

BRITISH COLUMBIA NEST RECORD SCHEME

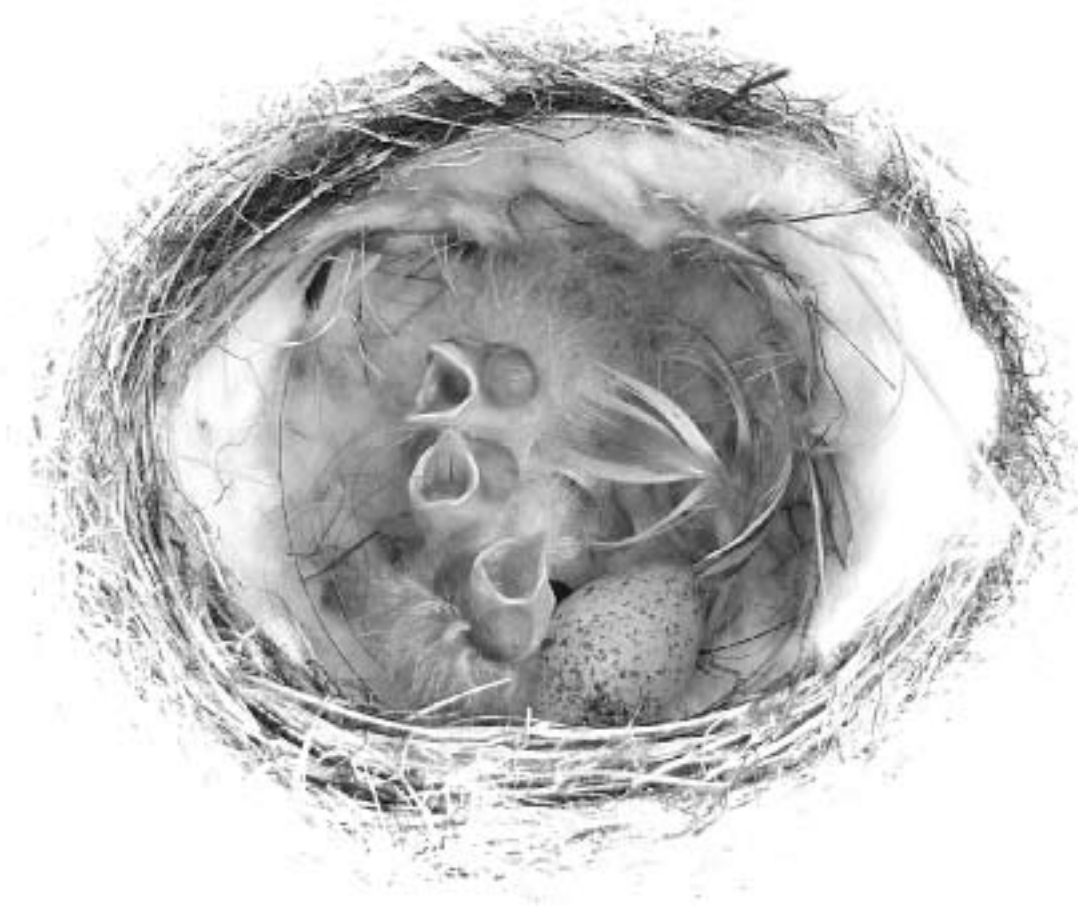
56th Annual Report



2010 Nesting Season

British Columbia Nest Record Scheme

56th Annual Report - 2010 Nesting Season



compiled by

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Biodiversity and Breeding Birds

In the 2009 annual nesting season report, we introduced “*The International Year of Biodiversity*”, a program initiated by the United Nations to emphasize the significance of biodiversity in human lives and in sustaining life on earth (Figure 1). The objectives of the program centered on increasing public awareness, enhancing public understanding of the biological processes, and working together to achieve realistic goals.



Figure 1. With the increasing number of people interested in wildlife viewing it was an opportune time to promote the concept of biodiversity and what it means to the emotional, physical, and financial well being of humans and sustaining life on earth. Englishman River, BC. 8 April 1994 (Photo by R. Wayne Campbell).

The new word in the conservation field is **Biodiversity**. The term was really set in stone when it became the *buzzword* for the Rio Earth Summit in 1992. This major world conference, held in Rio de Janeiro, Brazil, was sponsored by the United Nations to discuss the “Environment and Sustainable Development” and attracted over 17,000 participants. The main reason for this focus was world concern about increasing impacts from human activities on biodiversity, including classic examples relating to habitat fragmentation, rainforest destruction, species extinction, water and air pollution, and altered natural biological processes.

Biodiversity can be simply defined as the number of species found within a given area (*e.g.*, biological richness), so in British Columbia this could be as broad as the entire province or restricted to a regional park or residential

property. For the purpose of this report, species of breeding birds are the biodiversity focus.

The cordilleran landscape and ecology of British Columbia make it the most diverse region in Canada. Within our province, we have 35 mountain ranges with varying altitudes and aspects, 26,000 kilometres of coastline, numerous large and small offshore islands, a diverse geology, and many rivers, some of which are major and flow into the Arctic and Pacific oceans. There are areas of low biodiversity, such as alpine habitats, and “hotspots” like estuaries where many hundreds of different species occur. Our topography lends itself to the creation of specialized habitats that occur in small areas of the province, such as scrub desert which attracts Sage Thrashers or occur in patches such as the association of green alder and trembling aspen woodlands favoured by Canada Warblers. As a result, more bird species occur and breed in British Columbia than anywhere else in Canada and the province contains more federally listed species at risk, most of which are peripheral. For many species, British Columbia is a major part of a bird’s world range and may be the only location in Canada where it occurs (Figure 2).



Figure 2. All of Canada’s population of Black Oystercatcher occurs along a narrow strip of the British Columbia coast. In 2010, 465 breeding records were added to BCNRS files bringing the total to about 3,100 cards dating back to 1895. Norris Rock, BC. 4 July 1974 (Photo by R. Wayne Campbell).

Many participants in 2010 went into the field with “biodiversity” on their minds and spent more time thoroughly searching different habitats and confirming precise breeding information. In many cases, incidental behavioural observations such as birds singing on territory were also gathered and submitted with nest cards.

When established in 2004, part of the mandate of the Biodiversity Centre for Wildlife Studies (BCFWS) was to archive historical wildlife information, an approach that was not being addressed by any of the other 22,000 registered non-profit societies in the province. It also got some of our members thinking about how they could contribute to the biodiversity of their home province. Despite decades of biological inventories and diverse research by museums, provincial and federal governments, universities, and conservation groups, we still are in the infancy stages of understanding the factual biodiversity in British Columbia.

We have a fairly good grasp on the larger and more easily observed bird species in the province (Figure 3), especially those that are hunted or live in endangered habitats, but our knowledge of many smaller species is incomplete. This is a serious omission if we are to protect our provincial biodiversity.



Figure 3. While research and monitoring continues on easily observed and hunted species, like this neck-collared Snow Goose, the concept of biodiversity has shifted the focus to non-game species. Westham Island, BC. 26 October 1996 (Photo by R. Wayne Campbell).

The mundane task of bringing together historical information on birds breeding in the province has been a major focus of the BCFWS.

From 1997 through 2010, BCFWS members and others have contributed thousands of volunteer hours to transfer historical breeding records to nest cards from a variety of sources as well as electronically entering occurrence records dating back to 1896. It has been 14 years since the first independent annual nesting report was published and a great milestone has been reached in 2010. A total of 97,159 historical records of nests or broods have been transcribed to nest cards (Figure 4) along with electronic data entry for 5.1 million incidental bird observations. The main focus for this long-term investment of time was to update the four-volume set *The Birds of British Columbia* that was published between 1990 and 2001.



Figure 4. This old photograph of a Red-necked Grebe nest with five eggs was discovered among a collection of colour 35 mm slides that were donated to the Biodiversity Centre for Wildlife Studies. Details were transferred to a nest card. Douglas Lake, BC. June 1962 (Photo by Arthur L. Meugens).

But, how does this huge volunteer effort contribute to biodiversity and the future of British Columbia’s birds? There are a host of natural events and human activities that impact bird species: size of populations, healthy growth, mortality, dispersal, phenology, distribution, responses to disturbance, and longevity. The major concern at the moment is climate change and it is well known among researchers that “*there is limited data available to confirm links between climate change during the past century and observed changes in biodiversity in British Columbia.*” (see D. V. Gayton - *Impacts of Climate Change on British Columbia’s Biodiversity*, Forex Series 23, Victoria, BC., 2008). Fifty-

six continuous years of operating the British Columbia Nest Record Scheme (BCNRS), along with the BCFWS extensive electronic wildlife databases, can be a major contribution to interpreting the changes in biodiversity in the province over the past century. For example, the number of breeding species in British Columbia in 1890 was 102 and by 1999 had reached 309 species, an increase of 203 percent (Figure 5). The total as of 2010 is 315 breeding species. The number of species (breeding and non-breeding) occurring in the province showed an increasing trend as well, from 307 to 488 species for the same period. The 2010 total is now 511 species. Part of the increase is certainly due to observer effort and better access to remote areas, but bird populations are dynamic and ever-changing, as new species enter the province and become established.

Maintaining present-day biodiversity is a constant challenge for natural resource managers because they have mainly had to focus their attention on major disturbances such as floods and forest fires. The highest priority will be to maintain native biodiversity in our climate-altered future. The BCNRS can play a major role in providing information on breeding birds because of the program's longevity and the decades of historical records in its collections. We have already noticed many

northward extensions in breeding range (Figure 6) and how some species that were migrants are now present year-round in the province.

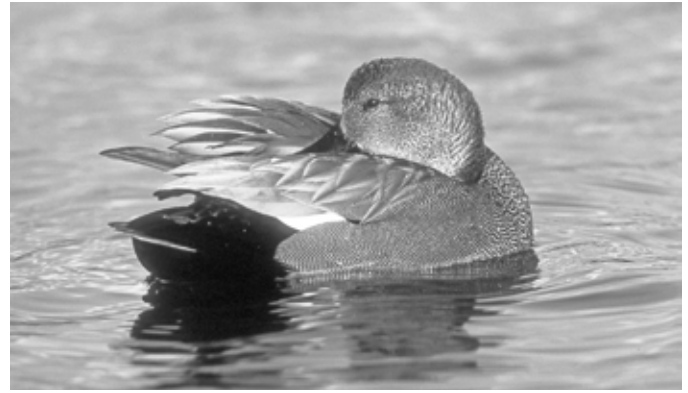


Figure 6. In the mid-1940s, Gadwall was a rare breeding species restricted to the Okanagan Valley. Six decades later, it moved northward and today is a common breeding species in wetlands of the Peace River region. Burnaby Lake, BC. 15 March 2004 (Photo by R. Wayne Campbell).

Our task as volunteers will be to maintain our effort in documenting details about birds breeding in British Columbia each year and providing relevant information to managers who must deal with the complexities of maintaining biodiversity in the province now and in the future.

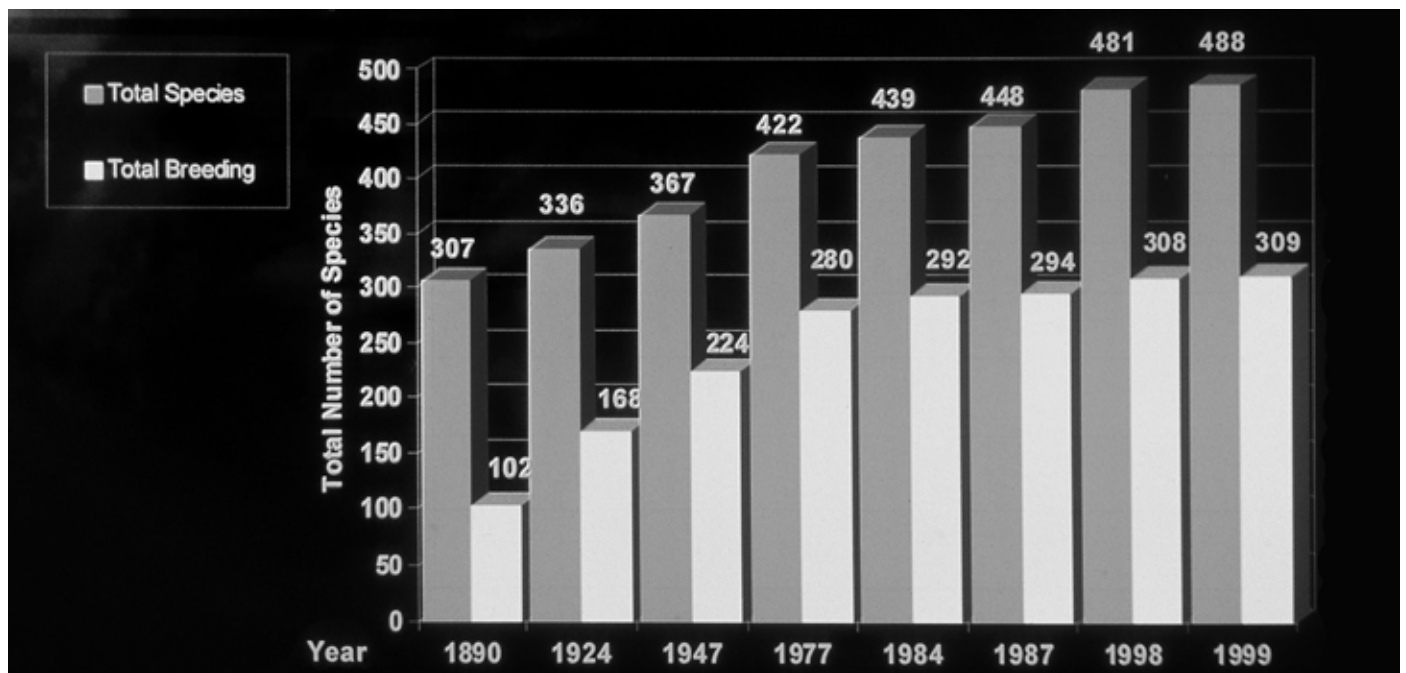


Figure 5. Total number of species occurring (dark bar) and breeding (light bar), in British Columbia, 1890-1999.

The 2010 Nesting Season

Summary

The annual breeding success of birds depends so much on weather and climate, and in 2010 it varied greatly over the province. The latitude of the province with its mountainous topography and maritime influence of the Pacific Ocean creates a wide variety in the amount of snowfall, rainfall, and sunshine. In British Columbia, this climatic variability can restrict suitable habitat to relatively small pockets over very short distances for nesting birds. For example, grouse, pheasants, and quail are best adapted to an average year of weather for nesting. When it is too wet, too dry, too hot, or too cold chicks may perish. In parts of the province reproductive success was low for grouse but normal for quail (Figure 7).



Figure 7. In the south-central interior of British Columbia, California Quail experienced an average year of nesting but grouse did not fare as well. Vernon, BC. 19 June 2010 (Photo by Vicky Atkins).

The average temperature in Canada for 2010 was 3.0° C above normal, making it the warmest year on record. The temperature trend has been above normal since 1997 and is slowly impacting water levels in some interior wetlands. For example, Elliott Lake, about 8 km north of 100 Mile House, has seen dramatic changes in size, water levels, and breeding birds since the first surveys were carried out in the early 1940s by James A. Munro. The 15 ha wetland has

been reduced to about three hectares by infill and highway construction. In 2009 (Figure 8a) the bulrush and cattail marsh still supported 12 breeding species including a small colony of Eared Grebes. In 2010, the wetland was nearly dry (Figure 8b) and only a single pair of Red-winged Blackbirds successfully raised a family in a patch of cattails three metres from water.

Three regions of British Columbia had the warmest year on record in 2010: the northern and southern mountains and the Pacific coast. Generally, most of British Columbia experienced conditions that were at least 20% drier than normal.

Although the winter was generally mild throughout southern British Columbia, the spring was cool and wet with frost reported at some locations in late May. It was a contrast of local weather; in the south, it was cool and wet in June with high water levels, while in the north it was approaching drought conditions.



Figure 8. Difference in water levels in Elliott Lake, BC. on 29 June 2009 (a) and 3 June 2010 (b). (Photos by R. Wayne Campbell).

Anna's Hummingbirds announced the start of the 2010 nesting season in mid-January by starting their nest-building activities. Their season ended eight months later in mid-September when the last fledged young was reported. On Vancouver Island, Bald Eagles were refurbishing or building new nests in January, although there were reports of birds carrying twigs in late December 2009. Meanwhile Great Horned Owls were incubating in early February. So, the season had once again started with the first winter nestings.

Three new breeding species were added to the provincial list, bringing it to **315** through 2010. During the past 14 years, we have averaged over **15,000 breeding records** each year. This total will certainly drop as more of the historical information is transferred to cards. Historical numbers were high this year due to transferring seabird breeding records from federal government summary reports. In future, effort will be directed toward searching personal diaries and notebooks, which contain mostly solitary nesting species.

We received about 43,000 additional records that may or may not suggest breeding such as carrying food, singing on territory, observed in nesting habitat, and courting. These were added to the master database as behavioural observations.



Figure 9. Some Bank Swallow colonies are ephemeral in nature due to their location in active gravel and dirt storage pits. This once large colony at Sugarcane, BC., has slowly decreased in size and population as dirt and gravel is removed for local projects. Its history, however, has been documented by photographs since the mid-1970s. 20 June 2010 (Photo by R. Wayne Campbell).

Monitoring programs for fresh-water nesting colonial birds, nest boxes, raptor nests, and swallow colonies (Figure 9) continued with over 10,000 breeding records received. All of these records are of nests with eggs and/or nestlings or broods.

Some of the wild and wacky weather experienced in parts of the province in 2010 and its effects on nesting birds remained unexplained. For example, some Yellow-headed Blackbirds returned to traditional colony sites in spring, called and displayed for weeks, but never nested. Black Terns did the same thing, only they gathered in large flocks in late June and flew high before departing together in a southward direction. Also, there were unusually late broods of waterfowl reported for the Cariboo region and locally many nestling swallows were found dead in their boxes, probably due to starvation.

This year, cards for **25,404** nests or broods were received for **239 species**, which was our second-highest number of breeding records ever. Of these, **13,287 records** (52%) were for the **2010 season** and the remaining **12,117** records were transferred from historical sources. A total of 401 names are included in the report of which **272** people participated in 2010. An increasing number of nest cards had digital images attached which is a feature that greatly enhances the value and aesthetics of the record (Figure 10).



Figure 10. From this photo, the age of five nestling Barn Swallows can be calculated from technical literature to within a day or so bringing additional information to the record. Vancouver, BC. 25 June 2010 (Photo by Kevin Atkins).

Noteworthy Events

New Breeding Species

Finding a new breeding species for the province is oftentimes more luck than skill and British Columbia's varied topography, with its numerous unexplored pockets of habitat, is still ripe for searching. It has been nine years (2002) since a new species was added to the provincial list of breeding birds, and in that year **Black-necked Stilt** and **Eurasian Collared-Dove** were both found nesting. Both species were range extensions, one from the south and the other from the east.

It is a rare event when three new species are reported in a single nesting season, which happened this year. But we had some unexpected help from taxonomists. In July 2010, the **American Ornithologists' Union** announced a split of the previous single species of Winter Wren (*Troglodytes troglodytes*) into two new species, both of which occur within the political boundaries of British Columbia. The decision was made on the amount of reproductive isolation between "groups of wrens" and mitochondrial DNA sequence divergence. This research was carried out by David Toews and Darren Irwin in the Tumbler Ridge region of northeastern British Columbia. These studies included genetic work, determining that the two species of wrens do not hybridize (interbreed), had different songs, and were different in appearance.

Check out this link for a more thorough synopsis.

<http://slybird.blogspot.com/2008/07/winter-wren-is-multiple-species.html>.

The **Pacific Wren** (*Troglodytes pacificus*; Figure 11) occurs west of the Rocky Mountains to the coast which covers most of the province, and the **Winter Wren** (*Troglodytes hiemali*) ranges only in the northeast and east to the Rockies. The latter species is often referred to as "**Eastern Winter-Wren.**"



Figure 11. The Pacific Wren, formerly "Winter Wren", occurs throughout British Columbia except in the northeast. Vancouver, BC. 31 May 2010 (Photo by Kevin Atkins).

The second new breeding species was discovered in the extensive field notes of Glenn Ryder who has been contributing them to Wayne Campbell since the late 1960s. Each year Glenn transfers historical observations from tiny field notebooks to a larger format for archiving and data transfer. In 2010, his installment of early notes provided a surprise. While visiting the **Kilpoola Lake** highlands (Figure 12) on 17 May 1959, Glenn and his brother Donald watched a hen **Greater Sage-Grouse** with a brood of young four to five days old walk away among the sage bushes. More details of the record will be published in *Wildlife Afield* (Vol. 7. No. 1).



Figure 12. The sage-brush dominated area around Kilpoola Lake, BC., is typical of the preferred habitat of Greater Sage-Grouse in North America. 8 August 1996 (Photo by R. Wayne Campbell).

The third new breeding species was discovered by **Dave Fraser** and his team while conducting field surveys for the Breeding Bird Atlas in extreme northwestern British Columbia. While exploring gravel islands along the **Alsek River**, a flightless **Parasitic Jaeger** young was observed on 17 July 2010 (see British Columbia Breeding Bird Atlas - Autumn 2010 newsletter). The location is surprising as this species is usually a tundra nester but has been known to breed on river deltas. Single and territorial pairs of Parasitic Jaegers have been reported infrequently in summer from tundra habitats in the vicinity of the Alsek-Tatshenshini river region of the province since at least 1978, but this is the first evidence of breeding.

Range Expansions & Isolated Nesting

Bird populations are rarely stable and are constantly in a state of flux, either rising or falling for a variety of reasons that may include weather and availability of food and habitat. Each nesting season, there are many surprise discoveries in the province that are noteworthy range extensions, first records for local areas, re-settlement and re-location of a species after years of absence, or isolated breeding sites (e.g., disjunct distribution) far away from the bird's known range.

Here are some of the more notable reports for an assortment of species.

For decades the **Barrow's Goldeneye** was considered a breeding species restricted to the trembling aspen parklands in the central interior of the province where nesting cavities were abundant. An historical record submitted by **Clyde Burton** of a brood of three young swimming with a female at **Rainy Day Lake** on 3 July is the first breeding record for the Powell River area. However, the species has been recorded breeding on the south Sunshine Coast (Tony Greenfield pers. comm.).

An **American Avocet** nest with eggs was found by **Wayne Campbell** in June on the shore of an unnamed alkaline lake at the extreme eastern portion of the **Cariboo**. This is the farthest east observed for the species in that region of the province.

The **American Golden-Plover** was previously only known to breed near Kliweguh Creek in Spatsizi Plateau Wilderness Park in north-

western BC. In 2010 **John Woods, Phil Ranson, Kris Andrews,** and **Sandy Proulx** journeyed by horseback into the **Itcha-Ilgachuz Mountains** of the western Chilcotin region of central British Columbia to scout the area for the Breeding Bird Atlas project. Five adults and two flightless American Golden-Plover young were discovered in an alpine basin at 1,965 metres. The habitat consisted of sedges, bare rock and several small pools of water (Figure 13). This finding extended the known breeding range of the American Golden-Plover about 600 km southward. Over the years, there have also been several other reports of this species in alpine habitats in the northwest in summer but no nesting has been reported.



Figure 13. American Golden-Plover adult in breeding habitat of sedges, bare rock, and several small pools of water in an alpine basin of the Itcha-Ilgachuz Mountains, BC. 5 July 2010 (Photo by Kris Andrews).

A nest of **Greater Yellowlegs** with eggs was found near **Summit Lake**, north of Prince George, by **Wayne Campbell**. This breeding evidence is at the northern limit for this species in the central interior of the province. Recently, however, a small breeding population has become established in the southern Peace River region that probably originated from nearby northwestern Alberta.

The **Eastern Phoebe** has always been considered a Peace River "specialty" because of its restricted breeding range in the northeastern region of the province. Not anymore! **Lee Foster** discovered an active Eastern Phoebe nest on an old boat house on **Cluculz Lake** which is located about 65 km west of Prince George in central BC. By 6 July, the young had fledged (Figure

14). This site is at least 280 km southwest of the closest known breeding range.



Figure 14. Eastern Phoebe nest on an upper ledge of an old boathouse on Cluculz Lake, BC. Note the mud construction with moss embellishments in the nest. 19 June 2010 (Photo by Lee Foster).

A more surprising report was an **Eastern Phoebe** found attending a nest in the **Creston** area by **Linda Van Damme** (Figure 15). Although the adult was observed sitting in its nest until 3 August, it appears the eggs were infertile and the nest was abandoned. There is one previous breeding record for the southeastern corner of the province at Spillimacheen in 1976.



Figure 15. During its unsuccessful nesting attempt, this Eastern Phoebe frequently left its nest to flycatch for insects. Creston, BC. 9 July 2010 (Photo by Linda M. Van Damme).

Recently, another out-of-range nesting attempt by an **Eastern Phoebe** was reported for **Mackenzie** by **Vi Lambie**. On 7 June 2002, a nest with an attendant adult was discovered in a building at Mugaha Marsh and the adult remained into July but the nest was not successful (see *Wildlife Afield* 6:2, 2009 for more details).

Eastern Phoebe has already been found nesting at four widely separated locations well south of its normal breeding range in northeastern British Columbia. Nests have been found in buildings and under bridges and new places to search include Wells Gray Park and Revelstoke where the flycatcher has been found in spring and summer.

While birding along the shrubby edge of a sewage lagoon in **Cranbrook**, **Tony Wideski** discovered a male **Indigo Bunting** paired with a female **Lazuli Bunting** feeding two fledged young on 22 August 2010. **Peter Davidson** saw the family again on 1 September. For further details, watch for an upcoming note in *Wildlife Afield* 7:2, 2010.

A **Common Grackle** nest with young was located in a swamp near **Kotcho Lake**, in the extreme northeast of the province, by **Don Myers** (Figure 16). Only one pair was nesting and very secretive in their behaviour. This is a slight northward extension of the known range.



Figure 16. Common Grackle continues to expand its summer range in northeastern British Columbia and in 2010 was reported breeding in a swamp near Kotcho Lake in the extreme northwestern corner of the province. (Photo by R. Wayne Campbell).

Early and Late Nesting Dates

Early Nesting Behaviour

Some resident species may begin their nesting season at the start of each new year while some migrants may show breeding behaviour earlier than expected. Noticing behaviour such as disappearing flocks at feeders, sudden pairing, intensified calling, or courtship activities is a clue that nesting may have started.

With climate change foremost on the minds of many people, recording early breeding behavior, with follow-up visits to search for a nest, can be useful value-added information to have on file.

In 2010, participants noticed the following behaviours, some of which led to discovering nests or broods.

January 11: Marcia Long observed a Black-billed Magpie flying with a stick in its bill in the Creston valley. The bird landed in a tree where a shallow nest base was evident.

January 13: Wayne and Eileen Campbell, who live in Saanich, watched a male **Anna's Hummingbird** wooing an unimpressed female who was sitting deep inside a bushy six-metre tree. A week or so later, she was seen flying from the feeder to a nearby large Douglas-fir branch where a nest was located.

January 21: Gary Breault, from Creston, wrote: "my Red-tailed Hawks are gathering nesting material."

January 23: Dirk Pidcock, from Kaslo, wrote "the **Chestnut-backed Chickadees** have been observed checking out a nest box in our back area ... in and out a dozen or more times. The sun is great for hormones."

January 27: From Rossland, at 1,100 metres elevation, Jennifer Bergen and Don Young report that **Red Crossbills** have been exchanging "gifts of food" since late January, and male **Red-breasted Nuthatches** have been extremely busy with courtship displays and vocalizations.

February 1: Bonnie Hooge, who lives in the north-central community of Shelley, commented that her husband had noticed a couple of **Bald Eagles** sitting in a tree in the vicinity of a nest from previous years. This is unusual in that it is very early, but January has been very warm. The eagles normally arrive near the nest in March or early April.

February 20 and 23: Brent Wellander observed a **Pileated Woodpecker** excavating a nest cavity in the Creston valley. He provided us a link to his video clip which was featured on our website (www.wildlifebc.org) (Figure 17).



Figure 17. It usually takes a pair of Pileated Woodpeckers three to six weeks to excavate a nest cavity. This pair in the Creston valley, BC., may be ready for nesting in early April. 23 February 2010 Photo by (Brent Wellander).

