



**Not Just a Collector, but an Astute Observer of Nature:  
The Reverend John H. Keen  
on the Queen Charlotte Islands (Haida Gwaii), British Columbia**

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**Abstract**

While serving as a missionary at Masset on the Queen Charlotte Islands (Haida Gwaii), British Columbia, during the 1890s, the Reverend John H. Keen collected specimens of plants and animals, particularly of insects and mammals. Many of the specimens were described by specialists as taxa new to science, and some were named after Rev. Keen, such as a rove beetle, *Haida keeni*, and Keen's Mouse, *Peromyscus keeni*. Keen also observed and recorded notes on habitat, behaviour and ecology of many species, which, after 120 years, are now brought to the attention of field ecologists.

**Introduction**

The breadth of interest in natural history shown by the Reverend John H. Keen (1851–1950) during his service at missions on the Queen Charlotte Islands (now known as Haida Gwaii) and at Metlakatla, 6 km northwest of Prince Rupert, British Columbia (1890–1914), resulted in nine papers published on diverse groups of animals (six on insects, two on mammals, and one on birds), all in journals still published today (see Appendix). Most of the papers on insects consisted of lists of beetles collected at those localities, but among those specimens, and others, were several that became the types from which new species were described by specialists. Keen was also aware that the land mammals on Haida Gwaii

were poorly known and he predicted, correctly, that new mammalian taxa also would be described (see Sealy 2013, 2016a).

Buried among some of these papers were descriptions of habitats and behaviour of beetles and a deer mouse on Haida Gwaii (Keen 1896, 1897). Although those observations were made 120 years ago and are long forgotten, they are brought here to the attention of field naturalists, mindful that Keen's work was done in what little spare time was afforded this busy clergyman (see Hatch 1957a; Sealy 2013, 2016b).

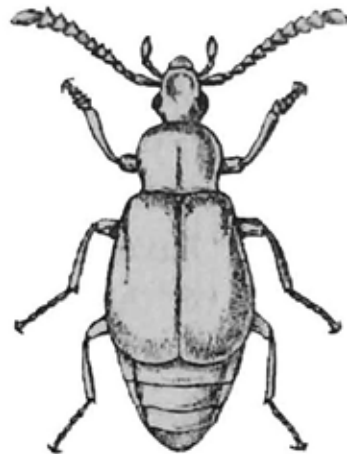
**Observations on Rove Beetles**

Rev. Keen was most interested in insects, especially beetles. In particular, in one of his publications, he singled out three species of rove beetle in the family Staphylinidae and was encouraged by James Fletcher (1852–1908), Dominion Entomologist in Ottawa (see Sealy 2013), to not just list the species but also include notes on their habitat and behaviour. Each species was accompanied by a drawing of the adult beetle rendered by a staff entomologist at the Dominion Agriculture Station (see Keen 1897), which reveals the characteristic short elytra (wing covers) that typically leave almost half of the abdomen exposed. Keen did not mention the beetles' habit, when disturbed, of turning the abdomen up and over the body when running, much as do scorpions (Borror

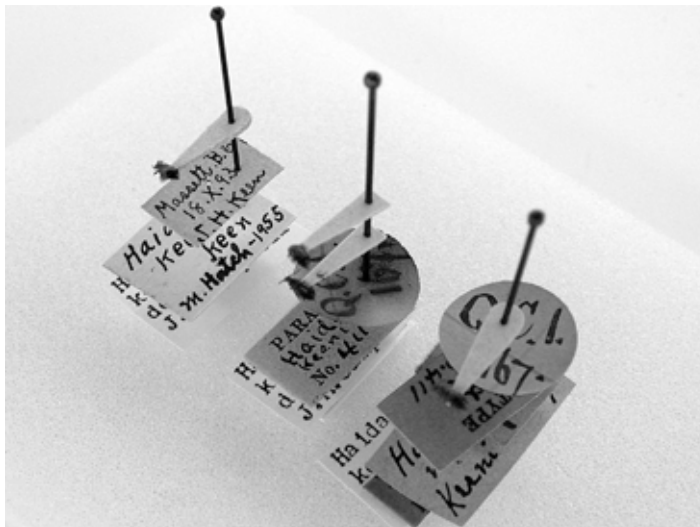
et al. 1976).

