

# COASTAL GUARDIAN FIELD GUIDE



Questions?

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# COASTAL ECOSYSTEMS

Prince Edward Island is Canada's most densely populated province, with few wild spaces remaining. One important wild space that remains largely undeveloped is the coastal ecosystem. The dunes, bluffs, and cliffs that make our little island so picturesque and desirable as a tourist destination are also home to the greatest number of species at risk of any other ecosystem on PEI. These spaces are not just a summer playground; they are integral island ecosystems that provide habitat, flood protection, erosion control, and cultural and spiritual values.

Coastal ecosystems face a number of threats to their health, as do the species that call them home. Some of these threats, like climate change, need to be addressed over time at a large scale, but some can be impacted by the work that Coastal Guardians do.



# THREATS TO PEI'S COASTAL ECOSYSTEMS

Regular surveying of PEI's coastal landscapes is important to assess the conditions, changes, and threats to the ecosystem and its inhabitants. The following is a list of some of the threats that the Island's coastal ecosystem is facing:

## Beaches and Dunes

- Coastal development, leading to habitat loss and increased disturbance
- Commercial and recreational use, causing increased disturbance and pollution
- Establishment of invasive species, causing increased competition and habitat loss to native species
- Global climate change and sea level rise

## Coastal Cliffs & Bluffs

- Coastal development, leading to habitat loss and increased disturbance
- Shoreline armouring, leading to the disruption of sedimentation processes and habitat loss
- Unsustainable erosion
- Global climate change and sea level rise

# THE ROLE OF COASTAL GUARDIANS

Being an Island Nature Trust Coastal Guardian can be a valuable way to contribute to conservation and research in PEI's coastal ecosystems. Guardians can contribute as little as a few hours per year by participating in a one-time event, or they can survey for species at risk daily.

Guardians can help with the conservation of species at risk, like piping plover and bank swallow, and the stewardship of the coastal ecosystem. It's safe to say that all Islanders care deeply about the health and beauty of our coastline and together, we can ensure that beaches and cliffs around PEI are healthy, intact ecosystems now and for generations to come. Being a Coastal Guardian is as easy as taking a walk on the coast and collecting and reporting data on any or all of the following:

- Plant and animal life observed
- The health of dunes and cliffs
- Recreational disturbances
- The presence of vehicles and tracks
- The number of people, dogs, and more...



*Stewardship is the care and responsible management of our land, air, water, and biodiversity. It is an action, an attitude, and a choice for people and communities to responsibly care for and manage PEI's natural resources and the environment.*

# BIRD IDENTIFICATION & SPECIES AT RISK



Species at risk are plants and animals that may disappear without intervention from people, so they require special attention to maintain their populations and habitats.

All Islanders can take responsibility by becoming stewards of species at risk. As Coastal Guardians, you can help support the conservation of these species by surveying PEI's cliffs and beaches. This guide will help with the first step, which is learning about species at risk and their habitats. You will also learn how to identify them and understand why these species are at risk.

Species at risk are assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and considered for federal designations under the Species at Risk Act (SARA) that categorize the level of risk they are facing. These designations are:

## Endangered

A species that may soon become extirpated (disappear from PEI), or extinct.



## Threatened

A species likely to become endangered if certain factors are not reversed.



## Special Concern


A species with characteristics that make it particularly sensitive to human activities or natural events.



# SHOREBIRD IDENTIFICATION

Shorebirds are an incredible guild of birds that undergo some of the longest-distance migrations on the planet. While they can be challenging to learn to identify, they can also provide endless hours of fascinating birdwatching.

Many of the shorebirds we see on PEI are just passing through during spring or fall migration. However, keep in mind that fall migration may begin as early as July.

Birds with the  symbol are known or believed to breed on PEI.

## Plovers

### BLACK-BELLIED PLOVER *Pluvialis squatarola*

Seen during spring and fall migration and occasionally throughout the summer, black-bellied plover are a chunky, large-headed shorebird. They have short, thick necks, stubby bills, mottled black and white backs, and black bellies. They are larger than the American golden plover but smaller than greater yellowlegs. Whilst flying they have a black armpit and a white stripe on the upper wing.



**NONBREEDING  
ADULT**

Nonbreeding adults have variable amounts of brownish mottling on the back and a smudgy face and breast.



**BREEDING  
ADULT**

Breeding adults are most easily identified by their dark black underparts.

## KILLDEER *Charadrius vociferus*

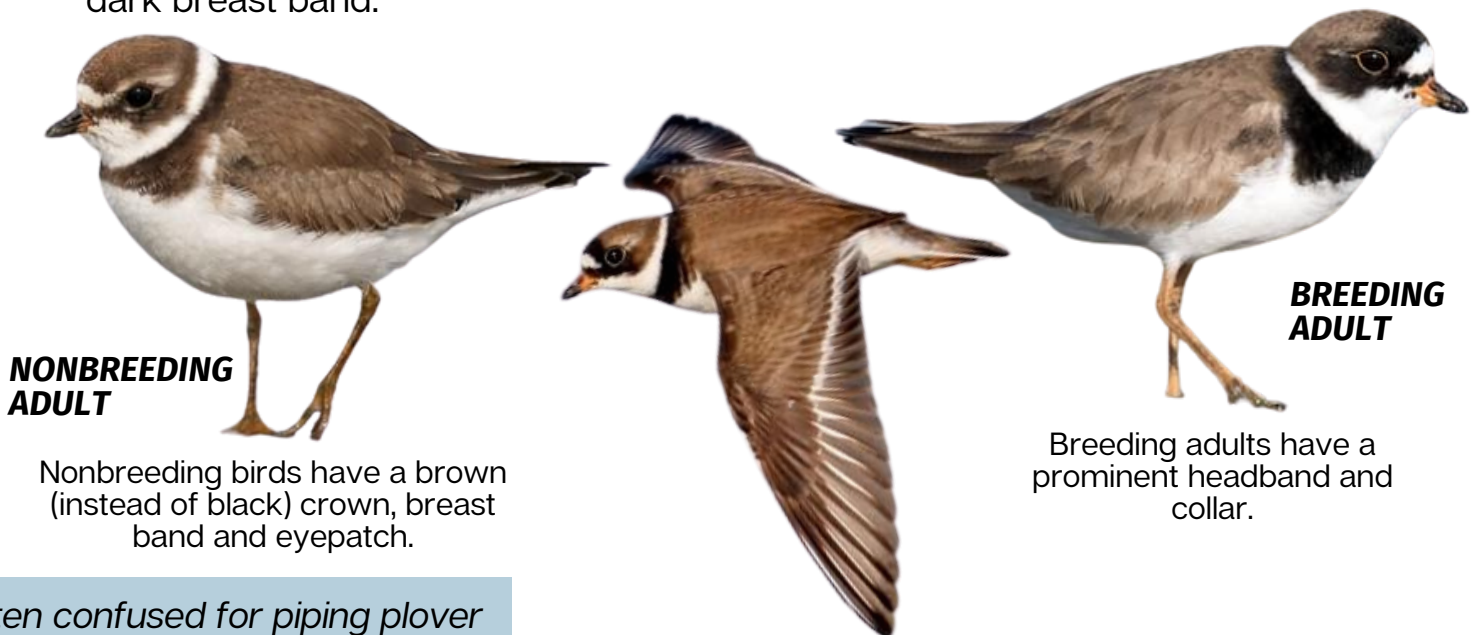


Killdeer, one of the least water-associated shorebirds, are sometimes seen on sandbars and mudflats but most likely can be found on open ground with low vegetation. Killdeer are brownish-tan on top and white below. Their white chest is barred with two black bands, and their brown face is marked with black and white patches. They also have a prominent red eye ring and a bright orange-buff rump that is most conspicuous in flight. Breeding and non-breeding adults look the same.



## SEMIPALMATED PLOVER *Charadrius semipalmatus*

Semipalmated plover have a round head, and a stubby bill with orange at the base. They have yellow-orange legs, a dark crown, dark eye patches, and a dark breast band.



**NONBREEDING  
ADULT**

Nonbreeding birds have a brown (instead of black) crown, breast band and eyepatch.

**BREEDING  
ADULT**

Breeding adults have a prominent headband and collar.

