 17.

Family Troglodytidae – Wrens (281): Canyon Wren – 1, Bewick's Wren – 22, House Wren – 33, Pacific Wren – 53, and Marsh Wren – 172.

Family Cinclidae – Dipper (25): American Dipper – 25.

Family Regulidae – Kinglets (17): Golden-crowned Kinglet – 13 and Ruby-crowned Kinglet – 4.

Family Turdidae – Bluebirds, Thrushes, and Allies (740): Western Bluebird – 32, Mountain Bluebird – 389, Townsend's Solitaire – 9, Swainson's Thrush – 39, Hermit Thrush – 2, American Robin – 261 (Figure 118), and Varied Thrush – 8.

Family Mimidae – Mockingbird, Thrashers, and Allies (9): Gray Catbird – 9.



Figure 118. This photograph confirms that the chicks are newly hatched in this American Robin nest. *Photo by Marcia Long, Creston, BC, 12 June 2012.*

Family Sturnidae – Starlings and Allies (191): European Starling – 191.

Family Motacillidae – Wagtails and Pipits (3): American Pipit – 3.

Family Bombycillidae – Waxwings (87): Cedar Waxwing – 87.

Family Parulidae – Wood-Warblers (176): Tennessee Warbler – 1, Orange-crowned Warbler – 36, Nashville Warbler – 1, Yellow Warbler – 36, Cape May Warbler – 1, Yellow-rumped Warbler – 24, Black-throated Gray Warbler – 10, Townsend's Warbler – 8, Palm Warbler – 7, American Redstart – 4, Ovenbird – 4, Northern Waterthrush – 1, MacGillivray's Warbler – 14, Common Yellowthroat – 22, Wilson's Warbler – 4, and Canada Warbler – 3.

Family Thraupidae – Tanagers (10): Western Tanager – 10.

Family Emberizidae – Towhees, Sparrows, Longspurs, and Allies (292): Spotted Towhee – 54, Chipping Sparrow – 37 (Figure 119), Clay-colored Sparrow – 3, Brewer's Sparrow – 1, Vesper Sparrow – 8, Lark Sparrow – 1, Savannah Sparrow – 22, Grasshopper Sparrow – 1, Fox Sparrow – 9, Song Sparrow – 69, Lincoln's Sparrow – 2, White-crowned Sparrow – 21, and Dark-eyed Junco – 64.



Figure 119. Like many Chipping Sparrow nests, this one is saddled on a branch in a small conifer tree low to the ground. *Photo by Marcia Long, Canyon, BC, 16 June 2012.*

Family Cardinalidae – Grosbeaks, Buntings, and Allies (33): Rose-breasted Grosbeak – 1, Black-headed Grosbeak – 29 and Lazuli Bunting – 3.

Family Icteridae – Blackbirds, Orioles, and Allies (1,361): Red-winged Blackbird – 228 (Figure 120), Western Meadowlark – 9, Yellow-headed Blackbird – 959, Rusty Blackbird – 1, Brewer’s Blackbird – 59, Common Grackle – 1 (Figure 121), Brown-headed Cowbird – 79, and Bullock’s Oriole – 25.



Figure 120. The age and behaviour of this recently fledged Red-winged Blackbird, being fed by a female parent, is an acceptable breeding record. *Photo by Tim Kendrick, Nelson, BC, 5 July 2012.*



Figure 121. This male Common Grackle, with a stonefly in its bill, is ready to fly to its nest in a black spruce tree to feed nestlings. See *Wildlife Afield* 6(2):139-146, 2009, for a breeding history of this species in the Fernie area. *Photo by Kevin Knight, Fernie, BC, 11 July 2012.*

Family Fringillidae – Cardueline Finches and Allies (154): Gray-crowned Rosy-Finch – 5 (Figure 122), Purple Finch – 17, House Finch – 83, Red Crossbill – 4, White-winged Crossbill – 1, Pine Siskin – 14, American Goldfinch – 27, and Evening Grosbeak – 3.



Figure 122. This fledged Gray-crowned Rosy-Finch, seen foraging with an adult near the 1,800 m level on a mountain near Telegraph Creek, BC, probably nested in the area. *Photo by Brent Wellander, 5 August 2012.*

Family Passeridae – Old World Sparrows (62): House Sparrow – 62.

Total nests and/or broods – 21,781 records
(2012 season – 11,979; historical – 9,802)

Total species – 226

Total Contributors – 2012 Nesting Season and Historical Records

A Carla Ahern and Pat Huet – 76, Kathy Aitken – 1, Rob Alexander – 5, Jim Ander – 1, Errol Anderson – 52, Sandra Anderson – 1, Kris Andrews – 7, Anonymous – 205, Ted Antifeau – 1, Ted Ardley – 3, Rex and Carol Armstead – 1, Bethany Arndt – 2, Janice Arndt – 21, Wes Aslin – 2, Alfred Atkins – 1, Jasmine Atkins – 1, Kevin Atkins – 23, Vicky and Lloyd Atkins – 356, and Harold Austin – 1.

B Steve Baille – 1, Mike Baker – 4, Barbara Begg – 78, Desmond Belton – 27, Geoff Benson and Tom Brighthouse – 1, Jennifer L. Bergen – 1, Jennifer L. Bergen and F. Don Young – 2, Doug Bertram, Moira Lemon, Peter Clarkson and Jean F. Savard – 92, Douglas Bertram, Y. Turcotte, Michael Rodway and Moira Lemon – 25, Alan Best – 71, Robin Best – 170, Ed Beynon – 25, Jim Biggar – 65, Jim Biggar and David F. Hatler – 3, Sigal Blay – 3, Peter Blokker – 3, Donna Bonthoux – 1, Kaiden Bosch – 5, Sandy Bowie – 1, Jack Bowling – 3, Gary Breault – 25,

British Columbia Ministry of Forests, Lands and Natural Resource Operations – 53, Allan Brooks – 20 (Figure 123), Amanda Brown and Kathy Reed – 1, Gordon Brown – 3, Quentin Brown – 1, Daniel Bryant – 4, D.K. and L. Buckley – 1, Joop Burgerjon – 2, Alan Burger – 2, Alan E. Burger and D. Garnier – 3, Alan E. Burger and R. Wilson – 8, and Beverly H. Butcher – 98.

C Jim Cameron – 3, Eileen C. Campbell – 41, R. Wayne Campbell and Eileen C. Campbell – 184, R. Wayne Campbell, Michael G. Shepard, Des Belton and Eileen Campbell – 107, R. Wayne Campbell – 4,452 (Figure 124), R. Wayne Campbell, Dave and Myrnl Hawes – 156, R. Wayne Campbell and Bill Verbruggue – 27, R. Wayne Campbell and David F. Hatler – 5, R. Wayne Campbell and David Stirling – 61, R. Wayne Campbell and Robert Baker – 12, R. Wayne Campbell and Ron D. Jakimchuk (Figure 125) – 417, R. Wayne Campbell, Charles J. Guiguet and David F. Hatler – 74, Canadian Broadcasting Company – 9, Peter Candido – 1, Richard J. Cannings – 1, Russell Cannings – 5, Doug



Figure 123. Allan Brooks (left) was a collector, naturalist, and author. Breeding records were extracted in 2012 from his many publications. *Photo courtesy Greater Vernon Museum & Archives.*



Figure 124. Most of Wayne Campbell's total is from counts of individual nests tallied during complete surveys of colonial-nesting grebes, gulls, terns, swallows, and blackbirds. *Photo by Ron D. Jakimchuk, near Douglas Lake, BC, June 2012.*

Carrick – 4, Harry R. Carter and Peter Clarkson – 10, Jon Carter – 8, John Cassie and Neil MacDonald – 17, Donald G. Cecile – 2, Chris Charlesworth – 10, Bill Chudyk – 37, Beverly Clarke – 2, Linda Clarke – 1, Peter Clarkson and K. O'Reilly – 120, Peter Clarkson and K. O'Reilly – 130, Peter Clarkson, M. Hipfner and B. Addison – 176, Colin Clasen – 7, Bruce and Joanne Clayton – 279, Peggy Collins – 1, Cyril Colonel – 16, Dave Colonel – 1, Carolee Colter – 1, Wendy Coomber – 1, Doug Cooper – 1, Martin Cooper – 3, Heather Cormack – 2, William J. Crins – 1, Gordon Curry – 10, and Creston Valley Wildlife Management Area and Fish and Wildlife Compensation Program – 1.



Figure 125. Ron Jakimchuk searching a cattail marsh for bird nests. *Photo by R. Wayne Campbell, near Douglas Lake, BC, June 2012.*

D Ed and Monica Dahl – 91, Chris Dale – 3, Gary S. Davidson – 160 (Figure 126), G. Davoreu – 64, John Deal – 10, Milo De Angeles – 11, Anita Delafield – 5, Dennis A. Demarchi – 1, Dave Dickson – 1, Adrian Dorst – 14, Douglas Dow and Anne Houston – 1, Sharon Dow – 1, Rudolf H. Drent – 9, Rudolf H. Drent and R.W. Campbell – 47, Rudolf H. Drent, R.W. Campbell, and Harry R. Carter – 237, Len Dunsford – 1, and Linda Durrell – 8.



Figure 126. Gary Davidson (right), with good friend Chris Siddle, recording birds in subalpine on 13 August 2012. Both birders have been active in the BCNRS for decades.

E Wendy Easten – 1, John Elliot – 9, Peter Elliot – 6, Colleen Erickson – 2, and John Everet – 1.

F Emily Fanjoy – 18, Jess Findlay – 2, FortisBC – 2, Bristol J. Foster (Figure 127) and Charles J. Guiguet – 465, Lee Foster – 100 (see *Participant Profile*), Alistair Fraser – 5, and George Freeman and Roger Neufeld – 132.



Figure 127. Notes from Bristol Foster's seabird surveys in the 1970s are being transferred to nest cards. In this photo, he is holding down a tent while a helicopter lands on a remote seabird island. *Photo by R. Wayne Campbell, Solander Island, BC, 5 May 1976.*

Gord Gadsden – 11, Kevin Gagel – 1, Jeff Gaskin – 5, Bryan R. Gates – 3, George C. Reifel Migratory Bird Sanctuary – 44, Val George – 1, Ralph and Elsie Gerein – 27, Jim Ginns – 2, Trent Glukler – 1, Tom Godin – 1, Vic Goertzen – 2, J. E. Victor Goodwill – 515, J. E. Victor and Margaret E. Goodwill – 4, J. E. Victor Goodwill, Margaret E. Goodwill, Mark Nyhof and Bertha Gow – 1, J. E. Victor Goodwill, Margaret E. Goodwill, Mark Nyhof and Henry Ford – 1, J. E. Victor Goodwill and Ron Satterfield – 6, J. E. Victor Goodwill, Tom and Gwen Briggs – 4, Hilary Gordon – 6, Hilary Gordon and Dan Golnick – 13, Hilary Gordon and Nancy Bater – 2, Stuart Gordon – 2, Fred Gornal – 1, Ted Goshulak – 2, Dale Grady – 1, Sandy Gray – 3, Charles J. Guiguet – 16 (Figure 128), Charles J. Guiguet and Ewald Lemke – 22, Charles J. Guiguet and George Hilliers – 5, Charles J. Guiguet and Bristol Foster – 13, and Charles J. Guiguet and W. Jack Schick – 2.



Figure 128. The field notes of the late Charles J. Guiguet, curator of Birds and Mammals at the British Columbia Provincial Museum, are being searched for breeding records and the information is slowly being transferred to nest cards. *Photo by R. Wayne Campbell.*

HPenny and Rudi Haering – 1, Penny Hall – 8, Michelle Hamilton – 1, Hancock Wildlife Foundation Webcam – 3, Krisztina Harasztos – 1, Susan Harlow – 1, Alexis Harrington – 2, Tammy Harrison – 1, John Harvey – 2, David F. Hatler – 461 (Figure 129), David F. Hatler and Desmond Belton

– 326, David F. Hatler and Jim Biggar – 29, David F. Hatler and R. Wayne Campbell – 94, Sue Hemphill – 1, Sharon Henry – 4, Sandra Hepburn – 2, Darren Hewat and Ken Cross – 1, Liz Hewison – 9, Ted Hillary – 99, Mark Hobson – 3 (Figure 130), John Hodges – 4, Sally Hofmeier – 1, Todd Holbrook – 1, Don and Jean Holmes – 1, Randy Hopkins – 1, Tim Hopwood – 1, Don Horne – 1, Steve Howard – 20, Richard R. Howie – 3, Pat Huet – 19, Ann Hung – 2, and Terry Hurst – 1.



Figure 129. While working on his Ph.D. on coastal mink in the late 1960s, Dave Hatler also surveyed seabird colonies off Long Beach and in Barkley Sound on the west coast of Vancouver Island. These surveys were published in *Birds of Pacific Rim National Park* in 1978. *Photo by R. Wayne Campbell, Sea Lion Rock, BC, 27 July 1969.*



Figure 130. Breeding records for Lemmens Inlet and the Tofino region were transferred from the field notes of naturalist and wildlife artist Mark Hobson in 2012. *Photo by R. Wayne Campbell.*

J Gord Johnson – 1, Marlene Johnston – 2, Ed Jordan – 1 and Laura Jordison – 1.

K Gary W. Kaiser (Figure 131) and J. Reeve – 198, Ronda Karliukson – 4, Clive Keen – 3, Joyce Keen – 1, Diane Kehoe – 1, Tim Kendrick – 4, Ken Kennedy – 7, Derek Killby – 1, Jeremy Kimm – 3, Derek Kite – 2, Kevin Knight – 8, Ann Knowles – 1, Nancy Krueger – 52, Nancy Krueger and Cathy Antoniazzi – 10, Nancy Krueger and Dave Richmond – 1, Nancy Krueger and Joanne Vinnedge – 1, Nancy Krueger and Karen Krushelnick – 44, Nancy Krueger and Pat Michel – 1, Nancy Krueger and Robb Paterson – 10, Nancy Krueger and Sandra Kinsey – 1, Nancy Krueger and Stan Hall – 4, and Nancy Krueger, Liz Hewison and Cathy Sweet – 2.



Figure 131. Historical field notes of seabird surveys by Gary W. Kaiser, a retired Canadian Wildlife Service biologist, were transferred to nest cards. *Photo by Mark Nyhof, Swan Lake, BC, 21 April 2000.*

L Galina Labun – 1, Elsie Lafreniere – 19, Amanda Lahaie – 8, Edward Lai – 3, Pam Laing – 3, Michelle Lamberson – 6, John D. and Vi Lambie – 16, Roy Lammle – 1, Sharon Laughlin – 4, Jim Lawrence – 1, Robin Lawson – 2, Steve Lawson – 3, Adrian Leather – 5, Adrian and Debbie Leather – 1, Douglas Leighton – 7, Ewald Lemke and Charles J. Guignet – 119, Janna Leslie – 1, Mark Levinson – 3, John and Sheila Linn – 1, Marcia Long – 79, Ursula Lowrey – 1, Robert E. Luscher – 1, Peter Lypkie – 1, and Rob Lyske – 3.

M Bruce A. MacDonald – 1, Keith MacDonald – 27, John MacGilchrist – 1, Diana Maloff – 1, Devin Manky – 1, Thor Manson – 2, Natalie Marlow – 2, Jim Martin – 7, Sean McCann – 6, Conor McCracken – 2, Jerry and Lynne McFetridge – 1, Lynne McFetridge – 1, Carolyn McGhee – 7, Mike McGrenere – 7, Ed McMackin – 7, Sandy McRuer – 1, Ian McTaggart-Cowan – 1 (Figure 132), Ian McTaggart-Cowan and Kenneth Racey – 16, John McWilliams – 32, Elsie Mikkelsen – 3, Tony Mitra – 5, Rich Mooney – 2, Elaine Moore and Janice Arndt – 7, Ken Morrison – 3, Brian Murland – 2, Sheila Murland – 1, Michael Murray – 1, and Daryll Myhr – 1.

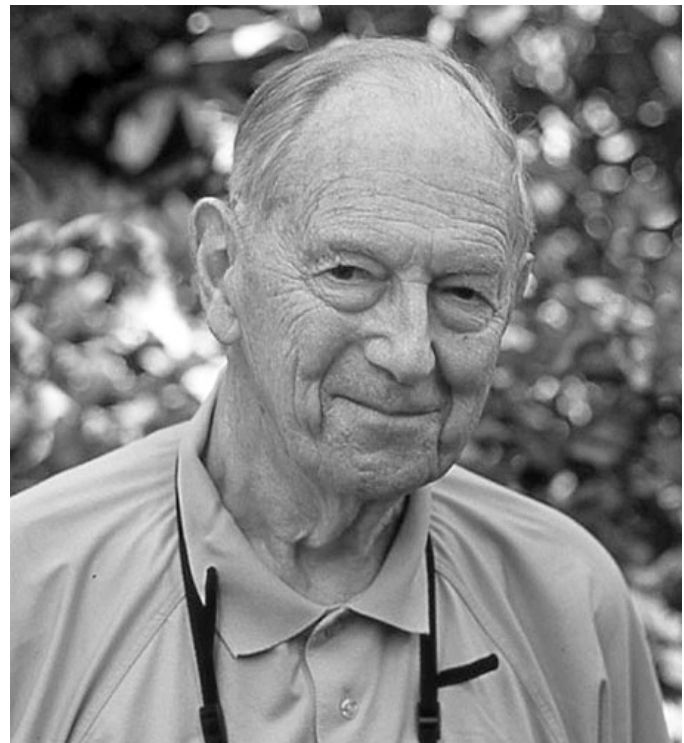


Figure 132. Although Ian McTaggart-Cowan was initially supportive of the concept of the BCNRS at the University of British Columbia, he was not an active contributor. Most of the breeding records he collected have been transferred from his field notes to nest cards by volunteers. *Photo by Mark Nyhof.*

N Laure W. Neish – 5, Evan Nicholson – 3, Gwen Nicol and Shirley Coffin – 1, North Okanagan Naturalists Club – 102, Northwest Community College – 4, Ivar Nygaard-Petersen – 5, and Mark Nyhof – 516.

O Cathy O'Connor – 3, Brent Olsen – 1, Lorne Ostendorf – 2, and Don Owest – 2.