These specimens were collected near Massett (now spelled Masset) and were eventually forwarded by Fletcher to Mons. A. Fauvel, of Caen, France, a specialist on the order Coleoptera (also see Brown 1944). One species turned out to be a new genus and species – *Haida keeni* (the original illustration [Keen 1897, p. 285] is reproduced in Figure 1) – the genus named in honor of the Haida people, traditional inhabitants of Haida Gwaii, and the species named after Rev. Keen, the collector (Figure 2). Brown (1944; also see Hatch 1957b) described the genus *Haida* in greater detail, based on three additional specimens collected by Keen and catalogued in the National Insect Collection in Ottawa. Brown (1944) noted that the original illustration of *Haida keeni* in Keen’s paper (see Figure 1) was generally accurate, except the antennae were not stout enough and segments in the palpi of the mouth parts that number two are distinct and cylindrical, not conical.

Referring to *Haida keeni*, Keen (1897, p. 285) noted this beetle “... varies a good deal in size and also



**Figure 1.** Original illustration of *Haida keeni* based on a specimen collected by the Rev. J.H. Keen at Massett, Haida Gwaii, British Columbia. The specimens are catalogued at the Dominion Agriculture Station in Ottawa, ON. Courtesy of *The Canadian Entomologist*.



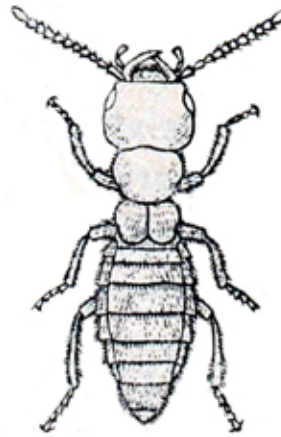
**Figure 2.** The type series of *Haida keeni*, catalogued in the Canadian National Collection of Insects, Ottawa, ON. All specimens were collected by the Rev. J.H. Keen, apparently all near Massett, Haida Gwaii, British Columbia, although that collecting locality is given only for the specimen on the pin at the far left in this series, with a collection date given as 18 October 1893. The three other specimens, on two pins labeled “Q.C.I. 167”, in the middle and to the right in this series, are part of the type series. *Photo by Serge Laplante; courtesy of the Canadian National Collection of Insects, Ottawa, ON.*

in the depth of its coloration. It is found throughout the year, but is most abundant in September, when it frequents rotten leaves on the ground, and seems to have a preference for elder leaves. In winter it occurs in moss about the roots of spruce and other trees. It is somewhat sluggish in its movements and feigns death for a minute or more on being disturbed. I have not yet succeeded in taking it on the mainland, though it is fairly common at Massett.” Keen (1905) never collected this species on the mainland at Metlakatla after leaving Masset late in 1899. Campbell (1978) shows a map depicting records of occurrence of *Haida keeni* from southeast Alaska to southwestern British Columbia with a gap in the records for Haida Gwaii.

The second species, *Liparocephalus brevipennis* (Figure 3), had been known only from the type specimen, but Keen recorded it as common at Masset. He noted (1897, p. 286) that “The insects are found crawling over barnacle-covered stones and boulders near low-water mark. Occasionally they occur congregated in a mass of several hundreds under a single stone, but for what purpose I have been unable to discover. It is most abundant in autumn.” This was the only species in this family that was among the collection of beetles presented by Keen to the Provincial Museum (see Fannin 1898).

Keen conducted an experiment to ascertain this insect’s swimming ability:

From some experiments I made with several specimens in a dish of salt water in which was a half-submerged stone, I observed that they cannot swim under water, but merely crawl on the stones, their pubescence enabling them to surround themselves with minute bubbles of air. They could not be induced to enter the water from the top of the stone. If forced to leave the stone they would swim on the surface, but seemed incapable of diving. If touched while on the side of the stone under water, however, they feigned death, and had the power of sinking readily to the bottom. Some that were left all night swimming on the surface of the water were found dead in the morning, while others which had been submerged all night were still active.



**Figure 3.** *Liparocephalus brevipennis* was illustrated at the Dominion Agriculture Station in Ottawa based on a specimen collected by J.H. Keen on Queen Charlotte Islands (Haida Gwaii), BC. Courtesy of *The Canadian Entomologist*.