Often confused for piping plover



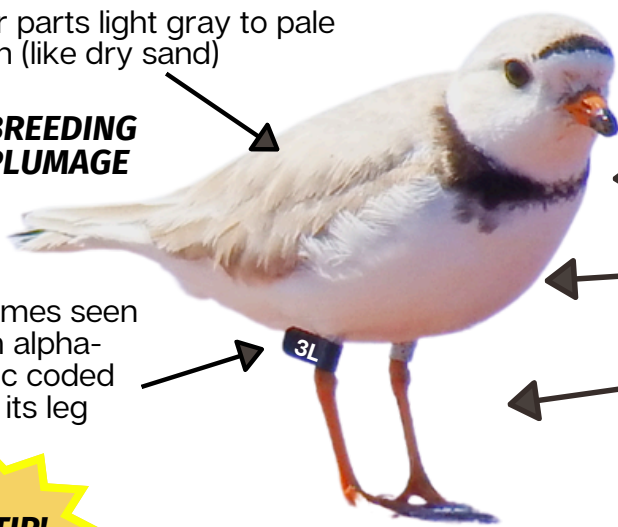
# PIPING PLOVER *Charadrius melodus melodus*



Piping plover are migratory shorebirds that are observed on coastal beaches from mid-April through September during breeding and migration.

Upper parts light gray to pale brown (like dry sand)

## BREEDING PLUMAGE



Black headband

Short, stubby bill

Black collar

White underparts

Orange Legs

Sometimes seen with an alpha-numeric coded flag on its leg

## PRO TIP!

Colouring is the easiest way to tell a piping plover from a semipalmated plover. Semipalmated plover are much darker overall, with deeper brown backs, and more prominent black colouring on their faces.



## NONBREEDING PLUMAGE

Nonbreeding piping plover lack the black collar and headband. They also lose the orange colouring on their beaks.

## HABITAT

Piping plover nest on wide, sandy or pebbly beaches with little vegetation and access to intertidal areas and mudflats for feeding. They eat marine worms, fly larvae, beetles, crustaceans, mollusks, and other small marine invertebrates and their eggs.

## OBSERVATION TIPS

Never approach piping plover or an area where a nest is thought to be located (stay clear of signed fencing). If you observe an adult that is behaving as if it has a broken wing, head-bobbing or vocalizing, you are likely very near a nest or young chicks. Move towards the water to avoid disturbing the chicks.



Piping plover tracks - three toes, feet placed one in front of the other, somewhat "pigeon-toed".

# Sandpipers and others

## SANDERLING *Calidris alba*

Sanderlings are a small shorebird often seen foraging in large flocks. They have a thick black bill, and a dark shoulder bar is sometimes visible. Whilst flying they have a broad white wing-stripe and a dark leading edge on the wing.



**NONBREEDING  
ADULT**

Non-breeding adults are pale gray above and white below without streaking on the breast.



**BREEDING  
ADULT**

Breeding adults have rusty mottling on the back, head and breast, white sides, and black legs.

## LEAST SANDPIPER *Calidris minutilla*

Least sandpiper have brown upperparts and white underparts. Their bills are black, and their legs are yellowish-green (this can be obscured by mud at times). They have whitish rumps bisected by a longitudinal black line. They are the smallest shorebird in the world.



**NONBREEDING  
ADULT**



**BREEDING  
ADULT**

Often confused for sanderling and semipalmated sandpiper

## SEMIPALMATED SANDPIPER *Calidris pusilla*

The semipalmated sandpiper is a small shorebird with a short neck and small head. They have some rust mottling on the back but are mostly gray-brown in colour with faint streaking on the breast and clean flanks. The rump and tail have black down the center. They have a dark, slightly drooping bill and black legs.



**NONBREEDING  
ADULT**



**BREEDING  
ADULT**

Often confused for sanderling and least sandpiper

## SOLITARY SANDPIPER *Tringa solitaria*

Solitary sandpipers are small, slender shorebirds with relatively long bills. They have fairly long wings and legs, a prominent white eye-ring and small white spots on the back. They also often have dark shoulders which helps to distinguish them from the spotted sandpiper.



**NONBREEDING  
ADULT**



**BREEDING  
ADULT**

Nonbreeding adults appear similar to breeding birds, but have smaller spots on the back.

Resembles yellowlegs

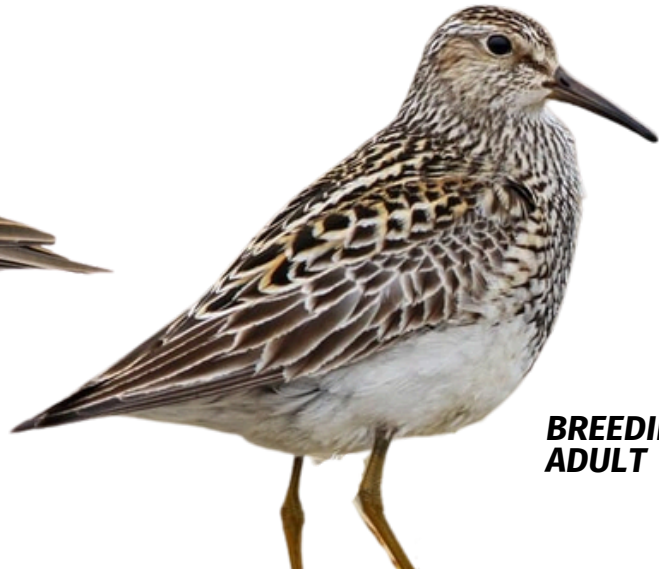
## PECTORAL SANDPIPER *Calidris melanotos*

Pectoral sandpipers are medium-sized, stout shorebirds with a moderately long bill that is thicker at the base. They are patterned in brown, gold, and black above and have neat, dark-brown rows of stipples on the breast that stop sharply at the white belly. They are not commonly seen in PEI. Males and females can differ in size so size variation is normal.



**NONBREEDING  
ADULT**

Non-breeding adults appear more subdued with less contrasting colouring.



**BREEDING  
ADULT**

## WHITE-RUMPED SANDPIPER *Calidris fuscicollis*

White-rumped sandpiper have a slightly drooping bill and long wings, that extend past the tail tip when folded. Body appears long and tapered.



**NONBREEDING  
ADULT**

Nonbreeding adults are similar to breeding adults but have paler brown above without rusty tones.



**BREEDING  
ADULT**

Breeding adults have a pale line over the eye and strong dark stippling on the head, breast, and flanks.

# RED KNOT *Calidris canutus rufa*

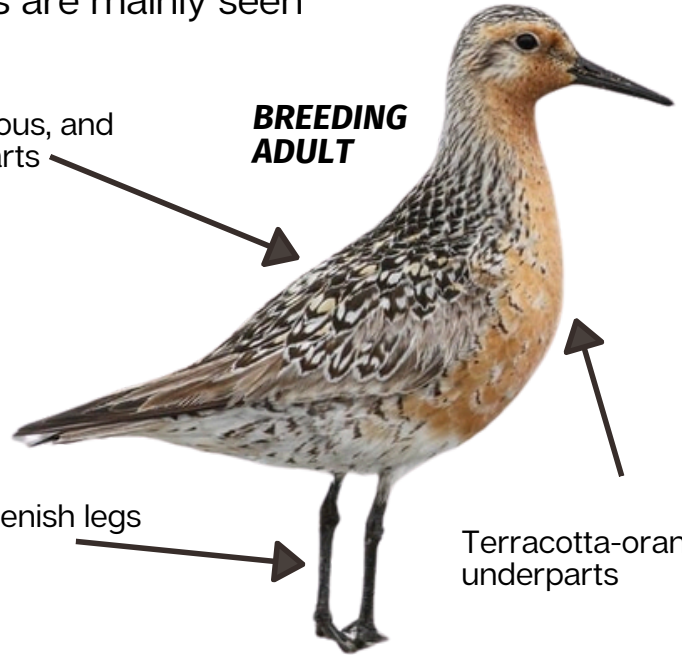


Red knot migrate through Atlantic Canada along the coast in the summer and fall. Adults in faded breeding plumage are observed in July and August, while juveniles are mainly seen from August to October.



**JUVENILE & NONBREEDING ADULT**

Grey, buff, rufous, and black upperparts



**BREEDING ADULT**

Dark-greenish legs

Terracotta-orange underparts

## HABITAT

Red knot forage and roost on flat beaches, mudflats, lagoons, and estuary edges. Nesting birds select dry, upland tundra areas with sparse vegetation.



## OBSERVATION TIPS

Red knot forage by picking or probing, in typical sandpiper fashion, but sometimes more deliberately or slower than smaller shorebirds. Roosting birds form tight flocks, sometimes resting on their bellies.



# SPOTTED SANDPIPER *Actitis macularius*



Spotted sandpiper have a bill slightly shorter than its head and a body that tapers to a long tail. They usually appear as though they are leaning forward and have a very distinct tail-bobbing behaviour. They fly with quick, snappy wingbeats interspersed with glides.

## NONBREEDING ADULT



Non-breeding adults gradually lose the spots on their bellies as they molt.



## BREEDING ADULT



Breeding adults have dark spots on their belly and a yellow-orange bill.

