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Comstock Point, Lubec, Maine - A Natural and Photographic History

Willaim H. Schlesinger

Lisa M. Dellwo

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Comstock Point



10 July 2003

**A natural and photographic history of our lands compiled by
Lisa Dellwo and Bill Schlesinger, with the help of many
friends and neighbors.**

Revised through 31 December 2022

Introduction

When we first visited Lubec in 2005 and when we bought our first piece of land in 2008, we had no idea of eventually settling here. We liked the birds and wanted to have a piece of nature that we could preserve for the sake of a few Ruffed Grouse and Chestnut-sided Warblers. But one thing led to another, and now we have put together a tract of nearly 50 acres at 701 North Lubec Road.¹ The driveway runs about 1/2 mile northeast leading to Comstock Point, where we have built a small, energy-efficient year-round house, designed by Opal (formerly Go-Logic Inc.) of Belfast and built by Peter Robinson of Lubec. It is powered by 6.2 kW of solar panels installed by Revision Energy.



We were attracted to this property by its diversity of habitats, wildlife, plants, history, and sunsets. We have identified over 250 species of plants, in habitats ranging from dense stands of spruce to abandoned pasture meadows. The mosaic of these habitats reflects the past use of the lands as a dairy farm and as a location of a factory supporting Lubec's sardine packing industry in the last century.

We have also identified more than 150 species of birds, which vary seasonally from about 10 that can be found on a typical day in the depth of winter to more than 50 on a good day in May. Mid-summer birdlists average about 25, with a wide selection of warblers that nest on the property. We also hear Ruffed Grouse and Woodcock in the spring, and various species of sea ducks in the winter.

¹ in five parcels—021, 016-4, 016-3, 016-2, and 016-1 on Lubec Tax Map 12

The meadows on the property offer a seasonal progression of flowering plants, ranging from oxeye daisy and hawkweeds in the early summer through goldenrods and asters later in the year. These meadows provide habitat for a diversity of butterflies and moths, as well as a dense population of mosquitoes.

Comstock Point was named for Colonel George Comstock (1799-1881)², and designated on the first USGS Topographic Map of the area in 1949 (see Ownership and Geneology, page 10). The point extends into Cobscook Bay, which supports a variety of fishing and shellfish industries, including farmed salmon within sight of our property. The pastoral environment of our property offers a sharp contrast to the international commerce conducted right across the Bay. Ships docking at the Port of Eastport are loaded with wood pulp destined for Europe and China and other international ports.



Figure 1. An aerial photograph of our property, taken in May 2010 by Sewall Inc., Old Town, Maine

² Rutherford, P. 1971. Dictionary of Maine Place-Names.
Comstock Point is located at 44 53" 11' N and -67 01" 11' W

Geology

The bedrock under our property, limestone sediments, was laid down under the sea during the Devonian period, some 400 million years ago³. In some areas, diabase dikes of Jurassic age (200 to 145 mya) have intruded the limestone⁴. These volcanic rocks are more resistant and thus form the topographic highs on the landscape, such as the rise that begins about 500 feet along our driveway. Diabase is visible at the surface of that ridge. The limestone is more easily weathered and forms the topographic lows, such as the large meadow just west of the house. Comstock Point itself is composed of diabase.



Figure 2. Outcrops at Comstock Point, showing diabase of volcanic origin in the foreground and Devonian-age limestone in the background to the left.

About 16,400 years ago, the last continental glacier left a terminal moraine about 3 miles south of our property and seen today as the height of land along Route 189, where several commercial gravel deposits are associated with it.⁵ The weight of the glacier had depressed the entire region below sea level, so as the glacier melted, the materials carried by the glacier accumulated underwater. Later, the landscape rose by isostatic rebound, lifting the sediments above sea level and allowing soils to develop. The surface deposits of the property were left

³ Gates, O. 1975. Geologic map and cross sections of the Eastport Quadrangle, Maine. Geologic Map Series GM-3, Maine Geological Survey, Augusta

⁴ Harold Borns, personal communication, June 2016

⁵ This is not the terminal moraine from the greatest extent of the Wisconsin glaciations, but a moraine from a short-term readvance of the glacier during its overall retreat beginning 18000 years ago. It is known as the Pineo Ridge Moraine System. (Harold Borns, personal communications 2015 and 2016. See also: Maine's Ice Age Trail, Down East. Map and Guide. University of Maine.)

behind about 13,000 years ago.⁶ Thus, there is little mineralogical connection between the soils and the underlying rocks on our property.

The present-day topography of the property ranges from sea level to slightly more than 60 feet above mean sea level along North Lubec Road.⁷ Our house is approximately 37 feet above sea level. To the east, the floor of Cobscook Bay drops off rapidly from the shoreline, to depths of more than 100 feet in the channel between Comstock Point and Eastport.⁸ The tidal amplitude in the Bay can exceed 20 feet.

The Earth's crust in Maine is rising as a result of the loss of the weight of the glacier 16,000 years ago (i.e., isostatic rebound).⁹ Thus, the relative sea-level rise in this region (2.14 mm/yr)¹⁰ is less than the absolute level of sea-level rise globally (~3.5 mm/yr) in recent years by virtue of the isostatic uplift in this region.¹¹ Nevertheless, we observe some coastal erosion and shoreline retreat on our lands (i.e., marine transgression).

⁶ Kaplan, M. 1999. Retreat of a tidewater margin of the Laurentide ice sheet in eastern coastal Maine between ca. 14000 and 13000 ¹⁴C yr B.P. *Geological Society of America Bulletin* 111: 620-232.

⁷ U.S. Geological Survey, 1949. 7½' Eastport Quadrangle

⁸ National Oceanic and Atmospheric Administration. 2002. Chart 13394 Grand Manan Channel, Northern Part

⁹ For example, Eastport experienced a M 3.3 earthquake on 2 February 2016

¹⁰ <http://tidesandcurrents.noaa.gov/sltrends/sltrends.html>

¹¹ Belknap, D.F., R.C. Shipp, R. Stuckenrath, J.T. Kelley, and H.W. Borns. 1989. Holocene sea-level change in coastal Maine, pp. 85-105. In W.A. Anderson and H.W. Borns (eds.). *Neotectonics of Maine*. Maine Geological Survey, Augusta

Climate



Figure 3. Snowstorm of 21 November 2018

Lubec has a maritime climate, with short, warm summers and long, cold winters. The average high temperature of 75 F occurs in July and the average low temperature, 30 F, occurs in January. The coldest and warmest days on record are -23 F and 98 F, respectively. Global warming is evident, inasmuch as 10 of the 12 highest monthly temperatures have occurred since 1990, whereas 11 of the 12 record low temperatures occurred before 1990.

Precipitation of about 45 inches per year (= 114 cm) is fairly evenly distributed, varying between 3" and slightly more than 4" each month. Foggy days are frequent, but typically the fog "burns off" by late morning. Comstock Point experiences frequent windy days, typically from the northwest during the fall and winter.

Historical mean and record temperatures and precipitation in Eastport, Maine (1900-2016)

Month	----- Temperature -----			Avg Precipitation	----- Temperature -----	
	Mean High	Mean Low	Mean		Record High	Record Low
Jan	30°F	14°F	22°F	3.83 in.	58°F (2013)	-20°F (1907)
Feb	32°F	17°F	24°F	3.12 in.	65°F (1994)	-23°F (1914)
Mar	39°F	24°F	31°F	4.07 in.	76°F (1945)	-13°F (1989)
Apr	50°F	34°F	42°F	3.67 in.	82°F (2004)	1°F (1913)
May	60°F	41°F	51°F	3.77 in.	93°F (1992)	24°F (1950)
Jun	69°F	48°F	58°F	3.66 in.	93°F (2005)	34°F (1986)
Jul	74°F	54°F	64°F	2.98 in.	98°F (1999)	40°F (1914)
Aug	74°F	54°F	64°F	3.10 in.	95°F (1993)	41°F (1978)
Sep	67°F	49°F	58°F	4.11 in.	94°F (2002)	30°F (1904)
Oct	56°F	40°F	48°F	4.37 in.	83°F (2002)	21°F (2004)
Nov	46°F	33°F	39°F	4.87 in.	71°F (1956)	4°F (1932)
Dec	36°F	21°F	28°F	4.27 in.	60°F (1998)	-23°F (1933)

We began to monitor meteorological conditions in August 2018, using an Ambient WeatherTM station mounted on the rooftop (Figure 4). While our dataset is not long, it shows persistent high winds, which come from the northwest quadrant during favorable weather associated with high barometric pressure. When the winds shift to the southeast quadrant, typically with falling pressure, we look for storms.



Figure 4. Ambient Weather station on the rooftop.

Soils

As in any region, the soils on our property have developed in response to local climate, vegetation, topography, geology, and time. The soils under spruce-fir forests in eastern Maine are acid and often low in available phosphorus.¹² An analysis of surface soil from a meadow at Comstock Point showed pH of 4.9. The abundance of nitrogen-fixing species (e.g., clover and vetch) in the meadows of our lands suggests nitrogen deficiencies.

The soils on our property are relatively young, so some are classified as Inceptisols, which are soils showing only incipient development of horizons (Figure 5a). In other areas, the soils under spruce and fir show the effect of organic acids in weathering parent minerals and leaching away some constituents. These soils are known as Spodosols on the basis of a well defined whitish, leached horizon near the surface and a darker spodic horizon at depth.

Specifically, the soils of the property are mapped as Inceptisols of the Lamoine Series or Spodosols in the Rawsonville-Hogback series.¹³ Both are widespread in this region of coastal Maine, where they develop from glaciomarine deposits on gently sloping terrain. At the site of our house construction, the soil profile was generally about 4 to 6 feet deep, before encountering a diabase ledge (Figure 5b).



Figure 5a. Soil profile at groundbreaking



Figure 5b. The excavation of soils for our foundation.

¹² Fernandez, I.J. and R.A. Struchtemeyer. 1985. Chemical characteristics of soils under spruce-fir forests in eastern Maine. *Canadian Journal of Soil Science* 65: 61-69.

¹³ Soil Survey of Washington County, Maine
http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/maine/washingtonME2008/maps/sheet%2021.pdf

Hydrochemistry

Surface waters

There is essentially no channelized perennial surface drainage on the property. Dissolved constituents (mg/l) in samples from the ponds reflect the chemistry of the underlying limestone rocks—high calcium (Ca) and pH—with an influence of marine deposition. The sodium (Na) to chloride (Cl) ratio in milliequivalents is approximately 0.77, versus 0.85 in seawater.

Date	Ca	Mg	Na	K	NH ₄ -N	Cl	Br	SO ₄	NO ₃	PO ₄ -P	Si	pH
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Aram Pond

4 May 2017	21.1	2.02	9.88	1.11	0.05	19.3	0.04	8.64	0.29	<0.002	5.4	8
11 December 2017	28.9	2.41	10.2	1.83	<0.02	20.4	<0.02	11.9	<0.02	0.006	6.2	6.3

Lisa Pond

11 December 2017	34.1	2.09	9.7	1.34	<0.02	19.2	<0.02	1.58	0.11	<0.002	1.5	6.6
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Groundwater

The only samples of groundwater are derived from the well, drilled to 160 feet, to supply our house. With the exception of higher sodium content, its chemistry is similar to the surface waters. The Na/Cl ratio in milliequivalents is ~4.0, reflecting enrichment in sodium presumably from rock weathering at depth. Among trace elements, only the concentration of barium (1 mg/l) is unusually high.

Date	Ca	Mg	Na	K	NH ₄ -N	F	Cl	Br	SO ₄ ¹⁴	NO ₃	PO ₄ -P	Si	pH
April 2014	29.4	9.0	32.7	1.28	0.04		12.9	0.05	15.5	<0.02	<0.002	11.3	8.3
July 2014	28.9	8.7	31.6	1.31	0.03		12.4	0.05	15.3	<0.02	<0.002	11.7	8.3
May 2017	34.2	10.1	29.0	1.32	<0.02		11.3	<0.02	15.0	<0.02	<0.002	11.9	7.9
December 2019	28	8.5	33.1	1.74	<0.02	0.34	11.9		15.1	<0.02	<0.002	11.6	6.6

¹⁴ Fresh samples smell of H₂S and precipitate iron oxides as they age. Thus, these sulfate concentrations probably derive from sulfides in groundwater.

Ownership and Genealogy

The Passamaquoddy, one of the tribes in the Wabanaki Confederacy, stewarded the lands of Comstock Point in pre-Columbian times. We support their current efforts for land and water protection and for cultural healing and recovery.

The land comprising Comstock Point is shown as owned by William Ramsdell on the earliest town map in 1795.¹⁵ An unpublished map in the Special Collections at the University of Maine shows the land being owned by William Comstock in 1852, and a title search shows the land being purchased from the North Lubec Improvement Company for \$2000 by Benjamin Small in 1894.¹⁶ At one time the point was known as Ben's Point¹⁷, before it was officially recognized as Comstock Point by the U.S. Geological Survey in 1949. The bay to the north of our property is still known as Small's Cove.

Ben Small died in 1905.^{18, 19} He would have been the great uncle of Edith Small (1917-2012), who married Maxwell Russell Comstock. The Comstock lineage is as follows:²⁰

Israel Comstock (1770-1848), Oswego, New York

Son George Comstock, who becomes Col. George Comstock (1799-1881)¹⁸, marries Mary Allan (1807-1892)¹⁸ in 1826. (She was a grand-daughter of Col. John Allan, 1746-1805)

Son Hiram Comstock (1828-1900?) marries Mary E. (Lizze) Brown (1841-1921) in 1860

Son George Comstock (1866-1939) marries Julia Wooster

Son Maxwell Russell Comstock marries Edith Small (1917-2012).

Meanwhile, Israel Comstock's younger brother, George, marries Lovey Rumney (1793-1854)¹⁸ in Lubec in 1813, beginning a lineage that is linked to the Blanch family as follows:

George Comstock (1788-1834)

Son William Comstock (1824—1886)¹⁸ marries Emily Reynolds (1832-1912)¹⁸ in 1851

Daughter Clara A. Comstock (1852-1896)¹⁸ marries Demetrius A. Blanch (1847-1914)¹⁸

Son Burton Blanch Sr. (1885-1945), who buys the land of Comstock Point from Fred and Hazel Cox in 1927.²¹

Son Lester

Son Burton Blanch (1935-), from whom we purchased the property in 2008.²²

¹⁵ Johnson, R. 1976. *200 Years of Lubec History*. Lubec Historical Society.