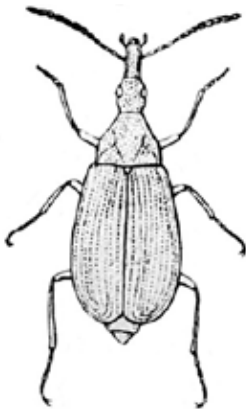
Keen was focused on the differences that characterized each species, as best he could with the little-known taxa, some of which were undescribed, as revealed in the following (Keen 1897, p. 286):

A question has been raised as to whether *L. cordicollis*, Lec. (exactly similar to the present species in form, but with the head and thorax brown), is anything more than a colour variety. I have watched both with this point in view, and speaking as a field observer, my belief is that they are separate species. *L. cordicollis* is the rarer of the two, but when it occurs it is in little colonies. I know, for instance, one large boulder where at almost at any time I could take fifty specimens of *cordicollis*, but where I have never yet seen *brevipennis*. I have, moreover, never seen one of each *in coitu* [Keen’s emphasis], though pairs of one or the other are commonly met with. I may add that my view seems to receive slight confirmation from the fact that three other species of submarine beetles occur at Massett with black abdomen and limbs, but with brown head and thorax. On the other hand, however, I have noticed that the brown of *cordicollis* darkens considerably with keeping.

Hatch (1957a) treated *brevipennis* and *cordicollis* as separate species, and Keen's specimens and notes on abundance were also incorporated into several treatises of the insects of the region. One example is Hamilton's (1894, p. 20) comprehensive list of the beetles of Alaska, which incorporated records of more than 50 species collected by Keen on Haida Gwaii. In that list, *Liparocephalus brevipennis* was referred to as "... abundant on Queen Charlotte Island."

The third species, *Tanyrhinus singularis* (Figure 4), was uncommon at Masset, and Keen (1897, p. 287) took "only ... nine in seven years, and never more than three in one year." Of this species, he added:

It has occurred always in the same spot—on the under side of a rotten spruce log on the ground. From positions I have taken it in I conclude that it feeds either on the rotten wood or in minute fungoid growths on the wood. On one occasion I obtained two specimens by pouring water into the log, which is now soft and fibrous with age, when they emerged from holes. The insect is slow and deliberate in its movements, and makes no attempt to fly when disturbed. It has occurred only in early spring; several of my specimens were taken in the middle of February when snow was on the ground.



**Figure 4.** *Tanyrhinus singularis* was illustrated at the Dominion Agriculture Station in Ottawa based on a specimen collected by J.H. Keen on Queen Charlotte Islands (Haida Gwaii), BC. Courtesy of *The Canadian Entomologist*.

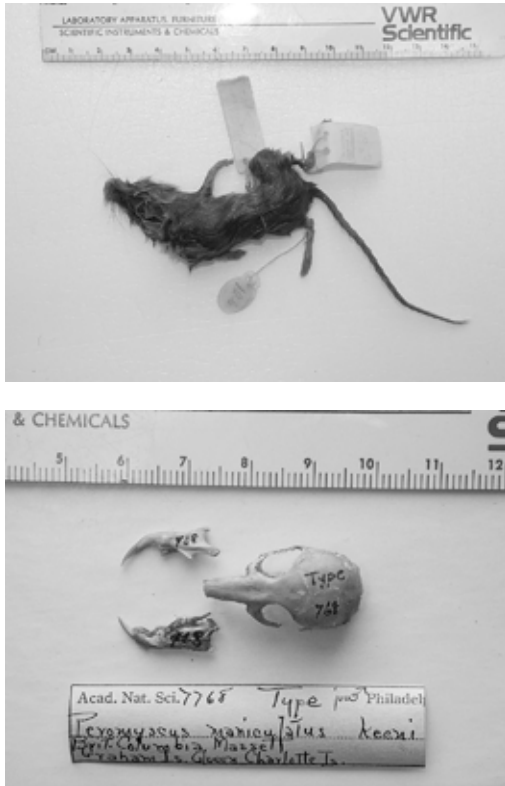
These species remain poorly known. The habitats of two of them are decomposing plant material such as rotten leaves and dead logs, whereas that of the third species is under stones submerged in water (Borrer et al. 1976).