# HUDSONIAN GODWIT *Limosa haemastica*



In North America, look for Hudsonian godwit during spring migration. Much of their fall migration is over open ocean. In spring, they may turn up in many sorts of muddy wetland habitats. They are not commonly seen in PEI. Their pale eyebrow is prominent in all plumages.

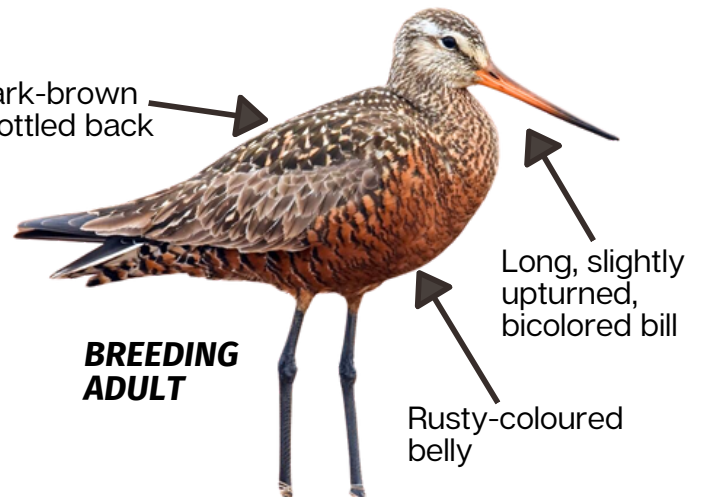
## JUVENILE & NONBREEDING ADULT



Nonbreeding adults are gray-brown above and paler brownish below.

Dark-brown mottled back

## BREEDING ADULT



Long, slightly upturned, bicolored bill

Rusty-coloured belly

Breeding adults are spangled in black, brown, and gold above, with rich chestnut and dark barring below.

## RUDDY TURNSTONE *Arenaria interpres*

Ruddy turnstones are short, stocky, and oval-shaped shorebirds. They have a stout and slightly upturned bill and brightly coloured legs. They earned their name by using their bills to flip over rocks (or “turn stones”) in search of food.



**JUVENILE &  
NONBREEDING  
ADULT**

Nonbreeding adults have brown ghosting of the breeding plumage pattern.



**BREEDING  
ADULT**

Breeding males have unique black-and-white markings on the head and throat with a chestnut and black calico-like pattern on their back. Females are paler than males.

## DUNLIN *Calidris alpina*

Dunlin are a small shorebird with a stocky body and short black legs, a short neck, and a long bill that is down-curved toward the tip.



**NONBREEDING  
ADULT**

Non-breeding dunlin are a grayish brown in colour including the breast, with a white belly.



**BREEDING  
ADULT**

Breeding adults have a distinctive black belly and rusty, mottled back.

# WHIMBREL

*Numenius phaeopus hudsonicus*



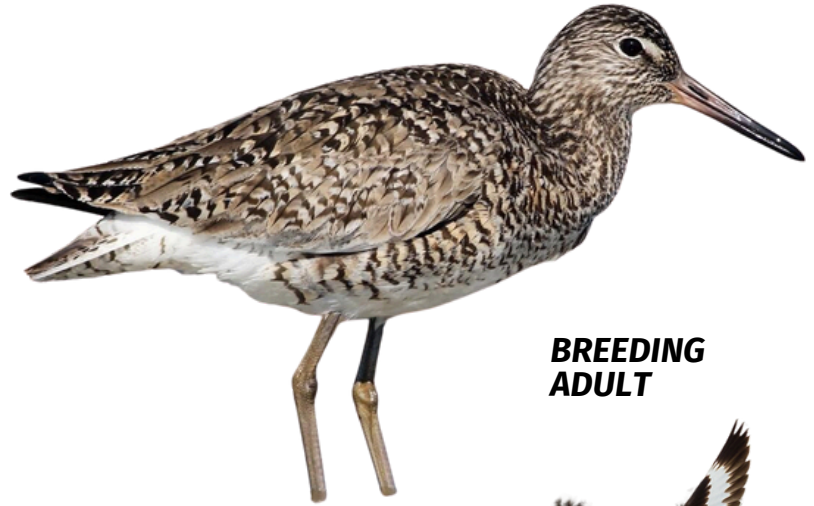
**BREEDING  
ADULT**

Whimbrel are large shorebirds with long bodies and small heads. Their most distinctive features are the long, down-curved bill and the striped head. When in flight notice the pointed wings.



# WILLET

*Tringa semipalmata*



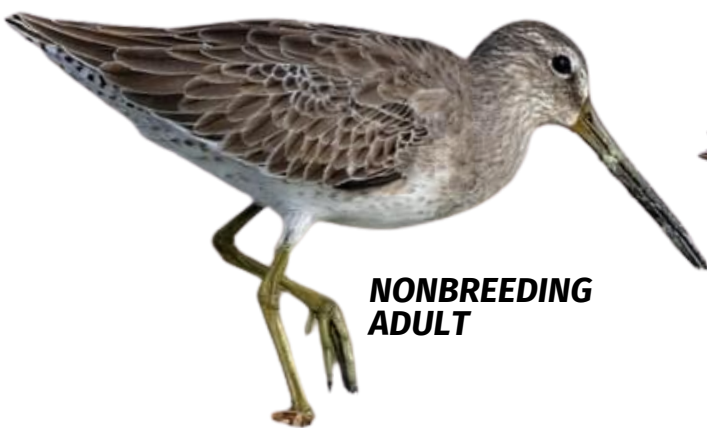
**BREEDING  
ADULT**

Willetts are large stocky shorebirds with long legs and thick, straight bills. During flight, they display a striking white and black stripe on their wings.



# SHORT-BILLED DOWITCHER *Limnodromus griseus*

Short-billed dowitchers are medium-sized shorebirds with long, football-shaped bodies and long straight bills. They feed with a vertical sewing machine-like motion.



**NONBREEDING  
ADULT**

Non-breeding adults feature more gray and less cinnamon colouring with a streaked face. Note the barring on the flanks.



**BREEDING  
ADULT**

Breeding adults have cinnamon colouring on their face, neck, breast, and belly. Their backs are patterned black, gold and cinnamon. Colour varies slightly in different locations.



# LESSER YELLOWLEGS *Tringa flavipes*



\*Assessed by COSEWIC in 2020. In review for listing under the Species at Risk Act at the time of printing.

Lesser yellowlegs are medium-sized shorebirds with long, bright yellow legs. They have a thin, delicate bill, only slightly larger than their head. They have a distinctive white patch on their rump which can be seen during flight



**JUVENILE & NONBREEDING ADULT**

Juveniles and nonbreeding adults have less distinct breast markings that may look smudgy.



**BREEDING ADULT**

Breeding adults have distinct breast markings

## GREATER YELLOWLEGS *Tringa melanoleuca*

Greater yellowlegs look very similar to lesser yellowlegs, except that they are larger overall and have a longer and slightly thicker bill. They have heavy barring on their flanks, sometimes extending across belly.



**BREEDING ADULT**

## PURPLE SANDPIPER *Calidris maritima*

Non-breeding purple sandpiper are a gray-purple above and whitish below. Breeding birds have extensive dark speckling on breast and flanks, and feathers on the back edged in reddish brown. The legs and base of the bill are a dull orange.



**BREEDING ADULT**

# SHOREBIRD IDENTIFICATION TIPS

There are several attributes to consider while trying to identify shorebirds. Size, body shape, bill length, bill shape, and foraging style are all identification clues you can use to help with your ID. Birds Caribbean has created an excellent guide highlighting these features, which is included below. Keep in mind that, although there is a lot of overlap, not all of the birds referenced are visitors to PEI.

