



## Coastal Waterbird Data Continues to Support International Conservation Initiative

by Karen Devitt

The Migratory Shorebird Project is an international, multi-partner research project that aims to guide shorebird conservation throughout the migratory route known as the Pacific Flyway. Through the collaborative efforts of various conservation organizations, the Migratory Shorebird Project conducts the largest coordinated survey of wintering shorebirds from Alaska all the way down to Peru. The goals of this project are to find out where shorebirds go during the non-breeding season, evaluate the factors influencing shorebird populations, provide science-based recommendations and take action to conserve shorebirds and their habitat throughout the flyway.

The initiative, led by Point Blue Conservation Science ([www.pointblue.org](http://www.pointblue.org)), began in 2011 and has since partnered with more than 30 conservation organizations in 10 countries, including Bird Studies Canada. The Migratory Shorebird Project stems from the unique conservation challenges associated with migratory species. Each year millions of shorebirds use the Pacific Flyway to travel from wintering grounds in central and South America to nesting grounds in northern Canada and Alaska. In addition to the important habitats for overwintering and breeding, shorebirds also require multiple stop-over sites to rest and

fuel-up for the rest of their long journey. These three important habitat types cross international boundaries and impacts to one are often reflected throughout their population, presenting an urgent need to understand current threats throughout the flyway.

Recently, our partners with the project have developed an online mapping tool that provides an easy-to-navigate interface for exploring all of the data that is used in this project (Figure 1). The mapping tool also gives you the option to select sites and view shorebird count information for each year. They also have a summary tool which allows you to pull out summary, density, and richness information for particular sites.

Currently the data is being used to answer questions about the influence of habitat characteristics on Dunlin and Western Sandpipers and the impact of sea-level rise and other environmental changes on shorebird distribution. Check-out [www.migratoryshorebirdproject.org](http://www.migratoryshorebirdproject.org) to learn more and see how BC Coastal Waterbird Survey data is supporting an international conservation initiative.

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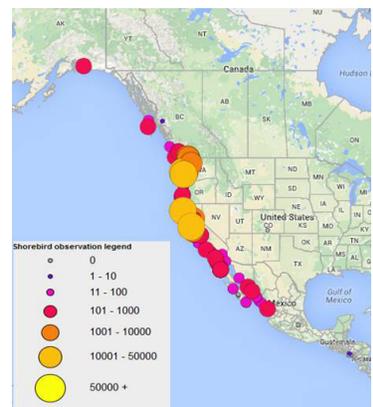
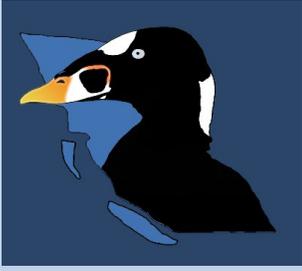


Figure 1 Dunlin observations along the Pacific Flyway. BC Coastal Waterbird Survey Data can now be viewed with similar survey data across the Pacific Flyway ([www.pointblue.org](http://www.pointblue.org)).



# B.C. Coastal Waterbird Survey: Highlights from 2014-15

by Karen Devitt

Another successful season of Coastal Waterbird Surveys has passed, all thanks to our dedicated team of Citizen Scientists! This past season, Coastal Waterbird Surveyors collectively conducted 1256 surveys at 183 sites across BC, amassing 17,175 records.

## Unusual Sightings

When new sites are added and as old sites become familiar, rare sightings or new birds for an area are reported. Here are a few highlights from this past season:

- A lone Ross's Goose surprised Jayme Brooks while surveying Brunswick Point earlier this year. Ross's geese are typically found during the winter in California and tend to migrate to Arctic breeding grounds through central North America.
- Ruddy Turnstones are reported each year and are considered a migrant for B.C. Last November, two Ruddy Turnstones were spotted in Oyster Bay by Betty Brook, a first record for the Coastal Waterbird Survey for this area.
- Over the years, Red Knot have been reported a handful of times. Red Knot are the largest of the 'peeps' and are listed under the Species at Risk Act. Two were spotted in September of 2014 in Boundary Bay by Jeremy McCall.
- Jenny Clark was surprised by a Parasitic Jaeger in Victoria, harassing some gulls during a survey in September. Parasitic Jaegers migrate through to breed in Northern B.C. and Alaska, however they have only been reported during Coastal Waterbird Surveys a handful of times.
- Yellow Bellied loons are reported in very small numbers every year, despite being relatively rare for most of B.C. This past season, one was spotted around Hornby Island in October (Ann Zielinski) and another in the Burrard Inlet during a January survey (Andrew Paetow).



Common Loon (P. Courteau)



Parasitic Jaeger (C. Eckhart)



Black Turnstones  
(Y. Maximchuck)

## Loons

This past season, large flocks of over 30 Common Loons were observed in White Rock, Denman Island, Powell River, Comox, Parksville, and Nanaimo. White Rock saw the largest flock of 245 individuals last fall (Leona Breckenridge). Large flocks of Pacific Loons were also reported this season around Denman Island, White Rock, Mayne, Nanaimo, Powell River, and Hornby Island. Denman Island had the highest count of Pacific Loons with 934 individuals reported in February of 2015 (Mike Morrell). Red-Throated Loons were regularly observed in small flocks or individuals. Hotspots for this past season included Nanaimo, Victoria, and the Viner River Estuary.

## Shorebirds

Like most years, the largest flocks of Dunlin were observed in the Fraser River Estuary Important Bird Area. Brunswick Point, a site that has only recently been added to the survey, reported 20,000 Dunlin in March and April (Jayme Brooks).

