



## **An Updated Account of the Yellow-billed Cuckoo in British Columbia, 1881–2013: Status and Distribution, First Breeding, Habitat, and Conservation**

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The shadowy haunts and secretive habits of Yellow-billed Cuckoo (*Coccyzus americanus*; Figure 1) are attributes that make it a challenge to see, but the birds' loud call, a stuttering *ka-ka-ka-ka-ka-kow-kow-kow* always announces its presence. British Columbia is at the northern limit of the western population of Yellow-billed Cuckoo. Here it frequents riparian deciduous woodlands with dense understory shrubs. During the late 1800s and early 1900s, the species was a regular but rare and local summer visitant to waterways in the lower Fraser River valley on the extreme southwest mainland coast of the province. The species was also present, but in much smaller numbers, on extreme southern Vancouver Island. Breeding was suspected in both areas but was never confirmed (Figure 2). There is a questionable breeding record at Kamloops in 1882, the only interior occurrence until 1910.

Although local numbers and distribution change frequently with insect outbreaks, particularly the Western Tent Caterpillar (*Malacosoma californicum pluviale*; Myers 2000), populations of Yellow-billed Cuckoo in western North America have declined catastrophically and the species' range has contracted



**Figure 1.** Yellow-billed Cuckoo was first reported in British Columbia in 1881 and was assumed to be breeding because of its presence in summer. The species was extirpated by 1927, but after an absence of 62 years Yellow-billed Cuckoo was again recorded in the province in 1989 (Campbell et al. 1990b). Over the next 24 years, through 2013, the species was recorded in an additional 16 years, mostly from interior locations. *Photo by Alan D. Wilson*



**Figure 2.** For over 130 years, hundreds of publications mistakenly included southern Vancouver Island, the Canadian Gulf Islands, the Lower Mainland, and most of the southern interior north to the vicinity of Kamloops in the historical breeding range of Yellow-billed Cuckoo in western North America. Original breeding information for the province at that time was published on hearsay and unfounded assumptions without proper documentation. Fortunately, confirmed breeding and new records of occurrence for the southern Cariboo region were uncovered recently in historical field notes, making earlier statements somewhat more accurate. Map from Laymon and Halterman (1989); courtesy United States Fish & Wildlife Service, Sacramento, CA.

in the 20<sup>th</sup> century (Hughes 1999). This has been attributed to loss of suitable riparian nesting habitat through deforestation for agriculture, construction of dams, changing patterns of river flow, lack of stream bank protection, human recreation and urbanization, and the invasion of exotic plants that outcompete native trees and shrubs (Laymon and Halterman 1989).

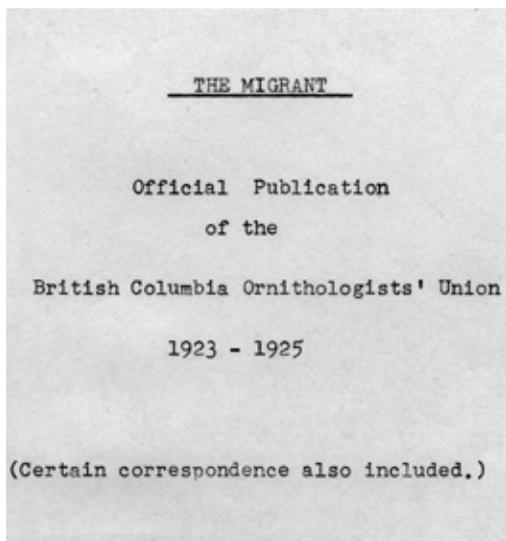
In the northwestern portion of its historic range, the contraction of Yellow-billed Cuckoo's distribution has been severe. Yellow-billed Cuckoo last bred in Washington in the 1930s (Tweit 2005), disappeared in

Oregon by 1945 (Roberson 1980), and in California north of the Sacramento valley in the 1950s (Gaines and Laymon 1984). Historically, the last (and only) confirmed breeding record in British Columbia, and only uncovered recently, was in 1904 (see *Breeding* below).

The drastic decline in populations of the Western Yellow-billed Cuckoo (*C. a. occidentalis*), combined with shrinkage in range, especially in California, prompted the United States government to list this subspecies as federally endangered in 2014 (United States Department of the Interior 2014). In Canada, the Western Yellow-billed Cuckoo is not listed in any of the seven categories used to assess wildlife species at risk (Committee on the Status of Endangered Wildlife in Canada 2011).

Over the past 15 years, the Biodiversity Centre for Wildlife Studies has developed extensive electronic databases for birds solely for the purpose of updating in more detail species accounts published in *The Birds of British Columbia* (Campbell et al. 1990a, 1990b, 1997, 2001). These databases are unique because they include historical information dating back 120 years that were extracted from previously unavailable field diaries (e.g., Delbert B. Ryder), discontinued publications (e.g., *Oologist*, *The Migrant* – Figure 3, *Syesis*), early unpublished government reports, and unpublished co-operative surveys (e.g., North American “Bird Migration Record”). Thirteen species accounts totaling 522 pages have been updated and published in *Wildlife Afield* (see [www.wildlifebc.org](http://www.wildlifebc.org)).

Here, we update the species account of Yellow-billed Cuckoo. This species was selected to update because of its recent official status as endangered in the United States, recently uncovered information on the bird's early occurrence and breeding in British Columbia, and new information since 1927 when the species was considered extirpated in the province (Campbell et. al (1990b). Since that time newly gathered records and information have changed the current status of Yellow-billed Cuckoo in British Columbia.



**Figure 3.** There is only a single complete and bound copy of *The Migrant*, the official publication of The British Columbia Ornithologists' Union (1922-1925). It consisted of a collection of correspondence from its members that was circulated irregularly throughout the year. Hundreds of unpublished bird records, including Yellow-billed Cuckoo, are included in the member's letters. Over the next several years the Biodiversity Centre for Wildlife Studies is publishing, in full, each issue of the three volumes that were distributed (see Campbell 2014).

### TAXONOMIC STATUS

Ridgway (1887) suggested that Yellow-billed Cuckoo in western North America were larger with stouter bills and consequently the American Ornithologists' Union (1957) later recognized two subspecies, Western Yellow-billed Cuckoo (*C. a. occidentalis*) and Eastern Yellow-billed Cuckoo (*C. a. americanus*). Over the following three decades, the subspecies status was questioned. After measuring hundreds of museum specimens, Banks (1988) determined that the species was monotypic because there was no significant geographic variation in bill length and bill depth, and wing length. Errors in his earlier analysis prompted Banks (1990) to revise his results and report that there were statistically

significant differences in all three morphological variables between the eastern and western cuckoos. However, Banks (1990) still concluded that these overall differences were not great enough for the recognition of two subspecies. Later, Franzreb and Laymon (1993) reanalyzed Banks's data along with measurements of additional specimens using discriminant analysis. They concluded that the two subspecies should be retained on the basis of morphometric differences and geographic differences in behaviour and ecology. Using a molecular genetic approach, Pruett et al. (2001) supported subspecies recognition based on differences in mtDNA. By contrast, Fleischer (2001) and Farrell (2006), who also used a molecular genetic approach, concluded that the species is monotypic, that there are no recognizable subspecies. Currently, the subspecies status of Yellow-billed Cuckoos remains equivocal.

### SUBSPECIES IN BRITISH COLUMBIA

Regardless of the uncertain subspecies taxonomy of the Yellow-billed Cuckoo, we identified 20 specimens from British Columbia to subspecies (Table 1) because the behaviour and ecology of the two populations (east and west) are different (Hughes 1999) and information about the origin of individual cuckoos may provide insight into understanding patterns of vagrancy.

Specimens of Yellow-billed Cuckoo borrowed from North American museums (Figure 4) were measured by SGS and TJU and referred to subspecies using the equation developed by Franzreb and Laymon (1993), which was also reported in Pyle (1997): females  $10.5013 + (\text{wing length} \times -0.0195) + (\text{tail length} \times -0.0268) + (\text{bill length} \times -0.1279) + (\text{maxilla depth} \times -0.0836)$ ; males  $8.8315 + (\text{wing length} \times -0.0184) + (\text{tail length} \times -0.006) + (\text{maxilla depth} \times -0.1606) + (\text{maxilla depth} \times -0.2399)$  [Note: the last part of the formula is incorrectly listed as a positive number in Pyle 1997.] For either sex, *C. a. occidentalis* [Western Yellow-billed Cuckoo] should be  $< 0.5$  and *C. a. americanus* [Eastern Yellow-billed Cuckoo] should be  $> 0.5$ .

Of 19 adult (after hatching year) specimens of Yellow-billed Cuckoo examined from British Columbia, 12 were females and seven were males. Of

**Table 1.** Museum specimens of Yellow-billed Cuckoo from British Columbia examined and measured for subspecies identification.

				Measurements (mm)								
Record				Museum <sup>2</sup>			Wing	Tail	Bill	Bill	Pyle	
No. <sup>1</sup>	Year	Date	Location	Specimen No.	Sex <sup>3</sup>	Age <sup>4</sup>	Length	Length	Length	Depth	Index <sup>5</sup>	Subspecies <sup>6</sup>
(4)	1887	Jul 17	Chilliwack	MVZ 101645	f	AHY	153	150	20.8	6.8	0.269	<i>occidentalis</i>
(6)	1888	May 26	Chilliwack	ROM 41439	m	AHY	148	143	20.1	6.0	0.415	<i>occidentalis</i>
(8)	1891	May 28	Chilliwack	MCZ 244703	f	AHY	155	154	19.8	5.9	0.352	<i>occidentalis</i>
(9)	1891	Jun 4	Chilliwack	MCZ 187910	f	AHY	153	152	20.9	6.2	0.253	<i>occidentalis</i>
(10)	1892	Jul 3	Victoria	RBCM 1757	f	AHY	148	150	19.1	6.4	0.617	<i>americanus</i>
(11)	1896	May 30	Sumas	FMNH 6509	f	AHY	154	149	19.8	6.4	0.438	<i>occidentalis</i>
(12)	1896	Jun	Victoria	AMNH 360169	m	AHY	152	145	18.5	6.7	0.586	<i>occidentalis</i>
(13)	1896	Jun	Victoria	FMNH 137663	f	AHY	149	148	20.3	6.3	0.506	<i>americanus</i>
(14)	1896	Jul 3	Victoria	RBCM 1756	m	AHY	150	142	21.0	5.4	0.288	<i>occidentalis</i>
(16)	1903	Jun 16	Victoria	ROM 69268	f	AHY	152	149	20.4	6.4	0.400	<i>occidentalis</i>
(18)	1904	Jun 28	Victoria	RBCM 480	f	AHY	149	153	20.1	6.6	0.373	<i>occidentalis</i>
(21)	1913	Aug 1	near Vancouver	CMN 47844	f	AHY	151	145	20.2	6.0	0.586	<i>americanus</i>
(24)	1921	Aug 29	Sumas Prairie	UBCBM B004905	f	AHY	155	135	22.0	6.7	0.487	<i>occidentalis</i>
(25)	1922	Aug 9	S. Vancouver	UBCBM B004904	m	AHY	148	141	21.7	6.4	0.122	<i>occidentalis</i>
(26)	1923	Aug 5	Sumas Prairie	ROM 81981	f	HY	152	144	16.6	5.9	1.062	<i>americanus</i>
(27)	1926	Jun 10	S. Vancouver	RBCM 6940	m	AHY	147	149	21.2	4.8	0.365	<i>occidentalis</i>
(28)	1927	Jun 4	Pitt Meadows	UBCBM B004903	f	AHY	148	151	19.7	6.8	0.480	<i>occidentalis</i>
(29)	1927	Jun 19	Huntingdon	RBCM 13029	m	AHY	143	142	19.4	5.6	0.697	<i>americanus</i>
(31)	1989	Jul 5	Victoria	RBCM 21620	m	AHY	143	144	- <sup>7</sup>	5.8	unk	unknown
(35)	1994	Jul 27	Kelowna	UBCBM B0015169	f	AHY	150	142	21.6	6.5	0.465	<i>occidentalis</i>

<sup>1</sup>Corresponds to record number in text (below).<sup>2</sup>Museum acronyms, listed alphabetically: AMNH (American Museum of Natural History), CMN (Canadian Museum of Nature), FMNH (Field Museum of Natural History), MCZ (Museum of Comparative Zoology), MVZ (Museum of Vertebrate Zoology), RBCM (Royal British Columbia Museum), ROM (Royal Ontario Museum), and UBCBM (University of British Columbia Beaty Biodiversity Museum).<sup>3</sup>f = female and m = male.<sup>4</sup>Bird-banding codes: AHY = After Hatching Year (hatched before the calendar year of banding); HY = Hatch Year (capable of sustained flight and known to have hatched during calendar year of banding).<sup>5</sup>See Pyle (1997, p. 56).<sup>6</sup>Follows American Ornithologists' Union (1957).<sup>7</sup>Bill damaged in collision with vehicle and could not be measured.

these, 18 museum skins were identified to subspecies. Fourteen (78%) were *C. a. occidentalis* and four (22%) were *C. a. americanus* (Table 1). Adult *C. a. occidentalis* records were evenly spread out from late May to late August and adult *C. a. americanus* records were from June to 1 August. Interestingly, the timing of these adult *C. a. americanus* records does not match a typical timing of postbreeding dispersal, although the single hatch-year *C. a. americanus* was collected later, on 5 August. The breeding distribution of *occidentalis* includes the western United States and formerly southwest British Columbia; the boundary

between the subspecies is considered the Pecos River in Texas (Oberholser 1974). The race *americanus* occupies the remainder of the range in eastern North America, including eastern Mexico (Hughes 1999; see Figure 4). Two of the four adult specimens identified as *americanus* were collected in the vicinity of Victoria on southern Vancouver Island while the remaining two were from the adjacent southwest mainland coast at Vancouver and Huntingdon (Table 1). These are the first occurrences of Eastern Yellow-billed Cuckoo in the province. However, the source population for these presumed vagrant cuckoos remains unknown.



