

The White-throated Swift

Alive and Well in the Clearwater Valley*

By Trevor Goward, Kevin Kriese, and Dean Nicholson

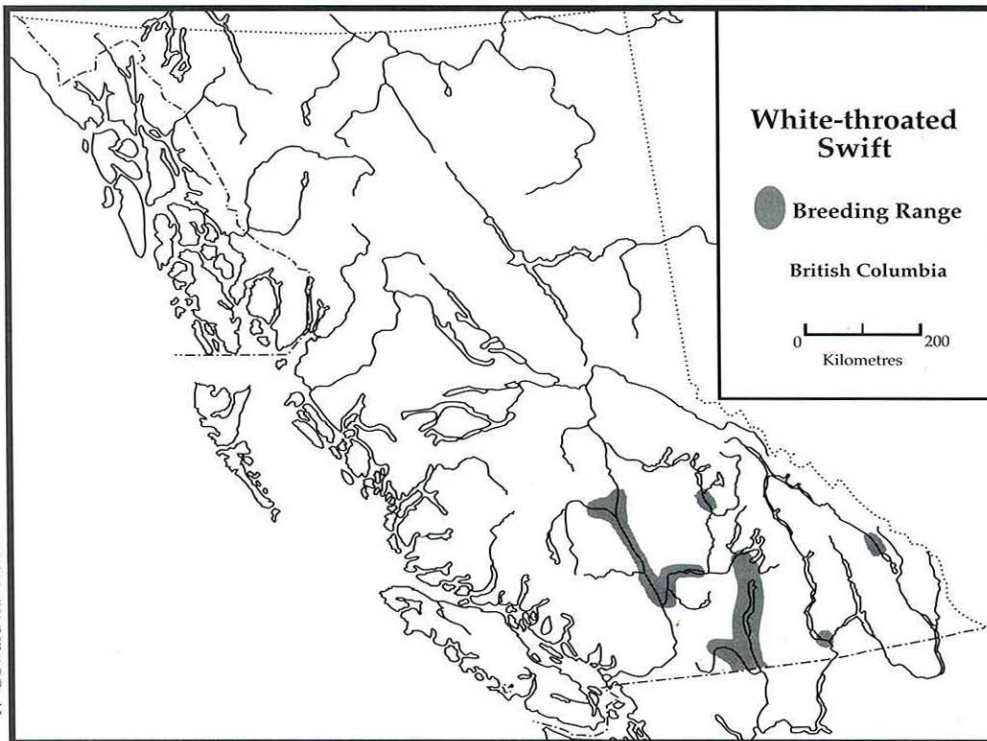
ABSTRACT

A newly established breeding colony of White-throated Swifts (*Aeronautes saxatalis*) is documented from the Clearwater Valley in south-central British Columbia, where climatic conditions are considerably moister and cooler than in other portions of this species' range. The possibility is raised that the White-throated Swift may be extending its range northward in response to an amelioration of climatic conditions dating from the end of the Little Ice Age. This species is expected to continue to extend its range northward into inland British Columbia.

(*Wells Gray Education and Research Centre Contribution #1).

INTRODUCTION

The White-throated Swift — among the most thoroughly aerial of passerines — is a relatively recent arrival in Canada, having apparently first crossed the border at Osoyoos in about 1907 (Cannings et al. 1987). Since then this species has gradually extended its range northward in British Columbia. Although still typically touted as a “specialty bird” of the South Okanagan Valley, the White-throated Swift also now occurs north to Riske Creek, west to Ashcroft and east to the Rocky Mountain Trench (Figure 1). The purpose of this note is to document its recent arrival in the Clearwater River Valley, 150 km north of Kamloops.



T. Goward/R. Nelson

Figure 1. The distribution of the White-throated Swift in British Columbia.