Despite large flocks of Western Sandpipers being relatively rare in the winter months, 1500 were observed in White Rock during a March survey by Fred and Evelyn Dobson. Boundary Bay had the highest count of Black-bellied Plovers, with over 1700 individuals in February and April (Jean Gartner). Black Bellied Plovers were also regularly sited in the Comox area, Oyster Bay, and Hornby Island. Black Turnstones were reported at most sites during January, February and March counts. Port Hardy saw the largest number of Black Turnstones in one survey with a flock of 247 birds (Mac Willing). Surfbirds were most commonly reported around southern Vancouver Island and Hornby Island. The largest number of surfbird counted during a survey was 180 on Hornby Island in February (Bev Bullen).

Other less common shorebirds reported this past season include one Semi-palmated Sandpiper observed in March in White Rock (Fred and Evelyn Dobson) and Least Sandpipers in the Parksville/Qualicum area (Rhys and Terry Harrison) and in the Campbell River area (Ed and Thelma Silkens) during some summer surveys. Six Pectoral Sandpipers were reported in Boundary Bay (Jean Gartner) and one was counted in Black Creek (Betty Brooks). A flock of 200 Sanderling was reported around Hornby Island in November of last year (Bev Bullen). Sanderling were also spotted occasionally during the winter in Boundary Bay and southern Vancouver Island.

## Grebes

Though some studies indicate that Western Grebes have shifted their winter distribution to California, Viner River Estuary in the Broughton Archipelago continues to report large flocks.



Western Sandpipers (T. Middleton)

During October and December of 2014 and February of 2015, more than 1000 Western Grebe were observed during each survey (Yvonne Maximchuk and Bill Proctor). Western Grebes were also reported in smaller numbers throughout the 2014/2015 season around Hornby Island, White Rock, Kitimat, Cowichan Bay, Comox, Port Hardy, Parksville and Qualicum, and Victoria. White Rock reported the largest flock of over 600 Red-necked Grebes (Leona Breckenridge and Allison Prentice). Horned Grebes were reported at most sites and were most abundant at Cordova Bay in Victoria, White Rock, Roberts Bank, and Denman Island. Pied-billed Grebes were reported in small numbers around Victoira, Pender, Hornby, and Denman Island, Comox, Nanimo and Sechelt. Eared Grebes were reported in even smaller numbers, primarily in the Parksville and Qualicum area.



Western Grebe (P. Courteau)



# B.C. Coastal Waterbird Survey: Highlights from 2014-15 (Continued)

## Sea Ducks

Sea Ducks are a group of diving ducks that spend much of their lives in marine or estuarine habitats. Scoters, Mergansers, Harlequin Ducks, Long-tailed Ducks, and Bufflehead are all part of this group and spend their winters along B.C.'s coasts. Unlike other groups of waterfowl, sea ducks are still poorly understood and Coastal Waterbird Survey data contributes to their conservation by monitoring population and distribution trends in B.C.

Large flocks of over 30 Barrow's Goldeneye were regularly reported in the Burrard Inlet, Gibson Islands, Viner River Estuary, Kitimat, Nanaimo and Port MacNeil. Common Goldeneye were also reported consistently in flocks with over 30 individuals. Hotspots for Common Goldeneye this past season include Comox, Denman Island, Victoria, Qualicum Beach, and Nanaimo. Surf, White-winged and Black Scoters were reported throughout most survey areas. The largest count for Surf Scoters was 4500 birds in November off of Prospect Point in Stanley Park (Allan Jensen). White-winged Scoters were generally reported in lower numbers, with the exception of one January sighting in Comox of over 3000 birds (Fran Newson). Like most years, Black Scoters were generally reported in smaller flocks of less than 100 individuals, with the exception of a few sightings in Comox, Hornby Island, and Qualicum Beach, where more than 200 birds were counted during winter surveys (Bev Lownie, Joy Wade, Fran Newson).

Harlequin Ducks were reported consistently at most sites and the largest flock seen was of 182 birds in Comox (Fran Newson). Other hotspots for Harlequins include Hornby Island, Denman Island, and White Rock. Long-tailed Ducks were most commonly reported around Southern Vancouver Island, White Rock, and Deman Island. Saanichton Bay reported the largest flock of 250 individuals in November (Michael Simmons).

The largest flocks of Common, Hooded, and Red-breasted Mergansers were 111, 58, and 164, respectively (Ed and Thelma Silkens, Agnes Lynn, Mike Morrell). Larger flocks of Common Mergansers were most frequently cited in Kitimat, Campbell River, and Salt Spring Island. Hotspots for Hooded and Red-breasted Mergansers were around Victoria.



Scoters and Gulls (P. Courteau)



Red-breasted Merganser (P. Courteau)

## Raptors

We ask volunteers to record information on birds of prey, as they influence the distribution of coastal waterbirds. During the 2014-15 season, high counts of over 30 Bald Eagles were observed at several sites including Powell River (David Bedry), Boundary Bay (Jean Gartner), and Hornby Island (Bev Bullen). Red-Tailed Hawks and Northern Harrier were reported at most sites around the Lower mainland and Victoria. Other birds of prey reported this past season include Sharp-shinned Hawks around Victoria, White Rock, Quadra Island, and Powell River, a Short-eared Owl and two Rough-legged Hawks around Tsawwassen (George Clulow). Peregrine Falcons were consistently reported around Victoria, Tsawwassen and Boundary Bay. Osprey were observed during the spring and summer in Kitimat, Mayne and Pender Island, Victoria, and Cowichan Valley sites. Cooper's Hawks were reported during the winter and early spring around White Rock, Boundary Bay, and Victoria.