### Observations on Keen's Mouse

In 1892, Rev. Keen collected five specimens of a mouse on Haida Gwaii, about two years after taking up duties at Masset. The specimens were forwarded to the Academy of Natural Sciences of Philadelphia (ANSP) where they came under the curatorial responsibility of Samuel N. Rhoads (1862–1952). Based upon measurements of the cranium and body parts, and assessments of the colour of the pelage of these specimens, compared with closely related species, Rhoads (1894) described a new species of deer mouse and named it *Sitomys keeni* – in honour of Rev. Keen, the collector. At the time, this species was restricted to the larger islands of the Queen Charlotte Islands archipelago (Nagorsen 1990, 2005; also see Osgood 1901), but it was soon merged with several other coastal and insular subspecies of *Peromyscus maniculatus*, and became known as Keen's Mouse (*Peromyscus keeni*). Keen's Mouse ranges from western Washington State north through British Columbia and southeastern Alaska (see range map in Nagorsen 2005, Naughton 2012). Rev. Keen did not have to look far to find this mouse because it was a common inhabitant of houses in Masset at the time, and as Keen's notes reveal below, it predates the expected arrival of the invasive House Mouse (*Mus musculus*) on the islands.

The type specimen from which Keen's Mouse was described is shown in Figure 5. The skull was removed from the carcass that had been immersed in carbolized spirits, the method by which Keen preserved small mammals. Preservation in this way apparently was all that was known and available to Keen at the time and, regardless, it was also much less time-consuming than preparing the more delicate standard skins and skulls of small mammals, which are difficult to transport, particularly under the primitive field conditions in which he worked. Specimens of the larger species such as marten and bears consisted only of the skulls that Keen obtained from hunters

and trappers, frequently through the Hudson's Bay Company that operated in Masset (Dalzell 1968).



**Figure 5.** Type specimen of *Sitomys keenii*. The juvenile male (ANSP 7768) was collected by J.H. Keen at Masset in 1892. Top: carcass with skull removed. Bottom: skull. Photo by Ned S. Gilmore; courtesy of the Academy of Natural Sciences of Philadelphia, Philadelphia, PA.

Rhoads was so taken by the details of behaviour that accompanied the specimens that he encouraged Rev. Keen to describe aspects of the mouse's natural history. This Keen did in a letter published in the *American Naturalist* in 1896. In brief introductory remarks, Rhoads (1896, p.753) wrote: "The remarks on the use of the cheek pouches for the conveyance of food are of particular value. It has been known for many years that several species of [*Peromyscus*] possessed cheek pouches; but I can remember no

personal observations of their use by the living animal, having been published." The letter (Keen 1896, p. 754) is reproduced verbatim:

"MASSETT, QUEEN CHARLOTTE ISLANDS,  
BRITISH COLUMBIA, February 22, 1896.

*Samuel N. Rhoads, Esq., Philadelphia, Dear Sir:*—The following notes I have made lately on the character of *Sitomys keenii* may be of interest. Use them as you think best *Sitomys keenii* is the common house mouse here, and specimens are very numerous. I recently confined an adult female in a fairly spacious cage with glass front, I subsequently introduced three other nearly adult specimens. At first the old female resented the intrusion, but soon became reconciled. The younger ones may have been her offspring, having been taken in the same place. On two other occasions I introduced an adult male taken in another locality, whereupon the old female in each case attacked the intruder fiercely, chased him all over the cage till he was exhausted, and then flew at his throat and bit him so severely that he died almost immediately. A shrew introduced later she treated in the same manner.

After a couple of days they became reconciled to confinement, and indifferent to being watched whilst feeding or at play. They ate bread moistened with milk and raw potatoes, but showed a marked preference for wheat. The wheat they never ate on the spot, but filled their pouches with it, and ascending a sloping board deposited it in their sleeping place. They did this with great rapidity, and a handful soon disappeared. The average number of corns taken at one mouthful was ten, but once or twice the old mouse took as many as sixteen. The first few corns they took up with their mouths, but used their feet to cram in the rest. When their pouches were full their heads were twice their normal size and their expressions extremely droll.

The storing propensity is apparently very strong. It is quite a common occurrence to find any empty article, which has been used for a few days, half full of rice or corn when next taken up. Boots and shoes seem to be the favorite storing places; but a neighbor of mine, on visiting his outhouse, found the oven of a disused stove half full of rice, which had been obtained from sacks close by.

When in a trap, frightened, these mice sound an

alarm by suddenly contracting the nails of the fore-foot so as to cause a sharp scratch on the floor. This they repeat several times, using sometimes one fore-foot, sometimes the other, but never the hind-feet.