February 25: Jerry Kingston photographed an adult **Bald Eagle** on its nest, then settling down as if incubating, at the edge of a small roadside cattail marsh opposite Separation Lake south of Kamloops. This is a relatively new nesting site and the presence of nesting eagles has discouraged nesting waterbirds, especially American Coots.

February 27: The first batch of young **Anna's Hummingbirds** left their nests in late February and early March. By the middle of March, second nestings were happening. Twelve nests were reported by 26 March by many observers scattered across southern Vancouver

Island. Ten were found in trees (Douglas-firs - 6 nests, pines - 2 nests, a deciduous tree - 1 nest, and a fig tree - 1 nest), one in a rose shrub, and one on a wind chime. Nests have ranged from 1.5 metres (5 feet) to 6.7 metres (22 feet) above ground. So far, previous nests have not been reused.

March 13: The earliest date for a **Mallard** nest with eggs in *The Birds of British Columbia* is 28 February from the Lower Mainland (Figure 18). A nest with six eggs found by Wayne Campbell in Central Saanich is the earliest reported for Vancouver Island.



Figure 18. Mallard is the earliest nesting duck in British Columbia and on the southwest mainland coast may start laying eggs in mid-February. (Photo by R. Wayne Campbell).

Early Breeding Dates

February 18: In the Creston valley, Linda Van Damme observed a **Great Horned Owl** in a stick nest turning its eggs (Figure 19).



Figure 19. By mid-March, this female Great Horned Owl had probably completed about two-thirds of the incubation process of 30 to 32 days. Creston, BC. (Photo by Linda Van Damme).

February 23 and 24: At Vernon, in the north Okanagan Valley, Chris Siddle spotted a **Great Horned Owl** hunkered low in an old Red-tailed Hawk nest and assumed “she” was incubating eggs.

March 10: The earliest date for a **Bewick’s Wren** nest with eggs in the province is 17 March. Two nests found in Greater Victoria by Wayne Campbell on 10 March are noteworthy. One nest contained eggs and the other was complete but empty.

March 13: Steve Howard found a **Canada Goose** nest with a single egg in a box mounted on the side of a barn in Surrey. This ties the earliest coastal record for BC. (see April 11 below for an interior location) which was also from the Lower Mainland region. The eggs hatched on April 21.

April 4: Ivar Nygaard-Petersen had a recently fledged **House Finch** begging for food at his feeder at Myrtle Point, south of Powell River along the Sunshine Coast. It remained until 29 April with two males and three females. Back calculating, this nest would have had to be started in early March. The previous earliest date was also 4 April, but that breeding record was of a nest with unaged nestlings. See September 21 below for a late date.

April 11: A pair of **Canada Geese** was observed with Class IA goslings on Duck Lake in the Creston valley. This is four days earlier than the date of April 15 given in *The Birds of British Columbia*. When the incubation period of 28 days is considered, the female would have had to start egg-laying on 15 March.

April 12: Carol Pettigrew from Castlegar reports an early nesting for **American Robin**. Her neighbour informed her that the robins built a nest on their property and had started incubating after laying a fourth egg. Thanks to the vigilant family dog, all six birds escaped neighbourhood cats and the robin family of four young successfully fledged.

May 28: The earliest date for **Yellow-headed Blackbird** nestlings (unknown age) is 22 May. On 28 May 2010, fledged young (Figure 20) were found moving about bulrushes near Vernon by Wayne Campbell. This closely matches the previous early date.



Figure 20. When a week to 10 days old, Yellow-headed Blackbird young may leave the nest and cling to rushes before reaching the fledging stage. (Photo by R. Wayne Campbell).

Late Breeding Dates

August 5: Fred Peters from Surrey had the rare opportunity to observe a pair of **Bewick's Wrens** from nest building to fledging of two young. A fledging date of 5 August matches the latest date in *The Birds of British Columbia* and likely represents a second brood.

See *Wildlife Afield* (Vol. 5 No. 2, pages 222-224) for the latest fledging date recorded for the province on 30 September.

August 6: Mark Nyhof observed a large, well-feathered young **Swainson's Hawk** in a nest being attended by adults south of Kamloops (Figure 21). When fledged, the date will be close to the latest known date for the province.



Figure 21. A well-feathered nestling Swainson's Hawk is ready to fledge in less than a week. South of Kamloops, BC. 6 August 2010 (Photo by Mark Nyhof).

August 17: The vagaries of weather and fluctuating water levels in Duck Lake, in the Creston valley, affect the breeding success of **Western Grebes** each year. In 2010, it was a difficult time for them. Linda Van Damme observed courtship behaviour and copulation on the late date of August 17 and seven pairs were still attending nests on September 3.

August 17: A recently hatched downy family of **Sora** rails was observed by Linda Van Damme in a Creston marsh (Figure 22). By 2 September much of their downy plumage had been replaced by feathers.



Figure 22. Although not the latest date for BC, this Sora family is a noteworthy late breeding date for the Creston valley, BC. 17 August 2010. (Photo by Linda M. Van Damme).

August 21: Chris Siddle observed a **Western Wood-Pewee** feeding a bob-tailed fledgling along the Grey Canal Trail in Vernon. This noteworthy late breeding record is five days later than reported in *The Birds of British Columbia* but not as late as 7 September reported in the 2009 annual report.

August 26: The **Anna's Hummingbird** has a breeding period of 231 days in British Columbia which is one of the longest for any of the 315 species breeding in the province. The latest fledging date for British Columbia (and North America) is 3 September 2009 (see *Wildlife Afield* (Vol. 6, No. 2). A newly fledged young, watched by Wayne Campbell being fed by a female near a feeder in Saanich on 26 August is close to the latest breeding date.

August 30: Over half of all Mallard nests reported in the province with eggs have been found between late April and the end of May. On 30 August, Ron Jeffries flushed a hen Mallard from a nest with eight eggs in Saanich, the latest date for Vancouver Island. The latest egg date for British Columbia is 15 October.

September 1: American Crows usually breed in April and May in the Creston valley, so seeing fledged young with evidence of downy feathers and being fed by adults on September 1 is unusually late. This observation by Linda Van Damme is at least one and a half months later than that reported in *The Birds of British Columbia*.

September 8: Janice Arndt observed an adult **Pacific Wren** feeding a single fledged young in the Nelson area. This date is close to the latest known date of 12 September listed in *The Birds of British Columbia* and likely represents a second brood.

September 21: A late brood of fledged young **House Finches**, with lots of down still showing, was noticed at a bird feeder at Myrtle Point by Iva Nygaard-Petersen (Figure 23). This fledgling stage is at least a month later than previously reported. It appears that House Finch may have at least three broods a year on the coast. Considering the early fledging reported on 4 April, the species' entire breeding season can last about 200 days in the northern Sunshine Coast area.



Figure 23. Recently fledged family of House Finches eating at a feeder accompanied by an adult male. Note the tufts of down feathers on the top of their heads. Myrtle Point, BC. 21 September 2010 (Photo by Ivar Nygaard-Petersen).

September 22: A male and female **House Finch** were observed by Linda Van Damme feeding a single fledged young with downy tufts on its head in Creston.

September 25: The latest fledging date for **Osprey** in *The Birds of British Columbia* is 4 September. So, a nest containing young reported to Chris Siddle in Vernon is unusually late. In the 2009 annual report, a late fledging date of 23 September was listed.

See **Monitoring Nesting Birds of Prey** (page 62) for additional September dates.

Nesting Failures

Fluctuating water levels and drying conditions at many interior wetlands were the most noticeable causes of nesting failures and site abandonment in 2010.

In the Cariboo region, most **American Avocets** had a difficult time, mainly due to loss of preferred nesting habitat. On Bechers Prairie, a small nesting colony had become established on small islets in a lake, but which in 2010 had disappeared due to low water levels. Many of the other well-known sites, especially in southern parts of the region, were also abandoned and a few pairs tried to breed on receding shorelines where mammalian predation was always a concern (Figure 24). It appears only a couple of pairs were successful.



Figure 24. In 2009, a pair of American Avocets nested on a small islet in this lake along the Meadow Lake Road in the south Cariboo region. In 2010, water had receded significantly exposing large expanses of alkaline shores. Avocets abandoned the area. 22 June 2010 (R. Wayne Campbell).

At a new site in the southeastern fringes of the Cariboo region, a pair of avocets selected a shore location to nest in late May. The site was only 10 metres from water but by late June the nest site was more than 50 metres from water and no adults (or young) were seen.

At some locations, **Red-necked Grebes** delayed egg-laying with unstable water levels. This was really evident at Stump Lake where a thriving colony has now been reduced to isolated pairs trying to find flotsam upon which to build their nests. At 108 Mile Lake, several pairs finally started building nests and laying eggs in mid-June with the site only a few metres from shore (Figure 25).



Figure 25. After several attempts to build a nest among aquatic surface vegetation, this pair of Red-necked Grebes built a nest in only nine inches of water and during incubation the site became high and dry. 108 Mile Lake, BC. 6 June 2010 (Photo by R. Wayne Campbell).

Western Grebes at Duck Lake in the Creston valley had an unsuccessful breeding season due to weather events (see Long-term Monitoring page 52).

Finding a **Sandhill Crane** nest is always a highlight for any nest finder. It was really disappointing then for Wayne Campbell to discover two nests in Cariboo marshes that had recently been predated by Common Ravens (Figure 26).



Figure 26. Predated Sandhill Crane eggs. Near Riske Creek, BC. 16 June 2010 (Photo by R. Wayne Campbell).

Nesting **Yellow-headed Blackbirds** had varying success depending on which part of the province was being visited. Due to the late and stormy spring, most colonies at high elevations had poor success, some as high as 75% failure compared to surveys in 2009. At lower elevations in the Okanagan Valley, reproductive success was above average (65 to 85%) while at some sites in the Thompson-Nicola region of the south-central interior high water levels were a problem. This was a combination of spring runoff and ranchers maintaining overflow in aquatic systems for irrigation purposes. At one site, less than 20% of nesting Yellow-headed Blackbirds fledged young compared to totals in 2009 (Figure 27).



Figure 27. At some Yellow-headed Blackbird colonies, rising water levels flooded many nests either partially, or totally, culminating in poor reproductive success. Near Westwold, BC. 27 June 2010 (Photo by R. Wayne Campbell).

Throughout British Columbia, **Brewer's Blackbirds** often establish small breeding colonies in hedgerows bordering agricultural fields. This is unknown to farmers who irrigate their fields at a time when nestling blackbirds are appearing in nests. During the first few days of their life, naked nestlings are vulnerable to chilling and hypothermia. At one site (Figure 28) three such nests contained dead young.



Figure 28. Water from irrigation sprinklers reaching Brewer's Blackbird nests during the early stages of nestling growth can cause death by drowning and hypothermia. Salmon River, BC. 30 May 2010 (Photo by R. Wayne Campbell).

By the mid-1940s, the breeding range for Brewer's Blackbird included Vancouver Island and the interior north to Nulki Lake west of Prince George. While populations have declined elsewhere in North America in recent years, the species is thriving in British Columbia and has now extended its breeding range to include the northeastern corner of the province.

Each nesting season there are many instances of direct and indirect natural predation of eggs and young. This can have an impact locally, especially in colonies, or for a species generally distributed such as **Canada Goose** (Figures 29 and 30).



Figure 29. Early in the nesting season, the tell-tale signs of predation on Canada Goose eggs by Common Ravens at the base of fence posts are not an uncommon sight. Guichon Creek, BC. 29 May 2010 (Photo by R. Wayne Campbell).

Unusual Nest Sites

One of the frequent challenges facing nest-finders is the presence of a bird exhibiting nesting behaviour and not being able to locate its nest. All of the traditional sites are checked but then suddenly a surprise - a nest is located in the most unlikely of places. Here are a few discovered in 2010.

The long-legged **Greater Yellowlegs** is a master at concealing its nest and eggs and fewer than 20 nests have been found in the province. The species usually nests on the ground in swampy wooded habitats often close to water. It was a complete surprise when in June **Wayne Campbell** stumbled on a nest with eggs on a nesting platform set out for Black Terns in the middle of a sedge marsh north of **Prince George**.

Most **Rufous Hummingbird** nests reported in the province are saddled near the tip of a low conifer branch. **Gary Breault** photographed a nest built on a light socket of Christmas lights hanging from the top deck of **Ernie Olfert's** house in west **Creston** (Figure 31). The nest, which was more visible from inside the house, contained two eggs.



Figure 30. Sometimes Canada Goose nests are flooded and the eggs, which may be well developed, float in the marsh near the nest site. Near Riske Creek, BC. 6 June 2010 (Photo by R. Wayne Campbell).

Each season nesting failures are reported for **Tree Swallows** utilizing nest boxes along the hundreds of kilometres of routes scattered throughout the province. Success varies with each region; however swallows nesting at Corn Creek Marsh within the Creston Valley Wildlife Management Area suffered a greater reduction in breeding success than that reported for other areas. Carla Ahern and Pat Huet, who check the Tree Swallow nest boxes every two weeks or so during the nesting season here, mentioned it “was a terrible year.” Out of 66 boxes examined, only 30 boxes (45%) held nestlings. In addition, only 65 nestlings occupied the boxes, and likely fledged, compared with 296 young in 2009.

Pat and Carla found many lovely nests with no occupants and quite a few broken eggshells. It appears something was getting into the boxes, but they couldn't figure out who the predator was. If the same problem occurs in 2011, they will focus on finding out what the intruder is.



Figure 31. There are only three such records in the BCNRS files of Rufous Hummingbirds nesting on a light socket. Creston, BC. 2 June 2010 (Photo by Gary Breault).

The **Say's Phoebe** nests in a wide variety of natural and human-made sites including rock crannies in the alpine. Occasionally it uses the old nests of other species such as this **Barn Swallow** nest found by **Wayne Campbell** near **Douglas Lake** (Figure 32).



Figure 32. For the past five years, a pair of Say's Phoebes, presumably the same ones, built a nest and raised their family each year atop an old Barn Swallow nest in abandoned buildings on the Douglas Lake Ranch, BC. 27 June 2010 (Photo by R. Wayne Campbell).

While commonly known to nest in any human-made crevice in buildings and yards that provide shelter and safety, the **Bewick's Wren** can be lured into accepting strange and colourful structures. Since a pair of wrens was seen searching for a place to build their nest, **Mark Nyhof** hung a pottery jug under his house eave in **Saanich** by a side porch (Figure 33). It wasn't long before it was claimed as a summer home. By 4 July, the parents were busy feeding young.



Figure 33. This colourful home, designed by a modern potter, was used by a pair of Bewick's Wrens to raise their family. Saanich, BC. 9 June 2010 (Photo by Mark Nyhof).

House Wrens typically nest in crevices and cavities in natural and human-made situations including nest boxes. In British Columbia, however, they are using an alternate and somewhat unique site. **Mark Nyhof** found a House Wren nesting in a Cliff Swallow nest built inside an old trailer near **Douglas Lake** in the south-central interior of the province (Figure 34).



Figure 34. This photo of a House Wren using a Cliff Swallow nest for breeding is a first for British Columbia, and perhaps North America. Near Douglas Lake, BC. 17 July 2010 (Photo by Mark Nyhof).

Occasionally **Violet-green Swallows** in western Canada nest openly outside the cover and protection of a dark crevice or cavity. In 2008, Chris Siddle reported a pair of violet-greens nesting in an old American Robin nest (see *Wildlife Afield* 5(1), 48-49). In 2010, **Mark Nyhof** found a pair of swallows feeding nestlings in an open nest set on a ledge inside a salt storage building (Figure 35).



Figure 35. Female Violet-green Swallow feeding newly hatched young in an open, cup-shaped nest in a Department of Highways building. Northeast of Hope, BC. 19 July 2010 (Photo by Mark Nyhof).

While adaptable in its choice of nest sites, the locations of some **Barn Swallow** nests are still surprising. **Mark Nyhof** found two unusual nest sites in the **Greater Victoria** area. An abandoned outhouse was used by one pair that built its nest atop a toilet paper dispenser (Figure 36). It was successful. The second pair needed some human help for its choice, and safety, of a nest site. The swallows built their nest on top of an aluminum stepladder leaning against a wall (Figure 37a). The site was used until the young fledged (Figure 37b).



Figure 36. Barn Swallow nest built atop toilet paper dispenser. Victoria, BC. 8 June 2010 (Photos by Mark Nyhof).



Figure 37. When Yacht Club staff in Victoria, BC., discovered a Barn Swallow's nest on top of their ladder (a) in their maintenance shed, a warning sign was posted to ensure the safety of the birds (b). On 24 July, the young swallows were close to fledging. (Photos by Mark Nyhof).

Quentin Brown, while traveling in the south Okanagan Valley, discovered a **Barn Swallow** nest in the underground parking lot at the Holiday Inn in downtown **Osoyoos** (Figure 38). Fortunately, there was open access for the parents.



Figure 38. Barn Swallow nest on pipes in underground parking lot at Holiday Inn, Osoyoos, BC. 22 July 2010 (Photo by Quentin Brown).

Since announcing our “Barn Swallow Alert” in the 49th Annual Report (2003 Nesting Season) we have received 2,032 breeding records bringing our 56-year total to more than 10,000 individual nest cards.

Noteworthy Species Information Since *The Birds of British Columbia*

The number of **Downy Woodpecker** breeding records usually varies between 10 and 20 each year, and most are from coastal regions, so a record by **Ralph Gerein** of a family in his yard in **Wynndel** is noteworthy. Ralph was a bit surprised that the group remained at his suet feeder during the cool, wet weather of June.

Linda Van Damme observed a female **Wood Duck** with a brood of 19 Class 1A ducklings in tow on 2 June along the **Old Goat River** channel in the Creston valley. There is only one previous record of a single female with such a large brood.

Although **Sharp-shinned Hawk** probably breeds throughout much of the province, nests are difficult to find and information is lacking for many areas. There have been 18 breeding records submitted to the BCNRS in six out of the past 10 years. Therefore, **Linda Van Damme’s** sighting of a family with fledged young in the **Boundary Lake** area extends the known breeding range southward.

Dusky Flycatcher nests (Figure 39) are usually discovered by chance and this is one reason so few are reported each year. **Marcia Long**, however, found two active nests this season (one with eggs and one with young) in the **Creston valley**, a difficult area to search.



Figure 39. Adult Dusky Flycatcher sitting in nest built in a small willow. East Arrow Creek, BC. 4 July 2010 (Photo by Marcia Long).

If you want to find a **Pacific-slope Flycatcher** nest in the interior, it is a good idea to check abandoned buildings, bridges, and seldom used human-made structures. **Nancy Krueger** did just that and discovered an adult on a nest inside a women's outdoor toilet in **Barkerville** and at the same time provided a nesting location for a species that nests only locally in the interior of the province (Figure 40 a and b).



Figure 40. This incubating Pacific-slope Flycatcher decided to build its nest inside a women's outdoor toilet (a) for visitors to Barkerville, BC., inside a metal air freshener cage (b) attached to the wall. The nest had four eggs. 6 July 2010 (Photo by Nancy Krueger).

Vicky and **Lloyd Atkins** continued to enhance the **Western Kingbird** database with many breeding records from the **Vernon** area. This year nests were spotted in a variety of sites including crossbeams of city utility poles,

saddled among telephone wires, crotches of trees, and wedged behind transformer boxes. In rural areas, any structure big enough to support a nest was often utilized (Figure 41 a and b).

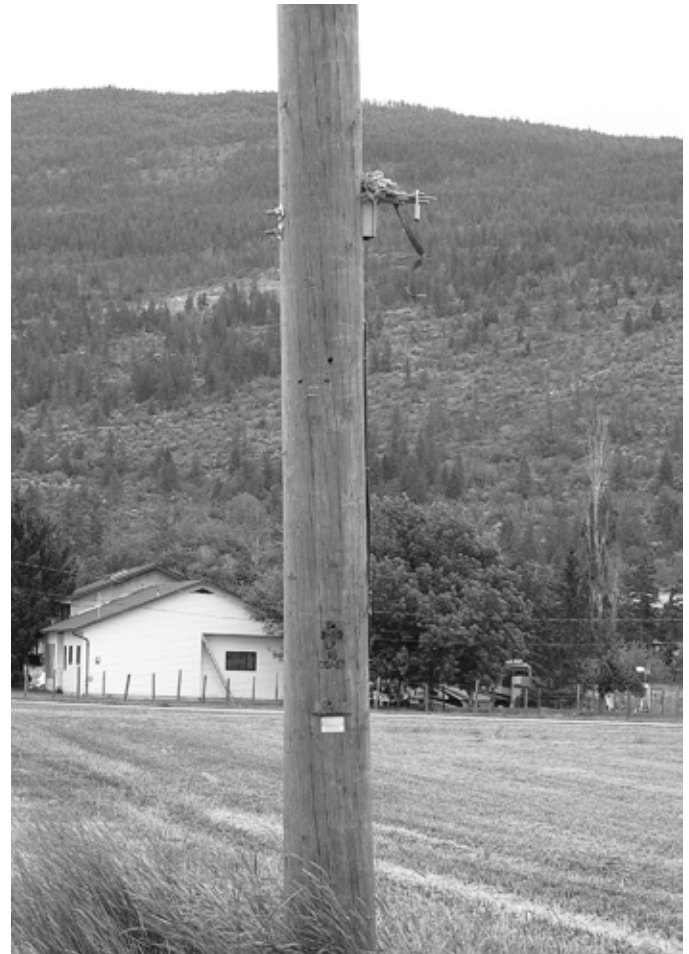


Figure 41. This pair of Western Kingbirds, a new nest site for Vicky and Lloyd Atkins, built their nest on a metal flange attached to utility pole (a). It contained three downy nestlings (b). Near Vernon, BC. 27 June 2010 (Photos by Vicky Atkins).

Often it is helpful to know when a migrant returns so its nest sites can be explored. **Tim Kendrick** kept track of first arrival dates for **Violet-green Swallow** (Figure 42) while walking regularly along the water front in **Nelson** for 13 years between 1997 and 2009. Early dates ranged from 11 March to 8 April with an average arrival date of 26 March. In 2010, Violet-greens had not yet returned by 30 April.



Figure 42. In British Columbia, Violet-green Swallow is an early nester with eggs reported on 1 April in some years. It appears that most birds in Nelson start breeding mostly during the latter part of April. (Photo by R. Wayne Campbell).

Spending two hours in a seabird colony can yield hundreds of nests but in a forest many hours can yield little or nothing. **Mark Nyhof** spent a lot of time in second-growth and mature mixed coniferous forests on southern Vancouver Island in 2010. He was well rewarded with an astounding **26 breeding records** for **Brown Creeper**. His total included 21 actual nests (Figure 43) and five observations of fledged young being fed by parents. Mark's one summer effort was nearly half of the total of 56 breeding records contributed by many different people that were used to write the species account in *The Birds of British Columbia!*



Figure 43. One of 26 breeding records for Brown Creeper discovered by Mark Nyhof in 2010. On 9 May adult Brown Creepers were busy building their nest behind loose bark on a maple tree. Later in the month the nest contained six eggs. Victoria, BC. 31 May 2010 (Photo by Mark Nyhof).

In 2009, **Linda Van Damme** discovered a major eastern extension of breeding range for **Bewick's Wren** in the **Creston valley** (see *Wildlife Afield* Vol. 6, No.2). She was hopeful they might breed again in 2010 and although the wrens were heard on territory at five separate locations, breeding was not confirmed.

The **House Wren** is a rare and local breeder in the **Creston valley**. In 2008 and 2009, **Pat Huet** had a single male singing vigorously in her yard but it was unable to attract a mate. It did not return in 2010. However, **Caryle Schroeder** had a pair successfully use one of her nest boxes on her property in nearby **Erickson** this season.

The North Peace River region is at the northern limit of the continuous breeding range for **Mountain Bluebird** in the province. While there is one earlier breeding record for the Hudson's Hope area, **Steve Myers** found an active nest at **Lynx Creek** in 2010 suggesting the species is still "hanging on" in the northern limit of its range (Figure 44).



Figure 44. A pair of Mountain Bluebirds with food for nestlings in a trembling aspen snag at Lynx Creek, BC. 8 July 2009 (Photo by Lillian Myers).

Most **Cedar Waxwing** clutches found in the province contain four or five eggs (66%; n=334). There is a single record of a nest with seven eggs. Therefore, another nest with seven eggs found by **Mark Nyhof** is noteworthy (Figure 45).



Figure 45. This is the second nest with seven eggs reported for British Columbia. Near Merritt, BC. 16 July 2010 (Photo by Mark Nyhof).

The breeding range for **Tennessee Warbler** extends from the northeastern interior south to the vicinity of Sparwood in the southeast corner of the province. In 2009, **Kevin Knight** observed a male singing along Hartley Creek Road, north of Fernie. This season, on an atlassing trip into the **Flathead valley**, Kevin heard a male warbler singing on the first field day. Over the weeklong stay, males were heard singing in multiple sites on the western slopes of the valley. It seems this could be the new frontier for a local breeding population.

Not many nests of **Orange-crowned Warbler** are found each nesting season and fewer yet are found above ground. This nest with four eggs (Figure 46), discovered by **Mark Nyhof**, was tucked into the ivy against the trunk of a small stub at 1.5 m (5 ft). This is the highest nest record for the province and the egg date matches the earliest known nest with eggs.



Figure 46. Orange-crowned Warbler nest with four eggs sets a new height-above-ground site and matches the earliest known date a nest has been found with eggs. 2 May 2010. Victoria, BC. (Photos by Mark Nyhof).

While American Crow and Gray Jay, and a few other passerines, have been known to use Kleenex or toilet paper in their nests, it is rare for **Yellow Warbler**. **Rita Wege** photographed such a nest this nesting season at **Shoreacres**. (Figure 47).



Figure 47. Yellow Warbler nest with bits of Kleenex or toilet paper incorporated into its construction. Shoreacres, BC. 14 June 2010 (Photo by Rita Wege).

Spotted Towhee continues to expand its breeding range northward through the southern interior of the province and although found breeding to the Alberta border in southern regions it is continuing to fill distribution gaps. On 2 July, **Marlene Johnston** noticed a juvenile in her yard at **Lardeau** and mentioned “this is the first I’ve seen here.”

Three new breeding sites for **Lincoln’s Sparrow** were located between 1165m and 1333m elevation on the western slopes within the Creston valley watershed by **Linda Van Damme**. These discoveries build on the range expansions in the valley from 2009.

Although **White-crowned Sparrows** are recorded throughout the breeding season at higher elevations in the Creston valley, it is a challenging landscape to search for nests. Patience paid off this season for **Marcia Long**

and **Linda Van Damme** when they discovered two nests, each with four small nestlings as well as a brood of three bob-tailed fledged young, and all within the Engelmann spruce zone on the western slopes of the valley.

Wilson’s Warblers are widely distributed throughout the province; however, the species is poorly represented in BCNRS files. While exploring the **Mica Creek** area during the first two weeks of August, **Ed Beynon** documented two breeding records at 2,500 m elevation in an area with large sedge meadows surrounded by Engelmann spruce forest and willow thickets along Yellow Creek. These were the only breeding records received in 2010.

Common Grackle has been in British Columbia since at least 1938 when it was first discovered during a provincial museum collecting trip to the southern Peace River region by the late Ian McTaggart-Cowan and Patrick Martin. Over the next seven decades, the species has slowly extended its breeding range northward throughout the entire northeast portion of the province.

It was assumed that grackles arrived in the province to breed in the northeast through the Peace River region of adjacent northwestern Alberta. But during the 1990s, the species was being reported more frequently and had been seen in at least 28 widely separated locations in the southern interior which suggested that some of the birds may be nesting. This was strongly suspected in the riparian willows along Shuswap Lake but never confirmed.

In spring 1981, Common Grackles started appearing in residential areas of **Fernie** and in the early 1990s was found breeding. **Kevin Knight** has been keeping track of the species since then and in 2010 at least five pairs were using evergreen trees as nest sites.

The additional nest site in a cattail marsh reported in 2009 (see 55th annual nest record scheme report) near **Swan Lake** in the Cariboo was not used in 2010 nor were any single grackles seen during surveys of wetlands in the area.

A nest found in a flooded willow swamp by **Hugh Fraser** near **Kotcho Lake**, in extreme northeastern BC, in 2010 extended the species’ breeding range northward from Fort Nelson.

See *Wildlife Afield* (Vol. 6. No. 2) for a detailed summary of these extralimital breeding records.

Highlights

Families and Species

The diversity of birds now breeding in British Columbia has reached **315** species, representing 54 of the 62 families found in the province.

