

Fire Island Field Guide



**To Vegetation
& Avian
Monitoring**

Fire Island Field Guide to Vegetation and Avian Monitoring was made in 2026 by the NPS biotech field crew. Compilation, research, photos, and drawings by Fox Rinne. Photos and research by George Thompson. Plover section by Sophia Chen. Drawings by Lauren Rocheleau. Big thanks to Kelsey for a beautiful season.

Charadrius melodus (Piping plover)

According to the late Christian text, the Physiologus, and subsequent bestiaries, the charadrius is a snow-white bird, perhaps based on a plover, which is said to draw a person's sickness into itself with one glance before flying to the sun where the disease is burned up and destroyed.

Half a bi-valve. Half an eared ark.

I stalk the sign over the scarp.

Try to meet ~~the eye of camouflage.~~

Full clutch. Starred. Crowning.

Eggshell wet with blood or afterbirth.

Lines leading into a ghost crab's burrow

like a black hole's pull. A crab side-saddles its body out.

I can feel the paradox: the path I've been on and the path arching towards me at the same speed from the other side.

Sometimes there's nothing but the call inside other birdcall, the sign braided into other sign in the sand.

The plover feigns her broken wing. Last resort

at the edge of the nest. She looks back, urges me to follow, says, I know my last weakness, the substance of death.

Sometimes she displays even for an empty scrape,

the first bodily thought of nesting, the bare scratch towards one more life after this one.

Woody Plants

Deciduous

&

Coniferous



Serviceberry / Shadbush

DECIDUOUS

Amelanchier canadensis



Prominent in Fire Island forests, grows in drier areas. Finely serrated leaves. One of the first blooms in Spring: white flowers with five petals. Edible berries.

Highbush blueberry

Vaccinium corymbosum

DECIDUOUS

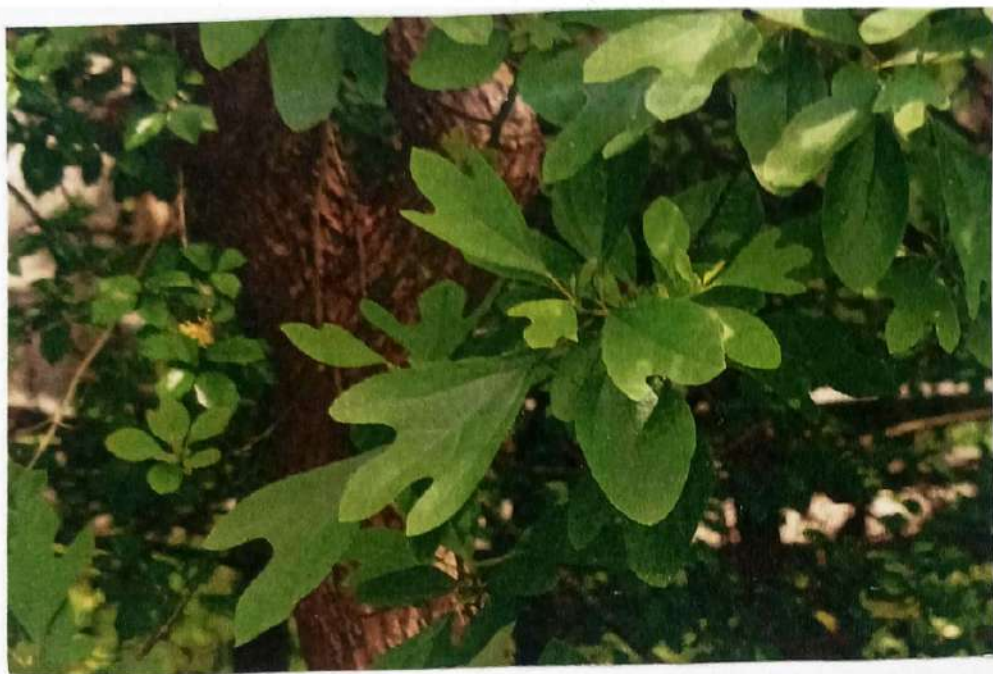


Dense bush found among low-cover behind primary dune and in forest under-story. Grows best in drier sites. Leaves can be distinguished by their oval shape and smooth edges. Berries ripen by mid-summer.

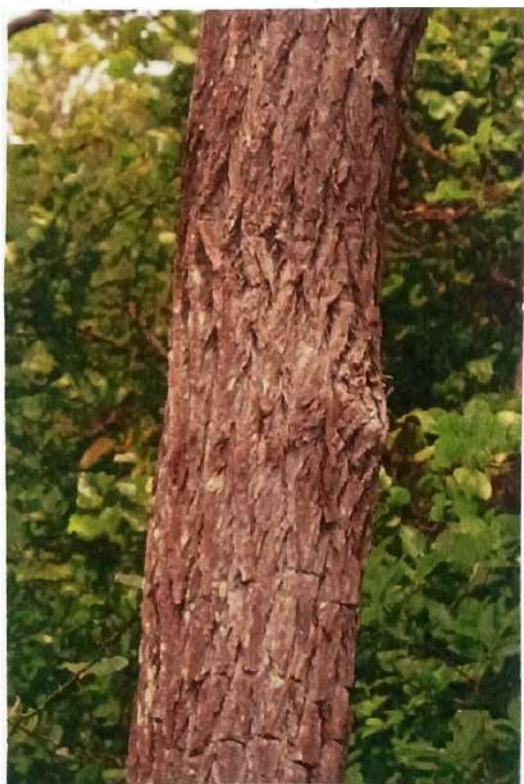
Sassafras

DECIDUOUS

Sassafras albidum



Very fragrant.
Edible leaves.



Tree found in the
maritime forest;
deeply ridged bark
with large papery
leaves. Three forms
of leaves: "mittens,"
"dino feet," and ovals.

Beach plum

DECIDUOUS

Prunus maritima

Shrubby plant that grows dense and well in open sun. Leaves look similar to black cherry with a lighter hue and less waxy texture.