*Sitomys keenii* is the only mouse here: [House Mouse] *Mus musculus*, though on the opposite mainland, not having yet found its way thus far. In the summer of 1894 *S. keenii* was unusually numerous. An Indian crossing to the mainland observed one in his canoe when in mid-ocean, and on reaching the mainland saw it jump ashore and escape.

Yours faithfully, J.H. Keen”

In the span of only one page, Rev. Keen described (1) how aggression by a captive, adult female Keen’s Mouse towards an adult male and a shrew led to their deaths; (2) behaviour of trapped individuals when alarmed; (3) how cheek pouches were emptied of rice and corn for storage in various containers; (4) occupation of human habitations; and (5) variable population numbers.

It is well known that deer mice have a propensity to inhabit human abodes (e.g., Banfield 1974, Naughton

2012), but what effect the arrival of the House Mouse in the settlements of Haida Gwaii (Foster 1989), about which Keen pondered, has exerted on deer mice is not known. Keen’s powers of observation were revealed when he described food storing behaviour by deer mice, counting the number of seeds carried in each trip and the frequency of trips to the cache site. Implicit in the observations was that more of the smaller kernels of rice were carried per trip than the larger corn seeds, which suggested the deer mice were opportunistic in their feeding habits (see Reece et al. 1997). Cheek pouches of deer mice are evaginations of the oral cavity, opening just inside the mouth (Vander Wall 1990), but because Keen preserved small mammals whole in spirits, he was not able to describe them, as he might have done if the carcasses had been skinned.

The escape from a canoe of a deer mouse apparently carried inadvertently from Graham Island to the mainland of British Columbia revealed the ease with which a small mammal may be transported to a new place. Unique was the observation of the mouse actually escaping from the canoe to its new surroundings. Apparently unaware of this early



**Figure 6.** The Haida village of Masset photographed from the south end, showing canoes beached in front of canoe sheds seaward from the houses. The photograph was taken in late September 1890, shortly after Rev. J.H. Keen arrived at Masset to begin his work at the Anglican mission. *Photo by Robert E. Reford; courtesy of the Glenbow Archives, Calgary, AB, NA-879-12.*

observation, Foster (1965, p. 33) speculated that it is entirely possible that deer mice are present on some of the Queen Charlotte Islands as the result of their accidental transport by canoe. He stated that of all the mammals, "... the deer mice would have been most likely to have been carried by the canoes [Figure 6]. The canoes carried more than 10 people, they were often filled with baggage and litter, including food, and were often left on the beach at night where the mice most commonly were found."

Keen was still thinking about mice and beetles after his letter was published in the *American Naturalist*. During correspondence between Keen and Samuel Rhoads that undoubtedly occurred leading up to the description of the new mouse species, and beyond, apparently only one letter has survived. In it, Keen revealed his ever-curious nature. On 11 March 1898, Keen wrote to Rhoads: "I should be greatly obliged if you would kindly tell me where the papers read at the Allen & Horn Commemorative Meeting [Keen's emphasis] have been published. I am especially anxious to see yours [on Dr. Allen's work in Zoology] and Dr. J.B. Smith's [on Dr. Horn's contributions to Coleoptology]. I enclose stamp."

On another matter, he stated, "I have not yet succeeded in taking any fresh mammals here, though the mice you named for me are plentiful enough" (Keen 1898). By "fresh mammals", Keen meant species other than those already collected. Rhoads obviously mentioned and possibly sent a copy of the announcement (see Conklin et al. 1897), knowing of Keen's interest in bats and beetles, subjects on which he (Rhoads 1897) and Smith (1897) would be speaking, respectively. Although neither author mentioned Keen's work directly, Rhoads's topic was focused on coastal bats, of which Keen had contributed specimens, and Keen's *Myotis* (*Myotis keeni*) had been named after him (Merriam 1895).