**Figure 4.** Four specimens of Yellow-billed Cuckoo were housed in the research collections at the Beaty Biodiversity Museum at the University of British Columbia. Curatorial staff Ildiko Szabo (left) and Chris Stinson provided specimens for subspecies determination. All were identified as *occidentalis* (Table 1). Photo by Dennis A. Demarchi, Vancouver, BC, May 9, 2013.

## RANGE AND STATUS

### World Range

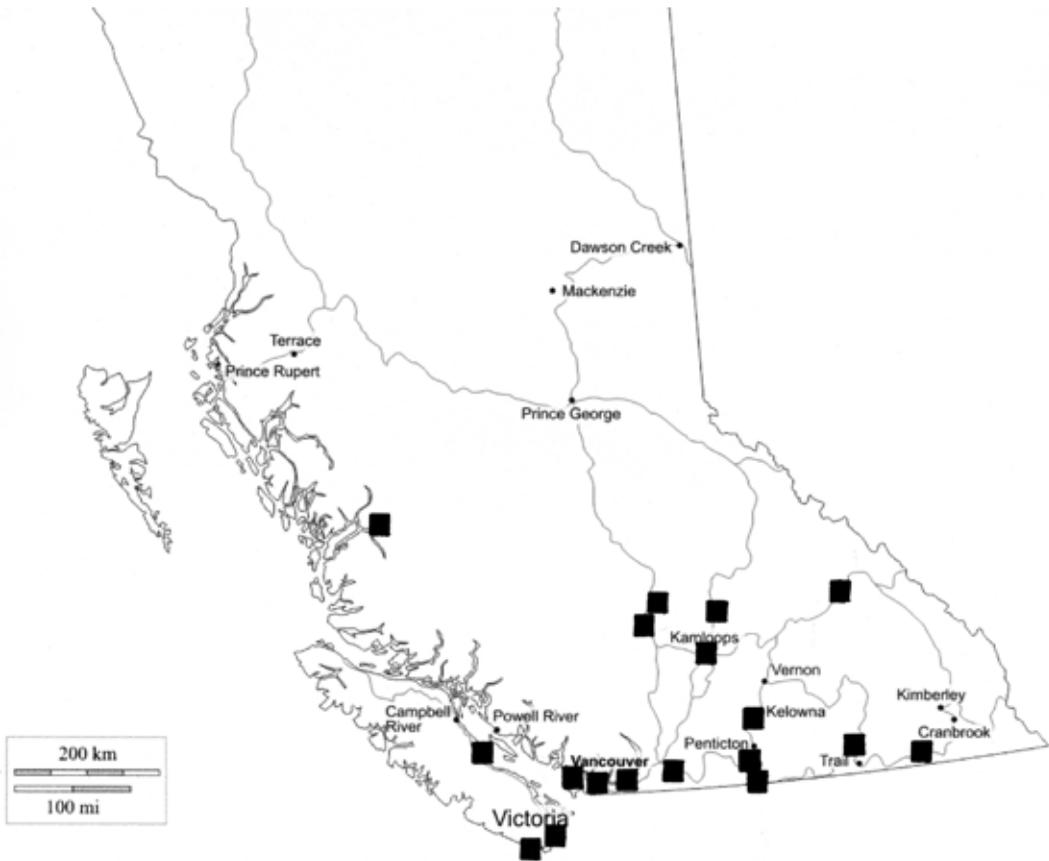
Yellow-billed Cuckoo is one of two New World cuckoos in North America. It currently breeds locally in California and Arizona and New Mexico, and from southeastern Canada (Ontario and Quebec) south throughout the eastern United States to Greater Antilles and Mexico (Figure 5). It winters primarily in South America east of the Andes Mountains (Hughes 1999). In western North America, vagrants have been reported in late summer on the central mainland coast of British Columbia (Bella Coola, 18 August 2001 – this paper), Alaska (18 August 1992 – Tobish and Isleib 1992), and southern Alberta (9 July 1996 – Koes and Taylor 1996).



**Figure 5.** Current breeding distribution of Yellow-billed Cuckoo in North America for Western and Eastern subspecies (from Hughes 1999). Permission to reproduce the map was obtained from *Birds of North America Online* <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology.

### British Columbia Range

Through 2013, Yellow-billed Cuckoo has been recorded on southeastern and southern Vancouver Island (Royston, Victoria, and Jordan River); at least 11 locations in the lower Fraser River valley from Burrard Inlet (Vancouver) east to Chilliwack; and in the southern interior of the province at Green Lake (70 Mile House), Clinton Creek, Three Mile Lake (Clinton), 51 Mile Creek, McClure, Kamloops, Douglas Lake Ranch, Kelowna, Mission Creek, Castlegar (Waldie Island), Vaseux Lake, Osoyoos Lake, Cawston, Duck Lake (Creston), Creston, and Revelstoke (Illecillewaet River). There is one record of a vagrant from Bella Coola on the central mainland coast (Figure 6). In addition, there is a single, recently confirmed breeding record from Mount Lehman, in the lower Fraser River valley, in 1904.



**Figure 6.** Yellow-billed Cuckoo has been recorded in British Columbia on the central mainland coast (Bella Coola), on southeastern and southern Vancouver Island, in the Lower Mainland from Vancouver and Pitt Meadows to Chilliwack, and in the southern interior from Osoyoos Lake east to Creston and north to Revelstoke (Illecillewaet River) and Green Lake in the southern Cariboo.

### Change in Status

During the 19<sup>th</sup> and early 20<sup>th</sup> centuries, western populations of Yellow-billed Cuckoo fluctuated between years but the species was considered an uncommon, albeit local summer visitant (and breeder) from the Fraser River in southwestern British Columbia south through Washington, becoming more abundant through Oregon and California (Bowles 1909, Dawson 1923, Gabrielson and Jewett 1940, Jewett et al. 1953, Hughes 1999). Roberson (1980) incorrectly lists the former breeding range as “S Vancouver I. and SE [southeast] B.C.” Layman and

Halterman (1987) note that breeding was last recorded in British Columbia in the 1920s (listed incorrectly), Washington in the 1930s, Oregon in the 1940s, and California north of the Sacramento valley in the 1950s. Many authors assumed that the presence of birds in summer on the southwest mainland coast of British Columbia represented breeding but neither Munro and Cowan (1947) nor Campbell et al. (1990b) uncovered conclusive documentation of breeding.

The earliest published record for British Columbia was a single bird at Burrard Inlet (Vancouver) in May 1881 (Macoun and Macoun 1909). Over the following

46 years, through 1927, there were an additional 29 records, at least 18 of which were of birds collected and deposited in museums across North America (Campbell et al. 1990b; Table 1). Localities included Alouette River (Pitt Meadows), Blenkinsop Lake, Burrard Inlet (Vancouver), Chilliwack, Clinton Creek, Fifty One Mile Creek, Green Lake (Cariboo), Huntingdon, Kamloops, Little Alouette River (Pitt Meadows), Marpole (South Vancouver), Matsqui Island, Mount Lehman, Mount Tolmie, South Vancouver, Sumas Prairie, Three Mile Creek, Vedder Mountain, Vancouver, and Victoria.

The cuckoo's breeding status in the province was never confirmed although several authors stated that the species bred in Kamloops (Fannin 1891), Vancouver (Cumming 1932), and near Victoria (Fannin 1891). Yellow-billed Cuckoo was not recorded after 1927, until 1989, a 62-year absence.

Since publication of Campbell et al. (1990b), many new well-documented historical records have been uncovered, including confirmed breeding, and many new records from 1989 through 2013 have changed the species' current status in the province.

### **Current Status in British Columbia**

Campbell et al. (1990b) considered Yellow-billed Cuckoo as "Extirpated", stating that it was formerly "an uncommon summer visitant to the lower Fraser River valley and casual on Vancouver Island." This statement was based on the lack of records since 1927 but just before press time a new record from Victoria (1989) was received and added to the account as a "Postscript."

Since then Yellow-billed Cuckoo has been reported infrequently from May to November at various locations across southern British Columbia, from Vancouver Island east to the vicinity of Revelstoke. Currently (2013), the species is considered accidental on the mainland coast north of Vancouver Island, casual on southeastern and southern Vancouver Island, accidental in the Lower Mainland, and casual in summer and very rare in autumn in the southern interior of the province (see Campbell et al. 1990a for terminology). Yellow-billed Cuckoo formerly bred (1904) in the Lower Mainland at Mount Lehman (see pages 201-202 for first confirmed breeding record).

### **TREATMENT OF NEW RECORDS**

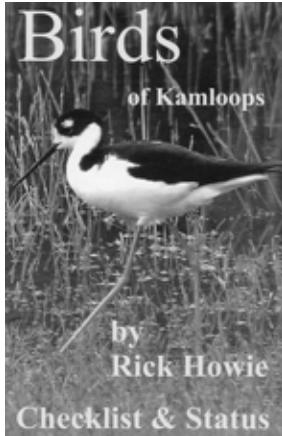
While preparing this updated account for Yellow-billed Cuckoo, RWC discovered that details for some of the published historical information were not accurately supported with documentation and were based on invalid assumptions and conjecture. Since the late 1800s, scores of publications have included British Columbia as the northern limit of the species' breeding range for the western population of Yellow-billed Cuckoo, including the American Ornithologists' Union (1957) and the Federal Register (United States Department of Interior 2014). After extensive searching, there were no indisputable records for the province that included nests containing eggs or young or recently fledged flightless young. Breeding was assumed on the basis of adults being present at a site during the presumed breeding period. For example, John Fannin, in his *Check-list of British Columbia Birds*, published in 1891 (p. 27), stated "...in June, 1887, I saw a pair at Skinner's swamp [local name] near the city of Victoria, and from their actions I concluded they were breeding in that locality." As it turns out, the province's first (and only) adequately documented breeding record was only recently discovered in the field notes of the late Delbert Boyd Ryder who found a nest with small young in Mount Lehman in 1904. Fortunately, all of the previous citations can still correctly refer to British Columbia as a breeding locality, but only for the Lower Mainland.

Fannin (1891) also reported that a pair [Yellow-billed Cuckoo] was found breeding in Kamloops in June 1882 by the late J.C. Hughes, again without documentation. This prompted a telephone call to Rick Howie who had included this June record in the *Birds of Kamloops: Checklist and Status* (Figure 7). Rick's response was enlightening with respect to why some authors had omitted this sighting:

*I suppose one must assume that they [other authors and researchers] pondered the early records from the interior and decided to discount them. They don't discuss and rationalize the decision but merely left the record out. I think it is better to air the decision process in some way so that future readers are not left to assume that the authors who do not use some records actually evaluated them in some way rather*

than ignored them.

When there is room for analysis, I think it is wise and respectful to provide whatever rationalization is possible from whatever details that are available (or not available as the case may be). It shows how the mere statement of what should be a fairly evident scenario, can become weakened over time without details. A good lesson for people taking field notes today.



**Figure 7.** The original intent of local bird checklists was to assist birdwatchers on their trips and encourage them to record their observations. Since many regional checklists are now used as introductory references by biologists and wildlife consultants, all historical and recent records should be carefully scrutinized before publication.

The preceding scenarios illustrate how questionable records can be perpetuated in the literature and the need to carefully evaluate historical information. In a recent issue of *Wildlife Afield*, lengthy excerpts from original field notes for the earliest tree-nesting Marbled Murrelet (*Brachyramphus marmoratus*) in British Columbia were published (see Ryder et al. 2011). In this updated Yellow-billed Cuckoo account, we also present supporting documentation, in the form of specimens, photographs, field notes, and personal communications for all 48 accepted records. For example, biologist Janice Arndt's sketch and detailed field notes for the Yellow-billed Cuckoo she discovered on 18 October 2002 on Waldie Island

near Castlegar are published in this issue (see page 210) in their entirety. There were over 20 different sources of information about this sighting during the bird's 15-day residence, but nowhere was the supporting evidence archived in a central repository, or published in a journal, for future reference.

We have accepted records that were supported by specimens, photographs (see Campbell and Stirling 1971), or convincing field descriptions usually written by experienced observers. There are eight additional sightings of Yellow-billed Cuckoo for British Columbia for which convincing or incomplete documentation is lacking or the records are of individuals "heard only." These have been omitted from this species account. Audios of calls (or songs) should be made and archived in an established repository, such as the one maintained by the Biodiversity Centre for Wildlife Studies (see Campbell and Stirling 1971).

### CHRONOLOGICAL LIST OF NEW RECORDS

The following chronological list of accepted records spans 133 years between 1881 and 2013. Specific details, such as exact location and date, for many of the early records are nebulous and poorly documented and are presented with as much additional detail as could be uncovered. This included examining specimen labels and accompanying field diaries in North American museums as well sifting through original field notebooks of British Columbia collectors and naturalists and unpublished literature. In some cases, this research changed the known and assumed status of Yellow-billed Cuckoo at some locations in the province.

#### 1881

(1) John Fannin, taxidermist and natural historian, was the first curator of the newly formed British Columbia Provincial Museum (now Royal British Columbia Museum; RBCM, Victoria, BC) in 1886. His collection of stuffed birds formed the foundation for the museum's avian collection (Norris 1994). In 1891, he published the province's first annotated *Check-list of British Columbia Birds*, which included the earliest record of "California" [Western] Cuckoo (*C. a. occidentalis*). He stated, "In May [no

date], 1881, I saw one of these birds at Burrard Inlet....” Subsequently, he listed two additional records (1882 and 1887), details of which are given below. Macoun (1903, p. 292) and Macoun and Macoun (1909, p. 320) repeated these records in their *Catalogue of Canadian Birds* and stated the site [Burrard Inlet] was actually on the south shore in the vicinity of “Hastings”, Vancouver.