Bald Eagles feeding on a sealion carcass (R. Fisher)

## Alcids

As true seabirds, members of the Alcid family typically spend most of their lives at sea, coming to land to breed in large colonies in the summer. In B.C., Alcids inhabit the nearshore and offshore zones year-round. The most commonly sighted and widely distributed Alcids in B.C. are Pigeon Guillemots and Common Murres. This past season, the largest flocks of Common Murre and Pigeon Guillemot were reported in Victoria, with over 600 Common Murre (Ian Cruickshank) and 320 Pigeon Guillemot (Mike McGrenere) counted.

Rhinoceros Auklets are typically found far from land but flocks occasionally spend the night in coastal bays and come into feed in areas with upwelling or where food is highly concentrated. Breeding colonies occur throughout the Salish Sea, the west coast of Vancouver Island, and north to Haida Gwaii. Largest flocks over the years have generally been observed in the north during the summer months. For example, this past July over 1600 were counted in the Viner River Estuary (Yvonne Maximchuk and Bill Proctor). During the fall and winter, Rhinoceros Auklet were observed less frequently and in smaller groups around southern Vancouver Island, Mayne Island, Hornby Island, and Nanaimo.

Marbled Murrelets were spotted throughout most sites and generally in small groups of 2-10 individuals. However, counts of over 50 individuals were reported consistently in the Viner River Estuary (Yvonne Maximchuk and Bill Proctor, Peggy Sowden and David Thomson) and occasionally in Powell River (Yves Perreault).

## Looking Forward to 2015-2016

We are now well into the 2015-16 survey season. We appreciate the ongoing participation and welcome new volunteers who have recently joined the Team. A friendly reminder to enter all data as soon as possible or by May 1. Please contact Karen Devitt if you have any questions, made changes to the way you survey your site or have any photos of birds or the habitats you survey that you would like to share. Karen can be reached by email at [BCvolunteer@birdscanada.org](mailto:BCvolunteer@birdscanada.org) or by phone at **604-350-1988** or **1-877-349-2473**.



# Beached Bird Survey: Observations From the 2014 Season

By Karen Devitt



Cassin's Auklet carcass (K. Zacharuk)



Surf Scoter (T. Carr)



Common Murre (K. Zacharuk)

Bird Studies Canada regularly shares data collected from all of our Citizen Science programs and in 2014, data collected from the BC Beached Bird Survey Team was used to investigate a large die-off event of over 100,000 Cassin's Auklets. The Cassin's Auklets were observed washing ashore from Alaska down to California in October of 2014 through January 2015. Thanks to data collected by BC Beached Bird Surveyors and members of the Coastal Observation and Seabird Survey Team in the US, researchers were able to track this event and determine that most of the birds that washed ashore in California had hatched in 2014 while those that turned up along the Oregon, Washington, and B.C. coastlines had hatched prior to 2014. Post-mortem exams of the beached birds in California, Oregon, and Washington revealed that emaciation and starvation was the primary cause of death. In contrast, carcasses collected in B.C. were in fair condition and the birds were suspected to have died of complications associated with drowning. At all sites, Cassin's Auklet carcasses that were examined exhibited gastrointestinal hemorrhage, which typically indicates that the birds were under some sort of physiological stress.

Though there are many factors that may have contributed to this wreck event, researchers believe that due to a very successful breeding season, unusually large numbers of hatch year birds were unable to find adequate prey during their first winter. Many suspect that the environmental conditions associated with an anomalous mass of warm water in the north eastern Pacific Ocean may have exacerbated normal Cassin's Auklet mortality rates. This mass of warm water, which has been dubbed "the Blob", was first observed in the Gulf of Alaska during the winter of 2013/14. By May of 2014, the Blob extended its reach into B.C. waters and currently stretches all the way down to Mexico. The Blob is the result of a series of weather patterns which reduced the rate of both heat loss from the ocean to the atmosphere and cold water circulation in the upper ocean. As a result, waters within the Blob are approximately 2.5°C warmer than average for the time of year and area. Scientists have since observed shifts in prey species and reduced phytoplankton productivity off of B.C.'s coast. Though research is still underway, preliminary results suggest that the shift in productivity observed in these anomalous conditions may have lead to a prey shortage for Cassin's Auklets.

This event highlights the importance of collecting baseline data and monitoring our beaches for bird carcasses. Many coastal waterbirds are good indicators of marine ecosystem health and can serve as an early warning system for changes in oceanic conditions and anomalous events such as the warm waters associated with the Blob.

## 2014 Beached Bird Survey Results

It was another successful year for the B.C. Beached Bird Survey Team, with over 100 volunteers, 591 surveys completed and 75 beaches surveyed (Table 1). Over 880 kilometres of beach were surveyed and a total of 157 dead birds were found (Table 2).

Regions that saw the highest number of dead birds/km include the West and North Coast of Vancouver Island, Boundary Bay, Southern Vancouver Island and the Strait of Georgia. These regions have consistently reported a higher number of carcasses over the years.

**Table 1 Number of active Beached Bird Survey sites by region in 2014.**

Region	# Sites
Boundary Bay	9
Lower Mainland	16
Gulf Islands	8
Southern Vancouver Island	15
West and North Vancouver Island	7
Strait of Georgia	19
North and Central Coast	1
<b>Total</b>	<b>75</b>



Common Loon (T. Carr)

Like most years, the majority of the surveys did not report any beached birds. However, reporting that you did not find any beached birds is still crucial information and is critical for establishing baseline trends.