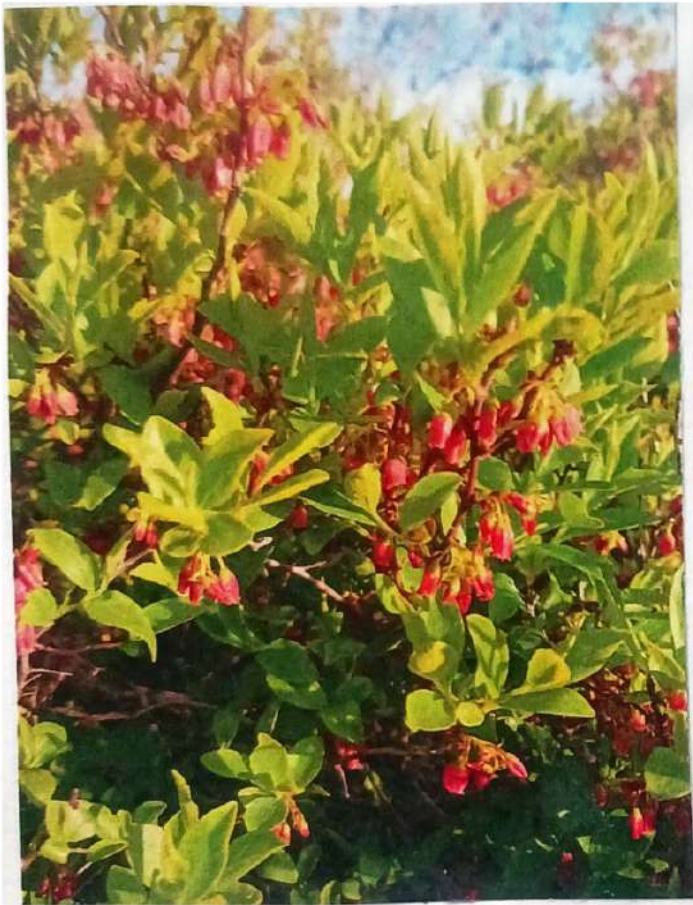


Grows large purple fruit that ripen in late summer. Edible.

Black huckleberry

DECIDUOUS

Gaylussacia baccata



Leaves similar to high bush blueberry but distinguishable by whit sheen on underside of leaves. Edible berries

Marsh elder

Iva frutescens

Wetland shrub growing in low areas near the bay. Similar to groundsel tree, but characterized by lance-shaped leaves that have narrow teeth and a paler color.



DECIDUOUS

Black gum / Black tupelo

Nyssa sylvatica



Found in wet areas of maritime forest. Thick, glossy leaves that are widest on the top half.

If you can't identify a tree, it's probably this one.



DECIDUOUS

Chokeberry

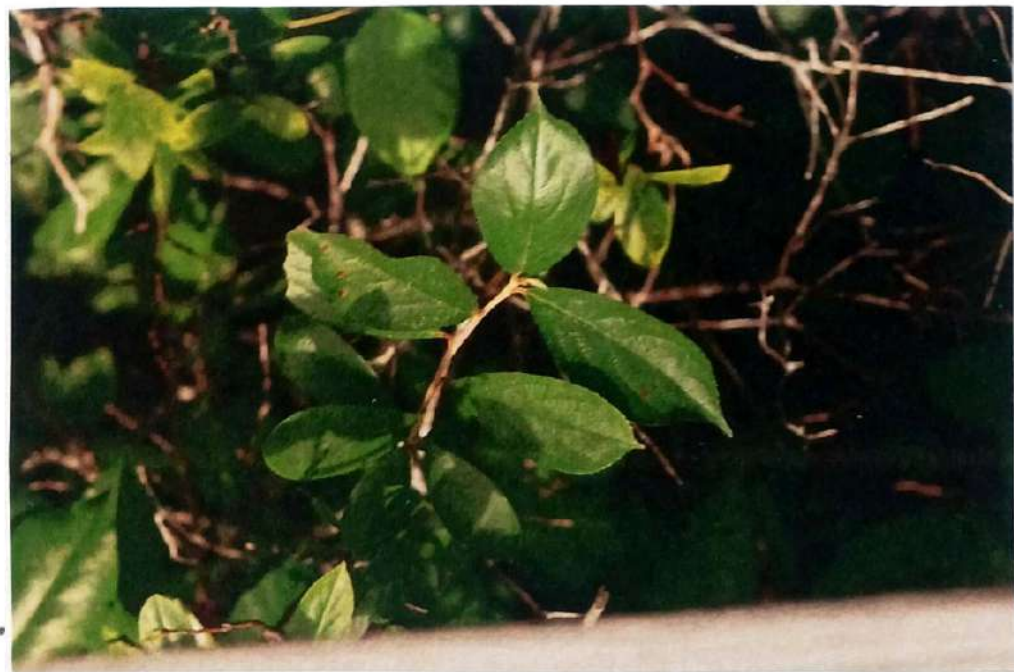
DECIDUOUS

Aronia melanocarpa

Edible but
bitter berries.

White flowers
in spring.

Finely serrated
glossy leaves.



Grows in
low wet
to sandy
dry areas.

Northern bayberry

DECIDUOUS

Myrica pensylvanica

Leaves often arranged in slight cup shape, smooth sometimes toothed at ends. Shrub-sized.



Aromatic,
used for
making
soap and
candles

Winged sumac

Rhus copallinum

DECIDUOUS



Woody plant that grows mainly as a low shrub on Fire Island. Shiny, pinnate compound leaves; distinguished by leafy "wings" along leaf vein.

Black cherry

Prunus serotina

DECIDUOUS



One of the most prolific trees on the island. Long, finely serrated leaves, white blooms, dark fruit in clusters when ripe, dark scaly bark, prominent verticle lenticels on bark when young.



Pussywillow

Salix discolor

DECIDUOUS

Grows in
dry areas.

Not common,
seen in housing
areas of
Watchhill. Native
to Long Island.



Weakly serrated leaves
almost white on under-
leaf. Recognizable
catkins blooming in
early summer.

Groundsel tree

Baccharis halimifolia

DECIDUOUS

Looks similar
to *Iva frutescens*,
marsh-elder,
but groundsel
tree has
alternate leaves
compared to
marsh-elder's
opposite.



Coarsely-
toothed,
wedge-shaped
leaves. Shrub-
sized.



DECIDUOUS

Arrowwood Viburnum

Viburnum dentatum



Native, found in dry areas, but not common on Fire Island. Very similar to invasive Linden Viburnum distinguishable by Arrowwood

Viburnum's non-fuzzy leaves which are also more toothed and heart-shaped. Shrub-sized, not in canopy layer.