Six families, including 58 species, again dominated 2010 and historical totals with over 1,200 individual breeding records each. Combined, these groups accounted for 74 % of all cards submitted in 2010. Not surprisingly, colonial-nesting **Gulls and Terns** (nine species with 8,748 records) topped the family list for most records due almost entirely to historical information that was transferred from publications. Unlike previous nesting seasons, **blackbirds** (nine species with 2,823 records) and **grebes** (six species with 2,485 records) followed as the result of surveys of wetlands completed in 2010.

Highest species' number for the six families, in descending order, were **Glaucous-winged Gull** (7,165), **Eared Grebe** (2,062), **Yellow-headed Blackbird** (1,719), **Pelagic Cormorant** (1,118), **Tree Swallow** (727; Figure 48), and **Mallard** (556; Figure 49).



Figure 48. Tree Swallow, not the original target species for nest boxes, has benefited greatly from the many trails scattered around the province. This collection of four Tree Swallow nestlings are about two days old. Vernon, BC. 25 June 2010 (Photo by Vicky Atkins).



Figure 49. Almost all breeding records for Mallard were sightings of a brood accompanied by a female. Fortunately, most records contained value-added information describing the age-classes of the young. Duck Lake (Creston), BC. 3 June 2010 (Photo by Brent Wellander).

Other noteworthy bird family totals, without colonial-nesting species, were the **Bluebirds** and **Thrushes** (eight species with 714 records), **Ospreys, Eagles** and **Hawks** (nine species with 512 records), **Oystercatchers** (one species with 465 records), and **Towhees, Sparrows** and **Juncos** (12 species with 308 records).

The large number of **Black Oystercatcher** records, nearly twice that received in 2009, were mostly of clutches of eggs extracted from historical field notebooks and publications (Figure 50).

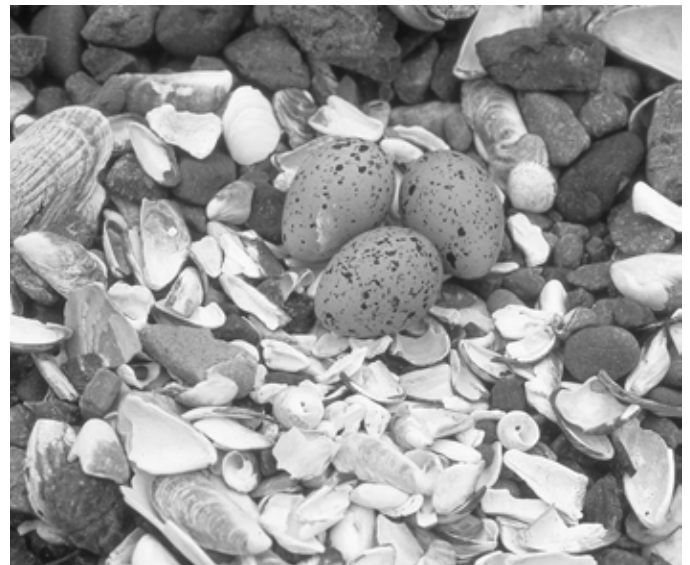


Figure 50. Over 90% of all breeding records for Black Oystercatcher received in 2010 were of nests with eggs. Thornton Island, BC. 24 June 1975 (Photo by R. Wayne Campbell).

There is always a bias in reporting large numbers of nests or broods when colonial-nesting species are included. To help clarify where most of the high numbers originated we have listed the top five species for historical and the 2010 nesting season. These have been further broken down into colonial versus solitary nesting species with totals so the effort in counting and locating nests can be appreciated (Table 1). For example, a single visit to a gull colony may yield a thousand nests in a day while finding that many Yellow-headed Blackbird nests in their colonies could take an entire summer or more.

The historical records for **Pelagic Cormorant** (Table 1) were significant because most colonies are difficult to access and obtain counts of nests. The historical **Eared Grebe** and **Yellow-headed Blackbird** totals include actual nest counts for six old colonies and a previously unknown one. More historical records were received for **Black Oystercatcher** and **Spotted Sandpiper** than for the 2010 nesting season.

Current year totals for **Yellow-headed Blackbird** and **Red-winged Blackbird** were at all-time high annual numbers (Table 1). High numbers of box-nesting **Tree Swallow** (727) and **Mountain Bluebird** (411), a total of 1,131 nests, adds significant new data for long-term analysis of nest box productivity in the province and how it varies regionally.

BCNRS species files were enhanced significantly by numbers of breeding records for the following species: **Marsh Wren** (193), **Herring Gull** (192), **Brewer's Blackbird** (148), **Red-necked Grebe** (143), **Killdeer** (102), **Common Loon** (99), **Pied-billed Grebe** (96), **Brown-headed Cowbird** (79), **Great Horned Owl** (59; Figure 51), **House Sparrow** (58), **Eastern Kingbird** (52), **Lewis's Woodpecker** (43), **Brown Creeper** (38), **Sora** (29), **Sandhill Crane** (26), **Horned Grebe** (19; Figure 52), **Mute Swan** (18), **Arctic Tern** (13), **Wilson's Phalarope** (12), and **American Avocet** (7).

Table 1. Totals for historical and current (2010) breeding records received in 2010 for the top five species for colonial and solitary-nesters.

Top Five Bird Species			
Historical Records		2010 Records	
Colonial-Nesting	Solitary-Nesting	Colonial-Nesting	Solitary-Nesting
Glaucous-winged Gull (7,164)	Black Oystercatcher (462)	Yellow-headed Blackbird (1,547)	Tree Swallow (720)
Pelagic Cormorant (1,118)	Mallard (226)	Eared Grebe (1,309)	Canada Goose (414)
Eared Grebe (753)	Canada Goose (95)	Ring-billed Gull (968)	Mountain Bluebird (411)
Yellow-headed Blackbird (172)	Spotted Sandpiper (85)	American Coot (764)	Mallard (330)
Leach's Storm-Petrel (168)	Wood Duck (80)	Red-winged Blackbird (675)	Osprey (223)

Brown-headed Cowbird Parasitism

The **Brown-headed Cowbird** is a brood parasite that usually lays its eggs in nests of other small passerines. At least 220 species, including raptors, shorebirds (see *Wildlife Afield* 5(2): 215-216, 2008 for British Columbia record of a Spotted Sandpiper), and hummingbirds, have had cowbird eggs found in their nests. Most host species, however, are passerines that often raise the cowbird in place of their own young. In North America, research has shown that a single female Brown-headed Cowbird may lay up to 40 eggs in a single season, usually only laying a single egg in a nest.

Seventy nine instances of parasitism, either nests with eggs or nestlings, or recently fledged young being fed by its host, were reported this season for 32 species. Host species listed in alphabetical order included **American Redstart** (2), **American Robin** (3), **Black-capped Chickadee** (1), **Black-headed Grosbeak** (1), **Canada Warbler** (1), **Cedar Waxwing** (1), **Chipping Sparrow** (4), **Common Yellowthroat** (2), **Dark-eyed Junco** (2), **Hammond's Flycatcher** (1), **Hermit Thrush** (1), **Lazuli Bunting** (2), **Nashville Warbler** (1), **Pacific-slope Flycatcher** (1), **Red-eyed Vireo** (1), **Red-winged Blackbird** (4), **Ruby-crowned Kinglet** (1), **Savannah Sparrow** (1), **Song Sparrow** (12), **Spotted Towhee** (6), **Swainson's Thrush** (3), **Swamp Sparrow** (1), **Townsend's Solitaire** (1), **Warbling Vireo** (11), **Western Tanager** (1), **White-crowned Sparrow** (2), **White-throated Sparrow** (1; Figure 53), **Willow Flycatcher** (3), **Wilson's Warbler** (1), **Yellow-headed Blackbird** (1), **Yellow-rumped Warbler** (5), and **Yellow Warbler** (3).

Over 2,000 instances of Brown-headed Cowbird parasitism has been documented in British Columbia for nearly 90 host species. The top five parasitized species are Chipping Sparrow, Yellow Warbler, Willow Flycatcher, American Goldfinch, and Yellow-rumped Warbler.



Figure 51. Most of the 59 Great Horned Owl breeding records were of nests containing large young or recently fledged young. This young owl (top), being watched by its mother, is over a month old. Near Vernon, BC. 8 May 2010 (Photo by Vicky Atkins).



Figure 52. Many of the traditional sites used by Horned Grebes for nesting have been vacated so it is important to record specific details of every new nest or brood encountered. GPS coordinates were obtained for this small unnamed bulrush marsh in the western Chilcotin, BC. 22 June 2010 (Photo by R. Wayne Campbell).



Figure 53. Finding a nest with five Brown-headed Cowbird eggs in it is very unusual. While walking in a mature trembling aspen forest near Fellers Heights, BC., on 10 June 2010, Mark Phinney found a White-throated Sparrow nest with seven eggs, five of which belonged to a cowbird. In this photograph, the top three eggs in the top row on the left, and the bottom two eggs on the bottom row on the right, are cowbird eggs (Photo by Mark Phinney).

Nearly 30% (23 nests) of all instances of parasitism were accounted for by Song Sparrow and Warbling Vireo, well-known host species. Unusual host species reported was a cavity-nesting Black-capped Chickadee; the Black-headed Grosbeak, a known ejector of cowbird eggs (see Figure 55); and two species of marsh-nesting blackbirds. The latter records are probably the result of intensive wetland surveys where parasitism by cowbirds may occur more often than is generally recognized.

Townsend's Solitaire is a very rare host for the Brown-headed Cowbird in British Columbia. Of 409 solitaire nests in BCNRS files, only eight (2%) have been parasitized by cowbirds and only once did a nest contain two cowbird eggs. A Townsend's Solitaire nest discovered by Mark Nyhof containing four of its own eggs and three cowbird eggs is a significant discovery (Figure 54).



Figure 54. Finding three Brown-headed Cowbird eggs in a Townsend's Solitaire nest is the most reported for North America for this host species. Rock Creek, BC. 15 July 2010 (Photo by Mark Nyhof).

Black-headed Grosbeak is an infrequent host of the Brown-headed Cowbird and is not known to successfully rear cowbird chicks. Parasitism occurs more often in the interior of the province than on the coast. In 107 nests found in British Columbia, only six percent were parasitized. A nest located by **Mark Nyhof** containing three grosbeak eggs and two cowbird eggs is noteworthy (Figure 55).



Figure 55. The chance of finding a Black-headed Grosbeak nest parasitized by Brown-headed Cowbird is almost unique because the host species is known as an ejector of cowbird eggs. Oliver, BC. 16 July 2010. (Photo by Mark Nyhof).

Twenty-four individuals and organizations found evidence of parasitism and completed two separate nest cards, one for the host species

and the other for the cowbird. These included: **Errol Anderson, Ed and Hazel Beynon, Gary Breault, R. Wayne Campbell, Evi Coulson, Gary Davidson, Clint and Irene Davy, Hugh Fraser, Warren Gilchrist, James Grant, Penny Hall, Ted Hillary, Robert E. Luscher, Arthur L. Meugens, North Okanagan Naturalists Club, Ivar Nygaard-Petersen, Janne Perrin, Mark Phinney, Glenn R. Ryder, Chris Siddle, and Linda Van Damme.** Mark Nyhof found 12 parasitized nests for 11 different host species including a pair of Ruby-crowned Kinglets feeding a fledged cowbird on the late date of 17 July.

Each nest card is filed separately in the BCNRS. This readily allows examination of changes in frequency of parasitism among hosts as well as regional changes throughout the province over time.

Coverage

Since the BCNRS is a volunteer-based endeavour, there was no attempt in 2010 to systematically focus an effort on any particular area, such as Haida Gwaii (Queen Charlotte Islands), Vancouver Island, or the Okanagan Valley. Rather, breeding records were received from widely scattered locations, although several areas, by default or personal interests, received more thorough coverage.

About 34 percent of the 1:50,000 National Topographic Service map grids were represented for all historical and 2010 records included in this report. Twenty-two percent were covered by participants in 2010. Figure 56 shows the distribution of breeding records reported for NTS grids throughout the province in 2010.



Figure 56. Provincial coverage for the British Columbia Nest Record Scheme in 2010 by 1:50,000 National Topographic System (NTS) grid cells.

Transferring historical breeding records for seabirds gave most of the outer and inner coastal areas excellent representation in 2010. The Lower Mainland, central Fraser River valley, and Sunshine Coast also had nearly complete coverage. Parts of the Okanagan valley, the Cariboo-Chilcotin, West Kootenay, Thompson-Nicola, Shuswap Highland, the Prince George region, and the North Peace River region were also well covered, especially where wetlands were prevalent.

For some grids, the area is covered only superficially with spot checks as people are travelling through. For others, only specific habitats (*e.g.*, wetlands; Figure 57) were searched, while grasslands, forests, and other vegetative associations were essentially ignored.



Figure 57. Some smaller lakes in the southern interior in 2010 retained enough water so nesting islets could still be used by waterbirds. Flat Lake, BC. 23 June 2010 (Photo by R. Wayne Campbell).

Again, the **Creston valley** received the most comprehensive and intensive coverage and is becoming the most consistently searched region in the province. In 2010, the Creston valley group had a record nesting season! Twenty-eight individuals investigated many parts of the valley including grids 82F/1 and 82F/2, tallying **1,011 breeding records** for an astounding **102 species**. The latter figure is almost 43% of the 239 species found for the entire province in 2010.

Valley landscapes explored included lakes, marshes, sloughs, agricultural fields, residential properties, black cottonwood forests, mountain slopes, creeks, and river shores. Most

of the breeding records were for solitary-nesting species which emphasizes the huge effort by the following individuals: **Carla Ahern, Marc-André Beaucher, Gary Breault, Cyril Colonel, Vic Cousineau, Colleen Erickson, Ralph and Elsie Gerein, Terry Good, Ron Granger, Sigrid Hert, Barb Houston, Pat Huet, Tim Kendrick, Sharon Laughlin, Marcia Long, Ed and Holly McMackin, Ernie Olfert, Lorne Ostendorf, Cindy Poch, Gary Richards, Bob Rogers, Clare Schadel, Caryle Schroeder, Lorraine Scott, Brent Wellander, and Linda Van Damme.** Highlights for the Creston valley included confirmed breeding for **Ruddy Duck, Long-eared Owl, Northern Saw-whet Owl, Blue Jay** (Figure 58), **Eastern Phoebe, Say's Phoebe** (double-brooded), and **House Wren.**



Figure 58. Blue Jay is a rare resident of the Creston valley. Two breeding records were confirmed in 2010, one within Creston town limits and one in nearby Wynndel. Creston, BC. 2 February 2008 (Photo by Linda M. Van Damme).

The **Kalamalka Lake, Coldstream, Vernon, and Swan Lake** regions of the north Okanagan valley is another area that is covered

well every year by a small group of long-time participants. The important contribution here is the methodical approach to data-gathering, mainly by **Vicky** and **Lloyd Atkins** and **Chris Siddle**, and earlier **Alice Beals**. Regular sites are visited about the same time of year with about the same effort.

Vi and **John Lambie**, once again, reported nesting events from the **Mackenzie** area, helping to fill in gaps for breeding birds in the central portion of British Columbia. **Ted Hillary** continued to provide first-rate coverage for the water portion of the southern end of **Shuswap Lake** and residential areas of **Salmon Arm**.

Fieldwork this year by **Wayne** and **Eileen Campbell** was concentrated in the south-central region of the province from the Cariboo-Chilcotin region south to the USA border. Many new wetlands were searched for breeding birds and Black Tern nesting platforms were also checked for occupancy.

Other areas especially well covered in 2010 included **Campbell River** (Ed Silkens), **Harrison Hot Springs** (Janne Perrin; see *Participant Profile* on inside back cover), **East Kootenays** (Sheila Reynolds), **Kamloops** region (Willie Haras and Wayne and Eileen Campbell), **Lower Mainland** (Errol Anderson, Kevin Atkins, Wayne Campbell, and Glenn Ryder), **North Peace River region** (Don Myers, Mark Phinney, Michael Preston and Andrew Tyrrell), **Pemberton** (Ruth Hellevang), **Powell River** (Ivar Nygaard-Petersen), **Prince George** (Nancy Krueger and Elsie Lafreniere), **Revelstoke** (Orville Gordon), **Rithets Bog** (Wayne Campbell), **Shuswap Lake/Salmon Arm** (Ted Hillary, Tom Brighthouse, Ed and Monica Dahl, and Hilary Gordon), **Smithers/Telkwa** (Evi and Mel Coulson and Marcus Womersley), **Swan Lake** (Vernon) (Wayne Campbell), and the **West Kootenay** region (Janice Arndt, Ed and Hazel Beynon, Gary Davidson, Marlene Johnston, Elaine Moore, Larry Prosser, Lorraine Symmes, and Rita Wege).

The entire north-central and northwestern portion of the province was poorly covered although some historical information was transferred for the regions.

For the entire total (25,404 records) the top five areas with highest numbers were from the vicinity of **Charlie Lake-Cecil Lake-North Pine** (094A/7), **Brooks Peninsula** (92L/4), **Creston valley** (82F/1 and 82F/2), **Vernon** (82I/6), and **Westwold** (82L/5).

The five highest numbers of species in a grid were reported for the vicinity of the **Creston valley** (102 species), **Vernon** (62 species; Figure 59), **Merritt** (60 species), **Westwold** (42 species), and **Williams Lake** (41 species).



Figure 59. Proof of breeding was reported for a respectable 62 species, including this Killdeer chick, in the north Okanagan Valley in 2010. Near Vernon, BC. 20 June 2010. (Photo by Vicky Atkins).

Participants

With gasoline, accommodation, and food costs increasing it is remarkable that our volunteers were still able to commit the time and money they did to contribute to the BCNRS. We are also grateful they are focused and that they understand the significance of maintaining longevity in gathering consistent data on the province's breeding birds.

In 2010, 272 participants started their search for nesting birds in January and finally called it a "year" nine months later in September. Then, they spent part of their autumn completing nest cards! And the results showed - it was a banner year.

Sixteen individuals contributed more than 100 breeding records and of these, three submitted over 1,000 records. But these numbers have to be put into perspective. Most of the **6,589** records reported by **Wayne** and **Eileen Campbell** and the **1,222** records by **Don Myers** were for colonial-nesting waterbirds such as Eared Grebe, although impressive numbers were tallied for loosely-colonial marsh-nesting species like American Coot, Marsh Wren, Red-winged Blackbird (Figure 60), Yellow-headed Blackbird, and Black Tern.



Figure 60. Finding Red-winged Blackbird nests can be challenging, especially when they build them in sedge marshes that are difficult to move around in and well-hidden nests are a challenge to find. In this photograph, a nest containing eggs is neatly tucked away in the bottom of this clump of sedges in the bottom of the photograph. Near One Island Lake, BC. 19 June 2008 (Photo by R. Wayne Campbell).

The next 13 individual high numbers for 2010 were from **Linda Van Damme** (780 records), **Mark Nyhof** (754 records), **Tom Brighthouse** (450 records), **Sandy Proulx** (239 records), **Vicky** and **Lloyd Atkins** (219 records), **Glenn R. Ryder** (218 records), **Chris Siddle** (154 records), **Gary Davidson** (135 records), **Beverley Butcher** (130 records), **Nancy Krueger** (123 records; Figure 61), **Ted Hillary** (106 records), and **Norman Lancaster** (105 records).



Figure 61. Nancy Krueger, who was highlighted as a *Participant Profile* in the 2008 annual report, continued her dedication to the BCNRS and frequently completed cards for other people she was birding with. Near Shelley, BC. 10 June 2010 (Photo by R. Wayne Campbell).

The large number of breeding records submitted by Mark Nyhof and Linda Van Damme were appreciated because most of them were found in terrestrial habitats which require a lot of searching. Mark's total included 105 different species while Linda tallied 89 species. Except for Sandy Proulx and Beverley Butcher, whose totals were mostly from nest box trails, other participants also had noteworthy species totals (Figure 62).



Figure 62. Only a few of the 219 breeding records submitted by Vicky and Lloyd Atkins were for nest boxes, like this one in use by Mountain Chickadee. Vernon, BC. 9 May 2010 (Vicky Atkins).

Historical information was transferred from field notebooks and publications for 155 participants. The records dated from 2009 back to the late 1880s. The top 10 teams or individuals included **Michael Rodway** and **Moira Lemon** (7,062 records; Figure 63), **Alan Burger** and **Dave Garnier** (1,642 records), **Ted Hillary** (789 records), **Chris Siddle** (691 records), **Wayne Campbell** (333 records), **Rudi Drent** (308 records), **Glenn Ryder** (248 records), **D. Davies**, **Keith Moore** and **Mary Morris** (106 records), **Michael** and **Joanna Preston** (96 records), and **Don Myers** (67 records).



Figure 63. During the 1980s, Michael Rodway and Moira Lemon led a group of keen young students to survey the entire British Columbia coast for nesting seabirds. Their results have been published by the Canadian Wildlife Service in a series of comprehensive reports. 1984 (Photo by Chris Harris).

Some individuals contributed nest cards for species with a restricted breeding range in the province. Almost our entire database for **Gray Flycatcher** is due to the efforts of **Laurie Rockwell**. Other contributors were again thoughtful by sending us breeding records from a variety of sources that included local newspapers (Figure 64a and b), newsletters, letters, reports, and their personal photographs.

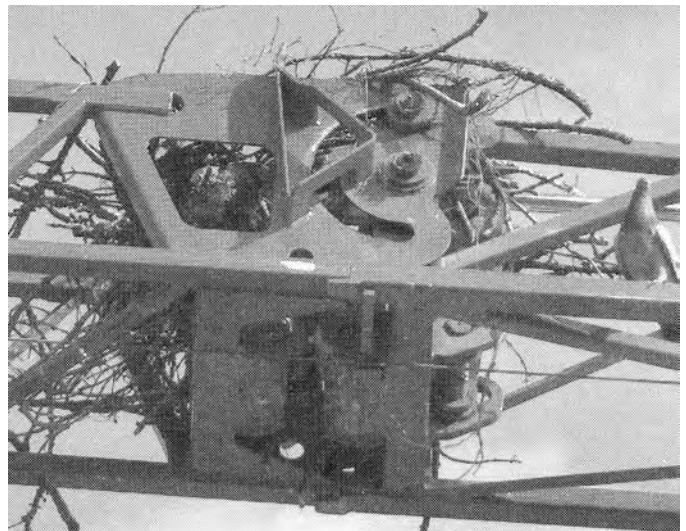


Figure 64. These breeding records, clipped out of the Salmon Arm Observer by Hilary Gordon, are useful to have on file. The top photograph shows a brood of 13 Mallard ducklings following their mother (a) on 29 May 2010. The family was attempting to cross railway tracks when a local resident hurried them on their way to Shuswap Lake as the train was approaching. The bottom image shows an Osprey at its unusual nest site in a construction crane (b) in Salmon Arm on 23 July 2010. (Photo by Stephen Kyles).

A glaring gap in our annual data gathering is urban environments where **Rock Pigeons** and **House Sparrows** predominate. The **Atkins** family, especially **Vicky**, **Lloyd**, and **Kevin**, however, helped considerably with these species (Figure 65). While most Rock Pigeon nests in 2010 were found in cities, most of the reported House Sparrow breeding records were from nest boxes in residential areas.

Quality of Information

Filling in the Blanks

Every space on a nest card has been designed with a purpose in mind, which includes the basic information required for scientific analysis. The format has changed very little over 56 years and this is the true strength of the BCNRS. While there are less comprehensive approaches to gathering breeding information at the local, provincial, and national levels because of the way databases were developed, the BCNRS still encourages as complete documentation as possible.

Long-term data, gathered in a consistent fashion in British Columbia, has shown a change in nesting habitats for some species like Yellow-headed Blackbird, a preference for evergreen versus deciduous trees for early nesting in some passerines, the importance of nest height and micro-climate for some tree-nesting species, changes in nesting chronology with changes in elevation, and noteworthy changes in nesting material. Even the specific location of a nest has changed for a few adaptable species over time (Figure 66).



Figure 65. Almost any gap in a city building can be used by House Sparrows for nesting. This female is brooding a nestling in a gap of a church wall in Vancouver, BC. 8 August 2010 (Photo by Kevin Atkins)

It is unlikely that anyone in British Columbia would consider the House Sparrow to be in peril. But in Great Britain ornithologists and citizens are developing ways to halt a decline which has dropped from an estimated population of 25 million birds in the early 1970s to about 13 million today. While the actual reasons for loss of House Sparrows is being researched, conservation groups are suggesting that in the meantime to provide shelters, nutritional food, nesting sites, and safety from predators.



Figure 66. When Common Grackle first nested in British Columbia in the 1970s, it was restricted to marshes and swamps where it was very secretive. BCNRS files show that the species is far from secretive and now nests in a variety of natural and human-made structures including bird boxes. Swan Lake, BC. 3 June 2007 (Photo by R. Wayne Campbell).

The spaces for **Universal Transverse Mercator** (UTM) information on the bottom of each card for a nest or brood are an important addition. Since hand-held **Global Positioning System** (GPS) units have grown in popularity, more contributors are taking time to fill in the three levels. The more precise the location the more significant the record 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 (Zone 8) to the southeast (Zone 11) (Figure 67).

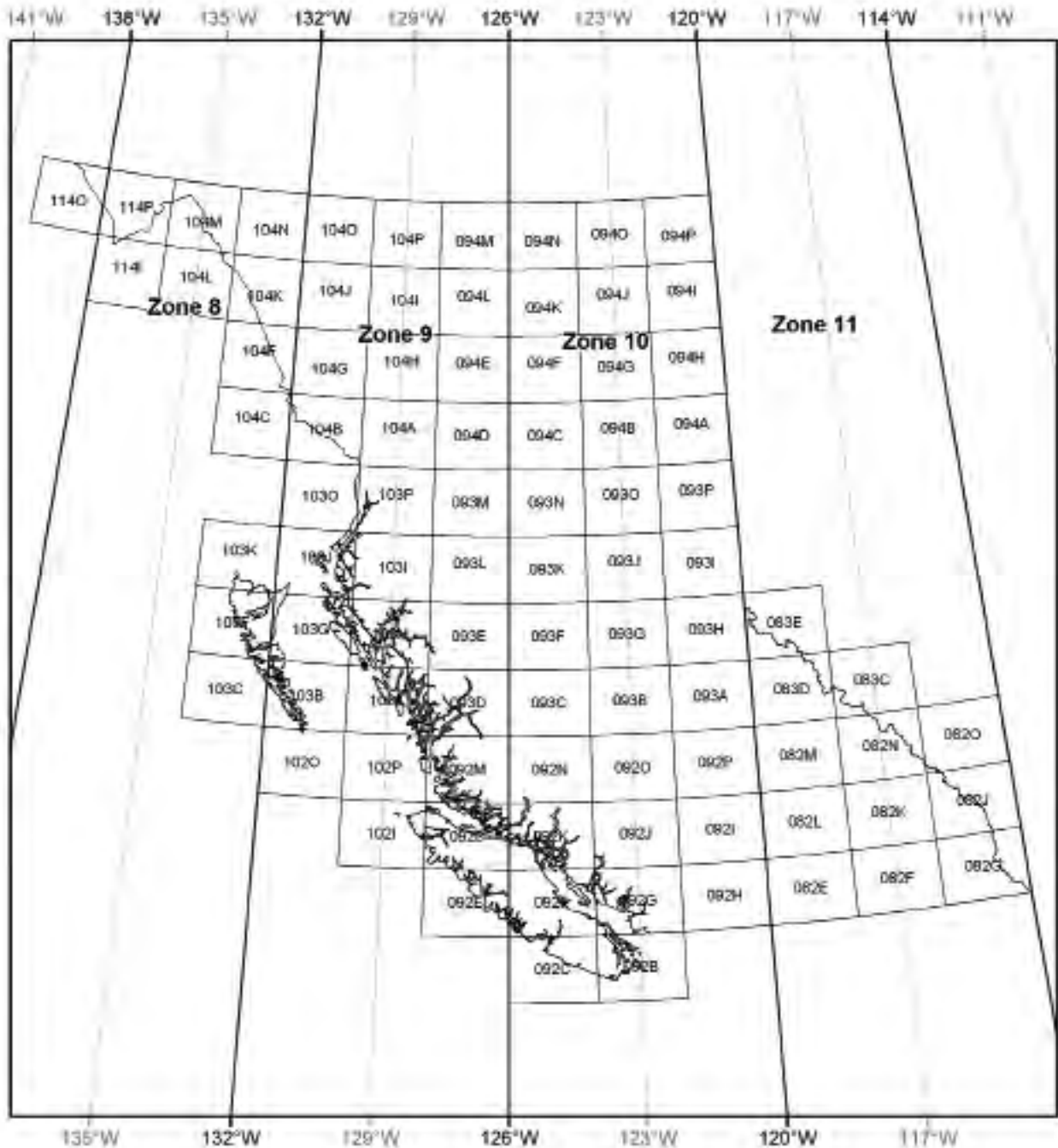


Figure 67. Overview of the Universal Transverse Mercator (UTM) Zones for British Columbia.

