

THE 1992-1993 OUTBREAK OF SALMONELLOSIS IN PINE SISKINS IN BRITISH COLUMBIA

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In mid-November 1992, an alarming increase in wild bird mortality was reported to the Animal Health Centre in Abbotsford, B.C. During a two-week period, a total of 75 birds were submitted for post-mortem examination by the Canadian Wildlife Service, the B.C. Ministry of Environment, Lands, and Parks, local wildlife rehabilitators, and by concerned private citizens. The species affected were primarily Pine Siskins (*Carduelis pinus*), with much smaller numbers of Evening Grosbeaks (*Coccothraustes vespertinus*), House Sparrows (*Passer domesticus*), and Purple Finches (*Carpodacus purpureus*). The area from which mortalities were reported extended from Chilliwack to Squamish, with the initial reports from Vancouver Island coming in late in December. All of the birds examined had died from *Salmonella typhimurium* septicemia.

Affected birds were thin, fluffed up and easily approached, making them easy prey for house cats. Although *S. typhimurium* has the potential to cause disease both in humans and in other mammal such as cats (Wobeser 1981), no increase was noted in confirmed *Salmonella* sp. cases in these species. This is most likely a result, in part, to immunity developed from previous low-level exposure.

Despite intensive antibiotic and supportive therapy, affected birds invariably died within 24-36 hours of capture. The extremely poor prognosis prompted the general recommendation that sick birds should not be brought inside, but should be either humanely euthanized or should just be left alone, where they would quickly succumb to the cold weather.

Gross lesions were consistent in all birds submitted for necropsy. Firm, variable-sized caseous granulomas were present throughout the liver, spleen, crop mucosa, and occasionally in the joints. Evening Grosbeaks tended to have caseous granulomas in the wall of the colon and to be without crop lesions. *Salmonella typhimurium* was isolated from all tissues. Public concern about the outbreak generated further investigation into the possibility that susceptibility may have been somehow related to pesticide exposure. Brain cholinesterase levels (a test for exposure to organophosphate and carbamate insecticides) were determined to be normal, and there were no detectable pesticide residues in liver and kidney samples. Since *Salmonella* sp. contamination of protein-based animal feeds is a common problem in the livestock industry, we also sampled several unopened packages of bird seed, which all tested negative for

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Salmonella sp. Feed samples taken directly from backyard bird feeders tested positive for the bacterium. In an effort to control the outbreak, a disease alert bulletin was released, which outlined practical sanitation recommendations for private backyard bird feeders.

Infection with *Salmonella typhimurium* is common in populations of passerine birds and pigeons, and usually exists in a latent state (Weber 1979); stress is a major factor in precipitating the onset of disease (Strond & Friend 1987). A normal pattern of mortality due to *Salmonella* sp. is usually seen in late winter following fecal contamination and build-up on platform bird feeders and long, cold winter conditions (Bowes 1991). This recent outbreak in wild bird populations is unprecedented in British Columbia. I conducted a telephone survey at the end of January 1993, in an effort to document the extent of mortality. Input from wildlife rehabilitators, veterinarians, the Canadian Wildlife Service, the B.C. Ministry of Environment, and retail wild bird shops indicated that a total of at least 3100 dead birds were found. This can only be a fraction of the true mortality, and it is likely that the outbreak affected tens of thousands of Pine Siskins. As of early February 1993, reports of excessive Pine Siskin mortality had also come from wildlife agencies in Washington, Idaho, and California (National Wildlife Health Research Center 1993).

"This is a Herring Gull-sized Larus, the same size as most Herring Gulls, though occasionally the bird gets next to a Herring Gull that is slightly larger than it. It has a white head, body and tail. Its head is lightly flecked and smudged with dusky, especially on the nape where the smudges are longest. There are dark smudges above, below and "through" the eye, causing the lemon yellow eye to contrast starkly. The eye smudges are twice as dark as the rest of the head smudges. The postocular line of smudge curves upwards on the left side of the face but is horizontal on the right side. The eye ring is not visible. The interior of the mouth is pink. The bill is a little shorter than Herring Gull's bill. There is little gonys projection and no restriction or narrowing at the base of the bill. On the left side of the bill there is a small black spot contiguous and posterior to the red gonys spot. On the right side traces of both the black and red gonys spot are reduced and very hard to see. The tip of the bill is yellow. The rest of the bill is a dull light gray. The legs and feet are deep pink.