Black oak

DECIDUOUS

Quercus velutina

Less common trees in the maritime forest. Leaves with deep lobes and pointy ends, fuzzy texture. More common on mainland.

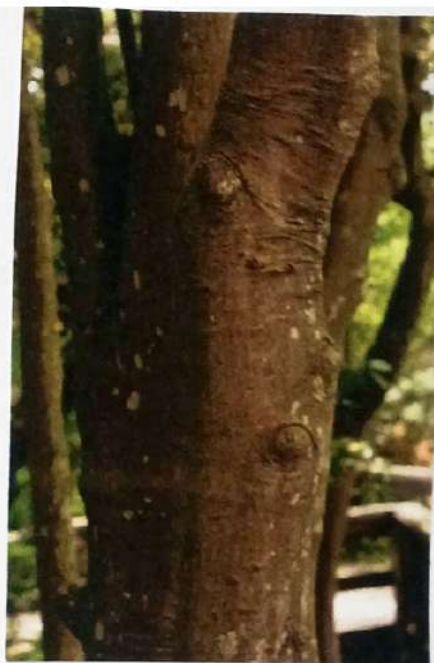


American Holly

CONIFEROUS

Ilex opaca

Characteristic species of the maritime holly forest; light smooth bark, thick and waxy, pointed evergreen leaves. Dominant species in some areas, growing 30-40 ft.



Eastern red cedar

CONIFEROUS

Juniperus virginiana

Evergreen tree with scaly leaves and waxy blue 'berries' that are actually cones. Can grow as a low shrub, up to a small or medium sized tree. Forms dense thickets, sometimes co-occurring with pines.



Two types of leaves: prickly soft young shoots and scale-like.

Swamp azalea

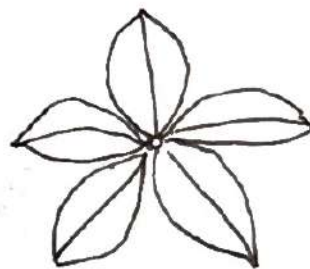
Rhododendron viscosum

Grows in very wet areas. Leaves have short stems, green on both sides. Flowers smell sweet with long stamens. Sticky corolla.



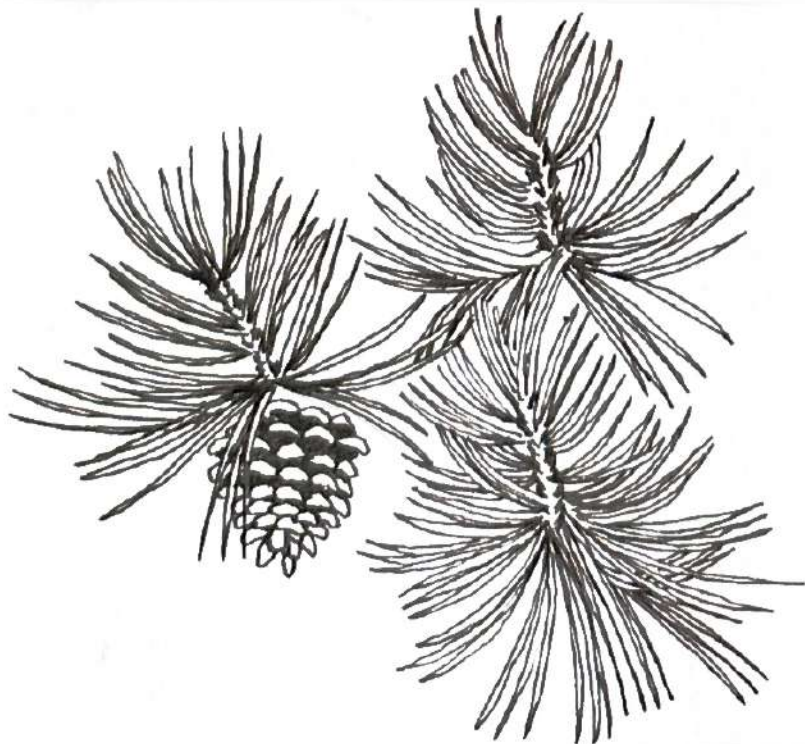
DECIDUOUS

The native pine of the island in contrast to the non-native black pine.



Pitch pine

Pinus rigida



Evergreen tree characteristic of barrier island habitat across the Northeast, identifiable by its bundles of three needles. Grows in scrub habitat behind primary dune often where hardwoods haven't established.

CONIFEROUS

Herbaceous Plants



Starflower

Trientalis borealis

Small herbaceous plant growing through leaf litter of maritime forest.

Recognizable by its slender, very finely-toothed leaves growing in a whorl on a short stalk. Pointy white flowers in late May to mid-June.



Canada mayflower

Maianthemum canadense



Also found in the leaf litter of the maritime forest. Heart-shaped leaves with strong veins, often found growing alone. Strong stamen on flowers jutting out, four per bloom. A May blossom.

Beach heather

Hudsonia tomentosa

Prolific on Fire Island, often growing in sand beyond primary dune. Yellow bloom in midsummer.

Thick scaly
leaves. Yellow
flowers with
five petals.
Forms mats
in the sand.



Virginia rose

Rosa virginiana

Most common rose on the island. Leaves with pinnately compound leaflets and serrated edges. Leaf tissue at base is whole - looks like two flaps.



Bright pink, medium-sized flowers in midsummer.

Seabeach amaranth

Amaranthus pumilus

Threatened species.

Thick veined leaves,
round edges, and
thick stems. Grows
in clumps found
in open sand below
dune and typically
above wrackline.

Often very small
leaves and clusters.



Sea pea

Lathyrus japonicus

Oval leaves with rounded edges growing on an arched stem. Purple flowers in mid-summer. Found in dunes. Edible peas.

Native to both temperate coasts of North America and Asia



American searocket

Cakile edentula



Common plant on the open beach before the primary dune. Bright green and leafy, it can grow in small clumps or in larger patches. It is often browsed by deer, sometimes with yellowing edges.

Swamp rose mallow

Hibiscus moscheutos



Very large flower bigger than my hand. Native, can grow tall especially growing on other shrubs. Found in open sun on the edge of the maritime forest.

