

BRITISH COLUMBIA NEST RECORDS SCHEME

44th Annual Report ~ 1998 Nesting Season



R. Wayne Campbell, Maureen L. Funk, Lyndis Davis and Jeremy V. Kimm

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PARTICIPANT PROFILES

The B. C. Nest Record Scheme owes its long existence and success to a group of enthusiastic and informed volunteer nest-recorders as well as a few dedicated individuals who promoted the BCNRS, kept nest-finders supplied with cards, responded to correspondence quickly, and prepared an annual report of findings. A critical period in the evolution and continuation of the BCNRS occurred during the years when the *Birds of British Columbia* was in preparation and the authors were busy compiling information and writing species accounts. Two committed individuals carried the BCNRS during that critical period as provincial co-ordinators.

Violet Gibbard (1966-1986)

Ten years after the nest record scheme was formed at the University of British Columbia it was decided to decentralise its operations in Vancouver and move it to the Okanagan valley where it might receive wider coverage. At that time it was called the Pacific Nest Records Scheme and covered 11 states, including California, Oregon, Washington, and Alaska as well as British Columbia and the Yukon. By 1970, Violet was able to devote all of her energy to the BCNRS as other regional nest record schemes developed.

Violet Gibbard has been a major supporter and contributor to the BCNRS since its inception. During her 20 years as co-ordinator she processed over 50,000 cards and corresponded with hundreds of people on the nesting habits and biology of birds in the province. Her dedication and interest in birds and people reflects, in particular, the result of increased interest in all aspects of ornithology by naturalists throughout British Columbia. The results of her efforts continue to contribute to major works on British Columbia's birds and has established a solid base on which informed decisions about the conservation and understanding of our birds can be made.



Violet Gibbard, and late husband Les, inspecting a nestbox in their backyard in Naramata.

Margaret Harris (1986-1996)

On the recommendation of Violet Gibbard, Margaret Harris became the sixth volunteer co-ordinator of the BCNRS. It was an excellent choice because Margaret was already an active contributor to the scheme, was excited about its potential and importance, and personally set very high standards for recording nesting data.

Each year, she tried to communicate to contributors; "its not the number of cards but the quality of the information recorded that is most useful." She set an example; her cards were painstakingly prepared. From these, significant information on breeding biology could be analysed statistically for "The Birds of British Columbia." In fact, since 1984 she (and Alan Preston) has submitted nearly 3,000 such cards. And she still continues to contribute significant nest records each year.



Al Preston and Margaret Harris banding a bluebird nestling.

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THE 1998 NESTING SEASON

Summary

It was a very good year! In fact, it was our best year ever!! In the 44-years that the BCNRS has been operating, this latest year had more participants, better provincial coverage, more nests and young reported, and an increase in the quality of information recorded on cards. A total of **471 nest-recorders** located **7,326 individual breeding records** for **246 species** in the 1998 nesting season. And this total does not include another 1,500 or so cards that arrived too late to be included in this summary!

Two new breeding species were added to the B. C. list bringing our total to 310. **Gary Davidson** discovered a family of four **Chestnut-sided Warblers** near Puntchesakut Lake on 19 August and fisherman **Ron Harris** provided an historical photograph of a **Northern Fulmar** nest and egg on Triangle Island. As well, many new range extensions were reported.

Fifteen species accounted for 50% of all nest records while twenty-seven dedicated nest-recorders accounted for more than half of all cards received. Over 1,500 nest records were transferred from historical diaries and reports. Noteworthy was a pair of Western Grebes courting and another on a nest with eggs found by W Earl Godfrey near Fernie in 1953.

Use of the scheme continued to be high. Nearly 1,200 people were sent information about birds and nearly 60 publications appeared recently that incorporated some of our data. For example, Dr. Peter Dunn's research at the University of Wisconsin has shown that the laying date for Tree Swallows has advanced about 8 days over the past 25 years or so. Only long-term data that is properly gathered, stored, and managed can provide information for such requests.

Highlights

Species

Fifteen species were represented by more than 100 nests and/or broods. Some of these were the result of "bluebird" trails, aerial surveys, species research, and historical compilations while a few species (e.g., Canada Goose) were common and widespread and tallied from the ground in 1998. Species topping 100 nesting records included **Eared Grebe** (503), **Tree Swallow** (349), **Brewer's Sparrow** (285), **Bald Eagle** (249), **Pied-billed Grebe** (236), **American Robin** (228), **Red-necked Grebe** (177), **Osprey** (176), **Common Loon** (152), **Western Bluebird** (149), **Ring-billed Gull** (147), **Canada**

Goose (145), **Brown-headed Cowbird** (138), **Mountain Bluebird** (136), **American Coot** (129) and **Dark-eyed Junco** (128).

Of some concern was the small number of Barn Swallow cards submitted. These have declined in recent years to less than 100 per year! Along with American Robin and Red-winged Blackbird, the Barn Swallow was one of our top three species each year and a common and widespread species that we have been using for baseline monitoring. **Please make an effort in 1999 to monitor and report all Barn Swallow nests.**

Significant numbers of cards were also received for less common species such as **Harlequin Duck**, **Sharp-shinned Hawk**, **Cooper's Hawk**, **Northern Goshawk**, **Merlin**, **Rock Ptarmigan**, **Sandhill Crane**, **Franklin's Gull**, **Horned Puffin**, **Barn Owl**, **Great Horned Owl**, **Boreal Owl**, **Black Swift**, **Red-breasted Sapsucker**, **Williamson's Sapsucker**, **White-headed Woodpecker**, **Warbling Vireo**, **Common Raven**, **Orange-crowned Warbler**, **Yellow Warbler**, **Black-throated Gray Warbler**, **Northern Waterthrush**, **Snow Bunting**, and **Gray-crowned Rosy-Finch**.

Biologist **Andrew C. Stewart's** pre-dawn vigils paid off in his quest to locate **Cooper's Hawk** nests in the Greater Victoria area. Using a technique called "dawn vocalization" he found (and monitored) an impressive 70 nests in 1997 and 1998. His efforts have provided the most comprehensive data set for this accipiter in the province.

Graduate student **Nancy Mahony** again surprised everyone by finding 257 **Brewer's Sparrow** nests in the southern interior. Most nests were in big sagebrush (84%) followed by snowberry bushes (6%) and wildrye grasses (5%). Two nests at Kilpoola Lake consisted of pairs with male Clay-coloured and female Brewer's Sparrows. Both successfully fledged chicks.

Jeffrey Joy, with the B. C. Forest Service, submitted the most complete set of information on file for the **Red-breasted Sapsucker**. During his field season near Woss, on Vancouver Island, he examined 32 nests and provided very detailed notes on habitat and precise locations.

Suzanne Beauchesne, along with field partners **John Cooper**, **Cam Gilles** and **Mark Nyhof**, located and checked 67 active **Lewis's Woodpecker** nests in the East Kootenay area. This data set is the largest ever obtained in B.C. from one locality! Detailed notes were recorded for habitat, elevation, nest site, and location.

Jim Lawrence located 10 **American Dipper** and 5 **Belted Kingfisher** nests from widely scattered areas in the Kootenays including Copper Creek, New Denver, Argenta, Kimberley, Gerrard, and Salmo. These nests are important because in Europe biologists are using these species to monitor the health of fresh-water rivers and creeks. No doubt we

will have a "jump start" in British Columbia when the program moves to North America. Please be very specific about locations, and if possible number of young fledged, for all dipper and kingfisher nests.

Biologist **Douglas J. Wilson** compiled detailed information for hundreds of raptor nests located during aerial surveys in central British Columbia.

Other noteworthy breeding records included a second nesting of the **Anna'a Hummingbird** in the Vancouver area (**Prue and Bernie Spitman**), a brood of **Blue Jays** which was raised successfully in Maple Ridge (**D. Gibson**), the discovery and survey of a large, previously unknown **Black Tern** colony near Quesnel, an attempted nesting by a pair of **Caspian Terns** near Salmon Arm, several new Merlin nests in the centre of urban areas in central B. C., **Boreal Owl** nests with eggs, a **Northern Saw-whet Owl** nest with eggs from the Queen Charlotte Islands, a pair of **American Black Ducks** and **American Bitterns** breeding in Nanaimo (**Guy L. Monty**), and the successful fledging of young from nests of a **White-headed Woodpecker** and **Sage Thrasher** in the southern interior.

Coverage

As word about the importance and function of the BCNRS spreads around the province more people are becoming involved from more areas. This year, over 25% of all National Topographic Grids throughout the province were represented (see map). New areas included the Kispiox Valley, the west side of Williston Lake, Canal Flats in the East Kootenay, Nimpo Lake, the Blackwater Road north of Quesnel, Germansen's Landing, Princeton, and Mackenzie.

Other well-known nest-finding areas that received excellent coverage included the entire Okanagan Valley, Queen Charlotte Islands, Creston Valley, the vicinity around Fort St. John, and southeastern Vancouver Island. Many of these areas were visited to gather specific breeding information for regional bird books. For example, Chris Siddle and Gary Davidson spent 2 intensive (and tiring) weeks after their teaching duties in the lakes and sloughs around Fort St. John for a book on *Birds of the North Peace*. In the Creston Valley, Linda Van Damme methodically searched specific habitats for nesting birds for her book. And Jerry Herzig started searching little known habitats in the Princeton area for his book.

Areas that still require investigation include the entire central mainland coast and associated mountains, all alpine habitats, the north-central portion of the province, central Vancouver Island, the Flathead Valley in southeastern B.C., Gulf Islands, the muskegs in the extreme northeast.

Participants

More is not necessarily better but this year a few experienced nest-finders spent much of their spring and summer recording detailed nesting information on birds with surprising results. **Linda Van Damme** led the way with a new BCNRS single season record -an impressive 1,158 breeding records. Locating, checking and re-checking nests and completing nest cards took her hundreds of hours of volunteer time. And the cards were completed by our October deadline! Thank you!!

Other totals for over 100 nests and/or broods included **R. Wayne Campbell** [613], **Glen R. Ryder** [390], **Mark Nyhof** (with Bob Houston and Andrew C. Stewart) [386], **Margaret Harris and Al Preston** [289], **Nancy Mahony** [276], **Hilary Gordon** (with Orville Gordon, Marie Bruce, and Douglas Powell) [247], **Doug and Marian Innes** (with Dan Bowen, Nathan Hentze, Ian Woodason, Allen Hopwood, Thord Jendle, and Barbara Sedgwick) [165], **Gary Davidson** (with Chris Siddle) [150], **Andrew C. Stewart** [134], **Elsie Nykyfork** [130], **Douglas J. Wilson** [110], **Linda Durrell** [104], and **Guy L. Monty** [103].

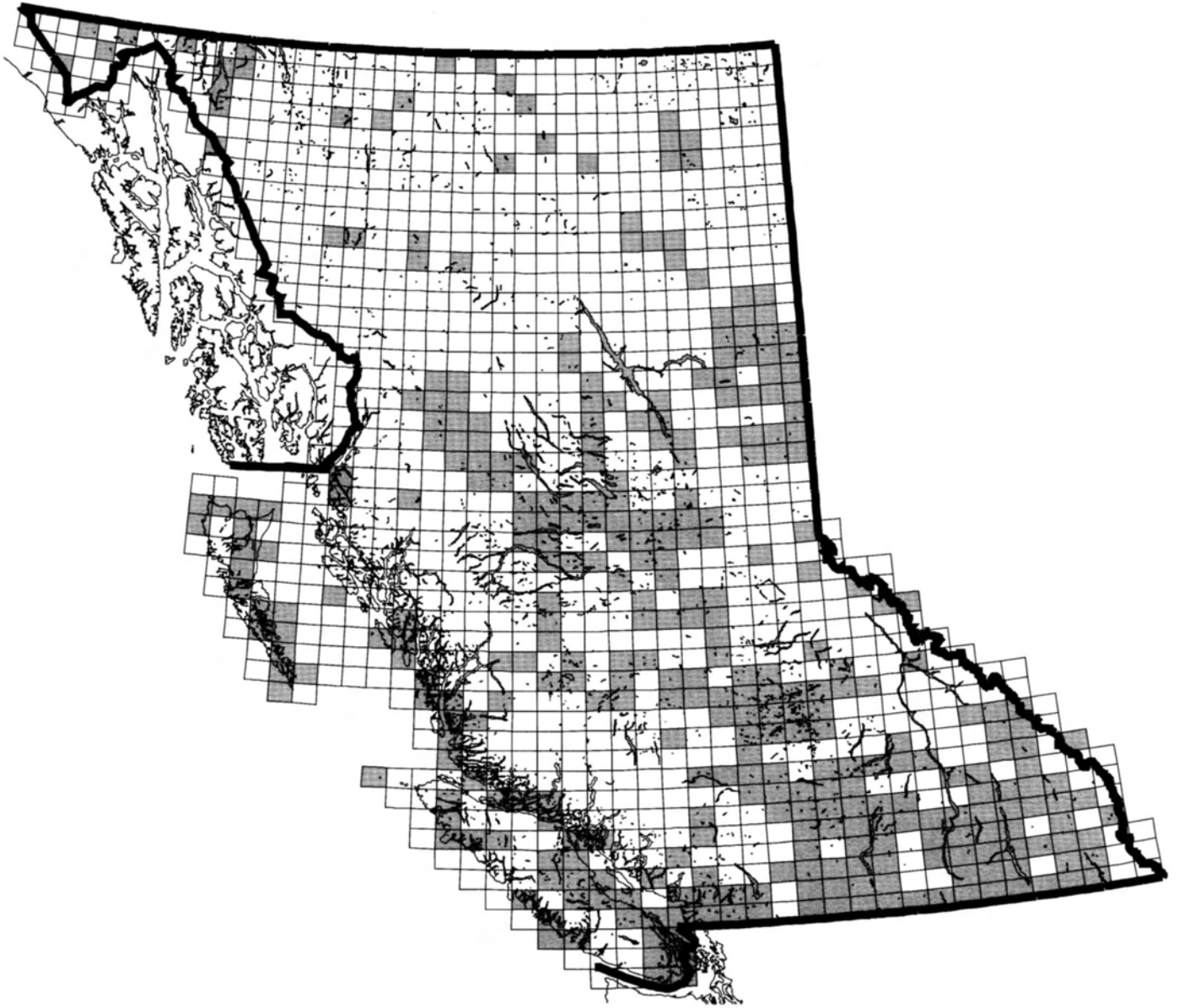
Other participants who submitted over 50 cards included **Alice Beals, Suzanne Beauchesne** (with John Cooper, Cam Gilles and Mark Nyhof), **Steve R. Cannings** (historical records), **Violet Gibbard, Tod Heakes, R. Jerry Herzig, Vi, John and David Lambie** (with Geoff Geupel), **Diana V. Maloff, Michael S. Rodway** (historical records), and **Rita Wege** (with Robin Rohmoser).