## Synopsis

Rev. Keen's collections of animals on Haida Gwaii produced many firsts—type specimens of newly described species (some named for him), new distributional records, and, above all, observations of living organisms eloquently described by a man educated in the Church. Keen did not stop there,

however, but pondered the diversity of the fauna on islands that are so isolated from the mainland. Rev. Keen was not just a collector, but also an observant naturalist. †

## Acknowledgements

The editor of *The Canadian Entomologist* granted permission to reproduce the illustrations of beetles that accompanied the Rev. Keen's paper published in that journal in 1897. Serge Laplante, Canadian National Collection of Insects, provided photographs of the type series of *Haida keeni*. Kim Custer, Clare Flemming and Jennifer Vess uncovered correspondence and other information pertaining to the type specimen of Keen's Mouse catalogued in the Academy of Natural Sciences of Philadelphia, PA; Ned S. Gilmore, of that Institution, took the photographs of the type specimen of *Sitomys* (*Peromyscus*) *keenii*. Susan Kooyman and Adria Lund provided the copy of the early photograph of the village of Masset registered in the Glenbow Archives, Calgary, AB. Robert A. Cannings and Arthur M. Martell commented on a draft of the manuscript. Comments and the editorial expertise of R. Wayne Campbell, Dennis Demarchi, and Pat Huet are greatly appreciated.

## Literature Cited

- Banfield, A.W.F. 1974. The mammals of Canada. National Museums of Canada, University of Toronto Press, Toronto, ON. 438 pp.
- Borror, D.J., D.M. DeLong, and C.A. Triplehorn. 1976. An introduction to the study of insects, fourth edition. Holt, Rinehart, Winston, New York, NY. 852 pp.
- Brooks, A. and H.S. Swarth. 1925. A distributional list of the birds of British Columbia. Pacific Coast Avifauna, No.17, Berkeley, CA. 158 pp.
- Brown, W.J. 1944. Some new and poorly known species of Coleoptera, II. The Canadian Entomologist 76:4-10.
- Campbell, J.M. 1978. Revision of the North American Omaliinae (Coleoptera: Staphylinidae). Memoirs of the Entomological Society of Canada, No. 106, Winnipeg, MB. 87 pp.
- Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990a. The birds of British Columbia: Vol. 1

- Nonpasserines (Introduction, loons through waterfowl). Royal British Columbia Museum, Victoria, BC. 514 pp.
- Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990b. The birds of British Columbia: Vol. 2 – Nonpasserines (diurnal birds of prey through woodpeckers). Royal British Columbia Museum, Victoria, BC. 636 pp.
- Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1997. The birds of British Columbia: Vol. 3 – Passerines (flycatchers through vireos). Royal British Columbia Museum, Victoria, BC. 693 pp.
- Comstock, J.H. 1940. An introduction to entomology, ninth edition. Comstock, Ithaca, NY. 1,228 pp.
- Conklin, E.G., J.C. Morris, D.G. Rinton, H.C. McCook, and H. Skinner. 1898. Memorial meeting commemorative of Allen and Horn. *Science* 6:997.
- Dalzell, K.E. 1968. The Queen Charlotte Islands, 1774–1966. C.M. Adam, Terrace, BC. 340 pp.
- Fannin, J. 1898. A preliminary catalogue of the collections of natural history and ethnology in the Provincial Museum, British Columbia, Victoria, BC. British Columbia Provincial Museum, Victoria, BC. 196 pp.
- Foster, J.B. 1965. The evolution of the mammals of the Queen Charlotte Islands, British Columbia. Occasional Papers of the British Columbia Provincial Museum, No. 14, Victoria, BC. 130 pp.
- Foster, J.B. 1989. Conservation on the Queen Charlotte Islands. Pages 281-301 in G.G.E. Scudder and N. Gessler (eds). *The outer shores*. Queen Charlotte Islands Museum Press, Skidegate, BC. 327 pp.
- Hamilton, J. 1894. Catalogue of the Coleoptera of Alaska, with the synonymy and distribution. *Transactions of the American Entomological Society* 21:1-38.
- Hatch, M.H. 1957a. A biographical memoir of the Rev. John Henry Keen. *The Coleopterists Bulletin* 11:62-64.
- Hatch, M.H. 1957b. The beetles of the Pacific Northwest. Part II. Staphyliniformia. University of Washington Publications in Biology, No. 16, Seattle, WA. 384 pp.
- Kavanaugh, D.H. 1992. Carabid beetles (Insecta: Coleoptera: Carabidae) of the Queen Charlotte Islands, British Columbia. *Memoirs of the California Academy of Sciences*, No. 16, San Francisco, CA. 113 pp.
- Keen, J.H. 1896. [On the habits of Keen's deer mouse, *Peromyscus keenii* (Rhoads).] *American Naturalist* 30:754.
- Keen, J.H. 1897. Three interesting Staphylinidae from Queen Charlotte Islands. *The Canadian Entomologist* 29:285-287.
- Keen, J.H. 1898. Letter to Samuel N. Roads, 11 March 1898, Archives & Manuscripts Collection, The Academy of Natural Sciences of Philadelphia, PA.
- Keen, J.H. 1905. Beetles from northern British Columbia. *The Canadian Entomologist* 37:297-298.
- LeConte, J.H. and G.H. Horn. 1883. Classification of the Coleoptera of North America. *Miscellaneous Publications of the Smithsonian Institution*, No. 507, Washington, DC. 567 pp.
- Merriam, C.H. 1895. Bats of Queen Charlotte Islands, British Columbia. *American Naturalist* 29:860-861.
- Munro, J.A. and I. McT. Cowan. 1947. A review of the bird fauna of British Columbia. British Columbia Provincial Museum, Special Publication, No. 2, Victoria, BC. 285 pp.
- Nagorsen, D. 1990. The mammals of British Columbia: A taxonomic catalogue. Royal British Columbia Museum, Victoria, BC. 140 pp. Nagorsen, D.W. 2005. *Rodents and Lagomorphs of British Columbia*. Royal British Columbia Museum handbook, Volume 4, Victoria, BC. 410 pp.
- Naughton, D. 2012. *The natural history of Canadian mammals*. University of Toronto Press, Toronto, ON. 784 pp.
- Osgood, W.H. 1901. Natural history of the Queen Charlotte Islands, British Columbia. *North American Fauna*, No. 21, Washington, DC. 50 pp.
- Reece, E.O., J.C. Barnard, and T.A. Hanley. 1997. Food preferences and *ad libitum* intake of wild-