Bushy bluestem

Andropogon glomeratus



Grows in sand and soil along the boardwalk on Fire Island. Recognizable by its unique bushy spikelets and silvery, cotton-like flowerheads.

American beachgrass

Ammophila breviligulata

Most common plant on the primary dune. Grows long, thin, tall grassy leaves and deep tap roots that help stabilize sand on the dunes. Grows in clusters which form dense clusters in the high beach.



Little bluestem

Schizachyrium scoparium



Grows in sand along boardwalks of Fire Island. Purplish bronze seedheads in late summer and fall. Seedheads have feathery appearance. Stems with noticeable nodes, flattened at bases.

Allegheny blackberry

Rubus allegheniensis

Shrubby plant that grows long, spindly stems with thorns. Has white flowers, and fruits in midsummer.

Distinguished from other *Rubus* species by square green stems and large leaves often with five leaflets. Grows in understory.



Sensitive fern

Onoclea sensibilis

Round, full fronds with deeply cut lobes. Often grows on the edge of forests. Sensitive to frost.



Eastern marsh fern

Thelypteris palustris



Grows in wetter landscapes. A prominent fern found on the island. The stem is tan, the middle of the pinna is the widest. Leaves are pinnately lobed.

Switchgrass

Panicum virgatum

One of the most common grasses in sand behind the dunes. Dry dead stands of switchgrass are common in early spring. Leaf sheaths hairy at margins.



Pennsylvania sedge

Carex pensylvanica



Very common grass in maritime forests of Fire Island. Grows in clumps, often with curling dead grass attached to cluster. One of the earliest blooms in the spring.

Spanish needles

Bidens alba



Seen in maritime forest. Yellow flowers. Wedge-shaped leaves with fern-like appearance.

Galico aster

Symphotrichum lateriflorum

Small rough leaves with white, pink, or purple flowers often on the same plant.



Smooth solomon's seal

Polygonatum biflorum

Found in maritime forest. Arching plant with zig-zag leaves. Bell-like flowers. Parallel veins on the leaves. Unbranched leaf stalks.



Sickleleaf silk-grass

Pityopsis falcata



An aster, forms dense mat with many flowers in one cluster. Leaves are often folded over in the center. Stems are hairy. Grows often in sand.

Wild sarsaparilla

Aralia nudicaulis

Common on mainland,
but only recently
returned to Fire Island
with decrease of deer.



Five oval leaflets, greenish-
white flowers, dark purple
berries in fall.

Northern dewberry

Rubus flagellaris

Trailing stem
with brief white
flowers in mid-
summer. This
should be in the
lianas section,
but isn't. Stout
stems.



Seaside goldenrod

Solidago sempervirens

Grows most often
in sand behind
primary dune.
Blooms in very
late summer. Thick
and wide leaves.
Flowers are deep
golden yellow.



Wrinkleleaf goldenrod

Solidago rugosa



Grows often at
the edge of the
forest in full or
partial sun. Hairy
stems, short rough
leaves, many
stems and many
flowers.

Yarrow

Achillea millefolium

Feathery leaves
with flat-topped
flower heads with
white blooms.

Found in sand
and dirt.



Blue toadflax

Nuttallanthus canadensis

Extremely small flower
that grows straight,
Sometimes alone, sometimes
in clumps. A purplish
blue bloom about the
size of a fingertip.
Grows in grass in
sun or shade.



Lianas & Non-Woody Vines



Roundleaf greenbrier

Smilax rotundifolia



Vining plant that grows in all dry areas behind the primary dune. Thick green stems, thick waxy leaves, and thick sharp thorns along the stems.

Virginia Creeper

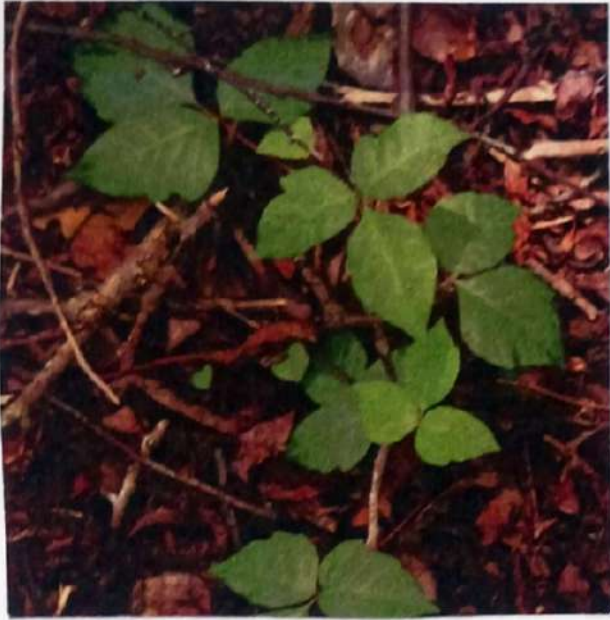
Parthenocissus quinquefolia

Climbing vine growing in forested areas, leaves similarly shaped to poison ivy, but grow in fives instead of threes whorled around main stem. Not toxic.



Poison ivy

Toxicodendron radicans



Grows everywhere - as small groundcover, climbing vines, and large shrubs. Branches with leaves of three: center leaf sticking slightly out from top. Can be smooth-edged or toothed.



Don't touch.

Catbrier

Smilax glauca



Vining plant that grows in similar areas to greenbrier. Distinguished by paler green underleaf color, more papery leaf texture, oblong shape, and thinner thorns. Sometimes has white spots on top of leaf.

Invasive Plants



Phragmites ^{OR} Common reed

Phragmites australis

Extremely common reedgrass growing in marshes, tidal bay areas, and in residential backyards. Reproduces via rhizomes and seed. One subspecies is native, but the most commonly seen subspecies is invasive.



Japanese knotweed

Reynoutria japonica



Prolific shrub that grows in large low mats. Found extensively in communities on the island and spreads quickly. Large wide leaves that come to a terminal point while base is flat.

Mugwort

Artemisia vulgaris

Invasive herb, grows in dense clusters of tall stems with large lobed leaves.

Grows best in disturbed sites where it can quickly take over.

Most common in communities.

Hoary mugwort can be found in the dunes.



Japanese black pine

Pinus thunbergii

Non-native pine species identifiable by its bundles of two needles and long narrow new growth. Quite invasive across the island where it is replacing pitch pine, especially in developed areas.