Only the location was mentioned by Brooks and Swarth (1925), and the record was not listed by Munro and Cowan (1947) because only specimen records were included in their Yellow-billed Cuckoo account. The record was not included by Cumming (1932) in *Birds of the Vancouver District, British Columbia* because the period covered was from 1909 to 1932. Campbell et al. (1990b) included the record, citing Macoun and Macoun (1909), but its original source is Fannin (1891).

The elevation at “Hastings” is six meters and habitat was patches of riparian trees and shrubs.

## 1882

(2) Fannin (1891) stated “in June, 1882, the late J.C. Hughes found a pair breeding at Kamloops.” No further details were listed to substantiate the record but Fannin spent some time in the Kamloops area as a rancher (Norris 1994) and may have been told of the record. Breeding was mentioned again by Macoun and Macoun (1909). Brooks and Swarth (1925, p. 63) stated “Reported by Fannin (1891, p.27) as breeding at Kamloops (the northernmost point of record)...There are no interior records except the statement of Fannin’s quoted above.” In the late 1930s, Ian McTaggart-Cowan, assistant curator of biology at the British Columbia Provincial Museum, could not locate early correspondence to verify the breeding record. Consequently, Munro and Cowan (1947, p. 126) did not accept the interior record, listing Yellow-billed Cuckoo as a “Scarce summer visitant to shrubby thickets of deciduous vegetation in the Puget Sound and Gulf Islands biotic area.” In the mid-1970s, R.W. Campbell did not locate documentation for the interior breeding, which included searching archives in the City of Kamloops Museum & Archives. Subsequently, neither Godfrey (1986) nor Campbell et al. (1990b) accepted the Kamloops breeding record although the latter authors listed it. Howie (2003),

however, included the record in his *Birds of Kamloops: checklist and status* based on the 1882 record reported to Fannin (see *From the Editors*, page 2, this issue). The elevation at Kamloops is 365 m.

The original source of this record should be Fannin (1891), not Macoun and Macoun (1909), as indicated by Campbell et al. (1990b).

## 1887

(3 and 4) Fannin (1891) stated “...in June, 1887, I saw a pair at Skinner’s swamp [local name] near the city of Victoria, and from their actions I concluded they were breeding in that locality; late in the same year one was shot at Mount Tolmie. They [California Cuckoo] may be considered rare summer residents here.” Since breeding was assumed, but not confirmed, Brooks and Swarth (1925), Munro and Cowan (1947), and Campbell et al. (1990b) did not list the species as breeding in the province. Also, there is no record that the cuckoo shot at Mount Tolmie was deposited in the RBCM collections (R.W. Campbell, pers. obs.). The original source of the records is Fannin (1891). Campbell et al. (1990b) overlooked the Mount Tolmie record.

Mount Tolmie, at 112 m elevation, is an open Garry oak (*Quercus garrayana*) ecosystem with scattered arbutus (*Arbutus menziesii*) and extensive patches of introduced Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*), and Daphne laurel (*Daphne laureola*).

(5) An adult female was collected by Allan Brooks (Figure 8) at Chilliwack (el. 14 m) on 17 July and later deposited in the Museum of Vertebrate Zoology (MVZ 101645). Brooks (1917, p. 40) did not specifically list this record in the *Birds of the Chilliwack district, B.C.*, because the “California” Cuckoo was considered a “Tolerably common summer resident of late years. Formerly rare.”

This was the first of 20 Yellow-billed Cuckoos preserved from British Columbia and deposited in North American museums (Table 1). This specimen record was not listed by Fannin (1891) or Munro and Cowan (1947) but Campbell et al. (1990b) included it in their summary of the status of Yellow-billed Cuckoo through 1989. The subspecies was identified as *occidentalis* (Table 1).



**Figure 8.** The province's first irrefutable record of Yellow-billed Cuckoo was a bird collected by Allan Brooks (middle) at Chilliwack on 17 July 1887. It was the first of four specimens of this species he collected in the vicinity of Chilliwack between 1887 and 1891. Circa 1930. Courtesy Greater Vernon Museum & Archives.

#### 1888

(6) An adult male was collected by Allan Brooks at Chilliwack on 26 May. It was deposited in the Royal Ontario Museum (ROM 41439 [original no. 8759], the latter catalogue number of which was listed by Campbell et al. (1990b). However, SGS later examined all ROM specimens from British Columbia (Table 1) and reported the catalogue number as ROM 41439. Munro and Cowan (1947) did not include this record in their tally of eight specimens for the province. The subspecies was identified as *occidentalis* (Table 1).

#### 1889

(7) Between 29 May and 15 June, 1889, Clarke P. Streater collected birds in the vicinity of Mt. Lehman (el. 58 m) "twenty miles east of Westminster Junction, on the south side of the Fraser River. This locality differed little from the former [Westminster Junction], but the timber was less dense" (Chapman 1890, p.136). Streater wrote, "While being transferred across the Fraser River at Mt. Lehman we passed near an island [Matsqui Island] where I heard the unmistakable notes of a Cuckoo. I at once directed the boat to the spot; the bird was seen, and I felt positive it was the above

species." Mr. Fannin, of the Provincial Museum at Victoria, informed me that this species has been taken in British Columbia, and I therefore consider it safe to give this record." Chapman (1890) commented "No specimens received." This record was overlooked by Brooks and Swarth (1925), Munro and Cowan (1947), and Campbell et al. (1990b).

#### 1891

(8) An adult female collected by Allan Brooks at Chilliwack on 28 May was deposited in the Museum of Comparative Zoology (MCZ 244703) (Campbell et al. 1990b). Munro and Cowan (1947) did not list the record. The subspecies was identified as *occidentalis* (Table 1).

(9) An adult female (MCZ 187910), which was collected by Allan Brooks at Chilliwack on 4 June (Campbell et al. 1990b), was originally among a collection of birds assembled by C.F. Batchelder. Munro and Cowan (1947) did not list the record. The subspecies was identified as *occidentalis* (Table 1).

#### 1892

(10) An adult female was collected by J.W. Tolmie in July [date unknown] at Victoria (el. 34 m) and deposited in the Royal British Columbia Museum (RBCM 1757) (Munro and Cowan 1947, Campbell et al. 1990b). The subspecies was identified as *americanus* (Table 1).

#### 1896

(11) An adult female taken on 30 May at Sumas [Prairie] (el. 41 m), which became part of the collection of C.K. Worthen, was eventually deposited in the Chicago Field Museum of Natural History (FMNH 6509) (Campbell et al. 1990b). Munro and Cowan (1947) did not list the record. The subspecies was identified as *occidentalis* (Table 1).

(12) An adult male was collected at Lost [Blenkinsop] Lake in June [date unknown] and deposited in the American Museum of Natural History (AMNH 360169), New York. The collector's name was not on the label, but there is a notation that the specimen became part of the original collection assembled by Jonathan Dwight, Jr. This record was not

listed by Munro and Cowan (1947) or Campbell et al. (1990b). The subspecies was identified as *occidentalis* (Table 1).

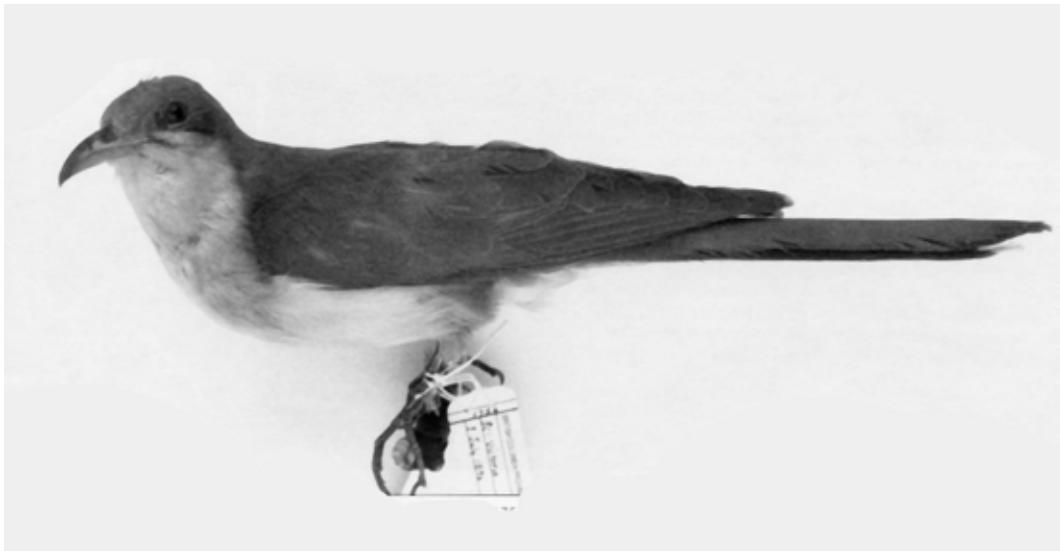
Blenkinsop Lake, located about 7 km north of Victoria, is at 25 m elevation and covers an area of three hectares. The shoreline is dominated by prolific riparian vegetation that includes an overstory of black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), Pacific willow (*Salix lucida* ssp. *lasiandra*), bitter cherry (*Prunus emarginata*), and trembling aspen (*Populus tremuloides*) with a dense understory of red-osier dogwood (*Cornus stolonifera*), hawthorn (*Crataegus* spp.), Indian plum (*Oemleria cerasiformis*), ocean spray (*Holodiscus discolor*), and black twinberry (*Lonicera involucrata*) (Figure 9).

(13) An adult female was collected by F. Foster in June [date unknown] at Victoria, possibly from a pair collected at Lost [Blenkinsop] Lake (see record # 12). This specimen was deposited in the Field Museum of Natural History (FMNH 137663) (Campbell et al. 1990b). Munro and Cowan (1947) did not list the record. The subspecies was identified as *occidentalis* (Table 1).



**Figure 9.** A mixture of riparian trees and shrubs, with different layers of growth and thickness, surrounding Blenkinsop [Lost] Lake in Saanich, BC, proved attractive for a Yellow-billed Cuckoo in 1896. *Photo by R. Wayne Campbell.*

(14) A male (RBCM 1756), taken by J.W. Tolmie at Victoria on 3 July, was deposited in the Royal British Columbia Museum (Munro and Cowan 1947, Campbell et al. 1990b; Figure 10). The subspecies was identified as *occidentalis* (Table 1).



**Figure 10.** This specimen, collected on 3 July 1896 in Victoria, BC, was prepared as a full mount to be used as part of a systematic display of birds in the province by the British Columbia Provincial Museum (RBCM 1756). *Photo by Andrew Niemann.*

## 1903

(15) A single male was seen and heard frequently by Delbert Boyd Ryder (father of the late Glenn R. Ryder: see Campbell and Henderson 2013; Figure 11) in the vicinity of Mount Lehman (el. 84 m) from 6 June to 1 August. It frequented a riparian wooded and shrubby escarpment area along Taylor Road, west of Mount Lehman Road, near the junction of a tributary of Hanna Creek (10U 543684E 5440737N).



**Figure 11.** During the early 20<sup>th</sup> century, Delbert Ryder (right standing) eked a living from farming, transporting supplies along the old Cariboo wagon road, working at a fish hatchery (shown), and many other short-term and diverse jobs that were available. He was an excellent naturalist and maintained a detailed diary for about a decade in the early 1900s.

Some noteworthy excerpts from Delbert's field notes follow:

June 6 – “Yellow-billed Cuckoo (A special bird in these parts of British Columbia): 1 male seen in woods at north side of Taylor Road...feeding in roadside trees. The bird's description as follows – a slim-looking bird with a long tail, olive brownish on top and the underside showing black feathers each tipped in white at the end. It is about the size of a flicker but looks larger. In flight, the wings show a rich rufous cinnamon colour that shows on the underside and upper side. The breast is white from its lower face to under the tail...The bill is yellow except for the very top...dark-looking. Eye is dark except for a yellow

ring of skin. The back is an olive-brown.”

“I watched it for some time moving into the deeper woods but it would come back to the road edge. It is a bird I have not seen before and the book [*Bird Neighbors* published in 1897 with 52 colour illustrations one of which was a Yellow-billed Cuckoo] said it was a bird from California – a wanderer.”

June 13 – “Male is seen in same area feeding... It is not shy and shows itself...no female has yet been seen.”

June 14 – “...I had two other people, my mom [Jean Watt] and dad [James Alexander], see it...”

June 28 – “...the bird calls out from the lower shrubs *kuck-kuck-kuck*...my dad said, “It is a very attractive-looking bird, I wonder if there is one who studies ornithology in these parts...”

July 11 – “...male feeding by itself and today he is silent...”

July 19 – “Male was still feeding here...uttered calls but a soft *kuck-kuck-kuck*...”

July 26 – “I am well west of Hanna Creek...and sure enough the male cuckoo was still in the area.”

August 1 – “male still in the shrubs and other taller trees...feeding and calling.”

This record, only recently discovered in historical field notes in the library of R.W Campbell, was unknown to Brooks and Swarth (1925), Munro and Cowan (1947), and Campbell et al. (1990b).

(16) An adult female was collected by W.E.S. Saunders on 16 June at Victoria (ROM 69268), was reported by Campbell et al. 1990b), but Munro and Cowan (1947) did not list the record. The subspecies was identified as *occidentalis* (Table 1).