Lee Foster and Lorri Harpur added colour prints to some of their more noteworthy finds. These will be catalogued and added to the provincial photo-file for future reference.

Quality of Information

For years, past co-ordinator Margaret Harris pleaded with participants to take time to revisit nests and record as much information on the cards as possible. She often mentioned "You can never go back in time to that nest again." This season many nest-recorders took the time!

Some people put a really big effort into revisiting nests. When an old building at a Quesnel plywood plant was demolished, **Barn Swallows**, which had nested there, relocated to a new warehouse. Because the bird's season started so late, **Manfred Roschitz** wanted to know if they would be successful. To inspect the nests, which were quite high on the rafters, and follow them through the incubation and fledging periods he used a mechanical man-lift for each well-timed visit!!



Over 25% of all grids in the province were visited by nest-recorders in 1998.

Emilee Fanjoy and **Elaine Moore** continued monitoring **Osprey** nests along the West Arm of Kootenay Lake. Due to research by university students in the early 1990's, the annual surveys were discontinued but fortunately picked up again this summer. Over 30 nests were checked regularly for productivity this year.

Margaret Harris and **Al Preston** continued their annual commitment to revisit nests for all species with most of their effort being put into monitoring the nests of **Tree Swallow**, **Western and Mountain Bluebird**, **House Wren**, and **House Sparrow**. **Clifford A. Day** also rechecked nest boxes on Vancouver Island and obtained excellent information on fledging success for **House Wrens** and **Western Bluebirds**.

Others following through with a significant number of repeat visits to nests included **Linda Van Damme**, **Guy L. Monty**, **Michael I. Preston**, **Evi Coulson**, **Alice Beals**, **Vicky Atkins**, and **Doug** and **Marian Innes**. Biologist **Janice Arndt** checked one American Robin nest 14 times; it fledged 4 young. And several people faithfully recorded nest box information with well-timed visits. These included **Molly** and **Len Donaldson** (Dawson Creek), **Elsie Nykyfork** (Vernon area), and **Margaret Harris** and **Al Preston** (Okanagan valley).

Nesting Season Notes

It is encouraging to learn that our attitudes towards many birds of prey are changing for the better as we learn to appreciate and understand how they fit into our lives. At one farm in the southern interior, a stick nest, lined with straw, was built for a pair of **Great Horned Owls** and placed on rafters of an open hay barn. On March 7, the "nest" contained 3 eggs and by June it was a common sight to see the family of 5 flying and roosting nearby!

On June 25, a mother **Barrow's Goldeneye** was killed while escorting her 9 tiny ducklings across a busy highway near Williams Lake. The incident was reported quickly and soon the brood was gathered up by government biologists and released near Alkali Lake where a pair of Barrow's Goldeneyes quickly adopted the ducklings and raised them to teenagers!

While watching a **Great Blue Heron** colony near Cartwright Lake in the East Kootenay, **John Simmons** watched an adult heron catch and swallow 2- 8 inch and 1-12 inch trout. That's 2 1/4 feet of fish!!

We all know that Bald Eagles don't survive only on fish. They are versatile and opportunistic predators and will feed on almost anything. On Masset Inlet, on the Queen Charlotte Islands, **Janet Gifford** watched a pair of **Bald Eagles** on June 9 take an entire brood of 8 **Common Mergansers**, she writes, "A pair of Bald Eagles began to harass them [female and 8 very small ducklings]; one would dive, the ducks would go

under and as soon as they resurfaced the 2nd eagle would dive. Within 1/2 hour the eagles had eaten 4 of the ducklings. By early evening she had no ducklings. She now keeps company with another female merganser who lost her brood to the Bald Eagles."

Frank and Annie Strong enjoy birds and do everything possible to minimize disturbance to nesting during their farming activities. When visiting their farm one wonders why their fields have such wavy lines from tractor ploughing. Their explanation - they simply stake and go around all **Killdeer** nests!! The Strongs also mentioned that for 10 years, between 1989 and 1998, a pair of **American Robins** have used the same nest, on a beam in a low storage shed, to raise their young. Each year the birds add a little new nest material. This year 3 young fledged on May 8.

A **Say's Phoebe** nest was discovered with 4 phoebe eggs and 3 **Barn Swallow** eggs on a ledge in an old barn at the north end of Osoyoos Lake. Concerned that none of the eggs would hatch, a naturalist put the swallow eggs into a nearby Barn Swallow nest, which contained a single egg. Two weeks later both nests held 4 large young!

Lee Foster, from Vanderhoof, reported an incident involving a "Miracle Mum" **Least Flycatcher**. After her nest tree was accidentally cut down and later re-established in an upright position she continued to incubate her 4 eggs even though all were thrown from the nest. All eggs hatched and produced full-grown youngsters!!

Landowner **Norman Evans** found a **Barn Owl** nest on May 4 between the studs of a wall in a barn that contained 4 young in 1 - 8" x 16" space and another smaller young in a similar space in an adjacent but closed-off area. The female was brooding the single young. On May 17 all 5 young were in one place! Could an adult have transported the isolated sibling to join its family?

While near Swan Lake in the Peace River, **Manfred Roschitz** and his wife made an interesting observation. A careless fisherman had discarded a "bird nest" of jumbled fishing line and a **Baltimore Oriole** had attached it to the trunk of a balsam poplar about 8 meters high and started to carry nesting materials into it.

In Fort St. James, some youngsters knocked down a **Cliff Swallow** nest with rocks from a low building. Four young swallows, about 1/3 grown, tumbled onto the ground. A local shop owner noticed the event and quickly put some soft cloth in the bottom of a small wicker basket and hung it under the eaves. The parents responded positively and raised all young to fledging!

Historical Records

Mark Nyhof diligently went through his old field notes from 1985-1998 and compiled nearly 300 nest cards for species from Wood-Warblers through Old World Sparrows for use in the final volume of "Birds of B. C.". Significant contributions were made for Orange-crowned Warbler, Yellow Warbler, Vesper Sparrow, Lark Sparrow, Golden-crowned Sparrow, Brewer's Blackbird, Rusty Blackbird, Brown-headed Cowbird, Bullock's Oriole, Gray-crowned Rosy-Finch, and Evening Grosbeak. He stayed up until 3:00 am one morning to meet our deadline!

Others also went back into their field notebooks and completed nest cards for earlier nesting seasons. These dedicated people included **Gary S. Davidson** (Nakusp), **Linda Van Damme** (Trail, Kaslo, Nelson, and Creston), **Glen R. Ryder** (Scotch Creek and Lower Mainland), **Chris Siddle** (Peace River), **Michael S. Rodway** (Queen Charlotte Islands), **Hilary Gordon** (Revelstoke), **Mark Phinney** (Prince George), and **Wayne Campbell** (B. C. general).

The slow process of extracting historical breeding information continued. The reports and diaries of early bird collectors such as Allan Brooks, Leo Jobin, Robert E. Luscher, James A. Munro,

Kenneth Racey, W. Earl Godfrey, William Spreadborough, and P. A. Taverner provided nearly 1,500 nest cards this year. In addition, notebooks of many naturalists were examined for nesting records.

The early records of **Ron Satterfield, J. E. Victor** and **Margaret E. Goodwill**, and **Barbara Begg** provided significant contributions to the breeding chronology of Pied-billed Grebes on Vancouver Island. Near Prince Rupert, **Doug** and **Marian Innes** followed the entire development of a family of Red-throated Loons. Outside of the research on the Queen Charlotte Islands by Dr. Tom Reimchen, this is our only historical record of nest success by this species.

Elsie Nykyfork Honoured

On June 27, 1998 Elsie Nykyfork was honoured at the Annual General Meeting of the North American Bluebird Society in Regina, Saskatchewan. Her bluebird program in the southern interior of B. C. received the annual award for "Outstanding Contribution to the Field of Bluebird Conservation." Elsie has also been one of our most faithful and long-time contributors. CONGRATULATIONS!



Elsie Nykyfork holding her award.

List of Species and Nests/Broods by Family

Family Gaviidae: Loons (165)

Red-throated Loon – 11 and Common Loon – 154.

Family Podicipedidae: Grebes (1,011)

Pied-billed Grebe – 236, Horned Grebe – 65, Red-necked Grebe – 183, Eared Grebe – 503, and Western Grebe – 24.

Family Phalacrocoracidae: Cormorants (4)

Double-crested Cormorant – 1 and Pelagic Cormorant – 3.

Family Ardeidae: Bitterns, Herons, Egrets and Night-Herons (52)

American Bittern – 4, Great Blue Heron – 42, and Green Heron – 6.

Family Cathartidae: New World (American) Vultures (2)

Turkey Vulture – 2.

Family Anatidae: Geese, Swans and Ducks (828)

Canada Goose – 147, Mute Swan – 3, Trumpeter Swan – 2, Wood Duck – 30, Gadwall – 51, American Wigeon – 23, American Black Duck – 1, Mallard – 153, Blue-winged Teal – 20, Cinnamon Teal – 7, Northern Shoveler – 20, Northern Pintail – 6, Green-winged Teal – 26, Canvasback – 13, Redhead – 8, Ring-necked Duck – 29, Lesser Scaup – 25, Harlequin Duck – 6, White-winged Scoter – 1, Oldsquaw – 3, Bufflehead – 47, Common Goldeneye – 41, Barrow's Goldeneye – 38, Hooded Merganser – 24, Common Merganser – 79, and Rudy Duck – 25.

Family Accipitridae: Osprey, Kites, Eagles, Hawks and Allies (582)

Osprey – 176, Bald Eagle – 249, Swainson's Hawk – 1, Sharp-shinned Hawk – 3, Cooper's Hawk – 80, Northern Goshawk – 23, Red-tailed Hawk – 41, and Golden Eagle – 9.

Family Falconidae: Falcons (44)

American Kestrel – 28, Merlin – 13, and Peregrine Falcon – 3.

Family Phasianidae: Partridges, Pheasant, Grouse, Ptarmigan and Turkey (160)

Gray Partridge – 1, Ring-necked Pheasant – 14, Blue Grouse – 27, Willow Ptarmigan – 7, Rock Ptarmigan – 3, White-tailed Ptarmigan – 4, Ruffed Grouse – 64, Spruce Grouse – 33, Sharp-tailed Grouse – 6, and Wild Turkey – 1.

Family Odontophoridae: American Quail (59)

California Quail – 59.

Family Rallidae: Rails, Gallinules and Coots (205)

Virginia Rail – 27, Sora – 49, and American Coot – 129.

Family Gruidae: Cranes (16)

Sandhill Crane – 16.

Family Charadriidae: Plovers (47)

Semipalmated Plover – 2 and Killdeer – 45.

Family Haematopodidae: Oystercatchers (31)

Black Oystercatcher – 31.

Family Scolopacidae: Sandpipers, Phalaropes and Allies (80)

Greater Yellowlegs – 2, Lesser Yellowlegs – 2, Solitary Sandpiper – 4, Spotted Sandpiper – 55, Long-billed Curlew – 4, Common Snipe – 9, and Wilson's Phalarope – 4.

Family Laridae: Jaegers, Skuas, Gulls, Terns and Allies (229)

Franklin's Gull – 1, Bonaparte's Gull – 4, Mew Gull – 4, Ring-billed Gull – 147, California Gull – 5, Herring Gull – 3, Glaucous-winged Gull – 3, Caspian Tern – 29, Arctic Tern – 3, Forster's Tern – 1, and Black Tern – 29.

Family Alcidae: Auks, Murres and Puffins (14)

Common Murre – 1, Marbled Murrelet – 2, Ancient Murrelet – 2, Cassin's Auklet – 4, Horned Puffin – 1, and Tufted Puffin – 4.