P R. Parlee – 1, Robb Paterson – 1, Steve Payne – 1, Theed Pearse – 22, Bill Pennell – 1, Dave Peppar – 8, Janne Perrin – 101, Karl Perrin – 6, Karl Perrin and Janne Perrin – 2, Dan Peterson – 1, Carol Pettigrew – 1, Dirk Pidcock – 25 (see *Participant Profile*), Eric Pittman – 1, Tom Plath – 1, Michael Porter – 2, Ken Possum – 3, Gerry Powers – 15, G. Allen Poynter – 32, and Sandy Proulx – 189.

Q Jay Quathammer – 1, and Quesnel Naturalists: Marv and Lorna Schley, Sally Hofmeier, Orié and Gloria Kolenchuk, Marian Walker and Meredith Douglas – 14.

R Kenneth Racey – 2, Kenneth Racey and Ian McTaggart-Cowan – 8, Ron Racine – 1, Luther Radke and Joan Radke – 3, Varri Raffan – 10, Varri Raffan and Kathleen Fry – 16, Gwen Rainwater – 1, Leo Rankin – 1, Phil Ranson – 5, Randy Rawluk – 1, Jerry

Reimer – 6, Sheila Reynolds – 1, Simon Richards – 2, David Reidel – 19, David Reidel and Gail Schacter – 13, Neil Robbins – 11, Anna Roberts – 3 (Figure 133), R. D. Robinson – 2, R. Robinson – 5, Steve H. Robinson – 10, Wilma Robinson – 13, Laurie Rockwell – 38, Michael S. Rodway and Moira J. Lemon – 984, Michael S. Rodway, Moira J. Lemon, B. Carter, M. Force, D. and M. Grinnell – 150, Donna Ross – 3, Greg Ross – 1, Judy Russell – 1, Delbert B. Ryder – 90, and Glenn R. Ryder – 495.

S Rod Sargent – 8, John Sarles – 1, Ann Scarfe – 1, Ann and Colin Scarfe – 2, W. Jack Schick – 50, W. Jack Schick and Charles J. Guiguet – 125, David Schutz – 2, Lorraine Scott and Sharon Laughlin – 34, Walter Scott – 701, Scout Island Nature Centre – 10, Brian Self – 10, Verena Shaw – 38, Michael G. Shepard – 1,744, Michael G. Shepard, Betty L. Peers and Marilyn A. Paul (Figure 134) – 313, Michael G. Shepard, Ken R. Summers, and Linda Loftus – 1, Geoffrey



Figure 133. For over five decades, Anna Roberts has contributed breeding records from the Cariboo-Chilcotin region to the BCNRS. Now in her early 80s, Anna still submits nest cards. *Photo by R. Wayne Campbell, west of Williams Lake, BC, 27 April 1990.*



Figure 134. Marilyn Lambert [nee Paul], who assisted with seabird surveys organized by Wayne Campbell at the British Columbia Provincial Museum in the 1970s, is currently the warden for the Oak Bay Islands Ecological Reserves. In this photo, she is posting a sign on Whitmore Islands while Dr. Harry Carter Sr. looks on. *Photo by R. Wayne Campbell, 26 June 1976.*

Shuen – 1, Chris Siddle – 44, Joanne A. Siderius – 1, Michael Simmons – 1, Tania Simpson – 22, Jim Simms – 13, George P. Sirk – 12, George P. Sirk and Ian Yule – 14, Gail Smart – 2, Steve Smith – 5, Gail Spitler – 1, Elsie Stanley – 2, Glen Stanley – 2, Asher Steed – 2, Christopher Stevens – 5, David Stevenson – 1, Bob Steventon – 1. David Stirling – 65, David Stirling and Frank Buffam – 110, Bruce Stotesbury – 1, Ken R. Summers – 36, Richard Swanston – 7, and Lorraine Symmes – 1.

TJ. Tabak – 2, Alec Tebbutt – 1, Steve Thatcher – 1, David Thompson – 1, Diana Thompson – 2, Scott Thomson – 1, John Toochin – 1, Marj Truscott – 1, Tobi Tucker – 1, Tobi Tucker and Verena Tucker – 1, Liz Twan – 16, and Danny Tyson – 3.

VCornelia van Berkel – 4, Linda M. Van Damme – 623 (Figure 135), Deon van der Heever – 3, Ben van Drimmelen – 3, Vancouver Avian Research Centre – 2, Vancouver Natural History Society – 135 (Figure 136), Raffin Varri – 10, William A. Verbruggue – 405, Kees Vermeer – 1, Victoria Natural History Society – 298, Joanne Vinnedge – 1, John Vooy – 1, and Helga Vrabae – 6.

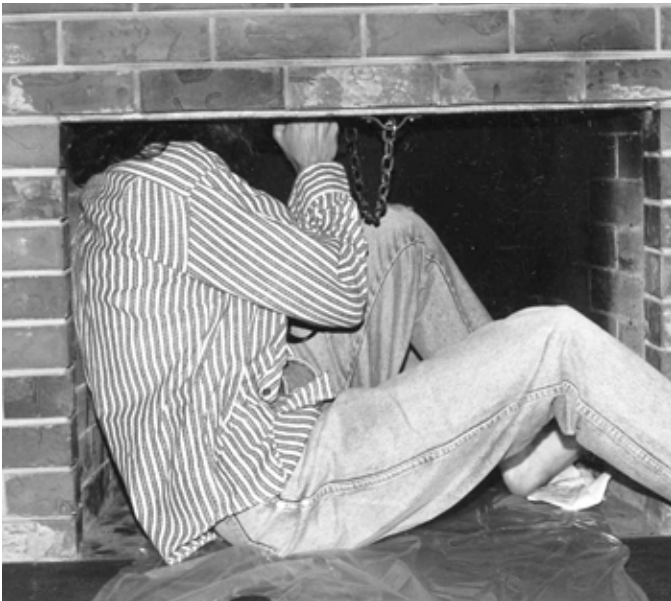


Figure 135. Vaux Swift nests are poorly represented in the BCNRS files. This historical photo of Linda Van Damme checking out an active nest at the base of a chimney seems more like a job for a chimney sweeper. *Photo by Pat Vincent.*



Figure 136. In the late 1960s and early 1970s, the Vancouver Natural History Society, Burnaby Scout and Cub groups, and British Columbia Waterfowl Society worked together to build nest boxes for cavity-nesting swallows in the Lower Mainland. *Photo by R. Wayne Campbell, Reifel Island, BC, March 1970.*

WRandy Walker – 3, John G. Ward – 45, Wayne C. Weber – 2, Brent Wellander – 41, Ron Welwood – 1, Paul Whalen – 2, Peg Whittington – 3, Brenda Widdess – 5, Karen Wiebe – 1, Wildlife Rescue Association of British Columbia – 1, Williams Lake Field Naturalists – 56, Doug Wilson – 3, Gwynneth Wilson – 1, Mike Wisnicki – 5, Marcus Womersley – 22, David Wong – 13, Bob Woodward – 1,461, Kathy Wrath – 1, and Gwen Wright – 3.

ZBarry Zettergreen – 2, Yuri Zharikov and Peter V. Clarkson – 272, and Eric Zhou – 1, and Peter Zwiars – 2.

Contributors for 2012 – 308

Total contributors – 425

Long-term Inventory and Monitoring Projects

Inventory and monitoring programs become more relevant when they can be put into perspective with historical information. Few people are interested in spending the necessary time to search out and extract early breeding records that could often provide the basis for interpreting the results of long-term inventory and monitoring projects (Figure 137). Fortunately, during the 58-year history of the BCNRS, volunteers have been transferring records annually. Consequently, for breeding birds, inventory and monitoring projects become more significant because of comparisons that can be made when historical records are available. To date, over 100,000 historical breeding records, dating back 128 years, have been added to the BCNRS.



Figure 137. Completing a nest card for individual boxes along “bluebird trails” is time-consuming but necessary for evaluation of occupancy, success, and other ecological factors such as breeding chronology. *Photo by R. Wayne Campbell, near Invermere, BC, 9 May 1997.*

For 2012, the annual inventory and monitoring projects completed by BCNRS volunteers are listed under five separate headings.

Colonial-Nesting Marine Birds

Published and unpublished written sources were searched for seabird breeding information in 2012. These sources included those generated from a professor’s personal seabird research, federal research projects, wildlife consultant reports, graduate student research, and volunteer naturalists on banding and surveying excursions. This task is becoming more time-consuming as there is a considerable time lag in obtaining copies of material to be searched and oftentimes the material requested has been archived.

Most of the historical information was sourced from incidental seabird surveys of graduate student David Hatler while he was stationed in Tofino studying the ecology of American Mink for a Ph.D. at the University of British Columbia. Other historical information was transferred from notes of various individuals who participated in the coastal seabird colony surveys in the 1970s, as well as from individuals from the Vancouver Natural History Society on banding expeditions in the late 1960s and early 1970s.

While photographing seabirds in 2012, Bob Woodward counted nests of Glaucous-winged Gulls on several colonies off southern Vancouver Island (Figure 138).



Figure 138. Several seabird colonies were surveyed off southern Vancouver Island in 2012. *Photo by R. Wayne Campbell, Arbutus Island, BC, 8 June 1976.*

Colonial-nesting Fresh-water Birds

Western Grebe/Clark's Grebe

The spectacular spring courtship display of Western and Clark's grebes is one of the most elaborate for any bird species in North America and consists of three well-defined rituals. The "Greeting Ceremony" has five orderly segments (Figure 139) while the "Rushing Ceremony" is a series of elaborate movements, which includes the pair dancing across the surface of the water (Figure 140). The "Weed Ceremony" (Figure 141) occurs in the later stages of pair formation and prior to nest building. For more details see *Wildlife Afield* 6(1):40-105, 2009 at www.wildlifebc.org.



Figure 139. A stylized movement known as "bob-preening" is one segment of the "Greeting Ceremony" that occurs when Western Grebes form a pair bond. *Photo by Brent Wellander, Duck Lake, BC, 12 June 2012.*



Figure 141. A pair of Western Grebes performing the "Weed Dance" behaviour. Once one bird discards the weeds, the display is over. *Photo by Joanne Clayton, Salmon Arm Bay, BC, 23 May 2012.*



Figure 140. Dancing across the water is the most spectacular segment in the courtship behaviour of Western and Clark's grebes. *Photo by Joanne Clayton, Salmon Arm Bay, BC, 23 May 2012.*

Salmon Arm Bay (including Christmas Island)

Ted Hillary sends us his observations especially of Clark's Grebes: *The lake level on June 21 was 349.260 meters. The high water was on June 27 at 349.588 meters, the highest it has been in 40 years (Figure 142). The breakwater at the end of the wharf was covered.*

From June 26 to July 28 I never saw any Clark's grebes and I wondered where they were. However, from July 28 I saw one or more feeding, usually east of the wharf. On July 30 I watched a Western grebe feeding feathers to a new born riding on the back of a Clark's grebe. On August 6 I saw this family near Christmas Island with two young. I assume that these young were raised to maturity. I could not find them again amongst the couple of hundred western grebes which were usually a long way out in the Lake.

On August 1, I saw the first pair of Clark's grebes with two young. On August 9 there were two pairs each with two young between the wharf and Christmas Island. On August 16 near Christmas Island there was one adult with two young which were already half the size of the adult. On August 29, I watched two adults with one young which was little bigger than half the size of the adults. These were two separate families, one of which seems to have lost a chick from my initial count on August 9.

I saw the Clark's grebes on numerous occasions in September. On September 17, I saw what appeared to be 7 adults; I assume that these were the original 5 adults and 2 full grown young. On September 22, I saw 2 adults with 1 almost full grown young. This would make a total of 8 Clark's grebes in the Salmon Arm Bay. On most days in September until mid-October I could find 1 - 7 Clark's grebes in the Bay if I really looked for them. My last sighting was October 17 when I saw 4.

Regarding the Western grebes I think that I can add 3 more to the total number of young reported by the Dahl's. There were 3 young, in 3 different families, being fed by adults in mid-October. One of these was right beside the wharf, and the other 2 were much further out in the Bay. On October 12 the chick beside the wharf was about three quarters the size of the adults, and very much still dependent upon them. I am not sure that the Dahl's would have included these 3 young as their last count was before the end of

August and these three would have been at best only newborns.

Most of the Western grebes have now left the Bay, though I am still seeing 10 - 45 most days. My high count for the year was on October 3 when I saw 411; a lot of these would have been migrants.



Figure 142. Salmon Arm Bay, looking east from the shoreline near the wharf. The clump of trees on the left is on flooded Christmas Island. The view (foreground) is directly at the site where the Western and Clark's grebes were nesting in 2012. *Photo by Barbara Hillary, 21 June 2012.*

Ed and Monica Dahl prepared the following write-up for the Fall 2012 *Salmon Arm Bay Nature Enhancement Society Newsletter* available at <http://sabnes.org/> and have kindly allowed us to publish their summary on the Western Grebes.

The spring and summer of 2012 have been memorable indeed. The Shuswap Lake water levels were exceptional and caused many alterations to our Western Grebes' and other water birds' ability to survive. The rapidly rising water levels, especially in late June, resulted in large scale destruction of nests and their contents, which were seen to contain eggs in some of the closer nests. In one disastrous episode, there were 47 nests destroyed east of the bandstand due to water level increases and wind.

Our monitoring of the grebe numbers was variable due to the grebe's dispersal into areas we were unable to view, probably because the reed canary grass before mid-June was tall, but seemed to be swallowed up by the water as the levels increased to within 7.2 cm of the 1972 high water levels. 7.2 is slightly less than three

inches, for those of us who are less familiar with the metric system.

The lake levels peaked June 26, 2012. Western Grebes seemed to have found “new” places to nest, but the usual sites were abandoned and seemed to be modified extensively by the high water. One of the new locations was between the railroad and the Trans-Canada highway, in the open water of the Adams Lake Band property. July 4 we counted 17 nests and 54 adult Western Grebes in that area. But by that time or shortly thereafter, the water levels began to recede rapidly, and the grass seemed to grow, so we could not determine whether those nests produced young or just became inaccessible as the water levels declined.

But somehow, though our efforts to count grebes produced wide variations in numbers of adults and young from week to week, the counts conducted toward the end of July gave us hope. Grebe families of several sizes and apparently different ages showed up in good numbers August 12. That day we counted: 204 adults and 127 young in 91 families for a very encouraging result. Of course, follow-up counts will likely vary somewhat but we’re very pleased at this time, considering the results we were finding throughout July. Final count for August 24, 2011 was: 197 adults and 111 young in 76 families.

Duck Lake (Creston)

For over two decades, **Linda Van Damme** has monitored Western Grebe nesting activity on Duck Lake. This season she witnessed the most dramatic rise in the water level (Figure 143), an event which prompted staff at the Creston Valley Wildlife Management Area to issue a press release on June 28th alerting the public to closures of certain areas within the management area to vehicular or foot traffic.

It read: Access along the dyke at the south end of Duck Lake is closed due to high water levels (water is inches from dyke top at points and with any wave action, the dykes are receiving water). Pumps at the north end of Duck Lake have been pumping to get water from the lake into the river constantly now for two months but the amount of water coming in is too great and the pumping has not stopped water from getting extremely close to the dyke top.



Figure 143. View of a portion of Duck Lake from highway 3A. The rising water posed a threat to the main road access along the dyke at the lake. As a safety precaution, the dyke was inspected by an engineer before re-opening for public use. Photo by Linda M. Van Damme, 8 July 2012.

For the 2012 season, Linda writes: On June 12th, 44 Western Grebes were observed, some pairs engaged in courtship behaviour and one shallow nest was under construction. By June 20th, with the water level rising, 32 grebes were milling about but there was no evidence of nesting. As a result of the Duck Lake access closure, the Western Grebes could not be monitored until the dyke re-opened on August 15th. However, in speaking with Marc-André Beaucher, he noted that on July 9th, one completed nest was visible and a partial one was under construction. During the last week of July, Marc-André counted nine occupied nests.

Active monitoring resumed with the aid of a spotting scope on August 15th when 13 adults were observed sitting on nest mounds anchored within the milfoil mat, an important native aquatic substrate. Eighteen gray downy chicks were observed at 10 of the active nests and by September 1st, the last family with two chicks headed to the more open water of the lake.

Initially it appeared the Western Grebes would not be successful in nesting during this season of exceedingly high water, but observing chicks during late August was very encouraging. This is the first time in five years that chicks have successfully hatched.

On Sept 16th, Marc-André counted a minimum of 31 adults and 22 young grebes, at the northeast end of Duck Lake.

Leach Lake (Creston)

Marc-André Beaucher reports: *I did not formally monitor the Western Grebes this year due to the high water everywhere and the hazardous situation in Leach Lake. I did see 3 adults in pond 2 on Aug 2nd, though. On Sept 19th, I recorded 2 adults with 1 young in pond 2. The fluctuations of water levels in Leach Lake would have affected the Western Grebe breeding success, certainly reduced the breeding significantly.*

Press Release issued by the Creston Valley Wildlife Management Area on 28 June 2012: *The Summit Creek/Leach Lake area has also been closed to the public due to flood hazard. A gate has been put up just before (west) of the Summit Creek bridge to warn people of closure and that it is not safe to be in the area. At the Leach Lake unit, the Kootenay River is 2.5 meters higher than the water levels at the north end of Leach Lake. This difference puts unnecessary pressure on the dykes, so we need to equalize this and add water to Leach Lake so that the dyke integrity is not compromised. This was initiated on June 27, 2012. As a result of adding water to this unit, the internal flood dykes will be under water so it is not safe for the public to be venturing into the area.*

Great Blue Heron

In 2012, breeding information was received for 16 colonies scattered across southern British Columbia from Vancouver Island to the East Kootenay. Only six colonies had repeat visits through the breeding cycle; the other colonies had single counts of nests, usually containing large young. Some participants visited colonies in winter to get an accurate count of nests (Figure 144) and then followed up in summer to count contents in a sample of nests which contained large young.

Details for several colonies follow.

Saanich (Mystic Pond)

In 2011, adult Great Blue Herons remained in the vicinity of a small colony in a residential area with a large pond. Up to four were seen regularly standing in the pond or occasionally perched in red alders near old nests. In 2012, the first heron returned to the colony on 7 March and by the



Figure 144. In winter, Great Blue Heron nests are visible in deciduous trees and can be easily counted to obtain the size of the colony. Photo by R. Wayne Campbell, Maple Ridge, BC, 11 February 2012.

end of the month 11 nests had adults near them. Only seven nests, however, fledged young.