## Common Caribbean Shorebirds: ID Guide



Birds Caribbean

Large	Medium	Small
14"-18" 35 - 46 cm	8.5"-12" 22 - 31 cm	6"- 8" 15 - 20 cm

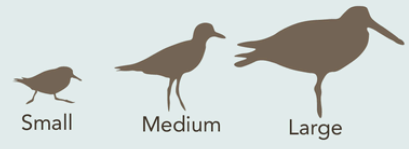
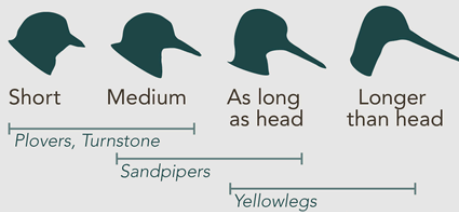
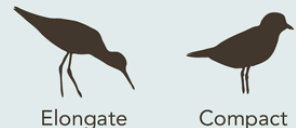
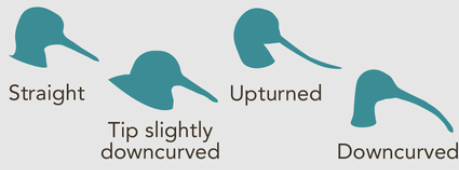
Large Shorebirds	Medium Shorebirds	Small Shorebirds
Whimbrel 17.5" 44.5 cm	Lesser Yellowlegs 9.5" 24 cm	Wilson's Plover 7.75" 19.5 cm
American Oystercatcher 17.5" 44.5 cm	Black-bellied Plover 11.5" 29 cm	Sanderling 7.75" 19.5 cm
Willet 15" 38 cm	Short-billed Dowitcher 11" 28 cm	White-rumped Sandpiper 6" 15 cm
Greater Yellowlegs 14" 35.5 cm	Ruddy Turnstone 9.5" 24 cm	Snowy Plover 6.25" 16 cm
American Avocet* 18" 46 cm	Red Knot 10.5" 26.5 cm	Semipalmated Plover 7.25" 18.5 cm
Black-necked Stilt* 14" 35.5 cm	Pectoral Sandpiper 8.5" 21.5 cm	Piping Plover 7.25" 18.5 cm
	Killdeer* 10.5" 26.5 cm	
	Stilt Sandpiper* 8.5" 21.5 cm	
	Solitary Sandpiper* 8.5" 21.5 cm	
		Spotted Sandpiper 7.5" 19 cm
		Western Sandpiper 6.5" 16.5 cm
		Semipalmated Sandpiper 6.25" 16 cm
		Least Sandpiper 6" 15 cm

\*not pictured

Lesser Yellowlegs & Ruddy Turnstone: Brad Winn; Red Knot: Anthony Levesque; Pectoral Sandpiper & White-rumped Sandpiper: Nick Dorian; All other photos: Walker Golder

## Clues to help identify shorebirds



Size & Shape	Bill Length & Shape	Foraging Behavior
<b>Size</b> How big is it compared to other birds? 	<b>Length</b> 	<b>Sandpipers</b> Peeps ( <i>Semipalmated, Western, Least</i> ) Walk or run with the head down, picking and probing Spotted Sandpiper Bobs tail up and down when walking or standing White-rumped Sandpiper Tail tips up while probing Stilt Sandpiper Probes mud like "oil derrick," rear end tips up
<b>Overall Body Shape</b> 	<b>Curvature</b> 	<b>Plovers</b> Run & stop, pick, hiccup, run & stop <b>Yellowlegs</b> Stroll and pick <b>Dowitchers</b> Probe mud with "sewing machine" bill, body stays horizontal
<b>Specific Body Parts</b> Bill & leg color Eye size <i>Plovers = larger, sandpipers = smaller</i> Leg & neck length		

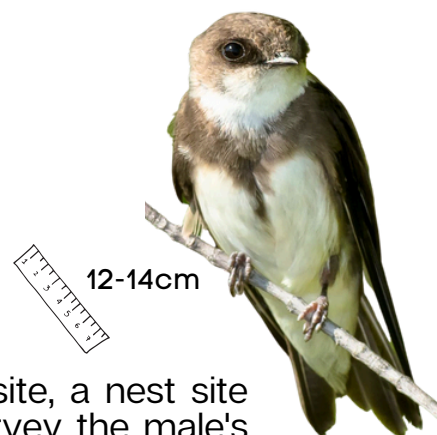
# Swallows



## BANK SWALLOW *Riparia riparia*



The smallest swallow with a chunky body, large head, relatively short pointed wings, and a relatively long notched tail. A warm brown swallow with white underparts and a thick brown band across the chest. The head is brown with a white chin. Underwings are dark.



Bank swallow arrive on PEI in May. Males choose a colony site, a nest site within it, and begin to dig a burrow. Females arrive later, survey the male's burrows, and select a mate. Burrows may be reused from previous years if they have not been eroded or infested with parasites.

## BARN SWALLOW *Hirundo rustica*



Their back, wings, and tail are a steely blue, with rufous to tawny-underparts. The blue crown and face contrast with the cinnamon-colored forehead and throat. The tail's long outer feathers give it a deep fork.

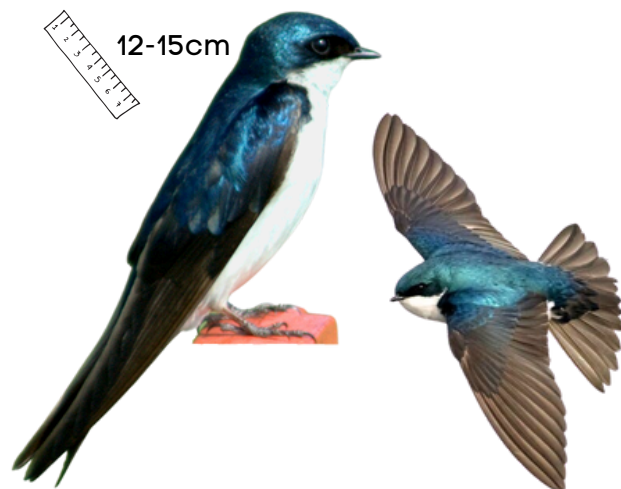
Although associated with the agricultural landscape, barn swallow in PEI have been observed making use of small craft harbours and foraging over dunes in mixed flocks with bank swallow. They are also the most graceful fliers of the swallows.



## TREE SWALLOW *Tachycineta bicolor*



12-15cm



Tree swallows have distinctive deep blue-green iridescent coloring on their backs with white fronts. They nest in tree cavities as their name suggests, though they will also make use of nest boxes.

# Gulls

## GREAT BLACK-BACKED GULL *Larus marinus*



**BREEDING  
ADULT**

71-79cm



**FIRST  
WINTER**



**SECOND  
SUMMER**

Great black-backed gulls are stout-bodied with broad wings, thick necks, and heavy bills. They are the largest species of gull in the world with a 4ft wing span.

In their first winter, they have checkered backs, diffused streaking on the neck and breast and bicolored bills.

By their second summer they are starting to acquire dark grey colour, but still have checkered backs, with pink at the base and tip of the bill.

## HERRING GULL *Larus argentatus*



**BREEDING  
ADULT**

55-66cm



**JUVENILE**



**NONBREEDING  
ADULT**

Herring gulls are large with a slimmer, but still hefty bill. They have pale gray backs and wings with pale pink legs. Their wing tips are black.

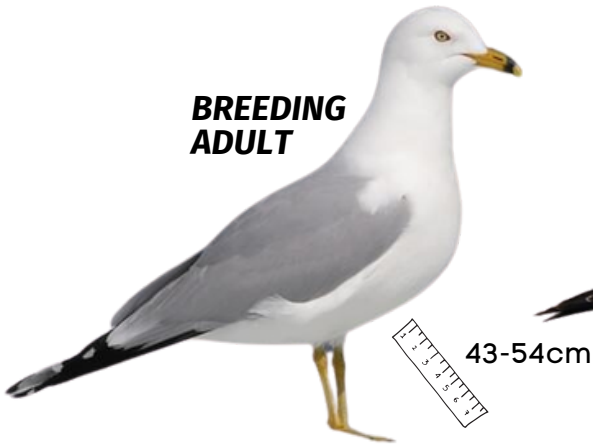
Juveniles are tan overall with checker boarding on the back and an entirely dark eye and bill.

Non-breeding adults have pale gray backs with extensive tan streaking on the neck and a pale yellow eye.

## RING-BILLED GULL *Larus delawarensis*



**BREEDING  
ADULT**



**JUVENILE**



**NONBREEDING  
ADULT**



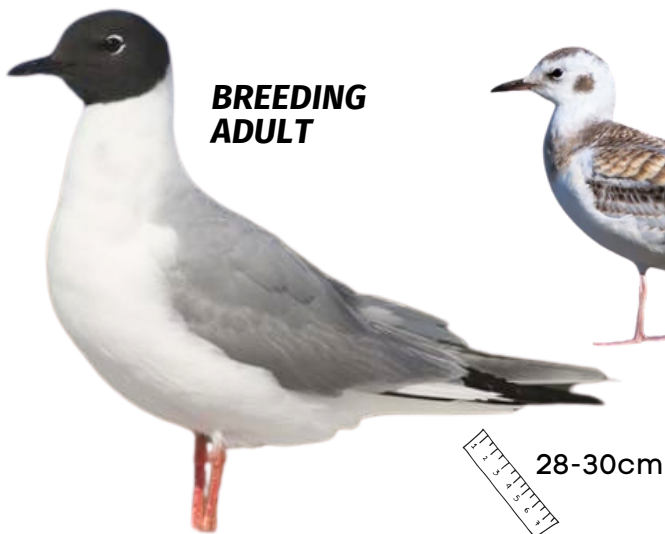
Ring-billed gulls are the smallest of the common white headed gulls. They have a shorter bill with long slender wings. Adults have a black band across their yellow bill, yellow legs, and pale eyes.

