WELLS GRAY PROVINCIAL PARK:

DREAMING IT WHOLE

SUBMISSION TO

THE LAND CONSERVANCY OF BRITISH COLUMBIA

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EXECUTIVE SUMMARY

I call my home Edgewood Blue. Edgewood is situated on 4 ha of land in Upper Clearwater, north of Clearwater Village in south-central British Columbia, and adjacent to Wells Gray Provincial Park. The property has high natural value, including a pond and wetland, meadows, and a regionally significant vascular plant flora. It is my intention to donate Edgewood to the Land Conservancy of British Columbia. My reasons for undertaking this initiative can be summarized around four main objectives:

1. to lever support for a permanent wildlife corridor connecting two spatially separate portions of southern Wells Gray Park.
2. to promote the interests of the Wells Gray Education Centre, situated immediately east of Edgewood, and operated by Thompson Rivers University in Kamloops.
3. to ensure permanent protection for what is certainly the biologically most diverse portion of the Clearwater Valley.
4. to create a public waterfowl viewing area for birdwatchers visiting the Clearwater Valley and Wells Gray Park.

Figure 1. Edgewood Blue: guest cabin, garden and house as seen from Sky Pond. Photo by Jason Hollinger, July 2009.

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Wells Gray Superlatives

Wells Gray Provincial Park is a wilderness preserve as large as, or larger than one of every five nations on earth. The boundaries of Wells Gray park encompass the entire watershed of the Murtle River, believed the largest river in the world – by volume – to be contained within a protected area. Murtle Lake, near the core of the park, is the world's largest lake closed to motorboats. The Trophy Meadows represent Canada's most extensive example of the subalpine meadow phenomenon. Turning to other biological superlatives, the Clearwater Valley supports the world's most diverse macrolichen flora – 370 species – including the world's most diverse assemblage of the macrolichen genus *Peltigera*, with 30 species.

Wells Gray: Banff West?

In a world of diminishing wild lands, it is only a matter of time before tourism truly "discovers" Wells Gray Park and, with it, the entrepreneurial opportunities represented by Upper Clearwater, which is essentially an "inholding" of private lands loosely bounded on three sides by the vast wilderness of Wells Gray Park. The long-term implications of this for Wells Gray's wildlife are of course uncertain, though it seems likely that many existing migratory corridors will inadvertently be lost to land development. From this it seems to follow that the time to secure land on their behalf is either now or, if not now, then probably never.

WELLS GRAY PARK

Wells Gray Provincial Park was established in 1939, and is named after Arthur Wellesley Gray, a once prominent provincial Minister of Lands. On the map, Wells Gray is a large green spot in east-central British Columbia (Figure 4). On the ground, at 540,000 ha, it is a magnificent wilderness preserve. The park's boundaries are defined primarily by the drainages of the Clearwater River and its tributaries. The northern and eastern two-thirds of Wells Gray consists of rugged mountains – the Cariboos, a subset of the Columbia Mountains – while the remaining portions to the south and west overlap with the Shuswap Highlands – an upland region of spacious subalpine meadows interrupted by deep, steep-walled valleys. It is here, in the valleys, that geologically recent lava flows have been eroded by water and ice to deep, vertical canyons and, at their heads, the waterfalls for which Wells Gray is renowned (Figure 2). The southern portions of Wells Gray encompass the wintering grounds of the world's southernmost large (and potentially viable) herds of Mountain Caribou.

Figure 2. Dawson Falls, on the Murtle River, is one of twenty major waterfalls that have earned Wells Gray the nickname The Waterfall Park. This photo was taken about 20 minutes from Edgewood Blue. Photo by Jason Hollinger.

EDGEWOOD BLUE

In 1984 Trevor Goward (that's me) purchased the deed to 4 ha of "undeveloped" land in the upper Clearwater Valley of south-central British Columbia, snug against Wells Gray Park. As a naturalist keenly interested in biodiversity, I was attracted to this parcel – Edgewood Blue – by the extraordinary array of habitat types it encompasses, including conifer forests, mixed forests, dry meadow, wet sedge meadow, rocky outcrop, cattail marsh, shrub carr, swamp, and pond. Taken together these habitats support slightly more than 200 species of native plants, making this the floristically most diverse tract of land in a region that itself supports a high level of floristic diversity. Included here are two provincially red-listed and six blue-listed vascular plants as well as the highest concentration of Moonwort Ferns in Canada. One hundred and fifty-five bird species have also been recorded here. In 1988 I built a house on a recessional moraine near the centre of the property.