¹⁶ Title search by CES Inc.

¹⁷ Our interview with Edith (Small) Comstock, 23 June 2011

¹⁸ Dates taken from gravestones in North Lubec Road cemetery

¹⁹ After Ben Small died, his son sold the property to Thomas Oliver in 1905, who subsequently sold it to Mary Kinney in 1907.

²⁰ Derived from Ancestry.com and from Townsend, P.M. 1996. *Vital Records of Lubec, Maine prior to 1892*. Picon Press, Camden.

²¹ The deed transfer shows the land coming from Mary E. Kinney, who was the mother of Hazel Cox.

²² This lineage confirmed in an email from Elinor Blanch, 29 October 2010.

Land-Use History

On our land just south of Comstock Point was the location of a factory, built in 1899 by the American Can Company, which produced cans for the sardine canning industry in Lubec, shown in this photo taken circa 1900.²³



Figure 6. The American Can Company on Cobscook Bay, circa 1900.

The factory burned down in 1907 and was later rebuilt in the Town of Lubec.²⁴ Today there is very little evidence of the factory on our property. Bricks from the factory are scattered on the beach south of Comstock Point, and the floor of the factory can be recognized as a flat meadow with shallow soil underlain by concrete. Some pipes and reinforcing rods are found in the forest where the factory once stood.



Figure 7. Bricks from the American Can Company on the shore of Cobscook Bay.

²³ Vintage Maine Images, Item 33733, Lubec Historical Society

²⁴ <http://www.library.umaine.edu/speccoll/FindingAids/LubecSardine.htm>. The dates of the factory's construction and burning taken from Gilman, J. 2001. *Canned: A history of the Sardine Industry*. Part 1, Privately published. Pp. 290-291

A 1908 topographic map for the Eastport Quadrangle shows a house near the site of the can factory, which is likely to be the same house that is visible behind and upslope of the factory in Figure 6. An aerial photograph taken in May 1957 shows only the foundation remaining, which can be located in this field today.²⁵

At least three other structures were located on Comstock Point lands, including a house, carriage house, and barn—all on the Blanch property.²⁶ The house was disassembled in the early 1950s and taken down North Lubec Road to the Blanch farm. The barn is visible in the 1957 photograph, but it eventually burned down.²⁷ Stone foundations for these various structures have been overgrown by vegetation. Several of the house sites have lilacs and apple trees planted nearby, as captured by E.B. White in his 1941 essay, “Lilacs were in bloom by the old cellar hole, and a few old apple trees stood guard over the secrets of other days.”²⁸ An abandoned farm implement is also located in the woods on the Blanch farm (Figure 9).²⁹



Figure 8. A lilac near the foundation of one of the old houses.

²⁵ Aerial photo taken May 5, 1957, owned by Sumner Lemon of Lubec.

²⁶ Even though the Blanches owned this property since 1927, many locals still refer to it as the Kinney farm, recognizing the previous owner.

²⁷ According to Edith Comstock in an interview on 23 June 2011, the barn burned down when Hazel Cox’s daughter (Mary Kinney’s grand-daughter) was making mud pies, and seeing that her mother always baked her pies, the granddaughter built a fire in the barn to bake hers.

²⁸ Reprinted in White, E.B. 1944. *One Man’s Meat*. Harper and Row Publishers, New York.

²⁹ The American Seeding Machine Company of Richmond, Indiana manufactured farm equipment from 1903 to 1929.



Figure 9. A mechanical seeder, with a logo for the American Seeding Machine Company, found abandoned under a spruce tree on the Blanch property.

Apple trees were planted near the homesites, where they were identified as vintage trees of potential Civil War age by John Bunker during his visit in 2011. These were likely Duchess apples that were brought from Russia and planted widely in Maine in the mid-1800s.³⁰ Numerous other apple trees are found on the property; these apparently grew from seeds that were dispersed across the landscape and may not be genetically related to the original Duchess apples.



Figure 10ab. Apples at Comstock Point

³⁰ Bunker, J. 2007. *Not Far from the Tree*. Privately published, Palermo, Maine

Burton Blanch indicates that the primary use of the land, at least from 1950 to 1990, was as a dairy pasture. The land was used to graze yearling calves, which both David Lord and Peter Robinson remember as teenagers rounding up in the autumn for transport down North Lubec Road to the main Blanch farm.

To the east, Cobscook Bay is recognized as a nutrient-rich estuary, fed by the Pennamaquan River to the north and emptying into the Bay of Fundy to the south. At low tide, we have measured salinities of 30-31 ‰ in the shallow waters off our coastline.³¹ Cobscook Bay has enormous tidal exchange with waters of the Bay of Fundy, and most of the nitrogen in the estuary is derived during tidal exchange.³² Unfortunately, shellfish in the Bay are often contaminated by red tide during the summer months, especially during rainy periods. Scallops and sea urchins are harvested in December and January and lobsters during most other seasons. Locals gather periwinkles from the intertidal rockweed and clams from the mudflats in Small's Cove. The Cobscook Bay estuary has a history of over-exploitation of fisheries resources, most recently leading to the collapse of the sardine fishery in Lubec.³³

The shoreline of our property and Small's Cove harbors a dense growth of rockweed (*Ascophyllum nodosum*), which has been of increasing commercial interest as a fertilizer and food additive. After years of controversy, in 2019, the State of Maine banned the harvest of rockweed in the intertidal region without land-owner permission.³⁴

³¹ This salinity implies a mix of 15% freshwater and 85% seawater at low tide.

³² Garside, C. and J.C. Garside. 2004. Nutrient sources and distributions in Cobscook Bay. *Northeastern Naturalist* 11:75-80.

³³ Lotze, H.K. and I. Milewski. 2004. Two centuries of multiple human impacts and successive changes in a North Atlantic food web. *Ecological Applications* 14: 1428-1447.

³⁴ For a review of this controversy, see Seeley, R.H. and W.H. Schlesinger. 2012. Sustainable seaweed cutting? The rockweed (*Ascophyllum nodosum*) industry of Maine and the Maritime provinces. *Annals of the New York Academy of Sciences* 1249:84-103.

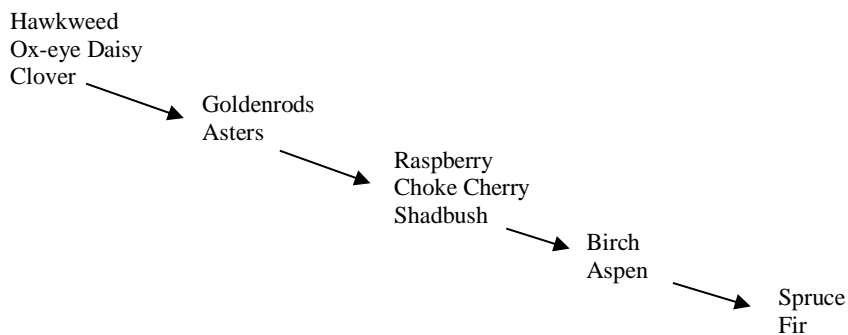
Vegetation

Spruce has dominated the coastal lands in many areas of eastern Maine at least for the past 5000 years, as shown from a pollen record from Roque Island, about 50 miles to the southwest of Cobscook Bay.³⁵ Spruce and fir were still increasing in abundance at the time of the European colonization of eastern Maine.³⁶ Where they remain, these forests are classified as Maritime Spruce-Fir Forest.³⁷



Figure 11. Spruce-fir forest on the Comstock Point lands.

The original forests were cleared for pasture more than 100 years ago. Where the pastures have been abandoned, the natural succession of vegetation seems likely to have progressed as:



³⁵ Schauffler, M. and G.L. Jacobson. 2002. Persistence of coastal spruce refugia during the Holocene in northern New England, USA, detected by stand-scale pollen stratigraphies. *Journal of Ecology* 90: 235-250.

³⁶ Russell, E.B., R.B. Davis, R. S. Anderson, T.E. Rhodes, and D.S. Anderson. 1993. Recent centuries of vegetational change in the glaciated north-eastern United States. *Journal of Ecology* 81: 647-664.

³⁷ Gawler, S. and A. Cutko. 2010. *Natural Landscapes of Maine*. Maine Natural Areas Program, Department of Environmental Conservation, Augusta. See also, Davis, R.B. 1966. Spruce-fir forests of the coast of Maine. *Ecological Monographs* 36: 79-94.



1966

1979



2010

2019

Figure 12. Plant succession associated with changing land management at Comstock Point, seen in a comparison of aerial photographs taken during the past 60 years. 1966 and 1979 photos courtesy of Paul Smitherman, Archives, University of Maine, Orono.

Most of our property was cleared of forest 100 years ago, and abandoned for natural succession about 50 years ago (Figure 12). The areas of secondary forest on our property are dominated by white spruce, balsam fir and birch, with bunchberry and starflower as common wildflowers. Mountain ash, tamarack, and chokecherry are found along margins of the forest, and there are a few groves of balsam poplar. White cedar is found in a swath across our property, likely associated with the near-surface exposure of limestone.³⁸



Figure 13. A stand of *Populus balsamifera* on the Blanch property.

The Meadows

Meadow habitats, which derive from the original pasturelands, cover much of the property. Most of the meadows are being invaded by chokecherry, shadbush, and raspberry, requiring regular mowing to remain open. Much of the meadow land is hummocky, creating pockets of water that are ideal mosquito habitat. On the Blanch property, red spruce and red pine were planted as a reforestation project for the meadows in the 1980s, but only a few of these have survived.

³⁸ See M.L. Fernald. 1919. Lithological factors limiting the ranges of *Pinus banksiana* Lamb and *Thuja occidentalis* L. *Rhodora* 21: 41-67.

More than 30% of the plants on our property are not native to North America; in the meadows, the estimate may be closer to 40%. Many of these species were naturalized in North America several hundred years ago, and they are now part of the flora that we consider natural.³⁹ Yellow rattle, hawkweeds and ox-eye daisy are common components of the flora of meadows in England and France.



Figure 14. The site of our house construction seen 6 September 2011, with full bloom of Canada goldenrod and Flat-top aster

In our opinion, the meadows are at their prime in early September (Figure 14). We have taken special note of the seasonal order of flowering (mostly from 2015 observations) for the dominant meadow plants, in which we find:

Yellow Rocket (*Barbarea vulgaris*)
 Shadbush (*Amelanchier*, 2 species) May 20
 Clover (*Trifolium*, 3 field species)
 Buttercup (*Ranunculus repens*) May 31

Vetch (*Vicia cracca*) June 10
 Hawkweed (*Hieracium*, 3 species) June 12
 Daisy (*Leucanthemum vulgare*) June 16
 Yellow Rattle (*Rhinanthus minor*) June 16
 Wild Madder (*Galium mollugo*) June 20
 Lesser Stitchwort (*Stellaria graminea*) June 28

Canada Thistle (*Cirsium arvense*) July 17
 Field Sow Thistle (*Sonchus arvensis*) July 19
 Goldenrod (*Solidago canadensis*) July 26
 Goldenrod (*Euthamia graminifolia*) July 27
 Flat-top Aster (*Doellingeria umbellata*) July 28

New York Aster (*Symphotrichum novi-belgii*) August 9
 Goldenrod (*Solidago rugosa*) August 15

³⁹ Van Kleunen et al. 2018. The global naturalized alien flora (GLONAF) database. Ecology doi: 10.1002/ecy.2542

The Ponds

When we bought the Blanch property in 2008, Burton Blanch pointed out an abandoned pond that had been used to water the dairy cows and that was now fully overgrown as a wet meadow. In the fall of 2016, we excavated and diked the area to form a pond fed by spring- and runoff-derived waters, which we call Aram Pond, of about 20 x 60 feet and 3 feet deep. Some further work was performed on the pond in the fall of 2019 to improve its water-holding capacity. This wetland has become the locus for wetland species that are not easily found elsewhere on the property, including Green Frogs, Painted Turtle, and most of the dragon- and damselflies that are listed in the Biodiversity Section that follows. The shoreline hosts an unusual population of Sweetflag (*Acorus calamus*).

Where spring waters emerge from the forest, the banks of Aram Pond show the deposition of iron oxides (rust-colored) and manganese oxide (mirror-colored), because reduced forms of these metals forming in anoxic conditions in the soil encounter oxidizing conditions upon exposure at the surface.

The fourth parcel of land, lot 16-003, houses a pond which dates back to the operation of the sardine can plant more than 100 years ago. Several local residents have referred to it as the reservoir for the factory. We now call this Lisa Pond; it is larger and deeper than Aram Pond.

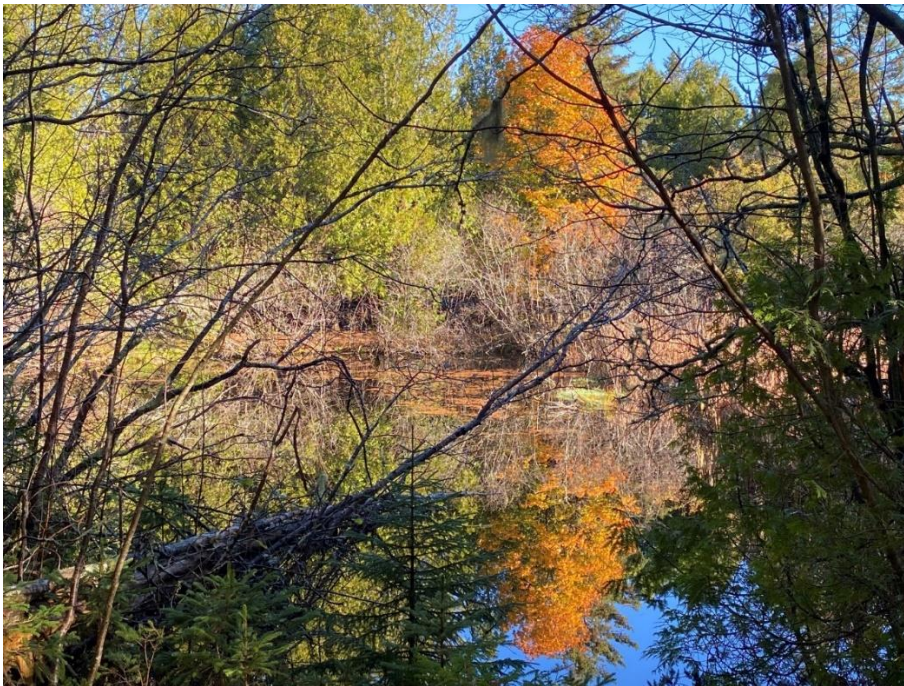


Figure 15. Lisa pond, 1 November 2021

The Shoreline and Salt Marsh

Collectively our lots comprise approximately 3000 feet of shoreline. At low tide, a large intertidal area is exposed (see cover photograph), adding some eight acres to our property. The lower intertidal provides habitat for a variety of invertebrates (see pp. 75-76).