OBSERVATIONS

The Clearwater River arises amidst glaciers and icefields in the Cariboo Mountains of Wells Gray Provincial Park, roughly 250 km north of Kamloops, and drains southward 170 km to the North Thompson River at Clearwater. In its lower reaches, mostly south of the park, the river encounters valley-filling basaltic lava flows dating from approximately 600 000 years ago (Hickson 1986). Here the river has downcut a series of deep, vertical-walled canyons (Figure 2). It is near the southern limit of these basalt canyons that the authors recently became aware of a breeding colony of White-throated Swifts.

The White-throated Swift has not previously been reported from the Wells Gray area; no mention of it is made, for example, in the latest edition of the "Wells Gray Park Checklist of Birds" (Goward 1993). Our first observation of this species was made in the southern Clearwater Valley on 16 May 1993. Twelve months earlier, on 25 May 1992, Mrs. Jo Liebe, of Clearwater, incidentally captured the chatter of these birds on a video recording taken in the same area. Mrs. Liebe's recording probably represents the earliest evidence of White-throated Swift activity in the Clearwater Valley.

The colony is located in the "Shadden:" a large, bowl-shaped grotto 15 m deep, 25 m high, and 30 m wide, which occupies a basalt cliff along the east wall of the Clearwater Valley (51° 46' N, 120° 01' W) roughly 12 km north of Clearwater, and 13 km south of the Wells Gray Education and Research Centre. The Shadden has formed as a result of accelerated erosion along a lens of seepage at the boundary between the lava flows and the fluvio-glacial deposits that underlie them (Hickson 1986).

Nesting activity here is restricted to narrow horizontal cracks and ledges in the ceiling of the Shadden. Only those portions of the ceiling near the grotto's mouth are used; the birds have refrained from coloniz-

ing the inner recesses of the Shadden, notwithstanding the availability of otherwise apparently suitable nesting sites therein. Even after a portion of the ceiling collapsed during the winter of 1993-4, thus destroying the favoured nesting sites of the previous summer, the birds simply relocated — albeit in lesser numbers (see below) — to another segment of the Shadden's mouth.

Since May 1993, White-throated Swifts have been detected in other parts of the Clearwater Valley as well — invariably in association with basalt canyons (Figure 3). To date, sightings have been made over a 35 km stretch of river extending north to Helmcken Falls (6 June 1993, 22 May 1994), and south to within three km of Clearwater (12 April 1994, Tom Dickinson, pers. comm.).

The White-throated Swift returns to its breeding grounds rather early in the spring, arriving as much as three weeks prior to the return of its relatives, the Vaux's Swift (*Chaetura vauxi*) and the Black Swift (*Cypseloides niger*) (Cannings et al. 1987). In 1994, for example, three White-throated Swifts were

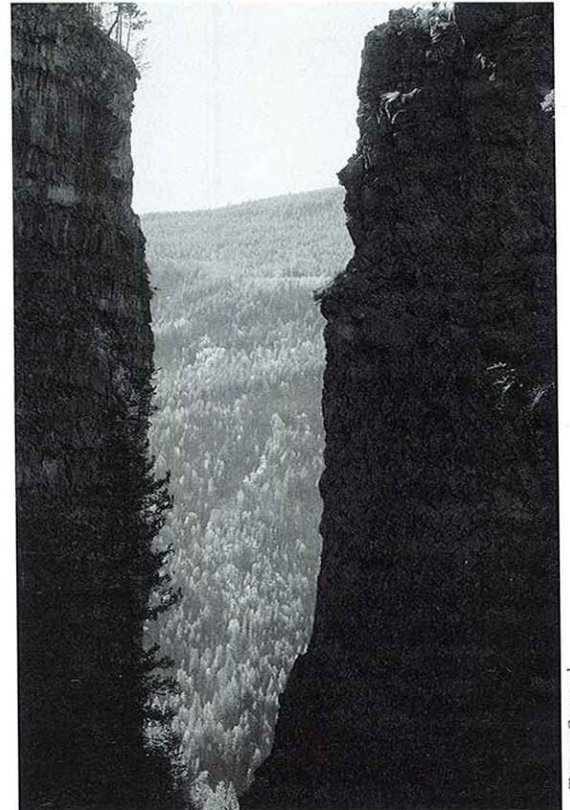


Figure 2. Spahats Canyon in the Clearwater Valley.