PROPOSAL

I wish to donate my home and property, Edgewood Blue, to the Land Conservancy of British Columbia. In taking this step, I hope to further four initiatives which I deem important to the long-term maintenance of this valley's natural values, especially with regard to Wells Gray Provincial Park. These initiatives are briefly outlined in the remaining portions of this document, under the headings: (1) Wells Gray Wildlife Corridor, (2) Kurta Waterfowl Wetlands, (3) Moonwort Meadows, and (4) Edgewood Ways. While my proposal to donate Edgewood is a stand-alone initiative, it is clear that the success of all four initiatives would be greatly enhanced through the acquisition of other key parcels in the immediate vicinity. It is my intention to stay on at Edgewood as caretaker, dedicating my remaining years here to the creation of a naturalist tradition around the wilderness values of Wells Gray Park.

Figure 3. Aerial view of Edgewood Blue, with main house, guest cabin and storage shed recognizable by their red roofs. Also visible are carport and woodshed (metal roofs to the left), a dock with adjacent vegetable garden, upper garden and orchard above the house, and two levees jutting out into Sky Pond. The levee on the right crosses the pond to a system of ten wilderness trails. A wildlife corridor has recently been reinstated along the south (right) boundary of the property. Photo by Fritz Schaer.

PROJECT DESCRIPTIONS

In the remainder of this document I will briefly describe the four initiatives which in my opinion stand to benefit from the donation of my home to the British Columbia Land Conservancy. These four initiatives will be discussed in the following order:

- Initiative 1: A Wells Gray Wildlife Corridor
- Initiative 2: Kurta Waterfowl Wetlands
- Initiative 3: Moonwort Meadows
- Initiative 4: Edgewood Ways