For convenience, 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 any possible sources of error.

The updated 4-letter species code, if preferred, is available in the revised *British Columbia Nest Record Scheme Instruction Manual*, 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; Figure 68).

Wildlife Checklists of British Columbia

The Birds of British Columbia



Biodiversity Centre for Wildlife Studies
British Columbia Field Ornithologists
Nature Vancouver

May 2007

Figure 68. The standard 4-letter code for 500 species of birds in British Columbia is available for reference in the pocket-sized checklist published jointly by the Biodiversity Centre for Wildlife Studies, British Columbia Field Studies, British Columbia Field Ornithologists, and Nature Vancouver in May 2007.

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

Also, when noted, please list the “race” or “subspecies” on the card. For example, if a **Yellow-rumped Warbler** nest is found please indicate either “**Audubon**” **Warbler** (AUWA) or “**Myrtle**” **Warbler** (MYWA).

Other species with easily identifiable subspecies include **Dark-eyed Junco** (e.g., “Oregon” or “Slate-colored” Junco), **Horned Lark** (e.g., “Arctic” and “Dusky” Horned Lark), **Northern Flicker** (e.g., “Red-shafted” or “Yellow-shafted” Flicker), and **White-crowned Sparrow** (e.g., “Gambel’s” and “Puget” White-crowned Sparrow).

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

Please remember that the former **Blue Grouse** is now two separate species: the **Sooty Grouse** on the coast and the **Dusky Grouse** in the interior. Also, the **Winter Wren** occupying most of British Columbia, except the northeast, is now called the **Pacific Wren** (Figure 69).



Figure 69. Formerly called Winter Wren, the species resident and breeding throughout the Lower Mainland is the Pacific Wren. 18 May 2010. Vancouver, BC. (Photo by Kevin Atkins).

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 name 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 (Figure 70), etc.) or the estimated age of downy young, (*e.g.*, loons, grebes, seabirds, waterfowl, grouse, ptarmigan, and shorebirds). Please refer to **Appendix 1, 2, and 3** for drawings for different stages of development



Figure 70. We consider recently fledged young, incapable of sustained flight like this 10-day old Rose-breasted Grosbeak, to be a reliable breeding record. Near Swan Lake, BC. 25 June 2010 (Photo by Mark Phinney).

This season we received 213 nest cards that contained only behavioural observations such as singing on territory or in appropriate habitat, flying with food, or courting. Although this information was entered into our wildlife databases, the cards were not included in the 2010 BCNRS collection due to lack of confirmed breeding evidence such as a nest with eggs and/or nestlings, recently fledged young, or broods with young unable to fly.

Documentation with Photographs

The number of colour and black-and-white prints attached to nest cards or sent as compact disks (CDs) with dated images is really appreciated. In 2010, we received over 400 such documentations and many were prints that were developed professionally and were paid for by the nest finder. Most of the images remain attached to the nest card for future reference but some noteworthy prints and digital images are added to the BC Photo File for Wildlife Records. Each record, however, is cross-referenced to the original nest card (Figure 71 a and b).

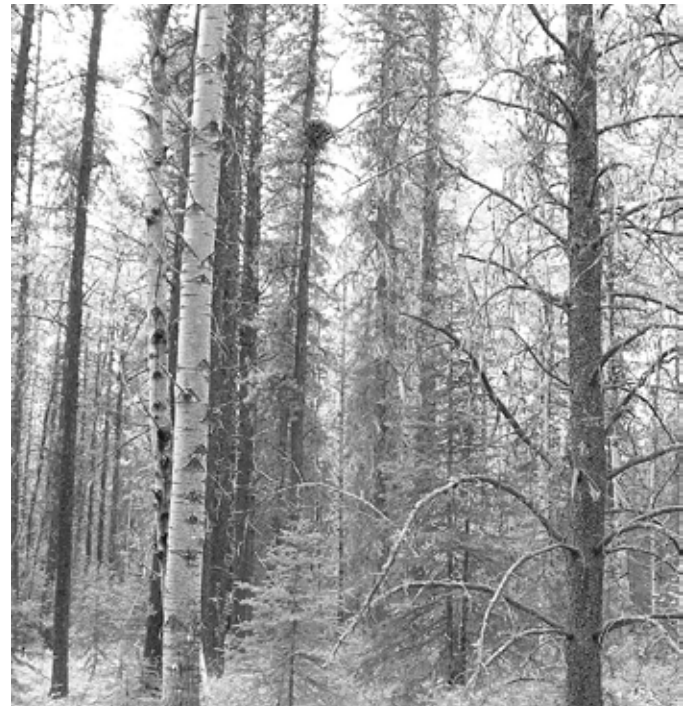


Figure 71. Mark Phinney attached prints of this Northern Goshawk nest (a) and a fledged young (b) to his nest card. Near Swan Lake, BC. 4 August 2010 (Photo by Mark Phinney).

An increasing number of participants are using photographs to document remote unnamed locations and general habitats along with noteworthy breeding records, which they attach to their nest card. Such documentation is of immense help when volunteers maintaining the BCNRS try to determine the **precise location** for nest sites with local names as well as try to interpret **habitat descriptions** written on cards. **Nancy Krueger** was aware of the importance of this when she found a young Bonaparte's Gull at a remote location in central British Columbia (Figure 72 a and b).



Figure 72. Providing photographs of the Bonaparte's Gull nesting habitat (a) and the large young (b) is value-added information that is helpful in documenting details for this noteworthy breeding record. Crooked River Park, BC. 17 July 2010 (Photo by Nancy Krueger)

Often photographs can be used to provide a breeding record for a clutch of eggs, a brood of young, or new fledglings that otherwise could not be identified when found (Figure 73a and b).



Figure 73. Sometimes, difficult to identify female ducks with broods can be identified from photographs like this brood of Gadwall (a) that was originally thought to be a Mallard (Spallumcheen, BC. 30 July 2010 - Photo by Cory Bialecki, Vernon Morning Star) and this goldeneye species (b) that turned out to be a Common Goldeneye. Near Tumbler Ridge, BC. 20 June 2007.

All prints, digital images, 35 mm slides, and newspaper clippings are appreciated and nearly 200 are scattered throughout this report.

Diagrams

Simple diagrams, detailed maps, and hand sketches added directly on nest cards, or attached by staple and cut to size (4" x 6"), can be very helpful for future reference (Figure 74). This is especially valuable when a detailed sketch is provided for an area when a major exploration has been conducted for which there is no reference material.

Providing specific directions and distances from known locations in simple diagrams to unnamed sites, such as "White Lake", "Joes's Meadow", "Wendy's Slough", and "Clear Lake" adds meaning to the breeding record.

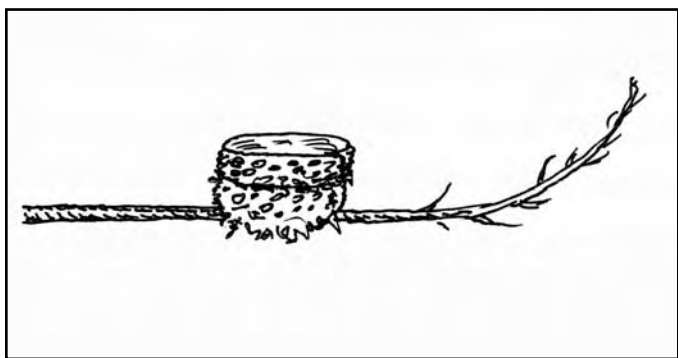


Figure 74. One of the most consistent naturalists to provide sketches of noteworthy nest sites is Glenn Ryder. In this historical sketch, he documents a Rufous Hummingbird nest that was built directly on a small bare branch, on top of the nest used the year before. On the south coast, the species usually saddles its nest flat on a low branch of a conifer tree and very rarely re-uses a nest. Surrey, BC. 18 May 1959.

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 recheck the site. The number of cards in 2010 with follow-up visits was encouraging, especially for **Osprey**. It would also be helpful to record **Canada Goose** activity at **Osprey** nests even though the contents of the nest cannot be determined. Repeat visits, spaced days apart, may suggest occupancy of the site by geese.

Historical Nest Site(s) and Current Activity Information

Each nesting season, many well-known breeding sites that are used in consecutive years, such as for 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 useful to complete a card indicating that it has been used in the past (or the previous year) but not in the present year. All of these "inactive" nest cards are filed for reference with the original "active" sites but are not included in the annual report summary.

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

Additional comments on the history of a location, if known, are useful to add to the nest card for some species (Figure 75)



Figure 75. This Sandhill Crane nest, built in a bulrush marsh in the Cariboo region, was first used for nesting in 2010 since the wetland was regularly checked since 1974. 6 June 2010 (Photo by R. Wayne Campbell).

Historical Information

As time permits, volunteers continue to poke away at searching sources and transferring breeding records from published and unpublished literature, field notes (Figure 76), consultant reports, museum collections, old correspondence, and reference books. In 2010, a total of 12,117 individual records were found and transferred to single visit or colony nest cards. By next year, about 100,000 records will have been transferred since 1997.



Figure 76. One of the advantages of searching historical field notes are the surprises that are uncovered. We have recently learned that Common Grackle arrived in the province, in the southern interior, earlier than first recorded for the Peace River region where it is now a common sight. (Photo by R. Wayne Campbell).

This tedious task, unfortunately, requires someone with knowledge and experience of breeding birds in the province, knows the background of the individuals involved, is familiar with an area and its habitats, knows the species' breeding season, and can quickly evaluate the authenticity of a record. In the past, we had eager but inexperienced volunteers attempt this "extract and transfer" process but the source information was not always straightforward and often required interpretation. In addition, there is "value added" information that only an experienced person can extract.

In 2010, much of the volunteer time was spent extracting information from the series of excellent Environment Canada seabird reports written under the direction of senior author

Michael Rodway (Figure 77). All of the elements required on the standard single-visit and colony BCNRS nest cards are included for each marine island and species in each report. Only individual nests/broods were transferred and this was usually the result of sub-sampling. Estimates of breeding populations were transferred to a single nest card as well, but were not included in the 2010 tally. They are only for future reference.



Figure 77. A series of technical reports under the title "British Columbia Seabird Colony Inventory" contains thousands of individual records for the 17 species of seabirds breeding in the province.

Also in 2010, additional historical information was transferred from a variety of sources that included personal records that were initially kept by **James Grant** on index cards for easy reference (Figure 78), field notes of **Parks Canada, Steve Cannings, John K. Cooper, Rudolf H. Drent, J. E. Victor Goodwill, R. Wayne Campbell, Doug Innes, Ken Kennedy, Hamilton M. Laing, Robert E. Luscher, Arthur L. Meugens, Gordon C.**

Odlum, Theed Pearse, and Glenn R. Ryder, the Vancouver and Victoria annual bird reports, and out-of-print regional avifauna reports. This task will be continued in 2011.

James Grant				Name: Golden Eagle	1965
Date	Time	Eggs	Young	Latin: <i>Aquila chrysaetos</i>	Locality: 82E/4
June 2	1300	?	1		Gallagher Lake near Oliver B.C. at 1500'
June 7	1600	?	1		Net descr. sticks
					Position: In declivity of cliff under overhang Ht: about 50 ft.
					Rocky mtn side above acid plain

Figure 78. The early records of James Grant, such as this Golden Eagle nest at Gallagher Lake in 1965 recorded on 4" x 6" index cards, are valuable additions to the BCNRS once they are transferred to standard nest cards and filed in species order.

Total Breeding Records - Family & Species

Family Anatidae - Geese, Swans, and Ducks (1,905): Canada Goose - 509, Mute Swan - 18, Wood Duck - 166, Gadwall - 85, American Wigeon - 24, Mallard - 556, Blue-winged Teal - 12, Cinnamon Teal - 7, Northern Shoveler - 9, Northern Pintail - 2, Green-winged Teal - 6, Canvasback - 30, Redhead - 33, Ring-necked Duck - 93, Lesser Scaup - 14, Harlequin Duck - 3, White-winged Scoter - 1, Bufflehead - 79, Common Goldeneye - 37 (Figure 79), Barrow's Goldeneye - 87, Hooded Merganser - 33, Common Merganser - 43, Red-breasted Merganser - 6, and Ruddy Duck - 52.



Figure 79. These ducklings are part of a family of 15 Common Goldeneyes, the fifth largest brood ever reported for British Columbia with a single female in attendance. Duck Lake, BC. 9 June 2010. (Photo by Brent Wellander).

Family Phasianidae - Partridges, Pheasant, Grouse, Ptarmigan, and Turkey (176): Chukar - 5, Gray Partridge - 1, Ring-necked Pheasant - 77, Ruffed Grouse - 45, Greater Sage-Grouse - 2, Spruce Grouse - 14 (Figure 80), Willow Ptarmigan - 1, White-tailed Ptarmigan - 10, Dusky Grouse - 10, Sooty Grouse - 9, Sharp-tailed Grouse - 1, and Wild Turkey - 1.



Figure 80. Very few Spruce Grouse nests are reported each year but newly hatched chicks, especially when photographed, provide a valuable record. Krao Lake, BC. 24 July 2010 (Photo by Justin Arndt).

Family Odontophoridae - American Quail (61): California Quail - 61 (see Figure 7).

Family Gaviidae - Loons (101): Red-throated Loon - 2 and Common Loon - 99.

Family Podicipedidae - Grebes (2,485): Pied-billed Grebe - 96 (Figure 81), Horned Grebe - 19, Red-necked Grebe - 143, Eared Grebe - 2,062, Western Grebe - 161, and Clark's Grebe - 4.

Family Hydrobatidae - Storm-Petrels (197): Fork-tailed Storm-Petrel - 29 and Leach's Storm-Petrel - 168.



Figure 81. Pied-billed Grebe nest containing freshly laid eggs at the edge of a bulrush marsh near Springhouse, BC. 8 June 2010 (Photo by R. Wayne Campbell).

Family Phalacrocoracidae - Cormorants (1,271): Brandt's Cormorant - 27, Double-crested Cormorant - 126 (Figure 82a and b), and Pelagic Cormorant - 1,118.

Family Ardeidae - Bitterns, Herons, Egrets, and Night-Herons (445): American Bittern - 1, Great Blue Heron - 439, and Green Heron - 5.

Family Cathartidae - Vultures (3): Turkey Vulture - 3.

Family Accipitridae - Osprey, Kites, Eagles, Hawks, and Allies (512): Osprey - 241, Bald Eagle - 180, Northern Harrier - 4, Sharp-shinned Hawk - 3, Cooper's Hawk - 9, Northern Goshawk - 1, Swainson's Hawk - 5, Red-tailed Hawk - 65, and Golden Eagle - 4.



Figure 82. Double-crested Cormorants arrive in breeding plumage, complete with prominent dark head tufts (a) and occupy nests (b) in the upper canopy of black cottonwood trees. Since 2003, this interior nesting colony has grown to over 100 pairs. Leach Lake, BC. (Photos by Linda M. Van Damme).

Family Falconidae - Falcons (34): American Kestrel - 26, Merlin - 3, Peregrine Falcon - 4, and Prairie Falcon - 1.

Family Rallidae - Rails, Gallinules, and Coots (878): Virginia Rail - 6, Sora - 29, and American Coot - 843 (Figure 83).



Figure 83. Over half of all breeding records for American Coot in 2010 were of broods, either being fed or foraging themselves. Elizabeth Lake, BC. 18 June 2010 (Photo by Brent Wellander).

Family Gruidae - Cranes (26): Sandhill Crane - 26 (see Figure 75).

Family Charadriidae - Plovers (103): Semipalmated Plover - 1 and Killdeer - 102.

Family Haematopodidae - Oystercatchers (465): Black Oystercatcher - 465 (see Figures 2 and 50).

Family Recurvirostridae - Stilts and Avocets (7): American Avocet - 7.

Family Scolopacidae - Sandpipers, Phalaropes, and Allies (149): Spotted Sandpiper - 126, Solitary Sandpiper - 1, Greater Yellowlegs - 4, Long-billed Curlew - 5, Wilson's Snipe - 1, and Wilson's Phalarope - 12.

Family Laridae - Gulls, Terns, and Allies (8,748): Bonaparte's Gull - 10, Mew Gull - 36, Ring-billed Gull - 999, California Gull - 6, Herring Gull - 192, Glaucous-winged Gull - 7,165, Black Tern - 326, Arctic Tern - 13, and Forster's Tern - 1.

Family Stercorariidae - Skuas and Jaegers (1): Parasitic Jaeger - 1.

Family Alcidae - Auks, Murres, and Puffins (322): Common Murre - 2, Thick-billed Murre - 68, Pigeon Guillemot - 118 (Figure 84), Cassin's Auklet - 84, and Tufted Puffin - 50.



Figure 84. Most of the breeding records for Pigeon Guillemot received in 2010 were from historical sources. Five Finger Island, BC. 5 July 1974 (Photo by R. Wayne Campbell).

Family Columbidae - Pigeons and Doves (42): Rock Pigeon - 35, Band-tailed Pigeon - 2, Eurasian Collared-Dove - 1, and Mourning Dove - 4.

Family Tytonidae - Barn Owls (11): Barn Owl - 11.

Family Strigidae - Typical Owls (104): Flammulated Owl - 1, Western Screech-Owl - 7, Great Horned Owl - 59 (Figure 85), Northern Hawk Owl - 2, Burrowing Owl - 1, Barred Owl - 17, Great Gray Owl - 2, Long-eared Owl - 5, Short-eared Owl - 1 (Figure 86), and Northern Saw-whet Owl - 9.



Figure 85. Female Great Horned Owl at nest site in a cavity in an old ponderosa pine near Kamloops, BC. 11 April 2010 (Photo by Lorraine Harper).



Figure 86. This season a single record for the elusive Short-eared Owl was added to the BCNRS files. Nanaimo, BC. 5 December 2010. (Photo by Keith MacDonald).

Family Caprimulgidae - Goatsuckers (12): Common Nighthawk - 12.

Family Apodidae - Swifts (2): White-throated Swift - 2.

Family Trochilidae - Hummingbirds (45): Anna's Hummingbird - 11, Calliope Hummingbird - 2, and Rufous Hummingbird - 32.

Family Alcedinidae - Kingfishers (8): Belted Kingfisher - 8.

Family Picidae - Woodpeckers (205): Lewis's Woodpecker - 43, Williamson's Sapsucker - 2, Yellow-bellied Sapsucker - 3, Red-naped Sapsucker - 35, Red-breasted Sapsucker - 11, Downy Woodpecker - 12, Hairy Woodpecker - 28, American Three-toed Woodpecker - 9 (Figure 87), Black-backed Woodpecker - 1, Northern Flicker - 47, and Pileated Woodpecker - 14.



Figure 87. Most breeding records for American Three-toed Woodpecker in BCNRS files are of fledged young being fed by one of their parents. Near Telkwa, BC. 28 June 2010 (Photo by Marcus Womersley).

Family Tyrannidae - Tyrant Flycatchers (211): Olive-sided Flycatcher - 3, Western Wood-Pewee - 23 (Figure 88), Alder Flycatcher - 9, Willow Flycatcher - 12, Least Flycatcher - 1, Hammond's Flycatcher - 2, Gray Flycatcher - 1, Dusky Flycatcher - 8, Pacific-slope Flycatcher - 22, Eastern Phoebe - 3 (see Figures 14 and 15), Say's Phoebe - 15, Western Kingbird - 60, and Eastern Kingbird - 52.



Figure 88. Typical location for a Western Wood-Pewee nest saddled on a branch crotch. Feller's Heights, BC. 1 July 2010 (Photo by Mark Phinney).

Family Vireonidae - Vireos (35): Cassin's Vireo - 3, Hutton's Vireo - 3, Warbling Vireo - 25, and Red-eyed Vireo - 4.

Family Corvidae - Jays, Magpies, and Crows (213): Gray Jay - 6, Steller's Jay - 12, Blue Jay - 2, Black-billed Magpie - 47 (Figure 89), American Crow - 50, Northwestern Crow - 52, and Common Raven - 44.



Figure 89. An impatient fledged Black-billed Magpie soliciting food from its parent. Vernon, BC. 15 June 2010 (Photo by Lloyd Atkins).

Family Alaudidae - Larks (2): Sky Lark - 2.

Family Hirundinidae - Swallows (1,588): Purple Martin - 29, Tree Swallow - 727 (Figure 90), Violet-green Swallow - 57, Northern Rough-winged Swallow - 39, Bank Swallow - 10, Cliff Swallow - 472, and Barn Swallow - 254.



Figure 90. This Tree Swallow nest was started on 4 May 2010 and on 25 June four well-feathered nestlings were found dead, emphasizing the importance of follow-up visits. Vernon, BC. (Photo by Vicky Atkins).

Family Paridae - Chickadees (128): Black-capped Chickadee - 53, Mountain Chickadee - 11, Chestnut-backed Chickadee - 62, and Boreal Chickadee - 2.

Family Aegithalidae - Bushtit (32): Bushtit - 32 (Figure 91).



Figure 91. Adult Bushtit removing fecal sac from nest in a holly tree, an unusual site for this species in the province. Vancouver, BC. 20 May 2010 (Photo by Kevin Atkins).

Family Sittidae - Nuthatches (31): Red-breasted Nuthatch - 30 and Pygmy Nuthatch - 1.

Family Certhiidae - Creepers (38): Brown Creeper - 38 (Figure 92).



Figure 92. Newly fledged, begging Brown Creeper, following parent up tree trunk. Vancouver, BC. 4 June 2010 (Photo by Kevin Atkins).

Family Troglodytidae - Wrens (306): Rock Wren - 1, Canyon Wren - 2, Bewick's Wren - 10, House Wren - 53, Pacific Wren - 47, and Marsh Wren - 193.

Family Cinclidae - Dipper (17): American Dipper - 17.

Family Regulidae - Kinglets (20): Golden-crowned Kinglet - 11 and Ruby-crowned Kinglet - 9 (Figure 93).



Figure 93. Locating and checking a Ruby-crowned Kinglet nest in a dense spruce tree is nearly impossible and finding recently fledged young is not much easier. Hobson Lake, BC. 3 July 2010 (Photo by Nancy Krueger).

Family Turdidae - Bluebirds, Thrushes, and Allies (714): Western Bluebird - 27, Mountain Bluebird - 411, Townsend's Solitaire - 15, Veery - 3, Swainson's Thrush - 18, Hermit Thrush - 8 (Figure 94), American Robin - 228, and Varied Thrush - 4 (Figure 95).



Figure 94. Timing has to be perfect to find recently fledged Hermit Thrush young. The patterned plumage is unmistakable. Cooper Creek, BC. 14 July 2010 (Photo by Jim Lawrence).

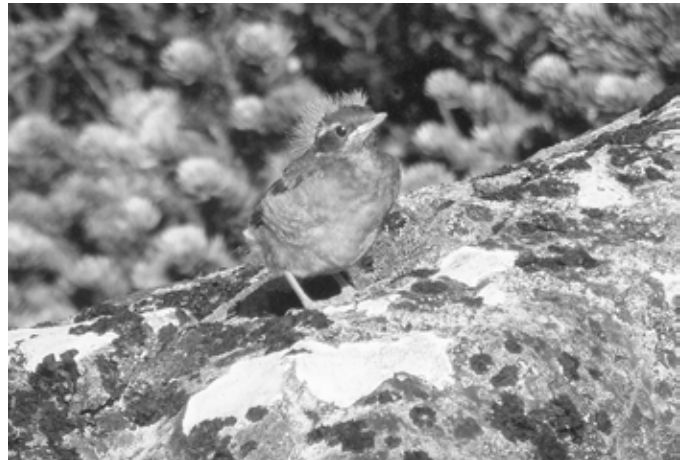


Figure 95. Recently fledged Varied Thrush still sporting down on head. Near Barkerville, BC. 7 July 2010 (Photo by Nancy Krueger).

Family Mimidae - Mockingbird, Thrashers, and Allies (20): Gray Catbird - 19 and Sage Thrasher - 1.

Family Sturnidae - Starlings and Allies (155): European Starling - 155.

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

Family Bombycillidae - Waxwings (72): Cedar Waxwing - 72.

Family Parulidae - Wood-Warblers (158): Orange-crowned Warbler - 20, Nashville Warbler - 6, Yellow Warbler - 62 (Figure 96 a and b), Magnolia Warbler - 4, Yellow-rumped Warbler - 17, Black-throated Gray Warbler - 6, Townsend's Warbler - 3, American Redstart - 12, Northern Waterthrush - 2, MacGillivray's Warbler - 4, Common Yellowthroat - 19, Wilson's Warbler - 2, and Canada Warbler - 1.



Figure 96. Yellow Warbler nest (a) in a small scopolallie shrub (near centre) on 22 June 2010 and with eggs and nestlings (b) on 24 June. Feller's Heights, BC. (Photos by Mark Phinney).

Family Thraupidae - Tanagers (9): Western Tanager - 9.

Family Emberizidae - Towhees, Sparrows, Longspurs, and Allies (308): Spotted Towhee - 45 (Figure 97 a and b), Chipping Sparrow - 43, Clay-colored Sparrow - 10, Vesper Sparrow - 42, Lark Sparrow - 6, Savannah Sparrow - 15, Fox Sparrow - 2, Song Sparrow - 32, Lincoln's Sparrow - 11, White-throated Sparrow - 4, White-crowned Sparrow - 15, and Dark-eyed Junco - 83.



Figure 97. This adult Spotted Towhee, with food in its bill (a) suggests breeding, which was confirmed when it fed a new fledgling hidden in woodland undergrowth (b). Vancouver, BC. 15 June 2010 (Photos by Kevin Atkins).

Family Cardinalidae - Grosbeaks, Buntings, and Allies (36): Rose-breasted Grosbeak - 1, Black-headed Grosbeak - 25, Lazuli Bunting - 9, and Indigo Bunting - 1.

Family Icteridae - Blackbirds, Orioles, and Allies (2,823): Bobolink - 1, Red-winged Blackbird - 787, Western Meadowlark - 8, Yellow-headed Blackbird - 1,719, Rusty Blackbird - 1, Brewer's Blackbird - 148, Common Grackle - 30, Brown-headed Cowbird - 79, and Bullock's Oriole - 50 (Figure 98).



Figure 98. Pair of Bullock's Orioles at their nest with young in a trembling aspen tree in Vernon, BC. 5 July 2010 (Photo by Vicky Atkins)

Family Fringillidae - Cardueline Finches and Allies (109): Gray-crowned Rosy-Finch - 8, Pine Grosbeak - 1, Purple Finch - 6, Cassin's Finch - 2, House Finch - 47, Red Crossbill - 1, Pine Siskin - 20, American Goldfinch - 20, and Evening Grosbeak - 4.

Family Passeridae - Old World Sparrows (58): House Sparrow - 58

Total nests and/or broods - 25,404 records (2010 season - 13,287; historical - 12,117)

Total species - 239

Total Contributors - 2010 Nesting Season and Historical Records

A Christine Adkins - 2, Carla Ahern and Pat Huet - 30, Robert W. Allen - 4, Richard Amos - 27, E. M. Anderson - 1, Errol Anderson - 52, W. B. Anderson - 1, Anonymous - 2, Cathy Antoniazzi - 10, Ted Ardley - 2, Janice Arndt - 28, Justin Arndt - 1, Alfred Atkins - 4, Kevin Atkins - 49, Trevor and Laila Atkins - 1, Vicki and Lloyd Atkins - 219, and R. N. Atkinson - 1.

B Steve Baille - 1, Anne Ball - 1, Avery Bartels - 1, Margaret Bathy - 1, Alice Beals - 18, Marc-André Beaucher - 13, Barbara Begg - 3, Jennifer L. Bergen and F. Don Young - 9, Ed Beynon - 7, Ed and Hazel Beynon - 89, Mary-Jane Birch - 1, Richard Bird - 70, Ann K. Blackmore - 7, Peter Blokker - 3, Ken Borrie - 1, Jack Bowling - 2, Jack Bowling and Christopher Coxson - 1, Gary Breault - 12, Tom Brighthouse - 450, Allan Brooks - 12, Doug Brown - 11, Quentin Brown - 6, Denise Brownlie - 1, Guenther Bruhn - 4, Alan E. Burger and D. Lorne Garnier - 1,642, Joop Burgerjon - 2, Burnaby Parks - 1, Ron Burnett - 8, Beverly Butcher - 130, and Robert W. Butler - 1.