Central Saanich (Tsawout First Nation Reserve)

For the third year in a row, this once active heron colony remained unoccupied in 2012. The abandonment coincides with a pair of Great Horned Owls nesting in old heron nests each year since 2010 but the relationship between owls and herons remains conjecture.

English Bluff (Tsawwassen Indian Reserve)

The first breeding birds returned to this large colony located at the base of the causeway to the Tsawwassen ferry terminal on 10 March (Richard Swanston pers. comm.). The size of the colony is difficult to determine because nests are built in large deciduous and coniferous trees (Figure 145). Throughout the breeding season, however, 42 identifiable nests were monitored for productivity. An average of 1.9 young fledged from these nests. Some large young were still in nests in August.



Figure 145. Location of Great Blue Heron colony (above billboards) on a forested bluff at the base of the causeway to the Tsawwassen ferry terminal. *Photo by Richard Swanston, 10 March 2012.*

On 10 March, a Bald Eagle was incubating in a nest built in the crotch of a tall Douglas-fir (Figure 146) in the middle of the heron colony. Two young fledged but no predation of heron eggs or nestlings was reported, possibly due to the marine food readily available nearby.

Stanley Park (Vancouver)

Since 2004, volunteers and staff of the **Stanley Park Ecology Society** in Vancouver have been monitoring the nesting activity of Great Blue Herons weekly from March through

mid-August. We extracted breeding information on the nesting Great Blue Herons from the 2012 annual report of the Stanley Park Ecology Society which is available from their website: <http://www.stanleyparkecology.ca/programs/conservation/urbanwildlife/herons>.

Creston Valley

The **Leach Lake** Great Blue Heron colony had a decline in numbers of nesting pairs this season. Fifty-five nests were counted but only 45 were occupied, compared with 69 active nests in 2011. Herons returned to the colony in mid-March but did not settle in until the latter part of April. On a couple of occasions immature Bald Eagles were observed perched in the nest trees and an adult was observed circling over the nesting area. This current site was established in 2010, after Great Blue Herons abandoned a long term nesting area when Double-crested Cormorants nested among them in large numbers. This season, there was no evidence of cormorants at the current site.

The smaller heron colony at the south end of the valley had a slight increase in nesting pairs and had a successful season. Bald Eagles were again present along the western boundary of cottonwood trees in the vicinity of the heronry but no disturbances or predation was witnessed. The two heron nests close to **Creston** town limits are no longer active.



Figure 146. An adult Bald Eagle (centre) incubating in a nest situated among the Great Blue Heron colony at English Bluff. *Photo by Richard Swanston, 10 March 2012.*

Ring-billed Gull

Salmon Arm Bay (including Christmas Island)

Ted Hillary sent us this note on the Salmon Arm Bay colony: *Just before the pathway to Christmas Island was flooded, Tom Brighthouse and another fellow counted the ring billed gull nests (Figure 147). They got a total of 800 nests with an average of 3.5 eggs per nest. I estimate that 20 -25 per cent of the nests survived high water.*



Figure 147. On Shuswap Lake, most Ring-billed Gulls begin nesting in the third week of May but by mid-June many nests are flooded from rising water levels. *Photo by R. Wayne Campbell.*

Black Tern

In 2012, 140 nests (Figure 148) were found by **Wayne Campbell** in 13 colonies scattered throughout the Thompson-Nicola and Cariboo-Chilcotin regions of the southern interior of the province. Two new colonies were discovered, both in sedges in lakes near Vanderhoof. Nesting terns were absent from another nine traditional sites due to high water levels.



Figure 148. At some colonies, Black Tern nests were unusually large which provided a more secure platform for safe incubation. The entire nest in this photograph measured 69 cm (27 in) across and 24 cm (9 ½ in) in height. Notice the newly hatched chick in the lower right corner. *Photo by R. Wayne Campbell, near Vanderhoof, BC, June 2012.*

Marsh Wren

Although 140 nests with contents were found during surveys of wetlands in 2012, **Marsh Wren** success varied greatly among geographical locations. At some locations, where water levels were controlled by farmers and ranchers and emergent vegetation allowed for good nest attachment, Marsh Wrens had a somewhat normal year. However, in some marshes in the Thompson-Nicola region, many nests were found partially flooded or entirely under water. Some pairs attempted to re-nest in late June and early July. In the Cariboo-Chilcotin region, six Marsh Wren nests were found “double-decked.” Early nesting attempts had failed but as water levels receded, a new nest was built on top of the old one (Figure 149).

Over 300 “dummy” nests, all empty but newly built, were checked for eggs and nestlings by Wayne Campbell in June and early July 2012. Some of these were also flooded.



Figure 149. In some flooded areas, Marsh Wrens built a second nest on top of an older nest in an attempt to nest successfully in 2012. *Photo by R. Wayne Campbell, near Springhouse, BC, July 2012.*

Blackbirds

Two of the four species of blackbirds in the province are colonial wetland breeders but only the Yellow-headed Blackbird is restricted to marshes with bulrushes and cattails. Red-winged Blackbird may be colonial in some situations, but frequently it nests as isolated pairs in a wide variety of habitats. Each year, far fewer Red-winged Blackbirds nests are tallied than for Yellow-headed Blackbirds. When both species are found breeding together, yellow-heads prefer bulrushes and red-wings cattails. One of the critical factors for nesting is having enough plant stem above water for secure nest attachment.

The 2012 nesting season provided an opportunity to discover how high water levels affected occupancy and nesting success for both species. It generally appeared that Red-winged Blackbirds were more adaptable and suffered far fewer nest losses. At some sites, they moved their nesting activities from emergent vegetation in marshes to nearby riparian shrubs. Only seven of the 228 nests reported were found flooded and all of these were in sedge marshes.

Yellow-headed Blackbird nesting, however, was greatly impacted. Almost 18% of the 959 nests tallied were either sitting in water or totally immersed. Surprisingly, many of the “wet bottom” nests held eggs or nestlings, both dead and alive! Many nests were completed but not used and at some colonies adults were counted and a later survey showed no nesting activity. By mid-to late June, some sites had been abandoned and blackbirds had left the marsh.

In the Thompson-Nicola region, some Yellow-headed Blackbirds tried to avoid rising water by building new nests on top of nests used the previous year (Figure 150). About eight percent of nests were found tipped, probably from sudden gusts of wind accompanying thunder storms.



Figure 150. Yellow-headed Blackbird nest constructed on top of an old nest built in 2011. The new nest contained three well-incubated eggs. *Photo by R. Wayne Campbell, near Stoney Lake, BC, June 2012.*

Colonial-nesting Terrestrial Birds

This group of colonially-nesting birds includes several species of swallows, one of the few passerine families that nest in large congregations. The other colonial songbirds include some blackbirds and wrens that breed in wetlands. Two of the seven species of swallows, **Bank Swallow** and **Cliff Swallow** (Figure 151), are highly colonial and are rarely observed to nest alone. Three other species, **Purple Martin**, **Northern Rough-winged Swallow**, and **Barn Swallow** may nest in solitude, but locally may breed in loose colonies. **Violet-green Swallow** and **Tree Swallow** are solitary nesters.



Figure 151. At some sites in British Columbia over 1,000 tightly packed nests of Cliff Swallow may line the underside of large bridges. *Photo by R. Wayne Campbell.*

In 2012, the following notes were recorded for four colonial-nesting swallow species.

Northern Rough-winged Swallow

Northern Rough-winged Swallow continued to frequent nest sites unintentionally created by humans. This species was found nesting as isolated pairs or in colonies with up to six pairs. Sites were located in drain pipes in concrete bridge abutments (Figure 152) or in crevices between concrete blocks of retaining walls across the province, mainly along highways. See page 86 for details of an active nest site in a retaining wall within a residential area. One pair nested in a building. Only three natural sites, all in sandstone banks, were reported for the 27 nests examined in 2012.

High water levels in some rivers impacted nesting this season. For example, no swallows

were found nesting in bridge abutments at Cache Creek (see Figure 33) but the number of birds nesting in nearby retaining walls increased.

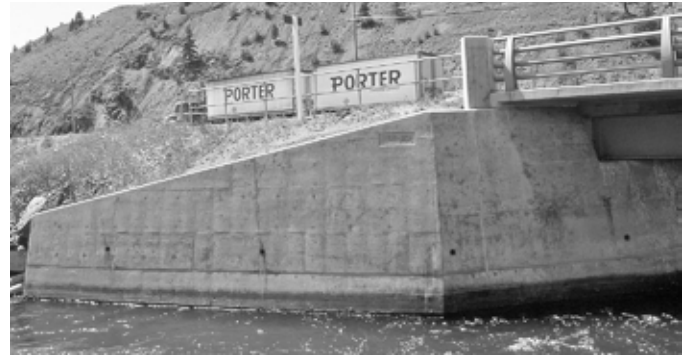


Figure 152. Five pairs of Northern Rough-winged Swallows have nested in drain pipes along this bridge since at least the late 1980s. *Photo by R. Wayne Campbell, Cache Creek, BC, 19 July 1992.*

There are conflicting reports in the technical literature on whether Northern Rough-winged Swallow actually excavates its own burrow. In the past it was assumed that the species used burrows vacated by other species and frequently used sites dug by Bank Swallows. More research is required to understand this dilemma.

Bank Swallow

One of the most neglected swallow species in 2012 was **Bank Swallow**. All nest cards reported activity at specific sites but no actual burrows were checked for nests and contents. About 12% of the 47 colonies reported were inactive and had no birds in attendance. Two sites were abandoned because they were established in low cliffs where sand was being extracted for construction activities.

Most colonies are located in sandstone cliffs and these were least affected by weather. Colonies in the low banks of rivers, however, did not fare as well. Each year, Bank Swallows nest in dirt banks along the Kootenay River in the Creston valley and in years of extreme flooding may have to abandon nesting or find alternate sites. In June, water levels were rising on the Kootenay River and by early July had reached within a couple of feet of the top (Figure 153). A week later, the flood waters receded and the Bank Swallow colony was exposed (Figure 154) with 60 burrows counted and 18 adults in the vicinity. On 6 August, 12 burrows were active with feathered young being fed by adults.



Figure 153. Unusually high flood waters on the Kootenay River. *Photo by Linda M. Van Damme, 6 July 2012.*

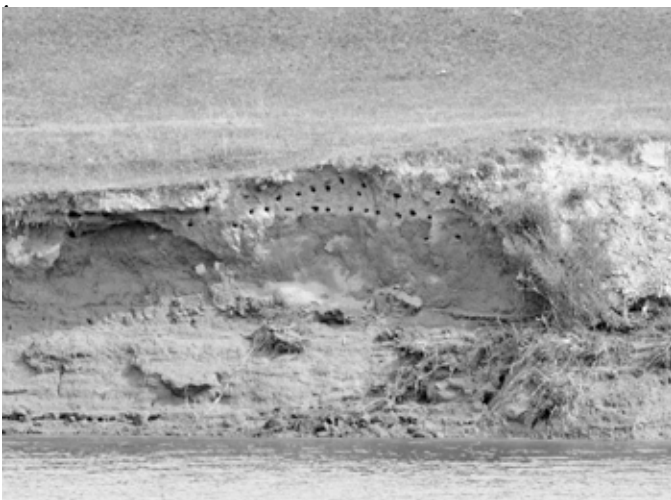


Figure 154. A week after the Kootenay River crested and receded, a Bank Swallow colony of 60 burrows was revealed. *Photo by Linda M. Van Damme, Creston, BC, 12 July 2012.*

Cliff Swallow

It was difficult to assess the impact weather had on nesting **Cliff Swallows** in 2012 because occupancy and success varied greatly. Colonies were abandoned at some sites on buildings along lakeshores (see Figure 34) yet others in more terrestrial situations, especially on ranch houses, did quite well. This may be attributed to availability of flying insects as food as well as the precise blend of mud particles required to adhere and construct nests.

In 2012, over 300 individual nests were checked using a lighted, narrow, non-invasive scope that could be inserted into the nest

entrance. Nest-building and egg-laying were slightly later from west to east and south to north. Some nests, with attendant adults, still contained eggs in early August.

As occurred in 2011, many nests in 2012 contained dead nestlings that ranged from small to well-feathered; a few had a dead adult in the nest or at its entrance (Figure 155). This mortality was again attributed to poor weather.



Figure 155. Poor weather in 2012 may have contributed to Cliff Swallow nests being found with dead nestlings and occasionally dead adults. *Photo by R. Wayne Campbell.*

In the Creston valley, high water and flooding impeded visibility access at one traditional site, although adults were active in the area. At another site, there were 14 complete and 10 incomplete nests but only three young were observed. One site which was abandoned a few years ago was re-occupied with 16 active and productive nests.

At some urban colonies, such as 100 Mile House, **House Sparrows** are usurping Cliff Swallow nests during the breeding season and using them as roost sites in winter. In 2012, seven nesting pairs of sparrows were counted in swallow nests, up from five in 2011.

Barn Swallow

Where have all of the **Barn Swallows** gone? This is becoming a familiar question across British Columbia and one which cannot be answered conclusively. The reasons for the decline are unclear but may be due to a combination of factors such as climate change; pesticide contamination on the nesting and wintering grounds; decline in populations of aerial insects;

loss of nesting habitat as old buildings, granaries, and other abandoned structures are demolished; precipitation; and local storms. Much of the trend information is based on results of the North American Breeding Bird Surveys which are not conclusive by themselves. What must also be considered is expansion in breeding range, changes in the species' breeding biology, and use of new breeding sites such as road culverts.

The number of breeding records (249) reported in 2012 was impressive and most of these were for single nests with eggs/nestlings and fledged young being fed by adults. Some colonies, however, were again visited this season. These are highlighted below.

Creston Valley

Only 13 Barn Swallow nests were monitored by **Linda Van Damme** this season. High water and flooding conditions during June and July prevented access to some traditional sites. By mid-August, 22 young at different stages of development were observed at active nests. At one site, four dead pin-feathered nestlings were found in the mud below the nest (Figure 156). At various locations throughout the valley, 52

fledged young, still dependent on adults for food, were counted (Figure 157).

One traditional/historical site on private land was lost this season when the building where the swallows nested was deemed unsafe and was therefore demolished. One new nesting location was discovered.



Figure 156. While mortality of nestling Barn Swallows may be difficult to determine, nest cards should still be completed. *Photo by Linda M. Van Damme, Creston, BC, 13 August 2012.*



Figure 157. These two fledged Barn Swallows, perched on a fallen mullein stalk over a ditch, were very vocal when an adult arrived with food. *Photo by Linda M. Van Damme, Creston, BC, 9 July 2012.*

Douglas Lake

Since 1973, Barn Swallow nest sites have been checked regularly by **Wayne Campbell** at various locations along Douglas Lake Road between Westwold and Quilchena. While many sites are on the Douglas Lake Ranch, permission was required to enter some properties. In total, 33 nests were checked, all in farm buildings. One site, an abandoned house (see Figure 145 in BCNRS 2011 report), has been checked frequently since the mid-1970s and in the 1990s reached a maximum of 12 nesting pairs. This year, eight nests were found.

Okanagan Valley

For the past nine years, **Laurie Rockwell** has been reporting annually on the success of Barn Swallows nesting on a building at **Sun-Oka Beach Provincial Park**, located 6 km south of Summerland in the south Okanagan valley. This 11 hectare park has a building complete with washroom facilities and change rooms to accommodate public recreation. The building, with exposed wooden beams, attracts nesting Barn Swallows (see Figure 146 in BCNRS annual report for 2011). It is encouraging that park staff and tourists using the facility do not interfere with the nesting swallows.

In 2012, Laurie started checking nests in late May and continued until 11 September. Seven nests were tallied and of these two used the same nest as in 2011. Up to nine well-timed visits were made to determine success. A total of 21 young fledged from six nests for an average of 3.5 young per nest. The success of one nest was not determined. Most nesting occurred in July and August. On the latest date, 11 September, two fledged young were “still hanging out at nest.”

Monitoring Nesting Birds of Prey

The BCNRS has the most complete and longest running dataset for breeding raptors in British Columbia. These data have contributed significantly to research and conservation initiatives over its 58-year existence (Figure 158). A major contribution of nest record information has been to the four-volume set *The Birds of British Columbia*. Data recorded on nest cards were essential in preparing the distribution maps and the breeding section for each species account.



Figure 158. Of the 29 species of raptors breeding in British Columbia, Osprey is best represented in the British Columbia Nest Record Scheme. Over 1.5 linear metres (5 feet) of cards have been submitted since 1956. *Photo by Linda M. Van Damme, Duck Lake, BC.*

Some of the topics included on nest record cards are especially relevant to hawks, eagles, falcons, and owls. This information helps researchers learn about their natural history and understand the criteria necessary for protection, such as:

Breeding range: delineating the geographical area within which a species breeds and documenting expansion and contraction of ranges over time.

Home range: establishing the breeding and feeding area for a species or group of different species.

Nesting range: researching an area in home range in which current and alternative sites are used in successive years.

Occupancy: determining presence in a nesting range when one or two adults, or their signs (e.g., pellets, whitewash, and moulted feathers), are repeatedly seen without discovering a nest.

Nest site: providing details of the habitat surrounding a nest and information on its

placement, structure, and materials.

Breeding success or failure: documenting success where at least one nestling fledged or an active nest where no young fledged successfully.

Productivity: recording the number of young produced annually per successful pair or female.

An example of using nest cards to monitor specific raptor nests over time was recently shown by **Linda Van Damme** in her article *Monitoring a Red-tailed Hawk Breeding Territory in the Creston Valley, British Columbia, 1998 to 2011* (see *Wildlife Afield* 9(1):3-12, 2012). Linda kept track of a well-defined **Red-tailed Hawk** breeding territory in the **Creston valley** and monitored it for 14 years. During that time, three different hawk nests were built and used by three different species (Table 1). A pair of Red-tailed Hawks (not necessarily the same birds) nested in nine of those years (64%), in three different nests. A pair of **Great Horned Owls** nested (Figure 159) in three years (21%), in two different nests, and in two years nested successfully in the same territory with a nesting pair of hawks. A pair of **Canada Geese** used three different nests in six different years (43%) and only once nested together with a pair of hawks. In the latter years, from 2009 to 2011,



Figure 159. During 14 consecutive years of monitoring a Red-tailed Hawk territory in the Creston valley, Great Horned Owl and Canada Goose also used some of the hawk nests to rear young. Photo by Linda M. Van Damme, Creston, BC.

the territory was abandoned by Red-tailed Hawks (Table 3).