INITIATIVE 1: A WELLS GRAY WILDLIFE CORRIDOR

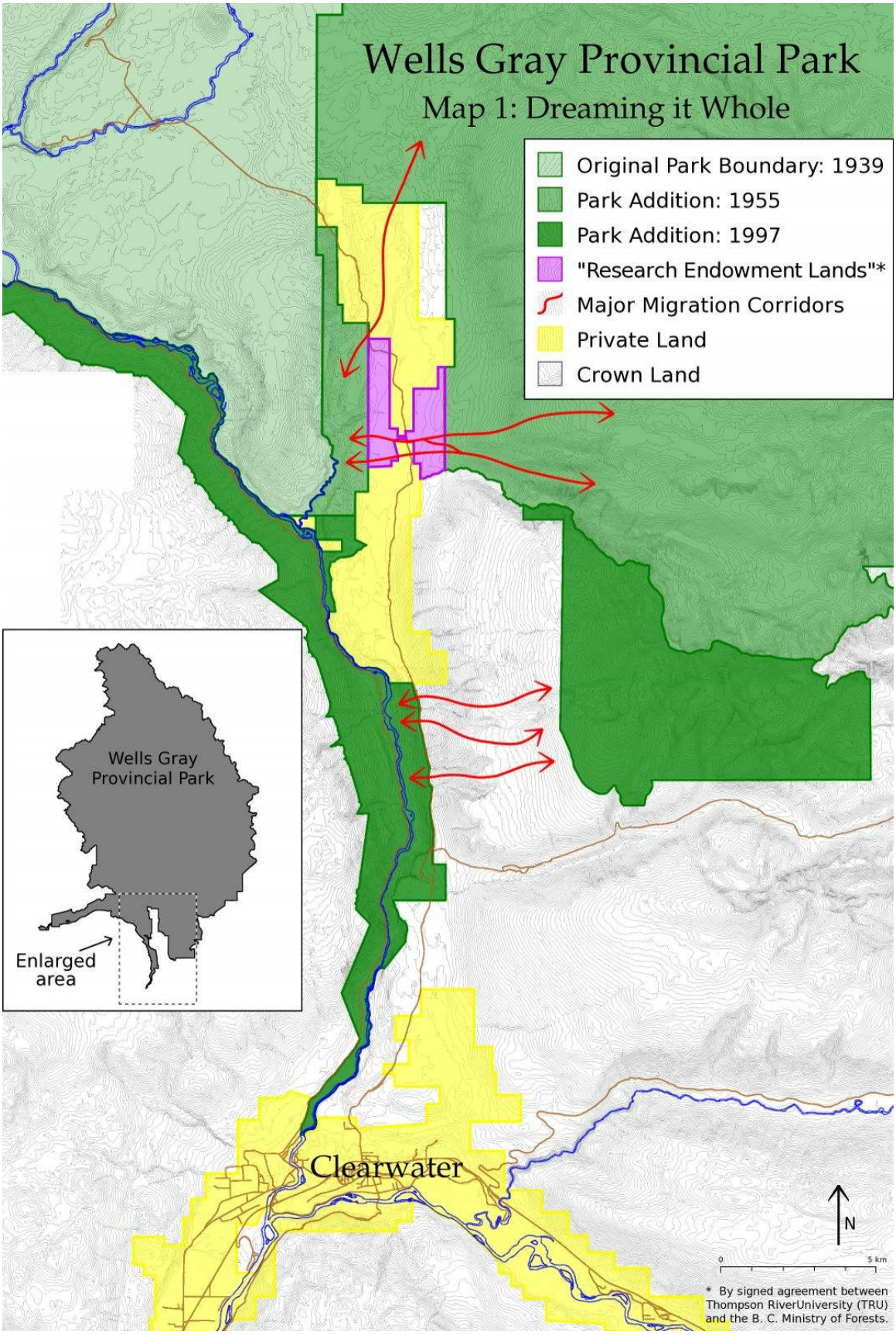
The Wells Gray Wildlife Corridor initiative has as its main objective the maintenance of connectivity for large mammals between the western and eastern portions of southern Wells Gray Provincial Park. Its most immediate goal is the long-term preservation of existing migratory corridors across key parcels of private land.

The boundaries of Wells Gray Park have been adjusted southward on two occasions since the park's establishment in 1939. The first extension occurred in the mid 1950s and yielded two spatially separate lobes of park land: a low-elevation lobe in the west (winter habitat for moose); and a high-elevation lobe in the east (year-round habitat for mountain caribou). A second southward extension in the mid 1990s captured still more wildlife habitat, and considerably enlarged both the western and eastern lobes. Currently the southern boundary of Wells Gray describes two southward protrusions separated by a 20 km northward "peninsula" of settled land. This peninsula is known locally as Upper Clearwater (Map 1).

The existence of two spatially separate lobes – one lowland, the other subalpine – begs the question of connectivity across the intervening private lands. Deer, Cougar, Moose, Wolf, and Black and Grizzly Bear must all undertake semi-annual migrations between these two portions of Wells Gray Park. Map 1 shows three important migratory corridors in this portion of the Clearwater Valley. Of these, the southernmost is relatively secure from development, notwithstanding the permanent disruption of several traditional game trails by recent logging and road construction. By contrast, the future viability of the two northern corridors is now in question, owing to on-going subdivision development.

A recent government-sponsored land use process between the B.C. Ministry of Forests and the residents of Upper Clearwater has resulted in approximately 500 ha of crown land being allocated for research and teaching purposes by Thompson Rivers University (TRU) in connection with its field station – the Wells Gray Education and Research Centre (E&R Centre) – immediately to the east of Edgewood (Figure 7). By signed agreement, no forestry activities are to take place on these "Endowment Lands" without written consent by TRU. Roughly half of this land is situated immediately west of Edgewood, whereas the remainder extends east from the E&R Centre. The "Endowment Lands" thus effectively form a kind of wildland linkage between the western and eastern lobes of southern Wells Gray Park. This portion of the valley is critical: first, because it coincides with an extensive wetland complex offering few crossing points; and second because these crossing point are increasingly being alienated by housing and other development.