Shoreline habitats show a strong zonation of macroalgae, beginning with *Fucus vesiculosus* in the deepest waters, and progressing through *Ascophyllum nodosum* (rockweed) and *Fucus spiralis* as one moves upshore. In the rocky intertidal, Low-sea blites, Orach, Goose tongue, and Sea lavender are common. With the exception of Sea lavender, all of these are said to be edible. The upper reaches of the tide host Chairmaker's rush, Black rush, Silverweed, and Seaside goldenrod.⁴⁰ Finally along much of the shoreline, alder forms dense thickets above the high tide line.



Figure 16. Rockweed in the intertidal zone at low tide.

⁴⁰ This zonation of vegetation roughly follows that described by H.A. Jacobson and G.L. Jacobson. 1989. Variability of vegetation in the tidal marshes of Maine, U.S.A., Canadian Journal of Botany 67: 230-238.

Sediments in the salt marsh habitats of Small's Cove show a strong zonation of redox potential as a function of depth. Sediments below about 1 cm are grayish-black, reflecting anoxic conditions and reduction of iron minerals and deposition of iron sulfides by hydrogen sulfide (H₂S) passing upward from deeper layers (Figure 17a). At low tide, whitish deposits reflect oxidation by *Beggiatoa* of H₂S that has reached the surface (Figure 17b).



Figure 17a



Figure 17b (The rule is 15 cm long)

Current Vegetation Management

Several visitors have asked what land management we practice at Comstock Point. The simple answer is benign neglect, but there are some importance exceptions to that policy. First, we actively remove some non-native plants, such as Barberry and Japanese Knotweed, from the property. The removals are entirely subjective, for we don't eliminate the apples and lilacs. We even prune a few of the apple trees to increase production, nearly all of which is left for animals on the site. We have planted some Milkweed to encourage breeding success by Monarch Butterflies.

We try to mow the meadows in late September every other year. The mowing helps keep the meadows as meadows, by eliminating invading raspberries and chokecherry. The various shrubs that are well established and over about 2" in diameter are allowed to remain, as they provide good habitat for a variety of birds, including woodcock. We have removed most of the remaining barbed wire fence that surrounded these pastures when they were grazed. Overall, the goal is to maintain a mosaic of vegetation types—forest, shrubland and meadow—that maximizes the diversity of plants, birds, and insects.

Global Change

We haven't lived at Comstock Point long enough to see much evidence of global climate change, although the past record of record high and low temperatures is certainly consistent with global warming (see p. 6). In many areas, a fence around the meadows on the Blanch property has fallen into Small's Cove as the shoreline has eroded, as if driven by sea-level rise. And we have recorded some bird species that we normally consider "southern," including, Red-bellied Woodpecker (2015, 2018, 2022), Carolina Wren (2020) and Tufted Titmouse (2020).

Comstock Point is one of a worldwide network of sites in the MASTIF project to ascertain the effect of global climate change on the future distribution of trees, based on seed production.⁴¹

⁴¹ Clark, J.S. and 63 others. 2021. Continent-wide tree fecundity driven by indirect climate effects. *Nature Communications* 12: doi 10.1038/s41467-020-20836-3

Sharma, S. and 44 others. 2022. North American tree migration paced by climate in the West, lagging in the East. *Proceedings of the National Academy of Sciences* 119: doi 10.1073/pnas.2116691118

Qiu, T, et al. 2022. Limits to reproduction and seed size-number trade-offs that shape forest dominance and future recovery. *Nature Communications* 13: doi 10.1038/s41467-022-30037-9

House Design

Our energy-efficient house was designed by Opal Architects (formerly Gologic) of Belfast, Maine. Important to all energy-efficient buildings, the house has a small footprint (1400 heated and finished square feet + basement).



Figure 18. Our house in 2022

Heat is derived from three sources: 1) passive solar heat that enters through the southwest-facing windows, warming a layer of gypsum in the floor, 2) a wood stove designed by Morso of Denmark, and 3) electric base-board heat.

The walls have about 18" of insulation, including Structural Insulated Panels (SIP), and an R value of 52. The roof is raised-seam metal with underlying insulation that yields an R of 100. The triple-pane windows and doors, manufactured by Kneer-Sud Fenster in Germany have an R of 6. The interior space of the house is ventilated by a counter-current heat-exchange system designed by Zehnder Inc.

All of the interior lighting is supplied by LED bulbs, and the various appliances are all Energy Star rated. Our photovoltaic system is connected to the grid, allowing net metering, as described in the following section.

Solar Power

Lots of people who visit us want to know the specifics about our solar power system. We use it to supply electricity to the grid, via 6.2 kW of photovoltaic monocrystalline silicon cell panels manufactured by Sunpower. They are advertised as 21.5% efficient in converting solar energy to electricity. Their production of electricity offsets our use of grid-power, in a program known as net metering. For 2017, we generated about 8000 kW-hr of electricity. Our household usage was about 3100, so we made a significant contribution to the grid.



Figure 19. 6.2 kW of fixed-position solar photovoltaics facing south.

Construction costs:

Site Prep and Foundations	7040
Revision Energy (solar panels and installation)	40344
Total	\$ 47384
Tax Credits	
Federal 30%	14215
Net Cost	\$ 33169

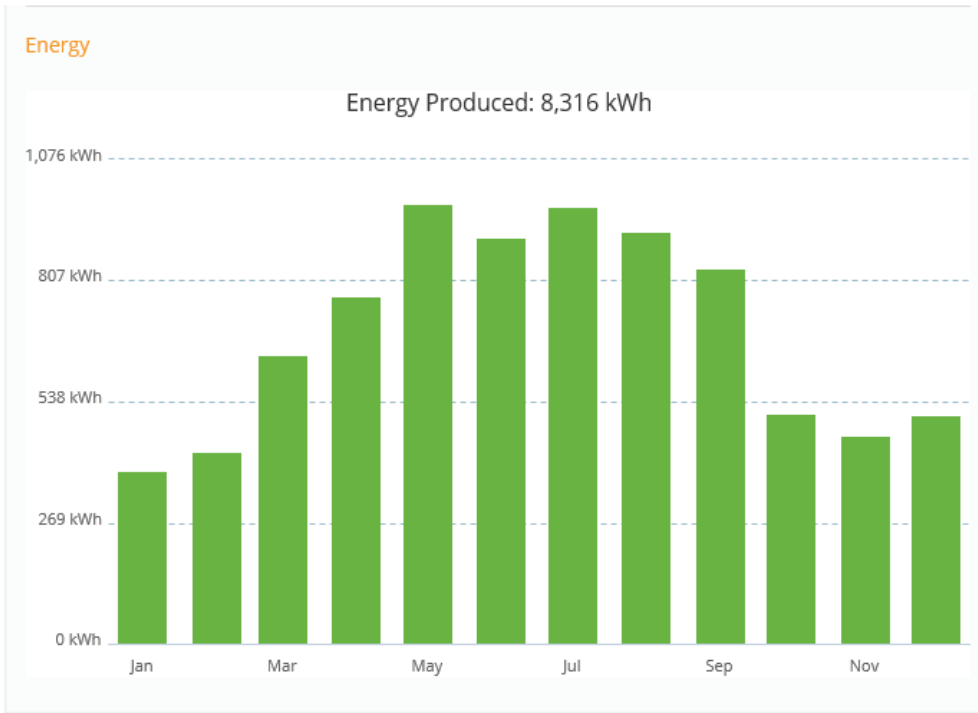


Figure 20. Photovoltaic energy produced during 2018.

Appendix

Biodiversity List

Plants

Non Vascular plants

Phaeophyceae

Fucus vesiculosus
Fucus spiralis
Ascophyllum nodosum (Rockweed)
Laminaria longicuris (Hollow-stemmed Kelp)

Rhodophytaceae

Lithothamnion sp.
Clathromorphum circumscriptum
Bangia fuscopurpurea
Porphyra sp.

Chlorophytaceae

Ulva intestinalis (Sea lettuce) [syn. *Enteromorpha intestinalis*]

Bryophyta⁴² (37 Species)

Mosses⁴³ (29 Species)

Tetraphidaceae

Tetraphis pellucida

Polytrichaceae

Polytrichum juniperinum Hedw.

Polytrichum piliferum

Polytrichum commune

Grimmiaceae

Schistidium apacarpum

Dicranaceae

Dicranum ontariense W. L. Peterson

Dicranum scoparium

Dicranum montanum

Dicranum polysetum

⁴² Taxonomy follows Crum, H.A. and L.E. Anderson. 1981. Mosses of Eastern North America. Columbia University Press, New York. Phylogeny follows Cole, Hilger and Goffinet (2019) <https://d3amtssd1tejdt.cloudfront.net/2019/27571/3/BPP-2019-E-PJv3.pdf>

⁴³ Species identifications by Blanka Aguero and Jonathan Shaw, Duke University, 16 June 2021, with specimens of many species deposited in the Duke University Cryptogamic Herbarium

Ditrichaceae
 Ditrichum sp. cf. *pallidum* (Hedw.) Hampe
 Ceratodon purpureus (Hedw.) Brid.

Leucobryaceae
 Leucobryum glaucum (Hedw.) Ångstr (Cushion Moss)

Pottiaceae
 Tortula ruralis (Hedw.) G. Gaertn., B. Mey. & Scherb.
 [syn *Syntrichia ruralis*]
 Weissia controversa

Hedwigiaceae
 Hedwigia ciliate

Mniaceae
 Minimum hornum

Mielichhoferiaceae
 Pohlia wahlenbergii
 Pohlia nutans

Onthotrichaceae
 Ulota crispa

Aulacomniaceae
 Aulacomnium puluistra

Brachytheciaceae
 Brachythecium rutabulum
 Bryhnia novae-angliae
 Rhynchostegium serrulatum (Hedw.) A. Jaeger

Hypnaceae
 Hypnum cupressiforme Hedw.
 Callicladium haldanianum

Climaciaceae
 Climacium dendroides

Scorpidiaceae
 Sanionia uncinata

Hylocomiaceae
 Pleurozium schreberi (Red-stemmed Feather-moss)
 Rhytidiadelphus triquetrus (Hedw.) Warnst.
 (Electrified Cat-tail Moss)

Liverworts⁴⁴ (8 species)

Ptilidiaceae
 Ptilidium ciliare
 Ptilidium pulcherrimum

Jubulaceae
 Frullania asagrayana

Radulaceae
 Radula complanata

⁴⁴ Identified by Blanka Aguero, Duke University, 16 June 2021, with specimens of many species deposited in the Duke University Cryptogamic Herbarium

Cephaloziaceae
Nowellia curvifolia
Lepidoziaceae
Lepidozia reptans
Bazzania trilobata
Lophocolea heterophylla
Lophocolea heterophylla

Vascular Plants⁴⁵ (250 species)

Equisetaceae
Equisetum sylvaticum (Woodland Horsetail)
Equisetum arvense (Field Horsetail)

Osmundaceae
Osmunda claytoniana (Interrupted Fern)

Dryopteridaceae
Dryopteris carthusiana (Spinulose Wood Fern)

Woodsiaceae
Athyrium filix-femina (Lady Fern)

Onocleaceae
Onoclea sensibilis (Sensitive Fern)

Gymnosperms (7 Species)

Pinaceae
Abies balsamea (Balsam Fir)
Picea glauca (White Spruce)
Picea rubens (Red Spruce) (mostly cultivated)
Larix laricina (Tamarack or Larch)
Pinus resinosa (Red Pine) (cultivated)

Cupressaceae
Thuja occidentalis (Northern White Cedar)
Juniperus communis (Common Juniper)

⁴⁵ Systematics following Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of the Northeastern United States and Adjacent Canada*. New York Botanical Garden, NY., with species epithets updated following Haines, A. 2011. *Flora Novae Angliae*. Yale University Press, New Haven. All records reconciled with Haines, A. and T.F. Vining. 1998. *Flora of Maine*. V.F. Thomas, Bar Harbor

Angiosperms

Eudicots (syn. Dicots, Tricolpates) (198 species; 3 unspecified genera)

Ranunculaceae

Caltha palustris (Marsh Marigold)
Ranunculus acris (Tall Buttercup)
Ranunculus repens (Creeping Buttercup)
Aquilegia vulgaris (European Columbine)
Thalictrum pubescens (Tall Meadow Rue)

Berberidaceae

Berberis thunbergii (Japanese Barberry;
under active extermination)

Fagaceae

Quercus rubra (Red Oak; seedling)

Betulaceae

Corylus Americana (Hazelnut; cultivated)
Betula alleghaniensis (Yellow Birch)
Betula papyrifera (White or Paper Birch)
Betula populifolia (Gray Birch)
Alnus incana (Speckled Alder) [syn. *A. rugosa*]
Alnus viridis (Mountain Alder) [syn. *A. crispa*, *Alnus
alnobetula* subsp. *crispa*]

Chenopodiaceae

Chenopodium album (Pigweed, Lambsquarters or Goosefoot)
Atriplex patula (Orach)
Salicornia depressa (Slender Glasswort)
[syn. *S. europaea* (Old World)]
Suaeda maritima (Sea Blites)

Portulacaceae

Portulaca oleracea (Common Purslane)

Molluginaceae

Mollugo verticillata (Green Carpetweed)

Caryophyllaceae

Moehringia lateriflora (Blunt-leaved Sandwort) [syn. *Arenaria
lateriflora*]
Cerastium fontanum spp. *vulgatum* (Mouse-ear Chickweed)
[syn. *C. vulgatum*]
Stellaria graminea (Lesser Stitchwort)

Stellaria alsine (Bog Chickweed)
Spergularia rubra (Sand Spurrey)

Polygonaceae

Rumex acetosella (Sheep Sorrel)
Rumex crispus (Curled Dock)
Persicaria lapathifolia (Nodding Smartweed or Dock-leaved Smartweed) [syn. *Polygonum lapathifolium*]
Persicaria hydropiper (Common Smartweed or Water-pepper Smartweed)
Persicaria maculosa (Lady's Thumb) [syn. *Polygonum persicaria*]
Persicaria sagittata (Arrow-leaf Tearthumb) [syn. *Polygonum sagittatum*]
Fallopia japonica (Japanese Knotweed) [syn. *Polygonum cuspidatum*] (under active extermination)

Plumbaginaceae

Limonium carolinianum (Sea Lavender) [syn. *Limonium nashii*]

Hypericaceae [syn. Clusiaceae]

Hypericum perforatum (Common St. John's Wort)

Malvaceae

Malva moschata (Musk Mallow)

Violaceae

Viola cucullata (Marsh Blue Violet)
Viola sororia (Dooryard Violet) [now incl. *V. septentrionalis*]

Salicaceae

Populus grandidentata (Big-Tooth Aspen)
Populus tremuloides (Quaking Aspen)
Populus balsamifera (Balsam Poplar)
Salix sp., to include:
Salix alba (White Willow; likely planted)
Salix bebbiana (Long-beaked Willow)
Salix discolor (Pussy Willow)

Brassicaceae (syn. Cruciferaeae)

Raphanus raphanistrum (Wild Radish or Charlock)
Cardamine pensylvanica (Pennsylvania Bitter-cress)
Capsella bursa-pastoris (Shepherd's Purse)
Draba verna (Spring Whitlow-grass)⁴⁶
<https://www.inaturalist.org/observations/76666392>
Rorippa palustris (Common Yellow Cress) [syn. *R. islandica*]

⁴⁶ Haines and Vining (1998) list as "very rare" in Maine.