Family Columbidae: Pigeons and Doves (26)

Rock Dove – 4, Band-tailed Pigeon – 20, and Mourning Dove – 2.

Family Tytonidae: Barn Owls (25)

Barn Owl – 25.

Family Strigidae: Typical Owls (120)

Flammulated Owl – 4, Western Screech-Owl – 11, Great Horned Owl – 67, Northern Hawk Owl – 1, Northern Pygmy-Owl – 3, Barred Owl – 11, Great Gray Owl – 1, Long-eared Owl – 11, Short-eared Owl – 3, Boreal Owl – 3, and Northern Saw-whet Owl – 5.

Family Caprimulgidae: Goatsuckers (17)

Common Nighthawk – 7 and Common Poorwill – 10.

Family Apodidae: Swifts (2)

Vaux's Swift – 1 and White-throated Swift – 1.

Family Trochilidae: Hummingbirds (38)

Black-chinned Hummingbird – 2, Anna's Hummingbird – 3, Calliope Hummingbird – 4, and Rufous Hummingbird – 29.

Family Alcedinidae: Kingfishers (14)

Belted Kingfisher – 14.

Family Picidae: Woodpeckers (289)

Lewis's Woodpecker – 75, Yellow-bellied Sapsucker – 5, Red-naped Sapsucker – 24, Red-breasted Sapsucker – 67, Williamson's Sapsucker – 3, Downy Woodpecker – 12, Hairy Woodpecker – 25, White-headed Woodpecker – 7, Three-toed Woodpecker – 12, Black-backed Woodpecker – 10, Northern Flicker – 35, and Pileated Woodpecker – 14.

Family Tyrannidae: Tyrant Flycatchers (167)

Olive-sided Flycatcher – 3, Western Wood-Pewee – 11, Willow Flycatcher – 5, Least Flycatcher – 15, Hammond's Flycatcher – 1, Gray Flycatcher – 1, Dusky Flycatcher – 10, Pacific-slope Flycatcher – 8, Eastern Phoebe – 3, Say's Phoebe – 10, Western Kingbird – 72, and Eastern Kingbird – 28.

Family Vireonidae: Vireos (47)

Cassin's Vireo – 1, Hutton's Vireo – 8, Warbling Vireo – 27, and Red-eyed Vireo – 11.

Family Corvidae: Jays, Magpies and Crows (125)

Gray Jay – 11, Steller's Jay – 19, Clark's Nutcracker – 11, Black-billed Magpie – 14, American Crow – 20, Northwestern Crow – 14, and Common Raven – 36.

Family Alaudidae: Larks (1)

Sky Lark – 1.

Family Hirundinidae: Swallows (585)

Purple Martin – 11, Tree Swallow – 350, Violet-green Swallow – 43, Northern Rough-winged Swallow – 11, Bank Swallow – 27, Cliff Swallow – 61, and Barn Swallow – 71.

Family Paridae: Chickadees (55)

Black-capped Chickadee – 24, Mountain Chickadee – 14, and Chestnut-backed Chickadee – 17.

Family Aegithalidae: Bushtit (21)

Bushtit – 21.

Family Sittidae: Nuthatches (30)

Red-breasted Nuthatch – 12, White-breasted Nuthatch – 8, and Pygmy Nuthatch – 10.

Family Certhiidae: Creeper (10)

Brown Creeper – 10.

Family Troglodytidae: Wrens (99)

Rock Wren – 1, Canyon Wren – 1, Bewick's Wren – 9, House Wren – 71, Winter Wren – 12, and Marsh Wren – 5.

Family Cinclidae: Dipper (23)

American Dipper – 23.

Family Regulidae: Kinglets (14)

Golden-crowned Kinglet – 9 and Ruby-crowned Kinglet – 5.

Family Muscicapidae: Bluebirds, Thrushes and Allies (567)

Western Bluebird – 149, Mountain Bluebird – 136, Townsend's Solitaire – 18, Veery – 2, Swainson's Thrush – 16, Hermit Thrush – 6, American Robin – 228, and Varied Thrush – 9.

Family Mimidae: Mockingbird, Thrashers and Allies (14)

Gray Catbird – 13 and Sage Thrasher – 1.

Family Sturnidae: Starling and Allies (54)

European Starling – 54.

Family Motacillidae: Wagtails and Pipits (2)

American Pipit – 2.

Family Bombycillidae: Waxwings (34)

Cedar Waxwing – 34.

Family Parulidae: Wood-Warblers (285)

Tennessee Warbler – 7, Orange-crowned Warbler – 37, Nashville Warbler – 11, Yellow Warbler – 91, Chestnut-sided Warbler – 1, Magnolia Warbler – 4, Yellow-rumped Warbler – 46, Black-throated Gray Warbler – 16, Townsend's Warbler – 16, Blackpoll Warbler – 4, Black-and-white Warbler – 4, American Redstart – 21, Northern Waterthrush – 7, Mourning Warbler – 4, MacGillivray's Warbler – 7, Common Yellowthroat – 7, and Wilson's Warbler – 1.

Family Thraupidae: Tanagers (21)

Western Tanager – 21.

Family Cardinalidae: Cardinals, Grosbeaks and Allies (30)

Rose-breasted Grosbeak – 4, Black-headed Grosbeak – 20, and Lazuli Bunting – 6.

Family Emberizidae: Towhees, Sparrows, Longspurs and Allies (615)

Spotted Towhee – 23, Chipping Sparrow – 63, Clay-coloured Sparrow – 8, Brewers Sparrow – 285, Vesper Sparrow – 5, Lark Sparrow – 4, Lark Bunting – 4, Savannah Sparrow – 11, Le Conte's Sparrow – 1, Nelson's Sharp-tailed Sparrow – 2, Song Sparrow – 38, Lincoln's Sparrow – 17, White-throated Sparrow – 10, Golden-crowned Sparrow – 2, White-crowned Sparrow – 17, Dark-eyed Junco – 128, and Snow Bunting – 1.

Family Icteridae: Blackbirds, Orioles and Allies (404)

Bobolink – 4, Red-winged Blackbird – 65, Western Meadowlark – 7, Yellow-headed Blackbird – 49, Rusty Blackbird – 7, Brewer's Blackbird – 68,

Common Grackle – 3, Brown-headed Cowbird – 138, Baltimore Oriole – 3, and Bullock's Oriole – 59.

Family Fringillidae: Cardueline Finches and Allies (67)

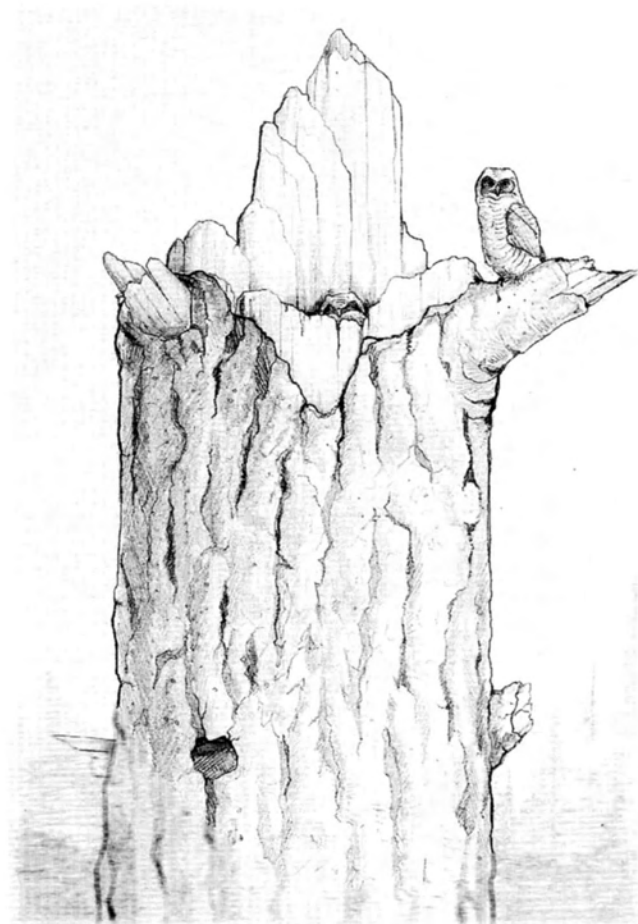
Gray-crowned Rosy-Finch – 1, Pine Grosbeak – 1, Purple Finch – 7, Cassin's Finch – 4, House Finch – 20, Red Crossbill – 5, Pine Siskin – 15, American Goldfinch – 6, and Evening Grosbeak – 8.

Family Passeridae: Old World Sparrows (18)

House Sparrow – 18.

Total nests – 7,326

Total species – 246



Great Horned Owl young ready to leave their nest.

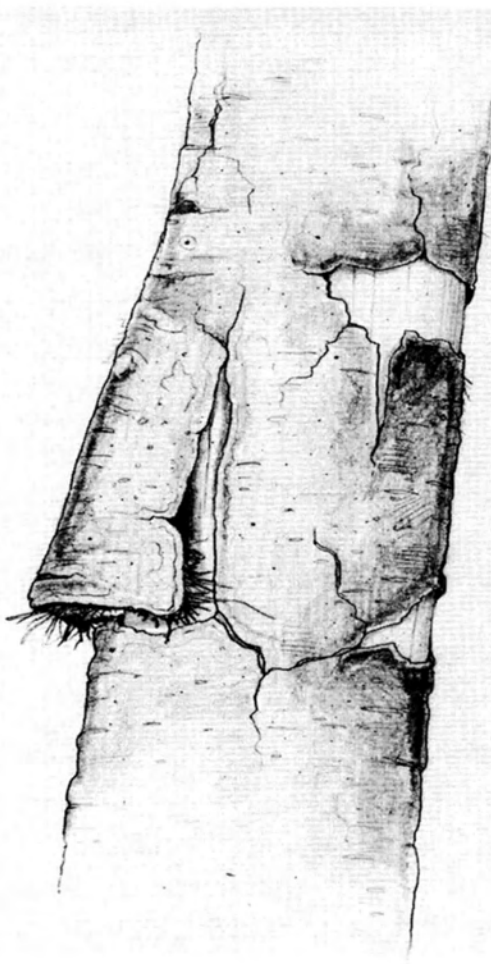
List of Species and Nests in Alphabetical Order

- American Bittern – 4.
American Black Duck – 1.
American Coot - 129.
American Crow - 20.
American Dipper - 23.
American Goldfinch - 6.
American Kestrel - 28.
American Pipit - 2.
American Redstart - 21.
American Robin - 228.
American Wigeon - 23.
Ancient Murrelet - 2.
Anna's Hummingbird - 3.
Arctic Tern – 3.
Bald Eagle - 249.
Baltimore Oriole - 3.
Band-tailed Pigeon – 20.
Bank Swallow - 57.
Barn Owl – 25.
Barn Swallow - 71.
Barred Owl – 11.
Barrow's Goldeneye - 38.
Belted Kingfisher - 14.
Bewick's Wren – 9.
Black-and-white Warbler – 4.
Black-backed Woodpecker – 10.
Black-billed Magpie – 14.
Black-capped Chickadee - 24.
Black-chinned Hummingbird – 2.
Black-headed Grosbeak – 20.
Black Oystercatcher - 31.
Blackpoll Warbler – 4.
Black Tern - 29.
Black-throated Gray Warbler – 16.
Blue Grouse - 27.
Blue-winged Teal – 20.
Bobolink – 4.
Bonaparte's Gull - 4.
Boreal Owl - 3.
Brewer's Blackbird - 68.
Brewer's Sparrow – 285.
Brown Creeper - 10.
Brown-headed Cowbird – 138.
Bufflehead - 47.
Bullock's Oriole - 59.
Bushtit – 21.
California Gull – 5.
California Quail - 59.
Calliope Hummingbird - 4.
Canada Goose - 147.
Canvasback – 13.
Canyon Wren – 1.
Caspian Tern – 29.
Cassin's Auklet - 4.
Cassin's Finch – 4.
Cassin's Vireo – 1.
Cedar Waxwing - 34.
Chestnut-backed Chickadee - 17.
Chestnut-sided Warbler – 1.
Chipping Sparrow - 62.
Cinnamon Teal - 7.
Clark's Nutcracker – 11.
Clay-coloured Sparrow - 8.
Cliff Swallow - 61.
Common Goldeneye - 41.
Common Grackle – 3.
Common Loon – 154.
Common Merganser - 79.
Common Murre - 1.
Common Nighthawk - 7.
Common Poorwill – 10.
Common Raven - 36.
Common Snipe - 9.
Common Yellowthroat - 7.
Cooper's Hawk - 80.
Dark-eyed Junco – 128.
Double-crested Cormorant – 1.
Downy Woodpecker – 12.
Dusky Flycatcher – 10.
Eared Grebe – 503.
Eastern Kingbird - 28.
Eastern Phoebe - 3.
European Starling - 54.
Evening Grosbeak - 8.
Flammulated Owl - 4.
Forster's Tern - 1.
Franklin's Gull – 1.
Gadwall - 51.
Glaucous-winged Gull - 3.
Golden-crowned Kinglet - 9.
Golden-crowned Sparrow - 2.
Golden Eagle - 9.
Gray Catbird – 13.
Gray Flycatcher - 1.
Gray Jay - 11.
Gray Partridge - 1.
Great Blue Heron - 42.
Great Gray Owl - 1.
Great Horned Owl - 67.
Greater Yellowlegs - 2.
Green Heron - 6.
Green-winged Teal – 26.
Hairy Woodpecker - 25.
Hammond's Flycatcher - 1.
Harlequin Duck - 6.
Hermit Thrush - 6.
Herring Gull - 3.
Hooded Merganser - 24.
Horned Grebe - 65.
Horned Puffin - 1.
-