C R. Wayne Campbell - 4,829, R. Wayne and Eileen Campbell - 2,093 (Figure 99), Richard J. Cannings - 20, Robert A., Richard J., and Sydney G. Cannings - 16, Russell Cannings - 3, Steve R. Cannings - 17, Sydney G. Cannings - 2, Phil Capes - 2, G. Clifford Carl - 4, Glen Carlson, Stan Olson, Ted Goshulak, and Lynn Miller - 1, Doug and Sheila Carrick - 2, Don Cecile - 1, Al Charbonneau - 1, Chris Charlesworth - 32, Chris Charlesworth, Ryan Tomlinson, and Michael Force - 1, Terri Chernoff - 1, Dan Churchill - 1, Gary Clark-Marlow - 1, Alex and Luanne Coffey - 1, Mike Collins - 12, Cyril Colonel - 12, Fish and Wildlife Compensation Program- Columbia Region - 1, Comox Naturalists - 1, Jim Connor - 49, Wendy Coomber - 1, John K. Cooper - 2, John M. Cooper - 3, John M. Cooper and John K. Cooper - 1, Evi Coulson - 6, Evi and Mel Coulson - 3, Vic Cousineau - 29, R. A. Cumming - 2, H. H. Currie - 1, and Leona Curry - 1.



Figure 99. Eileen Campbell checking the contents of a Western Kingbird nest near Springhouse, BC. 13 June 2010 (Photo by R. Wayne Campbell).

D Ed and Monica Dahl - 2, Brenda Daly - 1, S. J. Darcus - 21, Gary S. Davidson - 135, Mark Davidson - 3, D. Davies, K. Moore and M. Morris - 106, Clint and Irene Davy - 27, Neil K. Dawe - 4, Clifford Day - 15, Don Decker - 2, Authur L. Dent - 1, Adrian Dorst - 7, Douglas Lake Ranch - 16, Sharon Dow - 1, Rudolf H. Drent - 308, Bill Duggan - 1, Len Dunsford - 2, and Linda Durrell - 10.

E Dalyce Epp - 1, Dalyce Epp and Monica Schroeder - 1, and Colleen Erickson - 5.

F Randy Findlay - 9, Michael Force - 4, Diana Forrester - 1, Lee Foster - 18, Alistair Fraser - 3, David F. Fraser - 5, Hugh Fraser - 29, Jim Friesen - 2, D. Lorne Frost - 6, and Kathleen Fry - 1.

G Dave Garnier and Moira Lemon - 1, Anthony J. Gaston - 1, Bryan Gates - 2, Ralph and Elsie Gerein - 6, Les and Violet Gibbard - 3, Janet Gifford - 1, Warren Gilchrist - 2, R. C. Glass and Kenneth R. Summers - 1, J. E. Victor Goodwill - 1, Hilary Gordon - 8, Hilary Gordon and Don Golnick - 6, Orville Gordon - 14, Orville Gordon and Arnie Chaddock - 1, Ted Goshulak - 2, Ted Goshulak, Stan Olson, Glen Carlson, and Lynn Miller - 1, Douglas J. Graham - 3, Ron Granger - 1, James Grant - 14, Tony Greenfield - 1, Jim Grieshaber - 1, and Charles J. Guiguet - 4.

H W. Hack - 1, Penny Haering - 2, Penny Hall - 25, David Hancock - 1, Hancock Wildlife Foundation webcam - 1, Ben Hann - 1, Willie Haras - 42, Lorraine Harper - 1, G. Harris - 1, Ruth E. Hellevang - 8, Sharon Henry - 3, Sandra Hepburn - 1, Sigrid Hert - 1, Garry Heuston - 1, Rose Higgins - 1, Ted Hillary - 895 (Figure 100), Mark Hobson - 6, John Hodges - 1, Marlene Holmes - 1, Tracey D. Hooper - 1, Ron Hooper - 18, Barb Houston - 1, Steve Howard - 13, Richard R. Howie - 4, Jean Hudson - 1, and Pat Huet - 10.



Figure 100. Ted Hillary, a regular BCNRS contributor, in his home office completing nest record cards. Salmon Arm, BC. 6 May 2007 (Photo by Gary Carder).

I Doug Innes - 27, Doug and Marian Innes - 3, and Marian Innes - 1.

J Brian Jackson - 3, Ron Jakimchuk - 13, Pat Janzen - 3, Ron Jeffries - 51, Joan Jochim - 1, Marlene Johnston - 8, Stan Jones - 1, and Bill J Jones - 1.

KRhonda Karliukson - 11, Clive Keen - 1, Cathy Keller - 2, J. E. H. Kelso - 2, Tim Kendrick - 4, Ken Kennedy - 104, Kevin Knight - 8, Nancy Krueger - 52, Nancy Krueger and Cathy Antoniazzi - 3, Nancy Krueger and Christopher Dicorrado - 10, Nancy Krueger, Christopher Dicorrado, Peter and Gloria Candido - 1, Nancy Krueger and Dan Dunlop - 2, Nancy Krueger, Jack Bowling, Christopher Dicorrado, and Marcia Waller - 2, Nancy Krueger and Joel and Lynda Hawkes - 3, Nancy Krueger and Karen Krushelnick - 45, Nancy Krueger, Liz Hewison, and Cathy Sweet - 3, Nancy Krueger and Robb Paterson - 1, Nancy Krueger and Rose Higgins - 1.

LJ. Labarthe - 2, Elsie Lafreniere - 24, Hamilton M. Laing - 4, Pam Laing - 2, John and Vi Lambie - 95, Barry Lancaster - 2, Norman Lancaster - 105, Sharon Laughlin - 2, Jim Lawrence - 2, Adrian Leather - 5, Adrian Leather, Orie and Gloria Kolenchuk, Gerda Wittman, Doris Wittman, Marian Walker, Sally Hofmeier, Marv and Lorna Schley, Jean Gelinias, and Alex and Luanne Coffey - 17, Sybyl Lees - 1, Doug Leighton - 1, Moira Lemon, Michael S. Rodway and Anne Vallee - 68, Moira Lemon, Brian Carter and Dick Grinnell - 20, Janna Leslie - 4, Arthur Lind - 52, Marcia Long - 42 (Figure 101), Jim and Betty Lunam - 1, Robert E. Luscher - 7, and Rob Lyske - 1.



Figure 101. Marcia Long maps out areas with potential nesting cavities early in the season and does follow-up visits to check for active nesting. Arrow Creek, BC. 2 February 2007 (Photo by Linda M. Van Damme).

MKeith MacDonald - 7, R. R. MacFarlane - 1, Mary Mack - 2, Alan MacLeod - 1, Alan MacLeod and Elinora and A. R. Davidson - 1, Walter S. Maguire - 2, Brenda Mallory - 1, Diana Maloff - 1, Patrick W. Martin - 1, Peter McCallister - 41, Lynne McFetridge - 1, Carolyn McGhee - 1, William D. McLaren - 1, Ed McMackin - 18, Ed and Holly McMackin - 1, Kay McQueen - 1, Ian McTaggart-Cowan - 9, Arthur L. Meugens - 10, Arthur L. Meugens and John K. Cooper - 5, Harry Middleton - 2, Lynn Miller, Stan Olson, Glen Carlson, and Ted Goshulak - 1, Keith Moore, Mary Norris, and D. Davies - 50, Elaine Moore - 1, Elaine Moore and Janice Arndt - 15, Jeff Morton - 12, David A. Munro - 1, James A. Munro - 64, Brian Murland - 1, Brian and Sheila Murland - 4, Don Myers - 1,289, and Steve and Lillian Myers - 1.

NLaure W. Neish - 7, C. F. Newcombe - 1, David A. Newell - 1, Fran Newson - 3, Dave Nicholl - 2, Gwen Nicol - 2, North Okanagan Naturalists - 2, Ivar Nygaard-Petersen - 108, and Mark Nyhof - 754.

OGordon C. Odlum - 9, Steve Ogle - 2, Ernie Olfert - 1, Brent Olsen - 1, Lowell Orcutt - 1, and Lorne Ostendorf - 2.

PParks Canada - 1, Mary Pastrick - 34, C. A. Patch - 1, Jim Patterson - 3, Theed Pearse - 3, Shelley Penner - 8, Shelley and John Penner - 4, Janne Perrin - 58, Karl Perrin - 1, Fred Peters - 1, Carol Pettigrew - 7, Mark Phinney - 20, Mark Phinney and Sandra Kinsey - 1, Dirk Pidcock - 23, Dirk Pidcock and Gail Spitler - 12, Jay Plante - 1, Cindy Poch - 2, William D. Porter - 1, D. Powell, Heather Hay and Norman Holmes - 40, G. Allen Poynter - 24, Greg Prelich - 1, Michael I. Preston - 18 (Figure 102), Michael I. Preston and Andrew Tyrrell - 55, Michael I. and Joanna Preston and Andrew Tyrrell - 14, Michael I. and Joanna Preston - 13, and Sandy Proulx - 239 (Figure 103).



Figure 102. Michael Preston submitted a summary of breeding records for 2008, 2009, and 2010 nesting seasons. Here, Mike is checking the contents of a nest box put up for bluebirds. Meadow Creek, BC. 11 May 2005 (Photo by R. Wayne Campbell).



Figure 103. Sandy Proulx (left) and Manfred Roschitz checking a Great Blue Heron colony near Quesnel, BC. 1 June 2002 (Photo by R. Wayne Campbell).

R Kenneth Racey - 1, Varri Raffan and Kathleen Fry - 1, Randy Rawluk - 1, Tom E. Reimchen - 1, Sheila Reynolds - 16, Gary Richards - 1, Anna Roberts - 27, Lesley Robertson - 1, R. Robinson - 8, Laurie Rockwell - 22, Michael S. Rodway - 3, Michael S. Rodway, Brian Carter, and Dick Grinnell - 82, Michael S. Rodway and Christine and Joy Rodway - 1,032, Michael S. Rodway, Dave Garnier, and Dick Grinnell - 424, Michael S. Rodway and Dick Grinnell - 7, Michael S. Rodway, Dick Grinnell, and Dave Garnier - 54, Michael S. Rodway, D. Powell, Heather Hay, and Norman Holmes - 2, Michael S. Rodway and Dave Garnier - 30, Michael S. Rodway, Heather Hay, Norman Holmes, Dick Grinnell, Dave Garnier, Moira Lemon, Gary W. Kaiser, and D. Powell - 58, Michael S. Rodway and Moira Lemon - 4 (see Figure 63), Michael S. Rodway, Moira Lemon, Brian Carter, and Michael Force - 4,337, Michael S. Rodway, Moira Lemon, Brian Carter, Michael Force, and Heather Hay - 45, Michael S. Rodway, Moira Lemon, Gary W. Kaiser, D. Powell, Dave Garnier, Dick Grinnell, Heather Hay and Norman Holmes - 984, Bob Rogers - 1, Manfred Roschitz - 2 (Figure 103), Rand Rudland - 1, Craig S. Runyan - 1, Don Russell - 28, Glenn R. Ryder - 455, Glenn R. Ryder, Ted Kearney and Keith Pincott - 3, Glenn R. Ryder and J. Saaltink - 7, and Glenn R. Ryder and Ed Van Gerven - 1.

S Rod Sargent and Robb Paterson - 1, Rod and Sarah Sargent - 2, Ron Satterfield - 1, Clare Schadeli - 1, W. Jack Schick - 1, Caryle Schroeder - 4, Lorraine Scott - 12, Lorraine Scott and Sharon Laughlin - 37, Barbara M. Sedgwick - 1, Peter Sewell - 17, Ervio Sian - 1, Chris Siddle - 842, Chris Siddle, Michael Force, and Tanya Seebacher - 1, Chris Siddle, Michael Force, Tanya Seebacher, and Chris Charlesworth - 1, Chris Siddle, Ryan Tomlinson, and Chris Charlesworth - 1, Tom Skinner - 1, Steve Smith - 2, Jane Smither - 1, David J. Spalding - 1, Gail Spitler - 2, William D. Spreadborough - 1, G. D. Sprot - 1, Elsie Stanley and Clayton Lorenz - 1, Stanley Park Ecological Society - 1, Connor Stefanison - 7, Judie Steffler - 1, Bob Steventon and Bill Bailey - 1, David Stirling - 2, Carol Strickland - 2, Ray Sturney and Randy Rawluk - 1, Geoff Styles - 5, Kenneth R. Summers - 6, Richard Swanston - 6, Harry S. Swarth - 1, Lorraine Symmes - 1.

TEric M. Tait - 3, Adrian and Carolyn Thacker - 1, Colin S. Trefry - 1, Colin S. Trefry and Richard S. Jerema - 1, Margaret Turner - 2, and Liz Twan - 2.

Unknown - 7.

VLinda M. Van Damme - 780 and Magnus Vinje - 2.

WLynn Wade - 1, Betty Walker - 9, Wayne C. Weber - 1, Rita Wege - 51, Rita Wege and Janice Arndt - 1, Rita Wege and Gwen Nicol - 6, Brent Wellander - 34, West Kootenay Naturalists Association - 2, Hugh Westhauser - 1, Paul Whalen - 3, Edward G. White - 4, Tony Wideski and Peter Davidson - 2, M. Y. Williams - 1, P. Ray Williams, Ron and Joy Satterfield and Richard Sewell - 1, Williams Lake Field Naturalists - 30 (Figure 104), Tom Willms - 2, Alan and Elaine Wilson - 15, Douglas Wilson - 2, Gwynneth Wilson - 2, John Wilson - 3, Betty Wise - 1, Marcus Womersley - 11, and Michael Woolfe - 1.



Figure 104. Members of the Williams Lake Field Naturalists enjoying a spring field trip at Scout Island. Williams Lake, BC. 22 April 2006 (Photo by Kris Andrews).

YC. J. Young - 3.

Contributors for 2010 – 272

Total contributors – 401

Long-Term Inventory and Monitoring Projects

Entering the 56th consecutive year of operation, the BCNRS demonstrates the usefulness of long-term programs related to birds breeding in the province. Already, for some species like **American Dipper**, the breeding season is about 10 days earlier than it was 50 years ago. And the species is breeding at higher elevations than previously recorded.

The BCNRS has been the provincial repository for major breeding inventory and nest monitoring projects, some since its inception and others with more intensity over the last decade or two. Some of the findings in 2010 are highlighted below.

Colonial-nesting waterbirds fall into two quite separate groups depending on where they feed and nest: marine birds and fresh-water birds. Both major groups characteristically gather in small to large breeding assemblages during the nesting season. Most of their food is obtained either within the nesting habitat or in the near vicinity of the colony.

Colonial-Nesting Marine Birds

Breeding records, survey data, theses, scientific literature, unpublished reports, and species occurrence information, both historical and current, is constantly being gathered and filed in “individual colony” folders that represent a unique breeding site for marine birds along the British Columbia coast. During 2010, several extensive reports prepared in the late 1980s and early 1990s, mainly by Michael Rodway (Figure 105) and Moira Lemon as lead authors, were searched for breeding and occurrence records for birds and mammals. This information has been added to BCNRS files as well as electronic databases. By the end of 2011, all of the reports will have been scoured for breeding records.



Figure 105. Michael Rodway's interest in marine-nesting birds was stimulated during coastal surveys of seabird islands in the mid-1970s, coordinated by Wayne Campbell at the British Columbia Provincial Museum. Moore Islands, BC. 26 June 1976 (Photo by R. Wayne Campbell).

Colonial-Nesting Fresh-Water Birds

While historical information, including literature and survey results, is being compiled for both colonial-nesting groups the emphasis over the past decade has been focused on fresh-water nesting species. These include representatives of grebes, pelicans, cormorants, herons, coots, avocets, gulls, swallows, martins, wrens, and blackbirds.

Populations of colonial-nesting fresh-water birds are far lower than those of marine birds but their numbers have decreased significantly over the past century, mostly as a direct result of loss of wetlands. Added to this threat is the impact of climate change on wetlands and increasing pressures from human recreational use.

In 2010, wetland surveys were concentrated in the Cariboo-Chilcotin (Figure 106), Fraser-Nechako, and Thompson-Nicola regions of the province. Our baseline inventories of nesting colonies includes standard information on precise location, species composition, how many, and date and time of survey. As well, the vegetative and physical characteristics of the wetland, other non-colonial species (*e.g.*, American Bittern and Northern Harrier) observed using the site for foraging or nesting, and environmental contaminants are documented.



Figure 106. This Cariboo lake, with dense beds of cattails and bulrushes and riparian shrubs around its shores, supports at least 21 species of nesting birds each year. Alkali Lake, BC. 18 June 2009 (Photo by R. Wayne Campbell).

A nesting species outline has been prepared and once tallied, information will be compiled in a "site catalogue" for reference. At present, close to one million incidental records have been computerized for hundreds of wetlands, including breeding species found in them.

Following is a brief summary of some of the survey results for the 2010 nesting season for birds associated with marshes, swamps, lakes, and rivers.

Western Grebe and Clark's Grebe

Salmon Arm Bay (including Christmas Island)

In mid-June **Ted Hillary** wrote: *"Atlassing has been keeping me busy and I have not had all that much time to keep track of the Western Grebes here. In May, Ed Dahl had a high count of 240 scattered around the Salmon Arm Bay (Figure 107). I think my high count has been around 170. They are nesting all around the Bay from Christmas Island to west of the Nature Park in the canary grass. The nests are well hidden and I can see none, even with the scope. It will be interesting to see how many families eventually emerge. There has been at least one river otter in the Bay and it has been devastating to waterfowl. In the small pond west of the wharf 5 coots' nests were destroyed with the eggs and some young eaten. Area residents have remarked to me that there seem to be fewer young waterfowl around this year, which I had also noticed, so perhaps the river otter has been busy?!!! Hopefully the Western Grebes will be okay."*

There are at least 3 "pure" Clark's Grebes and several mixed. Once again they are very hard to find. I have seen one courting with a Western Grebe, a trio courting together, and one hybrid courting with a Western Grebe. There are likely others: I can often hear them calling when I am on the wharf, but I can seldom find them."



Figure 107. While breeding Western and Clark's grebe are the primary interest in Salmon Arm Bay at the south end of Shuswap Lake, another 16 species of birds, some colonial, also utilize the emergent vegetation for nesting each year. 10 June 1998 (Photo by R. Wayne Campbell).

Ted submitted a couple of nesting cards for the Clark's Grebe but because of the difficulties in seeing them, there were probably more than the two families.

Ed and Monica Dahl kindly granted us permission to publish this summary of their 2010 Western Grebe Report, which appeared in the Fall 2010 *Salmon Arm Bay Nature Enhancement Society Newsletter*.

History has seemed to repeat itself as this year's Shuswap Lake water levels have been very similar to last year. Also, the grebes did not build their nests where we could count them and the reed canary grass thrived, probably due to lack of flooding. But, the Western Grebes have done well, in spite of our concerns and sometimes dismay.

May 9, 2010, there were 243 Western Grebes counted on the bay, along with 26 Greater White-fronted Geese, 2 American Pelicans, 6 American Avocets and a Ruddy Duck seen from Peter Jannink Park. From then until June 23 the counts decreased almost weekly down to 75 adult grebes. Monica and I were away for a few days, so the grebes were not counted until July 14 then we saw 19 young grebes riding about on their parents' backs, we counted 201 adults that day. That many adults suggested to us that maybe "new" adults had arrived on the lake. There were still dancing grebes courting near the suspected nesting sites, so we may have some young showing up even into September.

Our counts of adults and young have continued with some fluctuations in numbers, makes me think I may be counting some birds twice or not counting them because it is really difficult to say for sure that the "markers" I am using allow me to accurately prevent duplications, etc. Anyway, on Aug. 13th we counted 200 adult Western Grebes, 104 young from 68 families. That's not as many as last year, but I suspect the count may yet increase. Last year the count was 185 adults and 131 young.

Duck Lake - Creston Valley Wildlife Management Area

In this 16th year of monitoring Western Grebes, **Linda Van Damme** reports an attempted but failed breeding at Duck Lake (Figure 108). *“In early June, approximately 28 grebes were counted in the middle of the lake but few birds were observed after that. On June 23rd, two pairs were engaged in courtship behaviour. The first evidence of nesting was noted on July 21st when four shallow platforms in the south-east area of the lake were observed through a spotting scope. By July 24th, another observer, Gary Breault, counted 32 adults and nine nesting platforms. Over the ensuing two weeks, eight adults occupied nests while the attentive mates continued to add material to build up the mound. By August 12th, the small colony numbered 11 pairs but by the end of the month was back to eight pairs. On August 28th the wind/wave action on the lake was constant and one nest was lost. By September 3rd, it seemed that hatching was imminent as over a 3 hour observation period, the adults were restless, standing up several times, adjusting eggs, exposing the brood patch and re-settling. I didn't see any behaviour that would indicate*

the presence of young chicks I counted only six nests the following day as the wind/wave action continued on the lake. The “big one” occurred Sept 5th at 0300 hrs. and completely wiped out the remaining nests. Eleven adults were observed milling about the nesting area in the daylight hours. It appeared the storm completely displaced the milfoil mat grebes use for anchoring their nests. The future seems tenuous for Western Grebes breeding at Duck Lake.”

Leach Lake - Creston Valley Wildlife Management Area

In 1997 and 1998, biologist **Penny Ohanjanian** conducted surveys on Western Grebes during the breeding season. At Leach Lake, nests were built within more protected areas and first broods hatched a month earlier than at Duck Lake. During those two years, an estimated 11 to 13 pairs nested within this wetland compartment.

There was evidence of breeding this season when biologist **Marc-André Beaucher** discovered three active nests during June. On July 6th, **Gary Breault** observed adults with three downy gray chicks.



Figure 108. Western Grebe nesting commenced late in 2010, as the milfoil mat needed for anchoring nests was absent until the third week of July. Weather negatively impacted nesting success. Duck Lake, 28 August 2010 (Photo by Linda M. Van Damme).

Great Blue Heron

While some Great Blue Heron colonies are found in terrestrial situations some distance from water (Figure 109), most are established adjacent to wetlands where a food source is readily available.



Figure 109. The Great Blue Heron colony in urban Vernon, BC., is situated at least three kilometres from the nearest foraging grounds at Swan Lake. Most colonies in British Columbia, however, are close to wetlands. 26 March 2004 (Photo by R. Wayne Campbell).

In total, 13 colonies were surveyed in 2010, most during the period when large nestlings were present and productivity figures could be obtained.

Breeding adults usually return to colonies in southern portions of the province in March each year, but at one colony on southern Vancouver Island, adults remained in the vicinity of the site all winter. The year earlier adults were first seen standing on branches near their nests on March 8.

Details for heron colonies at two locations are mentioned below.

Creston Valley

Some Great Blue Herons from the **Leach Lake** colony within the **Creston Valley Wildlife Management Area** were observed building new nests along a bend in the Kootenay River, much further north and west of their original site, while other herons continued to nest among the Double-crested Cormorants. In late March, over 40 nests at this new site were in various stages of completion. During the nest building stage, a low flying helicopter was observed flying over the colony. By early May, the foliage obscured

nest viewing and few nests could be seen for evidence of young as the season progressed.

The small colony at the south end of the Creston valley was active although herons abandoned nests along the western boundary. A pair of adult Bald Eagles was frequently observed perched in this area. A Northern Raccoon sighted by Sharon Laughlin in the main nesting area on June 29th documents the first potential disturbance by this mammal at the Tanal Marsh site.

A solitary and successful nest was found close to **Creston** town limits.

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 (Figure 110). The Society publishes an annual report of their findings which are available at their website <http://www.stanleyparkecology.ca/programs/conservation/urbanwildlife/herons>. Briefly herons tolerate human activity but predation by **Bald Eagles** and **Northern Raccoons** are major concerns.



Figure 110. Since the early 1920s Great Blue Herons have nested in Vancouver's Stanley Park. June 1924 (Photo by D. W. Gillingham).

We have extracted noteworthy information on the nesting Great Blue Herons from the annual reports of the Stanley Park Ecology Society for the years 2006 to 2009 as follows:

2006: *Great Blue Herons have a long history of nesting in Stanley Park, with written records of a heronry at Brockton Point going back to 1921, and continuing through the 1960s to 1990s at the site of the former Stanley Park zoo. What started as a trickle in 2001 has in the last three years become a torrent, with the herons arriving at the park site en masse from 2004 to 2006.*

Prior to 2004, records indicate an average of 20 to 30 active nests per year with 1979 standing out as a record-setting year with 38 successful nests and 91 fledglings (chicks successfully leaving the nest). These numbers are dwarfed by the counts of the last three years. The sudden increase in 2004 can perhaps be attributed to the abandonment of two Lower Mainland heronries, one in Vancouver and the other in Point Roberts, WA. It is likely that the further growth in 2005 was the result of the same abandonment, with additional herons

from the former nesting sites attracted to the apparently prime location of Stanley Park. Offspring from previous years may also be contributing to the population boom.

2008: *Although Bald Eagle nest predation is a growing concern, as eagle numbers grow and heron numbers fall, some herons have found a new strategy to deal with their problem. In Point Roberts, WA, just south of Tsawwassen, a Great Blue Heron colony shares a small patch of forest with a nesting pair of Bald Eagles. The common theory about this behaviour is that the territorial pair of eagles will chase off all other eagles in the area, so that the colony only suffers predation from that one pair. The herons are choosing to trade off a few losses from one pair of eagles for the added protection they provide of preventing a large number of juvenile eagles from attacking their nestlings.*

While the Great Blue Heron is known as a species that is easily disturbed by human activity, the urban herons of Stanley Park seem tolerant of the noise and bustle of the city (Figure 111). There were no records of herons



Figure 111. Despite a constant influx of human visitors to Stanley Park throughout the year, Great Blue Herons have successfully raised families each year for over 90 years. 27 March 2010 (Photo by Martin Passchier).

abandoning their nests due to human activity, traffic, or organized events in and around Stanley Park this year. However, the herons were monitored again during the “Celebration of Light Fireworks” display, and this year they were again alarmed by the explosions. While no nests were believed to be abandoned, at least one chick fell from its nest during the fireworks. Stanley Park Ecology Society heron monitors volunteered more than 200 hours of their time conducting surveys and educating the public at the heronry this year. A special thanks to **Maria Morlin, Dalyce Epp, Holly Tandy, Tracy Wottington, and Rachel Leblanc** for all of their hard work.

2009: It was observed that **Northern Raccoons** (Figure 112) began preying on heron chicks at alarming rates. It is not clear why after all these years the local raccoons suddenly realized that the defenseless birds were an easy meal. It is certain, however, that the population of raccoons in the area is on the rise and these animals are becoming increasingly brazen because people habitually feed them. Large groups of raccoons are fed daily in Stanley Park by local residents despite the “no feeding” bylaws that are in place. The Stanley Park Ecology Society (SPES) and the Vancouver Park Board Park rangers have diligently provided education and information for people about the negative effects of wildlife feeding, but despite these efforts, the problem persists. Since raccoon numbers in the area are artificially inflated due to human feeding and the herons (a blue-listed species) are suffering as a result, SPES and the Vancouver Park Board are working to erect predator guards around the heron nesting trees to prevent raccoon access for the next breeding season. Canadian Wildlife Service biologists agree that protecting the herons’ declining population is essential for their recovery. The plan is to install metal sheets around the tree trunks in early 2010, prior to the return of the herons.



Figure 112. Northern Raccoon is well known for its omnivorous diet, eating a wide variety of plants and animals, especially in wetlands. Although the masked mammal has been known to climb to a Great Blue Heron nest and eat nestlings in other parts of North America, until recently it was not considered a predator in British Columbia. Vancouver, BC. 1 March 1997 (Photo by R. Wayne Campbell).

2010: The colony consisted of 124 nests and about 120 young fledged successfully. Efforts to discourage Northern Raccoon predation were carried out by fastening broad metal bands around tree trunks. Unfortunately, however, Bald Eagles “assaulted” the colony from the air. Members of the Stanley Park Ecological Society are concerned that this increased avian predation will cause abandonment of the colony.

A summary of the annual nesting chronology was included in the report and will be a useful reference for others looking at Great Blue Heron colonies on the coast and in the interior.