## 1904

(17) One or two adult Yellow-billed Cuckoos were seen by D.B. Ryder from 5 June to 4 September in the same general vicinity of Mount Lehman as the male seen in 1903.

Some noteworthy excerpts from his field notes follow:

June 5 – “...I heard this odd calling sound - a clucking sound that started out fast then slowed down until it finally stopped...this is a male bird [Yellow-billed Cuckoo] by himself feeding...”

June 26 – “...I arrive at the site and I hear the calls

again loudly...the bird [cuckoo] flies across Taylor Road and into the old fruit tree calling *kuck-kuck-kuck* then up from the thickets flies another bird. It is the female, we have a pair here (Figure 12).”



**Figure 12.** During the breeding season, Yellow-billed Cuckoo is often heard before it is seen. The species produces at least six vocalizations, some of which, like the “Kowlp” call, can be heard up to 200 m away. During courtship and early nest-building, a “Coo” call is frequently given as in the female depicted in this drawing. *Drawing courtesy of Mark E. Hughes.* Permission to reproduce the artwork was obtained from *Birds of North America Online* <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology.

“I got under the fence and down into the creek [Hanna] gully and slowly walked up stream to the thickets where I heard some other calls – like *kuk-kuk-kuk-kuk-kyow-kyow-kyow*. The female was up in the old fruit tree and the thickets below contained tall grasses, rose bushes, vines, salmonberry shrubs and red elderberry shrubs.”

“I get to a spot that is full of tall rose bushes and then I see a nest in a bent over rose shrub with lots of thorns...It is made of sticks and twigs and other material... The nest is 3 feet above the ground and is active with 4 smallish young showing some feather tracts. Inside the nest has rootlets in the bottom, is flimsy-looking, and well held in place.” The male flies off...I notice the yellow on its lower bill; upper bill looks darkish.”

June 30 – “Two adults about area feeding the fast-growing young...their feather tracts getting larger.”

July 10 – “... I see the nest and three young climbing about the rose shrubs. They look to be well-feathered out...I check the nest to find one young, the smallest bird, dead in the nest...I wondered why it had died. As I was leaving...the female came into the nest area... to feed the three young...then the male bird came to feed the young some more food items.”

July 17 – “...I checked the cuckoo nest; the dead young is missing... I see the female, farther down the creek gully...and find the 3 young alive and well and getting well-feathered out on their wings...they could fly somewhat from tree to tree...”

“I leave the area and hike...to an old-growth woodland... At the base of a Douglas-fir I found the remains of the male Yellow-billed Cuckoo. It looks like the work of the goshawk [Northern]...long tail feathers and other feathers were scattered about the forest floor as well as the two feet and parts of a yellow bill.”

July 24 – “Female with her 2 young all good able fliers now and feeding in the trees...some ways from where they had nested at Hanna Creek.”

September 3 – “Male still in area...feeding in high trees and shrubs.”

September 4 – “No sign of the cuckoo today – I checked every place.”

Brooks and Swarth (1925), Munro and Cowan (1947), and Campbell et al. (1990b) were not aware of this breeding record, which constitutes the only valid nesting record for British Columbia (see *From the Editors*, page 2).

**(18)** An adult female (RBCM 480) was collected by R. Palmer on 28 June at Victoria (Munro and Cowan 1947, Campbell et al. 1990b). The subspecies was identified as *occidentalis* (Table 1).

## 1910

On 12 April, Delbert Ryder and his family moved from Mount Lehman in the Fraser River valley to 59 Mile House on the Cariboo Wagon Road in the southern Cariboo region. He continued to record birds mainly in the vicinity of 59 Mile House and Clinton north to the south end of Green Lake located 9.7 km (6 mi) northeast of 70 Mile House. He was familiar with Yellow-billed Cuckoo, having recorded them near Mount Lehman in 1903 and nesting in 1904. The following notes were transferred by Glenn Ryder, Delbert's son, from his father's notebooks for filing.

(19) June 25 – “One seen in woodlands along the upper Clinton Creek. What this bird looks like is pigeon like with a long tail. Looks about the size of a Canada Jay [Gray Jay] but this bird is sleeker or thinner [sic] looking and it seems to like hanging around the creek edge thickets and bushes. It also flies up into the taller trees to feed on things.”

“When the bird is in flight the first thing one sees is its rich cinnamon to rufous upper and low wings the rufous covers over half of its wings. The underside of its tail shows some six large white tips on black feathers. The breast and belly to under its tail shows a white to whitish in colour. Its bill is yellow below and the upper bill looked darkish to greyish. The birds back is brownish looking plus its top of head. The eyes and area looks darkish with a ring of yellow skin about the eye area. The outer wings from tips show dark, the rest of the wing is rufous in colour.”

“I had the 22 rifle of my fathers and thought about collecting this nice bird so I let it go on living. The bird seemed to hang about this one thick bushy area near to Clinton Creek and when the bird left the bushy area it went up into a taller tree to feed. But it then returned and vanished into the thicket and bushes. They were so thick I did not go into them to check it. It may very well ne nesting here? The Yellow-billed Cuckoo is a new bird for the area.”

Elevation is 762 m. The creek is bordered with thick riparian shrubs.

## 1911

(20) July 20 – “To-day I [Delbert B. Ryder] stopped off out of Clinton, B.C. and watered the horses. I then took a hike into the woods nearby. I was in a

bushy shrubby area near to a wetland creek edge when I noticed a bird I had never seen before [near Clinton]. It was shy somewhat and was about the size [body] of a Canada Jay or Steller's Jay with rich rufous colour under its wings and on top that showed in flight. It was a Yellow-billed Cuckoo, lone bird...I noted other things about this odd bird. Its breast and belly was white all the way under its tail feathers, the tail was long with some 6 white tips on black feathers. Bill is yellow except for very top here it is greyish looking. The back is brownish looking plus top of head. Eye area is darkish looking with yellow ring. Outer wings show blackish then to rufous in colour that stands out very well and bright when bird is in flight. I had my rifle the lever action Henry with me and had thought about shooting this bird and collecting it but it was such a nice bird I left it to live and went about my work delivering freight.”

It is likely that Delbert stopped at Clinton Creek, which crosses just south of the village of Clinton (el. 914 m), one of the roadhouses along the Cariboo Trail at the time.

July 29 – “(1) seen feeding in bushes up high in trees at the Three Mile Creek [same location as above]. I noticed it as it flew from bushes to a tree. The wings on the upper and lower sides show a rich rufous colour. The tail was long with some six large white tips on black feathers. The breast and belly to under its tail showed a white to whitish in colour. Its bill was yellow below and an upper bill looked darkish to greyish. The birds back is brownish looking plus its top of head. The eye area looked darkish with a ring of yellow about it. The outer wings from tips showed dark the rest of the wing was rufous in colour...The bird seemed to hang about this one bushy area near Three Mile Creek. When it left it came right back to these thickets and bushes.”

## 1913

(21) An adult female, collected by Leo Malfet “near Vancouver” on 1 August, was deposited in the National Museum of Canada (now Canadian Museum of Nature [CMNAV 47844; Figure 13] (Campbell et al. 1990b; M. Gosselin, pers. comm.). Although this was the first record for Vancouver, Cumming (1932, p. 9) did not list details. He considered the “California” Cuckoo as a “Scarce summer visitant; nests in this

area.” Munro and Cowan (1947) and Campbell et al. (1990b) did not uncover evidence of breeding and suggested its breeding status was assumed because of the cuckoo’s presence in summer. Munro and Cowan (1947) did not list the record. The subspecies was identified as *americanus* (Table 1).



**Figure 13.** The Canadian Museum of Nature in Ottawa, ON, holds two specimens of Yellow-billed Cuckoo collected in British Columbia. Right: adult female (CMNAV 22473). Adult female (CMNAV 47844). These specimens are two of three collected in the Vancouver area between 1913 and 1927. *Photo by M. Gosselin.*

#### 1914

This is the third year since 1910 that Delbert B. Ryder has recorded a single Yellow-billed Cuckoo in the southern Cariboo region.

**(22) June 21** – “(1) lone bird here near to Green Lake area. Seen it feeding in low shrubbery and other bushes near the water of 83 Mile Creek (el. 1,074 m). The bird would also fly up into taller trees to feed at ends of horizontal branches where it would grab at insects etc. Then it would fly back down to the thick bushes.”

“A description of this odd bird. In flight one sees the rich rufous to cinnamon colours on outer half of

wings that show up on top of wing as well as below the wing. It is bright when the sun hits the wings. Also its long tail and sleek pigeon like although it is no bigger than a Canada Jay in size. The long tail brownish olive on top has some six white tips on underside on black feathers these white tips are large. The bird’s breast and belly to underside of tail show a white to whitish in colour. Its bill is a yellow below and the upper bill looks darkish to greyish. The bird back is brownish looking plus it’s top of head. The eyes or area looked darkish with a ring of yellow skin about it. The outer wings from the tips show a darker brown to a blackish. The rest of the wing was rufous or cinnamon in colour. Legs look grey.”

#### 1915

This is the fourth year since 1910 that Delbert B. Ryder recorded a single Yellow-billed Cuckoo in the southern Cariboo region.

**(23) July 24** – “This odd bird [Yellow-billed Cuckoo] again shows up here. One lone bird seen lying in open area along the side of Fifty One Mile Creek. [This creek flows into Clinton Creek east of the Cariboo Trail] Then I hear its calls a harsh ‘kak, k-kuk, k-kuk, k-kuk’! It is a neat enough looking bird of some 11 or 12 inches in length the tail seems to take up half its length and the body the other half of its length. It is in size closer to that of a Clarke’s Crow [Clark’s Nutcracker] and this cuckoo is often called the Rain Crow. The wing span of this bird is some 19 inches in length. It is closer in length to that of the Canada Jay.”

“Again I give this bird’s description. In flight one sees the rich rufous or cinnamon wing patches on outer half of this bird’s wings. It is bright when one sees it with the sun shining through the open wings. Also its long tail that takes up half of the bird’s length of some 11 to 12 inches and the body takes up the other half of the bird’s size. The long tail is olive brown on top and under Its [sic] tail one sees the six large white tip spots on end of back feathers. The bird’s breast and belly to underside of tail show a white to whitish in colour. It’s [sic] bill is a nice yellow on lower bill part and the upper bill part is a darkish to greyish looking. This bird’s back is an olive brownish and the top of its head also. The eyes or area looked darkish with a

ring of yellow skin about them. The outer wings from feather tips show a dark brown grey legs.”

Elevation at Fifty One Mile Creek is 762 m.

#### 1921

(24) An adult female was collected by Kenneth Racey on 29 August at Vedder Mountain [Sumas Prairie], located about 9 km southwest of Chilliwack. It was deposited in the vertebrate museum on the University of British Columbia (now the University of British Columbia, Beaty Biodiversity Museum, Cowan Tetrapod Collection; UBCBBM B004905 (Munro and Cowan 1947, Campbell et al. 1990b, I. Szabo pers. comm.).

The subspecies was identified as *occidentalis* (Table 1). The base of Vedder Mountain is at 26 m elevation.

#### 1922

(25) Two Yellow-billed Cuckoos were observed by R.A. Cumming in July in Marpole (el. 34 m), located on the southern edge of the city of Vancouver (Kermode 1923, Campbell et al. 1990b). The specific record was not listed by Cumming (1932, p. 9) whose account for “California” Cuckoo stated: “Scarce summer visitant; Nests in area.” Habitat was shrubby thickets and deciduous vegetation.

One of these birds, an adult male, was collected by Kenneth Racey on 9 August at South Vancouver [Marpole] (UBCBBM B004904). (Munro and Cowan 1947, Campbell et al. 1990b, I. Szabo pers. comm.). The subspecies was identified as *occidentalis* (Table 1).

#### 1923

(26) An immature female (ROM 81981) was collected by Kenneth Racey on 5 August at Sumas Prairie (Munro and Cowan 1947, Campbell et al. 1990b). The subspecies was identified as *americanus* (Table 1).

#### 1926

(27) An adult male (RBCM 6940), collected on 10 June in South Vancouver, originally was part of the collection assembled by R.A. Cumming (Munro and Cowan 1947, Campbell et al. 1990b). The subspecies was identified as *occidentalis* (Table 1).

#### 1927

(28) An adult female was collected by Kenneth Racey on 4 June along the Little Alouette River in Pitt Meadows (UBCBBM B004903) (Munro and Cowan 1947, Campbell et al. 1990b, I. Szabo pers. comm.). The subspecies was identified as *occidentalis* (Table 1). The shores of the Alouette River (el. 3 m) are dominated by riparian willow (*Salix* spp.), hawthorn (*Crataegus* spp.), and elderberry (*Sambucus* spp.).

(29) An adult male (RBCM 13029), collected on 19 June at Huntingdon (el. 13 m) in the central Fraser River valley near the international border (Campbell et al. 1990b, M. Gosselin, pers. comm.), was among the specimens assembled by Hamilton M. Laing (Figure 14). The subspecies was identified as *americanus* (Table 1).



**Figure 14.** Hamilton Mack Laing, naturalist and artist, began collecting birds and mammals in 1915. On a trip to Comox in 1922, he decided that this was the place to settle and the following year he made Comox his permanent home. He died in February 1982 at the age of 99. He collected over 10,000 specimens of vertebrates in his lifetime, mostly for the National Museum of Canada [now Canadian Museum of Nature]. *Courtesy of Comox Archives and Museum.*

(30) An adult female “laying” [sic] was collected by Hamilton M. Laing on 19 June at Huntingdon and eventually made its way to the Canadian Museum of Nature (CMNAV 22473) (M. Gosselin, pers. comm.) The record was not listed by Campbell et al. (1990b) nor was it examined for subspecies status (see Table 1). It may have been mated to the male listed above in record #29 (RBCM 13029).