### Species Encountered

Over a third of the beached birds found in 2014 were alcids, most of which were Common Murres found in Boundary Bay and Tofino. Other alcids reported include Pigeon Guillemots, Marbled Murrelets, and Rhinoceros and Cassin's Auklets.

**Table 2 Total distance surveyed, number of birds found and deposition rate by region.**

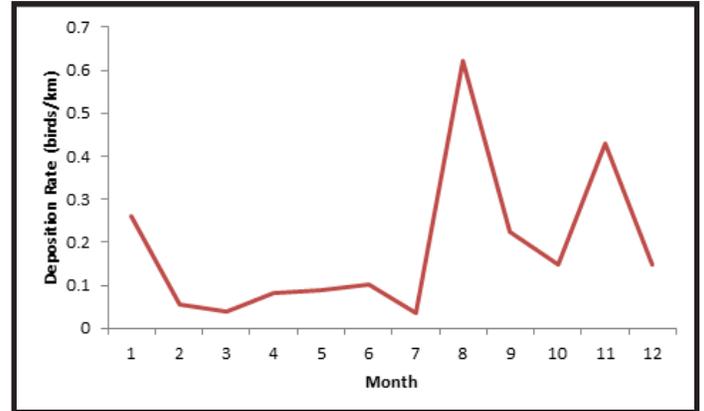
Region	Total Beach Length Surveyed (km)	# Birds Found	Deposition Rate (birds/km)
Boundary Bay	170.53	57	0.33
Gulf Islands	71.9	2	0.03
Lower Mainland	162.095	6	0.04
North and Central coast	4	0	0.00
Southern Vancouver Island	180.712	24	0.13
Strait of Georgia	215.325	25	0.12
West and North Coast Vancouver Island	79.36	43	0.54
<b>Total</b>	<b>883.922</b>	<b>157</b>	<b>0.18</b>



# Beached Bird Survey: Observations From the 2014 Season (continued)

Approximately 1/3 of the beached birds found were gulls, primarily Glaucous-winged found in Boundary Bay, Mitlenatch Island, and Parksville. An eighth of the carcass reported this year were ducks, geese, or swans, including American Wigeon, Common Goldeneye, Bufflehead, Snow Goose, Canada Goose and Surf Scoters. Other species reported in 2014 include four Northern Fulmar, one Common and one Pacific Loon, five cormorants, one Dunlin, one Rock Pigeon and one Brewer's Blackbird.

Carcass encounter rates (carcass/km) were highest in August and November (Figure 1). In August, 44 carcasses were reported, many of which were Common Murre found in Boundary Bay. This spike coincides with the salmon gill-net fishing season. Twenty six birds were found in November primarily along the West and North Coast of Vancouver Island. This spike coincided with the beginning of the Cassin's Auklet die-off event, with eight Cassin's Auklet carcasses found at Chesterman's Beach and Tapaltos Bay.



**Figure 1 Beached Bird Survey encounter rate (carcass/km) by month in 2014.**

Though not entirely captured by the Beached Bird Surveys, 195 birds were also reported to have washed ashore from Tofino to Bamfield between September 28 and October 7. Most of the birds were Common Murres and their deaths coincided with the first major winter storm in the area. Other species encountered during this time include Sooty Shearwaters, Pacific Loons, and Cassin's and Rhinoceros Auklets.

**Table 3 Species of beached bird found by region in 2014**

Species	Boundary Bay	Gulf Islands	Lower Mainland	Southern Vancouver Island	Strait of Georgia	West and North Coast of Vancouver Island	Total	% of Total
Gulls	19	1		9	21		50	32%
Ducks, Geese, Swans	10		1	7	1		19	12%
Alcids	22	1	1	5	1	27	57	36%
Cormorants	3				1	1	5	3%
Shorebirds	1						1	1%
Tubenoses						4	4	3%
Loons	1		1				2	1%
Unknown	1		2	2	1	11	17	11%
Other			1	1			2	1%
<b>Total</b>	<b>57</b>	<b>2</b>	<b>6</b>	<b>24</b>	<b>25</b>	<b>43</b>	<b>157</b>	<b>100%</b>

Many of the birds involved in this event washed ashore in areas that are not currently covered by the Beached Bird Survey.

As is the case for most years, cause of death can be difficult to determine. As a result, the cause of death for the majority of birds found this year is unknown. Most of the Common Murre carcasses that were collected for a post-mortem exam died due to entrapment or entanglement with nets. This year, no oil was reported on any of the beaches, however one Rhinoceros Auklet carcass was found in Victoria and did show evidence of oiling.

### Future Needs

A hearty thank you to all who contributed to this years Beached Bird Survey and welcome to those who have recently joined the Team. Bird Studies Canada is always looking for new volunteers to join the Beached Bird Survey Team. We have a number of vacant sites in the Gulf Islands, Strait of Georgia and along the West and North Coast of Vancouver Island and Central and North Coasts of B.C. This survey is suitable for all ages and bird identification abilities and all necessary equipment is provided. If you or someone you know is interested in participating in the survey, please contact Karen Devitt at [bcvolunteer@birdscanada.org](mailto:bcvolunteer@birdscanada.org).



Piper's Lagoon from Morning Side Beach (G. Ford)



Columbia Beach (Nigel and Jan Hurford)

### Friendly Reminders

- We love your photos! Please send them to [bcvolunteer@birdscanada.org](mailto:bcvolunteer@birdscanada.org).
- Please remember to enter the length of the beach surveyed (one way) in metres.
- When entering your start and end time, please use the 24-hour clock (i.e 3 pm =1500).