Alliaria petiolate (Garlic Mustard) [syn. *A. officinalis*]
Erysimum cheiranthoides (Worm-seed Mustard)
Barbarea vulgaris (Yellow Rocket or Common Winter Cress)

Ericaceae [now incl. Monotropaceae]

Vaccinium vitis-idaea (Lingonberry)
Vaccinium angustifolium (Lowbush Blueberry)
Monotropa uniflora (Ghost Pipe)

Pyrolaceae

Pyrola elliptica (Shinleaf)

Primulaceae

Lysimachia terrestris (Swamp Candles)
Lysimachia borealis (Starflower) [syn. *Trientalis borealis*]
Lysimachia maritima (Sea Milkwort) [syn. *Glaux maritima*]

Grossulariaceae

Ribes glandulosum (Skunk Current) [syn. *R. prostratum*]

Crassulaceae

Hylotelephium telephium (Garden Orpine)
[syn. *Sedum telephium*]

Rosaceae

Spiraea alba v. *latifolia* (Meadowsweet) [syn. *Spiraea latifolia*]
Fragaria vesca (Wood Strawberry)
Fragaria virginiana (Wild Strawberry)
Potentilla simplex (Cinquefoil)
Potentilla norvegica (Rough Cinquefoil)
Potentilla argente (Silver Cinquefoil)
Argentina egedii (Silverweed) [syn. *Potentilla anserine*]
Geum rivale (Water or Purple Avens)
Geum laciniatum (Rough Avens)
<https://www.inaturalist.org/observations/126466612>
Rubus pubescens (Dwarf Raspberry)
Rubus idaeus (Red Raspberry)
Rubus allegheniensis (Blackberry)
Rosa rugosa (Beach Rose)
Rosa carolina (Pasture Rose)
Prunus serotina (Wild Black Cherry)
Prunus virginiana (Choke Cherry)
Prunus pensylvanica (Pin Cherry)
Prunus sp. (cultivated and escaped)
Malus pumila (Apple) (cultivated and escaped) [syn. *Pyrus malus*]

Aronia melanocarpa (Black Chokeberry)
[syn. *Pyrus malanocarpa*]
Sorbus americana (Mountain Ash) [syn. *Pyrus americana*]
Cotoneaster divaricatus (Spreading Cotoneaster)
Crataegus sp. (Hawthorns)
Likely incl. *C. succulenta* var. *macracantha* among others
Amelanchier arborea (Downy Serviceberry or Shadbush)
Amelanchier laevis (Smooth Serviceberry or Shadbush)

Fabaceae (syn. Leguminoceae)

Lotus corniculatus (Birdsfoot-trefoil)
Coronilla varia (Crown Vetch) Flowers from axils
Trifolium pratense (Red Clover)
Trifolium arvense (Rabbit-foot Clover)
Trifolium repens (White Clover)
Trifolium hybridum (Alsike clover)
Trifolium aureum (Hop Clover) [syn. *T. agrarium*]
Trifolium campestre (Low-hop Clover) [syn. *T. procumbens*]
Melilotus alba (White Sweet Clover) [*M. albus*]
Vicia cracca (Cow Vetch) Flowers in a raceme
Vicia sativa (Narrow-leaved Vetch)
Vicia tetrasperma (Slender Vetch)

Elaeagnaceae

Elaeagnus commutata (Autumn Olive or Silverberry)
[syn. *E. argentea*]

Lythraceae

Lythrum salicaria (Purple Loosestrife)
Under active extermination

Onagraceae

Chamerion angustifolium (Fireweed)
[syn. *Epilobium angustifolium*]
Epilobium strictum (Downy Willow Herb)
Epilobium leptophyllum (American Marsh Willow Herb)
[syn. *E. nesophilum*]
Epilobium ciliatum (Northern Willow Herb) [syn. *E. glandulosum*]
Oenothera biennis (Evening Primrose)
Oenothera perennis (Small Sundrops)

Cornaceae

Chamaepericlymenum canadensis (Bunchberry)
[syn. *Cornus canadensis*]

Rhamnaceae

Rhamnus cathartica (Common Buckthorn)

Linaceae

Linum usitatissimum (Common Flax)

Sapindaceae [syn. Aceraceae]

Acer platanoides (Norway Maple)

Acer saccharum (Sugar Maple)

Acer pensylvanicum (Striped Maple)

Acer spicatum (Mountain Maple)

Acer rubrum (Red Maple)

Oxalidaceae

Oxalis stricta (Yellow Wood Sorrel) [syn. *O. europaea*]

Oxalis montana (Wood Sorrel) [syn. *O. acetosella*]

Balsaminaceae

Impatiens capensis (Jewelweed or Spotted Touch-me-not)

[syn. *I. biflora*]

Impatiens glandulifera (Himalayan Balsam)

Apiaceae (now incl. Araliaceae)

Aralia nudicaulis (Wild Sarsaparilla)

Carum carvi (Caraway)

Angelica lucida (Seabeach angelica)

Apocynaceae (now incl. Asclepiadaceae)

Asclepias syriaca (Common Milkweed, planted)

Solanaceae

Solanum dulcamara (Bittersweet Nightshade)

Solanum nigrum (Black Nightshade)

Convolvulaceae

Calystegia sepium (Hedge Bindweed, Wild Morning Glory)

Boraginaceae

Myosotis laxa (Smaller Forget-me-not)

Lamiaceae

Scutellaria galericulata (Marsh Skullcap) [syn. *S. epilobiifolia*]

Mentha arvensis (Wild Mint)

Prunella vulgaris (Self Heal)

Galeopsis tetrahit (Hemp Nettle) [syn. *G. bifida*]

Plantaginaceae (now incl. Callitrichaceae)

Callitriche palustris (Vernal Water Starwort)
Chelone glabra (White Turtlehead)
Linaria vulgaris (Butter-and-Eggs or Toadflax) [syn. *L. linaria*]
Nuttallanthus canadensis (Old-field Toadflax)
[syn. *Linaria canadensis*]
Plantago major (Common Plantain) [syn. *P. asiatica*]
Plantago maritima (Seaside Plantain) [syn. *P. juncooides*]
Veronica officinalis (Common Speedwell)
Veronica serpyllifolia (Thyme-leaved Speedwell)

Oleaceae

Syringa vulgaris (Lilac); cultivated

Scrophulariaceae

Verbascum thapsus (Common Mullein)

Orobanchaceae

Euphrasia nemorosa (European Eyebright) [syn. *E. officinalis*]
Rhinanthus minor (Yellow Rattle) [syn. *R. crista-galli*]

Rubiaceae

Houstonia caerulea (Bluets)
Mitchella repens (Partridgeberry)
Galium mollugo (Wild Madder or Bedstraw)
Galium palustre (Marsh Bedstraw)
Galium trifidum (Small Bedstraw
or Northern Three-lobed Bedstraw)

Adoxaceae [syn. Caprifoliaceae]

Diervilla lonicera (Bush Honeysuckle)
Viburnum acerifolium (Maple-leaved Viburnum)
Viburnum opulus (Highbush Cranberry) [syn. *V. trilobum*]
Sambucus racemosa (Red Elderberry)

Valerianaceae

Valeriana officinalis (Garden Heliotrope)

Asteraceae

Rudbeckia hirta (Black-eyed Susan) [syn. *R. serotina*]
Helianthus annuus (Common Sunflower); escaped from cultivation
Bidens cernua (Nodding Beggars Ticks or Nodding Bur Marigold)
Bidens frondosa (Devil's Beggars Ticks)
Galinsoga quadriradiata (Quickweed) [syn. *G. ciliata*]

Ambrosia artemisiifolia (Common Ragweed)
Achillea millefolium (Yarrow or Milfoil)
Leucanthemum vulgare (Oxeye Daisy)
 [syn. *Chrysanthemum leucanthemum*]
Matricaria discoidea (Pineapple Weed) [syn. *M. matricarioides*]
Senecio vulgaris (Common Groundsel)
Tussilago farfara (Coltsfoot)
Solidago bicolor (Silver Rod)
Solidago sempervirens (Seaside Goldenrod)
Solidago rugosa (Rough-stem Goldenrod)
Solidago puberula (Downy Goldenrod)
Solidago canadensis (Canada Goldenrod)
Euthamia graminifolia (Lance-leaf Goldenrod)
 [syn. *Solidago graminifolia*]
Symphotrichum novi-belgii (New York Aster)
 [syn. *Aster novi-belgii*]
Symphotrichum lanceolatum (Panicked Aster)
 [syn. *Aster simplex*]
Symphotrichum lateriflorum (Calico Aster)
 [syn. *Aster lateriflorus*]
Symphotrichum novae-angliae (New England Aster)
 [syn. *Aster novae-angliae*]
Eurybia macrophylla (Big-leaved Aster) [syn. *Aster macrophyllus*]
Oclemea acuminata (Sharp-leaved or Whorled Wood Aster)
 [syn. *Aster acuminatus*]
Doellingeria umbellata (Flat-top Aster) [syn. *Aster umbellatus*]
Erigeron strigosus (Lesser Daisy Fleabane)
Erigeron canadensis (Horseweed)
Antennaria neglecta (Field Pussytoes)
Eutrochium maculatum (Joe-Pye Weed) [syn. *Eupatorium maculatum*]⁴⁷
Arctium minus (Common Burdock)
Cirsium vulgare (Bull Thistle) Single flws end of prickly branches
Cirsium arvense (Canada Thistle) Multiple flwrs
Sonchus arvensis (Field Sow-Thistle)
Sonchus asper (Spiny-leaved Sow-Thistle)
Lactuca canadensis (Tall Lettuce)
Lactuca serriola (Prickly Lettuce) [syn. *L. scariola*]
Pilosella caespitosa (Field Hawkweed) [syn. *Hieracium caespitosum* and *H. pratense*] Multiple flowers
Hieracium pilosella (Mouse-ear Hawkweed)
Hieracium aurantiacum (Orange Hawkweed or Indian Paintbrush)
Hieracium lachenalii (Common Hawkweed) [syn. *H. vulgatum*]
 Single flowers
Hieracium kalmia (Canada Hawkweed) [syn. *H. canadense*]

⁴⁷ We have both the purple and white flower morphs of this species, and on the same plant.

Taraxacum officinale (Common or Spring Dandelion)
[syn. *Leontodon taraxacum*]
Scorzoneroides autumnalis (Fall Dandelion)
[syn. *Leontodon autumnalis*]
Tragopogon pratensis (Yellow Goatsbeard)

Monocots (45 species)

Juncaginaceae

Triglochin maritima (Common Arrow-grass, intertidal)

Potamogetonaceae

Potamogeton epihydrus (Ribbonleaf Pondweed)

Acoraceae

Acorus calamus (Sweetflag)

Juncaceae⁴⁸ (Rushes)

Juncus gerardii (Black Rush, Salt-marsh Rush, intertidal)

Juncus tenuis (Path Rush)

Juncus balticus (Baltic rush) [syn. *J. articus*]

Juncus effusus (Soft Rush)

Juncus articulatus (Joint-leaved Rush)

Luzula multiflora (Wood Rush)

Cyperaceae (Sedges)⁴⁹

Bolboschoenus maritimus (Chairmaker's Rush; intertidal)
[syn. *Scirpus maritimus*]

Scirpus microcarpus (Barber-pole Sedge)

Scirpus hattorianus

Scirpus cyperinus (Common Wool-grass)

Scirpus atrocinctus (Black-girdled Wooldsedge)

Eleocharis palustris (Spiked Sedge)

Eleocharis obtusa (Blunt Spike-rush)

Bulbostylis capillaris (Tufted Hair Sedge)

Carex scoparia (Pointed Broom Sedge)

Carex paleacea (Chaffy Sedge; intertidal)

Carex nigra (Smooth Black Sedge)

Carex stricta ?