House Finch – 20.
House Sparrow – 18.
House Wren - 71.
Hutton's Vireo - 8.
Killdeer - 45.
Lark Bunting – 4.
Lark Sparrow – 4.
Lazuli Bunting - 6.
Least Flycatcher – 15.
Le Conte's Sparrow – 1.
Lesser Scaup – 25.
Lesser Yellowlegs - 2.
Lewis's Woodpecker – 75.
Lincoln's Sparrow – 17.
Long-billed Curlew - 4.
Long-eared Owl – 11.
MacGillivray's Warbler - 8.
Magnolia Warbler - 4.
Mallard - 153.
Marbled Murrelet – 2.
Marsh Wren - 5.
Merlin - 13.
Mew Gull - 4.
Mountain Bluebird - 136.
Mountain Chickadee - 14.
Mourning Dove – 2.
Mourning Warbler – 4.
Mute Swan - 3.
Nashville Warbler – 11.
Nelson's Sharp-tailed Sparrow – 2.
Northern Flicker - 35.
Northern Goshawk - 23.
Northern Hawk Owl - 1.
Northern Pintail - 6.
Northern Pygmy-Owl - 3.
Northern Shoveler – 20.
Northern Rough-winged Swallow – 11.
Northern Saw-whet Owl - 5.
Northern Shoveler - 5.
Northern Waterthrush - 7.
Northwestern Crow - 14.
Oldsquaw – 3.
Olive-sided Flycatcher - 3.
Orange-crowned Warbler – 37.
Osprey – 176.
Pacific-slope Flycatcher - 8.
Pelagic Cormorant - 3.
Peregrine Falcon - 3.
Pied-billed Grebe – 236.
Pileated Woodpecker – 14.
Pine Grosbeak – 1.
Pine Siskin – 15.
Purple Finch - 7.
Purple Martin – 11.
Pygmy Nuthatch – 10.
Red-breasted Nuthatch - 12.
Red-breasted Sapsucker - 67.
Red Crossbill - 5.
Red-eyed Vireo – 11.
Redhead - 8.
Red-naped Sapsucker - 24.
Red-necked Grebe – 183.
Red-tailed Hawk - 41.
Red-throated Loon – 11.
Red-winged Blackbird - 23.
Ring-billed Gull – 147.
Ring-necked Duck - 29.
Ring-necked Pheasant – 14.
Rock Dove – 4.
Rock Ptarmigan - 3.
Rock Wren - 1.
Rose-breasted Grosbeak - 4.
Ruby-crowned Kinglet – 5.
Ruddy Duck - 25.
Ruffed Grouse - 64.
Rufous Hummingbird - 29.
Rusty Blackbird – 7.
Sage Thrasher - 1.
Sandhill Crane – 16.
Savannah Sparrow – 11.
Say's Phoebe – 10.
Semipalmated Plover - 2.
Sharp-shinned Hawk - 3.
Sharp-tailed Grouse - 6.
Short-eared Owl - 3.
Sky Lark – 1.
Snow Bunting - 1.
Solitary Sandpiper - 4.
Song Sparrow - 38.
Sora – 49.
Spotted Sandpiper - 55.
Spotted Towhee - 23.
Spruce Grouse - 33.
Steller's Jay – 19.
Swainson's Hawk – 1.
Swainson's Thrush - 16.
Tennessee Warbler – 7.
Three-toed Woodpecker - 12.
Townsend's Solitaire – 18.
Townsend's Warbler – 16.
Tree Swallow - 350.
Trumpeter Swan - 2.
Tufted Puffin - 4.
Turkey Vulture – 2.
Varied Thrush - 9.
Vaux's Swift – 1.
Veery – 2.
Vesper Sparrow - 5.
Violet-green Swallow - 43.
Virginia Rail – 27.
Warbling Vireo – 27.
Western Bluebird – 149.
Western Grebe - 24.
Western Kingbird - 72.
Western Meadowlark - 7.
Western Screech-Owl – 11.
Western Tanager – 21.
Western Wood-Pewee - 11.

White-breasted Nuthatch - 8.
 White-crowned Sparrow - 17.
 White-headed Woodpecker - 7.
 White-tailed Ptarmigan - 4.
 White-throated Sparrow - 10.
 White-throated Swift - 1.
 White-winged Crossbill - 2.
 White-winged Scoter - 1.
 Wild Turkey - 1.
 Williamson's Sapsucker - 3.
 Willow Flycatcher - 5.
 Willow Ptarmigan - 7.
 Wilson's Phalarope - 4.
 Wilson's Warbler - 1.
 Winter Wren - 12.
 Wood Duck - 30.
 Yellow-bellied Sapsucker - 5.
 Yellow-headed Blackbird - 49.
 Yellow Warbler - 91.
 Yellow-rumped Warbler - 46.

Total nests - 7,326
Total Species - 246



Typical Brown Creeper Nest Site.

List of Contributors in Alphabetical Order

A I. Adams - 1, Mary Alpen - 2, A. Amundsen - 1, Jerry & Gladys Anderson - 6, E. M. Anderson - 5, Morgan Anderson - 6, Cathy Antoniazzi - 1, Cathy Antoniazzi & Gary Davidson - 1, Cathy Antoniazzi & Nancy Krueger - 1, Janice E. Arndt - 43, Janice E. Arndt & Rita Wege - 4, R. Askevold - 1, and Vicky Atkins - 21.

B Steve Baillie - 9, Bob Baker - 1, S. W. Baker - 2, Darlene Bannister - 1, Derek Beacham - 1, Alice Beals - 80, Alice Beals & Vicky Atkins - 1, Alan Bear - 37, Suzanne Beauchesne, John M. Cooper, Cam Gilles, & Mark Nyhof - 71, M. Becevel - 4, Frank L. Beebe - 2, R. Dorothy Beestra - 5, Barbara Begg - 30, Alistair Bell - 1, Desmond Belton - 1, Winnifred Bennie - 3, Robin Best - 1, Ed Beynon - 4, Dale Biel - 3, Jim S. Bigger - 1, M. Biro - 1, Anne K. Blackmore - 22, L. Blight & B. Pyper - 1, Peter Blokker - 4, Donald A. Blood - 1, Elsie Boggs - 1, Barry Booth - 1, Jack Bowling - 15, Ken C. Boyce - 2, Malcolm Boyd - 1, Jan Bradshaw - 2, Sue Brand - 1, Tom R. Briggs - 2, Allan Brooks - 63, M. Bruce - 4, M. Bruce & H. Gordon - 6, Ruth Bumpus - 20, C. Burns - 1, James Burns - 22, Robert W. Butler - 4, and Christy Butt, Peter Wright, John & Vi Lambie - 1.

C Giff Calvert - 5, Monica & Orlando Camilletti - 1, Lucille Campbell - 28, Lucille Campbell & C. Cutbill - 6, Lucille Campbell & Gayla Hanna - 20, Lucille Campbell & G. Thermont - 4, R. W. Campbell - 613, R. W. Campbell & Neil K. Dawe - 2, R. W. Campbell & K. Kennedy - 1, Steve R. Cannings - 54, Phil Capes - 2, G. Clifford Carl - 1, Trudy A. Carson - 2, Harry R. Carter - 4, Rob Catchpole - 1, W. Jim Chambers - 8, W. Jim Chambers & Helen Knight - 7, Alan R. Charbonneau - 1, Chris Charlesworth - 2, P. W. Cheney - 1, Myke J. Chutter - 6, Paul Chytk - 1, Stephanie Clare - 4, J. Coburn - 1, June Cochrane - 17, D. Code - 8, Jennifer Collard - 2, Kelly & Jennifer Collard - 14, Ginny Collins - 5, John Comer - 1, Aziza Cooper - 1, Dianne Cooper - 1, J. K. Cooper - 1, John M. Cooper - 10, Claudia Copley - 5, Darren R. Copley - 10, Evi Coulson - 13, Vic and Cecile Cousineau - 17, Linnea Cross-Tallman - 1, Guy Crowther - 1, Beryl Cunningham - 4, H. H. Currie - 3, C. Cutbill & Lucille Campbell - 3, and Chris Czajkowski - 3.

D Mark K. Daly – 1, A. R. Davidson – 2, Gary S. Davidson – 53, Gary S. Davidson & Chris Siddle – 97, Lyndis A. Davis – 1, Neil K. Dawe – 6, Cliff Day – 19, Barbara de Boer – 1, M. Deanna – 1, C. deB. Green – 1, H. B. Dickens – 1, Adrian Dorst – 11, Nathan Douglas & Peter Mayfield – 1, Ducks Unlimited Canada – 1, Eva Durance – 34, Eva Durrance & S. Purton – 2, and Linda Durrell – 104.

E P. Elliott – 7, Maurice Ellison – 26, Maurice Ellison & Linda Van Damme – 1, Ken & Hanna Emes – 4, and Peter D. Endwick – 1.

F Emilee Fanjoy - 10, Martin Farrel – 1, Elaine Ferguson – 1, Joe Ferguson – 1, Lorraine Fontaine – 1, Lorraine & J. Fontaine – 1, Bristol Foster – 15, Lee Foster – 44, David F. Fraser – 26, B. G. Frederick – 1, Ralph Fryer – 1, Maureen L. Funk – 18, and Maureen Funk, Darren & Claudia Copley – 4.

G Don Garnier – 3, Jeff Gaskin – 30, Phil Gehlen – 1, D. V. George – 2, Geoff Geupel, Vi, John, & Dave Lambie – 2, Geoff Geupel, Rhonda Millikin, & Vi Lambie – 1, Geoff Geupel, Rhonda Millikin, John, Vi, & Dave Lambie – 3, Violet Gibbard – 57, Janet Gifford – 11, Graham E. Gillespie – 1, Tom Gillespie – 1, J. Ginns – 18, W. Earl Godfrey – 1, M. Godidek – 3, J. E. Victor Goodwill – 29, Margaret E. Goodwill – 3, Hilary Gordon – 126, Hilary Gordon & Marie Bruce – 14, Hilary Gordon & Orville Gordon – 75, Hilary Gordon & Doug Powell – 32, Orville Gordon – 14, B. Max Gotz – 5, Louise Goulet – 1, Trevor Goward – 2, D. Graham – 1, James Grant – 9, Al Grass - 1, Jude Grass – 1, Dave Gravelle – 2, Dick Grinnell – 2, Charles J. Guiguet – 12, S. Guterson – 17, and S. Guterson & Kari Stuart-Smith – 1.

H G. Hack – 2, Ken Haddad – 1, Penny Haering – 47, J. Hague – 1, Larry R. Halverson – 4, Terry Hamell – 1, D. Hamilton – 1, D. Hancock – 2, Gayla Hanna & Lucille Campbell – 5, Tom Hanrahan - 1, Barbara Hanwell – 5, Willie Haras – 14, George A. Hardy – 5, Lorri Harpur – 5, A. Harris – 2, Margaret Harris & Al Preston – 289, Carol Hart – 1, S. Hassell – 1, David F. Hatler – 2, H. Hay – 1, R. B. Hay – 3, W. Grant Hazelwood – 4, Todd Heakes – 81, Dorothy Hearn – 1, Charles Helm – 35, Phil S. Henderson – 8, Ed Hennan – 2, Simon Henson – 2, Nathan Hentze – 7, J. E. Herriot – 2, R. Jerry Herzig – 83, Werner & Hilde Hesse – 9, Stefan Himmer – 1, Keith Hodson – 1, J. Hogue – 1, Madge Hollington – 1, J. H. Holman – 1, N. Holmes – 1, W. Horn – 1, Robert W. Howe – 1, Richard R. Howie – 5, Richard R. Howie & Gary S. Davidson – 1, Laurie Husband – 1, and Jack Husted – 2.

I Doug Innes – 14, Doug Innes & Dan Bowen – 1, Doug Innes & R. Wayne Campbell – 1, Doug Innes & Nathan Hentze – 1, Doug & Marian Innes – 144, Doug Innes & Ian Woodason – 1, Doug Innes, Allen Hopwood, & Thord Jendle – 1, Doug & Marian Innes, & Barbara M. Sedgwick – 1, and Marian Innes – 1.

J Mary Jackson – 1, Pat Janzen – 39, Ron Jenkins – 1, Leo Jobin – 2, Fran Johnson – 2, W. B. Johnstone – 3, Malcolm Jolly – 1, Anne M. N. Jones – 22, Ruth & John Jones – 1, and Jeff Joy – 46.

K Gary W. Kaiser – 2, Brian M. Kautesk – 4, J. E. H. Kelso – 1, Connie Kent – 1, Joan Kerr – 12, Elspeth Kerr & Sybil Lees – 2, Jeremy V. Kimm – 1, Fran Kimpton – 1, Sandra Kinsey – 2, Sandra Kinsey & Laird Law – 1, Sandra Kinsey, Laird Law & Mark Phinney – 1, M. Kirchner – 1, Gladys & John Knezevich – 1, Helen Knight – 3, Ann Knowles – 3, Sheila Knowles – 1, J. Burke Korol – 1, W. Douglas Kragh – 1, and Nancy Krueger – 3.