Because nest cards can come under close scrutiny from researchers, the timing of nest checks should be arranged and staggered so that there is a continuous record from pair formation and nest occupancy to the adults and/or young leaving the nest.

The following nest monitoring results, listed by species, were reported by various participants in 2012.

Table 3. Species nest activity and occupancy in a Red-tailed Hawk breeding territory in the Creston valley, British Columbia, 1998-2011.

Year	SPECIES								
	Red-tailed Hawk			Great Horned Owl			Canada Goose		
	Nest A	Nest B	Nest C	Nest A	Nest B	Nest C	Nest A	Nest B	Nest C
1998	N ¹	-	-	-	-	-	-	-	-
1999	N(2Y) ²	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	N	-	-
2001	-	-	-	N(1Y)	-	-	-	-	-
2002	N	-	-	-	-	-	-	-	-
2003	N	-	-	-	-	-	-	-	-
2004	-	N	-	N(1Y)	-	-	-	-	-
2005	-	-	N(2Y)	-	-	-	N	-	-
2006	-	N(2Y)	-	-	-	N(1Y)	-	-	-
2007	-	N(2Y)	-	-	-	-	-	-	-
2008	-	N(1Y)	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	N	-
2010	-	-	-	-	-	-	-	N	N
2011	-	-	-	-	-	-	-	N	-

¹N – nest active but contents not determined.

²N (2Y) – number of nestlings (Y) observed.

Osprey

West Kootenay (Nakusp to Fauquier)

Gary Davidson sends us this report from **Arrow Lakes**: *The Ospreys nesting between Nakusp and Fauquier along the east side of Arrow Lake did not have a very successful year (Figure 160). Since I started monitoring these nests in 1994, an average of 19 nests each season reach the stage where adults are incubating eggs; this year there were 16. On average 72% of these nests produce at least one young; this year only 50% did. The average number of young that fledged from all the nests combined is 24; this year there were just 13. The only statistic that was not extremely low this year was the average productivity of those successful nests. On average the successful nests produce 1.73 young per nest; this year's successful nests produced 1.63 young per nest – a very small change.*



Figure 160. Ospreys nesting between Nakusp and Fauquier, along the east side of Upper Arrow Lake; nest is on the cross arms of transmission poles. *Photo by Gary S. Davidson.*

What caused the marked decline in overall nest success is not obvious. Water levels on Arrow Lake were higher than normal, but it's not clear how this might impact fishing ability. There is a possibility that it affected the fish however. Local observers who live on or near the area creeks report that the kokanee spawn started earlier than usual and that there appeared to be far fewer fish than normal. Perhaps when fisheries statistics become available, they may shed some light.

West Kootenay (Balfour to Waneta)

Janice Arndt writes: *Osprey monitoring this year was conducted by Elaine Moore, Emilee Fanjoy, Fred Thiessen, and Janice Arndt, with assistance from Gwen Nichol, Marlene Machmer, and Rita Wege. Reproductive success improved over last year with 12 nests producing 19 young in 2012 versus 17 young in nine nests in 2011. However, these values are still well below average, according to records kept since 1997 (Figure 161). The Osprey nest at Brilliant Bridge in Castlegar was carefully removed by the Regional District of Central Kootenay (under permit) and kept on a palette in storage while restoration work was being done on the bridge. This occurred after it was clear that the nest was not being used by Osprey this season. Following restoration activities, the nest structure was returned to its rightful location, with a few extra sticks added for good will and good measure.*

Our study area is divided into two sections, and Elaine and Emilee have provided further details for the areas that they coordinated this year.



Figure 161. High water levels throughout much of British Columbia in 2012, combined with rainstorms throughout June, made it difficult for Ospreys to find prey fish in murky waters. This likely contributed to nesting failure for some birds. *Photo by Linda M. Van Damme, Creston, BC, 6 May 2009.*

Balfour to Nelson

Elaine Moore writes: *In April, 55 Osprey nest sites were checked from Nelson to Balfour. Of these 55 sites, 26 had Canada Goose activity and seven had Osprey at them. However, only two*

of these seven sites had adult Osprey at them in late August, and none of these seven appeared to have fledged any young.

Seven completely different nests turned out to be successful nests. Of these seven, five had initially been used by Canada Geese, and all seven nests had young in them in August. There were two nests with three young each in August.

There would appear to have been 13 young that likely fledged, plus one nest that seemed to have one young, but distance made it hard to be definite and the nest was not checked again. All young seen in late August appeared either to be close to fledging or had already fledged.

Nelson to Waneta

Emilee Fanjoy writes: *The season started off with 24 nests with nesting material based on 46 locations. On the next visit we had 14 nests as potential, with Osprey standing, sitting, or bringing nest material.*

Once things settled down after all the rain, I had six nests with young. From the end of June to end of July four young disappeared. The nest at the Waneta border crossing had two young which vanished. This was confirmed by Marlene Machmer as she was in this area weekly. There was another fatality/missing of one of the two young at the nest on the edge of the highway by Waneta Mall. The nest at Crescent Valley had two young June 27 but sometime in early July one young was lost. It was reported that the young carcass was on the ground below the nest. I investigated the area under the nest and took photos and in the end the dead bird was identified as a domestic fowl. So I went from a potential of 6 nests down to 5 due to the Waneta border crossing total nest failure. Total fledged was 6. All the nests are on man-made structures. At the beginning of the season I had 7 nests with geese sitting, none of which were later occupied by Osprey.

I did have a comical situation at the Nelson sewage treatment plant. There are a number of nests near the plant, but the nest that is regularly used by Osprey was occupied by a Canada goose. An Osprey stayed in the area and even started building a new nest on top of a live power pole; I assume not liking any of the other options. In the end the goose lingered and the Osprey did not stay. There had also been a lot of activity on the nest poles in the rail-yard, but due to bad weather

or bad karma the Osprey did not sit for long and then they were gone.

Creston Valley (South Kootenay Lake to United States border)

Once again, the more accessible Osprey nests were monitored this season by **Linda Van Damme** while **Cyril Colonel** did a river trip later in the season to check nests along the Kootenay River north to Kootenay Landing. Linda sums up the season: *A combined total of 40 potential nests were checked, of which 26 were active, including one new nest site. Due to the dyke closure at Duck Lake, there was no access to check five of the active nests at the critical time so the season ended with 18 productive nests and a total of 27 young were observed, although three of these perished.*

The new de-energized pole and nest platform installed by FortisBC in 2011 in the West Creston area was adopted by a pair of Osprey (Figure 162) presumably the ones which usually nested ½ km away. Their previous pole was altered to deter the birds from nesting there.



Figure 162. A new de-energized pole installed in 2011 by FortisBC in West Creston was adopted by a pair of Osprey in the 2012 season. The supporting structure was complete with its own insulator. One young was observed at this new nest site but did not survive to fledging stage. *Photo by Linda M. Van Damme, Creston, BC, 20 April 2012.*

One nest which was occupied by a Canada Goose until 27 April was still used by Osprey but in early July before young were visible the nest fell to the ground after a big windstorm. Another site which failed for unknown reasons remained occupied by both adults until mid-August. The male was observed on 8 August delivering a fish to the female at the nest.

The Creston Valley Wildlife Management Area and Fish and Wildlife Compensation Program had a public webcam up and running on a pair of nesting Osprey. Two eggs hatched in late June but following an electrical storm in mid-July, the male was missing and the female was infrequently at the nest. The smallest nestling died in the nest while the larger one went missing. This nest has now failed in two consecutive seasons.

East Kootenay (Cranbrook, Wycliffe, Ha Ha Creek, and West Wardner)

Sheila Reynolds in her seventh season writes: *On May 20th I counted 7 active nests and 3 inactive ones. With family health matters a priority, I was only able to follow-up with the Thibeault Ranch nest near Cranbrook which fledged one young.*

North Kootenay Lake (Woodbury area)

Lorraine Symmes writes: *The Ospreys I watch just north of Ainsworth Hot Springs arrived April 22 to start prodigious nest straightening and repairs on an older nest they had used before, to the north. This seemed to work for them quite well despite extremely high water of the lake in 2012. When storm waves came up from the south, they were getting pretty wet! They were sitting on eggs by early May and fledged 2 healthy young around August 21st much to everyone's delight. In the last five years, they seem to have a surviving clutch every other year, but perhaps in 2013 they will break that pattern. Time will tell.*

Kelowna (Okanagan Valley)

For the fourth consecutive year, FortisBC, a large energy company, activated a web cam at an Osprey nest site on Benvoulin Road in Kelowna as part of their nest management program. People enjoyed the live video from April when the birds returned until August when the fledglings were airborne. The pair successfully reared three young to fledgling stage.

Live video was available at www.fortisbc.com/osprey.

Thompson - Nicola Region

Osprey nests were recorded by **Wayne Campbell** during nest-finding excursions in the vicinity of Merritt, Quilchena, Nicola Lake, Douglas Lake, Stump Lake, Kamloops, South Thompson River, and Shuswap Lake.

Twenty-two nests were checked, including two new sites. Three Osprey nests near Nicola Lake had Canada Geese nesting in them and another six were vacant. High water levels in fishing lakes and streams with opaque water made many of the waterways unavailable for foraging.

Bald Eagle

West Kootenay (Balfour to Castlegar)

Janice Arndt of Nelson continues to monitor the breeding activity of Bald Eagles in a segment of the West Kootenay (Figure 163) and has summarized the season: *2012 was a better year than 2011 for Bald Eagles nesting along Kootenay Lake and Kootenay River between Balfour and Castlegar. Of 15 occupied territories, ten nests were successful, up from just four successful nests in 2011, with 14 young raised in 2012 compared to seven young the previous year.*

The nest near our home was successful for the first time since being built in 2010. The single chick was first observed flying on July 22, and remained in the vicinity of the nest until September 11. The adults stayed on territory and one of the pair brought a stick to the nest on December 22.

Creston Valley

There are 13 known Bald Eagle territories from Kootenay Landing, south to the international border. Five eagle nests were checked aurally during March by **Cyril Colonel** and his pilot friend Bill Piper. Four nests were active with adults sitting in them. Close to fledging time, the river trip had to be delayed due to flooding and once flood waters receded only one pair was confirmed successful with two large young. Cyril checked a nest at the south end of the valley and found it inactive.

Linda Van Damme monitored six active nests, but around hatching time one nest failed. Nine

young were successfully reared in five nests. At another territory, the adults were present but not using the nest which is highly visible in a dead cottonwood tree along the Kootenay River. Later in the season a new nest was under construction in a cottonwood tree approximately 46 m (150 ft) from the river shore.

Thompson - Nicola Region

Of 10 Bald Eagle nests visited by **Wayne Campbell**, only two were occupied. One nest, east of the south end of Nicola Lake, had adult(s) present infrequently during June but the site was not used.

Bald Eagle Webcams

Webcams placed at Bald Eagle nests in southern British Columbia were popular again this season. Due to video technology, images of the bird's family life are transmitted over the Internet to a world-wide audience.

The addresses for two such webcams are: **Hornby Island** by Doug and Sheila Carrick, Wildearth TV at www.hornbyeagles.com. The Hornby Island nest was successful in fledging two young. The **Sidney** (southern Vancouver Island) webcam, sponsored by Hancock Wildlife Foundation, can be viewed each year at www.hancockwildlife.org.



Figure 163. Over the past several decades, Bald Eagle has expanded its breeding range throughout interior regions of British Columbia. *Photo by Jim Lawrence, Blueberry, BC, 24 May 2012.*

Red-tailed Hawk

Creston Valley

Linda Van Damme and **Marcia Long** independently checked 68 Red-tailed Hawk nests; of these 15 were new for the season (Figures 164 and 165). Eight of the new nests were situated in black cottonwood trees, while the other seven were in conifers (Douglas-fir, larch, and pine). The season started with 31 active nests. Visibility was obscured by foliage in two of these nests, so no further monitoring could be done. Twenty-five successful nests produced 42 young. Canada Geese and Great Horned Owls occupied 15 of the hawk nests while 22 remained un-occupied.



Figure 164. One of the new Red-tailed Hawk nests discovered this season had been built in a western larch tree and was quite visible in late winter before the needles appeared. *Photo by Marcia Long, Lister, BC, 17 March 2012.*



Figure 165. The pair of Red-tailed Hawks which built in this western larch tree produced triplets which successfully fledged. *Photo by Marcia Long, Lister, BC, 13 May 2012.*

Monitoring Nest Box Routes

In 2012, nest boxes on routes were used by **Tree Swallow, Violet-green Swallow, Black-capped Chickadee, Mountain Chickadee, Red-breasted Nuthatch, House Wren, Western Bluebird, and Mountain Bluebird.**

Nest boxes were checked regularly by **Carla Ahern, Vicky and Lloyd Atkins, Beverly Butcher, Wayne Campbell, Meredith Douglas, Ralph and Elsie Gerein, Sally Hofmeier, Pat Huet, Orié and Gloria Kolenchuk, Vi and John Lambie, Sharon Laughlin, Dirk Pidcock, Sandy Proulx, Marv and Lorna Schley, Lorraine Scott, and Marion Walker.**

In total, contents for 462 nest boxes, for eight species, were reported from five regional districts across the southern interior of the province this season.

Nest Box Notes

In addition to nest box routes, hundreds of additional nest boxes have been erected for other species of nonpasserines and passerines. Some are set up systematically around marshes while many are placed separately in widely scattered locations. Twenty-five species of birds and mammals were found nesting in these boxes. These included: **Wood Duck, Bufflehead, Common Goldeneye, Barrow's Goldeneye, Hooded Merganser, American Kestrel, Northern Flicker, Barn Owl, Flammulated Owl, Western Screech-Owl, Northern Saw-whet Owl, Purple Martin, Violet-green Swallow, Chestnut-backed Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, Pygmy Nuthatch, Bewick's Wren, House Wren, European Starling, House Sparrow, Deer Mouse** (see Figure 15), **Red Squirrel, Eastern Gray Squirrel, and Northern Flying Squirrel.**

A few people shared their experiences with us.

Dirk Pidcock from **Kaslo** wrote: *It was a brutal year for Tree Swallows in the Kootenay Lake region. Torrential rains clung to us for days at a time, setting all-time records in June, which is the critical month for swallows attempting to nest. At least 1/3 of my boxes were empty and many more had partial nests. We found no evidence of bluebirds nesting, though many were seen early in the spring and well into May. We did come upon*

a live Northern Flying Squirrel in a box at Duncan Dam. We left him/her in peace for the winter.

Lorna Schley sent us notes for the **Dragon Lake** nest box route: No second broods, a few casualties. 2007, the year we started monitoring the trail, was the best. That year we had 8 second broods, with 28 fledged from those, and 38 from the first broods. 2008 saw 40 presumed fledged. 2010 was quite dismal, with only 21 mountain bluebirds presumed fledged, but large numbers of tree swallows, 56 presumed fledged. That summer was very hot. Since 2008, we've seen only 2 or 3 second broods, and this year none.

Mountain Bluebird fledged: 1st brood: 25; No 2nd brood

Tree Swallow fledged: 1st brood: 28; No 2nd brood

Mountain Bluebird: 7 boxes, 40 eggs, 30 hatched, 25 presumed fledged

Tree Swallow: 8 boxes, 43 eggs, 28 hatched, 28 presumed fledged

The number of Mountain Bluebirds was down slightly compared to last year, the number of Tree Swallows also down.

Volunteers who checked nest boxes this season included **Marv** and **Lorna Schley**, **Sally Hofmeier**, **Orie** and **Gloria Kolenchuk**, **Marian Walker** and **Meredith Douglas**.

Beverly Butcher summarized results from her nest box trail along Dog Creek Road in the Cariboo: *A late nesting season and rain all through June as well as construction on Dog Creek road cut back my usual number of visits to nest boxes. The totals for 199 nest boxes in 2012 were:*

Tree Swallow: Used 59 boxes plus 12 in second clutches. A total of 340 eggs were laid (12 in second clutches) and 305 eggs hatched. A total of 264 nestlings fledged.

Mountain Bluebird: Used 25 boxes plus three for second clutches. A total of 97 eggs were laid (plus 12 in second clutches) and 89 total eggs hatched (12 were in in second clutches). A total of 88 nestlings fledged.

Mountain Chickadee: One box was used in which four young fledged from a clutch of four eggs.

In **2011**, fewer Tree Swallows fledged but more Mountain Bluebirds and Mountain Chickadee fledged. The totals were:

Tree Swallow: 164 nestlings fledged.

Mountain Bluebird: 124 nestlings fledged.

Mountain Chickadee: 8 nestlings fledged.

Carla Ahern writes: *The 2012 monitoring of Tree Swallow nesting boxes at the Creston Valley Wildlife Management Area (CVWMA) proved to be an adventure! Staff at CVWMA watched the water level rise daily during late spring and summer, until it reached a 40-year high in July. Sections of the trail where the nesting boxes are located were flooded. Water levels remained high until early August. Observations of eggs (Figure 166a) and young were still recorded on a weekly basis in the unusually wet conditions. As the water started to rise in June, gumboots were all that were required to check the boxes. Then, chest waders were needed. Finally, canoes were used.*



Figure 166a. An average of 5.3 eggs were found in the 76 nests along the CVWMA nest box route. Photo by Pat Huet, Corn Creek Marsh, BC, 31 May 2012.

The CVWMA Naturalists that worked at the Wildlife Interpretation Centre for the season (Stephanie McDowell, Miles Minichiello, Angalea Thom, and Morgan Davies) were more than happy to load up canoes with their gear and paddle their way to the flooded sections to check the boxes. The average height of these boxes is only about 1 m above the ground. Fortunately, out of all the boxes (68), only one was recorded to have

water that reached just over the bottom of the box, making the nest quite damp. All other nests survived the high water, although several were within centimetres of being inundated. Stinging nettle also proved to be an obstacle near a few of the boxes, as it grew to height of 4 feet and was quite dense by midsummer. Wading through this stuff in shorts was a “no go!”

Carla Ahern (CVWMA staff) and Pat Huet (volunteer) also helped to monitor the boxes in the spring and early summer, but left the adventurous canoeing to the CVWMA Naturalists, who were all keen and eager university students (Figure 166b).

Of the 68 boxes checked on the route, 62 were occupied. There were a total of 76 nests in the season which resulted in 410 eggs, 289 hatched young and 222 successfully fledged young. Re-nesting, mostly due to nest failures, occurred in 14 of the boxes. It was the most successful year on record since the regular monitoring started in 2008.