March 7 Herons in pairs have claimed their nests; one nest has been claimed by two sleeping raccoons

March 28 Herons have begun incubating their eggs, turning them every now and then.

April 4 A few heron nests have been dismantled while new ones are being built.

April 14 The eggs are ready to hatch. Quite a few chicks have already emerged.

May 9 The chicks are getting bigger and stronger, but competition between siblings is also observed in some nests.

June 3 Chicks are almost at fledging age; they are seen testing their wings.

June 16 More chicks are produced. Some herons are compensating for their nest predation by attempting to lay a second clutch of eggs before the end of the season.

July 4 Many of the chicks have fledged.

August 1 Most of the chicks have fledged but a few still remain.

Ring-billed Gull

Salmon Arm Bay (including Christmas Island)

Ted Hillary sent us this note on Salmon Arm Bay colony: *“Regarding the Ring-billed Gull colony I think that it was quite successful this year (Figure 113). Tom Brighthouse and one of his grandsons did a nest count in May. They got 700 nests with 1 to 4 eggs in each nest. The water did not flood out many nests this year so that the hatching count and survival rate was probably very good. I did not have the opportunity to do a count of the young, but there must have been more than a 1,000 as they were everywhere. I don’t remember seeing so many in the past.”*



Figure 113. The fortunes of the Ring-billed Gull colony on Christmas Island near Salmon Arm, BC. depends to a large extent on the amount of spring runoff and its effect on water levels in the lake. The 2010 nesting season was more successful than normal. Shuswap Lake, BC. 28 May 1994 (Photo by R. Wayne Campbell).

Black Tern

Over the past decade or so, an intensive effort has been put into surveying wetlands for nesting colonies of **Black Tern** as well as enhancing breeding opportunities by placing nesting platforms where nest sites are vulnerable to the vagaries of weather and flooding (Figure 114). The primary purpose of the inventory is to determine numbers, trends, and productivity in British Columbia, especially since the species is showing significant declines in the northeastern United States.



Figure 114. A typical wire-mesh nest platform, covered with nesting materials and well anchored, awaits the arrival of Black Terns. Near Prince George, BC. 2 June 2008 (Photo by R. Wayne Campbell).

To date, over 80 separate nest sites (mostly colonies) have been identified and for some of these we have collected information dating back to 1897 when the first breeding site was discovered at Sumas Lake. Sites may change locally between years but at several there is good trend information for long-term breeding since at least the late 1940s. Invaluable is the historical search of field notes where information has remained “hidden” for decades.

Over 120 nesting platforms (Figure 115) have now been placed in wetlands in the Thompson-Nicola, Cariboo-Chilcotin, Fraser-Fort George, and Peace regions of the province. Black Terns have enthusiastically made use of them in all regions and 72% have been used. All are recorded by GPS co-ordinates and only two have not survived freezing winters. At some locations, up to three pairs of Black Terns were fighting over the new “real estate” as platforms

were being assembled and set out. The nest platforms are designed to float with fluctuating water levels and provide stability by being anchored during windy periods.



Figure 115. About 72% of nest platforms (n=120) placed in wetlands throughout the interior of British Columbia have been used for nesting by Black Terns over the past three years. Near Prince George, BC. 15 June 2010 (Photo by R. Wayne Campbell).

Not surprisingly, Black Terns are not the only species taking advantage of the floating homes. **Eared Grebes** (Figure 116) and a pair of **Greater Yellowlegs** have laid eggs on them, **Common Gartersnakes** and **Painted Turtles** have been found basking, **Muskrats** use them as feeding sites, and a host of ducks rest on the tern platforms during their annual moult. On several occasions, **Yellow-headed** and **Red-winged blackbirds** have fed their fledged young on the dry platforms and aquatic **snails** and **leeches** are sometimes in abundance clinging to the underside.

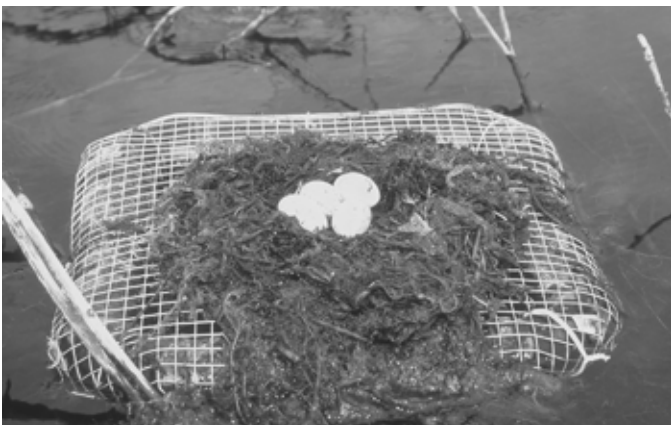


Figure 116. Eared Grebe eggs on nest platform put out for Black Terns. Near Rolla, BC. 21 June 2008 (Photo by R. Wayne Campbell).

Most nest sites will be revisited in 2011 with emphasis on establishing new “conservation” sites in the Fraser-Fort George region and surveying known, but to date unchecked, colonies in the same region.

Wrens

The only member of the Family Troglodytidae to breed in wetlands is the Marsh Wren and its nest is well known to naturalists (Figure 117a). This is a species that was poorly represented in BCNRS files due to the inaccessibility of nests and the difficulty of checking them for eggs and nestlings. Over the past three years, however, nearly 350 nests with contents have been found, which is larger than the database used to prepare the species account for *The Birds of British Columbia*. As well, new information on breeding chronology and habitat preference has been obtained for different regions and types of marshes in the province.

It has also been learned that in some wetlands, singing birds do not necessarily indicate breeding and at others without a lot of noise, dozens of active nests have been found.



Figure 117a. The familiar oval-shaped outer shell of a Marsh Wren nest is usually constructed of cattail leaves and attached to the stems of emergent cattails and bulrushes. A nest used for breeding takes 5 to 8 days to build while non-breeding (“dummy”) nests may take the males only 3 days. Near Douglas Lake, BC. 18 June 2010 (Photo by R. Wayne Campbell).

Experienced nest-finders know that the male **Marsh Wren** builds multiple nests within a territory but only one is used for nesting (Figure 117b). In Washington State, ornithologist J. Verner calculated that a male may spend up to 7% of its time constructing up to 14 different nests! The purpose of “extra” nests is not fully understood, but some ornithologists have suggested that they are used as a predator avoidance tactic. It is known, however, that wrens use these “extra” nests as roost sites throughout the year in some parts of their range.

In British Columbia, the number of non-breeding (“dummy”) nests constructed per active (used) nest is not known. During wetland surveys in 2010, **Wayne Campbell** kept track of the total number of Marsh Wren nests in discreet, well-defined territories, at eight colonies. These sites were well separated in bands of emergent vegetation. Of 524 nests examined, only 115 (21.6%) contained eggs or nestlings (Table 2). So, when you spot a Marsh Wren nest, there is a good chance that over 75% of them are not used for nesting.

Table 2. Total number of Marsh Wren nests with contents and empty (“dummy” nests) in discreet breeding territories in three regions of British Columbia in 2010.

Region	Nests With Contents	“Dummy” Nests	Total Nests	Nests With Contents (%)
Cariboo-Chilcotin	42	140	182	30.0
Thompson-Nicola	50	173	223	28.9
Okanagan-Similkameen	23	96	119	23.9
Total	115	409	524	21.6



Figure 117b. In 2010, less than 22 percent of Marsh Wren nests examined in wetlands (n=524) had contents. Pantage Lake, BC. (Photo by R. Wayne Campbell).

Blackbirds

Five species of Icterids (Blackbirds and Allies) breed in wetlands in British Columbia: Red-winged, Yellow-headed, Rusty, and Brewer's blackbird, and Common Grackle. Brewer's Blackbird has recently moved into cattail marshes where nests are still a rare find while the Rusty Blackbird prefers more secluded wetlands, but recently nests have been found in small stands of cattails in beaver ponds and swamps. Common Grackle continues to expand its breeding range in the province, especially in the northeast.

Red-winged and Yellow-headed blackbirds are the common and most familiar species nesting in cattail and bulrush marshes throughout the province. Where the species occur together, red-wings prefer cattails and yellow-headed build their nests in bulrushes. The presence of either species at a marsh does not necessarily indicate nesting. At several colonies surveyed in 2010, birds were present in significant numbers, and calling on territory, but did not breed. For example, at one site in the Thompson-Nicola region, 123 Yellow-headed Blackbirds were counted in late May on territory but no nests were found. A month later the number had dwindled to 27 birds and only 11 incomplete nests were tallied. At another

site in the Cariboo, both species started nesting in May but drying conditions affected nest success. Three weeks later a single Red-winged Blackbird nest was found in cattails on dry ground five metres from water. It held two large nestlings.

Counts of blackbirds at marshes do not give a reliable estimate of the actual breeding population (Figure 118). At every marsh surveyed during the past three years, more nests were found than the original count of birds made at the start of the nest search.

The number of breeding records tallied over the past three years that includes nests with contents or recently fledged young is exciting. Over 5,600 nests or broods were found of which Yellow-headed Blackbird, a species of provincial concern, accounted for 59% of all records (Table 3). The new data will allow us to develop breeding chronologies for different regions of the province as well as how timing may vary altitudinally. For example, in 2010 in the Okanagan-Similkameen and Thompson-Nicola regions, Yellow-headed Blackbird fledglings were found in late May in lowland marshes, while at 1,000+ metres the species was in the egg-laying stage. This information is critical when developing management regimes for wetlands that may be impacted by human activities.

Table 3. Total number of nests with contents or recently fledged young being fed for five species of wetland-nesting Icterids in interior British Columbia deposited in BCNRS files between 2008 and 2010.

Species	Year			Total
	2008	2009	2010	
Red-winged Blackbird	870	571	787	2,228
Yellow-headed Blackbird	320	1,237	1,719	3,276
Rusty Blackbird	4	4	1	9
Brewer's Blackbird ¹	9	6	6	21
Common Grackle	77	11	30	118
Total	1,280	1,829	2,543	5,652

¹Rarely nests in marshes and swamps.

Colonial-Nesting Terrestrial Birds

Swallows

New and traditional colonies of terrestrial-nesting swallows were again checked in 2010 and documented by photographs to note any changes in immediate habitat or shift in the location of nests within the colony. Species included **Northern Rough-winged**, **Bank**, **Cliff**, and **Barn swallow**. An effort was made to determine contents of nests or burrows for sites that were accessible and for which there was a minimal impact. For example, the contents of 239 Barn Swallow nests were determined as were 396 Cliff Swallow nests (Figure 119). At the latter site, the nest check was made just before the colony was washed from the building despite pleas to wait a couple of weeks for fledging. Apparently, people had complained of a “mite infestation” that they suspected originated from the Cliff Swallow nests.



Figure 118. Total counts of male Yellow-headed Blackbirds on territory in marshes in the late spring and early summer are not a reliable estimate of the actual breeding population. In some years, birds may be present throughout the regular breeding season and not nest. Rock Creek, BC. 6 June 1997 (Photo by R. Wayne Campbell).



Figure 119. The contents of Cliff Swallow nests, built on low structures like this pump house, can easily be obtained using a stepladder. Near Merritt, BC. 31 May 2010 (Photo by R. Wayne Campbell).

Very few colonies were monitored through the entire nest period and most visits were only one-time encounters. However, a **Barn Swallow** colony of 27 nests, as well as three **Cliff Swallow** colonies in the **Creston valley** were monitored for the complete nesting season by **Linda Van Damme**.

Monitoring Nesting Birds of Prey

Since the inception of the BCNRS in 1956, all species of raptors have been monitored by recording on standard nest record cards information on nest sites, breeding performance, and population trends. Most of the information is from well-known sites that people visit frequently, year after year. The large and conspicuous nests of **Osprey** and **Bald Eagle** receive the greatest attention by individuals from many locales throughout the province. Some participants follow protocols for European programs where all raptor nests are located within a previously defined area. BCNRS raptor programs also include monitoring nest boxes installed for use by owls and kestrels.

Birds of prey are important indicators of the state of British Columbia's environment because they are at the top of food chains. This group is one of the first indicators of chemical contamination in wetland and terrestrial environments. At the present time, it does not appear that any of the 37 species of birds of prey are in a steep decline.

Osprey

West Kootenay (Nakusp to Fauquier)

Gary Davidson, who continues to monitor nesting **Ospreys** in the **Arrow Lake** region, writes: "Early in the season it appeared that 26 nests were being used this year. Nineteen of these nests eventually produced young. During a survey on 28 July a total of 30 young were observed in the 19 nests. By 5 August, that number had dropped to 27 young. Due to the late date and the size of the young present, it is presumed that fledging had begun. Nineteen successful nests equals the highest previous number during the nine years in which there is sufficient data to make reliable comparisons. The productivity, 1.58 young per nest, is below the nine year average of 1.67."

West Kootenay (Balfour to Waneta)

In 2010, **Rita Wege, Elaine Moore, Gwen Nicol**, and **Janice Arndt** monitored 33 active Osprey nests between **Balfour** and **Waneta** in the West Kootenay. Janice summarizes the season: "Forty-one young were raised to near-fledging age in 25 nests. Six of the nests that were occupied by Canada Geese early in the season were later successfully used by Ospreys. Although the total number of active and successful nests was well within the normal range for the study area over the past 14 years, the lower portion, from Nelson to Waneta, had well-above average number of nests and number of young fledged than normal."

On several occasions we have encountered Ospreys that appear to be incubating later than normal - past the middle of July. Because we don't actually check nest contents, we can't be sure whether or not eggs are present, but the bird's behaviour suggests that they are sitting on eggs. In 2010, for example, an Osprey was observed in incubation posture in a nest on the West Arm on May 31st, July 26th and August 17th. Interestingly, this nest hosted late-incubating birds in 2007 and 2009 as well. To our knowledge, none of these attempts resulted in chicks hatching, let alone fledging. The nest is a few miles from Nelson on a channel marker that can be accessed by boats and climbed by swimmers. Possibly, human disturbance interrupted incubation and prevented proper development of the young, without causing the adults to abandon the nest. Many other bird species have also been reported to continue to sit on non-viable eggs long after their normal incubation period has passed.

On May 8th Tim Kendrick noticed a pair of Ospreys had established a new nest on top of Nelson's orange bridge, undeterred by the traffic cone placed on a nearby part of the span some years ago when they tried to nest there. The nest was not on the front corner of the bridge, so was not as conspicuous as in some years. On May 11th Tim noted a band on the right leg of one Osprey. It was perched on a post with a fish but when it spotted a Bald Eagle it took flight. The eagle forced the Osprey to drop the fish in the middle of the lake where it was able to retrieve the fish for itself. This pair of Osprey began incubation about May 20th and continued well into June before abandoning the nest."

Creston Valley (South Kootenay Lake to United States border)

Now into their 13th season of monitoring Osprey, **Linda Van Damme** and **Cyril Colonel** had to change the way they did things. Due to health issues, Cyril was not able to participate in the river surveys which have always been a part of the overall monitoring done in the valley. This season **Gary** and **Linda Richards**, along with their charming dog “Sophie” came to the rescue.

Linda writes: “*The season started off with 34 active nests but as the weeks went by only 28 remained active. A couple of nests still at the egg stage were predated by ravens. Two nests were lost during wind storms. One pair of Osprey initiated nest sitting in the first week of June, but soon abandoned the site. Fifty nestlings were observed in productive nests; however there were six known deaths. We were pleased to see triplets in one nest, however only a single nestling fledged. But, after four consecutive years of failure at this nest site, we were pleased to see some success. Several nests remained active into mid-September where adults were observed delivering food to fledged and un-fledged young.*

After observing one nest over a 4 1/2 month period, it was disheartening to discover one of two young Ospreys had perished a few days before fledging. It was a form of mortality we had not previously encountered. The nest is situated on a power pole and it appeared the Osprey was caught by the wing on a wire near an insulator and was unable to free itself (Figure 120).

The Creston Valley Wildlife Management Area once again partnered with Fish and Wildlife Compensation Program giving the public an opportunity to observe a pair of nesting Osprey. In 2009, this nest was predated at the egg stage but this season triplets hatched and viewers were treated to the dynamic interactions of the family. Although I’m sure we were all rooting for the runt of the litter, it was not fed as often as its larger siblings who acted aggressively towards it. Therefore it came as no surprise to see the runt missing from the nest on July 19th. The two remaining young successfully fledged later in August.”



Figure 120. Hooked by the wing, this young Osprey perished close to fledging. Creston, BC. 28 August 2010 (Photo by Linda M. Van Damme).

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

Health issues affected **Sheila Reynolds** in her fifth season and she writes: “*Osprey monitoring was done only once in the Cranbrook region. Twelve nests were checked. Two nests were not active at the time they were checked; the Galloway mill site in the pole yard and the nest at the St. Mary’s River Bridge site. The Thibeault Ranch nest near Cranbrook fledged two young. Young were also seen on the nest at the Bull River Inn (Fort Steele/Wardner Rd.) and at Wycliff Junction with Highway 95 where at least one young fledged. Many nests have become quite deep making it difficult to observe the young. One new nest site was found near 688 Fort Steele/Wardner Road. My plan next season is to cover the area closer to Cranbrook and reduce the amount of driving. This way I can make two trips to check on activity and a later visit to check for young”.*

North Kootenay Lake (Woodbury area)

Lorraine Symmes sends us her notes for the 2010 season: *“The Ospreys at Florence, just North of Ainsworth Hot Springs were successful again this year with two fledged chicks. They hatched earlier this year and got a jump start on flying lessons and fishing long before the adults left. One observation over the years that I have made, is that the chicks seem to start testing and flapping their wings on the nest about 7-10 days before they fledge. It usually happens when a good steady wind is blowing and the young start testing the “lift” and strength of their wings. This wing testing was witnessed this year August 9th and they were both fledged on August 16th. The adults had left by Sept 8th and then the juveniles finally were gone on Sept 24th. Hurrah.*

One other exciting note is a new nest was built in a tree, about a kilometre north, but I only found it after birds would have fledged. I'm hoping that this nest was one of some returned juveniles from 2 years ago....but will be checking it regularly this coming summer. Stay tuned!”

Bald Eagle

West Kootenay (Balfour to Castlegar)

Janice Arndt of Nelson continued to monitor the breeding activity of eagles in a segment of the West Kootenay region. All 12 known territories were occupied by adult eagles in 2010, although three of the 12 pairs may not have attempted to breed. Seven pairs were successful and raised 13 young. Two of the seven successful broods were reared in new nests built in the preceding year, while five were in older nests. In addition to the twelve territories known from previous years, two new ones were found. One of the new nests, built in a cottonwood, was only visible after the leaves had fallen, though the pair had been seen at the site during the breeding season. The second was an exciting discovery by Janice's daughter, Bethany, who photographed an eagle flying over their house, carrying a stick (Figure 121). The site of the new nest was soon located, only a couple of hundred metres away. The pair continued to work on the nest throughout the summer.



Figure 121. Bald Eagle flying with stick for nest-building. Nelson, BC. 15 May 2010 (Photo by Bethany Arndt).

Creston Valley

Linda Van Damme and **Cyril Colonel** continue to monitor breeding activity at 13 known territories. This season eight nests were active with six pairs successfully raising nine young to fledging. At one territory, the nest had fallen from the tree and the eagles did not re-build. At another the eagles were “busy” at the nest which was built in 2008, but no incubating behaviour was observed. A couple of nests were abandoned mid-season. No new nests were discovered.

Thompson - Nicola Region

Since 1973, **Wayne Campbell** has monitored raptor nests, mostly **Osprey** and **Bald Eagle**, during his travels through the Thompson-Nicola Region of the province. In 2010, 41 nests were checked multiple times because of time spent surveying wetlands. The main locations with nests included Merritt, Nicola Lake, Douglas Lake, South Thompson River (Figure 122), and Shuswap Lake.



Figure 122. This Bald Eagle nest, a relatively new site along the South Thompson River near Kamloops, BC, is built in an old ponderosa pine snag beside the road. 1 June 2010 (Photo by R. Wayne Campbell).

Bald Eagle Webcams

An increasing number of webcams are being placed at Bald Eagle nests in southern British Columbia. Images of the bird's private family life are taken by a video camera and 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. In 2010, the nest started with two eggs and film showed the private life of one developing nestling. The **Sidney** webcam, sponsored by Hancock Wildlife Foundation can be viewed at www.hancockwildlife.org

Red-tailed Hawk

In the Creston valley, **Linda Van Damme** and **Cyril Colonel** checked 53 Red-tailed Hawk nests; of these 13 were new for this season. The hawks occupied twenty nests with 16 pairs producing young. A pair of Bald Eagles refurbished an old hawk nest in 2009 and continued to use that nest in 2010. Canada Geese and Great Horned Owls occupied 10 nests while the other 23 were un-occupied.

Monitoring Nest Boxes

Cavity-nesting species of owls, waterfowl, woodpeckers, swallows, bluebirds, chickadees, nuthatches, and wrens, as well as mice and squirrels, have all benefited directly from the thousands of nest boxes that have been installed throughout our province.

In 2010, the following 26 species utilized nesting boxes: **Wood Duck, Bufflehead, Common Goldeneye, Barrow's Goldeneye, Hooded Merganser, American Kestrel, Northern Flicker, Barn Owl, Western Screech-Owl, Northern Saw-whet Owl, Purple Martin, Tree Swallow, Violet-green Swallow, Black-capped Chickadee** (Figure 123), **Mountain Chickadee, Chestnut-backed Chickadee, Red-breasted Nuthatch, Pygmy Nuthatch, Bewick's Wren, House Wren, Western Bluebird, Mountain Bluebird, European Starling, House Sparrow, Deer Mouse** (Figure 124), and **Northern Flying Squirrel**.



Figure 123. Black-capped Chickadee sitting in her cozy nest inside a nest box. Lister, BC. 3 June 2010 (Photo by Vic Cousineau).



Figure 124. Occasionally, small mammals, such as this Deer Mouse, usurp a nest box and successfully raise their family. Gilpin Creek, BC. 10 June 2008 (Photo by R. Wayne Campbell).

This season we received nest cards from the following dedicated and enthusiastic individuals who faithfully monitored nest box trails: **Carla Ahern** and **Pat Huet** (Creston Valley Wildlife Management Area), **Vicky** and **Lloyd Atkins** (north Okanagan valley), **Beverly Butcher** (Cariboo), **Wayne** and **Eileen Campbell** (Merritt, Tunkwa Lake, Dog Creek Road, and Mission Creek), **Vic Cousineau** (Lister), **Cliff Day** (Vernon), **Willie Haras** (Dewdrop), **Pat Huet** (Canyon), **Vi** and **John Lambie** (Mackenzie), **Marcia Long** (Arrow Creek), **Ed McMackin** (Arrow Creek), **Dirk Pidcock** and **Gail Spitler** (Argenta and Duncan River valley), **Sandy Proulx** (Cariboo), **Quesnel Naturalists** including **Adrian Leather**, **Marv** and **Lorna Schley**, **Orie** and **Gloria Kolenchuk**, **Alex** and **Luanne Coffey**, **Gerda Wittman**, **Doris Wittman**, **Marian Walker**, **Sally Hofmeier**, and **Jean Gelinas** (Dragon Lake), **Lorraine Scott** and **Sharon Laughlin** (Creston), and

Rita Wege (Shoreacres).

Hundreds of additional breeding records came from individuals who check nest boxes installed around their private property or from others who check nest box trails and isolated nest boxes during their travels around the province. The latter contributes to multiple follow-up visits that would otherwise not be gathered. This is especially important for boxes that have an identity number or letter (Figure 125).



Figure 125. Nest boxes identified by a number, or letter, assist in record-keeping as individual checks by interested observers, other than people who regularly monitor the nest box, can later be added to the original nest card as another visit. Springhouse, BC. 14 May 2005 (Photo by R. Wayne Campbell).

Nest Box Notes

Ed McMackin, from Arrow Creek in Creston area, mentioned that in the nest box where **Violet-green Swallows** reared four young to fledging, he found eight water diving beetles in the nesting material. He assumes these 13 cm insects were caught on the wing but not eaten by the young as the beetles have hard elytra making them difficult, if not impossible, to swallow.

Marcia Long observed that the **Red-breasted Nuthatch** which occupied one of her nest boxes in the Arrow Creek area daubed the circular opening with pitch, a common practice at “natural” nests.

Lloyd and Vicky Atkins installed 44 new nest boxes at Rose’s Pond in the Vernon area to increase the number of available nesting sites for **Tree and Violet-green swallows**.

In the 2009 annual BCNRS report, **Sandy Proulx** discussed the use of the “**Johnson Slot Nest Box**” which has proven to be quite successful with bluebirds. It appears that swallows, especially **Tree Swallow**, also benefit from this design (Figure 126).

A variety of nest box designs are available through the **Southern Interior Bluebird Trails Society** web page at www.bcbluebirds.org.



Figure 126. Six “amigos” Tree Swallows ready to fledge. This box design, with slot entrance, appears to create less competition for food among nestlings. Cawston, BC. 12 July 2010 (Photo by Mark Nyhof).

Notes from the Field

A Curious House Cat and an Abandoned Baby Wood Duck



Figure 127. A duckling Wood Duck that was rescued from a yard in Harrison Hot Springs, BC. and released into the nearby Miami River where it was hoped it would meet up with its family. Mid-June 2010 (Photo by Janne Perrin).

Janne Perrin wrote from **Harrison Hot Springs** in mid-June: “*This morning before we left for a Manning Park to Merritt birding trip, our cat called us over to something scrambling around in the side yard. He likes to show us interesting things in the garden from rodents to snakes, frogs and beetles. He rarely kills things and after getting sick from “wild game” never eats anything either. He just calls us out with a special “meow” to see his finds. I tried to turn him into an inside cat but the turmoil was too much and the local rats a problem. In any case the new find was not a rodent but a **Wood Duck** duckling still bearing an egg tooth. Our duck box is on a red alder in the riparian strip of the Miami River has been a hive of activity since the 31st of March when I first observed the female Wood Duck emerging. On the 9th of April I saw an Eastern Grey Squirrel coming out. I had a look in and found 4 duck eggs under 8-inches of wet Big-leaf Maple leaves it had stuffed in the box. I turfed the leaves out and on the 11th of April the female duck flew in at 9 a.m. Subsequently, there were comings and goings of the female often pursued by the male up until the 17th. Then today, this little guy appeared [Figure 127] but alas with no female which was with the rest of the brood on the river where we released the duckling. We hope she turned up to retrieve it*

after we left for our birding day. We got back at 11:30 p.m. Think I will have a peek inside the box tomorrow.

I checked the box last night and it contained the wood shavings, a layer of down and three or four egg membranes. I had expected to find shells but by feel I could only reach in as "laddering" up to the nest is tricky without breaking all the thimbleberries below. I could find only membranes. Since the discovery of the duckling I was home for another 6 days before my trip and there has been no further activity at the box so I assume that the duckling and box are connected. I frequently hear the (mother) Wood Duck alarm calls on the river and once, before my trip, scooted down there fast enough to get a glimpse of a 1A duckling secreting itself into the tall reeds."

A Timely Intrusion

Ken Borrie wrote: "We visited Elgin Heritage Park (in **South Surrey**) on Monday, April 5th, between 3-4 pm. We were attracted by a large number of ducklings (14) in a tiny pond by the western path. Two **Canada Geese** flew in, and came right at the ducklings as Mallard mom tried to shoo them into the reeds. One goose seized a baby duckling in its beak. The **Mallard** female was not very effective in defense, so I delayed the inevitable by chucking dead branches at the geese to discourage them (rather reprehensible behaviour by a self-described bird-lover), but they were persistent, and kept circling back to attack the baby Mallards. The goose dropped the unharmed duckling. We left before there was a fatality, but I have no doubt that nature took its course."

Calling all Barred Owls

Posted by **Mark Nyhof** on 7 February: "There is excellent accommodation now available for a pair of owls (Figure 128). This spacious one room apartment with rustic exterior of Douglas-fir siding has some of the finest water views and surrounding habitat in the **Saanich** area. The successful applicants are permitted to hunt in the area but are asked not to touch the orange cat. Act quickly because this one won't last long. (Please note: This is a quiet neighbourhood so any questions of "who cooks for you" should be dealt with in the nearby forest)."