Figure 4. Next page. Wells Gray Park is located in south-central British Columbia, about six hours northeast of Vancouver and two hours north of Kamloops. Past southward extensions of the park have created a peninsula of private land between jutting north into the park without, at the present time, provision for wildlife corridors. Edgewood is located where the two purple areas approach most closely. Map by Jason Hollinger.


Wells Gray Provincial Park
Map 1: Dreaming it Whole
Original Park Boundary: 1939
Park Addition: 1955
Park Addition: 1997
"Research Endowment Lands"*
Major Migration Corridors
Private Land
Crown Land
Wells Gray Provincial Park
Enlarged area
Clearwater
N
0
5 km
* By signed agreement between Thompson RiverUniversity (TRU) and the B. C. Ministry of Forests.

INITIATIVE 2: KURTA WATERFOWL WETLANDS

Between 1984 and 2011, 155 species of birds have been documented at Edgewood Blue. By any accounts this is a remarkably high level of avian diversity in a region for which only 243 bird species have been documented since records were first kept in 1950. Clearly this diversity reflects the considerable ecosystemic diversity united in Edgewood itself.

I have long entertained the idea of creating a public waterfowl viewing area in this portion of the Clearwater Valley. Such a facility could serve, for example, as a catalyst for the Wells Gray E&R Centre (Appendix II). Only very recently, however, when John and Edwina Kurta began to survey off 28 ha of wetland in support of the E&R Centre, has it been practicable to initiate such a project. At the time of writing I am in the process of creating access to what I hope will eventually be the Kurta Waterfowl viewing area. Figure 3 provides an aerial view of the Kurta wetlands, with Sky Pond and its ancillary waterways shown to the right of the red roofs near the top of the photo. Successful completion of this initiative, together with its eventual accessibility to the general public, is dependent on successful transfer of this wetland complex to a public land trust.

Figure 5. The Kurta Waterfowl Wetlands (lower right), with Sky Pond showing in the upper distance immediately to the right of the red roofs of Edgewood Blue. A waterfowl viewing platform is currently in the early planning phase in the far east (leaf-hand) side of the Kurta Wetlands. Moonwort Meadows appears on the lower left. Photo by Fritz Schaer.

INITIATIVE 3: MOONWORT MEADOWS

The Moonwort Meadows initiative is dedicated to the preservation of a remarkably diverse assemblage of Moonwort Ferns belonging to the genus *Botrychium*.

The grassy area at the eastern end of Edgewood Blue is called Moonwort Meadow – a name reflecting the numerous Moonwort Ferns (*Botrychium*) that grow here. Northwest North America is a global hotspot for *Botrychium*, with about 26 species. While the highest *regional* diversity for this genus appears to occur in northern Idaho, it seems possible that Moonwort Meadows, with 12 species (see below), supports the highest *local* diversity - certainly in Canada. More on *Botrychium* can be found at http://www.public.iastate.edu/~herbarium/botrychium.html.

Edgewood contains only a small portion of Moonwort Meadow; much the greater portion occurs on the property immediately to the north (Figure 3). Whereas the Edgewood portion of Moonwort Meadow has been maintained for the past 25 years by periodic brushing, the northern portion owes its current existence to past grazing by horses. The last of the horses recently passed away, with the result that these meadows have lately begun to revert to forest land. In the absence of ongoing grazing, it would be highly desirable of acquire the portion of Moonwort Meadow as a source population for Moonwort Ferns. I strongly recommend its acquisition, as this would have the further effect of buffering the Kurta Waterfowl Wetlands from housing development.

Figure 6. Western Moonwort (*Botrychium hesperium)* is one of twelve Moonwort Ferns known to inhabit Moonwort Meadows, at Edgewood Blue. Photo by Jason Hollinger.

- *Botrychium alaskense*
- *Botrychium hesperium*
- *Botrychium lanceolatum*
- *Botrychium lunaria*
- *Botrychium minganense*
- *Botrychium multifidum*
- *Botrychium paradoxum*
- *Botrychium pedunculosum*
- *Botrychium pinnatum*
- *Botrychium simplex*
- *Botrychium virginianum*
- *Botrychium x watertonense*

The Moonwort Ferns of Edgewood Blue and adjacent portions of Moonwort Meadow.