Figure 166b. Morgan Davies, a seasonal naturalist at the Wildlife Centre, had to use a canoe to reach nest boxes during flooding in the Creston valley in 2012. Photo submitted by Carla Ahern.

Notes from the Field

Part of the enjoyment of time in the field is the unexpected events that surprise, shock, and entertain us. A few stories from participants as they occurred in 2012 follow:

Intimate with a Family of Owls

Tobi Tucker, who lives near **Springhouse** in the Cariboo, had the rare privilege of finding a **Great Horned Owl** nest and being able to watch the family’s activities for four months on her grandmother’s property. Tobi wrote: *I was so fortunate to be able to photograph and video them throughout their time with us. They were amazing parents and it was fun to watch the young develop from owlets to juveniles and then to see them on their own.* She chronicled the event with photographs (Figures 167 to 172) and the highlights which follow.



Figure 167. Mid-March – Location of Great Horned Owl nest (top centre) about 12.2 m (40 ft) up in an old Red-tailed Hawk nest in the crotch of a trembling aspen tree. Although the nest was not found until mid-May egg-laying probably started about mid-March.



Figure 168. *May 12* – The female Great Horned Owl is in the nest with two nestlings about three weeks old.



Figure 169. *May 24* – The nestlings, about 4 ½ weeks old, are showing well-defined ear tufts.



Figure 170. *June 4* – The young move out of the nest to nearby branches for the first time when about six weeks old. They are about three-quarter full grown. In another week or so they can fly short distances. By week 10, the young can fly really well.



Figure 171. *July 10* – For several weeks after fledging, the young remain close to the parents. Tobi could easily identify each young, as one was much lighter than its sibling.



Figure 172. *August 15* – By this time only a loose family association is evident and the parents usually roost away from their offspring. Adults may occasionally bring food to young and leave it for them to tear apart and eat.

A GRATEful Rescue

Ted Hilary sent us a newspaper clipping published **May 2, 2012** in the *Salmon Arm Observer* about a family of trapped **Mallard** ducklings. **Tracy Hughes**, who wrote the article and is editor of the newspaper, gave us permission to reprint it.

A mother duck and her 11 babies were reunited thanks to the effort of local citizens and a member of the Salmon Arm Fire Department. Kathy Reed and Amanda Brown were taking a walk on Lakeshore Drive during a break from work on Friday, April 20, and spotted an obviously agitated duck. "She was quacking, pacing and jumping up and down off the curb into the road," says Reed. "We couldn't understand it until we got closer and there they were in the storm drain."



Figure 173. Eleven Mallard ducklings, rescued from a storm drain in Salmon Arm, were reunited with their mother. *Photo by Amanda Brown.*

All 11 ducklings had fallen through the metal grate into the storm drain near the Marine Park Drive crossing. "The poor mother, she was just beside herself. She was frantic to the point of exhaustion. But she really seemed to understand that we were trying to help her," says Reed.

While Brown called the city for advice, help came along by chance. Salmon Arm fire prevention officer Jim Nickles happened to be driving by and saw the scene. "I saw the duck and these ladies, so I pulled over and sure enough there they all were... It's funny how every single one of them just followed each other right down the hole into there."

Nickles grabbed a plastic bin and was able to lift the metal grate and scoop out the babies. "Once the mother knew we had them (Figure 173) and they were in there, she just followed me across the tracks [train] down to the marsh where we let them go," he said.

"It was a good feeling."

Chocolate Ducklings – What Happened Here?

Sardis Park is an urban Chilliwack recreational area with a 5 hectare pond and encircling foot path. On **7 June 2012**, while walking along the perimeter trail, photographers **Bruce** and **Joanne Clayton** spotted an unusual family of **Mallards**. The female had a dark head and all of the ducklings had a chocolate plumage (Figure 174). There are several duck farms in the Chilliwack area and often birds escape and intermix with wild Mallards. This may explain the origin of the all-chocolate ducklings.



Figure 174. Female Mallard with brood of five all-dark ducklings. The brood is likely the result of a domestic duck breeding with a wild Mallard. *Photo by Joanne Clayton, Sardis Park, Chilliwack, BC, 7 June 2012.*

A Provincial Record

Finding a **Long-eared Owl** nest is always a memorable event and having it located within a couple of minutes from your house is a real bonus. **Kris Andrews** took advantage of a nest site on **Scout Island** at Williams Lake to document the growth and departure of a family of nine owls. She restricted her checks to late May and June when young were developing and disturbance would be minimal. During early July, all owls had left Scout Island.

The clutch size was not determined but a count of six young, with another heard begging from a hidden perch, established a brood record for British Columbia. The number was confirmed when **Rick Dawson** and **Margaret Waring** observed seven young owls in a juniper grove on Scout Island late in the evening on or about June 19. Six fledged young was the previous maximum number of young in BCNRS files with three or four the average for the province.

In British Columbia, Long-eared Owls feed primarily on Meadow Voles that inhabit open grass-sedge habitats. There is an open grassy area at the west end of Scout Island where vole runs are observed in the grass after the snow melts in spring. Other suitable vole habitat is scarce on Scout Island with some habitat across the Williams Lake outlet from Scout Island at the RC Cotton Site and along South Lakeside Drive around the old stockyard. Small birds, however, may be important in the diet at some sites.

In North America, 10 eggs is the maximum clutch size for Long-eared Owl and the average number of eggs laid ranges between four and five eggs. Usually only three young fledge.

Kris kept detailed notes and documented her experience with many photographs and commented “this was an amazing event to witness from almost start to finish.” A few of her photographs (Figures 175 to 179) are listed below.



Figure 175. *May 24* – Wooden walkway on Scout Island at entrance to Long-eared Owl nesting habitat of thickets of mixed tall shrubs with scattered juniper trees. A male flushed from a tree on 28 April. A female was sitting on the nest on 9 May.



Figure 176. *May 25* – The well camouflaged nest (centre) was on a broken-over juniper tree that provided a sturdy base. The site was surrounded by a tangle of tall shrubs.



Figure 177. *June 3* – The male Long-eared Owl roosted near the nest, which at this time often had an attendant female with her multiple nestlings.



Figure 178. *June 7*– At about 21 days old, owlets started moving from their nest to nearby branches where they spent the next two weeks before they started to have limited flight. During this period, they were fed mostly by the male parent.



Figure 179. *June 20*– During the third week of June, the first owlet to hatch and leave the nest started making short flights within the nesting territory. The facial disk and wing feathers were now well developed.

A Hammer, A Few Nails and Duck Eggs

Since the early 1960s, over 10,000 nest boxes for bluebirds, swallows, and ducks have been installed in a variety of habitats throughout the province. Many of the boxes are not maintained each year and some are not securely attached. **Wayne Campbell** learned early that standard equipment for each nesting season must include a screwdriver, pliers, a hammer, nails, and some thin wire for box repair and maintenance.

In June 2011, while surveying wetlands near **Savona**, several duck boxes had been set up on trees around a bulrush marsh a few years ago and one in particular had the bottom hanging down and could not be used. Otherwise, it was in good shape. The plywood bottom was re-attached and it was hoped it would be used by some cavity nesting duck species. The following June (2012), a female **Barrow's Goldeneye** was incubating six eggs in the repaired box!

Where is the Killdeer Nest This Year?

During nesting season, **Killdeers** have adapted well to some forms of human development, especially roads with gravel edges, early clearing for construction sites, gravel parking lots, and parks with gardens and gravel walking paths. Each breeding season a nest is found in these sites and once discovered everything is done to protect it from disturbance and damage. **Vicky Atkins** alerted us to an on-going activity by staff at the Swan Lake Recreation Resort in **Vernon**. Each year, before mowers are used, a search of lawns is made for the Killdeer nest. Once spotted, the nest is flagged (Figure 180) and mowing activities skirt the site until the eggs hatch and chicks leave. In 2012, the strategy was successful (Figure 181).



Figure 180. Flagged Killdeer nest with three eggs found on a lawn in the Swan Lake Recreation Resort in Vernon. *Photo by Vicky Atkins, 11 June 2012.*



Figure 181. The pair of nesting Killdeer accepted their piece of protected property and on 2 July three chicks were in the nest. *Photo by Lloyd Atkins, Vernon, BC, 2 July 2012.*

A Woodpecker Nest and a Bear

While birding near **Takla Lake** in central BC on **25 June**, **Nancy Krueger** and **Karen Krushelnick** recorded the following notes on a nest card: *One adult [Northern Flicker] entered cavity & exited again. We were too far away to hear young. We first saw this lone tree from a great distance & a black bear was trying to gain access to the nest. This makes me [Nancy] think he could hear young inside. This photo (Figure 182) shows his scratch marks but it is kind of dark. He was sitting on these spindly branches. It was awhile after he left that the adult NOFL flew into the cavity.*



Figure 182. The cavity in this trembling aspen tree, located in a replanted pine and alder habitat, may have contained noisy nestling Northern Flickers that attracted the attention of a passing Black Bear. *Photo by Nancy Krueger, near Takla Lake, BC, 25 June 2012.*

A Lone Runt

Most eggs within a clutch are consistent in size, shape, pattern, and colour. Occasionally, much smaller eggs are found and the cause for such variation is unknown. **Vicky Atkins** reported and photographed a single runt egg in a **Tree Swallow** nest near **Vernon** (Figure 183). Such eggs usually lack yolk and any sort of embryonic membranes and do not hatch. The incidence of runt eggs in some species is increasing and therefore should be documented. Runt eggs have rarely been found in normal clutches of Tree Swallow in British Columbia.



Figure 183. This abnormal Tree Swallow egg is only about 0.8 mm in size, less than half the size of a normal egg. Photo by Vicky Atkins, Roses Pond, Vernon, BC, 28 June 2012.

A Clever Crow

Doug Wilson, a biologist with the Ministry of Forests, Lands and Natural Resource Operations in **Prince George** wrote on **19 June**: *We had a pair of house finches set up house at our office at 18th and Ospika this year. When I checked the nest, in an ornamental cedar tree on the west side of our building, around the third week of May, there were 4 eggs in it, and both adults were around and defensive. Sometime in the last 2 weeks, Bill Arthur, whose window looks onto that cedar, observed a crow flying from one cedar to the next, systematically (and there are 10 or 12 of them on that side of the building). He'd land on the top of one tree after another, and "bounce around", as Bill put it, presumably to see what might flush out. And sure enough, he found the cedar with the finch nest in it, the female flushed off, and the crow moved in, and*

presumably devoured the nestlings in there. When I got to the nest last Friday, it was lying on edge halfway out of the tree, empty, and the parents were nowhere to be seen. Maybe they'll "recycle" and lay again, maybe not....I just thought the technique was interesting; I'd thought they were more subtle about it (crows, that is), watching for parents flying back to the same place, carrying food, that sort of thing. I guess this is why crows are so successful!

No Time to Work

Lee Foster sent this account of a working day in the vicinity of **Vanderhoof**: *While travelling to do some woodlot work in Vanderhoof today [4 July] I started things off right with a Red-tailed Hawk sighting just west of town. But wait I think that hawk is carrying a mouse. Better pull over on the highway and see if it carries it to a nest. I pulled over and what does the Redtail do but continue to hunt with a mouse in its mouth. I thought that is unusual but then realized if there is a bunch of hungry ones back at the nest bringing one mouse back might create some problems. I went another few miles and there was a hawk with a lot of white on it sitting on a telephone post. I pulled over and give it a good look, hmm sure does not look like a Redtail. Then it lifts off and starts soaring showing a dark bib and light tail. I check my Audubon app on my HP touchpad and it is a dead ringer for a Swainson's Hawk.*

I parked the pick-up about 1/2 mile from my destination as the road is too narrow and bushy and decide to have an early lunch. (Good thing I work for myself or this birding would get me fired). No sooner did I get out of the truck when I heard a ca-ca-ca fairly near in a mixed-wood stand that is about 18 meters high. This calling persisted and I am thinking Sharpshin. I play the sound on my app and it is close but not right. I go in for a closer look and see not one, but two Cooper's Hawks. I am thinking this is going to be good, there has got to be a nest nearby. I go back to my books and it says the nest is always situated 20 feet or more in a tree but did not mention the preferred tree species. I guessed spruce or pine and started scouring the woods. Finally, I find a nest (Figure 184) and check the base of the tree; sure enough, some whitewash was there. I decided to climb the tree and take a picture for proof. About 4 feet off the ground the female Cooper's Hawk comes at me with vengeance and a lot of noise. To my

surprise a young hawk falls out of the tree, way too young to be out of the nest. Meanwhile I am trying to figure out how that happened as the tree is a 10 inch spruce and I am sure I did not shake it. I climbed back down and checked the young. It is mostly covered with white down with some feathering starting and is about the size of a man's fist.

Now, I am in a pickle as the young hawk needs to be back in its nest and my climbing abilities are shaky at best and not as easy as when I was in my teens. Besides, these hawks come with ready-made claws that appear sharp as razors. I come to the conclusion that climbing with a hawk in one hand is likely not going to work, so I find an extra shirt in my truck to transport the nestling. I put the hawk in the shirt and tie the neck of the shirt to the tail (of the shirt) and tie the arms around my neck with the hawk then hanging on my back. I then hope this all holds together while I climb what I later measured to be 24 feet up. With my adrenalin soaked legs, I make it up the tree thanks to additional cheering from the parents. To my surprise, the nest is loaded with baby hawks, including the one I brought up for a total of 5 (Figure 185). I am thinking this may be the furthest north nesting record for this species on the west side of the Rocky Mountains.



Figure 184. Cooper's Hawk nest (top centre) built on a limb of a spruce tree. Photo by Lee Foster, south of Engen, BC, 4 July 2012.



Figure 185. Five young Cooper's Hawks in their stick nest. Photo by Lee Foster, south of Engen, BC, 4 July 2012.

Wayward Young

On July 21st, **Joyce Keen**, who lives in **Creston**, had a little crisis to solve when four downy **Mallard** ducklings, without a mother, walked into a storage shelter near her house. Joyce decided to catch the wayward ducklings and put them in a pail of water. Not long after, Mother Mallard showed up in Joyce's garden with three little ones, so Joyce re-united the family. The Mallard hen was last seen with all seven of young busy feeding in the garden.

Bringing Western Bluebird Back to Vancouver Island

Western Bluebird was last known to nest on **Vancouver Island** in 1995 and recently attempts to re-establish the species has been a project of the **Garry Oak Ecosystems Recovery Team**. On 6 September, **Kathryn Martell** posted the following summary of their efforts for 2012: *It's been a busy season for the Western Bluebird Reintroduction Project, based in Cowichan. We translocated 4 adult pairs, 2 of them with nestlings, and they not only successfully fledged all 9 of these first clutches but one pair nested at the Cowichan Garry Oak Preserve and reared a 2nd clutch of beautiful baby bluebirds. The bluebird family from the preserve was last seen August 29th on Mount Tzuhalem.*

Residential Living

For the past five years, **Gary Breault** has had Northern Rough-winged Swallows nesting in crevices in a concrete retaining wall of an apartment complex he designed and built within the town limits of Creston (Figure 186). While Gary enjoys having the nesting swallows, he knows that there may be times when they need a bit of help. He shares the following experience: *On June 19th, this little one (Figure 187) was found at the bottom of the block wall by my daughter. She had heard it chirping and tracked it down. Not knowing what to do or if it would fly or not she brought it to me for advice. With the help of the picture I had taken, I was able to show her where the nest was in the block and she set it back there.*



Figure 186. Northern Rough-winged Swallows have recently taken advantage of nest sites provided by concrete retaining walls in urban and residential areas. *Photo by Gary Breault, Creston, BC, 27 July 2012.*



Figure 187. This young Northern Rough-winged Swallow, found below its nest outside a concrete retaining wall, was captured and returned to its nest for protection. *Photo by Gary Breault, Creston, BC, 19 June 2012.*

A Modern Day Noah

Roy Walker, a farmer in the **Creston valley**, was concerned about rising flood waters in his hay pasture where he had placed a swallow nest box on a pole. The pasture was covered with 2.4 m (8 ft) of water (Figure 188). He decided to check the nest box (Figure 189) by canoe and discovered a family of young **Tree Swallows** inside. Since flood waters were still rising, Roy raised the box so it would be well above the water level. As he canoed away, he observed the adult flying back to the box. He commented: *They go to so much trouble to raise their family it's not their fault the area flooded, so why should they lose their young.*



Figure 188. An overview of the flooded hay pasture where Roy Walker had a pair of Tree Swallows nesting in a box. *Photo by Linda M. Van Damme, Creston, BC, 17 July 2012.*



Figure 189. Precariously close to being flooded, Roy Walker raised this nest box to allow a pair of Tree Swallows to nest successfully. *Photo by Linda M. Van Damme, Creston, BC, 17 July 2012.*

Publications in Short

With the addition of electronic ornithological journals to our library, as well as remaining hard copy publications, we find it nearly impossible to keep abreast of current literature. The eight articles summarized below provide a cross section of information that we have wondered about or experienced during field time.

Deterring Pesky and Messy Cliff Swallows

Over the decades, **Cliff Swallows** have moved their nesting colonies from traditional rocky cliffs to the undersides of bridges, houses, barns, cottages, culverts, and even office buildings in cities. Because they are protected under the Migratory Bird Treaty Act of 1918, it is illegal to disturb nests during the breeding season. Deterrents to discourage nesting have included hanging nets and strips of flagging tape over potential nest sites, to smearing grease and oil so nests cannot be attached. Depending on the location, nest sites can be messy (Figure 190) and because of the bird's protected status, active colonies can delay construction and maintenance of bridges and other building projects.



Figure 190. Nesting colonies of Cliff Swallows established under the eaves on rural cottages and homes can quickly create an unpleasant mess on walls and decks. *Photo by R. Wayne Campbell.*

Cliff Swallows are tenacious to their nest sites each year and are therefore difficult to remove. Michael J. Delwiche and his colleague from the University of California at Davis published a paper, ***Improved methods for deterring Cliff Swallows nesting on highway structures*** (*Human-Wildlife Interactions* 4:293-303, 2010) that provides methods for solving this growing

problem. They found that by applying a silicone-based paint to the vertical surface of highway structures before the swallows arrive and playing alarm and distress calls prior to and during early nesting attempts nesting is significantly reduced.