### 1989

(31) A live but emaciated adult male was found on a road after being hit by a car in Victoria on 5 July. It later died and was donated by Richard C. West to the Royal British Columbia Museum (RBCM 21620) (Campbell et al. 1990b). The subspecies status was not determined (Table 1). This was the first documented record for British Columbia in 63 years and the first for Victoria (and Vancouver Island) in 86 years.

Johnson and Tweit (1989, p. 1360) reported: “A malnourished ad. [adult] Yellow-billed Cuckoo

was found road-killed in Victoria, V.I. [Vancouver Island], July 5 (*vide* BB [Barbara Begg], Royal B.C. Museum). There are only 3 previous records for the Victoria area, the last in 1904. The subspecies was not reported.”

### 1990

(32) On the evening of 22 June, Douglas Powell called RWC to report that a Yellow-billed Cuckoo had been heard and seen in the late afternoon in the “Illecillewaet River flats” (Figure 15) by two birdwatchers from Ontario. The husband and wife team [John and Holly Jefferson] were on a birding trip across western Canada. They described the bird as “long and slender, brown above and white below, large white spots on a long tail, mostly yellowish bill, and reddish brown in the wings seen when it flew between tree branches.” It was also heard several times. Both people were familiar with the species in southern Ontario.



**Figure 15.** The Yellow-billed Cuckoo seen on 22 June 1990 frequented a landscape dominated by intermittent water and patches of deciduous woods. *Photo by R. Wayne Campbell, Illecillewaet River flats, BC, 26 April 2005.*

The following day, Doug visited the area and heard the cuckoo but did not see it as the bird was calling from the edge of a stand of mature black cottonwoods across a large wetland. The cuckoo was neither heard nor seen during an hour's search of the vicinity on the morning of 24 June (Douglas Powell pers. comm. to RWC).

Much of the area has intermittent water depending on levels of water released from the Keenleyside dam that creates the Arrows Lake [Upper and Lower] Reservoir. Upland habitats include small pockets of riparian woods (mainly black cottonwood) and shrubs dominated by willows (*Salix* spp.). The location is at 440 m elevation. The approximate UTM co-ordinates are 11U 415733N 5648080E. The record arrived too late to be included in Campbell et al. (1990b).

### 1991

(33) An adult Yellow-billed Cuckoo was located at the northwest corner of Silvermere Lake (el. 10 m) on 14 June by Allister Muir, a naturalist and former bird-bander (pers. comm. to RWC). The site (10U E542819.67 N5447965.93) is located about 8.5 km northwest of Mission in the central Fraser River valley. The lake was man-made in the 1950s when the Stave River delta was partly drained for real estate development. The dominant riparian vegetation, where houses are absent on the lakeshore, is black cottonwood and willow.

Allister noted the following details: "heard a loud, weird call coming from some black cottonwoods – new to me; could not locate source – calling intermittently; after 15 minutes a long, slender, medium-sized bird appeared on a branch at the edge of the woods; it was brown above and white below with large white spots on its tail; the bill was quite long, sloped downward, and mostly yellow; the bird was focused on something at the edge of the swampy lakeshore; it flew down and grabbed something and momentarily returned to its perch with what appeared to be a small frog (later identified as Pacific Treefrog, *Pseudacris regilla*), hitting it on the limb, and then disappearing into the woods; the striking rufous in the wings stood out. It was a Yellow-billed Cuckoo – lifer."

The following morning (15 June), Muir revisited the area. The cuckoo was not seen but it was heard calling farther down the lakeshore, which was

inaccessible.

### 1992

(34) Siddle (1992) reported "A Yellow-billed Cuckoo was described in exquisite detail at Kelowna [el. 349 m] July 8 (DBr [Denise Brownlie], ED [Eileen Dillabough]). This sighting provides the 2nd record for British Columbia since the 1920s. The first observation [in Victoria] was July 5, 1989, at exactly the same time of summer." The sighting was also reported by Davidson (1993).

Denise Brownlie (pers. comm. to Chris Siddle) added the following information:

"The Yellow-billed Cuckoo! It was one of my most exciting birding memories. It was the afternoon of July 8<sup>th</sup>, 1992, when I saw the cuckoo (killer views) at Millbridge Park close to Springfield Road. It was eating caterpillars fairly high up in a large willow tree. I lived nearby, so (no cell phones in those days) I raced home to phone Eileen Dillabough, who also lived nearby. Luckily, she was home, and within ten minutes, we were on the trail of the cuckoo. I had a tape, and our great good luck was that in less than half an hour, the bird responded from a willow tree on the Bennett property, adjoining Millbridge Park. Both Eileen and I had perfect views from the vantage point of a small bridge over Mill Creek. No camera, sadly, and I couldn't record its calls on my small tape recorder."

### 1994

(35) Bowling (1994) wrote: "A freshly killed Yellow-billed Cuckoo was found along the banks of Mission Cr., Kelowna July 27 (FJ [Frank Jaskow]). The bird was sequestered promptly in a local freezer awaiting expert diagnosis of age/sex. Coming upon the heels of July 1992 sighting of this species across the shores of nearby Ok. L. [Okanagan Lake], one wonders if these are stragglers from e. of the Rockies or northward from the small California population." The record was also mentioned by Bain (1994) and Davidson (1995). The elevation is 348 m.

Denise Brownlie (pers. comm. to Chris Siddle) added the following information:

"My birding diary for the year 1994 [July 27<sup>th</sup>] reads that a Yellow-billed Cuckoo was found dead, late in the evening about 50 feet down the footpath

from what was then “The Blue Bridge” across Mission Creek. The gentleman who picked it up was not a birder, but thought this might be something special. He took the corpse to Kelowna’s birding store, which later moved to be part of the large flower shop (Art Knapps) on Springfield Road. I was on holiday, but CONC [Central Okanagan Naturalists’ Club] birders told me that the grapevine worked well, resulting in this special find being sent to a museum.”

The specimen was deposited in the Beaty Biodiversity Museum as a skin and wing with the following information:

**Catalogue number:** UBCBBM B0015169.

**Date:** 27 July 1994.

**Location:** East entrance to Mission Creek Park, Kelowna, British Columbia.

**Collector:** Frank Jaskow. Cuckoo was found dead with lacerations on its back.

**Age:** Adult.

**Sex:** Female (largest ovum 3 mm).

**Weight:** 64 g.

**Measurements:** Total body length (305 mm), wing span (146 mm), and exposed culmen (28 mm).

**Gut contents:** Five Tomato Hornworm caterpillars.

The subspecies was identified as *occidentalis* (Table 1).

### 1995

(36) An immature Yellow-billed Cuckoo was found dead in a garden in McClure (el. 378 m), 48 km north of Kamloops, on 28 October 1995. It was brought to the provincial wildlife branch office in Kamloops and identified by R.R. Howie. It was the fourth record for the southern interior of the province in the past six years (Bain and Holder 1995, Bowling 1995, this paper).

### 1998

(37) A Yellow-billed Cuckoo was spotted by Clara Ritcey in her residential backyard at 2358 Rosewood Avenue in Kamloops (el. 349 m) on 14 September (Bain and Shannon 1998, Shepard 1999).

The bird was feeding on Western Tent Caterpillars in a saskatoon (*Amelanchier alnifolia*). Clara noted the long tail with white spots, mostly yellow bill, and slender brown and white body (R.W. Ritcey, pers. comm.). The bird was not aged or photographed. The record was accepted by Howie (2003).

### 1999

(38) An immature Yellow-billed Cuckoo, the first record for the Creston valley, was observed on 19 October along the east side of the south dyke on the west side of Duck Lake (el. 534 m) by Claude Vanlind and Kača Hegerova who reported it to local naturalist Ed McMackin. The bird was subsequently seen by Ed, Irene and Maury Murphy, Kath Hood, and Jean Saceniecks and on 22 October Maury photographed it (Figure 16). The cuckoo was last seen on 24 October (Bain and Shannon 1999, Shepard 2000).

The cuckoo frequented riparian willows and alders (*Alnus* spp.) bordering the dykes “seemingly interested in the [western] tent caterpillar infestations” (I. Murphy pers. comm.). It was feeding on Western Tent Caterpillars (Ed McMackin pers. comm.; see Figure 32).



**Figure 16.** A Yellow-billed cuckoo located at Duck Lake on 19 October 1999 was the first record for the Creston valley. The bird was photographed on 22 October, just after the sun had set. *Photo by Maury Murphy.* BC Photo 1843.

2001

(39) Cecile (2002, p. 94) reported: "A Yellow-billed Cuckoo was a remarkable find in Bella Coola 18 Aug (CKo [Cathy Koot]) – one of only a handful of modern records for the Region."

Cathy Koot (pers. comm. to RWC) provided additional details:

"The bird was observed adjacent to Clayton Creek [52° 22' 11.17" N, 126° 48' 50.26" W] from the walking trail to Clayton Falls by my husband, Tom Foley, and me. This is just west of Bella Coola Harbour wharf. It had been perched about 3 m above the water in riparian vegetation when we inadvertently flushed it, then flew across to the other side of the creek and landed about 5 m above the water in a birch tree. I had 10 x 40 binoculars but no camera. The bird hopped around in the tree and we had excellent views for about 4.5 minutes. I think it did fly off eventually out of view."

"In flight, the rufous in the wings stood out, as well as the long tail with contrasting black and white below. My husband, a generalist naturalist, immediately noted that he had never seen anything like it before. I knew it right away, having lived and worked in the Carolinian zone of south-western Ontario within the previous decade, where YBCU is native. I recall the contrast between the white spots and the black in between the spots as being vividly contrasted, perhaps indicating more of an adult bird (though I do not recall orbit colour). The bill was prominent (2/3 length of head) and curved and the lower mandible was bright yellow and noticeable even without binoculars. The underside of the bird was pale and the back a uniform brown. I have a sketch and field notes on file (Figure 17)."

"I remember wondering if there was an abundance of caterpillars, such as a forest pest, that may have been present. Perhaps a district entomologist might be able to look that up?"

"I left a phone message with the person whose rack card I'd written the notes on the back of (a nature tours operator) that we'd seen the bird and an elderly man from up the [Bella Coola] Valley [Ron Mayo] did look us up at the campsite and tried to find it the next day. He apparently did not encounter it, though."



**Figure 17.** Photographs, field notes (shown), taped audios, newspaper clippings, publications, correspondence, and other relevant material used to document a noteworthy record are all inserted in the species' envelope archived in the British Columbia photo-file for vertebrate records maintained by the Biodiversity Centre for Wildlife Studies (see Campbell and Stirling 1971). A scan of Cathy Koot's field notes has been catalogued as BC Photo 4124.

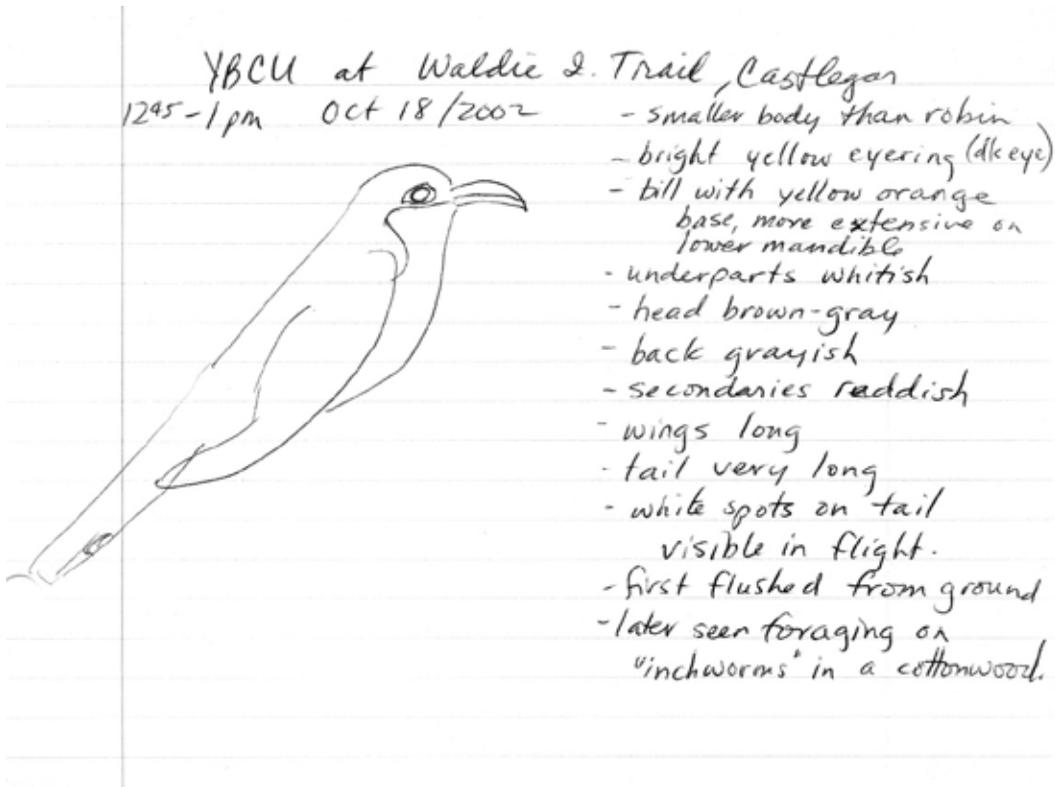
Ron Mayo (pers. comm.) called RWC on 20 August to report that a "lady" had seen a Yellow-billed Cuckoo two days earlier near the local forest recreation site but he did not re-locate the bird after it was first seen. Elevation is 14 m.