⁴⁸ Taxonomy follows Mittelhauser, G.H., M. Arsenault, D. Cameron and E. Doucette. 2019. *Grasses and Rushes of Maine*. University of Maine Press, Orono. Field identifications aided by Marilee Lovit, Addison, Maine, 13 July 2020

⁴⁹ Field identifications aided by Marilee Lovit, Addison, ME, 13 July 2020. Taxonomy follows Arsenault, M. et al. 2013. *Sedges of Maine*, University of Maine Press, Orono

Poaceae^{50, 51}

Schedonorus pratensis (Meadow Ryegrass)
[syn. *Festuca pratensis*]
Festuca rubra (Red Fescue)
Glyceria striata (Fowl Manna Grass)
Glyceria grandis (Reed Meadowgrass, Reed Manna Grass)
Poa pratensis (Kentucky Bluegrass)
Poa nemoralis (Wood Bluegrass)
Deschampsia flexuosa (Hairgrass)
Anthoxanthum odoratum (Large Sweetgrass)
Phalaris arundinacea (Reed Canary Grass)
Agrostis gigantea (Redtop)
Agrostis stolonifera (Creeping Bentgrass)
Alopecurus pratensis (Meadow Foxtail)
Phleum pratense (Timothy)
Bromus inermis (Smooth Brome)
Elymus repens (Quackgrass) [syn. *Agropyron repens*]
Danthonia spicata (Poverty Oatgrass)
Spartina alterniflora (Salt Marsh or Smooth Cordgrass; intertidal)
[syn. *Sporobolus alterniflorus*]
Digitaria ischaemum (Crabgrass)

Typhaceae

Typha latifolia (Common Cattail)

Convallariaceae [syn. Liliaceae]

Streptopus lanceolatus (Twisted Stalk) [syn. *S. roseus*]
Maianthemum canadense (Canada Mayflower)

Iridaceae

Sisyrinchium montanum (Eastern Blue-eyed Grass)
Iris versicolor (Blue Flag Iris)

Orchidaceae

Epipactis helleborine (Helleborine)

⁵⁰ Identifications aided by Marilee Lovit, Addison, ME, 13 July 2020

⁵¹ *Op cite* #45 & #48

Lichens ^{52 53} (30 species)

On Rocks

Xanthoparmelia conspersa
Xanthoria parietina
Stereocaulon subcoralloides
Porpidia macrocarpa (crustose)
Acarospora fuscata
Rhizocarpon rubescens (crustose)

On Soil

Cladonia uncialis
Cladonia furcata
Cladonia rangiferina (grayish-green, on meadow rocks)
Cladonia arbuscula ssp. *squarrosa* (yellow-green, on meadow rocks)
Cladonia chlorophaea
Cladonia pyxidata
Cladonia fimbriata
Cladonia maxima
Cladonia cristatella (British Soldiers; 23 May 2022)

On bark:

Usnea filipendula (pendulous)
Usnea subfloridana (upright tuff)
Parmelia sulcata
Parmelia squarrosa
Flavoparmelia caperata (widespread)
Physcia aipolia
Melanelia subaurifera
Evernia mesomorpha
Punctelia rudecta
Hypogymnia physodes
Hypogymnia tubulosa
Platismatia glauca
Tuckermanopsis orbata
Cladonia coniocraea
Loxospora elatina (crustose white on cedars)

⁵² Identified by Fred Olday and Anne Favolise on their visit to Comstock Point, 29 October 2016

⁵³ Taxonomy follows Hinds, J.W. and P.L. Hinds. 2007. *Macrolichens of New England*. New York Botanical Garden, NY and Brodo, I., S.D. Sharnoff and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press. New Haven.

Fungi and allied groups⁵⁴ (84 species; 7 genera unspecified)

Amoebozoa (syn. Myxomycetes, arch.)

Physaraceae

Fuilingo sp. (20 October 2019) Slime mold

Tubiferaceae

Lycogala epidendrum (27 June 2021) Bubble-gum Slime Mold

Ascomycetes

Venturiaceae

Dibotryon morbosum Black Knot (infects cherry)

Rhytismataceae

Rhytisma acerinum, Black Tar Spot (infects maple)

Pyronemataceae

Aleuria aurantia (4 November 2014) Orange Peel

Hypocreaceae

Hypomyces (17 October 2016) (infects boletes)

Hyaloscyphaceae

Lachnellula sp. (6 May 2021)

Basidiomycetes

Amanitaceae

Amanita muscaria var *guessowii* [syn. *A.m.* var. *formosa* arch.]
(30 August 2016) Fly Agari

Amanita flavoconia (4 September 2016, 17 July 2021)

Amanita brunnescens (11 October 2016)

Amanita lavendula (12 and 19 September 2021, 25 September 2022)
[syn. *A. citrina*]

Amanita rubescens (1,10 and 15 August 2021)

Amanita fulva (4 September 2021,
4 September 2022) [syn. *A. vaginatum* var. *fulva*]

⁵⁴ Most species verified by Rytas Vilgalys, Biology, Duke University. Additional help with identification from Tim Baroni (SUNY Cortland) and Alan Seamans (Maine Master Naturalist, Lisbon, ME). Systematic phylogeny follows David Hibbett (Clark University) <https://hibbettlablog.files.wordpress.com/2018/10/bmc-poster2.pdf> (Accessed 27 October 2019)

Pleurotaceae

Pleurotus ostreatus (4 October 2021) Oyster Mushroom

Hygrophoraceae

Cuphophyllus russocoriaceus (3 October 2022) Cedarwood Wax Cap

Humidicutis marginata (3 October 2019, 15 August 2021) Orange-gilled Wax Cap

Hygrocybe miniata (3 October 2022) Vermillion Waxcap

Gliophorus laetus (25 September 2022)

Physalacriaceae

Armillaria gallica (1 October 2019)

Armillaria mellea (16 October 2016) Honey Mushroom

Marasmiaceae

Marasmius delectans (18 September 2016)

Rhocollybia maculata (12 September 2021) Spotted Collybia

Omphalotaceae

Gymnopus dryophilus (23 August 2016, with mycoparasite fungus *Syzygospira mycetophila* [syn. *Christiansenia mycetophila*]; 22 July 2021)

Gymnopus perforans (29 September 2021, 18 October 2021)
[syn. *Micromphale perforans*]

Connopus acervatus (20 October 2019) [syn. *Gymnopus acervatus*]

Mycenaceae

Panellus stipticus (23 October 2017) Foxfire

Mycena subcaerulea (14 October 2018)

Xeromphalina campanella (16 October 2016, 12 September 2021)

Tricholomataceae

Clitocybe gibba (25 September 2016) Funnel Clitocybe

Tricholomopsis sulphureoides (9 October 2019) Yellow Oyster Mop

Entolomataceae

Clitopilus prunulus (1 October 2019, 20 September 2021) Sweet-bread Mushroom

Agaricaceae

Agaricus bitorquis (1 October 2016, 25 October 2020)
Sidewalk Mushroom

Agaricus arvensis (8 October 2018, 8 October 2021) Horse Mushroom

Agaricus sylvicola (1 October 2016)

Leucoagaricus leucothites (2 October 2016) Smooth Parasol [syn. *L. naucina*]

Echinoderma asperum (27 September 2021) Sharp-scaled Parasol, [syn. *Lepiota aspera*, *L. acutaesquamosa*]
Cystoderma amianthinum (20 October 2019) Saffron Powdercap
Tubaria furfuraceae (25 April 2022)

Gasteromycetes (arch.) (Puffballs)

Lycoperdon perlatum (12 September 2021)
Lycoperdon pyriforme (18 October 2021) Pear-shaped Puffball

Psathyrellaceae

Coprinopsis atramentarius (1 November 2016) Inky Caps
[syn. *Coprinus atramentarius*]

Bolbitiaceae

Bolbitius titubans (28 October 2022)

Cortinariaceae

Cortinarius sp.
Cortinarius armillatus (1 October 2019) Red-banded Cortinarius
Cortinarius semisanguineus (18 October 2021)

Strophariaceae

Stropharia aeruginosa (16 November 2016)
Hypholoma capnoides (3 October 2019; 14 October 2021)
Pholiota alnicola (8 October 2018)
Pholiota squarrosoides (2 October 2022)

Amylocorticiaceae

Plicaturopsis crispa (3 October 2018, 19 October 2021)

Hygrophoropsidaceae

Hygrophoropsis aurantiaca (16 October 2016; 28 July 2021)
False Chanterelle

Suillaceae

Suillus cavipes (4 October 2016) Hollow-stemmed Bolete
Suillus spectabilis (8 October 2018)
Suillus clintonianus (19 October 2019, 12 September 2021, 3 October 2022) [syn. Old World, *S. greville*] on larch
Suillus subaureus (11 September 2021)

Paxillaceae

Paxillus involutus (22 September 2016, 15 October 2018, 7 August 2019)
Poisonous Paxillus

Boletineae

Boletus hortensis (11 October 2016)

Boletus edulis (3 September 2019, 17 July 2021, 19 September 2021)
King Bolete or Porcini
Xerocomus ferrugineus (2 August 2019, 24 July 2021) [syn. *Boletus ferrugineus*]
Tylopilus felleus (7 August 2016; 3 August 2021, 20 September 2021)
Bitter Bolete
Tylopilus rubrobrunneus (August 2019), Bitter Bolete
Austroboletus gracilis (21 October 2017)
Leccinum scabrum (4 September 2016, 28 August 2021, 12 and 19 September 2021) Birch Bolete

Stereaceae

Stereum sp. (20 October 2019)

Russulaceae

Russula sp.
Russula peckii (4 August 2021)
Russula claroflava (11 July 2018)
Russula variata (19 September 2021)
Lactarius chelidonium (30 October 2016)
Lactarius lignyotus (19 November 2020, 28 August 2021, 25 September 2022)
Lactarius rufus (2 October 2022)

Peniophoraceae

Peniophora rufa (23 November 2017)

Gloeophyllaceae

Gloeophyllum sepiarium (17 September 2019) Yellow-red Gill Polypore

Ganodermataceae

Ganoderma applanatum (1 November 2016) Artist's Conk

Polyporaceae

Fomes fomentarius (1 September 2016) Tinder or Horse Hoof Polypore
Cerrena unicolor (17 April 2022) Mossy Maze Polypore
Trametes hirsuta (11 October 2016)
Trametes versicolor (28 August 2021) Common Turkey Tail
Trametes pubescens (12 September 2021)
Daedaleopsis confragosa (21 and 28 August 2021)
Polyporus varius (4 October 2021) [syn. *Cerioporus leptocephalus*]
Black-footed Polypore
Tryomyces chioneus (1 September 2016)

Fomitopsidaceae

Piptoporus betulinus (18 September 2016, 20 September 2021)

Birch Polypore

Fomitopsis pinicola (25 June 2018) Red-Belted Polypore

Phaeolus schweinitzii (27 August 2021, 20 September 2021)

Postia ptychogaster (6 October 2020, 20 September 2021)

Powderpuff Polypore

<https://www.inaturalist.org/observations/61866439>

Auriculariaceae (Jelly Fungi)

Exidia recisa (23 October 2017, 8 August 2019)

Cantharellaceae (Chanterelles)

Chanterellus cibarius (11 August 2021, 29 August 2021, 29 September 2021, 11 September 2022) Chanterelles

Clavulina coralloides (27 September 2019, 31 August 2021)

[syn. *C. cristata*] White Coral Fungus

Tremellaceae (Jelly Fungi)

Tremella mesenterica (29 October 2016, 15 October 2018) Witch's Butter

Pezizaceae

Otidea sp. Pig's-Ear mushroom (18 July 2016)

Mammals (22 species)

Ungulata

Cervidae

White-tailed deer (*Odocoileus virginianus*)

Carnivora

Felidae

Bobcat (*Lynx rufus*, 29 June, 10 August, 9 October 2016; photographed 18 February 2019)

Procyonidae

Raccoon (*Procyon lotor*)

Canidae

Coyote (*Canis latrans*)

Red fox (*Vulpes vulpes*, 15 April 2021; photographed 17 April 2022)

Mustelidae

Ermine [syn. Short-tailed Weasel] (*Mustela arminea*, with captured vole 12 June 2017; 22 July 2018; photographed 29 January 2019)

River Otter (*Lontra canadensis*, 19 April 2017)

Mephitidae

Striped Skunk (*Mephitis mephitis*, scent 18 August 2015, 21 August 2017; photo 24 September 2017)

Lagomorpha

Leporidae

Snowshoe Hare⁵⁵ (*Lepus americanus*)

Pinnipedia

Phocidae

Harbor Seal (*Phoca vitulina*)

Primates

Hominidae

Human (*Homo sapiens*)

Cetacea

Phocoenidae

Harbor Porpoise (*Phocoena phocoena*)

⁵⁵ Not to be confused with a “meat rabbit” as recognized by some local friends.

Rodentia

Sciuridae

- Gray Squirrel (*Sciurus carolinensis*)
- Red Squirrel (*Tamiasciurus hudsonicus*)
- Eastern Chipmunk (*Tamias striatus*)

Muridae

- Deer Mouse (*Peromyscus maniculatus*)
- Meadow Vole (*Microtus pennsylvanicus*)
- Brown or Norway Rat (*Rattus norvegicus*)

Dipodidae

- Woodland Jumping Mouse (*Napaeozapus insignis*,
30 August 2022)

Erethizontidae

- Porcupine (*Erethizon dorsatum*)

Eulipotyphla

Soricidae

- Northern Short-tail Shrew (*Blarina brevicauda*, 11 September 2021)

Talpidae

- Star-nose Mole (*Condylura cristata*, diggings)

Birds⁵⁶

158 species (+2 other taxa)			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canada Goose	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Wood Duck	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Gadwall	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
American Wigeon	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Mallard	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
American Black Duck	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Mallard x American Black Duck (hybrid)	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Green-winged Teal	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Common Eider	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Surf Scoter	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
White-winged Scoter	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Black Scoter	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Long-tailed Duck	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Bufflehead	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Common Goldeneye	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Red-breasted Merganser	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Wild Turkey	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Ruffed Grouse	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Horned Grebe	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Red-necked Grebe	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Mourning Dove	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Yellow-billed Cuckoo	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Black-billed Cuckoo	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Common Nighthawk	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Chimney Swift	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Ruby-throated Hummingbird	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Semipalmated Plover	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Killdeer	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
Least Sandpiper	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██
White-rumped Sandpiper	📍	📏	██	██	██	██	██	██	██	██	██	██	██	██

⁵⁶ Compiled from 1300 checklists from Comstock Point, submitted to Cornell University's eBird since June 2009

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
American Woodcock														
Wilson's Snipe														
Spotted Sandpiper														
Solitary Sandpiper														
Greater Yellowlegs														
Razorbill														
Black Guillemot														
Bonaparte's Gull														
Ring-billed Gull														
Herring Gull														
Great Black-backed Gull														
Common Tern														
Arctic Tern														
Red-throated Loon														
Common Loon														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern Gannet														
Double-crested Cormorant														
Great Blue Heron														
Great Egret														
Green Heron														
Turkey Vulture														
Osprey														
Northern Harrier														
Sharp-shinned Hawk														
Cooper's Hawk														
Bald Eagle														
Broad-winged Hawk														
Red-tailed Hawk														
Rough-legged Hawk														
Great Horned Owl														
Barred Owl														

Updated ~24 hr(s) ago.