Autumn olive

Elaeagnus umbellata

Commonly planted large shrub easily identified by its silvery leaves.

Rampant invasive that quickly establishes at disturbed sites. Can grow quite tall, giving it a competitive advantage over native shrubs.



Golden bamboo

Phyllostachys aurea

Common ornamental that is planted across the communities, especially the Pines. Not yet found in natural areas, but a known invasive on the mainland.



Tracks





RACCOON

Raccoons have longer fingers in the prints. Dogs often have visible claws. Cats have more horizontally positioned toes than a dog's.

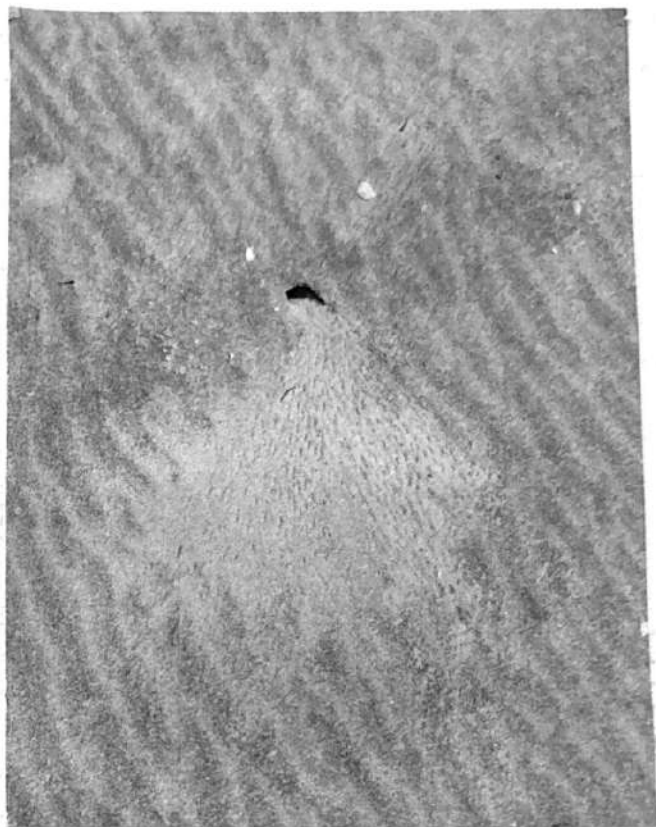


DOG

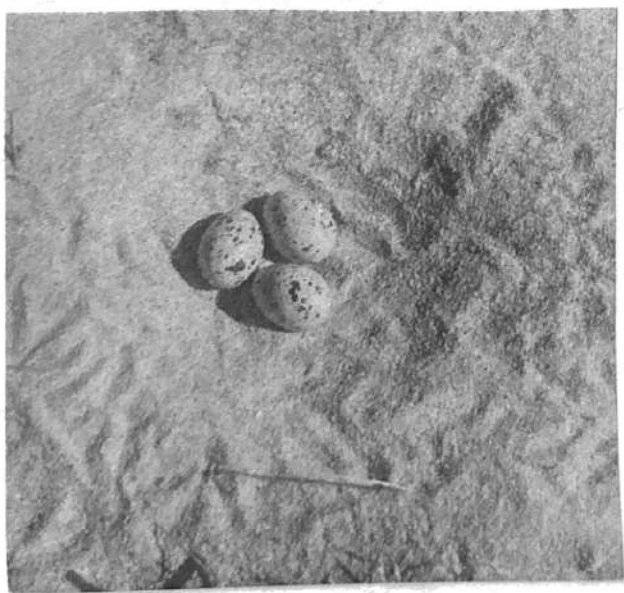


CAT

Ghost crabs are major predators of piping plovers. Sometimes the lines coming from their burrows can resemble a plover highway.



GHOST CRAB



OYSTERCATCHER

Oystercatcher tracks are much thicker and wider than terns' or plovers' prints.

Piping plovers are "pigeon-toed" with their tracks forming three small lines. A "highway" of tracks often indicates a scrape or a nest is nearby.



PIPING PLOVER

Often, following tracks can be more reliable than following birds because the birds will try to lead you away.

Least tern tracks often appear more like single indents in the sand - less distinct than a piping plover's. A tern's feet are webbed while a piping plover's are not.

Avian Monitoring

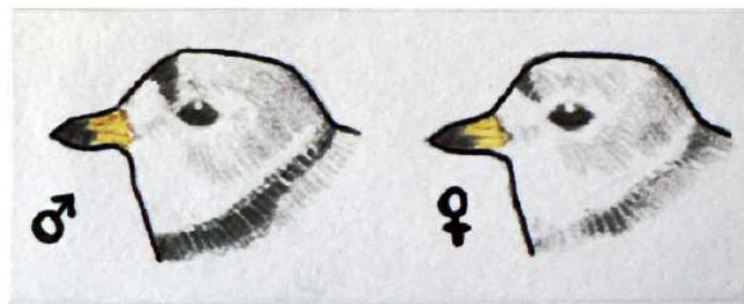


Differentiating Piping Plovers



Plump and pale like dry sand. Breeding adults have dark brow- and neck-bands, orange legs, and an orange bill with a black tip.

Very vocal - a sad, two-note whistle, often when alarmed.



Sex

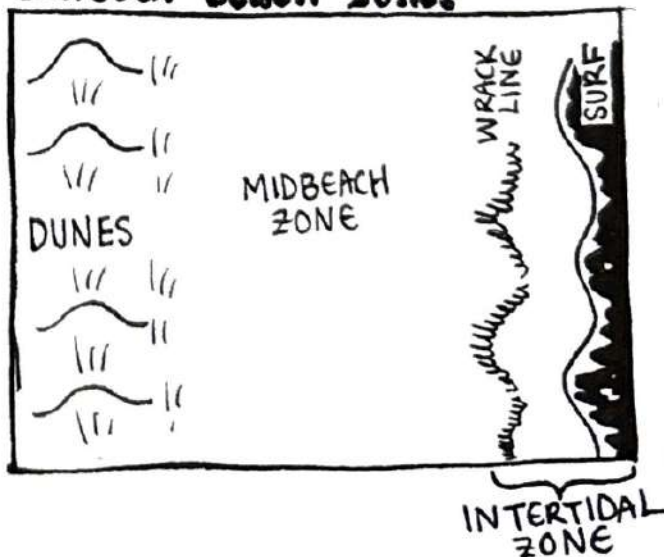
Piping plovers from the Atlantic coast have very similar breeding plumages. Males tend to have longer brow-bands and wider neck-bands that can sometimes go all the way around. The neck-band is variable depending on body position (esp. during head-bobbing) and therefore is not a definitive characteristic. The orange of the bill and legs may be brighter in males.