A Use of Discarded Cigarette Butts

In some North American cities, streets laced with cigarette butts may have a useful purpose for nesting birds by serving as insect repellents. Monserrat Suárez-Rodríguez and her colleagues at the Universidad Nacional Autónoma de Mexico found a relationship between the numbers of cigarette filters in **House Sparrow** (Figure 191) nests and the number of nest mites. The fewer butts, the more parasitic mites. The researchers attributed this to nicotine and other chemicals found in cigarette butts. The research was carried out in the field and in the laboratory.



Figure 191. Be on the lookout for a House Sparrow with a cigarette butt in its bill. In Mexico City, the urban species gathers them as nest material which may discourage parasites. *Photo by R. Wayne Campbell.*

The article, ***Incorporation of cigarette butts into nests reduces nest ectoparasite load in urban birds: new ingredients for an old recipe?*** *Biology Letters* 9 (1) 20120931-20120931. DOI:10.1098/rsbl.2012.0931 (2012), is available on-line.

Because cigarette butts appeared in 90% of nests analyzed in Mexico City, we looked at nesting materials used by House Sparrows in British Columbia. Although nests contained a wide variety of human-made items, from plastic and string to dried manure, no cigarette butts were recorded!

Green Plants in Nests – Why?

For decades, egg collectors have noticed fresh sprigs of twigs and other new greenery in nests of birds of prey (Figure 192). The material is not part of the structure of the original nest and is most often found, well-placed in or around the rim of a nest. Often, the new green plant material is replenished during incubation and the nestling period. The purpose of adding such material was not fully understood.



Figure 192. Pieces of new greenery snapped from branches and stems of trees and large shrubs, and purposely added to the nests of many birds of prey, including Osprey, may repel ectoparasites during the breeding cycle. *Photo by R. Wayne Campbell*

Peter Wimberger, in his article *The Use of Green Plant Material in Bird Nests to Avoid Ectoparasites* (*Auk* 101:615-618, 1984) suggests that the plants are put in nests to repel or kill avian ectoparasites. These parasites include mites, fleas, and lice that live on the outside of the skin and feather follicles, and since they depend entirely on their host for nourishment can seriously affect nestling mortality and may lead to nest desertion. Wimberger hypothesized that “the plant species chosen should be aromatically repellent, because avian ectoparasites do not ingest these leaves.” The pieces of trees and long-lived shrubs contain and emit the highest volume of aromatic compounds (e.g., monoterpenes and isoprenes) and hence are most often found in nests.

The researcher cautions, however, that further field tests are required to demonstrate conclusively whether fresh plants placed in a nest actually kills ectoparasites. He also emphasizes that it is important to identify the plant species as there may be regional differences in use and success.

Northern Pygmy-Owl: Does Size Matter in a Pair?

Large body size in owls is generally assumed to give an advantage to a species’ success in raising a family. Two researchers, John Deshler and Michael Murphy, explored this notion by studying the breeding biology of individual pairs of **Northern Pygmy-Owl** (Figure 193) near Portland, OR. Their results, published in the paper *The Breeding Biology of the Northern Pygmy-Owl: Do the Smallest of the Small have an Advantage?* (*Condor* 114:314-322, 2012) were revealing. Smaller female owls bred earliest, sometimes up to three weeks, and when mammals dominated their diet in a particular year, they nested the earliest. The merits of large or small body size “may vary with stages of the breeding cycle and ecological conditions.”



Figure 193. Recent research has showed that small rather than large female Northern Pygmy-Owls bred earliest, especially when small mammals were a major component of their diet. Nest success rate was also high (92%). *Photo by Linda M. Van Damme.*

Surprising Outcome for Oiling Double-crested Cormorant Eggs

The rapid increase in populations of **Double-crested Cormorant** across North America has raised concerns about guano deposits damaging forest ecosystems at nesting colonies and the impact in reduction of local fish abundance due to consumption by these birds (Figure 194). A variety of different control measures, including shooting, have been used over the years and recently oiling of eggs has been tested. Three biologists in Ontario, led by Mark Ridgway, published their results in a paper ***Response of Double-crested Cormorant to a Large-scale Egg Oiling Experiment on Lake Huron*** (*Journal of Wildlife Management* 76:740-749, 2012). The results were surprising.

The control program involved spraying clutches of eggs with a white mineral oil. At some sites in Georgian Bay, nest abundance declined but at another colony, nest abundance actually

increased in spite of egg oiling. The biologists attributed the increase to availability of fish escaping from a nearby pen-rearing facility.

World's Oldest Documented Wild Bird Still Breeding

The Ornithological Newsletter, a communication publication between six major ornithological societies in North America, recently announced the following incident:

“Wisdom, a Laysan Albatross thought to be at least 62 years old, has hatched a chick at the Midway Atoll National Wildlife Refuge [northwestern Hawaiian Islands]. Wisdom was first banded in 1956 while incubating an egg and was estimated to be at least 5 years old (that is the minimum age of reproduction, though age 8 or 9 is more typical). Since then, according to Bruce Peterjohn, she has worn out 5 bird bands, logged an estimated 50,000 miles in flight, and produced 30-35 chicks.”



Figure 194. In British Columbia, the largest tree-nesting colony of Double-crested Cormorants occurs in the Creston valley where conflicts between sport fishermen and conservationists are developing. *Photo by Linda M. Van Damme.*

Older is Better for Reproduction in Steller's Jays

Researchers from Humboldt State University, CA, were interested in the annual reproductive performance of Steller's Jays from the perspective of a male and female within a pair. They found that older individuals of both sexes performed better each year. Also, if males were in better body condition after the winter, they were able to invest more in reproduction than females that lost more to body mass. Pia Gabriel and Jeffrey Black suggested that "experience and compatibility" are important traits for success in nesting Steller's Jays (Figure 195).

Additional information is available in ***Reproduction in Steller's Jays (Cyanocitta stelleri): Individual Characteristics and Behavioral Strategies*** (*Auk* 129:377-386, 2012).



Figure 195. Within a nesting pair of Steller's Jays, older individuals, experience, and compatibility are important traits for successful nesting. *Photo by Mark Nyhof.*

Trampling Livestock and Grassland Nesting Birds

Some alarming figures have recently been brought to the attention of conservationists and wildlife managers by biologists T. Johnson and colleagues in their paper ***Nest Success and Cause-Specific Nest Failure of Grassland Passerines Breeding in Prairie Grazed by Livestock*** (*Journal of Wildlife Management* 76:1607-1616, 2012). They reported that grass prairie habitats have declined by 80% in North

America since the 1800s and by 99% in the Pacific Northwest. It is also one of the least protected of all habitats. With this in mind, there is growing concern about the impact that livestock grazing may be having on ground-nesting birds (Figure 196).

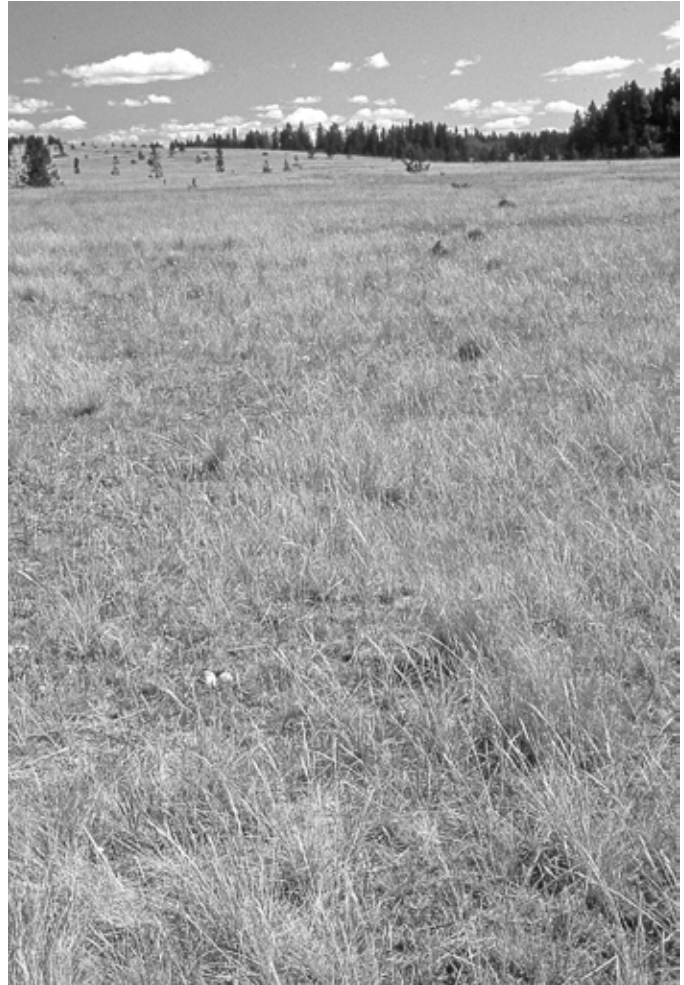


Figure 196. In the early 1980s, a Long-billed Curlew nest with eggs found on Bechers Prairie, near Riske Creek, BC, was trampled by feeding cattle. *Photo by R. Wayne Campbell.*

In 2007 and 2008 the researchers carried out experiments to determine the fate of Savannah Sparrow and Horned Lark nesting success in northeastern Oregon. They determined that free-range cattle and horses may influence nest failure by affecting vegetation structure, functional responses of predators, or directly by trampling nests. They concluded that trampling events were too infrequent to test properly but acknowledged they did occur. They recommended, however, that the "most effective conservation strategies for improving nest success will involve decreasing risk of nest predators."

Requesting & Submitting Cards

All enquiries, including requesting and submitting nest cards and requesting copies of annual reports, can be sent to the address below.

BC NEST RECORD SCHEME
3825 Cadboro Bay Road
PO Box 55053
Victoria, B.C. V8N 6L8

Tel\Fax: (250) 477-0465
e-mail: bcfws@shaw.ca

Two kinds of cards are available: **single nesting species** with spaces for multiple visits and **colonial cards** for species that nest in groups, usually close together. An **Instruction Manual** is also available, at no charge, from the address above. Because the authors take time out for fieldwork, we suggest that you request material before mid-May.

The BCFWS web site (www.wildlifebc.org) presently has instructions and materials available to participants for downloading.

The data summaries, writing, and compilation of the annual report actually begins with the new year as volunteer time allows so that the report can be published and distributed in the spring or summer of the year following the nesting season. We prefer to have nest cards completed and submitted by October 1 so the task of compiling the breeding records can be completed by the end of the year.

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

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

Even nest records of common species such as **Canada Goose, Mallard, California Quail, Northern Flicker, Barn Swallow, Black-billed Magpie, Northwestern** and **American Crow, American Robin, Song Sparrow, Dark-eyed Junco** and **House Finch** and introduced species such as **Rock Pigeon, European Starling,** and **House Sparrow** are extremely valuable. Often, these are the only species, because of sufficient numbers, that researchers can analyse with some statistical confidence. When a large number of nests for a single species are found in a nesting season, such as Rufous Hummingbird in 2012, it is helpful to document each nest with a photograph (Figure 197).

Please use a dark ballpoint pen or dark ink (not pencil) and write clearly.

We appreciate receiving completed cards as early as possible. This gives us a “jump start” on the report.

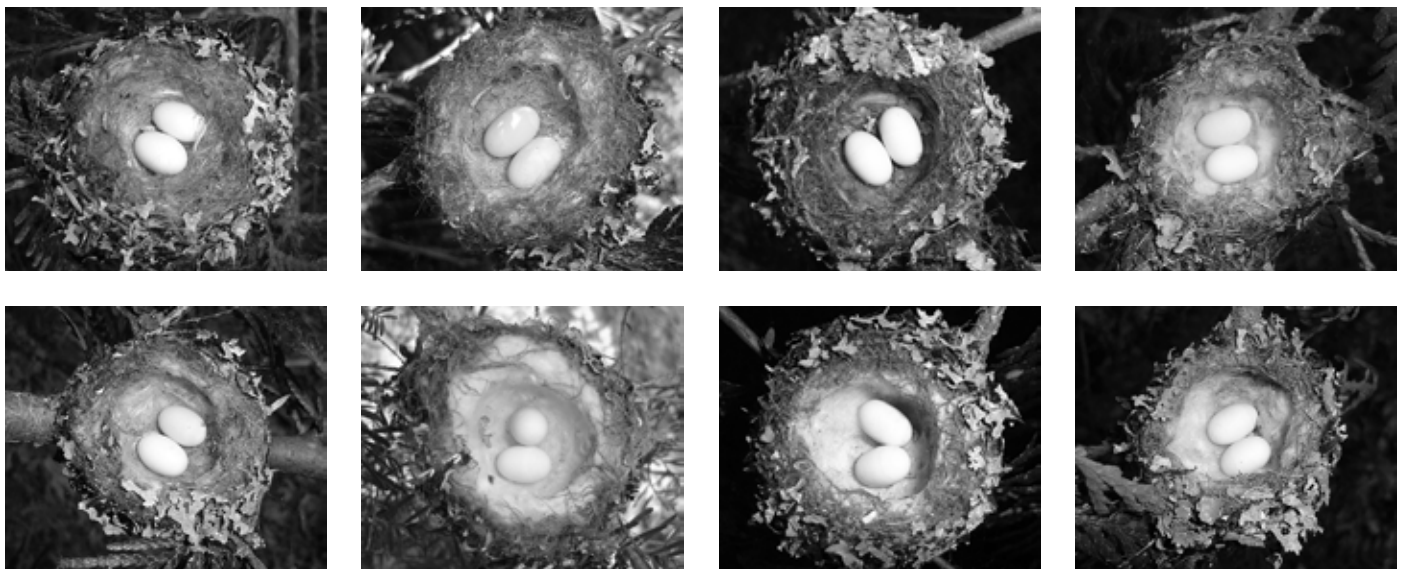


Figure 197. On the south coast, Rufous Hummingbirds prefer to saddle their nests on the outer branches of coniferous trees, usually less than 2.4 m (8 ft) above ground. *Photos by Mark Nyhof.*

Updates and Acknowledgements

A major personal project by **Eileen Campbell**, started in earnest about three years ago, was completed in 2012. This involved sorting (Figure 198), compiling, and filing hundreds of thousands of nest cards by species and then chronologically within a National Topographic Grid. Today, the BCNRS occupies seven large metal microfiche cabinets each with 10 drawers and three 10 cm x 15 cm x 71 cm (4 in x 6 in x 28 in) files per drawer (Figure 199). This totals to about 150 linear metres (490 feet) of nest cards!



Figure 198. Eileen Campbell sorting nest record cards by species and map grid for filing in the master BCNRS collection. *Photo by R. Wayne Campbell, September 2012.*

The annual report has grown in size and content over the past decade and now requires the cooperation of many people to produce. First and foremost we want to acknowledge the efforts of 308 participants in 2012 who recorded their findings on standard nest cards. While electronic data entry has started, the paper cards contain more information than can be transferred to digital files. Some of the important information we receive each year includes behavioural observations, diagrams and maps, photographs, and detailed descriptions of habitats. Paper is forever; technology is changing so fast that electronic databases regularly require new programs to access and analyze the information.

Eileen Campbell and her father **James McCammon** sorted incoming nest record cards by species and contributor in preparation for the report. The task started in September 2012 and continued into February 2013 when a few late cards were received. Eileen also entered all records by species code, map grid, year, number of breeding records, and name(s) of contributors onto data forms and then electronically into Excel worksheets for analysis.



Figure 199. This is one of seven microfiche cabinets containing an estimated 90,000 BCNRS cards. *Photo by R. Wayne Campbell.*

Vicky Atkins read a pre-publication draft of the entire report. We appreciated the efforts of many individuals who volunteered time to contribute text, provide additional information when asked, send photographs, edit sections of text, and provide encouragement. Some of these people, and their contributions, included:

Colonial-nesting Birds: Vicky and Lloyd Atkins, Marc André-Beaucher, Ed and Monica Dahl, Ted Hillary, Laurie Rockwell, Walter Scott, Richard Swanston, and Bob Woodward.

Long-term Inventory and Monitoring Projects: Janice Arndt, Cyril Colonel, Monica and Ed Dahl, Gary Davidson, Emily Fanjoy, Ted Hillary, Marcia Long, Elaine Moore, Sheila Reynolds, Laurie Rockwell, and Lorraine Symmes.

Nest Box Trail Notes: Carla Ahern, Beverly Butcher, Dirk Pidcock, and Lorna Schley.

Notes from the Field: Kris Andrews, Vicky Atkins, Gary Breault, Joanne and Bruce Clayton, Lee Foster, Ted Hillary, Joyce Keen, Nancy Krueger, Karen Krushelnick, Tobi Tucker, Roy Walker, and Doug Wilson.

Incidental Events: Vicky Atkins, Hilary Gordon, and Ted Hillary.

The generous use of pictures throughout the report was made possible from the cooperation of many photographers willing to share their images of breeding birds. Each photographer has been acknowledged in each of the **201** published photographs.

The entire publication, from cover design, preparing the photographs, and layout, was completed by **Mark Nyhof**, a task that took many weeks of volunteer time. **Ted Ardley** kindly

allowed us to use his photo of the Barred Owl fledglings on the back cover. More of Ted's photos can be found at <http://www.flickr.com/photos/tardley/>. The front cover images were donated by Mark Nyhof.

The annual report is a permanent record of the breeding activities of birds, and the experiences and commitments of volunteer participants, for 2012. To produce such a comprehensive report requires many volunteer hours from when the first nest record card is received until the final proof-reading of the manuscript. Biologists, researchers, consultants, naturalists, and writers are referencing these reports because of the unique collection of field observations and summaries that are presented.

We are hoping for more normal weather in 2013 and trust the nesting season will be filled with memories and discoveries. †



Photo by Vicky Atkins, Vernon, BC, 22 May 2012.

This report may be cited as:

Campbell, R.W., L.M. Van Damme, M. Nyhof, and P. Huet. 2012. British Columbia Nest Record Scheme, 58th Annual Report. Biodiversity Centre for Wildlife Studies Report No. 16, Victoria, BC. 112 pp.