158 species (+2 other taxa)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Belted Kingfisher												
Yellow-bellied Sapsucker												
Red-bellied Woodpecker												
Black-backed Woodpecker												
Downy Woodpecker												
Hairy Woodpecker												
Pileated Woodpecker												
Northern Flicker												
American Kestrel												
Merlin												
Olive-sided Flycatcher												
Eastern Wood-Pewee												
Alder Flycatcher												
Willow Flycatcher												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Least Flycatcher												
Empidonax sp.												
Eastern Phoebe												
Eastern Kingbird												
Blue-headed Vireo												
Philadelphia Vireo												
Red-eyed Vireo												
Northern Shrike												
Blue Jay												
American Crow												
Common Raven												
Black-capped Chickadee												
Tufted Titmouse												
Tree Swallow												
Barn Swallow												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cliff Swallow												

158 species (+2 other taxa)

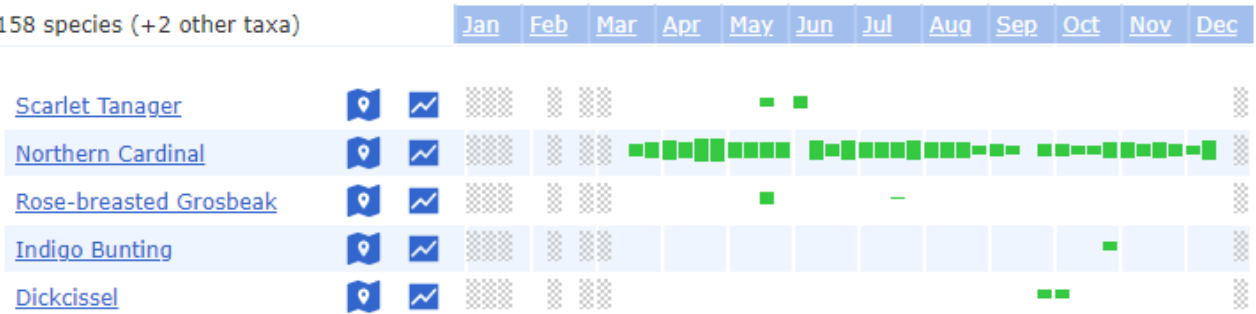


158 species (+2 other taxa)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Savannah Sparrow												
Song Sparrow												
Lincoln's Sparrow												
Swamp Sparrow												
Bobolink												
Baltimore Oriole												
Red-winged Blackbird												
Brown-headed Cowbird												
Rusty Blackbird												
Common Grackle												
Ovenbird												
Northern Waterthrush												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black-and-white Warbler												
Tennessee Warbler												
Orange-crowned Warbler												
Nashville Warbler												
Common Yellowthroat												
American Redstart												
Cape May Warbler												
Northern Parula												
Magnolia Warbler												
Bay-breasted Warbler												
Blackburnian Warbler												
Yellow Warbler												
Chestnut-sided Warbler												
Blackpoll Warbler												
Black-throated Blue Warbler												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Palm Warbler												
Pine Warbler												
Yellow-rumped Warbler												
Black-throated Green Warbler												
Wilson's Warbler												

Updated ~24 hr(s) ago.

158 species (+2 other taxa)



KEY: | = insufficient data | = rare to widespread

[Download Histogram Data](#)

Reptiles⁵⁷ (4 species)

Snakes

Common Garter Snake, *Thamnophis sirtalis*

Maritime Garter Snake, *T. sirtalis pallidulus* (1 July 2014,
3 September 2021)

Ring-necked Snake, *Diadophis punctatus* (25 July 2015; 5 July 2018;
25 July 2021)

Redbelly Snake, *Storeria occipitomaculata* (16 October 2013, dead;
21 October 2018, dead; 31 October 2019, alive; 7 October 2020,
alive; 29 April 2021, dead; 12 October 2021, dead; 14 October
2022, alive)

Turtles

Painted Turtle, *Chrysemys picta* (22 June 2017)

Amphibians⁵⁸ (6 species)

American Toad, *Bufo americanus* (8 June 2014, heard)

Green Frog, *Rana clamitans*

Spring Peeper, *Pseudacris crucifer* (20 April 2014, heard)

Wood Frog, *Rana sylvatica* (3 July 2018; 25 April 2022)

Gray Treefrog, *Hyla versicolor* (6 August 2018; 16 June 2020; 27 June 2020)

Spotted Salamander, *Ambystoma maculatum* (21 May 2020, egg mass with
symbiont green algae *Oophila amblystomatis*, *vide* Aram Calhoun;
14 October 2022, adult on driveway)

Fishes (3 species)

Atlantic Mackerel (*Scomber scombrus*) (caught by us offshore)

Longhorn Sculpin (*Myoxocephalus octodecimspinosus*)

Rock Gunnel (*Pholis gunnellus*)

⁵⁷ Follows Hunter, M.L., A.J.K. Calhoun and M. McCollough. 1999. *Maine Amphibians and Reptiles*. University of Maine Press, Orono.

⁵⁸ *Ibid*

Insects

Odonata (Dragonflies and Damselflies), see pp. 63-64

Orthoptera (Grasshoppers and Crickets)⁵⁹

Carolina Grasshopper (*Dissosteira Carolina*)

Two-striped Grasshopper (*Melanopius bivittatus*, 12 October 2021)

Northern Green-striped Grasshopper (*Chortophaga viridifasciata*,
7 June 2017)

Pine-tree (or Grizzly) Spur-throat Grasshopper (*Melanoplus punctulatus*)

Short-horned Grasshopper (Family Acrididae)

Marsh Meadow Grasshopper (*Pseudochorthippus curtipennis*,
4 July 2020)

Fork-tailed Bush Katydid (*Scudderia furcata*, 18 September 2020)

Roesel's Bush Cricket (*Roeseliana roeselii*, 29 July 2020)

Cave Cricket (*Ceuthophilus* sp., 13 September 2021)

Crackling Locust (*Trimerotropis verruculata*)

Dictyoptera

Dusky Cockroach (*Ectobius lapponicus*)

Hemiptera (True Bugs)⁶⁰

Giant Water Bug (*Lethocerus americanus*, 19 September 2021)

Water Strider (*Gerris canaliculatus*)

Water Strider (*Limnoporus dissortis* syn. *Gerris dissortis*)

Water Boatman (Family Corixidae)

Backswimmer (Family Notonectidae)

Water-stick Insect (*Ranatra* sp., 30 May 2017, 4 October 2020)

Red-cross Shield Bug (*Elasmotethus cruciatus*, 19 May 2017)

Edge-striped Shield Bug (*Elasmucha lateralis*, 31 July 2022,
25 September 2022)

White-margined Burrower Bug (*Sehirus cinctus* ssp. *albonotatus*,
11 October 2020; 9 July 2022)

Small Milkweed Beetle (*Lygaeus kalmia*)

Two-spotted Grass Bug (*Stenotus binotatus*, 22 July 2020)

One-spotted Stinkbug (*Euschistus* sp. (*variolarius*?) 13 June 2018)

Western Conifer Seed Bug (*Leptoglossus occidentalis*, 15 October 2019.
24 September 2021)

Stinkbug (*Banasa* sp., 1 July 2018)

Spittlebug (*Philaenus* sp.)

Woolly Aphid (*Eriosoma lanigerum*)

Bog Leafhopper (*Helochara communis*)

Clouded Plant Bug (*Neurocolpus nubilis*, 10 August 2022)

Capsus ater

⁵⁹ Brandon Woo (Cornell University) has helped us with identifications of many species in this group

⁶⁰ Dana Michaud, Associate Curator of Entomology at the Maine State Museum helped with the identification of some of these, based on specimens collected by Robert Nelson (8-9 June 2021) and now deposited in the Maine State Museum

Cymus sp.
Eremocoris ferus
Drymus unus
Trapzonotus arenarius
Nabis sp.
Blissus sp.
Oedancala dorsalis
Homaemus aeneifrons
Neottiglossa undata
Twice-stabbed Stink Bug (*Cosmopepla lintneriana* [syn. *C. bimaculata*],
10 July 2022)
Euschistus tristigmus luridus
Salda provencheri

Coleoptera (Beetles)^{61 62}

Bruchidae

Bruchus brachialis

Cantharidae

Cantharis rufus

Cantharis tuberculata

Carabidae

Acupalpus canadensis

Acupalpus carus

Acupalpus pauperculus

Acupalpus pumilus

Agonum fidele

Agonum gratiosum

Agonum harrisii

Agonum tenue

Agonum thoreyi

Amara augustatoides

Amara littoralis

Amara pallipes

Anisodactylus kirbyi

Apristus subsulcatus

Badister neopulchellus

Bembidion concretum

Bembidion fortistriatum

Bembidion nigripes

⁶¹ Taxonomy follows Evans, A.V. 2014. *Beetles of Eastern North America*. Princeton University Press, and Dearborn, R.G., R.E. Nelson, C. Donahue, R.T. Bell, and R.P. Webster. 2014. *The Ground Beetle (Coleoptera: Carabidae) Fauna of Maine, USA*. *Coleopterists Bulletin* 68: 441-599.

⁶² Many of the ground beetles were collected by Bob Nelson (ret., Colby College), who has deposited specimens in the Maine State Museum. For other Coleoptera, Dana Michaud helped with the identification of specimens collected by Bob Nelson, (8-9 June 2021) and now deposited in the Maine State Museum

Bembidion patrulele
Bembidion properans
Bembidion transparens
Bembidion versicolor
Bradycellus lecontei
Bradycellus nigrinus
Calathus ingratus
Carabus granulatus (Granulated Ground Beetle; 10 September 2019)
Carabus nemoralis (Bronzed Ground Beetle; 22 May 2022)
Cicindela sexguttata (Six spotted Tiger Beetle)
Elaphrus clairvillei
Harpalus indigens
Harpalus pleuriticus
Harpalus rufipes (Strawberry Seed Beetle; 21 July 2019; 16 June 2020)
Loricera pilicornis
Notiophilus aeneus
Notiophilus biguttatus
Platynus decentis
Platynus mannerheimii
Poecilus lubublandus
Pterostichus adstrictus
Pterostichus coracinus
Pterostichus melanarius
Pterostichus mutus
Pterostichus patruelis
Pterostichus pensylvanicus
Stenolophus conjunctus
Stenolophus fuliginosus
Stenolophus ochropezus
Synthmus americanus

Cerambycidae

Northeastern Borer (*Monochamus notatus*, 21 September 2015)
White-spotted Sawyer (*Monochamus scutellatus*, July 2016; 28 September 2019; 12 August 2020)
Northern Sawyer (*Monochamus carolinensis*, 28 September 2019)
Round-headed Apple Borer (*Saperda candida*, 19 June 2020)
Flower Longhorn Beetle (*Strangalepta abbreviate*, 21 July 2020)
Banded Longhorn Beetle (*Typocerus velutinus*, 2 August 2022)

Chrysomelidae

Anisostena nigrata
Calligrapha californica
Chaetocnema cribrata

Charidotella bicolor
Chrysolina quadrigeminata/C. hyperici complex
Chrysomela mainensis
Donacia sp. (16 June 2019)
Exema canadensis
Ophraella sp.
Phyllobrotica decorata
Phyllotreta striolata
Plateumaris germari
Plateumaris nitida

Coccinellidae

Chilocoris stigma
Seaside Lady Beetle (*Naemia seriata*, 22 August 2022)
Multicolored Asian Lady Beetle (*Harmonia axyridis*)
Eye-spotted Ladybeetle (*Anatis mali*, 31 May 2022; 23 July 2022).
Seven-spotted Lady Beetle (*Coccinella septempunctata*,
3 July 2021)
Fourteen-spotted Lady Beetle (*Propylea quatuordecimpunctata*,
28 September 2019)

Curculionidae (Weevils)

Anthonomus signatus
Anthonomus quadrigibbus
Ground Weevil (*Barynotus obscurus*, 8 August 2021)
Barypeithes pellucidus
Clover Leaf Weevil (*Brachypera zoilus*, 21 September 2021)
Conotrachelus nenuphar
Isochnus rufipes
Larinus sp.
Magdalis sp.
Otiorhynchus ovatus
Otiorhynchus singularis
Otiorhynchus sulcatus (Black Vine Weevil, 29 August 2022)
Pachyrhinus elegans
Phyllobius oblongus
Sitona cylindricollis
Sitona scissifrons
Sphenophorus sp.
Tychius picirostris
Tychinus stephensi

Dermestidae

European Larder Beetle (*Dermestes lardarius*, 8 May 2021)

Dytiscidae

Predaceous Diving Beetle (*Acilius semisulcatus*, 29 April 2021)

Elateridae (Click Beetles)

Agriotes mancus

Click Beetle (*Ampedus rubricus* 12 July 2020)

Click Beetle (*Ampedus balteatus* 22 July 2022)

Corimbitodes lobata pygmaea

Corimbitodes lobata tarsalis

Dalopius sp.

Negastrius sp.

Paractenicera fulvipes

Selatosoma pulcher

Eucinetidae

Eucinetus (Nycteus) punctulatus

Lampyridae

Firefly (*Photinus* sp., in wet meadow, 19 June 2016)⁶³

Winter Firefly (*Ellychnia corrusca*, 10 October 2018, 30 May 2020,
27 April 2022)

Pyractomena sp.

Lucanidae (Stag Beetles)

Platycerus depressus

Lycidae

Net-winged Beetle (*Dictyoptera aurora*, 23 May 2021)

Melandryidae

Prothalia undata

Meloidae

Epicauta murina

Nitidulidae

Brassiocogethes simplipes

Scarabaeidae

June Bug (*Phyllophaga* sp.)