Juveniles are checkered with a dark bill with pink at the base and dark eyes.

Non breeding adults have some tan streaking on the head and/or neck and otherwise look similar to breeding adults.

## BONAPARTE'S GULL *Chroicocephalus philadelphia*

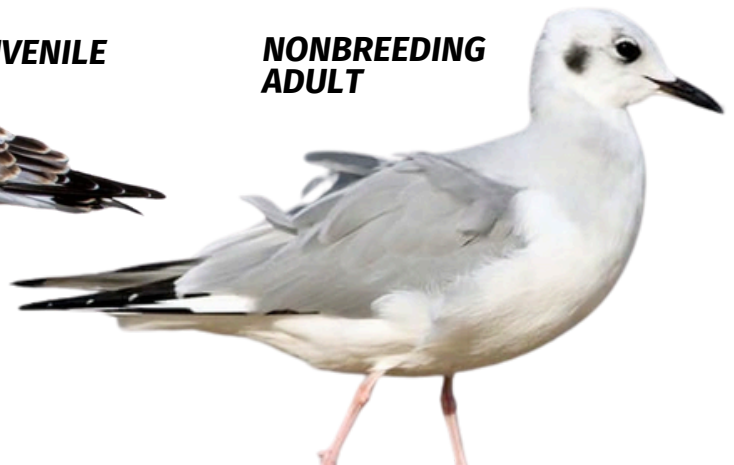
**BREEDING  
ADULT**



**JUVENILE**



**NONBREEDING  
ADULT**



Bonaparte's gulls are small with a thin black bill, entirely black head, thin white eye crescent and orange-red legs.

Non-breeding adults are delicate looking, with thin black bills, a black smudge behind the eye, and pink legs. Juveniles also have the brownish-black mark behind the eye.

# Terns

## COMMON TERN *Sterna hirundo*



31-38cm

**BREEDING  
ADULT**



**NON-BREEDING  
ADULT**

**JUVENILE**



Breeding common terns have a fully black cap that extends to the back of the neck. They have short orange legs and an orange bill tipped in black. Non-breeding birds have a white forehead and a partially black cap.

## CASPIAN TERN *Hydroprogne caspia*

The Caspian tern is the largest tern in the world (about the size of a Ring-billed Gull). Its large coral red bill makes it one of the most easily identified terns throughout its range.

47-54cm



**BREEDING  
ADULT**



**NONBREEDING  
ADULT**

Breeding adults have black caps, sometimes raised in a crest and black legs

# Wrack Line

Wrack can be broadly defined as the items washed up onto the beach from the open sea. It is mainly comprised of eelgrass, algae, driftwood, invertebrates, and various forms of marine debris. Wrack provides food and habitat for many species of insects and birds and decomposes over time, releasing essential nutrients that fertilize the beach-dune ecosystem.

## ANIMALS



Common sand dollar  
*Echinarachnius parma*



Chris LeBlanc

Common moon jelly  
*Aurelia aurita*



Valentina Dovzhuk Kenny

Lion's mane jelly  
*Cyanea capillata*



Colby Gillies

Arctic green sea urchin  
*Strongylocentrotus droebachiensis*



Sarah Hirtle

Forbes sea star  
*Asterias forbesi*



Cody Chapman

Winter skate  
*Leucoraja ocellata*



Nick Belliveau

Bread crumb sponge  
*Halichondria panicea*



Rosemary Curley

Mermaid's glove  
*Haliclona oculata*



Ian Manning

Northern moon snail  
*Euspira heros*

## BROWN ALGAE



Bladder wrack  
*Fucus vesiculosus*



Serrated wrack  
*Fucus serratus*



Sugar kelp  
*Saccharina latissima*

## GREEN ALGAE



Gut weed  
*Ulva intestinalis*



Sea lettuce  
*Ulva lactuca*



Coarse green sea hair  
*Chaetomorpha melagonium*

## INVASIVE SPECIES



Dead man's fingers  
*Codium fragile*

"In 1996, *Codium fragile* was collected for the first time in the Gulf of St. Lawrence, in Caribou Harbour, on the Northumberland Straits (Garbary et al. 1997). Since then, the spread has continued, both in the Gulf of St. Lawrence, and on the Atlantic Coast of Nova Scotia and Newfoundland. *Codium fragile* has been spreading through Northumberland Straits, in Nova Scotia, New Brunswick and on the Straits and Gulf Side of Prince Edward Island (Hubbard and Garbary 2002; Garbary et al. 2004). One population in Malpeque Bay included plants with the morphology of *C. f. subsp. atlanticum* (Hubbard and Garbary 2002). In the Gulf, it has spread as far north as the Magdalen Islands, Quebec in 2002 (Simard et al. 2005; Drouin et al. 2011, 47.3 N)."

Smithsonian Environmental Research Institute

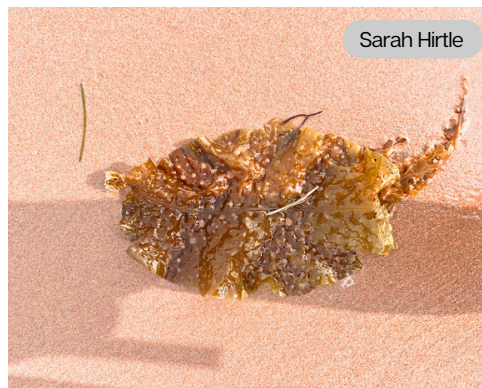


# RED ALGAE



Anna Sheppard

Branching coralline alga  
*Corallina officinalis*



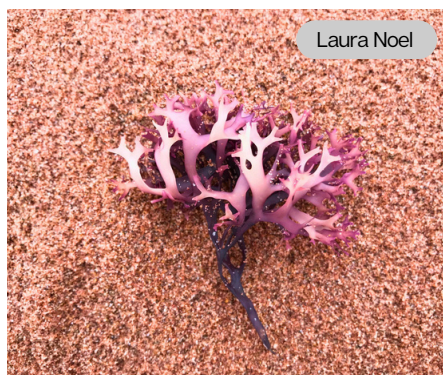
Sarah Hirtle

Sea colander  
*Agarum cribosum*



Ken Sanderson

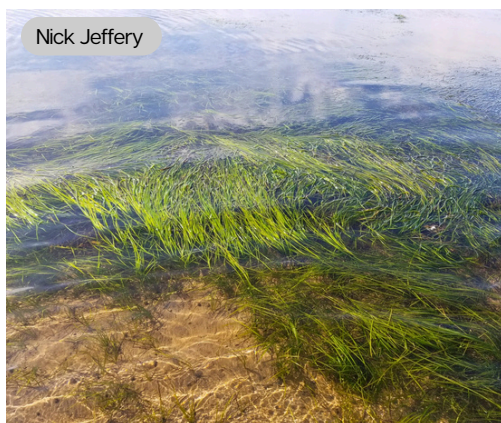
Clawed fork weed  
*Furcellaria lumbricalis*



Laura Noel

Irish moss  
*Chondrus crispus*

# SEA GRASS



Nick Jeffery



Rory MacNeil

Common eelgrass  
*Zostera marina*

# Common Beach-Dune Vegetation

## FLOWERING PLANTS



Steve Gallagher

Beach pea  
*Lathyrus japonicus*



Louis Imbeau

American searocket  
*Cakile edentula*



Lewnanny Richardson

Beach wormwood  
*Artemisia stelleriana*



Don McLelland

Sea lavender  
*Limonium carolinianum*



Courtney Cameron

Seaside goldenrod  
*Solidago sempervirens*



Laura Noel

Seabeach sandwort  
*Honckenya peploides*



Sarah Hirtle

Starry false Solomon's seal  
*Maianthemum stellatum*



Jeremy Collison

Beach pinweed  
*Lechea maritima*



Lewnanny Richardson

Gulf of St. Lawrence aster  
*Symphyotrichum laurentianum*

## SHRUBS



Steve Gallagher

Northern bayberry  
*Morella pensylvanica*



Josianne Garon

Virginia rose  
*Rosa virginiana*

## LICHENS



Craig Martin

Green reindeer lichen  
*Cladonia arbuscula ssp. mitis*



Daniel McRae

British soldier lichen  
*Cladonia cristatella*



Daniel McRae

Gray reindeer lichen  
*Cladonia rangiferina*

## SALT MARSH SPECIES



Jaime Malone

Cattails  
*Typha latifolia*



Lewnanny Richardson

Seaside plantain  
*Plantago maritima*



Bob Harding

Sea glasswort  
*Salicornia maritima*

# GRASSES



Bob Harding

Marram grass  
*Ammophila breviligulata*



Mary Kennedy

Sea lyme grass  
*Leymus mollis*



Don McLelland

Seabeach sedge  
*Carex silicea*

# INVASIVE SPECIES



Don McLelland

Sweet white clover  
*Melilotus albus*



Sybil Nunn

Purple loosestrife  
*Lythrum salicaria*



Mark Brennan

Japanese knotweed  
*Reynoutria japonica*

# DANGEROUS PLANTS



Jamie VanBuskirk

## Poison ivy (*Toxicodendron radicans*)

Shiny, alternate leaves, made up of three leaflets. Stalk of central leaflet is much longer than the stalks of the two side leaflets. Woody stem.