INITIATIVE 4: EDGEWOOD WAYS

The Edgewood Ways initiative has three primary objectives: first to rekindle a tradition of research in the Clearwater Valley that dates back to a ten-year government-funded research programme beginning in the early 1950s; second to jumpstart the next phase of the Wells Gray Education and Research (Appendix II); and third to assist in training a new generation of naturalists. For the sake of completeness – and by way of stating my personal credo – I will now give my rationale for this last objective.

I believe strongly in the core importance of wilderness to the well being of the human psyche. In essence I see wilderness as our ancestral "home": a place we must periodically return to if we are to continue – or in our time to *begin* – to live sustainably. Wilderness is a difficult concept for the modern mind. We readily grasp the cultural importance of cathedrals, art galleries and libraries, which we ourselves must take an active role in maintaining. Yet to *actively* maintain wilderness, in the sense of managing it, is in the long run to undermine it, to make it less wild, and hence to diminish its normative, restorative powers. Wilderness is the only public trust that by its very nature requires that we leave it alone.

In keeping with Wells Gray's status as a wilderness park, I find it convenient to organize my efforts around the concept of wilderness (***n***. from Old English *wilddoer*, wild animal). As an organizing theme, wilderness can be teased into several related subthemes:

- wilderness as ancestral "home": game trails as paths to self-discovery
- wilderness as biodiversity: reclaiming taxonomic knowledge
- wilderness as system: the living world as emergent
- wilderness as university: pattern recognition and inductive reasoning
- wilderness as inspiration: a return to the naturalist tradition
- wilderness as touchstone: preserving the integrity of wild places

I won't attempt here to demystify these subthemes – collectively they constitute my vision statement for Edgewood Ways – but will instead state my belief that our contemporary societal emphasis on reductionist thinking has led us away from a healthy relation to wilderness, thereby distancing us from the possibility of sustainable living. From a systems perspective, I compare us to the tree that is dying at the root, but hasn't yet registered the fact in its growing parts. I argue that the kinds of experiential knowledge needed to turn this situation around reside, at least in part, within the attitudes and lifestyles of thoughtful individuals who dedicate their lives to the acquisition of taxonomic and ecologic knowledge about wild places. Such people are naturalists. Basically the thrust of the Edgewood Ways initiative is to assist in training a new generation of naturalists.

Figure 7. Next page. The Wells Gray Education and Research Centre is located across the park road immediately east of Edgewood Blue. Photo by Trevor Goward

THE WELLS GRAY EDUCATION AND RESEARCH CENTRE

In 1986, B.C. Parks released its Master Plan for Wells Gray Park. This document, still in effect, called for the development of an outdoor education and research facility in or near the park. This invitation ultimately led to the creation of the Friends of Wells Gray Park, who for many years worked toward the establishment of what is now the Wells Gray Education and Research Centre (E&R Centre). The project took a major step forward in the early 1990s when Thompson Rivers University (at that time Caribou College) agreed to operate such a facility on 2 ha of land donated for this purpose by the Clearwater School District. Since then the E&R Centre has operated out of a one-room schoolhouse and teacherage located east of the park road from Edgewood (Figure 7). Over the years, many courses and weekend retreats have been held here, a major highlight being a semi-annual, two-week introductory course in field ecology offered by TRU.

By 1993, the E&R project was sufficiently advanced that TRU began to plan for its eventual expansion. In December of that year I donated 4 ha of land to the university expressly for this purpose. My donation, however, came with the stipulation that the land would revert to me in the event that TRU failed to follow through with the planned expansion by 2001. The parcel is located immediately south of the E&R Centre.

About the same time, John and Edwina Kurta, currently of Upper Clearwater, entered into a verbal agreement with TRU to withhold sale of one or more properties in the vicinity of the E&R Centre until such time as the university could raise funds for their purchase. In addition, a much larger parcel was to be gifted to TRU as part of the same agreement.