Trevor Goward

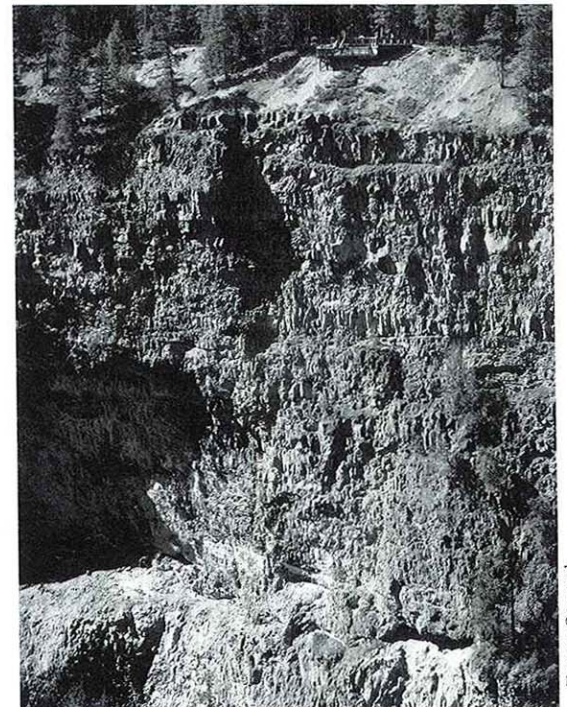


Figure 3. Basalt cliffs at Helmcken Falls lookout.

Trevor Goward

Swifts are apparently unique among birds in their ability to copulate on the wing.

noted in the Clearwater Valley on 10 April, though the remainder of the Shadden colony did not return until approximately ten days later. This compares with an average arrival date of 15 April in the Okanagan Valley (Cannings et al. 1987), and approximately the third week of April in the Williams Lake area (Roberts and Gebauer 1992).

Swifts are insectivorous birds that take their food exclusively on the wing (Terres 1980). Given that White-throated Swifts return to the Clearwater Valley in mid April, i.e., only a few weeks after snow melt, it is pertinent to ask what flying insects might be available to them so early in the season. Mosquitoes may provide one possible food source. Large numbers of the mosquito *Culiseta alaskaensis* (Ludlow) apparently overwinter as winged adults in the talus slopes skirting the base of the Shadden. During the first warm days of spring these insects emerge from among the boulders (and doubtless also from other sites: Belton 1983), and are presumably carried up the face of the adjacent cliffs by convective updrafts. Here they may provide the swifts with protein at a season when few other sources of "aerial plankton" are available.

Swifts are apparently unique among birds in their ability to copulate on the wing. Between 10 May and 5 June 1994, aerial mating was observed at the Shadden on at least a half dozen occasions. Mating activity was also witnessed during the same period at Helmcken Falls, 25 km to the north. At each sighting the swifts approached one another in midair, usually 50 to 100 m above the ground, then tumbled earthward in a twisting, corkscrew freefall that invariably terminated, a few metres above the ground, with the birds parting company in opposite directions.

As of 1995, White-throated Swifts have been recorded from 56 localities in British Columbia (Summers 1995); see Figure 1. Breeding is expected to occur at most, if not all, of these sites, although only in the Similkameen and Okanagan Valleys has breeding activity previously been

reliably documented (Campbell et al. 1990). The presence of a discarded egg shell at the Clearwater Valley locality on 19 June 1993 can be taken as evidence that the White-throated Swift now breeds here as well. The egg shell, largely intact, was found by T.G. immediately below the nesting site. It is white and unmarked, and measures 21 mm long by 13.5 mm wide, thus closely agreeing with the description given in Reed (1965) for the White-throated Swift. Swallow eggs are similar in colour and shape, but are distinctly shorter (op. cit.).