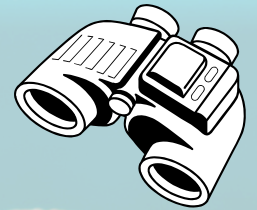
**Treatment:** Wash all exposed regions as soon as possible with cold water. Wash all contaminated clothing and objects several times in hot, soapy water.

# SURVEYING GUIDE



As a Coastal Guardian, you can contribute to the scientific knowledge of PEI's coastal ecosystems. There are a number of different things that you can do that will be very helpful to further INT's efforts:

- Surveying the coast for species at risk (SAR)
- Surveying for potential SAR habitat
- Engaging with and educating beachgoers and coastal landowners
- Installing symbolic fencing and signage if needed
- Helping with research efforts
- Cleaning the beach of litter and tracking what you pick up
- Helping with habitat enhancement projects
- Observing shorebird migration



## SUGGESTED MATERIALS



- Water, snacks, sunscreen, a hat, and a field guide
- Notepad and pencil
- Camera (smartphone camera is fine)
- GPS (Google Maps or similar is fine)
- First aid kit
- Cell phone
- Binoculars



# SAFETY FIRST

**It is always more important that you remain safe and uninjured than take a risk to complete any of your Coastal Guardian responsibilities. The following suggestions will help ensure your safety. If, for any reason, you feel uncomfortable or unsure, trust your instincts and leave.**



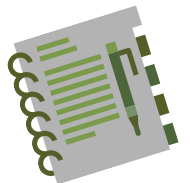
Check the weather report before you leave and reschedule your trip if bad weather is expected.

Check the tide times and aim to be there during a falling tide as to not get stuck when the tide rises. Tide charts can be found at [tides.gc.ca](https://tides.gc.ca) (search for the tide station nearest to your site).



Dress comfortably and for the weather. Wearing a hat, long sleeves, and sunscreen is advised to protect from sunburn.

Before heading out, let someone know where you are headed and when you should return. Make sure to return before nightfall. If you feel uncomfortable going alone, bring a companion with you.



Bring a first aid kit with you and make sure it is replenished as needed. Add antihistamines to the kit in case of an allergic reaction.

Finally, bring (and remember to drink) lots of water to help prevent dehydration and heat exhaustion.



# Surveying Piping Plover



The piping plover is a small shorebird (17-18cm), with sandy-gray upperparts and white underparts. It has a black band around the neck and forehead during breeding season (Feb-Aug), an orange bill with a black tip, and yellow-orange legs. Chicks have sandy-gray upperparts, white underparts, no black on the neck and forehead, and a solid black bill. Its call is a whistled 'peep-lo' or soft 'pehp pehp pehp' when agitated.

## OFTEN CONFUSED WITH:



### Semipalmated Plover

Similar size (18cm) and shape; chocolate-brown upperparts; dark marking under eye; often seen in large flocks in late summer.



### Killdeer

Larger (27cm); chocolate-brown upperparts; orange rump; red eye; double stripe on breast; loud repeated call when agitated. Often seen in open fields and parking lots.

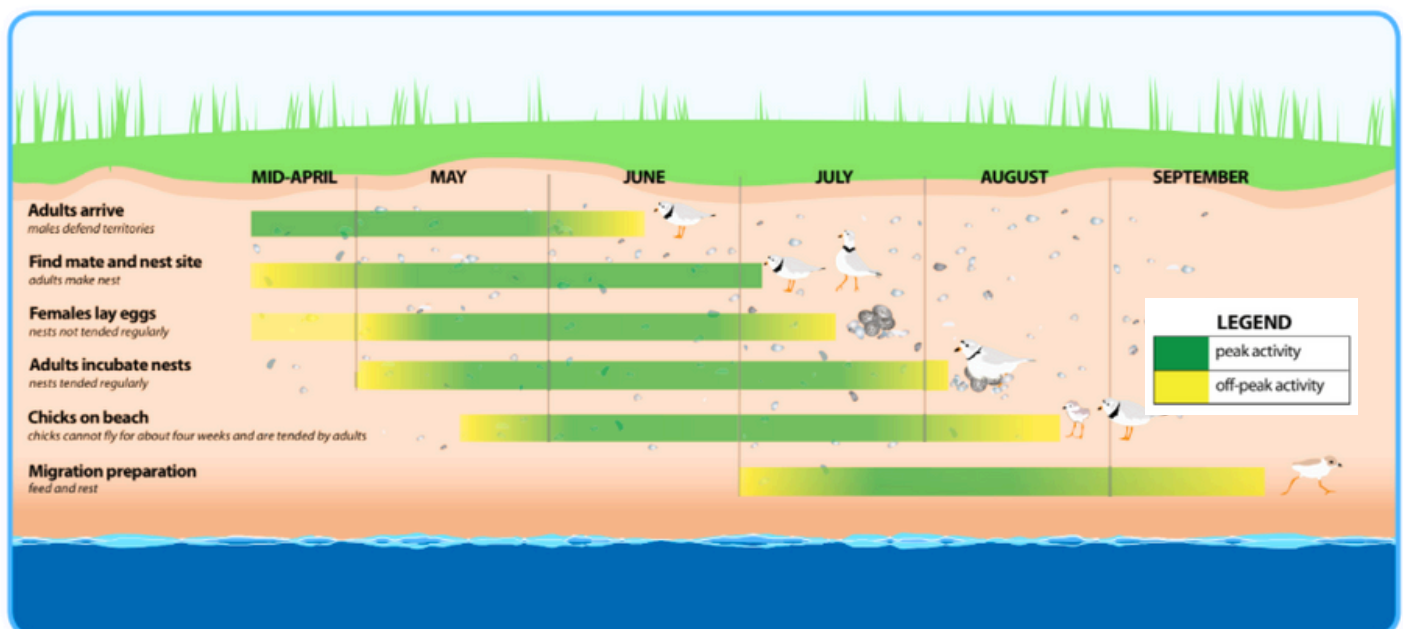


### Sanderling

Similar size (18-20cm); longer, black bill, mottled brownish gray upperparts; black legs; often seen feeding at water's edge.

## PIPING PLOVER ACTIVITY CHART

Piping plover arrive in eastern Canada in April-May. They make their nests on our sandy and cobbled coastal beaches. This chart shows the timing of their breeding activities.



## **OBSERVATION TIPS**

Piping plover typically choose wider beaches for breeding. These beaches will often have some cobble and grassy dunes. Never approach piping plover or an area where a nest is thought to be located (stay clear of signed fencing). If you observe an adult that is behaving as if it has a broken wing, head-bobbing, or vocalizing, you are likely near a nest or young chicks. Move towards the water to avoid disturbing the chicks. Move towards the water to avoid disturbing the chicks.



*Camouflage is the piping plover's main defense. The sand-coloured adults, chicks, and eggs are very difficult to see.*

## **NEST AND EGGS**

Plovers usually make their nests on the dry, open sand between the high tide line and the dune and make frequent use of washover areas. They typically also nest on cobble, in dune breaches, and in some cases along the edges of sand dunes, hidden in the marram grass. A nest resembles a shallow depression in sandy or cobble substrate, often lined with small shell fragments. Eggs are pale tan in colour and speckled with black. Four eggs are typically laid during early May, but can be as late as June or early July.



## **YOUNG**

At hatching, piping plover chicks weigh approximately the equivalent of two pennies. Young leave the nest shortly after hatching. As a survival tactic, young plover remain motionless on the sand to help hide from intruders. Young are able to fly within 25-28 days.

## **THREATS TO SURVIVAL**

- Crows, gulls, and other predators are attracted to the beach by garbage left behind by beachgoers. These predators will eat eggs as well as chicks.
- Humans (on foot and in vehicles) and dogs disturb plover families and sometimes destroy nests
- Habitat loss from natural beach succession and shoreline development





## **SURVEYING PLOVERS ON THE BEACH**

The piping plover is endangered in Canada. You can help Island Nature Trust monitor the breeding population on PEI by surveying beaches. This involves visiting the beaches and looking for plover throughout the breeding season or during migration.