In 2006, two decades after the call for a Wells Gray E&R Centre, it became evident that the project had stagnated, mostly owing to a lack of interest on the part of the administration at TRU. No expansion of the existing "temporary" centre had been undertaken, and certainly no effort had been made to purchase the properties set aside by the Kurtas. Accordingly I decided to urge the E&R Centre project to its next level by creating a scaled-down version of it on my own property; see Project 4.

TREVOR GOWARD (Photo by Jason Hollinger)

Born in Vancouver in 1952, I have been a naturalist as long as I can remember. During my student years I worked as a seasonal interpreter – a park naturalist – in several of British Columbia's provincial parks, especially Wells Gray. With geologist Cathie Hickson, I later wrote a book on that park's natural history: *Nature Wells Gray*, now coming into its third edition. Since building my home in the Clearwater Valley, I have worked – always a consultant – as a lichen taxonomist and ecologist, with specialties in biodiversity and oldgrowth ecosystems. During the same period I have served as Curator of Lichens at the University of British Columbia herbarium, to which I have deposited about 30,000 specimens of vascular plants, bryophytes and lichens. My writings to date include two major books on the macrolichens of British Columbia, and about 30 popular articles and 125 papers in the scientific literature (LINK). The following papers pertain directly to work I have conducted in and around Wells Gray Park:

Altermann, S. and T. Goward. 2009. *Letharia lupina* (Parmeliaceae): a new species based on fungi and algal molecular characters. The Bryologist. Submitted.

Goffinet, B., J. Miadlikowska and T. Goward. 2003. Phylogenetic inferences based on nrDNA sequences support five morphospecies within the *Peltigera didactyla* complex (Lichenized Ascomycota). The Bryologist 106: 349-364.

Goward, T. (ed.). 1984. Checklist of the Birds of Wells Gray Provincial Park. First Edition. B.C. Parks. 2 pp.

Goward, T. (ed.). 1993. Checklist of the Birds of Wells Gray Provincial Park. Second Edition. B.C. Parks. 2 pp.

Goward, T. 1994. Notes on oldgrowth-dependent epiphytic macrolichens in the humid oldgrowth forests in inland British Columbia, Canada. Acta Botanica Fennica 150: 31-38.

Goward, T. 1998. Observations on the ecology of the lichen genus *Bryoria* in high elevation conifer forests. Canadian Field Naturalist: 112: 496-501.

Goward, T. 2003. On the vertical zonation of Hair Lichens (*Bryoria*) in the canopies of high-elevation oldgrowth conifer forests. The Canadian Field-Naturalist 114: 39-43.

Goward, T. 2003. On the dispersal of hair lichens (*Bryoria*) in high-elevation oldgrowth conifer forests. The Canadian Field-Naturalist 117: 44-48.

Goward, T. 2008. 12 Readings on the Lichen Thallus. Face in the Mirror. Evansia 25: 23-25.

Goward, T. and T. Ahti. 1983. *Parmelia hygrophila*, a new lichen species from the Pacific Northwest of North America. Annales Botanici Fennici 20: 9-13.

Goward, T. and T. Ahti. 1992. Macrolichens and their zonal distribution in Wells Gray Provincial Park and its vicinity, British Columbia, Canada. Acta Botanica Fennica 147: 1-60.

Goward, T. and T. Ahti. 1997. Notes on the distributional ecology of the Cladoniaceae (lichenized Ascomycetes) in temperate and boreal North America. Journal of the Hattori Botanical Laboratory 82: 143-155.

Goward, T. and A. Arsenault. 2000. Cyanolichen distribution in young unmanaged forests: a dripzone effect? The Bryologist 103: 28-37.

Goward, T. and A. Arsenault. 2000. Inland oldgrowth rainforests: safe havens for rare lichens? Pages 759-766 in L. Darling (ed.). Proceedings of a conference on the biology and management of species and habitats at risk, Kamloops, B.C., 15-19 Feb., 1999. B.C. Ministry of Environment, Lands and Parks, Victoria, B.C. and University College of the Cariboo, Kamloops, B.C.