Beginning in mid to late June (i.e., 19 June 1993, and 24 June 1994), young birds could be heard chattering at the Shadden. The vocalizations resemble those of the parent birds, but are higher in pitch, and more insistent. Whenever an adult bird alighted at the nest site, the chattering increased in volume, suggesting that feeding was occurring. Collectively, the parents visited the nests at intervals varying from every five or ten seconds to every two or three minutes. Though the actual number of nests and nestlings at the Shadden is difficult to assess, the presence of between 15 and 17 adult birds in 1993 and between 9 and 12 birds in 1994 suggests that as many as five to eight nests may have been present. Each of these nests could in turn be expected to contain as many as four or five young (Reed 1965). By comparison, Summers (1995) estimates the total British Columbia White-throated Swift population to be approximately 400 breeding pairs.

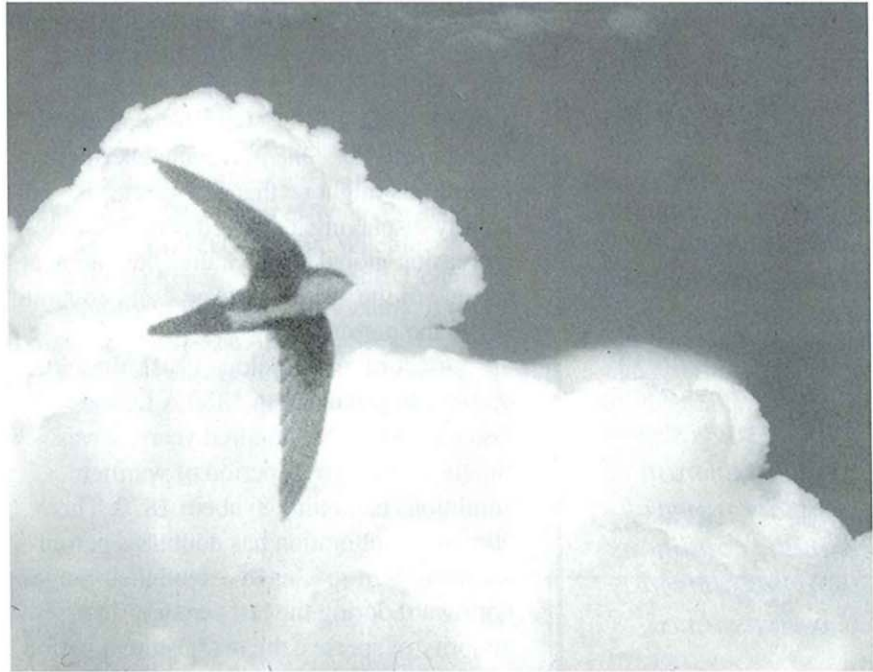
In 1993, White-throated Swifts left the Clearwater Valley between 8 August, when the parent birds were still tending their young (Bob and Jean Smith, pers. comm.), and 15 August, when no birds at all were observed at the Shadden. In 1994 the birds had vacated the nesting site by 12 August. These dates can be compared with the observations of Cannings et al. (1987), who report that fall migration in the Okanagan Valley commences in late August and early September.

DISCUSSION

In Canada the White-throated Swift (Figure 4) is typically associated with semi-arid regions in the Ponderosa Pine and Interior Douglas-fir Zones of Meidinger & Pojar (1991) (Summers 1995). Here precipitation during June (presumably the critical nesting month) is approximately 30 mm to 40 mm (see Environment Canada 1975b), and mean monthly temperatures average 17°C at Penticton and 19°C at Osoyoos (Environment Canada 1975a). Vegetation tends to be open, with scattered stands of Ponderosa Pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*). Previous authors (e.g., Summers 1995) have identified the existence of grasslands, meadows, or other open areas adjacent to the nesting site as characteristic of the White-throated Swift's habitat requirements.