L Elsie Lafreniere – 3, Hamilton M. Laing – 3, John Lambie – 3, John & Vi Lambie – 29, John, Vi Lambie & Geoff Geupel – 2, John, Vi, & Dave Lambie – 30, John, Vi, & John A. Lambie – 1, Vi Lambie & Geoff Geupel – 1, Vi & Dave Lambie – 4, Jim Lawrence – 65, Sue Lawrence – 1, John Lawson – 1, Martin C. Lee – 4, Doug Leighton – 7, Enid K. Lemon – 1, Enid K. Lemon, K. M. Smith & C. Bull – 2, Moira Lemon – 3, P. Lemon – 1, Pat Levitt – 3, Betty Lunam – 10, and Robert E. Luscher – 10.

M E. MacDonald & D. Veale – 1, Heather MacDonald – 2, Robert MacKay – 1, R. H. MacKay – 1, Hue & Jo Anne Mackenzie – 6, Hue, Jo Anne Mackenzie, Prue & Bernie Spitman – 1, Rob Mackenzie-Grieve – 1, A. C. Mackie – 2, Bill Mackie & Andrew C. Stewart – 2, Alan L. MacLeod – 4, Nancy Mahony - 276, Diana V. Maloff – 77, Diana Maloff and Pat Newson - 1, Jim Maloff – 1, Jim & Diane Maloff – 2, Phil Manson – 1, Patrick W. Martin – 1, Derrick Marven – 1, Bill Mason – 1, A. Mayfield – 45, Peter McAllister & Ken Wright – 1, T. T. McCabe – 1, Jerry McFetridge – 1, J. McGeoch – 1, Barb & Mike McGrenere – 4, Bette McKinnon – 1, Karen McLaren – 4, Bette McLennan – 1, J. McLeod – 1, Ed McMackin – 4, Patrick McMackin – 2, Patrick & Ed McMackin – 2, Malcolm McNab – 1, Martin K. McNicholl – 3, Ian McTaggart-Cowan – 5, Barbara Meiklejohn – 2, W. J. Merilees – 4, A. L. Meugens – 2, B. Michener - 3, D. Mickie – 1, W. Milford – 1, Mike Miller – 1, Rhonda Millikin, John, Vi & Dave Lambie – 2, Jack Milsted – 1, C. Minshull – 5, C. Minshull & E. Momeyer – 1, E. & J. Momeyer – 1, Guy L. Monty – 103, Elaine Moore & Emilee

Fanjoy - 37, A. Morgan - 2, Norma Motron - 1, Norma & Keith Morton - 1, Alexander Muir - 8, Nancy Muirhead - 1, Emily Müller - 21, Heidi Müller - 1, Nerida Müller - 1, David A. Munro - 26, James A. Munro - 191, O. J. Murie - 4, and M. Murphy - 3.

N C. E. Neilson - 1, Fran Newson - 2, Wendy Nixon - 2, Edward L. Nygren - 1, Mark Nyhof - 386, Mark Nyhof & Bob Houston - 1, Mark Nyhof & Andrew C. Stewart - 2, and Elsie Nykyfork - 130.

O Brent Olson - 1, and W. H. Osgood - 2.

P Calvor Palmateer - 2, Mary Pastrick - 4, C. A. Patch - 1, Jim Patterson - 9, W. A. B. Paul - 3, Theed Pearse - 15, David Pedley - 1, Lynn Pedley - 1, Les Peterson - 1, Brian J. Petrar - 1, Alec Phillips - 2, Mark Phinney - 10, Stan Phippen - 4, D. Power - 1, G. Allen Poynter - 4, Michael I. Preston - 18, Michael I. Preston & S. Clare - 2, Michael I. Preston & Shannon Guterson - 1, and Roy Prior - 1.

R Kenneth Racey - 2, Marilyn Rack - 1, William S. Rae - 1, A. L. Rand - 1, Tom E. Reimchen - 4, Sheila Reynolds - 1, Diane Richardson - 17, Anna Roberts - 25, Leila G. Roberts - 6, Wilma F. Robinson - 1, I. Laurie Rockwell - 8, Michael S. Rodway - 54, Robin Rohrmoser - 26, Manfred Roschitz - 30, D. A. Ross - 1, Betty Rote - 1, Royal Ontario Museum - 1, S. M. Ruer & P. Dance - 1, and Glen R. Ryder - 390.

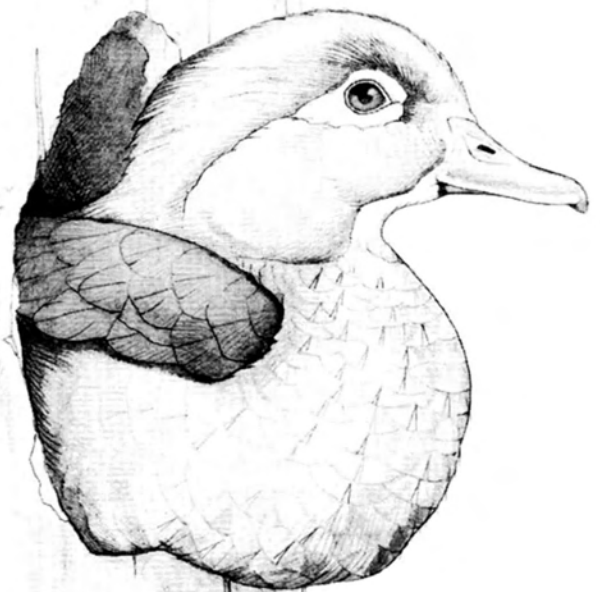
S Lil & Stan Saari - 1, P. Sandiford - 1, Karl Sars - 5, Ron & Joy Satterfield - 49, L. Schmidt - 1, Gregg Scott - 1, L. Scott - 2, Barbara M. Sedgwick - 25, Richard Sewell - 1, Darryl Sheilds - 1, T. E. Shepard - 7, Frank M. Shillaker - 2, Chris Siddle - 8, Chris Siddle & Gary S. Davidson - 4, E. Silkens - 1, Fred Simpson - 5, George P. Sirk - 4, Vi Skapski - 2, C. & L. Smith - 1, Ian D. Smith - 2, Ida Smith - 1, Daphne Solecki - 2, Sheila South - 2, Gail Spittler - 15, William Spreadborough - 1, Tine Stace-Smith - 2, Pam Stacey - 1, Ken Stanlake - 1, Andrew C. Stewart - 134, David Stirling - 5, Jim & Hazel Street - 1, Anita Stroetman - 1, Frank & Annie Strong - 1, Ken R. Summers - 7, Bill Swan - 27, H. S. Swarth - 3, and R. D. Symons - 1.

T Jeremy B. Tatum - 1, P. A. Taverner - 3, Gwen Taylor - 1, Howard A. Telosky - 8, Diana Thompson - 1, Donna Thornton - 2, Donna Thornton, John, Vi, & Dave Lambie - 1, T. Todd - 1, Calvin Tolkamp - 1, Harvey Tomlinson - 2, John Toochin - 1, Rick Toochin & P. Sullivan - 1, R. Tremblay - 8, L. Trodden & L. Campbell - 3, and Jim Tuck - 1.

V Linda Van Damme - 1,158, D. van den Berg - 3, Jost Vanderline - 1, Harry van Oort - 3, and Frances Vyse - 1.

W Carson Wade - 1, Jean Waite - 1, R.M. Ware - 1, Syd & Emily Watts - 1, Wayne C. Weber - 8, Rita Wege - 44, Rita Wege & Robin Rohrmoser - 20, Jean Wellburn - 1, Pat Wells - 26, Rick West - 1, Y. Whebell - 1, Ed G. White - 1, S. D. Whitman - 2, Bruce Whittington - 5, Jack E. Williams - 1, Marie Williams - 1, Murray Williams - 2, P. Ray Williams - 7, Ronald Williams - 1, Douglas J. Wilson - 110, J. W. Winson - 1, Jim Wisnia - 1, Phil & Trudy Wood - 1, John G. Woods - 1, Dan Workman - 3, Peter Wright & Christy Butt - 1, and Mark Winja - 1.

Total contributors - 471



Female Wood Duck leaving nest cavity.

Use of the B. C. Nest Record Scheme and Data Bases in 1998

Requests For Information

The demand for information from our provincial data bases grew in 1998. Nearly 2,600 people, including government personnel, ornithologists, naturalists, consultants, birders, industry biologists, the general public, television and radio stations, and newspaper and magazine writers requested information on the province's birds. We were able to respond to about 1,200 of these requests.

The following list is a partial summary of names, affiliation or residence, and species for which information was sent.

A **Brian Adams** (Surrey - bird feeding), **Don Ainsworth** (Vancouver - Caspian Tern), **Sandy Allbright** (Creston - Black-chinned Hummingbird), **Nancy Allen** (Hope - Spotted Owl), **Robert Allison** (Fort St. John - Common Raven), **Morgan Anderson** (Nelson - bird feeding in B.C.), **Terry Anderson** (Victoria - birds of Cuthbert Holmes Park), and **Bill Armstrong** (Clinton - Great Gray Owl).

B **Steve Baillie** (Nanaimo Field Naturalists - American Bittern and Yellow-throated Warbler), **Brian Baker** (Chetwynd - American White Pelican), **Richard Barnett** (Victoria - Western Screech-Owl), **Geoff Bate** (Saanichton - Bird-finding in B.C.), **Robert Bates** (Fort St. John - Snowy Owl), **Barbara Begg** (North Saanich - birds of Victoria airport, Black-vented Shearwater, Rustic Bunting, Wood Sandpiper, Kittlitz's Murrelet, Brambling, Baikal Teal, Common Eider, Eye-browed Thrush, Red-throated Pipit, and Bar-tailed Godwit), **William Bennett** (Surrey - Canada Goose), **Faye and Owen Benwell** (Victoria - Great Blue Heron), **Joan Blackmore** (Prince George - Brown Creeper), **Dale Biel** (Aldergrove - Red-tailed Hawk), **George Blanshard** (Campbell River - Snowy Owl), **Dr. Anthony H. Bledsoe** (University of Pittsburgh, PA - Common Yellowthroat), **Lynne Bonner** (Ministry Environment, Lands and Parks, Victoria - birds of Jedediah Island), **Jack Bowling** (Prince George Naturalists - Blue Rock Thrush), **Bob Bradley** (B.C. Hydro - bird species matrix for B.C.), **Mel Brick** (Courtenay - Barn Owl), **Grant Broadland** (Salem, OR - Green-winged Teal), **Elizabeth J. Brooks** (Black Creek - Barrow's Goldeneye nesting on Vancouver Island), **Murray Brown** (Langley - all B.C. species), **Susan Brown** (Peachland - bluebird nest boxes), and **A. Burgerjon** (Sunshine Coast - Peace River birds).

C **Monica Camilletti** (Falkland - Common Loon), **Eileen Campbell** (Gordon Head Elementary School - Barn Owl and Snowy Owl), **R. Wayne Campbell** (B C Ministry of Environment, Lands and Parks - all species for Birds of B.C. 4), **Muriel Carlson** (Saskatoon, SK - Siberian Accentor), **Harry Carter** (Victoria - Xantus's Murrelet), **William**

Chapman (Nanaimo - Tufted Puffin), **Myke Chutter** (B.C. Ministry of Environment, Lands and Parks, Victoria - bird species names and order, Bobolink, Brewer's Sparrow, Ferruginous Hawk, Long-billed Curlew, Herring Gull, Northern Goshawk, Prairie Falcon, Sage Thrasher, Swainson's Hawk, Turkey Vulture, White-headed Woodpecker, Williamson's Sapsucker, and Yellow-breasted Chat), **Peter Clement** (Cambridgeshire, England - all thrushes for B.C.), **June Cochrane** (Moberly Lake - Osprey), **James Cook** (Revelstoke - all wetland species for B.C.), **Jim Cooper** (Prince Rupert - Peregrine Falcon), **John M. Cooper** (Sirius Environmental Consultants, Sidney - select species for Birds of B.C. 4 and Lewis's Woodpecker), **Darren Copley** (Victoria - Purple Martin and House Wren), **Diane Cowden** (Victoria - common bird songs and nest boxes), **Jean Cumming** (Vancouver - bird feeding), and **Chris Czajkowski** (Nimpo Lake - Broad-tailed Hummingbird).

D **Gary S. Davidson** (Arrow Lakes Naturalist Club - all species for West Kootenay, Chestnut-sided Warbler), **John Davis** (Penticton - Gray Catbird), **Lyndis Davis** (Victoria - Harris's Sparrow), **Neil K. Dawe** (Canadian Wildlife Service - Barn Swallow, birds of Port Hardy, list totals for B.C. species, and select species for Birds of B.C. 4), **Bev Day** (Owl Rehabilitation Centre, Delta - raptors), **Bruce Dickinson** (Williams Lake - American White Pelican), **Ed Donaldson** (Burnaby - bird feeding), **Adrian Dorst** (Tofino - Canada Goose subspecies), **Kas Dumroese** (Moscow, ID - Black Swift), **Pat Dunn** (San Diego, CA - Rustic Bunting), and **Kay Dunnigan** (Smithers - Northern Hawk Owl).