Bee-mimic Beetle (*Trichiotinus assimilis*, 29 June 2022)

Silphidae

American Carrion Beetle (*Necrophila americana*)

Carrion Beetle (*Nicrophorus tomentosus*, 16 August 2018)

⁶³ Specimens examined by David Bourque and Dana Michaud

Say's Burying Beetle (*Nicrophorus sayi*, 13 May 2021)
Roundneck Sexton Beetle (*Nicrophorus orbicollis*, 19 July 2019;
15 June 2022)
Red-lined Carrion Beetle (*Necrodes surinamensis*, 19 July 2019)

Neoptera

Tree Cattle (*Cerastipsocus venosus*, 31 August 2022)
<https://www.inaturalist.org/observations/133064549>

Neuroptera

Golden-eyed Green Lacewing (*Chrysopa oculata*, 23 July 2021)

Megaloptera

Spring Fishfly (*Chauliodes rastricornis*, 18 June 2021)

Hymenoptera (Bees, Wasps and Ants)

Apidae (Bees and Bumblebees)⁶⁴

Two-spotted Bumble Bee (<i>Bombus bimaculatus</i>)	July
Northern amber Bumble Bee (<i>Bombus borealis</i>)	June–August
Common eastern Bumble Bee (<i>Bombus impatiens</i>)	June–October
Confusing Bumble Bee (<i>Bombus perplexus</i>)	August
Sanderson Bumble Bee (<i>Bombus sandersoni</i>)	
Tri-colored Bumble Bee (<i>Bombus ternarius</i>)	June–October
Yellow-banded Bumble Bee (<i>Bombus terricola</i>)	July
Half-black Bumble Bee (<i>Bombus vagans</i>)	July–August
Western HoneyBee (<i>Apis mellifera</i>)	

Halictidae

Orange-legged Furrow Bee (*Halictus rubicundus*)

Ichneumonidae (Ichneumon Wasps)

Exetastes fornicator rufofemoratus

<https://bugguide.net/node/view/1413151>

Opheltes glaucopterus barberi

<https://www.inaturalist.org/observations/53928913>

Megachillidae

Leafcutter Bee (*Megachile inermis*)

Sephecidae

Great Golden Digger Wasp (*Sphex ichneumoneus*,
22 August 2022)

⁶⁴ We collected bumble bee specimens in 2016 and 2017 as part of the Maine Bumble Bee Atlas project. Identifications of our specimens came from specimens deposited with the principal investigators of that project. Taxonomy follows Williams, P., et al. 2014. Bumble Bees of North America. Princeton University Press.

Vespidae

Dark Paper Wasp (*Polistes fuscatus*)

Blackjacket (*Vespula consobrina*)

Forest Yellowjacket (*Vespula acadica*)

Eastern Yellowjacket (*Vespula maculifrons*)

<https://www.inaturalist.org/observations/89455265>

Alaska Yellowjacket (*Vespula alascensis*)

Aerial Yellowjacket (*Dolichovespula* sp.)

<http://www.inaturalist.org/observations/53511359>

Bald-face Hornet (*Dolichovespula maculata*)

Sphecidae

Thread-waisted Wasp (*Eremnophila aureonotata*, 9 July 2020;
22 July 2022) [syn. Golden-marked Thread-waisted Wasp

Near-arctic Blue Mud Dauber Wasp (*Chalybion californicum*),
21 July 2021)

Chrysididae

Cuckoo Wasp (*Chrysis cassata*, 7 September 2022)

Torymidae

Megastigmus sp.

Formicidae (Ants)

European Fire Ant (*Myrmica rubra*)

Allegheny Mound Ant (*Formica exsectoides*)

Carpenter Ant (*Camponotus* sp.)

Trichoptera

Log-cabin Caddisfly (Phryganeidae sp., 4 June 2020)

Northern Caddisfly (*Nemotaulius hostilis*, 4 August 2017, 21 May 2022)

Chocolate-and-Cream Sedge (*Platycentropus radiatus*, 8 August 2021)

Hydatophylax argus (18 June 2021)

Lepidoptera (Butterflies, Skippers, and Moths), see pp. 65-72

Diptera (Flies)⁶⁵

Asilidae

Robber Fly (*Dioctria hyalipennis*)

Bombyliidae

Dorcadion Bee Fly (*Exoprosopa* sp.)

⁶⁵ Some specimens identified by Dana Michaud based on specimens collected by Bob Nelson (8-9 June 2021) and now deposited in the Maine State Museum

Greater Bee Fly (*Bombylius major*, 25 April 2022)
Banded Bee Fly (*Poecilanthrax tegminipennis*, 15 August 2022)

Calliphoridae (Blowflies)

Cluster Fly (*Pollenia rudis*)
Blackfly (*Simulium sp.*)

Conopidae

Thick-headed Fly (*Physocephala furcillata*)

Pediciidae

Giant Eastern Crane Fly (*Pedicia albivitta*)

Stratiomyidae

Odontomyia cincta

Syrphidae (Hoverflies)⁶⁶

Black-legged Gossamer (*Megasyrphus laxus*)
Black-shouldered Drone Fly (*Eristalis dimidiata*, 24 July 2022)
European Drone Fly (*Eristalis arbustorum*)
Common Drone Fly (*eristalis tenax*)
Transverse-banded Flower Fly (*Eristalis transversa*)
Four-lined Hornet Fly (*Spilomyia sayi*)
Bald-faced Hornet Fly (*Spilomyia fusca*)
Thick-legged Hover Fly (*Syritta pipiens*)
Eastern Calligrapher (*Toxomerus geminatus*)
Margined Calligrapher (*Toxomerus marginatus*)
Eupeodes americanus, 15 August 2022
American Thintail Fly (*Meliscaeva cinctella*, 22 July 2022)
Black-footed Globetail (*Sphaerophoria philanthus*)
Tufted Globetail (*Sphaerophoria contigua* 5 July 2021)
Slender Smoothtail (*Epistropheia emarginata*)
Black-horned Smoothtail (*Epistrophe grossulariae*)
Common Lagoon Fly (*Eristalinus aeneus* 5 July 2021,
15 August 2022)
Oblique-banded Pond Fly (*Sericomyia chrysotoxoides*,
14 August 2022
Platycheirus albimanus
Oblique Streaktail (*Allograpta obliqua*) (3 November 2021)

Tabanidae (Deerflies and Horseflies)

Chrysops carbonarius
Chrysops ater
Shaved Horsefly (*Stonemyia rasa*, 22 August 2022)

⁶⁶ Many of these identified by Herb Wilson (ret. Colby College Biology)

Tachinidae

Tachina sp. (Bristlefly)

Drosophiae

Fruitfly (*Drosophila melanogaster*)

Tephritidae

Four-barred Gall Fly (*Urophina quadrifasciata*)

Culicidae (Mosquitoes)⁶⁷

Aedes implicatus; 14 August 2019

Anopheles sp.; 4 July 2019, 18 May 2021

Coquillettidia perturbans; 2018

Culiseta morsitans; 1 August 2019

Culex restuans; 20 June 2019, 4 July 2019

⁶⁷ Identification by Dr. Shannon LaDeau, Cary Institute of Ecosystem Studies

Damselflies and Dragonflies (Order *Odonata*)⁶⁸ (34 species)

Damselflies (Suborder *Zygoptera*)

Broad-winged damsels (Family *Calopterygidae*)

Ebony jewelwing (*Calopteryx maculata*) July–August

Spreadwings (Family *Lestidae*)

Spotted Spreadwing (*Lestes congener*)

Sweetflag spreadwing (*Lestes forcipatus*) August–September

Slender spreadwing (*Lestes rectangularis*) August–September

Emerald spreadwing (*Lestes dryas*) August

Common (northern) spreadwing (*Lestes disjunctus*) July

Pond damsels (Family *Coenagrionidae*)

Aurora damsel (*Chromagrion conditum*) June

Azure bluet (*Enallagma aspursum*) July–August

Taiga bluet (*Enallagma civile*) August

Familiar bluet (*Coenagrion resolutum*) June

Marsh bluet (*Engellagma erbijum*) July

Hagen's bluet (*engellagma hageri*) July

Eastern forktail (*Ischnura verticalis*) June–August

Fragile forktail (*Ischnura posita*) June–August

Variable dancer (*Argia fumipennis*) August

Sedge Sprite (*Nehalennia irene*) July

Dragonflies (Suborder *Anisoptera*)

Darners (Family *Aeshnidae*)

Black-tipped darner (*Aeshna tuberculifera*) August

Canada darner (*Aeshna canadensis*) July

Variable darner (*Aeshna interrupta*) July–August

Lance-tipped darner (*Aeshna constricta*) August

Shadow darner (*Aeshna umbrosa*) August–October

Common green darner (*Anax junius*) August

Skimmers (Family *Libellulidae*)

Common whitetail (*Plathemis lydia*) June–August

Chalk-fronted corporal (*Ladona julia*)

Four-spotted skimmer (*Libellula quadrimaculata*) May–June

Twelve-spotted skimmer (*Libellula pulchella*) July–September

Hudsonian whiteface (*Leucorrhinia hudsonica*) June

Dot-tailed whiteface (*Leucorrhinia intacta*) July

Belted whiteface (*Leucorrhinia proxima*)

Seaside dragonlet (*Erythrodiplax berenice*)

White-faced meadowhawk (*Sympetrum obtrusum*) July–August

⁶⁸ Taxonomy follows Paulson, D. 2011. *Dragonflies and Damselflies of the East*. Princeton University Press.

Autumn meadowhawk (<i>Sympetrum vicinum</i>)	July–October
Wandering glider (<i>Pantala flavescens</i>)	July–August
Spot-winged glider (<i>Pantala hymenaea</i>)	June

Butterflies and Skippers (Order *Lepidoptera*)⁶⁹ (42 species)

Swallowtails and Parnassians (Family Papilionidae)

Canadian tiger swallowtail (<i>Papilio canadensis</i>)	June
Black swallowtail (<i>Papilio polyxenes</i>)	June, August–September

Whites and Sulphurs (Family Pieridae)

Cabbage white (<i>Pieris rapae</i>)	May–October
Clouded sulphur (<i>Colias philodice</i>)	June–October
Orange sulphur (<i>Colias eurytheme</i>)	July–October
Pink-edged sulphur (<i>Colias interior</i>)	September

Hairstreaks, Blues, Coppers, and Harvesters (Family Lycaenidae)

American copper (<i>Lycaena phlaeas</i>)	May
Gray Hairstreak (<i>Magasyrphus laxus</i>) ⁷⁰	
Striped Hairstreak (<i>Satyrium liparops</i>)	
Eastern tailed-Blue (<i>Cupido comyntus</i>)	September
Silvery blue (<i>Glaucopsyche lygdanus</i>)	May–July
Northern azure butterfly (<i>Celastrina lucia</i>) ^{71,72}	
Summer azure (<i>Celastrina neglecta</i>)	

Brushfoots, Monarch, Satyrs, Snouts (Nymphalidae)

Great spangled fritillary (<i>Speyeria cybele</i>)	July–August
Atlantis fritillary (<i>Speyeria atlantis</i>)	July
Silver-bordered fritillary (<i>Boloria selene</i>)	June
Aphrodite fritillary (<i>Speyeria aphrodite</i>)	August
Northern crescent (<i>Phycoides cocyta</i>)	June–July
Harris' checkerspot (<i>Chlosyne harrisii</i>)	June–early July
Baltimore checkerspot (<i>Euphydryas phaeton</i>) ⁷³	June
Question mark (<i>Polygonia interrogatationis</i>)	October
Eastern comma (<i>Polygonia comma</i>)	September
Mourning cloak (<i>Nymphalis antiopa</i>)	April–June, September–October
Red admiral (<i>Vanessa atalanta</i>)	May–June, August–September
American lady (<i>Vanessa virginiensis</i>)	April–July, September, November
Painted lady (<i>Vanessa cardui</i>)	May–October
White admiral (<i>Limenitis archemis</i>)	June–July
Viceroy (<i>Limenitis archippus</i>)	June–August

⁶⁹ Taxonomy follows Glassberg, J. 1999. *Butterflies through Binoculars: The East*. Oxford University Press.

⁷⁰ Easternmost record in U.S.

⁷¹ The two azures listed may be conspecific. See: Schmidt, B.C. and R.A. Layberry. 2016. What Azure blues occur in Canada? A reassessment of *Celastrina* Tutt species (Lepidoptera, Lycaeridae). *Zookeys* 584: 135-164.

⁷² As confirmed by Herb Wilson (Colby College) our observation of this species at Comstock Point on 20 October 2017, was a new late date for this species in Washington County, Maine

⁷³ 15 June 2015, easternmost occurrence of this species in the United States

Monarch (<i>Danaus plexippus</i>) ⁷⁴	July–October
Little Wood-satyr (<i>Megisto cymela</i>)	July
Common wood nymph (<i>Cercyonis pagala</i>)	July–August
Eyed Brown (<i>Satyroides eurydice</i>)	July
Northern Pearly-eye (<i>Lethe anhedon</i>)	July
Common ringlet (<i>Coenonympha tullia</i>)	June–July

Skippers (Family Hesperiidae)

Arctic skipper (<i>Carterocephalus palaemon</i>)	June
European skipper (<i>Thymelicus lineola</i>)	July
Least skipper (<i>Ancyloxypha numitor</i>)	July
Long dash (<i>Polites mystic</i>)	July
Peck's skipper (<i>Polites peckius</i>)	July
Hobomok skipper (<i>Poanes hobomok</i>)	June
Dun Skipper (<i>Euphyes vestris</i>)	
Delaware skipper (<i>Anatrytone logan</i>) ⁷⁵	July

⁷⁴ Record for latest occurrence (3 November 2017) of this species in Washington County

⁷⁵ easternmost of three records for Washington County

Moths (Order Lepidoptera), sequenced by Family⁷⁶ (254 species)

Tineidae	Pavlovski's Monopis Moth	Monopis pavlovskii
Psychidae	Common Bagworm Moth	Psyche casta
Depressariidae	Packard's Concealer Moth	Semioscopis packardella
Attevidae	Ailanthus Webworm Moth	Atteva airea
Cossidae	Poplar Carpenterworm Moth	Acosus centerensis
Tortricidae	Spruce Budworm Moth Sparganothis Fruitworm Early Button Slug Moth	Choristoneura fumiferana Sparganothis sulfureana Tortricidia testacea
Limacodidae	Yellow-shouldered Slug Moth Spiny Oak-slug Moth	Lithacodes fasciola Euclea delphinii
Crambidae	White-spotted Sable Carrot Seed Moth Orange Mint Moth Celery Leaf-tier Moth Hawaiian Beet Webworm Moth Yellow-spotted Webworm Moth Yellow Satin Veneer Straight-lined Argyria moth Straight-lined Vaxi Moth	Anania funebris Sitochroa palealis Pyrausta orphisalis Udea rubigalis Spoladea recurvalis Anageshna primordialis Crambus perlella Argyria critica Vaxi critica
Pyralidae	Orange-tufted Oneida Moth Maple Webworm Moth	Oneida lunulalis Pococera asperatella
Pterophoridae	Lobed Plume Moth Yarrow Plume Moth Plain Plume Moth Morning-glory Plume Moth	Dejongia lobidactylus Gillmeria pallidactyla Hellinsia homodactylus Emmelina monodactyla
Drepanidae	Lettered Habrosyne Arched Hooktip Two-lined Hooktip	Habrosyne scripta Dreprana arcuata Dreprana bilineata
Geometridae	Lesser Maple Spanworm Moth Common Angle Peacock Moth	Macaria pustularia Macaria aemulataria Macaria notata

⁷⁶ Taxonomy follows Bedle, D. and S. Leckie. 2012. *Field Guide to the Moths of Northeastern North America*. Houghton Mifflin, New York.