Breeding behavior may help in determining sex. Males engage in most aerial displays and scraping, and will be on top during copulation. Both sexes perform incubation and territorial confrontations.

Behavior

- solitary or in pairs. Small groups may form from May - early July when acting territorial
- tend to move intertidal → midbeach when disturbed
- body remains steady during gait
- forages by pecking at the surface of the sand in midbeach and intertidal zones. Does not follow tidal movement, like sanderlings do. May be seen foot trembling to bring prey to the surface.

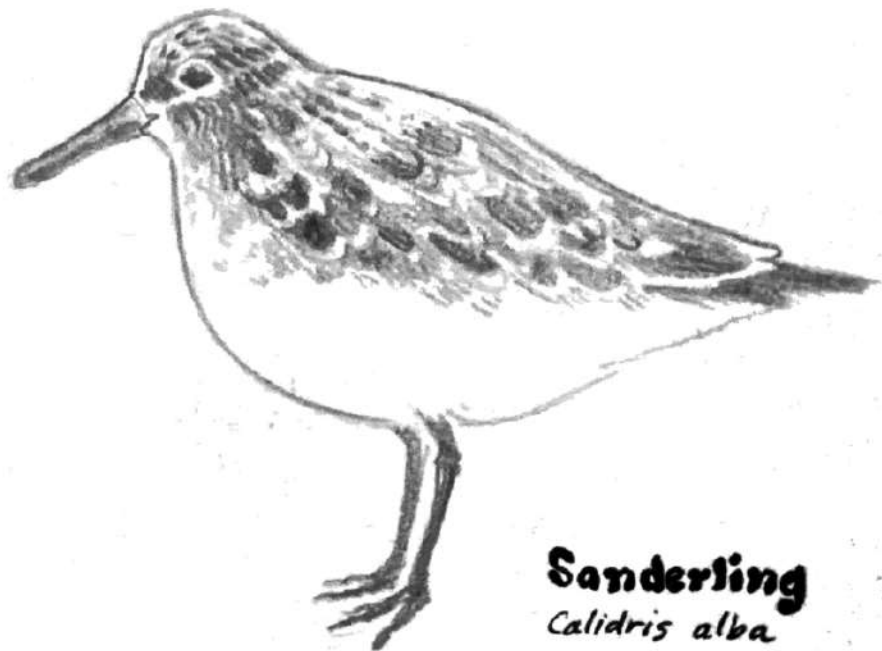
Lateral beach zones



Darker overall with a thicker, longer bill. May be rusty or deep red on the upperparts.

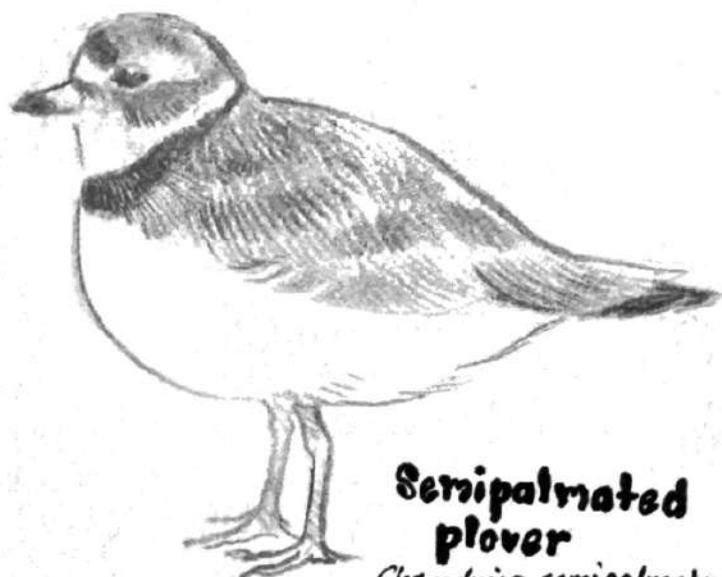
Behavior

- usually in large groups of 10 - 50+. Coordinate movements during foraging and takeoff
- tend to face → surf and take off in groups when disturbed
- body tends to wobble side to side during gait
- forages by rapidly digging bill into sand in the intertidal zone. Follows tidal movement, running away from the incoming surf.



Sanderling
Calidris alba

A group of sanderlings foraging.