## **HOW TO SURVEY FOR PIPING PLOVER**

- Walk the length of the beach at a moderate pace below the most recent high tide line (walk on wet sand). Stop at least every 100 meters to scan the beach and shoreline with binoculars.
- In addition to surveying the beach, all sections of the intertidal zone should be scanned to locate foraging plover. In some cases, foraging locations have been greater than a kilometer from nest sites.
- If observing any indication of piping plover, such as tracks or the soft "peep-lo" call, carefully retreat to the water's edge and attempt to locate the plover with binoculars. It is possible that a plover could be tending a nest.
- Complete the survey form. Remember to record signs of predators (tracks, scat, or sightings). (See pages 34-36)

### **DOs** ✓

- ✓ **Follow surveying schedule** for your beach.
- ✓ **Survey only in favourable conditions.** 10-20°C, ideally no or little wind and rain.
- ✓ **Visit beaches on anticipated hatching and fledging dates.**
- ✓ **Record detailed field notes every time you visit the beach, using the survey form provided.**
- ✓ **Minimize time spent observing plovers to reduce disturbance.**
- ✓ On very narrow beaches, **consider timing your visits at low tide.**
- ✓ On very busy beaches, **consider timing your visits when people are present** to increase opportunities for engagement.

### **DONTs** ✗

- ✗ **Never approach nests.** This could cause the nest to fail as it may cause the adult to stop incubating, leaving the eggs to either get overheated or chilled. Predators may also follow tracks.
- ✗ **Do not approach a nesting area more than necessary** as the adults may abandon the nest completely if disturbed frequently.
- ✗ **Never handle the eggs, adults, or chicks.** If you see an injured bird, call Island Nature Trust, your program coordinator, or Forest, Fish and Wildlife.
- ✗ Do not approach or disturb the plover. **Disturbance behaviours include squatting, head-bobbing, high-tailed running, crouch running, injury feigning (broken wing display), and "head-up" posture.** Adults will brood their young less and chicks will reduce feeding behaviours. Young will hide in grass and stay completely still.

# PIPING PLOVER AGING GUIDELINES



Hatchling



Young Chick



Older Chick

## NEWLY EMERGED-2 DAYS

Fuzzy body with no visible wings or tail. As tall as adult's belly. Definitive dark line between upper and lower parts of body.

## 2-14 DAYS

Downy tailform emerging, feathers emerging and black line fading. About 1/3 the size of an adult.

## 14-27 DAYS

Downy head, dark bill and tail feathers protruding. Less likely to be with parents. Smaller than adults. Often seen stretching and flapping wings, but not flying.



Fledgling

## 26-35 DAYS

Fully developed primary feathers. Capable of sustained flight.



Juvenile/Nonbreeding Adult

## OLDER THAN 35 DAYS

Fully developed primary feathers and the same size as an adult.



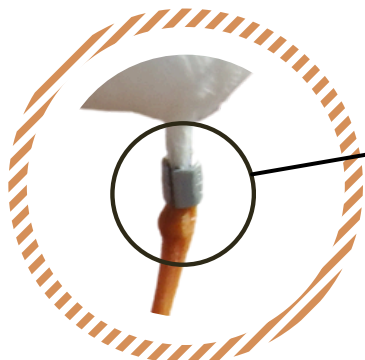
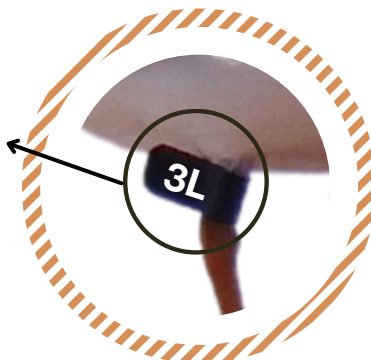
Adult

Round and stocky, frequently stands in a horizontal position. Breeding adults have an orange bill with a black tip, a black crown stripe, and black neck band.

## Marked Birds

You can help with piping plover conservation efforts by reporting banded birds. Birds may carry a series of colour bands on both upper and lower legs so be sure to carefully record band information below. Report sightings to your program coordinator.

This black flag and alpha-numeric code is bigger and more noticeable than the silver band and therefore, is how we identify plover with our binoculars.



The silver band has a serial number that is entered into the world database of tagged birds so it can be tracked around the world! The silver band can sometimes be difficult to see.

# Surveying Bank Swallow



The elegant and speedy little bank swallow zips through the air with quick twists and buzzy wingbeats. Look for them in chattering nesting colonies dug into the sides of sandy cliffs or banks, or pick them out of mixed swallow flocks as they catch insects over the water.

## OFTEN CONFUSED WITH:



**Tree Swallow**  
 Juvenile tree swallows are brown above like bank swallows and have a dingy wash across the breast, but the band is not nearly as strong as it is on bank swallows.



**Barn Swallow**  
 Easily identifiable by its cobalt blue colour and long forked tail, but often seen together with bank swallows along shorelines by harbours.

## BANK SWALLOW ACTIVITY CHART

Bank swallows arrive in eastern Canada in early May. They excavate burrows and make their nests along cliffs and tall sand dunes. The chart below shows the approximate timing of their breeding activities.

# Bank Swallow Breeding Timeline



**Birds arrive**  
 Early May



**Nesting**  
 Mid May–Early June



**Hatching**  
 Late June



**Chicks move to edge**  
 Early July



**Fledglings**  
 Mid July

Mate selection

Incubation

Chick rearing

← 13-15 days →

← 18-22 days →

What to watch for:

Birds with nest material

Adults with fecal sacs

Down covered chicks

Mature chicks



Colonies are usually located mostly in the upper third of the bank to avoid ground predators.

## **OBSERVATION TIPS**

Look for nesting bank swallow in coastal cliffs, banks, and bluffs, where they can occur in colonies ranging from three to hundreds of nests. These birds stick to open, wet areas and steer clear of forested habitats. Their harsh, doubled call note is distinctive as they pass overhead. Remember that flocks of swallows often contain several species—so linger with big flocks and keep your eyes out for a slightly smaller, brown swallow and look for the brown band across the chest.

## **NEST, YOUNG, AND EGGS**

The nest itself is a flat mat of grass and leaves, lined with feathers. In June, 4-8 eggs are laid and incubated by both parents for 13-16 days. Both parents provision young in the nest up to one week after fledging. Nestlings move to the burrow entrance at 15-17 days of age and finally fledge at 18-22 days of age. However, the nest burrows are still used for roosting/resting for up to one week after fledging.

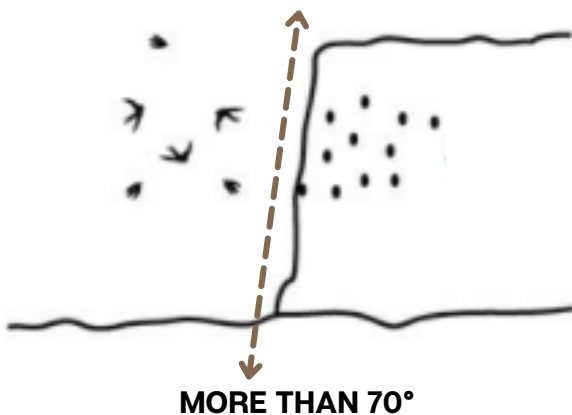


Nests are placed deep inside the burrows, and burrows can be quite deep (averaging 60cm).

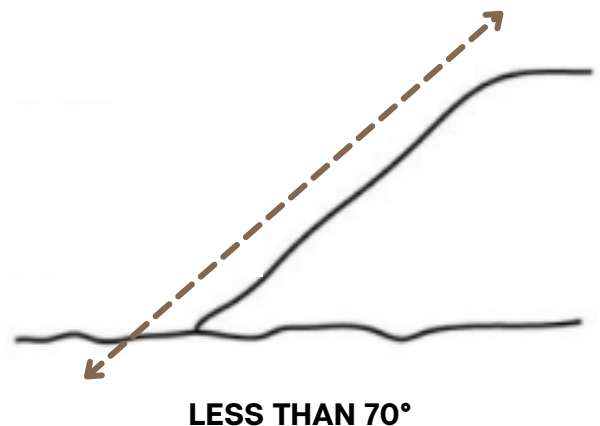
## **HABITAT**

Bank swallows are aerial insectivores that nest colonially in burrows in sandstone cliffs, high dunes, and in gravel or sand pits. They require a bank with a slope of more than 70° to be a suitable nesting site. They are found across PEI in large and small groups, in close proximity to the shore. Males choose a colony site, a nest site within it, and begin to dig a burrow. Females arrive later, survey the male's burrows, and select a mate. Burrows may be reused from previous years if they have not been eroded or been infested with parasites.