- captured Sitka mice, *Peromyscus keeni sitkensis*. Canadian Field-Naturalist 101:223-226.
- Rhoads, S.N. 1894. Descriptions of four new species and two subspecies of white-footed mice from the United States and British Columbia. Proceedings of the Academy of Natural Sciences of Philadelphia 46:258-259.
- Rhoads, S.N. 1896. On the habits of Keen's deer mouse, *Peromyscus keenii* (Rhoads). American Naturalist 30:753.
- Rhoads, S.N. 1897. Dr. Allen's zoological work. Proceedings of the Academy of Natural Sciences of Philadelphia 49:518-522.
- Sealy, S.G. 2013. Natural history and early descriptions of subspecies of Northern Saw-whet Owl from Haida Gwaii (Queen Charlotte Islands), British Columbia. Wildlife Afield 10:16-25.
- Sealy, S.G. 2016a. Significance of the bird specimens collected by the Reverend John H. Keen on the Queen Charlotte Islands (Haida Gwaii) and at Metlakatla, British Columbia, 1890–1914. British Columbia Birds 26:24-37.
- Sealy, S.G. 2016b. The Reverend John H. Keen's observations of birds and unpublished list from the Queen Charlotte Islands (Haida Gwaii), 1890–1899. British Columbia Birds 26:16-23.
- Seton-Thompson, E. 1900. Rangifer dawsoni. Preliminary description of a new caribou from Queen Charlotte's Islands. Ottawa Naturalist 13:257-261.
- Smith, J.B. 1897. Dr. Horn's contributions to Coleopterology. Proceedings of the Academy of Natural Sciences of Philadelphia 49:529-535.
- Vander Wall, S.B. 1990. Food hoarding in animals. University of Chicago Press, Chicago, IL. 445 pp.

**Appendix.** Natural history publications of the Reverend John H. Keen.

1891. Some British Columbia Coleoptera. The Canadian Entomologist 23:282.

**Notes:** Keen listed 46 species of beetle plus 10 taxa identified only to genus and five species of questionable identification. All were collected at the mouth of the Skeena River near Metlakatla

on the mainland of British Columbia, in June and July 1890, before Keen completed his journey to the Queen Charlotte Islands.

1895. List of Coleoptera collected at Massett, Queen Charlotte Islands, B.C. The Canadian Entomologist 27:165-172, 217-220.