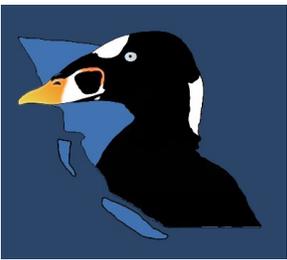
# Thank you 2014 Beached Bird Survey Volunteers!

A huge thank you to volunteers and their assistants who contributed to the BC Beached Bird Survey during the 2014 season: Gary Amadeo, Adrien Amadeo-Vittone, Robert Auger, Nathan Badry, Karen Barry, Vreni Blatter, Leona Breckenridge, Christine Brophy, Amber Brown, Bill Campbell, Terry Carr, Darlene Choquette, Debbie Cleveland, Linda Cole, Christina Cutbill, Danielle Dagenais, Erwin David, Terita Deare, Eric Demers, Jennifer Devey, Heather-Leigh Dysart, Phyllis Fafard, Eckhardt Ferdinandi, Derek Fisher, Ross Fisher, Graham Ford, Helen Fox, Sally and Al Frost, Marilyn Futer, Jeff George, Daniel Grima, Barry Hall, Connie Handley and Hakai Beach Institute, Becca Hannigan, Heather Harbord, Pauline Hedger, John Henrichsen, Hannah Hereward, Mark Hipfner, Jesse Holla, Sheila Howlett, Denis Hughes, Cathy Humphrey, Nigel and Jan Hurford, Moira Izatt, Catherine Jardine, Malcolm Jolly, Sharon Jones, Erika Justmann, Sadie Karmazyn, Andy Kaye, Martha Keller, Al Kirkley, Karen Kline, Donald and Vanessa Kramer, Karen and Kyle Zacharuk, Penny Lancaster, Iain Lawrence, Maggie Little, Mara and Robert Love, Valerie MacDevitt, Ian MacDonell, Helene Malvet, Eric Marshall, Art and Sue Martell, Barbara McGrenere, Mike McGrenere, Sharon McInnes, Janice Melvin, Lora Morandin, Jan O'Brien, Patrick O'Hara, Marijke Olson, Stan Olson, Lilliana Paz, Alison & Andrew Prentice, Gareth Pugh, Anu Rao, Ilze Raudzins, David Robinson, June Ryder, Janet Schindler, Genevieve Singleton, Catherine Soper, Linda Soper, Christina Steele, Mitlenatch Island Stewardship Team, Bill and Michelle Stewart, Leah Strong, Eve & Ildiko Szabo, Gayle and Derek Tedder, Emily Upcott, Annemieke Vrijmoed, Paulus Vrijmoed, Bob and Jan Walker, Jo Wearing, Kurlene Wenberg, Ling Weston, Mac Willing, Neil Wilson, Chris Winstanley, Anne Whyte, Elaine Woodburn, Janet Woolgar, Robyn Worcester, Toni & Ron Wyckoff, and Karen Zacharuk.

We greatly appreciate the contributions of the following surveyors who retired in 2015: Moira Izatt, Robert Auger, Sadie Karmazyn, Robyn Worcester, Janet Russwurm, Catherine Soper, Al Kirkley, Linda Cole, Janice Melvin, Daryl Johnson, and Anu Rao.



Denman Point (M. Callahan)



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In Memoriam: Marti Tilley of Pender Island, who was a dedicated volunteer for the Coastal Waterbird Survey for over a decade passed away in 2015 and will be greatly missed.



# Camera Trapping Invasive Mammals In Haida Gwaii

By David Bradley

Haida Gwaii supports more than 1.5 million breeding seabirds, including roughly half of the world's breeding population of Ancient Murrelets, over half a million Cassin's Auklets, and hundreds of thousands of Leach's and Fork-tailed Storm-petrels. Langara Island historically held the largest breeding colony of Ancient Murrelets. Despite these impressive numbers, seabirds in Haida Gwaii face numerous threats. Top of this list is the threat of non-native predators, also known as Invasive Alien Species (IAS). Seabirds are particularly susceptible to predation of adults, young, and eggs by IAS because they nest on the ground in colonies, and were not exposed to IAS in their evolutionary past. As a result of their isolation, seabirds do not possess the evolutionary adaptations necessary to defend themselves from IAS, and as a result seabirds have declined severely worldwide.

Black Rats were introduced to Haida Gwaii in the early 20th century, and were first identified on Langara Island in 1946. More recently, on Langara Island, this species was replaced by the larger and more dominant Norway Rat, which were first identified in 1981. The impact of these rat species on the native seabirds was both remarkable and rapid. Up to five burrow-nesting seabird species were extirpated from Langara Island by the late 1980s, apparently as a result of rat infestation. These extirpated seabird species included Cassin's Auklet, Rhinoceros Auklet, Tufted Puffin, Fork-tailed Storm-petrel, and Leach's Storm-petrel. The remaining colony of Ancient Murrelets were reduced to 24,000 pairs by 1981, and by 1993 had been further reduced to fewer than 20,000 pairs. To protect seabirds in this Important Bird Area, the Canadian Wildlife Service developed a strategy to eradicate rats from Langara in 1995. This eradication involved an island-wide aerial spreading of an anticoagulant toxicant. This eradication was deemed a success in 1996, and seabirds have now begun to recover.

Our main goal was to assess the presence of Invasive Alien Species on Langara Island in partnership with

BC Parks and Haida Fisheries. We set up camera traps in areas that were deemed likely locations to harbour rats or raccoons, or were easily accessible.



Langara Island (D. Bradley)



Cameras used to capture invasive mammals on Langara Island.