E **Wendy Eastman** (Canadian Wildlife Service, Delta, BC - all terrestrial birds for the Georgia Basin), **William Elliott** (Penticton - Peregrine Falcon), **George Elliott** (Fort Nelson - Solitary Sandpiper), **Peter Ellis** (Prince George - Gray-crowned Rosy Finch), **Joan Evans** (Smithers - Snowy Owl), and **Norman Evans** (Courtenay - birds of Mitlenatch Island).

F **Martin Farrell** (Comox - Barred Owl and Short-eared Owl), **Cam Finlay** (Victoria - Rufous Hummingbird), **Nancy J. Flood** (University College of the Cariboo, Kamloops - Baltimore Oriole), **J. Bristol Foster** (Salt Spring Island - birds in Creston), **Lee Foster** (Vanderhoof - Dusky and Least flycatcher and

Black-and-White Warbler), **Gabriella Forsek** (Bella Coola - Anna's Hummingbird), **Lee Foster** (Vanderhoof - warblers), **David F. Fraser** (B.C. Ministry of Environment, Lands and Parks, Victoria - California Gull, Caspian Tern, and American Avocet), **Kathleen Freemark** (Canadian Wildlife Service, Ottawa - birds in B.C. with restricted ranges), and **Maureen Funk** (Victoria - Orange-crowned Warbler, birds of Richter Pass).

G Bob and Monica Galbraith (Vernon - American Avocet, dowitchers, and Wilson's Phalarope), **Jim Ginns** (Penticton - White-headed woodpecker), **John Godard** (Toronto, ON - list B.C. birds, Double-crested Cormorant, Caspian Tern, and Rose-breasted Grosbeak), **Margaret E. Goodwill** (Victoria - Indigo Bunting), **Max Gotz** (Whistler - all birds for Whistler-Pemberton and Tatsenshini River area), **Gregory Geoscience Ltd.** (Ottawa, ON - all B.C. bird species), and **Dr. Erick Greene** (University of Montana, Missoula, MT - Brown-headed Cowbird).

H D. Ray Halladay (Thurber Environmental Consultants, Victoria - B.C. waterfowl), **Wayne Harding** (Surrey - Crested Myna), **Ken and Marian Hargrove** (Victoria - Brambling), **Bill Harper** (Osiris Wildlife Consulting, Victoria - B.C. bird species at risk and Burrowing Owl), **Bill Harpur** (Rock Creek - Black Tern), **Laurie Harpur** (Victoria - birds and copper mines), **Robert Harris** (Smithers - Hooded Merganser), **Carol Hartwick** (University of Victoria - Pileated Woodpecker), **Todd Hatfield** (Westland Resource Group, Victoria - Christmas Bird Count trends and indicator species), **Robert Hayward** (Cache Creek - Sage Thrasher), **Lex Hedley** (Vancouver - upland birds, Ruffed Grouse, and Bewick's Wren), **Dr. Charles Helm** (Tumbler Ridge - Connecticut Warbler), **Mike Howard** (Langley - Blue Jay), **Rick Howie** (B.C. Ministry of Environment, Lands and Parks - Western Grebe, Fox Sparrow winter records for the interior, breeding birds of Stump Lake, and Western Meadowlark), **Dr. Jocelyn Hudon** (Provincial Museum of Alberta, Edmonton - Western Tanager), **Mark Hume** (Vancouver Sun - seabird colonies in Georgia Strait), and **Peter Hunt** (Colby-Sawyer College, NH - Yellow-rumped Warbler).

I Douglas Innes (Courtenay - Northern Goshawk prey and Barn Owl).

J Margaret Jamieson (Victoria - Cooper's Hawk), **Garth Johnson** (Woodlands Services, Nanaimo - Mallard), **Randy Johnson** (Vancouver - Black-throated Sparrow), **Dr. Scott Johnson** (Towson University, Maryland - House Wren), **Anne Jones** (Castlegar - albinism in American Crow), and **Jeff Joy** (B.C. Forest Service - American Dipper).

K Gary W. Kaiser (Canadian Wildlife Service - select species for Birds of B.C. 4), **Ken Kennedy** (David Stoddart Junior-Secondary School, Clinton - waterfowl and bluebirds), **Jeremy V. Kimm** (Shawnigan Lake - bird food preferences, Band-tailed Pigeon, White-winged Dove, Mourning Dove, and Red-breasted Nuthatch), and **John Kirby** (Kamloops - Brown-headed Cowbird).

L Marilyn Lambert (Victoria - Glaucous-winged Gull), **Ann Leck** (Osoyoos - Red-tailed Hawk), **Charlene Lee** (Nanaimo - American Bittern), **Enid Lemon** (Victoria - nest boxes, Least and Black tern), **Shelagh Levy** (Gordon Head Elementary School - Violet-green Swallow), **Bob Lincoln** (B.C. Ministry of Environment, Lands and Parks - all breeding species for Swan Lake), and **Fred Lochmatter** (Courtenay - Barn Owl).

M Chris MacKay (Surrey - Barn Owl), **Larry MacDonald** (Surrey - Green Heron), **John Maher** (B.C. Hydro, Nanaimo - American Kestrel and woodpeckers), **Bill Martin** (Quesnel - Calliope and Rufous hummingbird), **Dr. Kathy Martin** (University of B.C. - White-tailed Ptarmigan and all alpine species for B.C.), **John Marshall** (Surrey - Bald Eagle), **Rosemary Matthews** (Metchosin - songbirds), **Ian McCallister** (Bella Bella - Ovenbird), **Dwight McCulloch** (Canadian Wildlife Service, Delta - all B.C. bird species), **Marion McDonough** (Nelson - Lewis's Woodpecker), **Beverly McIntyre** (Ucluelet - Black-footed Albatross), **Ronald T. McLaughlin** (MacMillan Bloedel Limited - Great Blue Heron, Ancient Murrelet, Cassin's Auklet, Marbled Murrelet, Rhinoceros Auklet, Northern Goshawk, Sandhill Crane, Turkey Vulture, and Clark's Nutcracker), **Michael McNall** (Royal B C Museum - specimen records of B.C. birds, Lapland Longspur and Smith's Longspur for Birds of B.C. 4), **Ian McTaggart-Cowan** (Victoria - select species for Birds of B.C. 4), **Cathy Merriman** (World Wildlife Fund, Toronto - Western Screech-Owl), **Stephen Morrison** (Fort Nelson - Baltimore Oriole), **Emily Muller** (Germansen's Landing - Bufflehead and Northern Flicker), **Wayne Munro** (Surrey - Red-tailed Hawk), and **James Muter** (Kitsilano Secondary School, Vancouver - Spotted Owl).

N Bryan Nelson (Nanaimo - Mallard), **William Negate** (Miami, FL - Cattle Egret), **George Newport** (Prince Rupert - Black-footed Albatross and Sooty Shearwater), **Lorraine Newson** (Vancouver - Prairie Falcon), **Dr. Christopher J. Norment** (SUNY College at Brockport, NY - Golden-crowned Sparrow), and **Mark Nyhof** (Victoria - Golden Eagle, Barred Owl and Common Poorwill).

O **Coleen O'Brien** (Victoria - Orange-crowned Warbler), **Richard Outback** (Toronto, ON - Common Loon), and **Joan Outerbridge** (Victoria - Hooded Merganser).

P **Joe Pacsay** (Nicholson - Steller's Jay, Common Grackle, Pine Siskin, and American Goldfinch), **J A Pelter** (Sidney - Barred Owl), **George Petersen** (Portland, OR - Red-tailed Hawk), **Ann Peterson** (Chilliwack - Great Blue Heron), **Brian Phillips** (Delta - Snow Goose), **Ronald Phillips** (Vancouver - Black-headed Grosbeak), **Mark Phinney** (Industrial Forestry Services, Prince George - bird species names and sequence for B.C.), **Sylvia Pincott** (Abbotsford - Fulvous Whistling-Duck, Red-tailed Hawk, and Siberian Accentor), **Dr. Jay Pitocchelli** (Saint Anselm College, New Hampshire - MacGillivray's Warbler), **Alan Poole** (Academy of Natural Sciences, PA - Varied Thrush), **William Porter** (Kamloops - American Coot), **Douglas Powell** (Revelstoke - American Bittern, Tundra and Trumpeter Swans and Northern Harrier), **G. Allen Poynter** (Parksville - Little Gull/Black Tern), **Michael Preston** (Calgary - Bald Eagle, Western Tanager, Chestnut-sided Warbler, birds of East Kootenay), and **Becky Prince** (Gordon Head Elementary School - Chipping Sparrow).

Q **James Quayle** (B. C. Ministry Environment, Lands and Parks, Victoria - bird surveys).

R **Nina Raginsky** (Salt Spring Island - Great Blue Heron, seabirds, and Black-and-white Warbler), **Dr. Tom Reimchen** (University of Victoria - echolocation in birds, brown bear), **Steven E. Reinert** (Kingston, RI - Swamp Sparrow); **Sheila Reynolds** (Calgary - Common Raven), **George Richardson** (Phoenix, AZ - Painted Bunting), **Mel Roberts** (Royston - Great Blue Heron), **George Robertson** (Los Angeles, CA - Crested Myna), **Ian Robertson** (Robertson Environmental Services, Langley - literature B.C. birds, Western Screech-Owl, and Hutton's Vireo), **I. Laurie Rockwell** (Summerland - Steller's Jay), **Michael S. Rodway** (Simon Fraser University - Common Murre), and **Glen R. Ryder** (Langley - Gray Tattler and Northern Saw-whet Owl).

S **Howard Savage** (Prince Rupert - Black-footed Albatross), **Laurie Savard** (Victoria - Sage Sparrow), **Lynne Sayers** (Toronto, ON - B. C. bird literature), **Rick Scharf** (B.C. Ministry of Forests - Northwestern Salamander), **Val Schmidt** (Prince Rupert - Brambling), **Pat Senft** (Abbotsford - Siberian Accentor), **Susan Sherman** (Victoria - Chestnut-backed Chickadee), **William C. Shuster** (U.S. Department of Agriculture, Forest Service, Seward, AK - American Dipper), **Chris Siddle** (Vernon - Baltimore Oriole, Hoary Redpoll, Nelson's Sharp-tailed Sparrow), **George Sirk** (Cortes Island -

Northern Mockingbird), **Bill Small** (Spokane, WA - Brewer's Sparrow), **Marilyn Smith** (Penticton - Northern Mockingbird), **William Smith** (Kamloops - Aleutian Tern), **R. Sollis** (Victoria - Bewick's Wren), **Michael Spencer** (Montreal - Barred Owl), **Prue Spitman** (Surrey - Anna's Hummingbird), **John Sprague** (Salt Spring Island - Cooper's Hawk), **Dr. Paul Springer** (Arcata, CA - Canada Goose), **Gordon Staines** (Vancouver - Barn Owl), **Liz Stanlake** (B.C. Ministry of Environment, Lands and Parks - Species at Risk and the Forest Practices Code), **Andrew C. Stewart** (B.C. Ministry of Environment, Lands and Parks - White-throated and Golden-crowned Sparrow, Lapland Longspur, Rusty Blackbird, House Finch, Evening Grosbeak, and House Sparrow), **Anne Stewart** (Kamloops - Northern Harrier), **Bob Stewart** (Victoria - Pine Siskin), **Katherine Stewart** (Williams Lake - Prairie Falcon), **Kari Stewart-Smith** (University of Oregon - bird species for East Kootenay), **David Stirling** (Victoria - Bushtit and Gray-crowned Rosy-Finch), **Lillian Stirling** (Burnaby - Sage Thrasher), **Bonnie Stout** (Simon Fraser University - grebes), **Frank and Annie Strong** (Cumberland - Barn Owl), **George Stuart** (Sumas - Barn Owl), and **Ken Summers** (Aldergrove - Tufted Puffin).

T **Garnet Thomas** (Ithaca, NY - Hooded Oriole), **Harvey Thomassen** (Bella Coola - Golden-crowned Sparrow), and **A.M. Turner and Associates** (Ottawa, ON - all B.C. bird species).

U **A. Underhill** (Victoria - nest boxes).

V **Linda M. Van Damme** (Nelson - Baird's Sandpiper, Barn Owl, Long-eared Owl, Bobolink, Brambling, and Harris's Sparrow), and **Dan Van Leeuwen** (Abbotsford - Red-tailed Hawk).

W **George Wallace** (Port Alberni - Peregrine Falcon), **Nicole Wallace** (Victoria - Barnacle Goose), **Ken Walton** (Toronto, ON - rare B. C. birds, Long-billed and Short-billed dowitcher), **Robert Watson** (Clearbrook - Red-tailed Hawk), **Rita Wege** (Nelson - all birds Wasa Park), **Brian Wheeler** (Longmont, CO - Northern Goshawk, Sharp-shinned Hawk, Broad-winged Hawk, and Merlin), **Bill Williams** (Metchosin - Northern Saw-whet Owl), **John Williams** (Prince George - Pileated Woodpecker), **Peter Williams** (Vancouver - Canada Goose), **Dr. Linda Wires** (University of Minnesota - Caspian Tern), **Jim Wisnia** (Garibaldi Highlands - Bald Eagle, Great Blue Heron, American Wigeon), **Glen Wright** (Langley - White-headed Woodpecker), and **Ken Wright** (West Vancouver - Northern Flicker).