Goward, T., and A. Arsenault. 2003. Notes on the *Populus* "dripzone effect" in well ventilated stands in humid inland east-central British Columbia. The Canadian Field-Naturalist 117: 61-65.

Goward, T., and C. Bjork. 2009. Wilf Schofield: a waterfall tribute. Botanical Electronic News 2009.

Goward, T., O. Breuss, B. Ryan, B. McCune, H. Sipman and C. Scheidegger. 1996. Notes on the lichens and allied fungi of British Columbia. III. The Bryologist 99: 439-449.

Goward, T., and J. Campbell. 2005. Arboreal Hair Lichens in a Young, Unmanaged, Mid-elevation Conifer Stand, with Implications for Mountain Caribou. The Bryologist 108: 427-434.

Goward, T., P. Diederich and R. Rosentreter. 1994. Notes on the lichens and allied fungi of British Columbia. II. The Bryologist 97: 56-62.

Goward, T. and B. Goffinet. 2000. *Peltigera chionophila*, a new lichen (Ascomycetes) from the western cordillera of North America. The Bryologist 103: 493-498.

Goward, T., B. Goffinet and O. Vitikainen. 1994. Synopsis of the genus *Peltigera* (Lichenes, Ascomycotina) in British Columbia, with a key to the North American species. Canadian Journal of Botany. 73: 91-111.

Goward, T. and C. Hickson. 1989. Nature Wells Gray. The Clearwater Valley. The Friends of Wells Gray Park, Kamloops. 190 pages.

Goward, T. and C. Hickson. 1996. Nature Wells Gray. A visitors' guide to the Park. Lone Pine Publishing, Edmonton, Alberta. 224 pages.

Goward, T., and B. McCune. 2007. *Hypogymnia canadensis* (Parmeliaceae), a new lichens from the Pacific coast of North America. The Bryologist 110: 808-811.

Goward, T., and T. Spribille. 2005. Lichenological evidence for the recognition of inland rainforests in western North America. Journal of Biogeography 32: 1209-1219.

Goward, T., T. Ahti, J. Elix, and T. Spribille. 2010. *Hypogymnia recurva* and *H. wilfiana* spp. nov., two new lichens from western North America. Botany 88: 345-351.

Goward, T. and G. Thor. 1992. Notes on the lichens and allied fungi of British Columbia. The Bryologist 95: 33-37.

Goward, T. & K. Wright. (eds.). 2009. Checklist of the Birds of Wells Gray Provincial Park. Third Edition. Edgewood Blue. 2 pp.

Kinley, T.A., T. Goward, B.N. McLellan, and R. Serrouya. 2007. The influence of variable snowpacks on habitat use by Mountain Caribou. Rangifer, Special Issue 17: 93-102.

Miadlikowska, J., F. Lutzoni, T. Goward, S. Zoller and D. Posada. 2003. New approach to an old problem: Incorporating signal from gap-rich regions from ITS and rDNA large subunit into phylogenetic analyses to resolve the *Peltigera canina* species complex. Mycologia 95: 1181-1203.

Piercey-Normore, M.D., T. Ahti and T. Goward. 2010. Phylogenetic and haplotype analyses of four segregates within *Cladonia arbuscula s. lat.* Botany 88: 397-408.

Spribille, T., C.R. Bjork, S. Ekman, J.A. Elix, T. Goward, C. Printzen, T. Tønsberg, and Tim Wheeler. 2009. Contributions to an epiphytic lichen flora of northwest North America: I. Eight new species from British Columbia's inland rainforests. The Bryologist 112: 109-137.

Tønsberg, T. and T. Goward. 1992. *Cladonia norvegica* new to North America. Evansia 9: 56-58.

Velmala, S., L. Myllys, P. Halonen, T. Goward, and T. Ahti. 2009. Molecular data show that *Bryoria fremontii* and *B. tortuosa* (Parmeliaceae) are conspecific. Lichenologist 41: 231-242.

Wedin, M., F. Högnabba, and T. Goward. 2009. A new species of *Sphaerophorus*, and a key to the family Sphaerophoraceae in western North America. The Bryologist 112: 368-374.