Cameras were baited with punctured cans of sardines to attract invasive species.

The cameras revealed many native birds including Song Sparrow, Pacific Wren, Northwestern Crow, Common Raven, Varied Thrush and even a Sandhill Crane and a chick! This represents the first breeding record for Langara Island! We also documented native mammals, such as River Otters and Dusky Shrew. The only invasive animal we recorded were Sitka black-tailed deer, which appeared numerous!

The lack of invasive species, other than deer, represents a substantial victory for the fishing lodges on the island,

who have implemented a rat prevention scheme for their vessels. The 1km gap between Langara Island and the larger Graham Island is also a likely barrier to rats and raccoons, which are both numerous on the larger island.

Our work on Langara Island is ongoing, as we continue to monitor for IAS and work with local groups to develop, monitor and evaluate biosecurity plans for the region.



Camera images showing from top-left to bottom-right; Common Raven, Northwestern Crow, Pacific Wren, Song Sparrow, Varied Thrush, Sandhill Crane (chick), River Otter, Sitka Black-tailed Deer, and Dusky Shrew

# Project Update: Taking the Pulse of the Western Sandpiper Migration



Western Sandpipers feeding at Chesterman Beach, Tofino. (D. Hope)

By David Hope

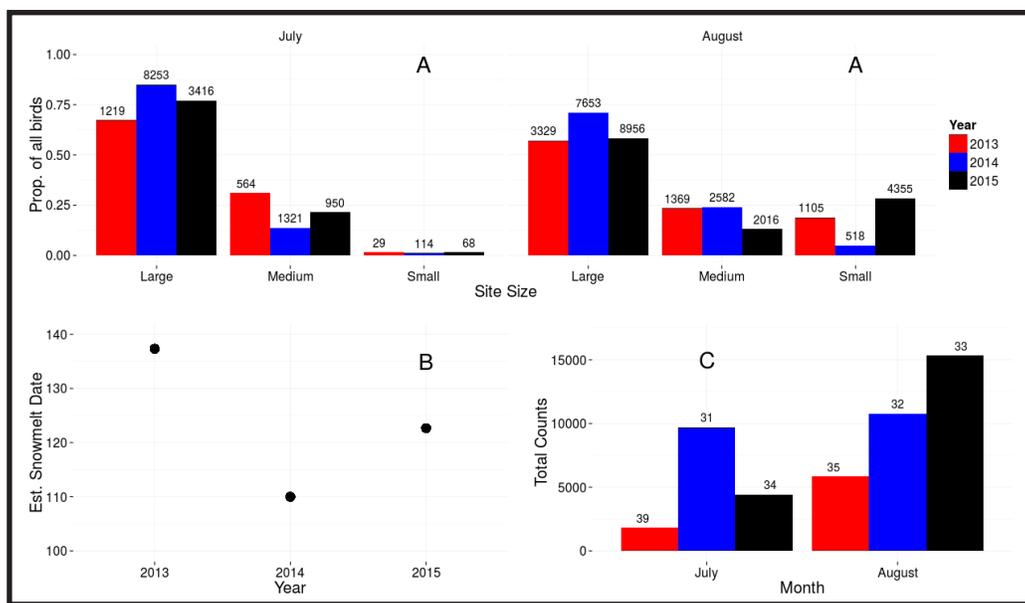
Western Sandpipers on southward migration appear to be avoiding dangerous sites during years of earlier Peregrine Falcon migration. This is one of the preliminary findings to come out of the BC and WA Shorebird Survey Project. Volunteers for the Western Sandpiper Shorebird Pulse finished their third season of counts this year. Bird Studies Canada and the Centre for Wildlife Ecology at Simon Fraser University are collaborating on this project with the goal of utilizing the power of citizen-science to test hypotheses that explain how sandpipers distribute themselves across sites on migration. Competing hypotheses explaining worldwide shorebird abundance declines from counts on migration include declining populations, shifts in migratory routes, an increasing predator population, or some combination. To understand how behaviour and seasonal conditions affect counts of shorebirds, we developed a program that involved simultaneous counts at over 30 sites during the southward migration of the Western Sandpiper. The Western Sandpiper breeds each year in Alaska and migrates southward passing through the Salish Sea region on its way to the non-breeding range, which stretches between Oregon and Peru. On migration, it stops over mostly at tidal mudflats around estuaries both big and small. Adults leave their chicks behind and migrate southward a month ahead of the juveniles, passing through our region in July and August respectively.

The decisions Western Sandpipers make on migration have been well studied. Previous work has shown that in response to predators, they can adjust the time they spend at a particular site both between and within years. In addition, Western Sandpipers will visit a particular site based on their condition. Fat birds, which cannot escape from predators as easily, are found more at safer, but less food rich sites. Sandpipers have also been shown to avoid areas close to cover at the edge of their habitat, even when these areas are most abundant in food.

This previous work allows us to make specific predictions of what birds should do under a given scenario. For example, if the number of predators was very high, we would expect abundance at dangerous sites to be lower than if predators were uncommon. To formalize these predictions we are developing a model that simulates the migration of the Western Sandpiper through our region. The simulation will generate predicted counts of abundance across our study area. The predicted number of birds at each site will vary under the conditions we input to the model. By comparing them to the counts collected by our volunteer citizen scientists, the simulated counts can be used to gauge the support for a particular scenario, such as population decline or increasing predators.

To count the numbers of birds simultaneously at all these sites, we required the help of over 160 volunteers across the three years. These skilled volunteers fanned out across Vancouver Island, around Greater Vancouver and through Puget Sound. Individually or in groups, they conducted surveys at a site for 1-3 days in both July and August. These dedicated volunteers have conducted 450 counts and recorded over 500 000 birds.