Appendices

Appendix 1. Plumage Development of Young Waterfowl



*Class I A, young are down-covered,
1-7 days of age*



*Class I B, young down-covered
but colour fading,
8-13 days of age*



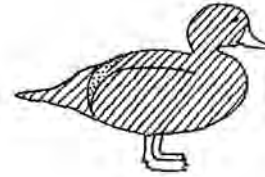
*Class I C, young down-covered
but colour faded, body elongated
14-18 days of age*



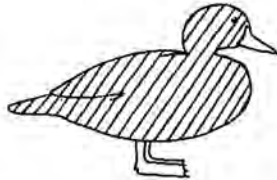
*Class II A, first feathers appear
replacing down on the sides & tail
19-27 days of age*



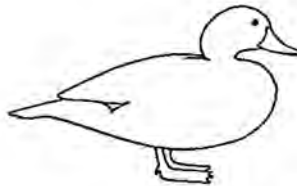
*Class II B, over half the body covered
with feathers
28-36 days of age*



*Class II C, small amount of down
remains among feathers of back,
37-42 days of age*



*Class III, fully feathered but incapable of
flight, 45-55 days of age,
flying at 56-60 days*



Adult Dabbling Duck

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

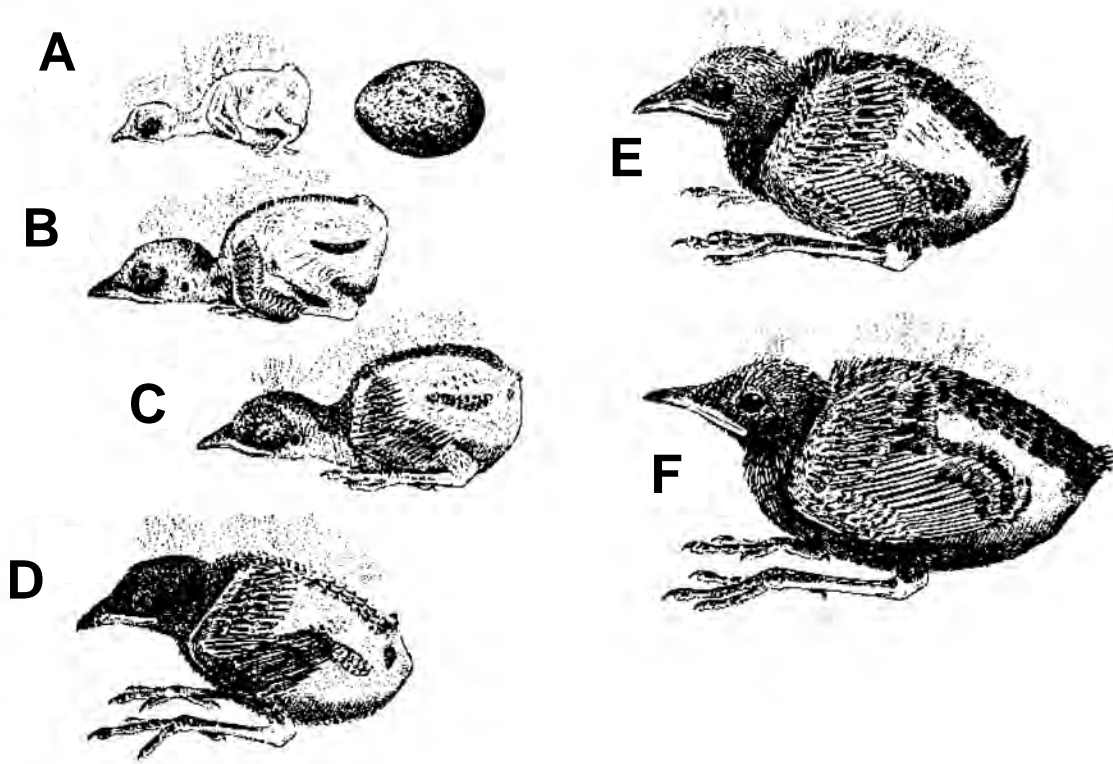
Contents of nest when found or last visited	Next visit should be	Notes needed at next visit
Nest under construction	2-4 days later, to determine laying schedule	No. of eggs, warm or cold; parent at nest or not
1-3 eggs	3-5 days later, to confirm completion of clutch	No. of eggs, warm or cold; parent 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 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 Songbird Growth



Stages of Nestling Songbird Growth

- a) within a day of hatching; egg is for scale
- b) three to four days old (small 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)

Appendix 4. Correct Terminology for 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 and 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 1). To be more accurate it is recommended to use the specific terms below.

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 2) and spend much longer periods in the nest. The latter applies especially to songbirds (Passerines).

Even though young may appear large and well feathered in the nest, they still remain nestlings until their first trip out of the nest (Figure 3).



Figure 1. It is more accurate to call this “young” Red-tailed Hawk an immature as it is in the process of acquiring adult plumage. *Photo by R. Wayne Campbell, Victoria, BC, 27 June 2007.*



Figure 2. The nestling period for an American Robin, from hatching to leaving the nest (i.e. fledging), is about 14-15 days. *Photo by Marcia Long, Creston, BC, 29 June 2006.*

Fledgling

The short period when a young first leaves its nest until it is independent of all parenting care, especially being fed (Figure 4).

This time varies considerably among different species. For example, young American Kestrels depend on their parents to feed them



Figure 3. The nestling period for a Bald Eagle, from hatching to first leaving the nest, lasts between 70 and 77 days (10-11 weeks). *Photo by R. Wayne Campbell, near Copper Island, BC, 26 May 1996.*

for 12-14 days after fledging while young Prairie Falcons may continue to be fed by their parents for up to 35 days. Some young songbirds leave the nest before they are capable of sustained flight and beg for food, often from a concealed location which is why we sometimes observe adults carrying a large billful of food into the grasses or shrubs.

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



Figure 4. 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. *Photo by Kevin Atkins, near Vernon, BC, 8 July 2007.*

Fledglings may have certain identifiable characteristics such as tufts of down on the head, a yellow or pink gape at the corner of the mouth, stubby or bob-tailed versus short or long tail, inability to fly well or not at all, or a spotted breast.

Please fill out nest 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 a while, but is being fed by its parents, is noteworthy. These observations can be used to calculate a bird's full breeding period. More information can be found in the BCNRS instruction manual, which is available free-of-charge from the Biodiversity Centre for Wildlife Studies at bcfws@shaw.ca.

Juvenile

A young bird that is independent of its parents (Figure 5), and is able to care for itself (e.g., feeding), but has not completed its post-juvenal (e.g., after breeding or post-nuptial) moult which may extend, depending on the species, into late October and November.



Figure 5. This juvenile Glaucous-winged Gull left its natal colony in late July and a month later is feeding independently of its parents. *Photo by R. Wayne Campbell, Esquimalt Lagoon, BC, 30 August 2006.*

Immature

A young bird that has completed its post-juvenal 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 6) this stage may last from two to five years.



Figure 6. 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. *Photo by R. Wayne Campbell, Esquimalt Lagoon, BC, 31 August 2006.*



Figure 7. This Bald Eagle is actually a sub-adult because it has remains of brown feathers in its head and tail. Between 4 and 5 years these areas become pure white. *Photo by R. Wayne Campbell, Sechelt, BC, 4 June 1996.*

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 7), and gulls, may require up to four or five years to get their adult plumage.

Adult

A bird's final, and breeding, plumage (Figure 8).

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.



Figure 8. The pure white body of this Trumpeter Swan identifies it as a full adult. *Photo by R. Wayne Campbell, Cranberry Lake, BC, 22 January 2001.*

Appendix 5. Monitoring Cavity-nesting Birds

Each nesting season the majority of nest record cards are submitted for open nesting species of birds, broods, and recently fledged young. One area of the BCNRS we would like to strengthen is the monitoring and recording of cavity nesting species. This is more challenging as we cannot “see” into the nests that are created in this environment. Many of these cavity nesting species especially Mountain and Western bluebird and Tree and Violet-green swallows, will take readily to nest boxes and much information is submitted each year for these species. Less commonly, species like American Kestrel, Northern Flicker, Northern-Saw-whet Owl, Boreal Owl, Black-capped Chickadee, and White-breasted Nuthatch will utilize nest boxes.

Cavity-nesting species are typically divided into two categories: *primary* and *secondary* (Figure 1) nesters. Primary-nesting species are those that excavate their own cavity to use for nesting during the breeding season, often excavating a new hole each year. Groups that fall into this category are the woodpeckers, chickadees, and nuthatches. The secondary-nesting species are those that utilize existing cavities, both natural and those excavated by other birds. Groups that fall into this category are some species of ducks, small owls, three falcon species, bluebirds, two species of swallows, some species of wrens and the introduced European Starling and House Sparrow.

For all cavity-nesting species please record: tree species, live versus dead tree, height of cavity from ground, GPS location if you have this field tool, approximate diameter of hole, diameter of tree at breast height (measurement of tree while standing at it; Figure 2), and all activity associated with nesting including feeding by parents and volume of noise of nestlings. Some of these activities will include: adult flying in and out of cavity, male delivering food to mate, nesting material being carried into cavity, downy feathers at entrance to cavity, food delivery to nestlings, removal of fecal sacs, nestlings looking out of cavity, and calling.



Figure 1. The Barrow's Goldeneye is a secondary cavity-nesting species that relies on primary excavators, like woodpeckers, to provide a nest site. The species also uses nest boxes. *Photo by R. Wayne Campbell, Tunkwa Lake, BC, 30 June 2008.*



Figure 2. A female Barrow's Goldeneye was observed flying into a hole, 10.6 m above ground, in this live black cottonwood tree (dbh 28 cm). *Photo by R. Wayne Campbell on the shore of Bridge Lake, BC, 7 June 1996.*

Ducks

Cavity-nesting duck species such as **Wood Duck** (Figure 3), **Common Goldeneye**, **Barrow's Goldeneye**, **Common Merganser**, **Hooded Merganser**, and **Bufflehead** are the most difficult to monitor. Not many nest-finders observe the coming and going of these ducks from the nesting cavity and even fewer are present to witness the brood of ducklings jumping from the cavity. Most of our information in the BCNRS is based on broods recorded with the females once the family has departed from the nesting cavity.

Female ducks pull the down from their breasts to line the cavity and to lay their eggs on. As the female enters or exits the cavity, tiny downy feathers are caught on the rough edges of the opening (Figure 4). This is a good clue for occupancy.

Incubation times, taken from *The Birds of British Columbia*, for combined species averages 25-37 days and fledgling time averages 56-70 days so it gives an idea of approximate times to visit.



Figure 3. A female Wood Duck at cavity entrance of an old woodpecker hole excavated in a tall, live black cottonwood tree (27 m in height; cavity 7.6 m from ground; and dbh 56 cm). *Photo by Linda M. Van Damme, Creston, BC, 6 May 2008.*



Figure 4. Examining the entrance hole in a natural cavity, or nest box, is a good sign that it is being used by a duck. *Photo by R. Wayne Campbell near Riske Creek, BC, 3 July 2002.*

Owls

The smaller owls, such as **Flammulated**, **Northern Saw-whet**, **Boreal**, **Northern Pygmy** (Figure 5), and **Western Screech** choose natural crevices or old woodpecker cavities to nest in. Nest finders do locate owl nest sites while afield and each season we have a handful of nest cards submitted for cavity-nesting owls. Most people discover the owls, however, in nest boxes or after the owls have fledged from the cavity.

Due to the nocturnal nature of most of these owls, it takes a concerted effort to locate active nest sites. It is helpful to be familiar with the breeding cycle of each species and to know their habitat preferences. With the exception of the Flammulated Owl, which does not arrive back in the province until late May, you can go out at night to listen for the other species of owls as the males will start calling while on territory

from January to April, depending on where you reside in the province. Knowing that an owl is on territory is the first step in trying to locate a nest site. During the day you can re-visit the area, getting property owner's permission if it is required, and search for potential cavity nest sites.

If you scratch the tree trunk with a stick or lightly tap it (Figure 6), an owl may appear at the cavity entrance (Figure 7). Owls incubate their eggs for approximately 22-28 days so plan to re-visit the site later to see if the cavity is still occupied. In time you may spot the owlets at the cavity entrance (Figure 8). Although most owls lay between 3-5 eggs, usually only one or two nestlings can peer out of the hole at one time. Record the development of the owlets and approximate size and note date when last observed. Owls fledge within 22-32 days after hatching.



Figure 5. A near fledging Northern Pygmy-Owl looks out from a nest cavity that contained another six owlets. *Photo by Mark Nyhof, near Rock Creek, BC, 9 June 1984.*

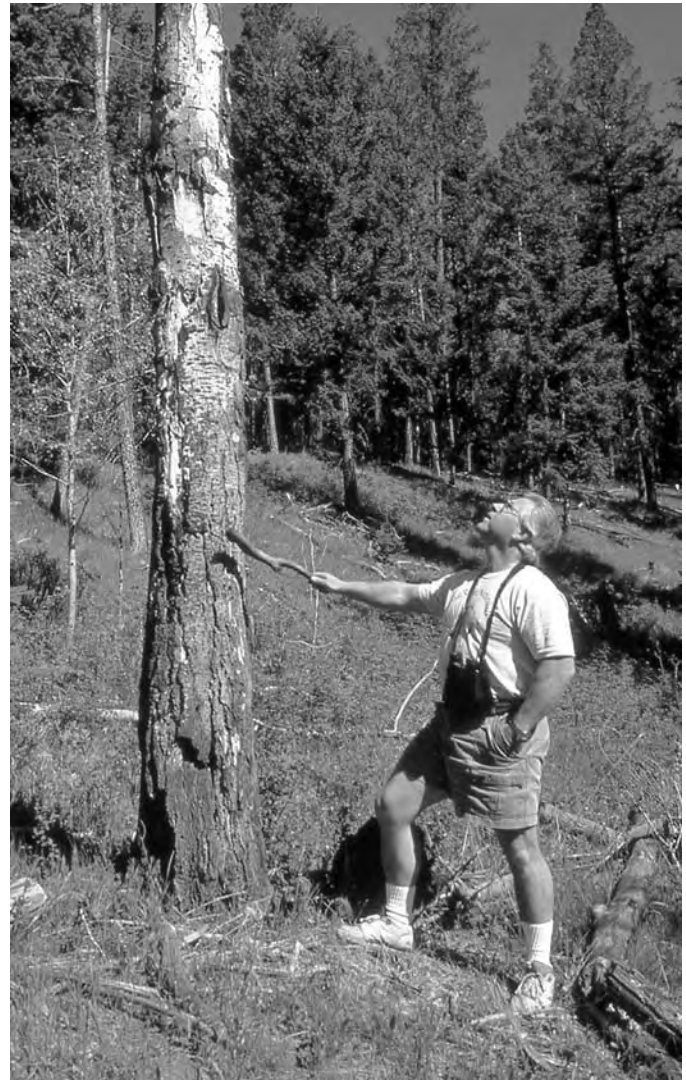


Figure 6. Rick Howie tapping a trembling aspen tree with several cavities hoping a small owl might appear at one of them. *Photo by R. Wayne Campbell near Kamloops, BC, 27 May 1995.*



Figure 7. Northern Saw-whet Owl adult peering out of old woodpecker cavity. A later visit may confirm nesting. *Photo by Linda M. Van Damme, Creston, BC, 21 April 2007.*

The summary in Table 1 gives average periods of incubation and fledging for British Columbia (from *The Birds of British Columbia*).

Table 1. Average incubation and fledging periods for five cavity-nesting species of owls in British Columbia.

Species	Avg. Incubation Period (days)	Avg. Fledging Period (days)
Flammulated Owl	22	22
Western Screech-Owl	26	35-42
Northern Pygmy-Owl	28	29-32
Boreal Owl	27	28-36
Northern Saw-whet Owl	27	27-34



Figure 8. Two Northern Saw-whet Owl nestlings peering out of cavity on 13 May 2006, almost a month after the occupied cavity was discovered. Note size difference between the two nestlings. Photo by Marcia Long, Creston, BC, 13 May 2006.

A sample of a completed nest card for the Northern Saw-whet Owl with pertinent information useful for data analysis is shown in Figure 9.

British Columbia Nest Record Scheme						
Species: NSWO		Map Grid: 082 F01		Name of Observer: Marcia Long		
Locality: (place name and specific location) Creston valley	Cowbird Parasitism		Yes	<input checked="" type="radio"/> No		REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)
	NUMBER OF EGGS OR YOUNG per VISIT					
Elevation: 620 m	Day	Month	Year	Eggs	Yng.	
Habitat: (surrounding vegetation) Coniferous forest along road edge with two deciduous snags	16	04	06			lightly tapped tree NSWO peered out
	21	04	06			lightly tapped tree NSWO peered out; belly feathers puffed as though incubating or brooding
	2	05	06			AD. looking out cavity
	12	05	06		1	peking head out brown feathered
	13	05	06		2	appeared at opening 1 larger than other
If more than 7 visits are paid to a single nest use another card for further visits						
General Location: Old woodpecker cavity in 9.7m tall trembling aspen snag		Materials:		Height above ground/cliff-base/water 7 m		
Position: Dbh: 48 cm	NEST DESCRIPTION		(did not tap on tree) was there 3 hr.			
UTM Zone 11	UTM Easting: 538835		UTM Northing: 5427586			

Figure 9. Sample nest card completed for a Northern Saw-whet Owl nest found with nestlings in the Creston valley by Marcia Long in 2006.

Falcons

The **American Kestrel** is the only tree cavity nesting falcon which relies on natural and excavated cavities although occasionally Peregrine Falcons and Merlins use them. During the courtship period there can be a lot of noise and activity in the general vicinity of the nest site then things quiet down once the female settles into incubating eggs for approximately 29-30 days. If you have located the nesting cavity and want to know if the site is still active during that month, the male will be bringing food to his mate (Figure 10) and will call out to her; she exits the cavity, grabbing the prey item and may eat it on a branch near the nest or fly back inside to feed. When not hunting the male often perches in the vicinity of the nest tree. Once there are nestlings to be fed, the activity increases with the male, then both parents bringing food to the hungry youngsters. Usually only one or two nestlings can look out the cavity at one time (Figure 11).

Nestlings fledge approximately 30 days after hatching.



Figure 10. Female American Kestrel looking out nesting cavity in broken dead trembling aspen snag when male gave food delivery call. Prey delivery consisted of grasshoppers and small rodents. *Photo by Marcia Long, Creston, BC, 7 June 2008.*



Figure 11. Nestling American Kestrel, close to fledging is peering out cavity near top of 6 m tall dead black cottonwood tree, 5.9 m from ground with a dbh of 43 cm. *Photo by Linda M. Van Damme Creston, BC, 26 June 2008.*

Woodpeckers

Although some woodpeckers will re-use a nesting cavity many excavate a new hole each season. With all the excavating activity of wood chipping and carrying off a bill full of wood chips, this is an ideal time to locate nest sites. Gather more specific information relating to the tree at a later time once the woodpeckers are settled in.