By contrast, the lower Clearwater Valley has been assigned to the Interior Cedar-Hemlock Zone, in which conditions are comparatively cooler and much more humid. Precipitation at the nesting colony is expected to average at least 70 mm during June (Goward, unpublished data), and mean temperatures for the same month at Hemp Creek, 21 km farther north, average around 13°C (Environment Canada 1975a). As a result of the moister conditions, tree cover here is relatively continuous, with Western Redcedar (*Thuja plicata*) and Western Hemlock (*Tsuga heterophylla*) dominating in mesic sites, and Douglas-fir in drier sites. Grasslands and meadows are entirely lacking at lowland elevations in this region, and, though open talus slopes do occur at intervals along the canyon walls, foraging appears to be confined to the immediate vicinity of the cliffs.

During early summer the Clearwater Valley is prone to extended periods of damp, cool weather. In June, for example, measurable precipitation is received on approximately 13 days, and heavy cloud cover on about 20 days (Goward & Hickson 1989). That the White-throated Swift is apparently able to successfully rear its



© Steve R. Cannings

Figure 4. The high-flying White-throated Swift is not easily photographed.

young under such conditions suggests for this species a wider ecological amplitude than is usually assumed. Possibly its survival is favoured by a remarkable ability, well documented in the White-throated Swift, to enter a state of torpor during periods of physiological stress (Terres 1980). A similar ability may also be present in its young — as has been reported, for example, in the European Swift (*Apus apus*) (Lack & Lack 1951). We know of no direct evidence, however, to support the occurrence of torpor in the young of White-throated Swifts.

As already noted, the White-throated Swift has been expanding its range northward into southern British Columbia since at least the turn of the century. It is tempting to postulate that this may be associated with human-induced environmental change. The conversion, for example, of old-growth forests to pastures and younger forest stands has been shown to favour the Brown-headed Cowbird (*Molothrus ater*) (Ehrlich et al. 1988), whereas the introduction of livestock has clearly contributed to the ongoing northwestward migration of the Cattle Egret (*Bubulcus ibis*) (op. cit.). It is less easy,

The ability of the White-throated Swift to become established in the lower Clearwater Valley strongly suggests this species is tolerant of a wider range of climatic conditions than has previously been assumed.

however, to demonstrate a similar cause-and-effect relationship for the White-throated Swift, which tends to frequent rugged terrain that has been little altered by human activity. One intriguing alternative hypothesis might be that this species is simply displaying a delayed response to increasing global temperatures beginning at the end of the "Little Ice Age," and continuing to the present day.

According to Pielou (1991), the Little Ice Age began in about 1350 A.D. and lasted roughly five hundred years; it was finally replaced by a period of warmer conditions beginning in about 1870. This climatic amelioration has doubtless permitted many bird species to extend their ranges northward during the last century. In a majority of species, the readjustment period can be expected to have been relatively short, though in others (including the Barred Owl (*Strix varia*): R.J. Cannings, pers. comm.), it is apparently still on-going. According to this hypothesis, the northward movement of the White-throated Swift has been delayed by this species' colonial nesting habits, its requirement for high, blocky cliffs, and, perhaps, its pronounced nest site tenacity (Dobkin et al. 1986).

The ability of the White-throated Swift to become established in the lower Clearwater Valley strongly suggests this species is tolerant of a wider range of climatic conditions than has previously been assumed. Given the existence of appropriate habitat in other portions of south-central British Columbia, there is reason to believe this species will continue to extend its range in the years ahead. Perhaps the time is not far off when the White-throated Swift, currently considered to be "at risk" in British Columbia (Harper et al. 1994), will finally take its place on the roster of those breeding birds that are well established and secure in Canada.