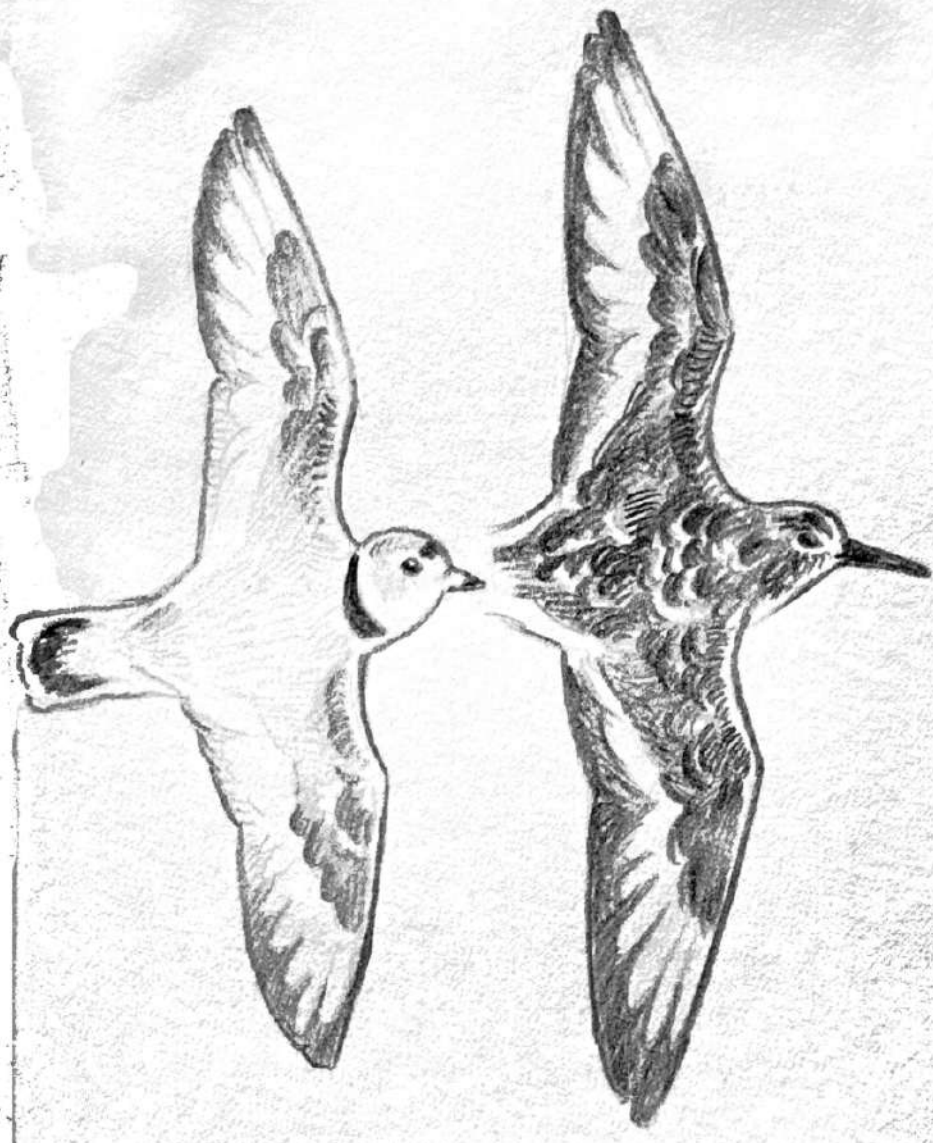


Semipalmated plover
Charadrius semipalmatus

Noticeably darker, like wet sand. Has a solid, thick neck-band.

Behavior

- tend to be solo, spread out over a large area
- mostly seen in the mudflats at the beach; does not start appearing at the ocean side until early August



In flight

White wingstripes present on both. Piping plovers are paler overall, and may have less frequent wingbeats and be more vocal during flight. Sanderlings have a starker contrast between wingstripes and darker upperparts. Rapid, sustained wingbeats. Juveniles or adults losing their breeding colors may look similar to piping plovers in flight.

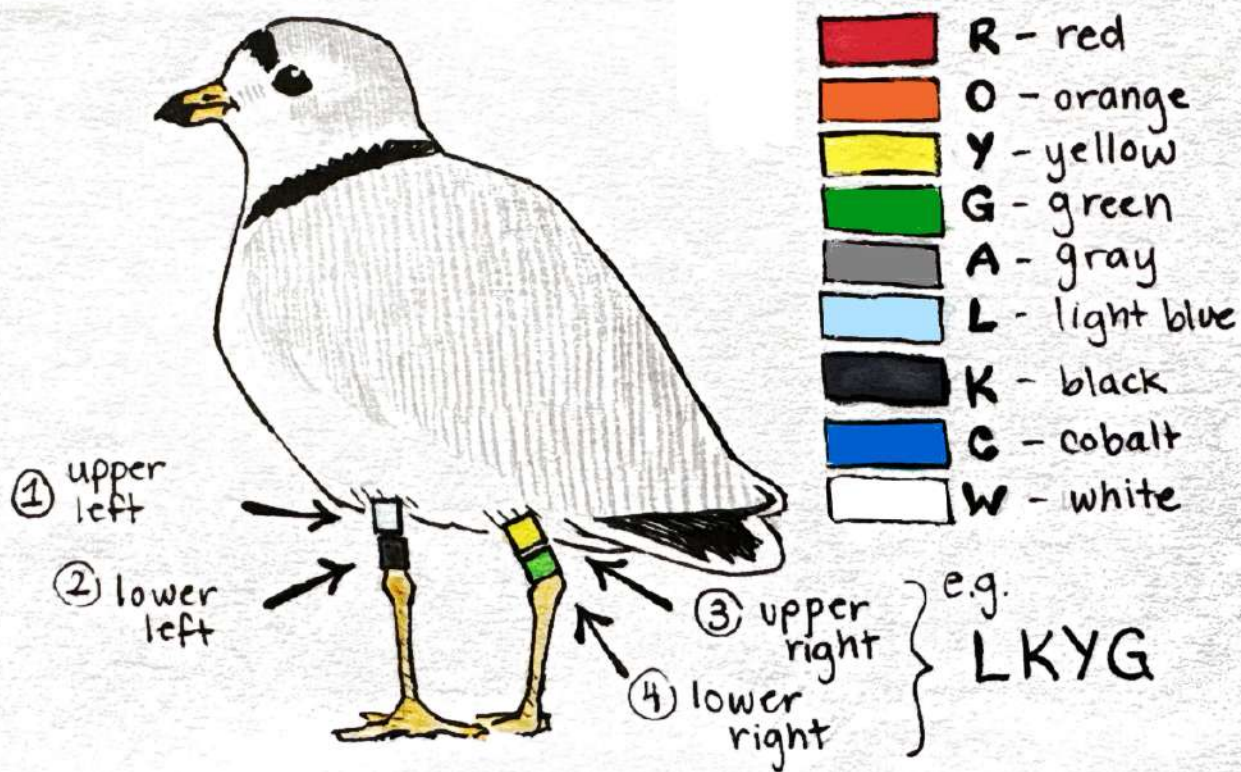
Chick comparison

From a distance, tern chicks running across the midbeach zone may look very similar to plover chicks.

Note the bottom-heavy, "dumpy" look and gait (their legs are much shorter). Plover chicks run keeping their body mostly still and long legs bent.



Plover Banding and Flagging



When abbreviating the color bands, describe in this order:
① upper left, ② lower left, ③ upper right, ④ lower right.
If the color combination does not appear in the search bar,
put your closest guess in the notes of the sighting
or nest.

Green Flagging (Gf) has
a combination of 3
letters or numbers.
e.g. 3KP, 007, MJN



Piping plover & Least tern egg & scrape ID



Grayish overall color with black and gray spots. A full clutch is four eggs.