While the model is still in development, the shorebird surveys have shown some interesting patterns. Figure 1 shows the total number of sandpipers counted in each month and year and how these numbers break down between large, medium and small sites. Overall, numbers were very low for adults in 2013, and we appear to have increasing numbers of juvenile birds counted each year.



**Figure 1: The distribution of Western Sandpipers (WESA) across sites of different sizes from the BC and WA Shorebird Surveys. A: The proportion of birds counted at large, medium, and small sites in a given month for July (left) and August (right) surveys. The number of birds counted are listed above each bar. B: The estimated snowmelt date on the WESA breeding grounds. An earlier date means their predator, the Peregrine Falcon migrates earlier. C: Total number of birds counted for July and August in each year. The number of sites surveyed is listed above each bar.**

Two patterns stand out in the distribution of adults across the site size groups. Adult sandpipers appear to avoid the smallest sites, whereas juveniles are much more likely to be found at small sites. In general, small sites tend to be more dangerous to the sandpipers as their main predator, the Peregrine Falcon, can attack them stealthily from the site edges. These sites often have higher food abundance, creating a trade-off between safety and food. Both age groups appear to be sensitive to how conditions encountered on migration change between years. Previous researchers have shown that Peregrine Falcons consistently migrate southward sooner in years with earlier snowmelt in Alaska, and that Western Sandpipers adjust their behaviour on migration to compensate for the changing arrival of Peregrine Falcons.

In 2014, the snowmelt date was very early and we would predict that falcon arrival should be earlier in the region, creating a more dangerous migration for the sandpipers. While it is very preliminary, our data appears to show that adults shifted from medium to large sites in 2014, and juveniles shifted away from the smallest sites. This shift is interesting, as it suggests that Western Sandpipers are sensitive to changing conditions, and are able to adjust their migratory behaviour easily. Species that are more flexible to changing conditions are generally able to react more easily to changes in their environment, both natural- and human-caused. This could be a good sign for the species in a future that could include habitat loss or variation due to climate change or development.

The results presented here are very preliminary. If you'd like further updates on this project, you can visit the project webpage at [www.sfu.ca/~dhope](http://www.sfu.ca/~dhope). We will be conducting a final series of counts in 2016, and if you'd like to participate you can register at the website or email David Hope at [dhope@sfu.ca](mailto:dhope@sfu.ca). For more information on the Centre for Wildlife Ecology research visit their webpage at [www.sfu.ca/biology/wildberg](http://www.sfu.ca/biology/wildberg).

Funding for this work has been provided by the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, Environment Canada, and Bird Studies Canada.