When out and about, a nest finder may spot a cavity but in the absence of an adult, wonder if the site is occupied. One sign to look for is “*tail rubbing*” a worn patch on the bark (usually smooth) below the hole where the tail feathers rubbed during the excavation process (Figure 12). Sometimes the species of woodpecker can be identified by its nest hole (Figure 13a and b).

You can easily document the progress or stages of the excavations by observing if the woodpecker is on the outside of the tree, can

insert its head inside the hole, insert its upper body inside the hole, or can enter the cavity and exit head first or backwards.

During incubation, there is reduced activity but once the young hatch, feeding trips, and carrying away fecal sacs (Figure 14) will commence. As young woodpeckers grow into larger nestlings a loud “buzzing” sound can be heard from the cavity, sometimes from quite a distance. It’s one sure sign of hatching success but be cautious in the area as Black Bears are also attracted to this sound that is similar to an active bee hive. Eventually at least one young will be visible at the cavity entrance and approximate fledging times can be recorded.

Documenting disturbances, threats, and mortality at cavity-nesting sites is also important to record, either in writing or by photograph.

Incubation times for all species combined averages 12-18 days and fledging averages 21-28 days.



Figure 12. A well worn spot directly below a hole in a smooth-barked tree, such as a trembling aspen, is a sure sign that the tail of a woodpecker has caused it and the site is being used for nesting. *Photo by R. Wayne Campbell, near Houston, BC, 23 June 1997.*



Figure 13. The shape of some cavities, with a little experience, can lead to the identification of a woodpecker species. The holes of sapsuckers (a) are perfectly round (*near Oliver, BC, 15 May 1996*) while those of a Pileated Woodpecker (b) are oval (*near Cawston, BC, 15 June 1996*) in shape. *Photos by Mark Nyhof.*



Figure 14. Most cavity-nesting birds carry away fecal sacs from the nest to keep it clean. Sapsucker nestlings, however, do not form fecal sacs, but excrete watery fluids which are absorbed by the sawdust in the cavity and removed by the parents as a bill full of “mushy feces”. This behaviour also indicates nestlings are present. *Photo by Sharon Lauglin, Creston, BC, 19 June 2008.*

Swallows

Tree and **Violet-green swallows** are cavity nesting birds that will easily accept nesting boxes, but many more choose woodpecker or natural tree cavities (Figure 15). The first clue an active nest finder gets is seeing a male flying near a cavity, showing it to a female who may then enter to check it out. One might also see adults carrying nesting material into the cavity, grasses/weed stems first, followed by feathers to line the nest. Once the eggs hatch, you might see an adult leaving the cavity with a “fecal sac” and so at least one nestling is present. It is difficult to really know what’s going on in the cavity until feathered nestlings appear at the cavity entrance to be fed; the young by this time are usually close to fledging. Once fledged the young may perch in the vicinity of the nest tree waiting to be fed by the adults, so this is another opportunity to record number of young.

Incubation times for both species combined averages 14-16 days and fledging averages 20 days for the Tree Swallow and 25 days for the Violet-green Swallow, again a guideline for timing of visits.



Figure 15. Adult male Tree Swallow peering out of cavity entrance in a live but dying trembling aspen. *Photo by R. Wayne Campbell, Sunset Lake, BC, 22 June 1997.*

Chickadees and Nuthatches

All four species of chickadees and three species of nuthatches, are cavity nesters. Sometimes, both chickadees and nuthatches will use an existing cavity rather than excavate their own. They choose trees with a fair degree of rot in them so their tiny bills can do the excavating. It takes many trips for these small birds to excavate a cavity deep enough for their nests, so both adults will take turns chipping and carrying away the wood chips. Then comes nest building, so many trips to carry materials as it takes up to two weeks to complete a nest. Activity quiets once the eggs are laid and again it is about timing to witness the transport of food (Figure 16) and removal of fecal sacs. Occasionally the young, when ready to fledge, will peer out of the cavity.

One way to identify a Red-breasted Nuthatch nest is to look for the sap around the cavity entrance which has been daubed on by its occupant. The purpose of this behaviour is still being debated by ornithologists.

Incubation time for chickadees combined averages 11-15 days and fledging averages 16-21 days. Incubation time for three species of nuthatches combined averages 12-16 days and fledging averages 13-21 days.

A completed nest card for the Red-breasted Nuthatch with a sample of pertinent information that could be recorded during a visit is shown in Figure 17.



Figure 16. Spotting an adult Mountain Chickadee with food in its bill and following it in stages will eventually lead to its nest. Photo by Mark Nyhof Oliver, BC, 30 May 1994.



Figure 18. In British Columbia, the Bewick's Wren prefers to nest in natural cavities and crevices. Photo by Mark Nyhof, Victoria, BC, 23 April 1980.

British Columbia Nest Record Scheme							
Species: RBNU	Map Grid: 082F02	Name of Observer: Linda M. Van Damme					
Locality: (place name and specific location) Creston	Cowbird Parasitism		Yes	<input checked="" type="radio"/> No	REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)		
	NUMBER OF EGGS OR YOUNG per VISIT			Day	Month	Year	Eggs
Elevation: 620 m	21	04	08				alert
Habitat: (surrounding vegetation) Mixed coniferous forest	24	04	08				male excavating cavity in hemlock at edge of forest. Hole deep enough so only tail stuck out
	26	04	08				no activity noted or poking head out + dropping wood chips out. Can hear sounds of excavating in cavity
	09	05	08				no activity
	04	06	08				1 + AD carrying small insect in bill; entering cavity
	If more than 7 visits are paid to a single nest use another card for further visits						
General Location: excavated cavity in		NEST DESCRIPTION			Materials: 3X within 7 minutes		
Position: 9m tall hemlock snag dbh 27cm. - cavity 15cm. from top				Height above ground/cliff-base/water 8.9 m			
UTM Zone 11	UTM Easting: 587585		UTM Northing: 5437776				

Figure 17. Sample nest card completed for a Red-breasted Nuthatch nest found with nestlings in the Creston valley by Linda Van Damme in 2008.

Wrens

House Wrens and Bewick's Wrens (Figure 18) select tree cavities for nesting as well as nest boxes. The House Wren male makes many trips to fill a cavity with small twigs which often stick out of the hole. He may fill up to four cavities in an effort to attract a female who will select one site and add the lining to the nest.

Incubation times combined for both species average 14-16 days and fledging times average 14-22 days.

European Starling

Starlings readily use any opening in a tree trunk (Figure 19), or for that matter almost anywhere they can find security. If you live in an area where deciduous trees, especially black cottonwoods and trembling aspens are abundant, you will easily find their nest sites. It is best to watch these birds from a distance with binoculars as the adults can be very wary and will not enter the nest site if they suspect an intruder.

The greatest activity, like many other cavity nesting species, takes place once the young have hatched. One sign to look for is "whitewash" (Figure 20) as nestlings "squirt" out the cavity and this excrement is visible at the cavity opening and around the trunk of the tree. Both parents make frequent trips to feed the nestlings and it is amazing how quickly insect food can be located. As the nestlings compete for food, up to three of them may be seen at the opening of the cavity and this is a good time to record their stage of development as some are sparsely feathered on the head or completely feathered. A nestling close to fledging has a mature look about it, and is brown in colour.

Incubation time averages 11-12 days and fledging time averages 18-21 days.



Figure 19. Three nestling European Starlings being fed at nest entrance in a natural cavity in a mature black cottonwood tree. *Photo by Linda M. Van Damme, Creston, BC, 16 May 2006.*



Figure 20. The amount of "whitewash" on the boards below a cavity in a barn suggests that European Starlings are nesting and probably into their second brood. *Photo by R. Wayne Campbell, Osoyoos, BC, 3 August 1998.*

House Sparrow

Generally speaking House Sparrows (Figure 21) tend to nest in urban and rural residential and farmland areas and will use any structure that allows access, so not necessarily a tree cavity. Their nests are a bulky structure which appear messily built. As common as sparrows are in some parts of the province, they are not a commonly reported nesting species. They readily take over nest boxes set out for other species and the majority of our records come from nest boxes or fledged young being fed. The same documentation applies to this species as the ones described above.

Incubation time averages 10-14 days and fledging time averages 14-15 days.



Figure 21. In city and residential areas, House Sparrows are quick to take over any suitable crevice that provides some depth for a nest and protection from wind and rain. *Photo by Mark Nyhof, Delta BC, 4 December 2010.*

General Tips for Inspecting Cavity-nesting Birds

(1) Re-visit known nesting trees for species such as **Lewis's Woodpecker** (Figure 22), **Western Bluebird**, **Mountain Bluebird**, **European Starling**, and **Mountain Chickadee** which may return to the same cavity year after year. Some excavators that are known to return to the same tree and create a new cavity include **Pileated Woodpecker**, **Pygmy Nuthatch**, **Northern Flicker**, and **sapsuckers**.



Figure 22. A natural cavity in an old ponderosa pine snag near Nicola Lake was used by a pair of Lewis's Woodpeckers for nesting for at least 27 years before it finally fell down. *Photo by Mark Nyhof, Newgate BC, 1 July 1997.*

(2) Gently scratching a tree trunk (see Figure 6) can imitate the sound of a small mammal climbing up the tree causing the occupant of the cavity to look out. If this doesn't work try lightly tapping with a stick. Banging on a tree will likely cause the occupant to stay hunkered down.

(3) If adult is entering a cavity with food, the nestlings are still small. If the adult is feeding from outside the cavity then nestlings are larger (Figure 23) and if nestling sits at the cavity entrance it is easy to describe appearance as they are usually all feathered by this stage.

(4) If an adult enters the cavity with food, stays for a few moments, then exits without food, one can generally assume that small young are being fed. The size of the food items increases as does the amount carried in the bill as the young are growing bigger.



Figure 23. This Hairy Woodpecker, not fully entering its nest, suggests that sizeable young are being fed. *Photo by Mark Nyhof, Christina Lake BC, 23 May 1980.*

(5) If the adult enters the cavity with food and exits with a fecal sac then at least one nestling is present. If the mate arrives moments later with food and exits with a fecal sac then two nestlings are present. Older nestlings become more vocal in calling for food, especially noted with woodpeckers.

(6) Avoid sticking your hand into a cavity as you might damage the eggs or be bitten by squirrel or other rodent which might be living in there.

(7) Inspecting cavities just out of reach, using a flash lamp, can be challenging. One technique is to search for a log, or piece of wood, that can be used to elevate the person. Prop it up against the tree to get into a position where the cavity can be safely checked (Figure 24). Obviously a ladder is best, or a climbable tree, but sometimes the "prop" technique may be the only way to examine the contents.

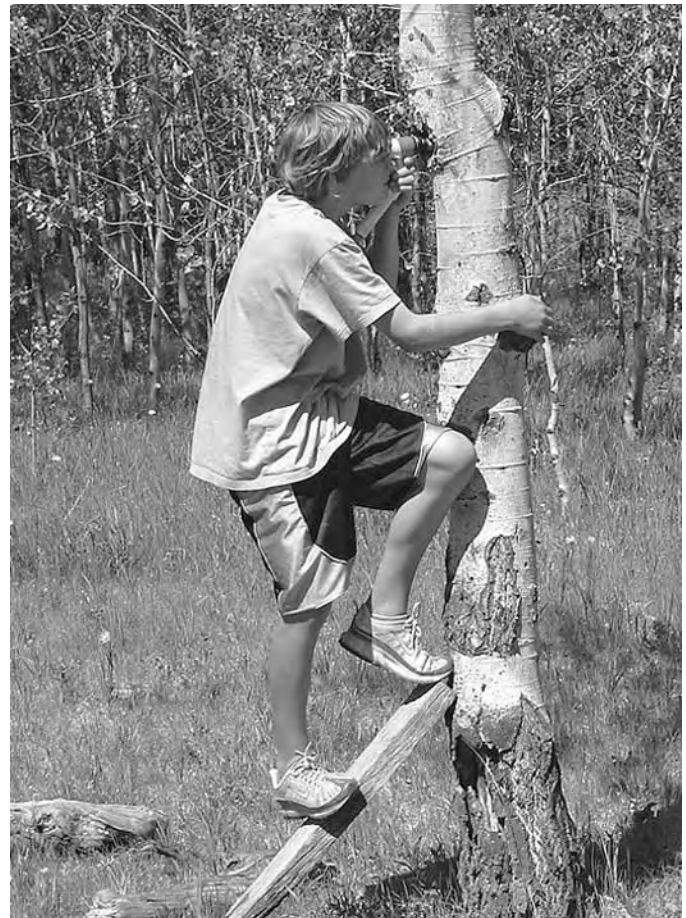


Figure 24. Adam Nyhof using a piece of wood found nearby as a prop to get closer to a cavity for inspection. *Photo by Mark Nyhof, Gang Ranch, BC, 6 July 2007.*

Appendix 6. Ageing Bald Eagle Chicks: Colour, Size, and Estimated Age

This brief guide will aid contributors in ageing Bald Eagle chicks while checking and monitoring nests.

The late Rick Davies, a provincial government biologist, developed a chart for ageing nestling Bald Eagles that he referred to during aerial nest surveys of the south coast. Although most of us never get to peer into a Bald Eagle nest, descriptions of later stages of nestling growth is helpful to have on file.

Table 1. Determining the age of Bald Eagle Nestling Using Colour, Size, and Estimated Age.

Bald Eagle Nestling		
Colour	Size	Estimated Age
White	Small	1 week old or less
Grey ¹	Small	2 weeks old
Grey	Larger	3 weeks old
Grey and brown	Larger	4-5 weeks old
Mostly brown	Mid-size	6 weeks old
All-brown	Large	6-8 weeks old
Brown (Figure 1)	Full size	9-12 weeks old

¹See Appendix 4.



Figure 1. These nestling Bald Eagles are 10-11 weeks old. *Photo by R. Wayne Campbell, Joseph Island, BC, 28 June 1976.*

Appendix 7. Nesting chronology for a pair of Mountain Bluebirds from building a nest to raising and fledging four young.

The following table may assist contributors to include additional information on nest cards for Mountain Bluebird. The reference table can also be used for Western Bluebird.

Nesting Activity	Time Period	Comments
Nest-building	Days 1 - 4	By female; averages 4 days in BC (range 3-7 days)
Egg-laying		By female; 1 egg per day
1 egg	Day 5	
2 eggs	Day 6	
3 eggs	Day 7	
4 eggs	Day 8	(Figure 1)
Incubation	Days 9 - 21	By female; averages 13 days in BC (range 11-17 days)
Nestlings		Fed by male & female; averages 18 days in BC (range 17-21 days)
		Hatching; eyes closed; sparse black down on body
		Eyes closed; weight doubles
	Day 22	Eyes closed
	Day 23	Eyes closed; feathers develop under skin
	Day 24	Eyes closed; feathers show breaking through skin
	Day 25	Eyes closed
	Day 26	Eyes open as slits; feathers start to emerge from sheaths
	Day 27	Eyes wide open; feathers continue to unsheathe
	Day 28	Feathers continue to grow
	Day 29	Nestlings are active (Figure 2)
	Days 30 - 32	Nestlings may be fed from outside of box
	Days 33 - 34	Nestlings leave nest box
	Days 35 - 39	
	Day 40	
Fledglings	Days 41 to ?	Fledged young dependent on parents for weeks



Figure 1. On average most nests found in British Columbia contain four to five eggs. *Photo by Mark Nyhof.*



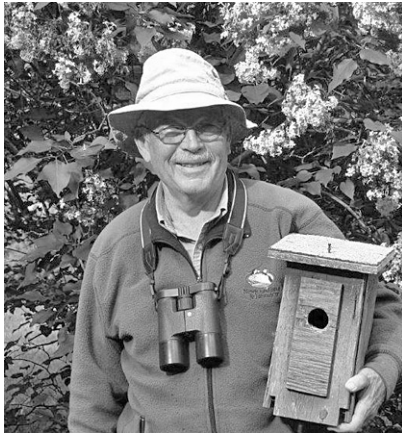
Figure 2. A few days before nestlings are ready to fledge they become active and may shift positions when the nest box is checked. *Photo by Mark Nyhof.*

BCNRS Participant Profile

Dirk Pidcock

As a child, the world of nature attracted Dirk like a magnet. Many days were spent exploring the banks of the Snake River on the Oregon side and sagebrush flats within reach of a bicycle ride. His mother groaned every time Dirk brought home another creature from the wild. Children had wonderful freedom in those days! The culture of his childhood in eastern Oregon embraced hunting and fishing with great passion. The imposing Snake River was alive with carp but also an occasional smallmouth bass or channel catfish could be caught. Dirk's big dream was to hook and land a giant Sturgeon, also found in this stretch of the river. One afternoon, something very big dragged his rod and reel into the river, never to be seen again. Dirk, the fisherman, was too busy looking for tadpoles to pay attention to the event.

Dirk's first exposure to a bonafide "naturalist" came years later, in his early 30s, at an ecology camp at the world famous Malheur National Wildlife Refuge. A compelling young assistant warden helped Dirk and others identify a number of bird species and spoke of urgent issues facing the survival of wildlife. Dirk was an easy convert. Bird-hunting was left behind.



In 1978, Dirk and his spouse, Karen, and three young children moved from Oregon to Sorrento, a small community on the southwest shore of Shuswap Lake. As an Anglican priest, he served as Director and was responsible for programme development. Courses on nature and spirituality were well received. Here he met outstanding birders such as Peter Hamel (also a priest) and David Love, who greatly inspired him. As his birding skills improved, Dirk led early morning field trips in spring and summer. Karen has always been a keen naturalist with a particular love of wildflowers. Together, they have led several and participated in many environmental workshops and conferences.

Kaslo, on the west side of the north arm of Kootenay Lake, has been home for over 20 years. With Dirk's encouragement and leadership, an active birding group has become established in the village. When he submitted an ad in the local newspaper to explore forming a local naturalist group, the gossip around the village quickly assumed that the new Anglican priest was promoting a nudist camp!

Important mentors and friends have been Linda Van Damme, Gary Davidson, and locally Gail Spitler. Building nest boxes and maintaining several "bluebird trails" at the north end of Kootenay Lake has been a major long-term project for Dirk. Over the years, he learned to be realistic about their use and suggests that the project should be renamed "swallow trails". Few, if any, Mountain Bluebirds use the boxes each year. But, cheers to both!

Dirk values the definition of amateur...meaning "lover of". Birding then, is for the love of it and for the health of his spirit. His birding activity has been severely curtailed this spring [2013] due to a struggle with chronic leukemia.