2002

(40) An immature Yellow-billed Cuckoo was found by Janice Arndt along the Waldie Island trail, across the Columbia River from Castlegar, on 18 October. Notes from her journal were as follows:

I first glimpsed this bird as it flushed from the dry tangle of vegetation on the ground in front of me and up into the trees. It was in the shadows. My first thought was *solitaire* [Townsend's] because of white spots on the side of the tail but it was more the size and shape of a merlin. Although puzzled, I turned my attention back to the waterfowl (the wood ducks were nice to see). About 10 minutes later the bird flew past and I got a good look in silhouette of its shape. Although "thrasher" also crossed my mind initially, after a second or 2 it said "cuckoo" loud

and clear. I followed its line of flight to a clump of cottonwoods [black] and located the bird in one of them. I had a clear view of its head but its body was obscured and the light was bad. It flew out of sight, but after repositioning myself with the sun behind me, and waiting a few minutes, I once again spotted the bird. After watching me for a moment it resumed foraging, it plucked off 2 or 3 green caterpillars and may have also captured a winged creature or two. It was in full view at the end of the branches (maybe 25 feet up). See field notes for basic description. The bird was silent the entire time I observed it. I made the sketch and notes [Figure 18] as soon as I got back to the car (within 5 minutes), then went into town to call Ed Beynon but he wasn't home. I headed back to Nelson to post the sighting and to be home when the kids got off the bus.



**Figure 18.** Original field sketch with distinguishing features of the Yellow-billed Cuckoo seen on Waldie Island, BC, on 18 October 2002. Sketch and notes by Janice Arndt. BC Photo 4125.

The cuckoo remained in the vicinity until 1 November (J. Arndt, pers. comm.; Cecile 2003). West Kootenay birders Rita Wege, Linda Van Damme, Gary S. Davidson, and Gwen Nicol also saw the bird and on 19 October Larry Prosser photographed it (Figure 19). The bird was aged as immature based on indistinct tail spots and the colouration of the bill (Gary S. Davidson and Janice Arndt, pers. comm.). The cuckoo was observed foraging on “inch worms” in a cottonwood, possibly a defoliating geometrid caterpillar.

Waldie Island trail (el. 433 m), established in 1996, is a 1.5-km walking trail of riparian habitat along the north shore of the Columbia River. Dominant vegetation includes black cottonwood with an understory of red-osier dogwood and waxberry.



**Figure 19.** This Yellow-billed Cuckoo was photographed the day after it was found on Waldie Island. This is the fourth record for the interior of British Columbia. *Photo by Larry Prosser, 19 October 2002. BC Photo 4126b.*

#### 2004

(41) Cecile (2004, p. 587) reported, “A Yellow-billed Cuckoo was found in Jordan River, sw. coast of Vancouver I. [Island] 30 Jun-I Jul (CSa [Chris Saunders], DR [Donna Ross], GLM [Guy L. Monty].)” Jordan River (still officially referred to as River Jordan) is a small settlement (el. 4 m) on southern Vancouver Island located about 70 km (43 mi) west of Victoria.

#### 2005

(42) Cecile (2005, p. 643) reported “Yellow-billed Cuckoos are being seen with increasing frequency in recent years.” A single bird was found at the north end of Osoyoos Lake on 3 July by Jukka Jantunen. The habitat is low elevation riparian with dense shrubs, primarily wild rose (*Rosa* spp.) and red-osier dogwood, willow (*Salix* spp.), saskatoon and black hawthorn (*Crataegus douglasii*). Water-tolerant trees include water birch (*Betula occidentalis*), trembling aspen, and black cottonwood. The elevation is 280 m.

#### 2007

(43) An immature Yellow-billed Cuckoo was spotted by Robert and Jane Mennell in their apple orchard at 1892 Highway 3 in Cawston (el. 402 m) on 17 October (Cecile 2007). Cawston is a small agricultural community located in the southern Similkameen valley about 27 km northwest of Osoyoos.

The cuckoo was seen in adjacent apple and peach orchards, and occasionally private gardens until 20 October. The weather during the period was cool and damp with two of the days rainy and blustery. During the four-day visit, the cuckoo frequently fed on apple pulp that was spread at the base of orchard trees as well as grasshoppers (Robert Mennell pers. comm. to RWC). The cuckoo was seen by many visiting birders and well photographed (Figure 20).

#### 2008

(44) On 25 October, J.J. (Koos) van Sittert was sitting in his living room overlooking the ocean near Gartley Point when he saw a cuckoo flying along the beach. Koos was familiar with Old World cuckoos having grown up in Africa. He found the cuckoo about 100 m down the beach sitting in the lower scrub. Koos returned home to get his wife, Susan, and a camera. Fortunately, the cuckoo was still there. It flew up into a chestnut tree (*Castanea* spp.) where it was photographed (Figure 21). They watched the bird – looking quite tired – for about 15 minutes from a distance of about 10 m.

Field notes recorded included: “yellow bill (mostly lower mandible, upper bill slightly yellow) was obvious; faint yellow eye ring could be seen; rufous wings (primaries) well seen and were hanging down – bird looked tired but healthy; chest and belly



**Figure 20.** The immature Yellow-billed Cuckoo at Cawston was the ninth confirmed record for the interior of British Columbia since 1989. *Photo by Len Jellicoe, 20 October 2007. BC Photo 3585.*



**Figure 21.** The Yellow-billed Cuckoo found by J.J. Koos van Sittert and Susan van Sittert at Gartley Point near Royston on 25 October 2008 is the northernmost record for Vancouver Island. *Photo by J.J. (Koos) van Sittert. BC Photo 4045.*

were white; and white-tipped feather patches were noticed on the underside of the long tail.” The bird was identified as a Yellow-billed Cuckoo by Koos. The age and sex were not determined (Figure 22).

Gartley Point [Gartley beach] is located about 1 km east of Royston on the central east side of Vancouver Island (10U E360475 N5502240). The elevation is near sea level. Chestnut trees of different ages dominated the vegetation.

#### 2009

(45) On 8 July, while returning from Minnie Lake on the Douglas Lake Ranch along the Pennask Lake Road south of Quilchena, fisherman and bird watcher Dave Anderson noticed a slender, long-tailed brown and white bird fly across a small roadside slough. He immediately recognized it as a cuckoo and stopped to identify it as a Yellow-billed Cuckoo. The bird’s rufous wings, white spots on the tail, and mostly yellow bill were diagnostic.





**Figure 24.** Twelve years after a Yellow-billed Cuckoo was first seen in the Creston valley, and nearly to the day, Gary Breault documented the area's second record (see Van Damme 2012). The cuckoo visited his yard for another three-day stay. *Photo by Gary Breault, Creston, BC, 20 October 2010. BC Photo 4127a.*



**Figure 25.** During its visit from 20 to 22 October, the Yellow-billed Cuckoo was usually seen foraging on the lawn in a rural residential region of Creston, BC. *Photo by Gary Breault, 22 October 2008. BC Photo 4127b.*

lawn. Water flows year-round on both sides of the property.

During its three-day visit, the cuckoo allowed approach to within a few feet of its favourite perch for photographs (see Campbell et al. 2013). On 24 October, the weather changed to heavy fog and rain with temperatures ranging between 5° C and 9° C, and the cuckoo was gone. The record was listed by Charlesworth (2011) and Van Damme (2012).

## 2011

(47) On 30 May, Robert Cameron, a visiting birder from California, thought he heard a cuckoo calling from deep within mixed woods on the southwest corner of Rithet's Bog Conservation Area in the District of Saanich. The 42-ha wetland is located on the Saanich Peninsula on southern Vancouver

Island about 6.5 km north of Victoria. The following morning (31 May) Bob returned to the area to search for the bird and found a dead Yellow-billed Cuckoo at the side of Chatterton Way (Figure 26). He presumed it had recently been hit by a car (pers. comm. to RWC). This is the earliest date for Vancouver Island. On the Lower Mainland, earliest arrival dates are 26 May (Chilliwack in 1887) and 30 May (Sumas in 1896). Rithet's Bog (el. 60 m) is characterized by open lodgepole pine woods with riparian black cottonwoods, tall willows, and adjacent extensive beds of hardhack (*Spiraea douglasii*) shrubs.



**Figure 26.** This Yellow-billed Cuckoo probably collided with a vehicle travelling along Chatterton Way near Rithet's Bog Conservation Area in Saanich on 31 May 2011. *Photo by Robert Cameron. BC Photo 4128.*

## 2013

(48) On 16 October, between 0940 hrs and 0950 hrs, Chris and Sonja Siddle spotted a Yellow-billed Cuckoo at Vaseux Lake in the Okanagan Valley. The bird "Flew across tall grass/marsh meadow from direction of Okanagan River dike towards the [bird] banding trailer and path (Figure 27). Landed on outside edge of willows, etc. I snuck back into woods along the trail to the dike and got a second good look at the cuckoo as it perched less than a metre above the ground. Its bill was orange with a black ridge along the top of the upper mandible. Its eye ring was orange. There was a large area of rufous or rufous edging on the wing. The under tail was pale with large white poorly defined patches. Bird was silent." It was probably an immature (pers. comm.).

"My photographic attempt was unsuccessful and the bird flushed to the north. Sonja and I were unable to relocate it but Dick [Richard J.] Cannings and Doug Brown found it later in the morning."

Vaseux Lake, about 3.8 km long and 800 m wide, is located in the Okanagan valley about 5 km south of Okanagan Falls. It is designated as a Migratory Bird Sanctuary and is located on the course of the Okanagan River. Elevation is 326 m.

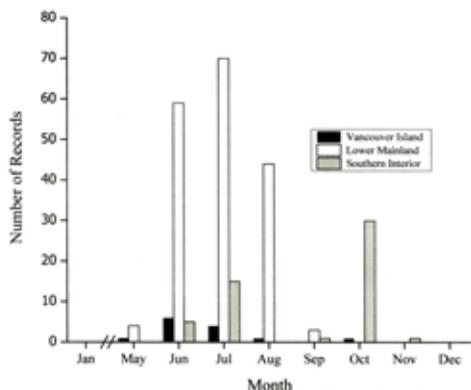


**Figure 27.** The Yellow-billed Cuckoo spotted at Vaseux Lake in 2013 was seen flying across the marsh in the centre of the photo and landing in the long thicket of willows on the left. *Photo by Chris Siddle.*

## ANNUAL OCCURRENCE and DISTRIBUTION

### British Columbia Regions

The Biodiversity Centre for Wildlife Studies database includes 247 individual records of Yellow-billed Cuckoo for 48 documented occurrences from at least 34 different locations in British Columbia (Figure 27). The latter include, in alphabetical order, Bella Coola, Blenkinsop Lake, Burrard Inlet, Chilliwack, Clinton Creek, Creston, Douglas Lake Ranch, Duck Lake, Eighty-three Mile Creek, Fifty-one Mile Creek, Gartley Point, Green Lake, Huntingdon, Illecillewaet River, Jordan River, Kamloops, Kelowna, Little Alouette River, Marpole, Matsqui Island, McClure, Mission Creek, Mount Lehman, Mount Tolmie, Osoyoos Lake, Rithet's Bog, Silvermere Lake, Sumas Prairie, Three Mile Creek, Vancouver, Vaseux Lake, Vedder Mountain, Victoria, and Waldie Island.

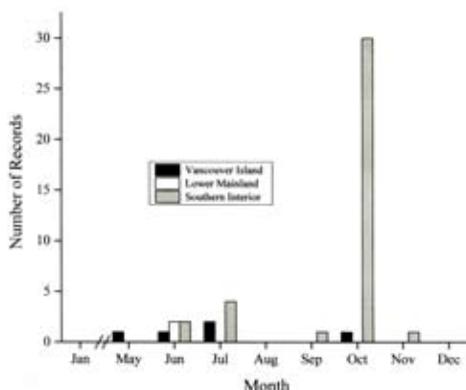


**Figure 28.** Monthly distribution of Yellow-billed Cuckoo records ( $n = 245$ ) for three general regions of British Columbia, 1881-2013.

Of the 247 records, 3 (1.2 %) were from the central mainland coast, 13 (5.3 %) are from Vancouver Island, 180 (72.9%) are from the Lower Mainland, and 51 (20.6%) are from the southern interior of the province. As might be expected for a breeding species, most records are from May through August ( $n = 212$ ; 86%) (Figure 28). Most of these records ( $n = 200$ ; 81 %) are “historic,” dating from 1881 to 1927, after which the species was considered extirpated from British Columbia (Campbell et al. 1990b).

Extreme dates reported for Yellow-billed Cuckoo in British Columbia (1881–2013) ranged from 26 May (Chilliwack) to 1 November (Waldie Island near Castlegar). The species has been reported in all seven months (Figure 28) with 192 records (83%) occurring during the summer months of June through August. Most records ( $n = 166$ ; 72%) are from the Lower Mainland where the species was formerly a regular, but local summer visitant and breeder.

There were no records for British Columbia for the 62-year period between 1928 and 1988. Post-1989 (“recent”), most records ( $n = 38$ ; 79%) are from the interior and most of these occurred in October ( $n = 31$ ; 82%) (Figure 29). The species has been reported in 18 (72%) of the 25 “recent” years and like elsewhere in the Pacific Northwest most records are east of coast mountain ranges. In Oregon, in the 1970s to 1990s, there were 44 reports of Yellow-billed Cuckoo 40



**Figure 29.** Monthly distribution of Yellow-billed Cuckoo records ( $n = 45$ ) for three general regions of British Columbia, 1989-2013.

(91%) of which only four were from coastal parts of the state (Marshall 2006, p. 307). In Washington State, there have only been nine records between 1941 and 2004 and six of these (67%) were from interior locations (Tweit 2005, p. 210).