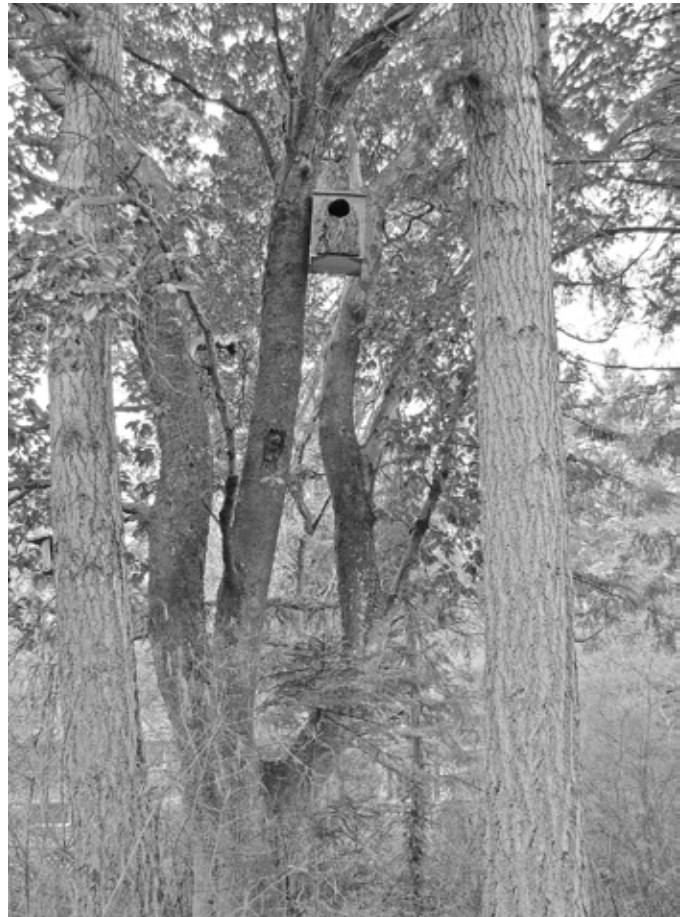


Figure 128. Soon after this nest box was put up, a pair of Barred Owls showed interest in the accommodation and stayed in the vicinity for a couple of weeks. Unfortunately they preferred a nearby natural cavity to raise their family (Photo by Mark Nyhof).

Flower Pot Mystery Solved

From **Mayne Island**, **Patricia Fitzgerald** wrote on May 4th: "Today when we came home we found out why a little bird has been visiting the planter hanging outside our front porch. We took some photos. Here is the planter and what we found inside it [Figure 129]. My grandson Eric went out to play after supper and he met a deer (with 'polka dots' he said). He went really close to the baby deer and reached out his hand very gently and it didn't move - but then it moved away. He ran in to tell us how quiet he had been. If you come to our house, stand on your tippy toes and you will see the 4 eggs in the little nest. We wonder what kind of bird is the mother."

A photograph of the clutch of eggs, and later a description of the parents, identified the mystery nester as a **Dark-eyed Junco**.



Figure 129. A Dark-eyed Junco nest was concealed in this hanging flower pot; sadly it was not successful. Mayne Island, BC. 4 May 2010 (Photo by Patricia Fitzgerald).

Nest Guardian

Linda Van Damme wrote: “Creston’s elected council initiated a recycling drop-off for tree/shrub prunings on town property which is usually not accessible to the public. Residents were encouraged to take advantage of this service each Saturday during the month of April. I arrived on the first day and while driving in I saw an agitated **Killdeer**. After emptying my pickup I stopped to chat with the volunteer attendant who turned out to be **Judy Gadicke**, a local school teacher and city councilor. It was soon apparent that the Killdeer had a nest nearby as it was in full distraction display. We moved a short distance away to continue our conversation and sure enough the Killdeer returned to its nest. But as vehicles drove in and people stopped to register with Judy, the Killdeer vacated the nest. Since Judy was volunteering her time all four weekends, she became the official guardian of the Killdeer nest (Figure 130). I stopped by each Saturday to see if the nest was still active and it was. I’m not sure what the final outcome was as the gate was locked after the last Saturday of April. Many people were fascinated to watch the Killdeer sitting on its nest, well camouflaged among the wood chips banking a sewage treatment pond.”



Figure 130. Judy Gadicke pointing to the Killdeer nest so other volunteer attendants would deter people from the area and keep the nest safe. Creston, BC. 17 April 2010 (Photo by Linda M. Van Damme).

A Bartender, A Beer and Barrow’s Goldeneyes

An unlikely combination? Not if you live at 150 Mile House. On 5 June, **Wayne Campbell** stopped at the **150 Mile** pub in the Cariboo for a late afternoon meal after surveying a nearby marsh. A mug of beer, a homemade hamburger, and suddenly he was involved in a friendly conversation with bartender **Chris Wheelvon**. After Wayne mentioned being a “bird man” Chris told him about his harrowing experience earlier in the day. Just before noon, a duck with 10 little ones had left their home within a roadside cottonwood cavity and were attempting to cross Highway 97, the main artery through the area. They were apparently heading to a marsh behind the pub. Although the distance to safety was only a couple of hundred metres, pre-noon traffic was busy. Chris ran outside, stopped all traffic in both directions, and ushered the family across the highway and into a ditch that led to the marsh. Wayne told him that the bird was a **Barrow’s Goldeneye** which he had seen on the marsh with 10 Class IA ducklings an hour earlier. Wayne checked the marsh again on 9 June and the whole family was together sunbathing on a log.

Four for Fore?

Gary Davidson found a **Killdeer** nest at the **Kelowna Golf Course** and wrote: “The nest was in a very high-traffic area (walking traffic). I have attached photos [Figure 131 a and b] in case you want to use them in the annual summary. The first shows the situation and you can see the people in the background and the walkway right beside. The adult is standing right at the nest. The second picture is a close up of the nest between the two rocks.”



Figure 131. The following two photographs show the location of a Killdeer nest near a busy walkway (a) at the entrance to the Kelowna Golf Course, BC. and a close-up of the actual nest (b). 15 May 2010 (Photos by Gary S. Davidson).

A Special Day in May

On May 9th, **Linda Van Damme** wrote: “It’s always a delightful sight in late spring to see a mother duck with her newly hatched downy ducklings. But on this particular day, I was tense in watching the scene unfold before me on the opposite shoulder of Highway 3 in the community of **Yahk**. A female **Common Goldeneye** was marching her little ones through the grass right up to the pavement in order to cross the highway. At the same moment, a big rig was approaching but due to construction on this stretch of highway, the transport truck was moving slowly and in a split second the trucker braked and veered left to avoid hitting the duck family. I winced! The female quickly retreated but moments later, gathered her brood for a second attempt. I jumped out of my truck and ran across the highway, herding the family downhill to the **Moyie River**. The ducklings gathered around their mother and off she went downstream with her brood of seven safely in tow, thus crossing the highway from under the bridge.”

Any Mother, on her special day, would be happy with this outcome!

Mothering Instincts

Brown-headed Cowbirds have long been known to lay eggs in the nests of other birds, which they raise as their own, often to the detriment of their own family. But when a recently fledged cowbird appears on the scene it seems that as long as it obtains food it really doesn’t matter where it comes from.

For a few days in early August, **Wayne Campbell** watched several incidents in his backyard in **Cadboro Bay** where a begging cowbird was fed by five different species, all passerines. On August 1, a family of two fledged **Dark-eyed Juncos** arrived with their parents along with a recently fledged Brown-headed Cowbird. Over the next three days, the cowbird was fed with its apparent adopted junco family but begged food from other birds at the feeder. The cowbird’s behaviour was rewarded with food from a **Song Sparrow**, **Spotted Towhee**, **House Finch**, and **Yellow-rumped Warbler**.

What Wayne really wants to know is “How many nest cards does he have to fill in - 10?”

Spring Floods and Nest Success

Rita Wege wrote from **Shoreacres**: “On May 25th, I found a **Brewer’s Blackbird** nest with five eggs built among the grasses beside a wetland pond, approximately 35 feet from the Kootenay River (Figure 132). By June 10th, the blackbird young had to be moved due to rising waters. I put them under the deck overlooking the river but three died and one went missing. We tried feeding the last one but that didn’t work. We put it back in a sheltered place and hope the parents (who are still around) will do the right thing. I can only hope at this point. It seems this nest was doomed from the beginning with the choice of nesting sites but it is hard not to intervene.”



Figure 132. Nesting on the ground in riparian areas susceptible to annual spring flooding impacts nesting success of many ground-nesting birds such as this Brewer’s Blackbird nest. Shoreacres, BC. 25 May 2010 (Photo by Rita Wege).

This Site is Reserved

Janice Arndt from **Nelson** wrote about her American Robin nesting experiences: “In 2006 an **American Robin** built a nest on top of a wooden nest box that had been placed on the side of our house. The site is protected by our roof overhang and has since proven to be a popular spot over the past few years. That first year, the robin laid 4 eggs, which unfortunately were predated before they hatched. In 2007, a Pacific-slope Flycatcher placed a new lining in the robin’s nest and laid 3 eggs. Two young hatched and successfully fledged. The nest wasn’t used in 2008. But in 2009, a robin was back, put a new lining into the old nest and laid 4 eggs. This attempt was unsuccessful.

Early in the 2010 season, there was some evidence of activity at the robin’s nest, which was now four years old. Although I didn’t

witness any birds at the nest during the spring months, a fresh grass lining had been placed in it and then subsequently pulled out. There was no further activity until the end of June, when a pair of Pacific-slope Flycatchers took an interest in the nest and started to make a new lining. On June 30th, the two flycatchers were heard giving repeated alarm calls at the nest. After a quick glance out the window I glimpsed the long tail of a larger bird at the nest and assumed it was a Steller’s Jay, so I opened the window to scare away the predator – and was surprised to see it was a robin! The robin continued to harass the flycatchers the following day and then pulled out their nest material. The robin put in its own new lining and later laid 3 eggs. This attempt failed also. After the birds left, I debated about removing the old nest, but it is still in good shape and well attached to the roof of the nest box, so we’ll wait to see what happens next year.

Another American Robin’s nest I found was also used multiple times, but this time all the activity occurred during the 2010 breeding season. I discovered the nest in May on a ventilation fan on the outside wall of the Kokanee Creek Provincial Park Visitor’s Centre (Figure 133). On May 17th it held 2 fairly large young and on May 27th it was empty. I was surprised to find an adult sitting low in the nest four days later on May 31st. On June 11th the nest held 3 eggs, which all had hatched by June 14th. I didn’t visit the nest again until July 6th when there was an adult at the nest with one egg. By July 24th there were three young, which fledged between August 3rd and 6th. Although my visits were not frequent enough to determine with certainty the outcome of the first two attempts, it is possible that one pair of robins raised eight young in three broods from the same nest in one season.”



Figure 133. American Robin sitting in its nest that was used multiple times over the season. Kokanee Creek Park, BC. 11 June 2010 (Photo by Bethany Arndt).

It Won't Happen Next Year

Pat Huet from **Canyon** sent the following four notes on nesting songbirds she encountered during the 2010 breeding season:

“Last year [2009] a pair of robins set up housekeeping in an old feeder on a fence post in our yard. I had thought that it was a lost cause because it was easily accessible to Red Squirrels and the young would be in danger from our dogs. However, the robins successfully fledged three young. This summer, they moved in again. In early June, I noticed a female renovating the nest. She didn't spend much time on it and by 12 June, had three eggs. They hatched by 19 June. The young grew quickly, (Figure 134) and fledged on 1 July - another successful nest at a site I had thought was dubious at best.”



Figure 134. Despite a host of threats and distractions, American Robins are often successful when nesting near humans. Canyon, BC. 28 June 2010 (Photo by Pat Huet).

Surviving in a Tilted Home

“Toward the end of June, I noticed a robin building a nest in a spindly young lilac. The nest was only about a metre off of the ground, in the middle of our yard in Canyon. The yard also belongs to two large dogs, so I thought the chances of success with this one were pretty slim. There are probably 50 better sites on our property, so why did they choose this one? By 3 July, the female had laid three eggs. They hatched about 15 July. On 23 July, I checked the nest, and saw that it had tilted. All three young were doing fine, so I decided not to try to straighten it. However, it continued to tilt, until

on 27 July, two had fallen out. I couldn't find one of them, so I suspect it became dog food. The other I saw a few metres from the nest. It was fully feathered, but unable to fly. It disappeared, so hopefully it made it out of the yard, instead of into a not very hungry dog's tummy. The third one sat on the edge of the totally upended nest (Figure 135) and the parents continued to feed it until it was able to fly a couple of days later.”



Figure 135. One of three young American Robins stayed near its tilted nest where it was fed by the parents until it fledged. Canyon, BC. 27 July 2010 (Photo by Pat Huet).

Three Times Lucky

*“In 2008, I put up a small nest box on a post supporting our wood shed. A pair of **Black-capped Chickadees** started nest building, and eventually had five young. They were doing well, until I went to check them one day, and found they had all disappeared. Then I realized a Red Squirrel had lifted the lid and helped itself. The next day, thinking to see if there were any remains, I found the two adults in there, beak to tail. I have no idea why.*

The next year, 2009, I put a brick on the lid and a piece of hard plastic plumbing fitting in the nest hole to deter the squirrels (Figure 136). Again, a pair of chickadees built in the box, and on 28 May, they had four newly hatched young. I noticed that a squirrel had been chewing on the squirrel guard, but so far no squirrel had been able to chew through these on other boxes. The chicks grew fast, and had quills and open

eyes on 9 June. A few days later, I checked the box, and found that all the well-feathered chicks were dead. The parent birds could not get in to feed their young in the morning because the squirrel was busy chewing on the plastic nest hole, and they starved.

This year, my husband replaced the front of the box and put a thin square of metal on the nest hole, which I realized very quickly wasn't going to do the job. Then we put a copper squirrel guard on the nest hole, and I put the brick on the lid (Figure 137). The chickadees nested again. The squirrel didn't think much of chewing on copper, and the parents successfully fledged five young. Yes! I guess I am a slow learner."



Figure 136. A Red Squirrel chewed through this hard plastic fitting interfering with the adult Black-capped Chickadees feeding their young. Canyon, BC. 9 June 2009 (Photo by Pat Huet).



Figure 137. A new metal deterrent on the Black-capped Chickadee nest box was successful in deterring squirrels. Canyon, BC. 27 July 2010 (Photo by Pat Huet).

Now You See It.....

"In late June, my husband Dave and I went into the **Nature Conservancy's Darkwoods** property to bird for the B.C. Breeding Bird Atlas. We stopped in one spot, and I heard and then saw a **Warbling Vireo**. I continued to watch it, and then saw it disappear into a dense alder thicket. I moved toward it, and finally saw it sitting on a nest, after which it flew off. What an amazing nest! It was so well camouflaged that if I looked away, I had to search for it again, in spite of not moving from the spot. We marked the site with rocks on the roadside, and then a week later Linda Van Damme and I went back to look for it again. We did find the rocks, but again we had to search diligently to see the nest. A bird was on it, obviously incubating (Figure 138). Both males and females incubate the eggs, and this one gave us a little song from the nest. Linda got out her mirror on an extension pole, and we saw four eggs in the nest. Although we didn't get back in there to see their babies, I suspect the parents fledged their young."



Figure 138. Vireo nests are usually well concealed amidst the foliage. Darkwoods Nature Conservancy (Selkirk Mountains), BC. 3 July 2010 (Photo by Pat Huet).

Differences Resolved Amicably

Ralph and Elsie Gerein wrote from **Wynndel**: “Early in June of 2009, a **Violet-green Swallow** started working on a nest box on the deck of our house. This box has had a resident pair for the last four years. She had barely finished and had started laying when a female robin begins bringing building material for the roof of the box. Both the male and female swallows tried their best to dissuade her, but persistence prevailed and a nest was built (Figure 139). Both females brooded and raised their families without incidence after their rocky start. Again in 2010, the Violet-green started early, and within a few days the robin rebuilt the old nest. The only difference this year was there was no fighting what so ever. Our thinking is that they are the same two pairs. Both nests were successful again.”



Figure 139. Since American Robin and Violet-green Swallow utilize different foods as well as nesting sites the species appeared to not be in conflict once preliminary squabbles were settled. Wynndel, BC. 30 June 2010 (Photo by Ralph and Elsie Gerein).

Between a Tree and a Hard Place

Margaret Bathy from **Prince George** wrote on June 6th: “My husband looked out the window and told me that a crow was stuck in the tree (Figure 140). I thought he was joking, but he wasn't. Somehow this crow managed to get wedged inside the four trunks of the mountain ash with both wings spread and pinned. From the bluish eyes and the pink at the base of the bill, it was a recently fledged bird, but I didn't notice any crows taking an interest in it. One would think the parents would have been nearby showing concern? I managed to fit a "grabber" under young crow's tail and gently lifted until it fell out through the widening space between two trunks. It fluttered and hopped across the lawn to a flower bed and hid among the plants. I don't know how long it had been stuck, or how hard it had fought trying to free itself before we saw it. I'm hoping that it was able to fly after it rested.”



Figure 140. Talk about stuck; this young American Crow was assisted to freedom by Margaret Bathy. Prince George, BC. 6 June 2010 (Photo by Margaret Bathy).

Recycled Nest Site

Linda Van Damme writes from Creston:

“In June 2003 I observed a female American Redstart flying three times to the crotch of a dead three pronged willow and sitting there as if testing the suitability of the site. I returned eight days later to find a lovely compact nest lined with fine grasses, plant down, and a single feather. The female was mated to a male in his first year plumage and the pair successfully reared three young. It was certainly a season of “3’s”.

Small bird nests often don’t survive beyond the first season of use and this nest was gone by spring of the following year. As I often walk past this area I continued to check it out and wondered if another bird might find this site attractive.

How delighted I was when in June of this year, I saw a female redstart sitting in a nest built in the exact same location as 2003 (Figure 141). As I stood quietly observing, a Black-capped Chickadee was actively foraging along one of the branches leading to the nest. The female redstart suddenly exploded from the nest and attacked the unassuming chickadee which made a hasty retreat. The redstart took the opportunity to do a little foraging herself before returning to incubation duties. The nest held four eggs and all four nestlings survived

to fledge. I know songbirds can have a short lifespan but I did wonder if this was the same female from 2003.”

The Wail of the Loon

Colleen Erickson wrote about her heart-wrenching experience at **Boundary Lake** this summer: *“We were up there camping on the July long weekend and I was excited to see the pair of loons had a little one. Only one parent would be diving while the other one stayed with the baby. Then on Saturday, I heard a scream and realized it was the loons calling. One of the other campers yelled that a Bald Eagle had taken the baby. Another camper rushed over in a canoe to see what was going on. The eagle was standing on a log eating the baby loon. The parents were crying out and wandered up and down the lake the rest of the weekend. They were sure grieving the loss of their baby and one of the campers asked me how long I thought they might keep this up. We left Sunday afternoon and the loons were still calling. I noticed after the eagle took the baby loon that the adults started diving together. I’ve been camping at this lake on and off for the past two to three years and realize that I have never seen young loons raised here so wonder if an eagle gets them every year.”*



Figure 141. A female American Redstart incubates her four eggs in a nest built in the exact same site as in 2003. Creston, BC. 26 June 2010. (Photo by Linda M. Van Damme).

A Strange and Sad Tale

Laurie Rockwell from Summerland wrote on September 24th: “As part of my weekly monitoring of flora and fauna at Sun Oka Park in **Trout Creek** I have been monitoring a small group of **Barn Swallow** nests attached to the change and washrooms building in the park for 5 years. The last nest was unusually late, the other nestlings having fledged or almost so, before I discovered a female sitting on August 10th. By Sept. 14th, three young were ready to fledge any day. On Sept. 21st I noticed wing feathers and a tail with juvenile tail spots sticking out of the nest. The nest was too high for me to examine, so I returned the next day with a ladder. I found a dead, desiccated, fully feathered juvenile ready to fledge, but secured to one leg by a long, slim rootlet and attending fine grasses; it had starved to death after its siblings left the nest.

I am aware that deaths of Ospreys by hay bale twine are well documented, but I was unaware that this type of death occurs in other species, so I am interested in knowing of other such experiences, personally or in the literature.”

Caretaker's Concern

Vic Cousineau wrote from **Creston**: “I have nest boxes at the Creston airport and last fall {2009} a fence was taken down and my boxes were removed. When I visited this spring, I saw the caretaker busy painting so I went over to talk with him. I asked about my nest boxes and he said he had saved them. He explained to me that the boxes couldn't go up on the new fence as they would be in the way of snow removal. The next time I visited, imagine my surprise when I saw that the caretaker had dug holes and put in two posts and mounted my nest boxes in the exact same place where the fence and boxes had been situated.

This season {2010} the Mountain Bluebird came back and used one box and a Tree Swallow the other. People sure do care.”

Compiler's note: Thanks to Creston Airport caretakers Aaron and Jennifer Cyman!

Vic died on February 8, 2011 before this report was published.

Grounded Canoe

Gary Richards, an active outdoorsman, decided he wouldn't be so active after he discovered where an **American Robin** had built her nest (Figure 142). When not in use, Gary stored his canoe with the thwart resting on a pole lashed between two trees. The robin's nest with four small nestlings was supported underneath by both the pole and thwart so Gary decided to wait until all the young fledged, which they eventually did!



Figure 142. Many people accommodate the nesting needs of American Robins on their property. Lister, BC. 3 June 2010 (Photo by Linda M. Van Damme).

Nesting Notes from the Sunshine Coast

Robert W. Allen from **Sechelt** wrote a few notes from his neck of the woods: “Our 2010 nesting season was in some ways a little better than 2009. Unfortunately though, the **Pacific-slope Flycatcher** did not nest again on our Browning Road property so that was a disappointment. But there was one robin's nest that did produce one batch of young ones. We also had another family of **White-crowned Sparrows** on or near our property. Their nests are always so difficult to locate in the thick brambles but they like to feed on our front grass. On our Skylark Road property, the **Mallards** did not nest this year and that is probably just as well as I don't think they would have survived as our pond does go dry by early July, usually before the young ones can fly. We did have one family of **Chestnut-backed Chickadees** in one of my nest boxes there but as I wasn't there enough I

didn't see much of them but I am sure they all fledged. We also had a **Spotted Towhee** nest well hidden under a small rhododendron and I am quite certain they all survived.

While not bird related, we did have a Grey Whale (or maybe two) that spent most of the summer on the Sunshine Coast. It was in front of our house many times and was always less than 100 metres off shore. It was quite an attraction. More information regarding the grey whale can be seen at: <http://www.sargbay.ca/zostera.html>. Once on that webpage, scroll to the bottom and click on "Gray Whale".

While **Anna's Hummingbirds** aren't new winter visitors to the Sunshine Coast, they are new to our house and we have had one male visit our feeder every day for the past two months or so."

Jonathan Livingston Jr.

Clint and Irene Davy, who operate the **Gibsons Wildlife Rehab. Centre** on the Sunshine Coast, sent us another story with a good ending: "July 13th brought another distress call. A baby gull [**Glaucous-winged Gull**] had fallen from the roof of a neighbour's home and was running around on the ground. **Jane Smither**, whose yard the gull chick was now in decided to leave it alone that evening. Next morning, he was still there and his parents were coming down to the lawn to feed him and were very protective of him, dive-bombing Jane each time she went near their baby. That's when Jane contacted us.

Clint and one of our volunteers, Orlando drove to the rescue! The problem was that the gulls had nested on the flat roof of the neighbour's home and there was no way Clint and Orlando could climb up to that roof. So, after some thought, Jane fetched a long extension pole from her swimming pool and a fishing net was duct-taped to the end of the pole. The chick was placed in the net and slowly the net with its precious cargo was maneuvered on to the roof (Figure 143a and b). The chick got out and ran over to its sibling! One of the parent birds watched the performance from the edge of the roof but immediately when the baby ran out of the net, he flew to him, obviously delighted to have their baby home. As Jane said later, "I don't know who was more ecstatic - the parents or me!

Jane informed us a few weeks later that both chicks were successfully raised and had fledged. Another happy ending!"



Figure 143. Jonathan Livingston Jr. being transferred back to its roof-top nest site (a) and reunited with its parents (b). Gibsons, BC. 14 July 2010 (Photos courtesy Gibsons Wildlife Rehab. Centre).

An Osprey Success Story

In the city of **Quesnel**, located at the confluence of the Fraser and Quesnel Rivers in central British Columbia, a pair of **Osprey** built their nest atop a power pole at All-West Glass. The Quesnel Birding Club was tracking the Osprey's activities during the breeding season. In May, the birds were busy adding sticks to build up the nest. The season was progressing well with two active young in the nest by early July.

But on July 5th, local birder **Adrian Leather** alerted the birding community that the nest was gone and contacted the editor of the newspaper *Quesnel Cariboo Observer* who promised to investigate the matter. An article was published which sparked community interest.

Jeff Marshall, manager of All-West Glass, was also contacted and relayed his understanding

that there was a fire just above the nest which caused a power outage, but he had no idea how the entire nest had vanished.

On July 10th, **Steve Smith**, an active club member, also spoke with Jeff to see if there was anything that could be done to help the nesting pair of Ospreys as they had started re-building a nest on top of the burnt power pole. While Steve was there, a BC Hydro truck dropped off a new, green treated pole which would become the energized pole. It was Steve's understanding that the burnt power pole would be left for the Ospreys who had already started to rebuild their nest.

On July 12th, Steve went to BC Hydro's main office in Prince George to find out if anything could be done to help the Ospreys. He spoke with Cathy Bryant who seemed interested in the Osprey situation and was planning to do a site assessment on the following day. The same day, Steve spoke briefly with her about a new power pole for the Osprey. There was discussion of a 65-foot pole which would have to be ordered, so it was 5 feet higher than the new energized one. It appeared though after this conversation that a new pole installation would not take place immediately and Steve was concerned about this so he lobbied other interested Quesnel residents to contact BC Hydro.

On July 19th, Adrian e-mailed his birder friends this heartwarming message: "*BC Hydro came-up big for the Ospreys by 'All-West Glass' in Quesnel! Quesnel Birding Club member, Steve Smith, had travelled to Prince George to meet with BC Hydro officials, Dave Conway and Cathy Bryant. Dave Conway, Northern Community Relations Manager for BC Hydro, responded promptly and positively to the concerns expressed by Quesnel Birding Club members and put us in contact with Bob Gammer who explained BC Hydro were planning on installing a nesting platform for the Ospreys, but were trying to co-ordinate a crew, materials, and permission to install. The unfortunate Ospreys have endured one nest fire, the loss of their two chicks, and the removal of two new nests they had started constructing! Today, BC Hydro workers placed some of the Ospreys nest-sticks on top of a brand new purpose-built nesting platform and the fantastic news is that the pair of Ospreys are already proudly sitting on their new nest and can be heard whistling with delight!*" [Figure 144]



Figure 144. Working together to save the 2010 nesting season for a pair of Ospreys in Quesnel, BC., will really be rewarding if the birds return in 2011 to nest in their safe new home. 19 July 2010 (Photo by Steve Smith).

An update in 2011 from Adrian Leather:

April 8: Great news today ! @ 5.50pm I saw an Osprey standing in the nest by All-West Glass. Steve Smith photographed the Osprey @ 6.30pm.

Field Tips and Techniques

To make your time in the field as productive and useful as possible we include tips, or techniques, in each annual report. This “value-added” information certainly helps in data analysis but also adds an exciting dimension to field study.

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 4. Determining the age of Bald Eagle Nestlings Using Colour, Size, and Estimated Age.

Bald Eagle Nestling(s)		
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 145)	Full size	9-12 weeks old

¹See Appendix 4.



Figure 145. These nestling Bald Eagles are 10-11 weeks old. Joseph Island, BC. 28 June 1976 (Photo by R. Wayne Campbell).

Publications in Short

Each year thousands of articles on birds are published in scientific journals and obscure reports that most of us do not see. Many of the papers are helpful to nest-finders to assist in their search for nests and broods, to understand the ecological associations of nesting birds, to learn about adaptations of body structures, and to better appreciate some of the problems facing ornithologists and the dedication that is required for their research.

We have listed a few articles below that should be of interest to participants.

Coots Use Hatch Order to Learn to Recognize and Reject Conspecific Brood Parasitic Chicks

“*Crazy as a Coot*” may not apply considering the recent findings by ornithologists Daizaburo Shizuka and Bruce Lyon. The team studied **American Coot** behaviour at **Westwick Lakes** in the Cariboo region of the province to determine how the species was able to foil other coots that laid eggs in their nests and reject imposters. They found that coots can actually count their own eggs and reject others that are laid in their nests by other coots. They can also tell the difference between their own chicks and imposters (Figure 146). They do this by learning to recognize their own chicks each year by using the first hatched chick as a template for identification. If the chick is not their own they will attack and frequently kill the intruder. The researchers also learned that in an average year about half of chicks in a brood will die of starvation.