The mantle is a dark grayish black or blackish gray, the darkness varying with light intensity. However at the dump, the bird is easy to pick out from a resting flock of 500 California Gulls by its mantle colour. Visible on Nov. 13 (especially) were the long rectangular white 'tongue-tips' on the undersurfaces of the primaries. The white tongue-tips on the bases of the primaries on the upper surface of the wings are very hard to see. I did not see them until the last day of observation, Nov. 14. The trailing edge of the secondaries on the upperwing surfaces is white, forming a broad white trailing band."

Of interest was the bird's size, shape, and wing length. The older literature (e.g. Harrison 1985) led me to expect a much larger bird. The Vernon bird was shorter in stature than some of the largest Herring Gulls. Perhaps further research will reveal to what extent individual Slaty-backed Gulls can vary in size.

Although not very big, the Vernon Slaty-backed Gull had a heavier neck than the Herring Gulls around it. This, plus the staring yellow eye, gave the bird a predatory appearance, especially in flight. When the bird was perched, its wing tips were very short relative to the body, falling short of the tail tip by about 0.5 cm, in contrast to Herring Gulls, whose wing tips equalled or exceeded the tail tips, and California Gulls, which showed wing tips that extended past the tail tips by 2-3 cm. In flight, the Slaty-backed Gull's wings appeared both shorter and wider than those of the other two species.

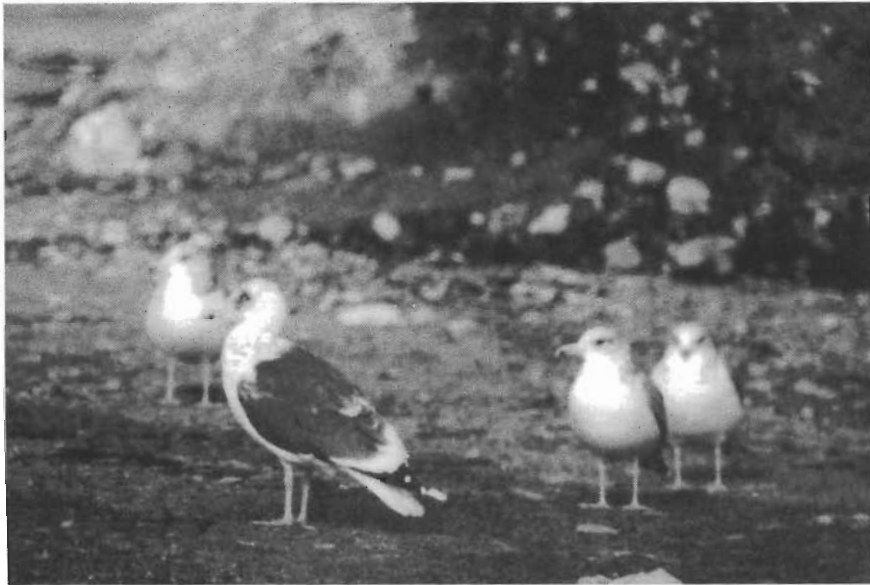
Gustafson and Peterjohn (1994) suggest that the white tongues identified by Goetz et al. (1986) as diagnostic of Larus schistisagus are in fact very hard to see, particularly on the upperwing surface. Gustafson and Peterjohn (1994) suggest that a number of field marks, including the pale underwing, need to be seen before a positive identification can be made. Given the embryonic state of knowledge about the field identification of Slaty-backed Gulls, British Columbia observers are urged to watch for this species and to share their observations concerning the species' plumage, etc., with other field ornithologists.

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Slaty-Backed Gull: photo by O. Gordon