Yellow-billed Cuckoo has been recorded in at least 34 different localities in the province. In descending order, by general region, these include the Southern Interior (16), Lower Mainland (11), Vancouver Island (6), and central Mainland coast (1).

The seasonal occurrence and length of stay vary considerably between general regions. Most yearly occurrences are observations of a Yellow-billed Cuckoo seen only on a single day ( $n = 48$ ; 77%). The longest continuous residence is 91 days for the nesting cuckoos in Mount Lehman in 1904 in the Lower Mainland. The longest length of stay in the southern interior was 10 days, the central mainland coast 3 days, and Vancouver Island 2 days (Table 2).

**Table 2.** Length of stay (days) for Yellow-billed Cuckoo in four general regions of British Columbia, 1881–2013.

General Region	Occurrence and Length of Stay <sup>1</sup>
Central Mainland Coast	Aug (3)
Vancouver Island	May (1), Jun (1,1), Jun 30-Jul <sup>1</sup> (2), Jul (1,1), and Oct (1)
Lower Mainland	May (1,1,1), Jun (1,1,1,1), Jul (1), Aug (1,1,1,1,1,1,1,1,1,1), Sep (1,1),
Southern Interior	Jun (1,1,1,1), Jul (1,1,1,1,1), Jul (10), Sep (1), Oct (1,1,1), Oct (3), Oct (6), Oct (9), Nov (1)

<sup>1</sup>Range of consecutive days recorded.

### Central Mainland Coast

Bella Coola, located about 400 km northwest of the most northern interior record at Green Lake in the Cariboo, is the northernmost recorded location for Yellow-billed Cuckoo in British Columbia. The bird is considered accidental on the coast north of Vancouver Island. (See Campbell et al. (1990a, p. 148) for status terminology.)

### Vancouver Island

Yellow-billed Cuckoo has been recorded in seven (5.3%) of the 133 years of records and from six different locations on southeastern and southern Vancouver Island. Historically (1887–1904), the species was a rare and local summer visitant in June and July in the Greater Victoria region, although most records lacked specific dates and precise locations. Of eight records (in five different years) for this period, seven cuckoos were collected (two adult males, four adult females, one unsexed).

In 1887, a pair of Yellow-billed Cuckoos was observed together in summer at Skinner’s Swamp near Victoria and may have bred. Another pair of adults, both collected, was present at Lost [Blenkinsop Lake] in summer 1896. We also suspected that they may be breeding, but nesting was not confirmed. A small marginal population of a few pairs probably existed near wetlands on extreme southern Vancouver Island but collecting may have contributed to their extirpation.

During the 108 years since 1904, there have been four additional records: 1989, 2004, 2008, and 2011. All records are of single birds that have been observed, or killed by collision with vehicles, in May, June, July, and October. Currently, Yellow-billed Cuckoo is considered casual on Vancouver Island, with extreme

dates ranging from May 30 to October 25.

### Lower Mainland

Yellow-billed Cuckoo has been recorded in 15 of the 133 years of records (11.3%) and from at least 12 different locations in the Lower Mainland. Historically (1881–1927), the species was a rare to uncommon and local summer visitant from mainly from June through August from Marpole (south Vancouver) east to Chilliwack. Of 164 records (in 14 different years) for this period, 13 cuckoos were collected for museums (four adult males, eight adult females, and one hatch-year female).

In 1904, a pair of Yellow-billed Cuckoos bred successfully at Mount Lehman, the first and only confirmed nesting for British Columbia. We suspected that historically nesting also may have occurred at Chilliwack, Huntingdon, Sumas Prairie, and Marpole (e.g., South Vancouver). The breeding population for the Lower Mainland was probably less than 10 pairs. Loss of riparian habitat and collecting may have contributed to their extirpation.

During the 85 years since 1927, there has been only a single record, in 1991, for the entire Lower Mainland region. No breeding by the Yellow-billed Cuckoo has been reported in the Lower Mainland since 1904, and the species’ status is currently denoted as accidental. Extreme dates range from May 26 to September 3.

### Southern Interior

Yellow-billed Cuckoo has been recorded in 16 of the 133 years of records (12%) and from at least 15 different and widely scattered locations in the southern interior from Osoyoos Lake, Duck Lake (Creston) and Revelstoke north to Green Lake in

the southern Cariboo. Historically (1891–1915), the species was a casual summer visitant in June and July in the Kamloops and southern Cariboo region. Of 14 records (in 5 different years) for this period, at least five different cuckoos were observed.

During the 99 years since the last historical interior record in 1915, there have been 38 records of single birds from 12 different locations. The longest length of stay was 15 days at Waldie Island near Castlegar. Currently, the status for Yellow-billed Cuckoo in the southern interior of the province is a casual summer visitant becoming very rare in autumn. The first autumn occurrence was recorded in 1995 and through 2013 the species has been recorded 31 more times from eight different locations. This post-breeding movement accounts for 89% of all autumn occurrences in the province. Extreme dates for the southern interior range from June 21 to November 1.

## HABITAT

Understanding bird-habitat relationships is critical for the successful conservation and protection of bird species and includes both landscape processes and habitat quality (Fuller 2012). During the breeding season, Yellow-billed Cuckoo is a riparian obligate

and the devastating loss of riparian cottonwood-willow woodlands in the United States has contributed greatly to the western subspecies recently being officially listed as endangered.

In British Columbia, although no specific habitat projects have been conducted, breeding season vegetative associations (mainly June and July) are generally similar to other regions in western North America (Hughes 1999), but plant species and associations are different. All British Columbia summer occurrences were located very close to permanent water. The habitat descriptions below were extracted from published literature and the field notes of collectors and observers.

## Summer and Breeding

Breeding season habitat for both races of Yellow-billed Cuckoo is generally defined as “open woodlands with clearings and low, dense, scrubby vegetation, often associated with [permanent] watercourses” (Hughes 1999). Specific breeding habitat requirements for Western Yellow-billed Cuckoo consist of contiguous riparian areas dominated by black cottonwood and willow, particularly woodlands with closed canopy cover (Wiggins 2005; Figure 30).



**Figure 30.** A universal habitat requirement for breeding Yellow-billed Cuckoo in western North America is a cottonwood-willow woodland with a dense understory of shrubs and closed canopy cover. *Photo by R. Wayne Campbell, Creston, BC, 11 May 1997.*

On southern Vancouver Island, wooded and shrubby riparian habitats were closely associated with lakes and swamps. The dense layered vegetation included a mixture of black cottonwood, red alder, Pacific willow, bitter cherry, and trembling aspen with a dense understory of red-osier dogwood, Indian plum, ocean spray, black twinberry, and red elderberry.

In the Lower Mainland, riparian habitats were associated with creeks, rivers, lakes, and irrigation channels. The main tree species were black cottonwood, Pacific willow, and red alder. Dominant shrubs in thickets included hawthorn (*Crataegus* spp.), salmonberry (*Rubus spectabilis*), thimbleberry (*Rubus parviflorus*), and wild rose (*Rosa nutkana*). Summer foraging sites included an old orchard with thickets of tall grasses, rose bushes, vines, salmonberry shrubs, and red elderberry shrubs.

In the southern interior, riparian habitats were associated with creeks, lakes, and flood plains, some of which were intermittent. Vegetation was composed of trees, such as water birch, willow, trembling aspen, and black cottonwood. Dense patches of shrubs included red-osier dogwood, Saskatoon, and hawthorn.

### Post-breeding and Dispersal

This period includes late summer and autumn, mainly from about mid-August to early November. Post-breeding birds, often immatures, wander and disperse more during these months, including some birds from summer sites in British Columbia and others that enter the province from unknown locations farther south. Habitats are rarely described for this period but are more diverse and in some cases proximity to waterways is not a critical requirement.

In British Columbia, Yellow-billed Cuckoo, as elsewhere in North America, does not venture deep into forests and prefers more open wooded and shrubby spaces and edges of mixed woodlands. On Vancouver Island, nonbreeding habitats included both marine and fresh-water riparian habitats as well as one non-riparian site without water. Riparian habitats were associated with lakes, marshes, and swamps. Typical vegetation included low scrub and scattered chestnut trees (e.g., Gartley Point) and a mixture of predominantly black cottonwood and tall willows with patches of red alder and trembling aspen trees and layered shrubs consisting of red-osier dogwood,

hawthorne, Indian plum, and black twinberry. The only well-described non-riparian habitat was dominated by an open Garry oak woodland (Figure 31) with a few arbutus trees and scattered dense patches of Scotch broom, Himalayan blackberry, and *Daphne laurel* shrubs.



**Figure 31.** During the non-breeding season Yellow-billed Cuckoo is attracted to habitats that provide food and may abandon riparian situations to explore terrestrial habitats such as Garry oak woodlands. Photo by R. Wayne Campbell, Mount Tolmie, BC, September 1994.

Throughout the Lower Mainland, all non-breeding habitats were riparian.

Habitats frequented in the southern interior of the province were the most diverse and included both riparian and non-riparian situations. In most cases, cuckoos were attracted to sites by food sources, such as Western Tent Caterpillars. These were found in residential backyards and gardens and along dykes in wetlands bordered by riparian willows, alders, and chokecherry (*Prunus virginiana*). One bird spent four days feeding on fruit pulp in apple and peach orchards, and was occasionally seen in private gardens, in the southern Okanagan valley. A rural property in Creston, at which a cuckoo was observed, had a permanent flowing rivulet and was dominated by non-native trees and shrubs that included sugar maples, Lombardy poplars, weeping willows, horse chestnuts (*Aesculus hippocastanum*), wild plums, old lilac bushes, and grape vines. Other records were from typical summer habitats that included marshes with dense stands of willows, rivers with banks lined with

black cottonwoods and understory shrubs of red-osier dogwood and common snowberry.

### Elevation

In British Columbia, Yellow-billed Cuckoo records ( $n = 48$ ) range from near sea level (Gartley Point, Royston) to 1,230 m (Pennask Lake Road, Douglas Lake Ranch). Elevations for regions ranged from 44 m (central mainland coast;  $n = 1$ ), 1 m to 112 m for Vancouver Island ( $n = 12$ ), 3 m to 84 m for the Lower Mainland ( $n = 18$ ), and 280 m to 1,230 m for the Southern Interior ( $n = 18$ ). However, the elevation at Hanna Creek (Mount Lehman) where the only confirmed nesting occurred was 84 m. By comparison in California, where the nearest current breeding population is found, nesting elevations ranged from near sea level to 1,400 m (Laymon 1998).

### Invasive Plant Species

In the late 19<sup>th</sup> century and early 20<sup>th</sup> century, the degradation of riparian black cottonwood-willow nesting habitat for the Yellow-billed Cuckoo by exotic species of invading plants like Himalayan blackberry (Figure 32) was not an issue. This plant was introduced to eastern North America in 1885, spread to reach the Pacific coast by 1945, and was first noticed in British Columbia in the 1970s. Today it is well-established throughout southwestern portions of the province where it has invaded riparian areas, forest edges, Garry oak woodlands, and roadsides, all former breeding and foraging habitats for Yellow-billed Cuckoo. The dense blackberry thickets outcompete and replace the diversity of native forest understory (Soll 2004). Former breeding locations near Mount Lehman, and suspected sites in the central Fraser River valley and Marpole region of south Vancouver, are today inundated with dense impenetrable growth of Himalayan blackberry.



**Figure 32.** The introduced Himalayan blackberry, an evergreen shrub of the Rose family (Rosaceae), poses an ecological threat wherever it becomes established by replacing the diversity of native forest understory especially along waterways. *Photo by R. Wayne Campbell.*

### DIET

The diet profile for Yellow-billed Cuckoo in British Columbia has not been developed but incidental observations in the field and identification of food found in specimens provides some indication of the diet. Throughout its range in western North America, Yellow-billed Cuckoo feeds mainly on large insects, such as caterpillars and grasshoppers. The species is well known to respond to cyclical irruptions of caterpillars (Laymon 1980, Nolan and Thompson 1975). Foods identified in British Columbia include:

1. Five Tomato Hornworm caterpillars were identified in the gut of a dead adult female Yellow-billed Cuckoo found dead at Mission Creek (Kelowna) on 27 July 1994 (I. Szabo Pers. comm.). The Tomato Hornworm, considered a major insect pest, is actually the caterpillar of the Five-spotted Hawkmoth (*Manduca quinquemaculata*). The caterpillar, which can reach four inches at full size, feeds mainly on foliage of plants in the economically important family Solanaceae (Nightshades). Such vegetation may include herbs, shrubs, and trees. The caterpillar is pale green with eight, white v-shaped marks along its sides. It also has a single horn-like protrusion pointing backward from the last segment.

Caterpillar larvae feed mainly on leaves and new plant stems for four to six weeks before creating a cocoon in which they pass the winter. Tomato Hornworm is considered a pest in commercial plantings especially in the Thompson, Okanagan and Similkameen valleys (Agriculture Canada 1981).

1. While large insects, such as caterpillars, katydids, and grasshoppers, are the primary food items of Yellow-billed Cuckoo, the species also eats small frogs. In a sample of 2,420 prey items from a diet study in southern California, tree frogs (Hylidae) comprised 24% of the cuckoo's diet (Laymon et al. 1997). Earlier, Laymon and Halterman (1987) specifically identified Pacific Treefrog (Figure 33) as prey in California, as did Allister Muir at Silvermere Lake, BC, on 14 June 1991.