### **SUITABLE FOR NESTING**



### **UNSUITABLE FOR NESTING**





## **THREATS TO SURVIVAL**

Cumulative effects from several sources may be driving declines. These include:

- Loss of breeding and foraging habitat, especially through erosion control projects, conversion of pastureland to cropland, and afforestation
- Climatic changes that may reduce overwinter survival or reproductive potential
- Widespread pesticide use that causes decreases in the abundance or diversity of flying insects
- Unknown threats during migration and on the wintering grounds

## **SURVEYING FOR BANK SWALLOW**

If you are interested in assisting with bank swallow surveys, please reach out to Island Nature Trust. We will provide you with a survey protocol and help guide you through the process.

You can help survey for bank swallow in the following ways:

- Report any colonies you see to Island Nature Trust
- Sign up to survey a section of coastline between June and July



- ✓ **Begin your survey on a falling tide.** Keep a close eye on the tidal stage throughout the survey and consider how this may impact accessibility on your return.
- ✓ **Survey only in favourable conditions.** 10-20°C, ideally little to no wind and rain.
- ✓ **Record detailed field notes every time you survey a route using the survey form provided.** The form should be completed even if no bank swallow are present.
- ✓ **Ask permission before crossing private property to access your routes.**
- ✓ **Wear a life jacket and be vigilant about weather conditions if kayaking a route.** When possible, it is best to survey with a partner.
- ✗ **Do not approach a nesting colony more than necessary** as this may discourage adults from feeding their chicks.
- ✗ **Never handle adults or chicks, or touch the burrows.** If you see an injured bird, call Island Nature Trust, your program coordinator, or Forest Fish and Wildlife.
- ✗ **Do not continue surveying if your route becomes too difficult to navigate comfortably.** Stay aware of the tides and changing weather conditions
- ✗ **Do not kayak routes during high winds or any conditions that may be hazardous.** Always be sure to wear a life jacket
- ✗ **Do not survey during a rising tide in areas that may become inaccessible as the tide rises.**

# Predator Tracks

Please be aware that tracks made on sand may extend and therefore dimensions listed in this guide may be smaller than those observed on beaches.

F: Front Track

H: Hind Track

T: Tail marks may be present



2.5-4cm, with a slightly smaller hind print.



## House Cat

Four toes on both front and back prints. Claws absent on tracks. Tracks tend to meander.



## Striped Skunk

Five toes on both front and back prints. Long claws are often present on tracks.



F= 3.8-5.6cm;  
H= 3.8-6.5cm



6.5-7.5cm long



## American Crow

Crows have a standard bird track with three thin forward-facing toes and one rear-facing toe.



## Common Raven

Sometimes seen with dragged-claw marks.



Up to 10cm long





F= 5-7.5cm;  
H= 6-9.5cm



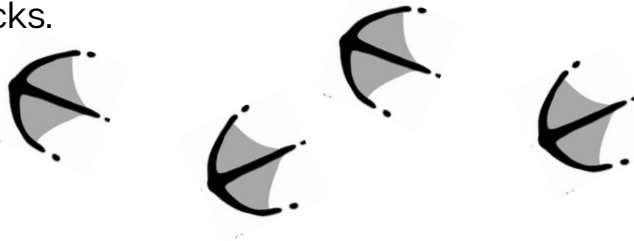
### Raccoon

Five long, slender toes on both front and back prints. Claws are common on tracks.



### Herring Gull

Gull species cannot be readily identified by tracks.



9cm



Slightly smaller  
hind print: 5.3-  
7.5cm



### Red Fox

Four toes on both front and back prints. Claws often present on tracks. Lack of central lobe on pad. Trail pattern in direct registry.



### American Mink

Four toes on both front and back prints. Claws often present on tracks. Bounding pattern.



3.3-5cm





2-3.3cm



### Short-tailed Weasel

Five clawed toes on each foot, with a V-shaped footpad that will show in their tracks. Bounding pattern.



### Domestic Dog

Splayed toes, producing a track with toes and nails pointing outward. Trail pattern typically unpredictable unlike the direct registry of a wild canid.



Definitely smaller hind feet: 2.5-14cm



Slightly smaller hind print: 6-8cm



### Coyote

Wild canines leave thin and sharp nail prints and tend to walk in a straight line to conserve energy. Central lobe on pad.



### River Otter

Five toes on both front and back prints. Claws present on both front and back prints.



F= 6.5-9cm;  
H= 7.5-10cm



F= 32.0-3.8cm;  
H= 4-8cm



### Muskrat

Four toes on front prints and five at the back. Long toes with claws.





# CONTACT LIST

Island Nature Trust ..... (902) 892-7513

Conservation Officers ..... (902) 368-4884

*Environmental Emergency Hotline. To report illegal activities or an injured animal that cannot be safely captured and transported, call Conservation Officers.*

Forests, Fish and Wildlife ..... (902) 368-4683

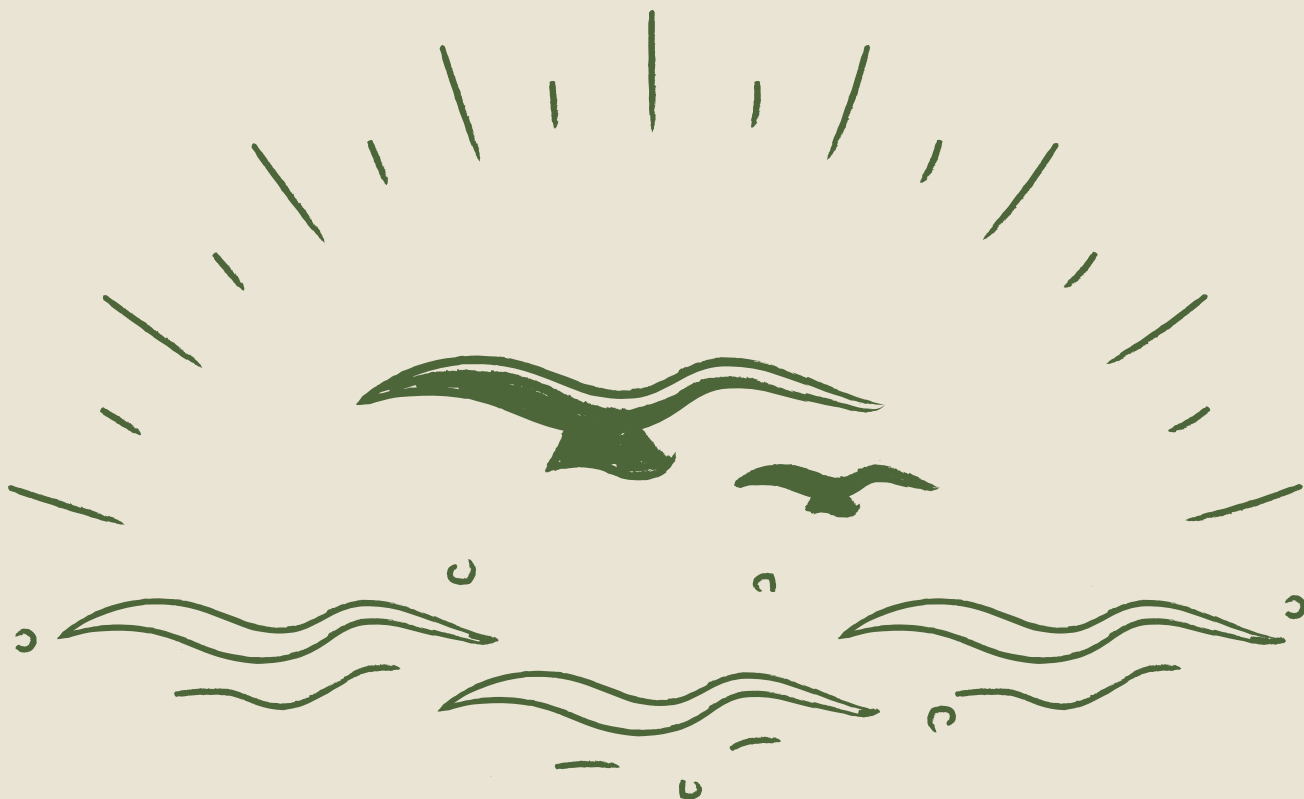
Marine Animal Response Society/  
DFO Marine Animal Hotline ..... 1-866-567-6277

*Report any marine mammal entanglements and entrapments through this toll free hotline (monitored 24/7)*

Atlantic Veterinary College (Small  
Animal Hospital) ..... (902) 566-0950

*If you find an injured animal and it can be safely captured and transported, you can deliver the injured animal to the Atlantic Veterinary College (Small Animal Hospital).*





**Thank you for choosing to be a  
Coastal Guardian and being a part of  
the Island Nature Trust team!**



**ISLAND  
NATURE  
TRUST**

**(902) 892-7513**

**[WWW.ISLANDNATURETRUST.CA](http://WWW.ISLANDNATURETRUST.CA)**

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