Least tern eggs vary more than piping plovers because they are colony nesters.



Blue overall color with thicker brown and pale blue splotches. A full clutch is two eggs, but three are possible.



PIPING PLOVER

LEAST TERN

Scrapes

Piping plover scrapes resemble heel prints in the sand, sometimes with scratching marks inside and tracks surrounding. Scrapes have a recognizably round and intentional shape.



Least tern scrapes are often more haphazard with fewer tracks surrounding. Some tern nests are decorated, but more rarely.



Tern nests are nearly always out on the open sand, while plovers nest both in the dunegrass and on the open beach.



Nests



EXAMPLES OF DECORATED NESTS
(PIPING PLOVER)

Chicks



PIPING PLOVERS



LEAST TERNS

Least tern chicks tend to be speckled, sometimes black and white, sometimes blond.



OYSTERCATCHER

Chick ages

Piping plovers



Nest



1 day



6 days



11 days



15 days



18 days



23 days



26 days



34 days



42 days



49 days



Breeding Adult Male



Breeding Adult Female

From Birds Canada Manual

Piping Plover Aging Guidelines



4 days old



6 days old



11 days old



1- 5 Day Age Class

- No visible wing or tail.
- Clearly defined black line between upper parts and lower parts.
- As tall as adult's belly.
- Often lies motionless when alarmed.

6-10 Day Age Class

- Downy tailform emerging.
- Black line fading due to emerging feathers.
- Approx. 1/3 size of adult at 10 days.
- Very adept at feeding and mobile on feet.

11-15 Day Age Class

- Feather shafts emerging on wing.
- Emerging contour feather shafts give bird a scaly appearance.
- Looks "chunky" as bird fills out.
- Rarely lies motionless; prefers to run when alarmed.

From Environment Canada



18 days old



21 days old



24+ days old



16- 20 Day Age Class

- Downy head.
- Contour feathers noticeably developed giving bird a rough fuzzy appearance.
- Approx. 1/2 the size of adult at 16 days.
- Less compact, longer profile from head to tail.

21- 24 Day Age Class

- Black wing tips and tail feathers noticeably protruding.
- Upper parts nearly fully feathered.
- Almost adult height by 22 days.
- Body begins to look sleek.
- Will take short hop flights.

24+ Day Age Class

- Fully developed primary feathers.
- White underparts fully feathered, very little fuzzy down still visible.
- Capable of sustained flight.
- Often seen without adult.

General Advice for Monitoring —AVIAN—

1. Put the pin on the map as close to the nest as possible for a precise location. Keep images of the nests for references. You can also point to the nest in a zoomed out photo.
2. Carry a long stick with you in tern territory. It helps keep them further away when they divebomb you.
3. Always check for flags and bands, even just for sightings, and add these to the nest observations, as it's very helpful identifying birds to certain nests.
4. Note estimated age of chicks at every chick check at the Breach or if you are unsure of exact hatch date.

—VEGETATIVE—

1. Familiarize yourself with the scientific names of plants in the area. When recording, you'll use the first two letters of the genus and species.
- Ex. Amelanchier canadensis — AMCA
Prunus serotina — PRSE

Beach Vegetation Surveys





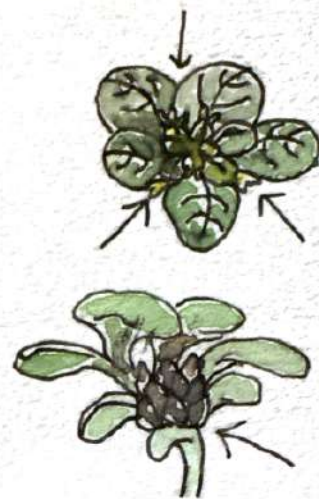
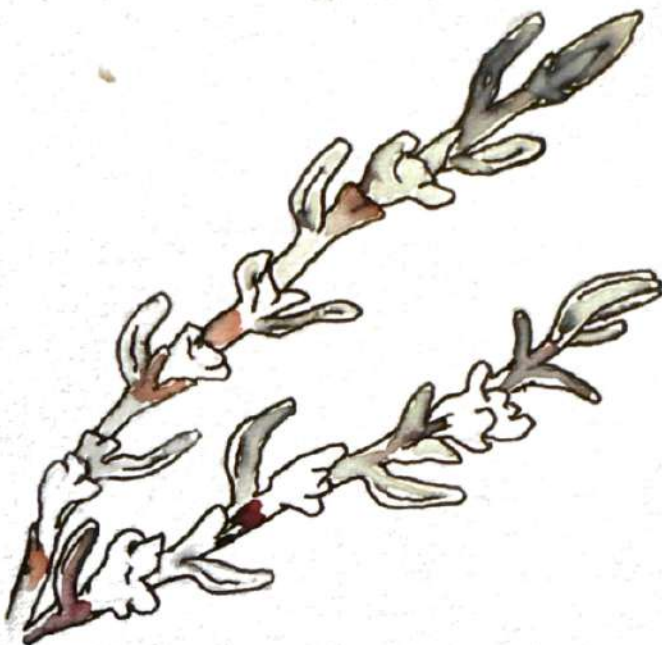
AMERICAN
BEACHGRASS



ASIATIC
SAND SEDGE

Asiatic sand sedge (*Carex kobomugi*) grows much lower to the sand and curls especially in comparison to American beachgrass which often grows straight unless in a large cluster. Asiatic sand sedge grows invasively on the island.

For seabeach amaranth, the flowers are yellow and incredibly small usually in the center of the leaves. The fruit grows under the leaves.



Seabeach knotweed has thin leaves and white flowers. Its stem is light green with a hint of red under the blooms.

Packing for field season

What you're provided in housing & in day-to-day:

- Sunscreen, bug spray, tick spray, Tyvek
- Gloves
- A Leatherman
- A field backpack
- A field notebook
- Dishware, pots, pans, utensils
- Stovetop, oven, microwave, coffee maker
- ACs and space heaters
- Rain boots for veg surveys in the woods
- Poison ivy wipes and Tecnu
- Binoculars

What to bring:

- Bedding for a full-sized bed
- Field clothes for cold windy days early season and hot days in full sun
- Additional sunscreen and bug spray
- A hat
- Good walking shoes
- Good beach supplies (Shibumi, cooler, chairs, etc.)
- Cleaning supplies, clean towels