Recent Publications and Reports

Information from our data bases were used in the following scientific papers, books, reports, newspaper articles, and theses in 1998.

- American Ornithologists' Union. 1998. *Check-List of North American Birds: The Species of Birds of North America from the Arctic through Panama, including the West Indies and Hawaiian Islands (Seventh Edition)*. American Ornithologists' Union, Washington, D.C. 829 pages.
- Austin, Jane E., Christine M. Custer, and Alan D. Afton. 1998. *Lesser Scaup (Aythya affinis)*. In *The Birds of North America*, No. 338 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 32 pages.
- Baltz, M.E. and S.C. Latta. 1998. *Cape May Warbler (Dendroica tigrina)*. In *The Birds of North America*, No. 332 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 20 pages.
- Begg, Barbara. 1998. *Sky Lark: Our Most Welcomed Introduced Species*. *Birders Journal* 7(5):242-249.
- Bunnell, Fred L., Laurie L. Kremsater, and Mark Boyland. 1998. *An Ecological Rationale for Changing Forest Management on MacMillan Bloedel's Forest Tenure*. University of British Columbia Centre for Applied Conservation Biology, Vancouver. 281 pages.
- Campbell, R. Wayne. 1998. *The Birder's Complete Life Checklist of British Columbia Birds*. WBT Wild Bird Trust of British Columbia Special Publication No. 1, West Vancouver. Leaflet.
- Campbell, R. Wayne. 1998. *Four Trip Field List for Birds of British Columbia (Including Mainland and Offshore Waters)*. WBT Wild Bird Trust of British Columbia Special Publication No. 2, West Vancouver. 22 pages.
- Campbell, R., Wayne. 1998. *Portrait - the Wood Duck and the Ring-necked Pheasant*. *Marshnotes* (Spring 1998): 6-7.
- Campbell, R. Wayne. 1998. *Portrait - Lesser Snow Goose*. *Marshnotes* (Fall 1998):8-9.
- Campbell, R. Wayne, Maureen L. Funk, and Lyndis Davis. 1998. *British Columbia Nest Records Scheme 43rd Annual Report - 1997 Nesting Season*. WBT Wild Bird Trust of British Columbia Wildlife Report No. 3, West Vancouver. 22 pages.
- Clowater, James S. 1998. *Distribution and Foraging Behaviour of Wintering Western Grebes*. M.Sc. Thesis, Simon Fraser University, Burnaby. 76 pages.
- Connelly, J.W., M.W. Gratson, and K.P. Reese. 1998. *Sharp-tailed Grouse (Tympanuchus phasianellus)*. In *The Birds of North America*, No. 354 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 20 pages.
- Cooper, John M. 1998. *An Inventory Report on the Status of Diurnal Raptors at Risk in the Southern Grasslands of British Columbia (Ferruginous Hawk, Swainson's Hawk, Prairie Falcon, Peregrine Falcon)*. British Columbia Ministry of Environment, Lands and Parks Wildlife Working Report No. WR-92, Victoria. 13 pages.
- Cooper, John M., Chris Siddle, and Gary Davidson. 1998. *Status of the Lewis' Woodpecker (Melanerpes lewis) in British Columbia*. British Columbia Ministry of Environment, Lands and Parks Wildlife Working Report No. WQR-91, Victoria. 23 pages.
- Davidson, Gary S. 1998. *Checklist of West Kootenay Birds*. Issued by the author, Nakusp, B.C. Leaflet.
- Duncan, J.R. and P.A. Duncan. 1998. *Northern Hawk Owl (Surnia ulula)*. In *The Birds of North America*, No. 356 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Elphick, C.S. and T.L. Tibbitts. 1998. *Greater Yellowlegs (Tringa melanoleuca)*. In *The Birds of North America*, No. 355 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 24 pages.
- Gaston, Tony. 1998. *The Ancient Murrelet - After Bad News, Some Hopeful Signs*. *B C Naturalist* 36(4):5.
- Good, T.P. 1998. *Great Black-backed Gull (Larus marinus)*. In *The Birds of North America*, No. 330 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 32 pages.
- Greene, E., W. Davidson, and V.R. Muehter. 1998. *Steller's Jay (Cyanocitta stelleri)*. In *The Birds of North America*, No. 343 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 20 pages.
- Guzy, M.J. and P.E. Lowther. 1997. *Black-throated Gray Warbler (Dendroica nigrescens)*. In *The Birds of North America*, No. 319 (A. Poole and F. Gill, editors). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

- Hannon, S.J., P.K. Eason, and K. Martin. 1998. *Willow Ptarmigan (Lagopus lagopus)*. In *The Birds of North America*, No. 369 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Hohman, W.L. and R.T. Eberhardt. 1998. *Ring-necked Duck (Aythya collaris)*. In *The Birds of North America*, No. 329 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 32 pages.
- Holmes, R.T. and F.A. Pitelka. 1998. *Pectoral Sandpiper (Calidris melanotos)*. In *The Birds of North America*, No. 348 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 24 pages.
- Houston, C. Stuart, Dwight G. Smith, and Christoph Rohner. 1998. *Great Horned Owl (Bubo virginianus)*. In *The Birds of North America*, No. 372 (A. Poole and F. Gills, editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Hunt, P.D. and David J. Flaspohler. 1998. *Yellow-rumped Warbler (Dendroica coronata)*. In *The Birds of North America*, No. 376 (A. Poole and F. Gill, Editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Innes, Doug. 1997. *A Swan for British Columbia*. B C Naturalist 35:5-6.
- Innes, Doug and Marian. 1998. *To Know the Barn Owl Tyto alba*. B C Naturalist 36(3):5-6.
- James, Ross D. 1998. Update Status on Caspian Tern *Sterna caspia*, *Sterne caspienne* in Canada. Committee on the Status of Endangered Wildlife in Canada, Toronto, Ontario. 12 pages.
- Kirk, David A. and Michael J. Mossman. 1998. *Turkey Vulture (Cathartes aura)*. In *The Birds of North America*, No. 339 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 32 pages.
- Klima, Joanna and Joseph R. Jehl. 1998. *Stilt Sandpiper (Calidris himantopus)*. In *The Birds of North America*, No. 341 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 20 pages.
- Norment, C.J., P. Hendricks, and R. Santonocito. 1998. *Golden-crowned Sparrow (Zonotrichia atricapilla)*. In *The Birds of North America*, No. 352 (A. Poole and F. Gill, editors). The Birds of North America, Inc., PA. 20 pages.
- Phinney, Mark. 1998. *Spring & Summer Birds of Dawson Creek (1991-1995)*. WBT Wild Bird Trust of British Columbia Wildlife Report No. 4, West Vancouver, B.C. 60 pages.
- Pincott, Sylvia. 1998. *Rare Siberian Bird Lost its Way*. Abbotsford Times, May 8, 1998. Page 12.
- Pincott, Sylvia. 1998. *Roads Take Their Toll on Not-So-Wise Owls*. Abbotsford Times, May 22, 1998. Page 17.
- Pincott, Sylvia. 1998. *It Keeps Happening - Trees Chopped to Make Way for Wider Road*. Abbotsford Times, August 21, 1998. Page 16.
- Preston, Michael I. 1998. *New Nest Site for Bonaparte's Gull in Alberta*. Alberta Naturalist 28:5.
- Preston, Michael I. 1998. *Noteworthy bird records from Bow Valley Provincial Park, Alberta - part II*. Pica 18:30-35.
- Preston, Michael I. 1998. *The Birds of Bow Valley Provincial Park Ecology and Status*. The Calgary Field Naturalists' Society, Calgary, Alberta. 67 pages.
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- Reed, Eric T. 1997. *Migration patterns and philopatry of the Black Brant (Branta bernicula nigricans) in the Strait of Georgia, British Columbia*. Canadian Wildlife Service Technical Report Series Number 294, Delta, British Columbia. 78 pages.
- Regosin, Jonathan V. 1998. *Scissor-tailed Flycatcher (Tyrannus forficatus)*. In *The Birds of North America*, No. 342 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 20 pages.
- Rimmer, C.C. and K.P. McFarland. 1998. *Tennessee Warbler (Vermivora peregrina)*. In *The Birds of North America*, No. 350 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 24 pages.
- Rohwer, S. and C. Wood. 1998. *Three Hybrid Zones between Hermit and Townsend's Warblers in Washington and Oregon*. Auk 115:284-310.
- Savard, Jean-Pierre L., Daniel Bordage, and Austin Reed. 1998. *Surf Scoter (Melanitta perspicillata)*. In *The Birds of North America*, No. 363 (A. Poole and F. Gill, Editors). The Birds of North America Inc., Philadelphia, PA. 28 pages.
- Schukman, John M. and Blair O. Wolf. 1998. *Say's Phoebe (Sayornis saya)*. In *The Birds of North America*, No. 374 (A. Poole and F. Gill, editors). The Birds of North America Inc., Philadelphia, PA. 20 pages.
- Steenhof, K. 1998. *Prairie Falcon (Falco mexicanus)*. In *The Birds of North America*, No. 346 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Stirling, David. 1998. *Bushtits in the Bamboo*. Victoria Naturalist 54.5:22.
- Stouffer, P.C. and R.T. Chesser. 1998. *Tropical Kingbird (Tyrannus melancholicus)*. In *The Birds of North America*, No. 358 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia. 20 pages.

- Taylor, Keith. 1998. *The Birder's Guide to British Columbia - A Walking Guide to Bird Watching Sites*. Steller Press Ltd, Vancouver, B. C. 264 pages.
- Tomback, D.F. 1998. *Clark's Nutcracker (Nucifraga columbiana)*. In *The Birds of North America*, No. 331 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 24 pages.
- Toochin, Rick. 1998. *A Black-vented Shearwater: First Record for the Strait of Georgia*. *Discovery* 27:64-67.
- Van Damme, Linda M. 1998. *The Status of the Black-throated Sparrow in British Columbia*. *B C Naturalist* 36:5; 36:7.
- Van Damme, Linda M. 1998. *A Winter Roost Site for Birds in the Creston Valley, British Columbia*. *B C Naturalist* 36:18.
- Verbeek, Nicolaas A.M. 1998. *The status of spring and summer birds on Mitlenatch Island, British Columbia, 1981-1995*. *Western Birds* 29:157-168.
- Wallace, Elizabeth A.H. and George E. Wallace. 1998. *Brandt's Cormorant (Phalacrocorax penicillatus)*. In *The Birds of North America*, No. 362 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, PA. 28 pages.
- Wheelwright, N.T. and J.D. Rising. 1993. *Savannah Sparrow (Passerculus sandwichensis)*. In *The Birds of North America*, No. 45 (A. Poole and F. Gill, editors). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

RARE AND SENSITIVE SPECIES

Twenty-six requests for site specific information for nesting species were received. These included Clark's Grebe, Fork-tailed Storm-Petrel, Turkey Vulture, Sandhill Crane, Northern Goshawk, Broad-winged Hawk, Peregrine Falcon (interior), Prairie Falcon, Caspian Tern, Forster's Tern, Marbled Murrelet, Northern Hawk Owl, Boreal Owl, Long-eared Owl, Black-chinned Hummingbird, White-headed Woodpecker, Sky Lark, Yellow-breasted Chat, Smith's Longspur, and Gray-crowned Rosy Finch. Individuals included bird watchers (life lists), consultants, photographers, newspaper columnists, magazine writers, television crews, and collectors.

To maintain our trust and confidence with private landowners, conservation organizations, professional biologists, concerned naturalists, and BCNRS participants, all such requests are kept confidential. However, a person making a serious study of a rare species may, with approval, be allowed access to the relevant information.

FIELD TECHNIQUES

Nest Snooper

To minimize human disturbance when checking nests difficult to reach and maximize data collection, some nest-finders have cleverly developed a "Nest Snooper." Experienced naturalist Linda Van Damme, who is not shy about climbing trees, uses a "snooper" to examine an Eastern Kingbird nest (below) that could not be checked otherwise. Her "snooper" was built out of two telescoping plastic tubes that reach 15 feet and has a large car mirror attached to the end. It collapses into a length of 5 feet so it is easily transported in a car.



Linda Van Damme checking contents of Eastern Kingbird nest.

Nest Cavity Light

I have got to know; are there eggs or young in that cavity? This situation frustrated artist Mark Nyhof for years until he decided to build his own "Nest-Viewer-Inner". For less than \$20 he made a small, all-in-one, battery-powered structure that allowed him to determine the contents in nest cavities. The principal was simple. A beam of light was reflected off a small

circular mirror towards the bottom of the nest. A flexible neck allowed him to adjust the light depending on the size and shape of the cavity. Also, by having the structure as a single unit he could hang off a limb with one arm and examine the nest with the other! Needless-to-say, some of the most thorough information for woodpeckers and other cavity-nesting species has been supplied by Mark.



Mark Nyhof examining Northern Flicker nest.

For more information about the nest cavity light, contact Mark Nyhof at 4080 Monarch Pl. Victoria, B.C. V8N 4B8 or Fax (250)-477-0261.