ACKNOWLEDGEMENTS

Several people are warmly thanked for their assistance with this report: Jo Liebe for making available her recording of White-throated Swifts; Tom Dickinson and Bill Harper for providing valuable reference material; Tom Dickinson, Dorli Duffy, Valerie Harris, Bob Smith, Jean Smith, Connie Veer and Dave Williams for supplementing the authors' observations on the White-throated Swift in the Clearwater Valley; and Dick Cannings, Tom Dickinson, David Miège, Anna Roberts and Gina Roberts for commenting on earlier drafts of the manuscript.

LITERATURE CITED

Belton, P. 1983. The mosquitoes of British Columbia. Royal British Columbia Museum Handbook 41, Royal British Columbia Museum. Victoria, B.C.

Campbell, R.W., N.K. Dawe, I. McTaggart Cowan, J.M. Cooper, G.W. Kaiser & M.C.E. McNall (eds.). 1990. The Birds of British Columbia. Volume II, Nonpasserines. Royal British Columbia Museum, Victoria, B.C.

Cannings, R.A., R.J. Cannings & S.G. Cannings. 1987. Birds of the Okanagan Valley, British Columbia. Royal British Columbia Museum, Victoria, B.C.

Dobkin, D.S., J.A. Holmes & B.A. Wilcox. 1986. Traditional nest-site use by White-throated Swifts. *Condor* 88: 252-253.

Ehrlich, P.R., D.S. Dobkin & D. Wheye. 1988. *The Birder's Handbook*. Simon and Schuster Inc., Toronto, Ont.

Environment Canada. 1975a. Canadian normals. Volume 1-SI: temperature. Downsview, Ont.

Environment Canada. 1975b. Canadian normals. Volume 2-SI: precipitation. Downsview, Ont.

Goward, T. 1993. Wells Gray Provincial Park: Checklist of Birds. British Columbia Parks, Kamloops, B.C.

_____ & C. Hickson. 1989. *Nature Wells Gray*. Friends of Wells Gray Park, Kamloops, B.C.

Harper, B., S. Cannings, D. Fraser & W.T. Munro. 1994. Provincial lists of species at risk. Pp. 16-23 in L. Harding & E.

- McCullum (eds.), Biodiversity in British Columbia: Our Changing Environment. Environment Canada, Vancouver, B.C.
- Hickson, C.J. 1986. Quaternary volcanism in the Wells Gray - Clearwater area, east central British Columbia. Ph. D. Thesis, University of British Columbia, Vancouver, B.C.
- Lack, D. & E. Lack. 1951. The breeding biology of the swift, *Apus apus*. Ibis 93: 501-546.
- Meidinger, D. & J. Pojar. 1991. Ecosystems of British Columbia. British Columbia Ministry of Forests, Victoria, B.C.
- Pielou, E.C. 1991. After the Ice Age: The Return of Life to Glaciated North America. University of Chicago Press, Chicago, IL.
- Reed, C.A. 1965. North American Birds Eggs (revised edition). Dover Publications, Inc., New York, NY.
- Roberts, A. & M. Gebauer. 1992. Checklist of Cariboo birds. Williams Lake Field Naturalists, Williams Lake, B.C.
- Summers, K. 1995. Status of White-throated Swift in British Columbia. Wildlife Working Report, WR-68. British Columbia Ministry of Environment, Victoria, B.C.
- Terres, J.K. 1980. The Audubon Society Encyclopedia of North American Birds. Knopf, New York, NY.

Trevor Goward is a naturalist and lichen specialist who makes his home in the Clearwater Valley.

Kevin Kriese is a forester and intermittent birdwatcher currently living and working in Clearwater.

Dean Nicholson is a mental health counsellor and ardent bird enthusiast living in Vernon.



© Steve R. Cannings

Honeysuckle (*Lonicera ciliosa*)