**Figure 33.** Pacific Treefrog (also known as Pacific Chorus Frog) is a small species found in western North America that ranges in size from 2 cm to 5 cm long. In a study in southern California, it was the third most important food item in the diet of Yellow-billed Cuckoo after green caterpillars (45%) and katydids (22%). *Photo by R. Wayne Campbell.*

2. At least 60 species of birds in North America feed on hairy tent caterpillars (*Malacosoma* spp.) and Yellow-billed Cuckoo is one of the primary predators of this defoliator of broadleaf trees and shrubs. In fact, over 250 caterpillars have been counted in the stomach of one bird (Witter and Kuhlman 1972). The species within the range of Yellow-billed Cuckoo records in

British Columbia is the Western Tent Caterpillar (*M. californicum pluviale*), which can be identified by its white silken "tents" in branches of host trees (Wood 1992; Figure 34).

Two observations of Yellow-billed Cuckoos feeding on tent caterpillars in the province were made at Kamloops on 14 September 1998 and Creston on 19 October 1999.



**Figure 34.** Two species of tent caterpillars occur in British Columbia, the Forest Tent Caterpillar and Western Tent Caterpillar. The former species does not produce tent-like silken webs. *Photo by R. Wayne Campbell.*

3. Although Yellow-billed Cuckoo eats some small fruits such as blackberries (*Rubus* spp.) and elderberries in summer, the bird's diet in autumn (September) is mainly grasshoppers and caterpillars (Beal and Judd 1898, Hughes 1999). The cuckoo that spent three days in apple and peach orchards in the vicinity of Cawston from 17-20 October 2007 fed mainly on apple pulp, a remnant of apple juicing. This nutrient-rich "compost" is used as an organic fertilizer that is spread around the base of orchard trees (Phillips 2005). Grasshoppers were also consumed.

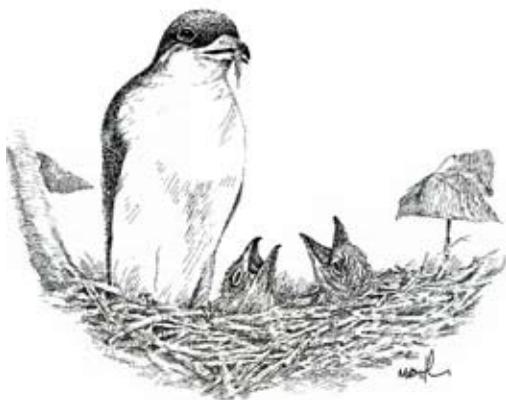
4. A Yellow-billed Cuckoo was observed eating aquatic snails at a slough on the Douglas Lake plateau on 8 July 2009. These snails were later identified as *Lymnaea* sp. from dead shells collected. Freshwater gastropods are not mentioned as a food item for Yellow-billed Cuckoo by Hughes (1999).

## BREEDING

### Chronology

The growth period of Yellow-billed Cuckoo young is among the shortest for any species of bird. Development takes only 17 days from start of incubation to leaving the nest although fledglings cannot fly until they are about 21 days old (Hughes 1999). Young leave the nest seven to nine days after hatching (Preble 1957, Potter 1980) and spend the following two weeks running and climbing along branches to meet parents carrying food.

A single nesting record exists for British Columbia and details allow for a calculation of breeding period. Calculated dates using published information for nest-building (2 days; Potter 1980), egg-laying (1 egg every 2 days; Hughes 1999), incubation (9-11 days, Hamilton and Hamilton 1965, Potter 1980), nestling period (7-9 days; Potter 1980; Figure 35), and first flight (21 days; Jauvin 1996) suggest that in British Columbia the full breeding period may last at least 41 days. Calculated breeding dates range from at least 29 May to 14 June. The earliest spring arrival date for British Columbia is 26 May in 1887.



**Figure 35.** The breeding cycle for Yellow-billed Cuckoo requires only 17 days from the initiation of egg laying to young leaving the nest. *Drawing courtesy of Mark E. Hughes.* Permission to reproduce the artwork was obtained from *Birds of North America Online* <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology.

### Nest

The nest at Mount Lehman, BC, was saddled on the branches of a tall bent rose bush in a mixed deciduous woodland with a dense understory of shrubs. It was constructed of sticks and twigs and other unidentified material. The height above ground was 1 m (3 ft). Nest details are similar to others reported in southern Ontario (Peck and James 1983) and California (Layman 1980).

## MORTALITY

While humans may have control over habitat destruction, there are far fewer mitigation approaches that can be established to lessen direct mortality. Erickson et al. (2005) estimate that between 500 million and 1 billion birds are killed annually in the United States originating directly from human activity, such as collisions with human-made structures, pesticides, and oil spills.

Information on direct causes of regional mortality for Yellow-billed Cuckoo in North America is generally lacking (Wiggins 2005, Hughes 2009) and is frequently scattered as incidental events in secondary literature and reports. For example, the first record of Yellow-billed Cuckoo for Alaska was of a cat-killed bird from Ketchikan (Tobish and Isleib 1992) and Marshall (2006) mentioned a bird that died after striking a window in Oregon.

In British Columbia, there are 23 instances of direct mortality in three categories (Table 3). Although collecting birds for museum collections is rarely cited as a source of mortality for birds, it may have had a significant impact on the peripheral and local population of the Yellow-billed Cuckoo in British Columbia. During the 41 years (1887–1927) Yellow-billed Cuckoos were collected in British Columbia, 19 ( $n = 23$ ; 82%) were taken as specimens, mostly during the breeding season. This activity may have decreased the bird's numbers in southwestern British Columbia, although fidelity to a breeding site generally is low (Gaines and Laymon 1984). Of the remaining four carcasses, two Yellow-billed Cuckoos (9%) were found dead on a road after colliding with vehicles, and two others were found dead of unknown causes (Table 3).

**Table 3.** Direct causes of mortality for Yellow-billed Cuckoo in British Columbia, 1887 – 2013.

Cause	Years	Number (%)	Total
Scientific collecting (museums)	1887-1927	19 (82)	19
Vehicle collisions (see Figure 26)	1989, 2011	2 (9)	2
Found dead	1994, 1995	2 (9)	2
<b>Total</b>		<b>23 (100)</b>	<b>23</b>

## CONSERVATION AND MANAGEMENT

In the early 1970s, the National Audubon Society initiated and published “The Blue List” of birds in their journal *American Birds* for species that showed signs of declining populations in the United States. It was an annual report put together with help from professionals and amateurs and constantly changed as new information was available. The list served as “an early warning system” for birds for over a decade (Arbib 1971, Tate and Tate 1982).

Yellow-billed Cuckoo (Figure 36) was an annually listed species from the beginning and by the 1980s emphasis was directed more to the Western Yellow-billed Cuckoo due to long-term population lows in California and suspected declines in Arizona and Utah. Loss of riparian habitat was blamed for the catastrophic declines (Johnson et al. 2008). With growing interest over the following decade a petition to protect Western Yellow-billed Cuckoo was initiated in 1998 and 16 years later, on October 2, 2014, the species was officially included in the United States Endangered Species Act (Greenwald 2014). The designation means that 500,000 acres (203,500 ha) of prime riparian habitat must be procured in nine western states (Arizona, California, Colorado, Idaho, Nevada, New Mexico, Texas, Utah, and Wyoming).

Until recently, the breeding status of Yellow-billed Cuckoo in British Columbia was not confirmed and the nesting population had not been assessed. We estimate that up to 10 pairs nested in riparian habitats throughout the Lower Mainland, especially in the vicinity of Chilliwack, Sumas Prairie, Mount Lehman, Huntingdon, Pitt Meadows, and South Vancouver (Marpole). Another one or two pairs likely nested on southern Vancouver Island in the Greater Victoria region.

In Canada, the Committee on the Status



**Figure 36.** The future of breeding populations of Yellow-billed Cuckoos in North America is uncertain as numbers are declining steadily. This is especially evident in western portions and notably in California where populations have decreased from an estimated 15,000 pairs in the late 1800s to 30 pairs in the late 1990s (Hughes 1999). After 33 years of concern and lobbying, the Western Yellow-billed Cuckoo finally received state and federal protection in 2014. *Photo by Alan D. Wilson.*

of Endangered Wildlife in Canada (COSEWIC) currently lists the Yellow-billed Cuckoo subspecies (*occidentalis*) as “at risk” (the Committee on the Status of Endangered Wildlife in Canada 2004). COSEWIC may reconsider the cuckoo’s current status in British Columbia in light of the official United States’ announcement.

With the spate of recent records in British Columbia since 1989 (see Campbell et al. 1990b, this update), and the concern for declining numbers and loss of riparian habitats in the western United States, we recommend that COSEWIC upgrade the species’ ranking from “at risk” to at least “threatened” to assist in protecting riparian habitats in the rapidly urbanizing southwest portion of the province. The recent summer records from riparian locations in the southern interior of the province (e.g., Illecillewaet River, Kelowna, Osoyoos Lake, and Pennask Lake Road) are encouraging and should be inspected in future for Yellow-billed Cuckoos. The most promising location is probably on the undisturbed wetlands on the Douglas Lake Ranch as there have been three reports of unidentified cuckoos, two at Rush Lake

(Figure 37) in early June 1969 and mid-July 1975 and the other at Salmon Lake in mid-June 1985.

Since many of British Columbia’s conservation priorities for wildlife include peripheral species (Bunnell et al. 2004) and Western Yellow-billed Cuckoo has a similar status and is a riparian obligate breeder, the subspecies merits a similar designation. Priority management issues and options for the Western Yellow-billed Cuckoo in British Columbia require protecting and restoring nesting habitat that includes large continuous tracts of native riparian vegetation, primarily with black cottonwood and willow trees with a dense layered foliage understory of native shrubs. High canopy cover is also important. Despite burgeoning human developments along southeastern and southern Vancouver Island and throughout the Lower Mainland, suitable breeding habitat still remains in some parks, reserves, farmland, and undeveloped areas (Morgan and Lashmar 1993, Dovetail Consulting 1996, McPhee et al. 2000). The task in the southern interior will be less onerous as human populations are more localized and riparian habitats are more widespread (Figure 38). †



**Figure 37.** The dense tall band of willows bordering the shore at Rush Lake, on the Douglas Lake Ranch, is where a cuckoo was heard and seen in early June 1969 but its identity was not confirmed. *Photo by R. Wayne Campbell.*



**Figure 38.** Even in the urbanized Okanagan valley, where about 5% of the human population resides in Osoyoos and Oliver, suitable nesting habitat for Yellow-billed Cuckoo exists along the Okanagan River. Tall willows and a dense foliage volume of understory shrubs in this photograph are necessary criteria for breeding. *Photo by R. Wayne Campbell, 22 April 1994.*

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#### **About the Authors**

Wayne is lead author of the four-volume series *The Birds of British Columbia* (1990-2001). During his career he worked as Curator of Vertebrates in the Cowan Vertebrate Museum at the University of British Columbia, Curator of Ornithology at the Royal British Columbia Museum, and as a research scientist with the British Columbia Ministry of Environment. He retired in 2000. Wayne and his wife co-founded the Biodiversity Centre for Wildlife Studies and Wayne has been a Director as well as an Associate Editor of its peer-reviewed bi-annual journal *Wildlife Afield* since its inception in 2004. With colleagues Ronald D. Jakimchuk and Dennis A. Demarchi, he co-authored a biography *Ian McTaggart-Cowan: The Legacy of a Pioneering Biologist, Educator and Conservationist* that will be available through Harbour Publishing (Madeira Park) in early 2015.



Spencer is an ornithologist and professor emeritus of biological sciences at the University of Manitoba in Winnipeg. His research has focused on the breeding biology and feeding ecology of seabirds in British Columbia and the northern Bering Sea region, social behaviour of foraging in tropical birds, and the behavioural and evolutionary interactions between avian brood parasites and their hosts. He is a founding member of the Pacific Seabird Group and Society of Canadian Ornithologists/Société des ornithologistes du Canada, and Fellow of the American Ornithologists' Union. He recently served a stint as editor of *The Auk*. Spencer continues in his capacity as editor of *Wildlife Afield*, a position he has held since the production of Volume 8 in 2011. With



colleagues Alton Harestad and Peter Ommundsen, he provided external reviews for the upcoming book *McTaggart-Cowan: The Legacy of a Pioneering Biologist, Educator and Conservationist*. When not editing manuscripts, Spencer is using the time and opportunities afforded by retirement to analyze old data-sets and embark on new writing projects, many focused on historical aspects of the natural history of coastal British Columbia, particularly on Haida Gwaii.

Todd is a vertebrate biologist and professor of biology at Kutztown University in Kutztown, Pennsylvania where he teaches courses in ornithology, vertebrate biology, and comparative anatomy of vertebrates, and conducts research with undergraduate students. He earned his PhD at the University of Manitoba, studying host defenses against avian brood parasitism under Spencer Sealy's supervision. His research interests focus on avian brood parasitism, reproductive behaviour of cavity-nesting songbirds, impacts of alien plants on birds, and bird feeder hygiene. While studying for his PhD in Winnipeg, he became interested in the natural history of birds in western Canada, including vagrancy patterns of Yellow-billed and Black-billed cuckoos. Todd serves as a member of the environmental advisory commission in his local community where he has been documenting the biodiversity of the Sacony Creek Watershed and working with volunteers to restore the native plant community along the creek.



Gary, an enthusiastic birder and photographer, was motivated by the diversity of wildlife in the Creston Valley and was always eager to share his discoveries with others. He documented the presence of many rare species including the second record of Yellow-billed Cuckoo for the valley that showed up in his yard in autumn 2010. In his curiosity to know more about the occurrence, Gary started to compile information to publish an article in *Wildlife Afield*. He had a strong desire to be a published author. Shortly afterwards, he was invited as a co-author for this updated species account. Gary was born on 4 November 1952 and died in Creston on 16 October 2014.