Nature 463:223-226, 2010.



Figure 146. A pair of nesting American Coots can not only count their own eggs and know when a neighbour has added extra eggs and reject them but also will attack (and frequently kill) foreign chicks if they hatch in their nest. Elizabeth Lake, BC. 7 July 2010 (Photo by Brent Wellander).

Movements and Resource Selection of Fledgling Goshawks in Montane Forests of Southeastern British Columbia

Over the past decade, concern over the impact of logging activities on **Northern Goshawk** nesting habitat in mature to old-growth forests throughout British Columbia has been a growing concern to wildlife managers. Most interest has been concentrated on the area immediately surrounding a nest site for the period of nest-building to fledging. The present study, by W. Harrower, K. Larsen, and K. Stuart-Smith, added a new dimension to management plans that included the little known period from fledging to post-fledging and independence.

In southeastern BC, radio-tagged fledgling Northern Goshawks remained within 298 metres of the nest during the first 21 days and within 525 metres between 21 days and dispersal from the territory. Each post-fledging area averaged 36.7 hectares in size and juveniles favoured forests <40 years old.

The researchers recommended that forest managers should maintain forests >40 years old with high crown closure and half of the area should be forest >80 years old.

Journal of Wildlife Management 74(8):1768-1773, 2010.

Common Loon, *Gavia immer*, breeding success in relation to lake pH and lake size over 25 years

The harmful effects of acid rain, in the form of snow or rain, impacts plants and animals due to the higher than normal amounts of nitric and sulfuric acid it contains. Birds living part of their lives on lakes and streams are especially vulnerable.

Thousands of fresh-water wetlands in the northeastern United States and eastern Canada have been identified as being affected negatively by acid rain. Concerned about emissions from smelters in Sudbury, Ontario and their effect on local nesting **Common Loons**, Robert Alvo initiated a personal project to monitor 38 lakes in the region between 1982 and 2007 which had single pairs of loons nesting on them.

He found no chicks fledged on lakes with pH <4.4. As emissions from the smelter decreased over time loon productivity increased. He concluded that the critical pH for loon breeding success was 4.3.

Canadian Field-Naturalist 123(2):146-156, 2009.

Nest Box Temperature and Hatching Success of American Kestrels Varies with Nest Box Orientation

Naturalists interested in putting up nest boxes for cavity-nesting birds have always wondered if the orientation of the box makes a difference to the success of the nest. Research has shown that for swallows and chickadees, the location of the box and where it faces is of little consequence and may vary regionally throughout North America.

Michael Butler and colleagues studied nest box orientation of **American Kestrels** in Idaho. They found that nest boxes facing west were -0.6° C cooler than boxes that faced south or east and had -20% lower relative humidity levels than boxes facing in all other cardinal directions. Also, they found that clutches in boxes that faced southwest have a proportionately lower chance of hatching success.

Wilson Journal of Ornithology 121(4):778-782, 2009.

Video Recording Reveals the Method of Ejection of Brown-headed Cowbird Eggs and No Cost in American Robins and Gray Catbirds

At least 30 species of birds are known to physically eject eggs of **Brown-headed Cowbird** laid in their nests but how they accomplished this was anecdotal. Spencer Sealy, his colleagues, and graduate student Todd Underwood looked at this behaviour by video recording parasitized eggs of **American Robin** (Figure 147) and **Gray Catbird**.

Without damaging their own eggs, robins ejected 12 cowbird eggs by “grasp-ejection” and catbirds used a combination of this method and “puncture-ejection.”



Figure 147. When removing Brown-headed Cowbird eggs from its nest, American Robins will grasp, not puncture and hold the egg during ejection (Photo by R. Wayne Campbell).

Condor 111(3):570-574, 2009.

Use of the British Columbia Nest Record Scheme in 2010

The BCNRS operates completely on volunteer effort with support from our membership and this year the focus was to continue the time-consuming task of sorting hundreds of thousands of nest cards into species and grid order and filing them in the six new cabinets that were acquired in 2009 and 2010. We are making progress, but until this major task is completed we have only been able to fulfill minor requests for information that did not involve a major expenditure of time. Our time was also spent transferring breeding information for major rewrites of provincial species accounts. Integrating the backlog of current cards into the collection also continued.

The major function of the BCNRS still remains to update the breeding biology and ecology of species in the province since the publication of the four-volume set of *The Birds of British Columbia*. Some examples of how the information is used can be found in the updated analysis for select species that have been published as major articles in *Wildlife Afield*. For some species like **Forster's Tern** and **Clark's Grebe** (Figure 148), the detailed accounts have been instrumental in elevating provincial rankings from the "Yellow" to "Blue" or "Red" lists.

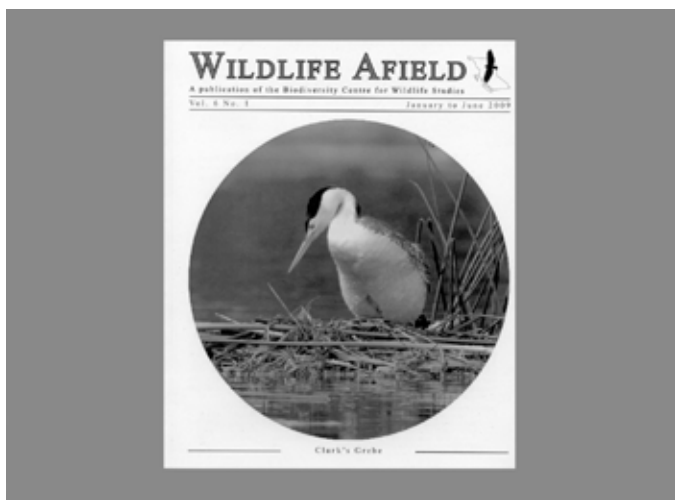


Figure 148. Soon after the 66-page "Featured Species" account for Clark's Grebe was published (see *Wildlife Afield* 5(2):40-105, 2009), the provincial government elevated the species on its Conservation Status Rank from the "Yellow List" (species secure) to the "Red List" (endangered/threatened).

Many of the requests were simply conveyed over the telephone but others required a brief search of species that had already been organized. For example, it was easy to search for natural nesting sites of **Purple Martins** requested by the provincial Ministry of Environment as well as historical records for **Burrowing Owl** in the Lower Mainland. Some additional information for the "Red-listed" and "Blue-listed" species breeding in the province was also provided.

Dr. Tom Cade, from *The Peregrine Fund*, specifically requested an update on tree-nesting **Peregrine Falcons** in British Columbia (Figure 149) for a paper he was presenting at an international conference. There were other similar requests as well as sending a summary of the BCNRS and its activities for a magazine article on nest record schemes in Canada. Back copies of annuals reports were sent.



Figure 149. A pair of Peregrine Falcons used this abandoned Bald Eagle nest to raise their family in 1976. Byers Island, BC. 27 June 1976 (Photo by R. Wayne Campbell).

Sometimes we cannot predict the kinds of requests people have or whether we are confident that the information we are gathering will be of use in the future. Since we have not wavered from the original information requested on nest cards for over five decades, it appears that at the present time all bases have been covered.

We received a request for specific details of location and immediate habitat associations for Chipping Sparrow nests. The contractor was looking at the significance of forest and woodland edge for an article on brushing and its detrimental effects on nesting birds. Unfortunately we did not have time to analyze the habitat data from cards but we could give him a list of the variety of habitats the species was known to nest (Figure 150).

Having coloured prints of habitat accompany the nest card is very helpful and often much easier to interpret than a written description.



Figure 150. The habitat for this Chipping Sparrow nest, located in the central dark pine tree, was found in a regenerating clearcut of conifers. Flathead, BC. 8 July 2010 (Photo by Kevin Knight).

Please check the BCFWS website www.wildlifebc.org for regular photo updates of the 2011 nesting season as well as other Society activities and publications.

Requesting and Submitting Cards

Please Note Our Current Mailing Address

BC NEST RECORD SCHEME
3825 Cadboro Bay Road
P.O. Box 55053
Victoria, B.C. V8N 6L8
Tel\Fax: (250) 477-0465
e-mail: bcfws@shaw.ca

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

Two kinds of cards are available: **single nesting species** with spaces for multiple visits and **colonial cards** for species that breed closely together. An **Instruction Manual** is also available, at no charge, from the address above. Due to fieldwork commitments we suggest that you request material before mid-May.

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

We prefer to have nest cards completed and submitted by October 1 so the long task of compiling the breeding records can be completed by the end of the year. Spot checking each card for accuracy and compiling the 2010 nest cards into species, grid, and contributor categories, and entering the information electronically, took over five months of volunteer work - part time!

The data summaries, writing, and compilation of the report begins in the new year as volunteer time allows so that the report can be published and distributed in the spring of a new breeding season.

For species acting as hosts for **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 their nesting season. For example, it is not uncommon to find **Ruddy Duck** eggs in **Redhead** and **Lesser Scaup** nests or **American Coot** eggs in **Lesser Scaup** nests. If this is noticed please complete separate cards for each species and cross-reference to each nest or brood.

Common species (*e.g.*, **Canada Goose, Mallard** (Figure 151) **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 (*e.g.*, **Rock Pigeon, European Starling, and House Sparrow**) are still important to record. Often these are the only species, because of numbers, that researchers can analyze with some statistical confidence.

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

We really appreciate receiving cards as early as possible. This gives us a chance to start the compiling process and data entry to produce components of the annual report.



Figure 151. The BCNRS accepts photo records of breeding hybrid or wild birds crossed with domestic stock. These are filed with the species, in this case Mallard, with a special notation on the card. Port Alberni, BC. 7 August 2010 (Photo by Shelley Penner).

Acknowledgements

This year, nest cards were sorted and compiled by **Eileen Campbell** with the help of her 95 year-old father **Jim McCammon**. The task started in August 2010 when the first cards arrived and continued into January 2011 when a few late cards were accepted. Eileen again entered appropriate information into an Excel spreadsheet for use in preparing various sections of the report. The latter summary was completed by **Patricia Huet**, one of the compilers of this report.

Each year, preparing the BCNRS report requires an allotment of undisturbed time that has to be slotted into a person's daily life. The following eight individuals have contributed to production of the report in various ways since the first independent publication was issued in 1998 (43rd annual report): R. Wayne Campbell (13 years), Lyndis Davis (2 years), Maureen L. Funk (3 years; Figure 152), Jeremy V. Kimm (2 years), Andrea R. Norris (1 year), Mark Nyhof (2 years), Michael I. Preston (10 years), and Linda Van Damme (9 years).



Figure 152. In 1996, nest record scheme contributors were asking for their own publication that could include more information and detail on their nesting activities. The following year, the first such report was published with the help of Maureen Funk. Victoria, BC. March 1996 (Photo by R. Wayne Campbell).

For the first time since the 2000 nesting season (*i.e.*, 46th annual report), **Michael Preston** stepped down from his involvement in the report. We are very grateful for his 10 years of commitment to the BCNRS.

We want to thank the increasing number of contributors who included digital images, colour prints, diagrams, and extra field notes with their cards. Most cards were received in species order which was a great help when sorting and entering information.

All photographers are acknowledged with their images in each figure caption throughout the report. We thank Alan and Elaine Wilson for use of their superb Common Loon photographs for the front and back cover. Linda Van Damme kindly provided the loon habitat and nest photo.

Since the authors volunteer their time to write and compile the annual report, we sincerely appreciate the efforts of many individuals who also volunteered time to contribute text, provide additional information when asked, send photographs, edit text, and provide encouragement. Some “regulars” again helped greatly with the following sections of the report:

Long-term Inventory and Monitoring Projects: Janice Arndt, Monica and Ed Dahl, Gary Davidson, Ted Hillary, Sheila Reynolds, and Lorraine Symmes.

Notes from the Field: Robert W. Allen, Janice Arndt, Margaret Bathy, Ken Borrie, Vic Cousineau, Gary Davidson, Irene and Clint Davy, Colleen Erickson, Patricia Fitzgerald, Ralph and Elsie Gerein, Patricia Huet, Adrian Leather, Janne Perrin, Laurie Rockwell and Rita Wege.

Over 35 landowners, mostly farmers and ranchers, allowed one time access to their property during our wetland surveys. Especially helpful were Rick and Lissa Buckley, Herb Carter, Valerie Dettwiler, Peter Desjardin, Len Foster, Joe Gardner, Sharon Henry, Doug Hill, Tim and Penny Harding, John and Marjorie Herrick, Lyle James, William McLeod, Marvin Montgomery, Joe Stevens, Tom and Laurie Stowe, Martha Sure, Verna Tucker (Figure 153), Bronc and Liz Twan, George Weber, and Tod Wilson.



Figure 153. Verna Tucker (right) and her daughter Toby, were very helpful and supportive in allowing access to their property during wetland surveys in 2010. Near Boitano Lake, BC. 18 June 2010 (Photo by R. Wayne Campbell).

The entire publication, from preparing photographs, designing the cover, and final layout was completed by Mark Nyhof, a task that took several weeks of volunteer time to complete.

We are grateful to all participants, and their families and friends, for directly or indirectly supporting the BCNRS in 2010. It was another exceptional nesting year with a nice balance between aquatic and terrestrial habitats represented!

The growing collection of nest cards requires year-long maintenance and readily accessible storage space. Cabinets are expensive (at least \$3,000 each) but in 2010 an unexpected donation of two cabinets from Trinity Western University, in Langley, arrived via librarian Ted Goshaluk (Figure 154). The entire BCNRS collection is now stored in six such cabinets. Thank you for thinking of us Ted!



Figure 154. In upgrading their holdings, the library at Trinity Western University in Langley, BC., was disposing of two filing cabinets that were ideal for holding 4" x 6" nest cards. Ted Goshulak, a BCNRS contributor, contacted us and the cabinets were transferred to Victoria., BC. 17 August 2010 (Photo by Mark Nyhof).

The United Nations has declared 2011 as the **International Year of Forests**. This year-long celebration presents an opportunity for Canadians to join the international community in raising awareness on how forests contribute to a healthy environment and to the quality of life enjoyed by people every day. It is also a very good reason for BCNRS contributors to make an extra effort in 2011 to search forests for evidence of breeding birds.

Have a great season everyone!



“Is it the end of a breeding season or the beginning of new one?”
(Photo by Gary Breault)

Appendices

Appendix 1. Plumage Development of Young Waterfowl

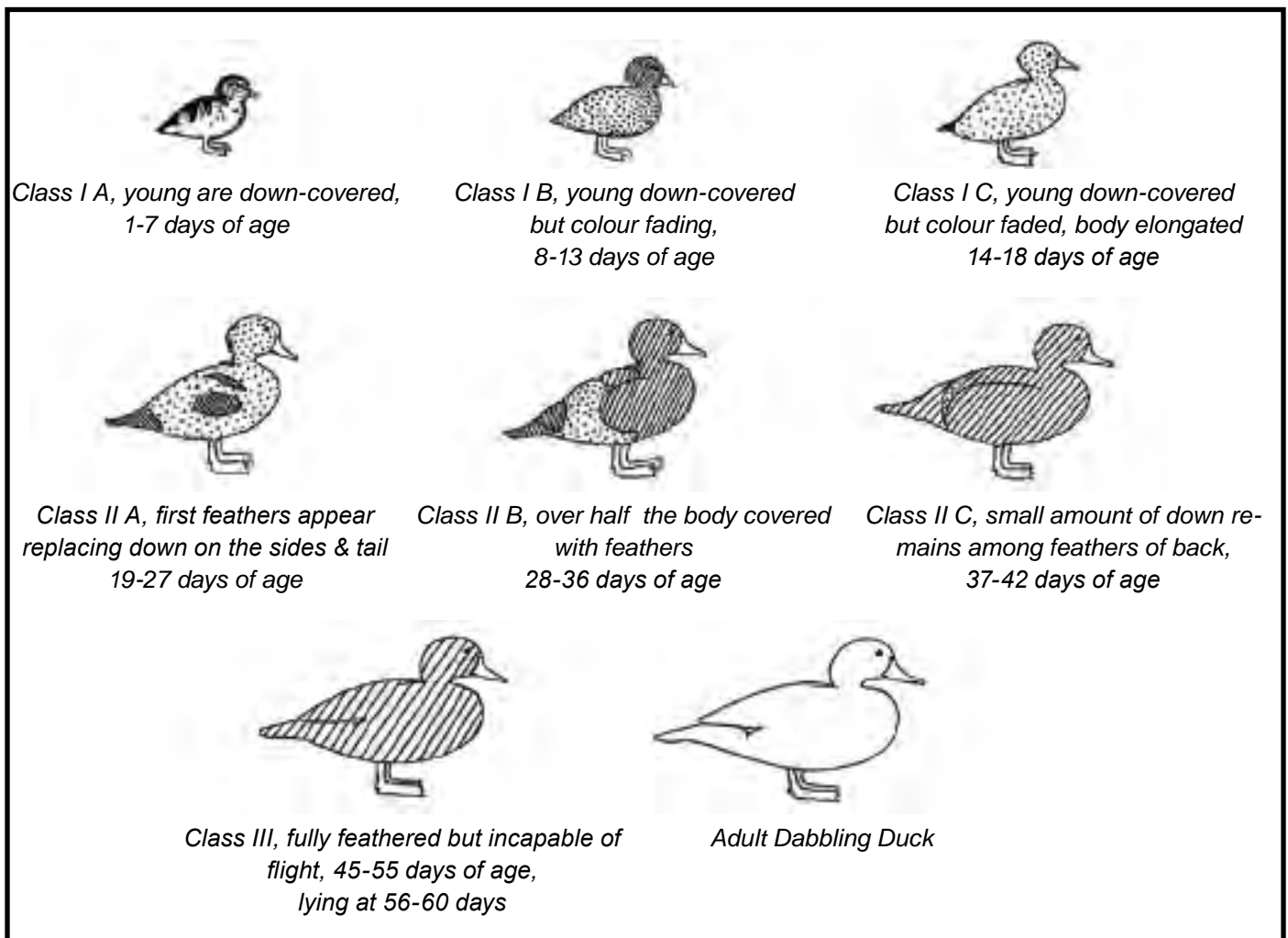
In the spring of 1997, the first B.C. Nest Record Scheme manual was issued by the WBT Wild Bird Trust of British Columbia, along with participating partners, as WBT Wildlife Report No. 1. An important omission in that manual was the inclusion of plumage changes of waterfowl developed by J. B. Gollop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

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

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

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

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



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

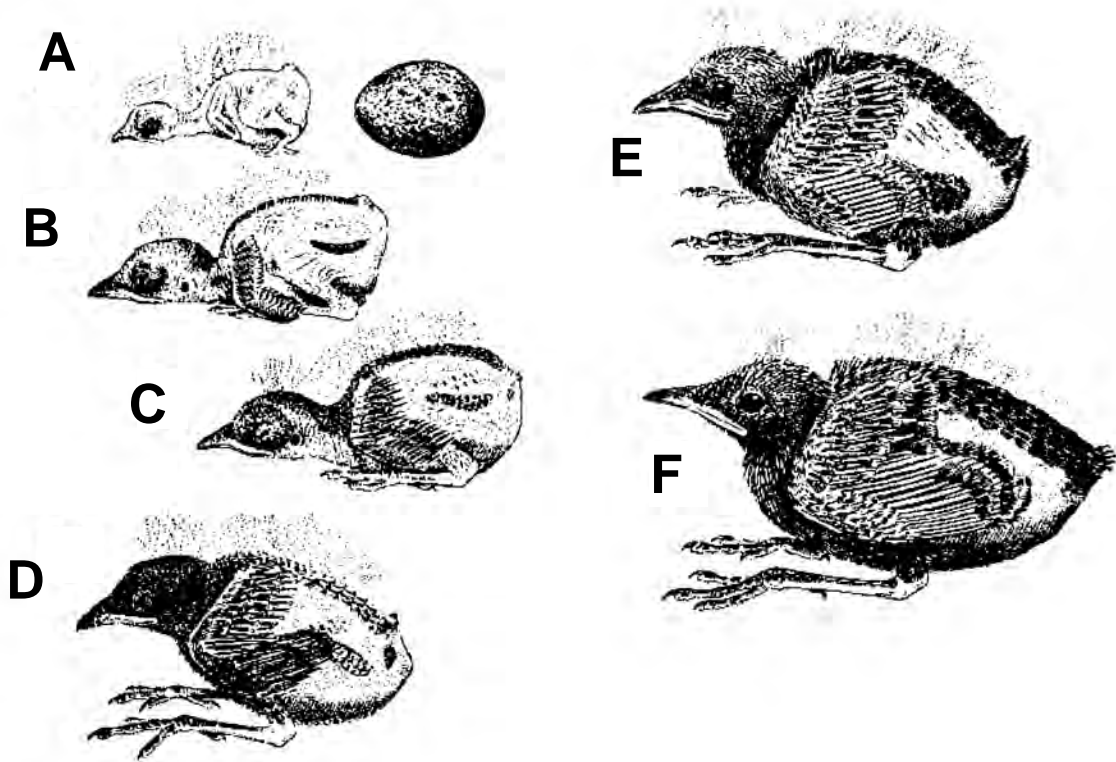
Contents of nest when found or last visited	Next visit should be	Notes needed at next visit
Nest under construction	2-4 days later, to determine laying schedule	No. of eggs, warm or cold; parent at nest or not
1-3 eggs	3-5 days later, to confirm completion of clutch	No. of eggs, warm or cold; parent at nest or not
4-7 eggs	3-5 days later, to check clutch size	No. of eggs, warm or cold; parent at nest or not
Eggs and newly hatched young	6-8 days later, to check survival of young	Number, size, and degree of feathering on young
Young, naked or downy	5-7 days later, to check survival of young	Number, size, and degree of feathering on young
Young, pin-feathered	3-5 days later, to check survival of young	Number, size, and degree of feathering on young
Young, mostly feathered	2-4 days later, to check on fledging	Number and flying ability of young
Young fly when approached	7-10 days later, to check on reuse of nest	

Evidence of Failure (if nest contained eggs or live young at an earlier visit)

Evidence of failure	Notes needed
Broken eggs	Evidence of predator (tracks, droppings, condition of nest)
Dead young, in or near nest	Evidence for desertion (young unharmed), or predation, (young injured, predator sign)

Note: Most passerines have a clutch of 4-7 eggs, laid at daily intervals; incubation periods of up to 12-15 days; nestling periods of 11-19 days (open nesters near lower figures, cavity nesters near upper figures)

Appendix 3. Stages of Nestling Growth



Stages of Nestling Growth

- a) within a day of hatching; egg is for scale
- b) three to four days old (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. Victoria, BC. 27 June 2007 (Photo by R. Wayne Campbell).



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

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). Near Copper Island, BC. 26 May 1996 (Photo by R. Wayne Campbell).

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. Near Vernon, BC. 8 July 2007 (Photo by Kevin Atkins).

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. Esquimalt Lagoon, BC. 30 August 2006 (Photo by R. Wayne Campbell).

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. Esquimalt Lagoon, BC. 31 August 2006 (Photo by R. Wayne Campbell).



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. Sechelt, BC. 4 June 1996 (Photo by R. Wayne Campbell).

Sub-adult

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

Most small birds, especially songbirds, acquire their adult plumage in the spring following the summer in which they hatched. Some groups of birds, including albatrosses, shearwaters, eagles (Figure 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. Cranberry Lake, BC. 22 January 2001 (Photo by R. Wayne Campbell).

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. Tunkwa Lake, BC. 30 June 2008 (Photo by R. Wayne Campbell).



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). on the shore of Bridge Lake, BC. 7 June 1996 (Photo by R. Wayne Campbell).

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). Creston, BC. 6 May 2008 (Photo by Linda M. Van Damme).



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. Near Riske Creek, BC. 3 July 2002 (Photo by R. Wayne Campbell).

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.

Scratching the tree trunk with a stick or lightly tapping 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. Near Rock Creek, BC. 9 June 1984 (Photo by Mark Nyhof).

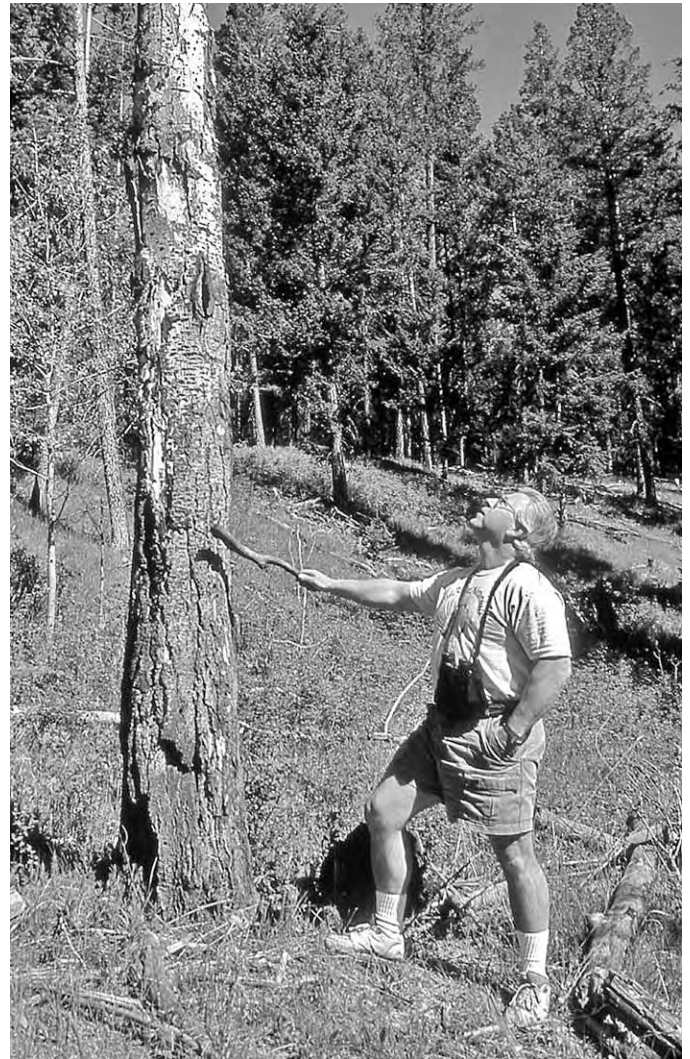


Figure 6. Rick Howie tapping a trembling aspen tree with several cavities hoping a small owl might appear at one of them. Near Kamloops, BC. 27 May 1995 (Photo by R. Wayne Campbell).



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

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. Creston, BC. 13 May 2006 (Photo by Marcia Long).

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	poking 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		NEST DESCRIPTION				
Position: in 9.7 m tall trembling aspen snag Dbh: 48 cm		Materials: could not tap on tree was there 3 hr.				
Height above ground/cliff-base/water 7 m						
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 of nesting cavity in broken, dead, trembling aspen snag when male gave food delivery call. Prey delivery consisted of grasshoppers and small rodents. Creston, BC. 7 June 2008 (Photo by Marcia Long).



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. Creston, BC. 26 June 2008 (Photo by Linda M. Van Damme).

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. Near Houston, BC. 23 June 1997 (Photo by R. Wayne Campbell).



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. (Photo 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. Creston, BC. 19 June 2008 (Photo by Sharon Laughlin).

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. Sunset Lake, BC. 22 June 1997 (Photo by R. Wayne Campbell).

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. Oliver, BC. 30 May 1994 (Photo by Mark Nyhof).



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

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 type="checkbox"/>		No <input checked="" type="checkbox"/>
Elevation: 620 m		NUMBER OF EGGS OR YOUNG per VISIT		REMARKS (building, incubating, eggs cold, just hatched, fledged, yng. dead, etc)		
Habitat: (surrounding vegetation) Mixed coniferous forest		Day	Month	Year	Eggs	Yng.
		21	04	08		
		24	04	08		
		26	04	08		
		09	05	08		
		04	06	08		
		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: 597585		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. Creston, BC. 16 May 2006 (Photo by Linda M. Van Damme).



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. Osoyoos, BC. 3 August 1998 (Photo by R. Wayne Campbell).

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. Delta BC. 4 December 2010 (Photo by Mark Nyhof).

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. Newgate BC. 1 July 1997 (Photo by Mark Nyhof).

(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 increase 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. Christina Lake BC. 23 May 1980 (Photo by Mark Nyhof).

(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. Gang Ranch, BC. 6 July 2007 (Photo by Mark Nyhof).