**Note:** A collection of 222 species of beetles with annotated notes on natural history.

1896. On the habits of Keen's deer mouse, *Peromyscus keenii* (Rhoads). American Naturalist 30:754.

1897. Three interesting Staphylinidae from Queen Charlotte Islands. The Canadian Entomologist 29:285-287.

1898. A new cychrinid. The Canadian Entomologist 30:199-200.

**Notes:** Keen transcribed (p. 200) the original description of this species, "for the benefit of Canadian students who may not see Captain [Thomas L.] Casey's books," and thus the latter's description of a new species, *Brennus insularis* Casey 1896, based on a female taken on the mainland in 1896 (not the Queen Charlotte Islands, as stated by Casey). Keen suggested this species "superficially resemble[s] *Cychnus [Brennus] marginatus* ..." and that it "occurs sparingly, under loose bark or under logs on the ground, along the mainland of British Columbia from Fort Simpson and Rivers Inlet, and probably farther [along the mainland], if sought for. I have never met with a specimen on the Queen Charlotte Islands." Kavanaugh (1992) did not encounter this species during extensive collecting on Haida Gwaii in the 1980s. Keen collected two individuals of another species of cychrine, *Scaphinotus angusticollis* (Mannerheim), on Haida Gwaii, but Kavanaugh (1992) concluded that this species is no longer extant in the archipelago, although he added to the number of Keen's specimens of *S. marginatus* (Fischer) from several islands in the archipelago.

1903. *Aegialites debilis*, Mann. The Canadian Entomologist 35:125-126.

**Notes:** Keen (p. 125) collected the first specimen in March 1894 on a “pebbly sea beach” under a stone. Referring to LeConte and Horn’s *Classification of the Coleoptera of North America* (1883), he tentatively identified the specimen as *A. debilis*, which was later confirmed by James Fletcher. Subsequent searches for the beetle on similar pebble beaches proved fruitless, but it was discovered (p. 126) in “large numbers in some conglomerate boulders on the [same] northern shore ... [living] between [the] pebbles and matrices ... their compressed forms admirably adapting them for moving in so confined a space.” This species was equally abundant on the mainland and Keen noted that at the time it apparently was the only representative of its family along the Pacific coast, although it had been taken recently in California (Comstock 1940).

1905. Beetles from northern British Columbia. The Canadian Entomologist 37:297-298.

**Notes:** A list of three species of beetles collected on Haida Gwaii plus 47 species collected between the mouths of the Nass and Skeena rivers, near Metlakatla. Keen acknowledged that some of the specimens “were determined for me through the kindness of Dr. James Fletcher ... whose valuable help and advice I have now for many years enjoyed; the remainder by Professor H.F. Wickham, of Iowa University, to whose skill and courtesy I am deeply indebted.”

1909. Caribou on the Queen Charlotte Islands. Ottawa Naturalist 22:260.

**Notes:** Following several years of doubt, Keen finally acknowledged the presence of a species of caribou on the Queen Charlotte Islands. He had not included a caribou in his 1897 manuscript

of the land mammals recorded for the Queen Charlotte Islands (Sealy, unpublished), but he was aware of its uncertain status there. In fact, he had good reason to be doubtful because no one with whom Keen talked could be certain that caribou ever existed on the Islands, and he had not seen any signs of the animals during his travels. Keen had essentially dismissed the likelihood that a caribou had ever occurred on the Islands, until he learned that Seton-Thompson (1900) described Dawson’s Caribou (*Rangifer dawsoni*), a new species from the Queen Charlotte Islands.

1910. Bird migration in northern British Columbia. Ottawa Naturalist 24:116-117.

**Notes:** Spring-arrival dates of 17 species of migratory land birds recorded at Metlakatla between 1900 and 1910 (except 1906, when Keen was in England). This note was not referenced in early treatises of the birds of British Columbia (e.g., Brooks and Swarth 1925, Munro and Cowan 1945), whereas it was cited in the first three volumes of *The birds of British Columbia* (Campbell et al. 1990a, b, 1997). Keen also prepared a list of birds recorded on the Queen Charlotte Islands, which Osgood (1901) incorporated into the first comprehensive treatise on the flora and fauna of the Islands (also see Sealy 2013, 2016a, b).

#### *About the Author*

Spencer continues to keep busy in retirement, working with the editorial team of *Wildlife Afield*, along with several ongoing writing projects, foremost among them, research on the far-reaching contributions of the Rev. John H. Keen to knowledge of the natural history of Haida Gwaii (Queen Charlotte Islands), British Columbia, during the 1890s at Masset, and early 1900s at Metlakatla.