# Other Citizen Science Programs in B.C.

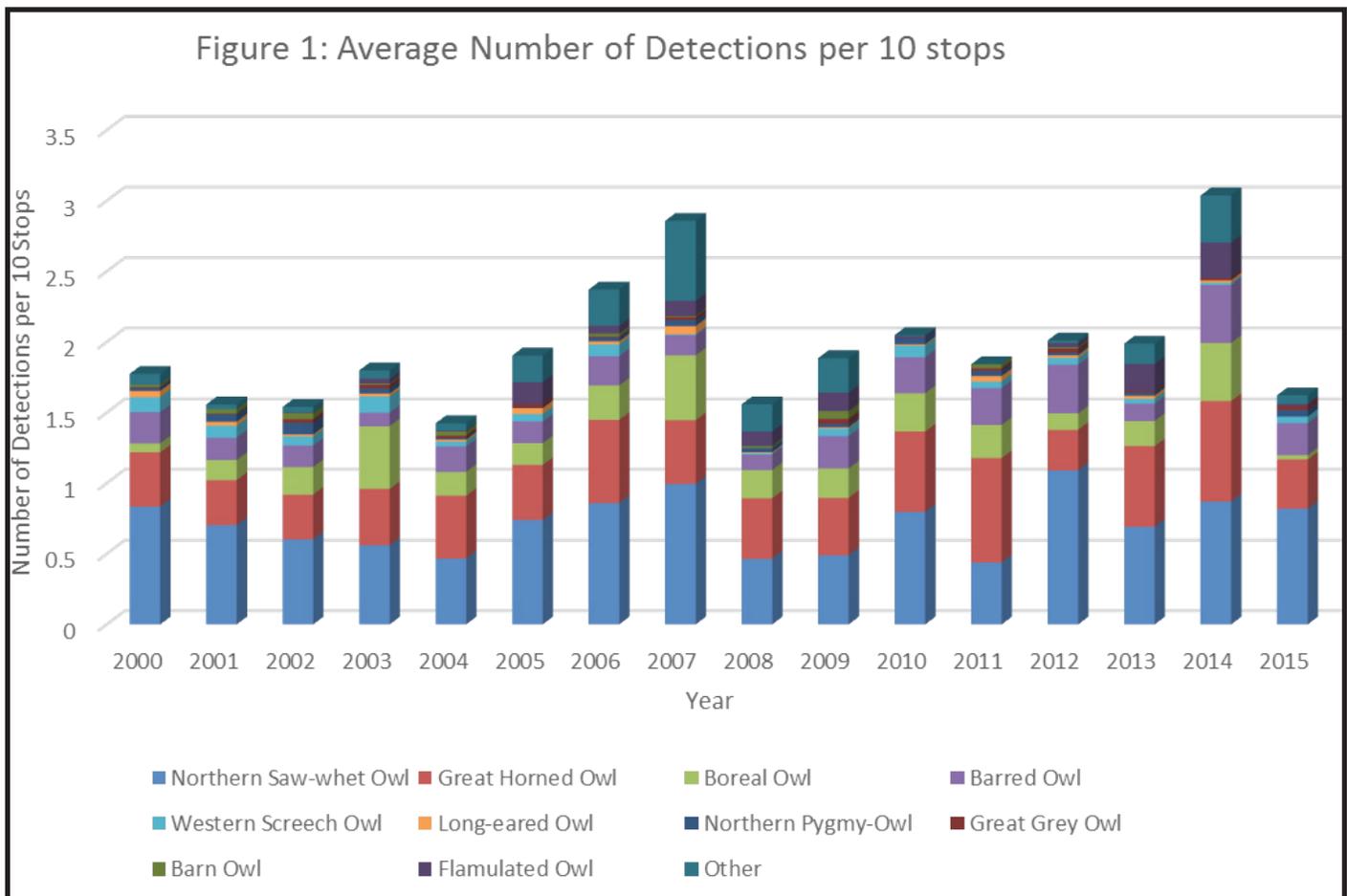
## Nocturnal Owl Survey

This year marked the 15th anniversary of the Nocturnal Owl Survey (NOS) program in BC and the Yukon! Figure 1 shows the average number of owls and the proportion of each species observed over the past 15 years. These data form an important baseline dataset for research and conservation of owls and could not have been collected without the efforts of an amazing group of volunteers and a great survey coordinator. Bird Studies Canada is bidding a fond farewell to NOS survey coordinator Dick Cannings after 16 years of service. Going forward volunteers can contact B.C.'s volunteer coordinator Karen Devitt ([bcvolunteer@birdscanada.org](mailto:bcvolunteer@birdscanada.org)) for Owl Survey related items. Thank you to all the night owl volunteers out there who helped create this invaluable 15 year dataset!



Great Horned Owls (C. Artuso)

Want to get involved? Surveys involve driving along a route at least once per year and listening for owls. Routes consist of 10 to 30 stops positioned 1.6 km apart along secondary roads. At each stop, observers simply listen and note if any owls are heard. Contact Karen to sign-up for a route.



## BC Coastal Disturbance Project

This year we began the BC Coastal Disturbance Project. This recently launched project has two main aims; 1) to improve our understanding of disturbance to birds on B.C.'s south coast caused by a wide range of recreational user groups, and 2) intervention and education through targeted questionnaires, signage, and workshops. We then wish to follow up with another quantification of disturbance levels in 2017/2018 to determine the effectiveness of the intervention activities.

To participate in this project we are asking volunteers in coastal areas around the Fraser River Estuary IBA to keep track of the numbers of each user group and the resulting disturbance experienced by birds, as well as the date, time, and location of their walk or outing. The time commitment is not very large (10-15 minutes per outing), and the skill level requirement isn't much more than telling apart a duck from a sandpiper! We can provide more information and the data collection protocol to those interested in helping. Together we can reduce, or even prevent entirely, the frequency and extent of disturbance to birds during migration or overwintering, and make our coastlines a more livable habitat for humans and wildlife alike!

To participate, please contact David Bradley ([dbradley@birdscanada.org](mailto:dbradley@birdscanada.org) or 604-350-1996).



Westham Island (K. Devitt)

## Vancouver Window Collision Project

This past fall, volunteers in Vancouver woke up early to survey buildings in the downtown core for evidence of bird-window collisions. This study is part of a program that involves improving our understanding of the impacts of bird-window collisions in Western Canada. Volunteers will continue surveying the same buildings in the spring. We are also asking for the help of volunteers to survey their own homes across B.C. during spring migration. Surveys at your home involve walking the perimeter of your home as often as you can while looking for bird-window collision evidence and recording when you witness a bird hitting a window outside of your survey period. To get involved, contact Karen at [BCvolunteer@birdscanada.org](mailto:BCvolunteer@birdscanada.org)



Barn Swallow chicks (K. Devitt)

## Project NestWatch

Project NestWatch is part of a national program aimed at getting people across Canada involved in collecting data on nesting birds. This data is used to follow the health of bird populations through long-term monitoring of nesting activity. Participating in Project NestWatch is fun and easy! Anyone can participate, just find an active bird nest, record the breeding activity, and report it through our online Data Entry Page. To learn more visit [www.birdscanada.org](http://www.birdscanada.org) or contact [projectnestwatch@birdscanada.org](mailto:projectnestwatch@birdscanada.org).

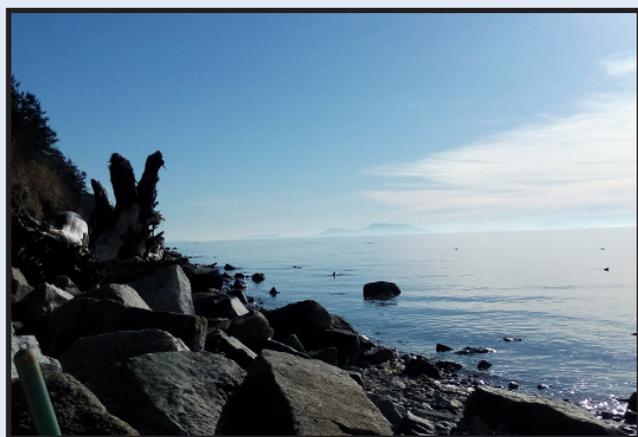
# Surveyor's Scrapbook



Kitimat Delta look out (W. Thorne)



Protection Island (T. Chatwin)



Crescent Beach (A. Kaye)



Boundary Bay (K. Devitt)

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