Egg Shells

On July 15, Diana Maloff located a Green Heron nest on Vancouver Island which was too high to check for contents but she found egg shells and a dead chick under the nest. She cleverly put the egg pieces together to determine that there must be three remaining chicks in the nest. On her next visit, on July 23, she found a live chick under the nest and put it in the nest tree. Ten days later she watched this young being fed by the parents near where it had been placed. On July 27 she wrote "Cheers! 3 nearly fully grown chicks seen moving about in evergreen tree close to nest." Diana's on-the-spot jigsaw puzzle technique determined a clutch size of 4 eggs with a 75% fledging success!

Human Scent

Of concern to all nest-finders is the possibility of attracting mammalian predators to ground-nesting birds from scent left after our visit. Long time nest-recorder Glen Ryder has a solution - a long stick! When he discovered a Short-eared Owl nest on the ground with young he was curious to "how many babies" and "what were they eating". Glen used a 7' stick to part the grasses and ferns and discover 3 fluffy white nestlings, a bunch of vole carcasses, and the decapitated body of a short-tailed weasel! All young fledged successfully.



Parting grasses to count nestling Short-eared Owls. (Sketch by Glen R. Ryder)

FROM THE SCIENTIFIC LITERATURE

Each year many important articles appear in scientific journals and reports that are of help in our nest-finding and recording activities. Some also help us better understand the complex lives of birds and how humans may influence them.

Counting Great Blue Heron Nests

Counting colonially nesting Great Blue Herons with a measure of accuracy is often difficult. Precise information on colony sizes, trends, and population status is important to record over time. Biologists Mark Dodd and Thomas Murphy tested 8 techniques in South Carolina including *point count*, *perimeter count*, *40% sampling with 4-m-wide transects*, *20% sampling with 2- and 4-wide transects*, *aerial estimate*, *aerial count*, *aerial photographic count*, and *post-nesting ground count*. Their results showed that a combination of aerial counts of small (<50 nests) colonies and ground counts of other colonies were most accurate and useful in detecting changes in nesting between years.

Journal of Wildlife Management 1995, 59(4):667-673.

Counting Nestling Bald Eagles From The Ground

Because Bald Eagles are classified as threatened in many parts of their range in North America, ground-based surveys have been carried out to monitor nest success. Annual counts of nestlings, however, may have underestimated numbers. In Minnesota, Mark Fuller et al. recommended that ground-based observations for up to 1 hour/nest would achieve more accurate counts of young. The minimum observation time required per nest was 30 minutes.

Wildlife Society Bulletin 1995, 23(2):169-174.

Bald Eagle Nest Failures

Knowing rates and causes of nesting failures provides valuable information on the health of raptor populations. In Oregon, Robert Anthony and his co-workers climbed 89 nests to assess the cause of nesting failure where adult Bald Eagles were seen in incubating posture but failed to produce young. Probable causes of nesting failure was attributed to pesticides (32%), proximity to nearest-neighbour breeding pairs (11%), infertile eggs (7%), nestling mortality (3%), human disturbance (2%), changes in members of a pair (1%), and unknown causes (21%). In many instances there was no evidence that an egg had been laid although the pair had performed courtship behaviour. Climbing nests to band young and capture adults in 1 year did not affect occupancy of nesting areas or productivity the following year.

Wildlife Society Bulletin 1994, 22:576-582.

Savannah Sparrows Use Gulls As Scarecrows

On Kent Island, New Brunswick, Herring Gulls and American Crows prey on nesting Savannah Sparrows. As predators, the gulls are abundant but relatively ineffective while crows are scarce but highly effective. Birds often locate their nests near predators despite what seems to be a substantial risk to themselves or to their offspring. Nathaniel Wheelwright and his colleagues found that despite being surrounded by predators, the eggs and offspring of sparrows that nested among gulls survived as well during the incubation and post-fledging periods as did those that did not nest among gulls. In defending their own nests from predatory crows, gulls apparently shielded nearby sparrows from the more dangerous predator.

Animal Behavior 1997, 53:197-208.

Effect of White-tailed Deer On Breeding Songbirds

Declines in populations of migratory songbirds have been associated with forest fragmentation and silvicultural practices that alter forest structure. One cause for concern is an increasing deer population that affects the abundance of herbaceous and woody vegetation. In Pennsylvania, David deCalesta noted that varying deer density had no effect on ground- or upper canopy-nesting songbirds or their habitat, but species richness of intermediate canopy-nesting songbirds declined 27% and abundance declined 37% between lowest and highest deer densities. Species most affected included Eastern Wood Pewee, Indigo Bunting, Least Flycatcher, Yellow-billed Cuckoo, and Cerulean Warbler.

Journal of Wildlife Management 1994, 58(4):711-718.

Brown-headed Cowbird Parasitism And Endangered Species

Real and artificial Brown-headed Cowbird eggs were added by biologists Catherine Ortega et al. to nests of Red-winged Blackbirds in Colorado to determine the effect of egg addition on subsequent nest parasitism. Their results showed that Brown-headed Cowbirds avoided parasitizing nests to which real or artificial cowbird eggs were added. Blackbird clutch sizes or hatching success was not affected. They suggest that for endangered host species, the addition of artificial or real cowbird eggs could be used as a management tool.

Journal of Wildlife Management 1994, 58(3):488-492.

European Starlings vs Lewis's Woodpeckers

Since Lewis's Woodpecker populations are declining across their range in North America it has been suggested that competition with European Starlings for nest-cavities may be the cause. In a study completed in Colorado, K. T. Vierling found that only 1 of 59 Lewis's Woodpecker nests studied were lost to European Starlings and in over 90% of all interactions between the two species Lewis's Woodpeckers were dominant. The decline of Lewis's Woodpeckers is due to other factors.

Journal for Field Ornithology 1998, 69(3):376-379.

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 young waterfowl developed by J. B. Gollop and W. H. Marshall in their 1954 publication *A Guide for Aging 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 begin 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 all of 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 F. C. Bellrose's *Ducks, Geese and Swans of North America*, should be used as the reference.



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



Class I B, young down-covered,
but color fading;
8-13 days of age



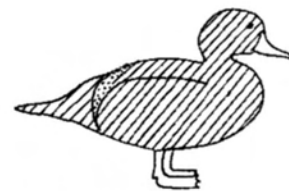
Class I C, young down-covered, but color faded,
body elongated;
14-18 days of age



Class II A, first feathers appear,
replacing down on sides and tail;
19-27 days of age



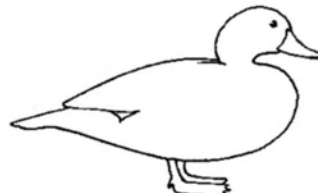
Class II B, over half of body covered with feathers;
28-36 days of age



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



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



Adult Dabbling Duck

REQUESTING AND SUBMITTING CARDS

The British Columbia Nest Record Scheme Instruction Manual and new nest cards can be obtained from:

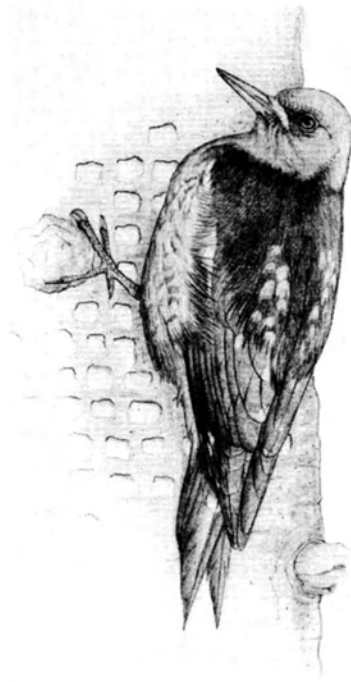
B. C. NEST RECORD SCHEME
P. O. Box 6218, Station C
Victoria, B. C. V8P 5L5
Tel\Fax (250) 477-0465

Please return completed cards by October 1 so the annual report can be compiled, published and distributed in February the following year. In 1998, Hilary Gordon started submitting cards in batches as the nesting season progressed. By August we had a good start in compiling our report.

Also, **PLEASE** use a dark ball-point pen or dark ink (not pencil) and write clearly. For species acting as hosts for Brown-headed Cowbird eggs or young please fill out a separate card for the BHCO and cross-reference it to its host. For young or recently fledged BHCO young be sure to indicate if the young was in the nest.



Female Anna's Hummingbird feeding young.



Red-breasted Sapsucker at sap wells.

ACKNOWLEDGEMENTS

We are grateful to the following people and supporters:

- Jim McCammon determined grids for hundreds of cards and prepared a draft map to show provincial coverage in 1998.
- Andrew C. Stewart and his daughter Laura Stewart generated the final computer map showing provincial coverage in 1998.
- Jason Kimm compiled historical records.
- Marian Becevel and Jeremy Kimm maintained sequence and order in filing new cards into our growing data base.
- WBT Wild Bird Trust of British Columbia, the Federation of British Columbia Naturalists, and MacMillan Bloedel Limited provided support for compiling and producing this report.
- all artwork was graciously provided by Mark Nyhof and all photographs were taken by R. Wayne Campbell.

NOTES

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WBT Wild Bird Trust of British Columbia

Special Publications

1. **The Birder's Complete Life Checklist of British Columbia Birds**
R. Wayne Campbell. Leaflet. April 1998.
\$2.50
2. **Four Trip Field List for British Columbia Birds
(Including Mainland and Offshore Waters).**
R. Wayne Campbell. 22 pages. October 1998.
Out of Print.

Wildlife Reports

1. **British Columbia Nest Record Scheme Instruction Manual.**
R. Wayne Campbell. 46 pages. April 1997.
[No charge to participants in *Birds in the New Millennium* projects]
\$5.00
2. **British Columbia Birds: A Species List - 1997 (Common
and Scientific Names, Sequence, and 4-Letter Codes).**
R. Wayne Campbell. 22 pages. January 1998.
[No charge to participants in *Birds in the New Millennium* projects]
\$5.00
3. **British Columbia Nest Records Scheme: 43rd Annual Report ~ 1997 Nesting
Season.**
R. Wayne Campbell, Maureen L. Funk and Lyndis Davis.
22 pages. March 1998.
[No charge to participants in *Birds in the New Millennium* projects]
\$5.00
4. **Spring and Summer Birds of Dawson Creek, 1991-1995**
Mark Phinney. 60 pages. December 1998.
\$7.00
5. **British Columbia Nest Records Scheme: 44th Annual Report ~ 1998 Nesting
Season.**
R. Wayne Campbell, Maureen L. Funk, Lyndis Davis and Jeremy V. Kimm. 24 pages.
February 1999.
[No charge to participants in *Birds in the New Millennium* projects]
\$5.00

WBT Special Publications and Wildlife Reports provide quick, up-to-date, and peer-reviewed information on British Columbia's wildlife for use by professionals, naturalists, and the general public. Publications are available from WBT Wild Bird Trust of B. C., 124 - 1489 Marine Drive, West Vancouver, B. C. V7T 1B8. (Tel/Fax 604-924-2581). Prices, which include postage and handling, help offset publication

WBT Wild Bird Trust of British Columbia

WHO WE ARE!

WBT Wild Bird Trust of British Columbia, established in 1993, is a provincial, charitable, non-profit organisation concerned with the conservation of wild birds and their habitats. It undertakes research and education activities to increase our knowledge of British Columbia birds and to establish a scientific basis for conservation.

It has active programs to acquire, protect, and enhance wildlife habitats. It provides results of field research to professional and general audiences through a variety of scientific and popular publications. WBT also participates in developing and carrying out educational programs in co-operation with government agencies, students, conservation and sporting groups, industry, and naturalists.

WHAT WE ARE DOING!

Wildlife Habitats

- **Maplewood Flats** (North Vancouver) - established a Wildlife Conservation Area to protect the largest remaining wetland on Burrard Inlet. As stewards, we have enhanced habitat for the largest colony of **PURPLE MARTINS** on mainland B. C. and restored an important wetland.

- **McFadden Creek** (Salt Spring Island) - acquired and secured the largest **GREAT BLUE HERON** nesting colony in coastal British Columbia.

Research Activities

- Developed a visionary project **BRITISH COLUMBIA BIRDS IN THE NEW MILLENNIUM** in which conflicts between humans and birds will be presented in a series of innovative and popular field guides, reference books on vulnerable and persecuted species, and regional books to address conservation and management concerns.

- Established a **SPECIAL PUBLICATION** and **WILDLIFE REPORT** series for distribution of current information on the fast-moving world of birds.

- Developed a protocol for a provincial **WBT BIRD STUDIES CENTRE** which will house electronic wildlife data bases, such as the B. C. Nest Record Scheme. This is the largest ornithological reference library in the province and is based on original field notes, diaries, field survey data, banding information, and a collection of colour and black-and-white photographs. It will provide research space for visiting professional and amateur ornithologists.

Education Programs

- Steering **NATURESCAPE BRITISH COLUMBIA**, a program promoting caring of wildlife habitat at home.

- Operating the **GREENING OF SCHOOL GROUNDS**, a program to enhance school yards for wildlife.

- Operating **WILDLIFE WATCH** which alerts and informs the public about the best wildlife viewing places in the Lower Mainland.

This is only the beginning! With your help we can protect many areas throughout the province and be an informed and effective **VOICE FOR BIRDS IN BRITISH COLUMBIA**. A large membership is the key to making this happen. Please **Join Us** and **GIVE WILDLIFE A CHANCE!**