Six-spotted Angle Moth	<i>Macaria sexmaculata</i>
Pale-marked Angle	<i>Macaria signaria</i>
Owen's Angle	<i>Macaria oweni</i>
Four-barred Gray	<i>Aethalura intertexta</i>
Bent-line gray	<i>Iridopsis larvaria</i>
Small Engrailed	<i>Ectropis crepuscularia</i>
Canadian melanolophia	<i>Melanolophia canadaria</i>
Signate Melanolophia Moth	<i>Melanolophia signataria</i>
Peppered Moth	<i>Biston betularia</i>
White Spring Moth	<i>Lomographa vestaliata</i>
Yellow-dusted Cream Moth	<i>Cabera erythemaria</i>
Saw-wing	<i>Euchlaena serrata</i>
Ochre Euchlaena Moth	<i>Euchlaena marginaria</i>
False Crocus Geometer Moth	<i>Xanthotype urticaria</i>
Morrison's pero	<i>Pero morrisonaria</i>
Pale Beauty	<i>Campaea perlata</i>
Maple Spanworm	<i>Ennomos magnaria</i>
Northern Pale Alder	<i>Tacparia atropunctata</i>
Pale Metanema	<i>Metanema inatomaria</i>
Friendly Probole	<i>Probole amicaria</i>
Straight-lined plagodis	<i>Plagodis phlogosaria</i>
Gray spruce looper	<i>Caripeta divisata</i>
Hemlock Looper Moth	<i>Lambdina fiscellaria</i>
False Hemlock Looper Moth	<i>Nepytia canosaria</i>
Confused Eusarca	<i>Eusarca confusaria</i>
Yellow slant-line	<i>Tetracis crocallis</i>
White Slant-line	<i>Tetracis cachexiata</i>
Curve-toothed Geometer Moth	<i>Eutrapela clemataria</i>
Large Maple Spanworm Moth	<i>Prochoerodes lineola</i>
White-fringed Emerald	<i>Nemoria mimosaria</i>
Wavy-lined Emerald	<i>Synchlora aerata</i>
Blackberry Looper	<i>Chlorochlamys chloroleucaria</i>
Pistachio Emerald	<i>Hethemia pistasciaria</i>
Single-dotted Wave	<i>Idea dimidiata</i>
Sweetfern Geometer	<i>Cyclophora pendulinaria</i>
Gem moth	<i>Orthonama obstipata</i>
Large Lace border	<i>Scopula limboundata</i>
White Eulithis	<i>Eulithis explanata</i>
Small Phoenix	<i>Ecliptopera silaceata</i>
Juniper Carpet	<i>Thera juniperata</i>
Shattered Hydriomena Moth	<i>Hydriomena perfracta</i>
Black-dashed Hydriomena Moth	<i>Hydriomena divisaria</i>
American Sharp-angled Carpet	<i>Euphyia intermediata</i>
Small Rivulet	<i>Perizoma alchemillata</i>
Variable Carpet Moth	<i>Anticlea vasilata</i>
Common Carpet	<i>Epirrhoe alternata</i>

	Chain-dotted Geometer	<i>Cingilia catenaria</i>
	Bent-line Carpet Moth	<i>Costaconvexa centrostrigaria</i>
	Somber Carpet Moth	<i>Disclisioprocta stellata</i>
	Unadorned Carpet Moth	<i>Hydrelia inornata</i>
	Autumnal Moth	<i>Epirrita autumnata</i>
	Larch Pug Moth	<i>Euphethecia annulata</i>
	Green Pug	<i>Pasiphila rectangulata</i>
	Treble Bar	<i>Aplocera plagiata</i>
	Mottled Gray Carpet	<i>Cladara limitaria</i>
	Sharp-Angled Carpet	<i>Euphyia intermediata</i>
	The Scribbler	<i>Cladara atroliterataa</i>
	Powdered Bigwing Moth	<i>Lobophora nivergerata</i>
Lasiocampidae	Large Tolyte Moth	<i>Tolyte vellea</i>
	American Lappet Moth	<i>Phyllodesma americana</i>
	Eastern Tent Caterpillar Moth	<i>Malacosoma americana</i>
Saturniidae	Rosy Maple Moth	<i>Dryocampa rubicunda</i>
	Pink-striped Oakworm Moth	<i>Anisota virginiensis</i>
	Polyphemus	<i>Antheraea polyphemus</i>
	Luna	<i>Actias luna</i>
	Cecropia	<i>Hyalophora cecropia</i>
	Columbia Silkmoth	<i>Hyalophora columbia</i>
Sphingidae	Waved Sphinx Moth	<i>Ceratomia undulosa</i>
	Laurel Sphinx Moth	<i>Sphynx kalmiae</i>
	Northern Apple Sphinx	<i>Sphinx poecila</i>
	Northern Pine Sphinx Moth	<i>Lapara bombycoides</i>
	Twin-spotted Sphinx	<i>Smerinthus jamaeicensis</i>
	One-eyed Sphinx	<i>Smerinthus cerisyi</i>
	Blinded Sphinx Moth	<i>Paonias excaecata</i>
	Small-eyed Sphinx Moth	<i>Paonias myops</i>
	Modest Sphinx	<i>Pachysphinx modesta</i>
	Hummingbird Clearwing	<i>Hemaris thysbe</i>
	Snowberry Clearwing	<i>Hemaris diffinis</i>
	Azalea Sphinx	<i>Darapsa choerilus</i>
	Bedstraw Hawkmoth	<i>Hyles gallii</i>
Notodontidae	Sigmoid Prominent	<i>Clostera albosigma</i>
	Apical Prominent	<i>Clostera apicalis</i>
	Yellow-necked Caterpillar Moth	<i>Datana ministra</i>
	White-dotted Prominent	<i>Nadata gibbosa</i>
	Chocolate Prominent	<i>Peridea ferruginea</i>
	Black-rimmed Prominent	<i>Pheosia rimosa</i>
	White Furcula	<i>Furcula borealis</i>
	Finned-willow Prominent Moth	<i>Notodonta scitipennis</i>

	Common Gluphisia moth	<i>Gluphisia septentrionis</i>
	Elegant Prominent	<i>Odontosia elegans</i>
	Gray Furcula Moth	<i>Furcula cinerea</i>
	Western Furcula Moth	<i>Furcula occidentalis</i>
	Modest Furcula	<i>Furcula modesta</i>
	Black-etched Prominent Moth	<i>Tecmessa scitiscrupta</i> (or <i>Cerura</i>)
	Drab Prominent	<i>Misogada unicolor</i>
	Mottled Prominent	<i>Macrurocampa marthesia</i>
	White-blotched <i>Heterocampa</i> Moth	<i>Heterocampa umbrata</i>
	Saddled Prominent	<i>Heterocampa guttivitta</i>
	Wavy-lined <i>Heterocampa</i>	<i>Heterocampa biundata</i>
	Double-lined Prominent	<i>Lochmaeus bilineata</i>
	Morning-glory Prominent	<i>Schizura ipomaeae</i>
	Unicorn Prominent	<i>Schizura unicornis</i>
	Black-blotched <i>Schizura</i> Moth	<i>Schizura leptinoides</i>
Erebidae	Painted Lichen Moth	<i>Hypoprepia fucosa</i>
	Clymene Moth	<i>Haploa clymene</i>
	Joyful <i>Virbia</i> Moth	<i>Virbia laeta</i>
	Orange <i>Virbia</i>	<i>Virbia aurantiaca</i>
	Isabella Tiger Moth (aka Woolly Bear)	<i>Pyrrharctia isabella</i> (6 December 2022)
	Virginian Tiger Moth	<i>Spilosoma virginica</i>
	Little Virgin Tiger Moth	<i>Apantesis virguncula</i>
	Parthenice Tiger Moth	<i>Apantesis parthenice</i>
	Virgin Tiger Moth	<i>Grammia virgo</i>
	Banded Tussock Moth	<i>Halysidota tessellaris</i>
	Hickory Tussock Moth	<i>Lophocampa caryae</i>
	Spotted Tussock Moth	<i>Lophocampa maculata</i>
	Milkweed Tussock Moth	<i>Euchaetes egle</i>
	Virginia <i>Ctenucha</i>	<i>Ctenucha virginica</i>
	Yellow-collared Scape Moth	<i>Ciseps fulvicollis</i>
	White-marked Tussock Moth	<i>Orgyia leucostigma</i>
	Gypsy Moth	<i>Lymantria dispar</i>
	Brown-tail Moth	<i>Euproctis chrysorrhoea</i>
	American <i>Idia</i> Moth	<i>Idia americalis</i>
	Pale-winged <i>Idia</i> Moth	<i>Idia concisa</i>
	Wavy-lined Fan-foot	<i>Zanclognatha jacchusalis</i>
	Dark-spotted <i>Palthis</i> Moth	<i>Palthis angualis</i>
	Spotted grass moth	<i>Rivula propinquialis</i>
	Baltimore Snout	<i>Hypena baltimoralis</i>
	Green Cloverworm	<i>Hypena scabra</i>
	Red-lined <i>Panopoda</i>	<i>Panopoda rufimargo</i>
	Lunate <i>Zale</i>	<i>Zale lunata</i>
	Colorful <i>Zale</i> Moth	<i>Zale minerea</i>
	Horrid <i>Zale</i>	<i>Zale horrida</i>

	Maple Looper	<i>Parallelia bistriaris</i>
	Clover Looper Moth	<i>Caenurgina crassiuscula</i>
	Forage Looper	<i>Caenurgina erechtea</i>
	Yellow-banded Underwing	<i>Catocala cerogama</i>
	White Underwing	<i>Catocala relicta</i>
	Once-married Underwing	<i>Catocala unijuga</i>
	Semirelict Underwing	<i>Catocala semirelicta</i>
	Sleepy or Pink Underwing	<i>Catocala concumbens</i>
	Sordid Underwing	<i>Catocala sordida</i>
	Ultronia Underwing	<i>Catocala ultronia</i>
	Hawthorn Underwing	<i>Catocala crataegi</i>
	Charming Underwing	<i>Catocala blandula</i>
Noctuidae	Cabbage Looper	<i>Trichoplusia ni</i>
	Copper Underwing	<i>Amphipyra pyramidoides</i>
	Hologram Moth	<i>Diachrysia balluca</i>
	Two-spotted Looper	<i>Autographa bimaculata</i>
	Wavy Chestnut Y Moth	<i>Autographa mappa</i>
	Large Looper Moth	<i>Autographa ampla</i>
	Celery Looper Moth	<i>Anagrapha falcifera</i>
	Abstruse False Looper Moth	<i>Syngrapha abstrusa</i>
	Salt-and-pepper Looper Moth	<i>Syngrapha rectangula</i>
	Putnam's looper	<i>Plusia putnami</i>
	Connected Looper	<i>Plusia contexta</i>
	Pale Glyph	<i>Protodeltote albidula</i>
	Black-dotted Glyph	<i>Maliattha synochitis</i>
	Pink-barred Pseudeustrotia Moth	<i>Pseudeustrotia carneola</i>
	Owl-eyed Bird Dropping Moth	<i>Cerma cora</i>
	Tufted Bird-dropping Moth	<i>Cerma cerintha</i>
	Green Leuconycta	<i>Leuconycta diphteroides</i>
	Marbled-green Leuconycta Moth	<i>Leuconycta lepidula</i>
	Black Zigzag Moth	<i>Panthea acronyctoides</i>
	Eastern Panthea Moth	<i>Panthea furcilla</i>
	Laugher	<i>Charadra deridens</i>
	The Brother	<i>Raphia frater</i>
	American Dagger	<i>Acronicta americana</i>
	Large Gray Dagger	<i>Acronicta insita</i>
	Fingered Dagger	<i>Acronicta dactylina</i>
	Cottonwood Daggar	<i>Acronictale pusculina</i>
	Unmarked Dagger	<i>Acronicta innotata</i>
	Funerary Dagger	<i>Acronicta funeralis</i>
	Splendid Dagger	<i>Acronicta superans</i>
	Ochre Dagger	<i>Acronicta morula</i>
	Impressed Dagger	<i>Acronicta impressa</i>
	Smearred Dagger	<i>Acronicta oblinita</i>
	Green Marvel	<i>Acronicta fallax</i>

Harris's Three-Spot	<i>Harrsimena trisighata</i>
Yellow-headed Cutworm Moth (no common name)	<i>Apamea amputatrix</i>
Bordered Apamea	<i>Apamea impulsa</i>
Bridgham's Brocade	<i>Apamea sordens</i>
American Ear Moth	<i>Oligia bridghamii</i>
Meadow Rue Borer Moth	<i>Amphipoea americana</i>
Olive Angle Shades	<i>Papaipema unimoda</i>
Brown Angle Shades	<i>Phlogophora iris</i>
Soybean Looper	<i>Phlogophora periculosa</i>
Common Hyppa Moth	<i>Chrysodeixis includens</i>
Gray Half-Spot	<i>Hyppa xylinoides</i>
Three-lined Balsa Moth	<i>Nedra ramosula</i>
Wedgling Moth	<i>Balsa tristrigella</i>
Dot-and-Dash Swordgrass Moth	<i>Galgula partita</i>
American Brindle Moth	<i>Xylena curvimacula</i>
Bethune's Pinion Moth	<i>Lithomoiea germana</i>
Hoary pinion	<i>Lithophane bethunei</i>
Three-spotted sawfly	<i>Lithophane fagina</i>
Comstock's sawfly	<i>Eupsilia tristigmata</i>
Intermediate Hooded Owlet (Dusky)	<i>Feralia comstocki</i>
Brown-hooded Owlet	<i>Cucullia intermedia</i>
Stormy Arches	<i>Cucullia convexipennis</i>
Fluid Arches	<i>Polia nimbosa</i>
Hitched Arches Moth	<i>Morrisonia latex</i>
Black Arches	<i>Melanchra adjuncta</i>
Otter spiramater	<i>Melanchra assimilis</i>
Striped Garden Caterpillar Moth	<i>Spiramater lutra</i>
Bridled Arches	<i>Trichordestra legitima</i>
Olive Arches Moth	<i>Lacinipolia lorea</i>
White-Speck	<i>Lacinipolia olivacea</i>
False Wainscot	<i>Mythimna unipuncta</i>
Bronzed Cutworm Moth	<i>Leucania pseudoargyria</i>
Cynical Quaker	<i>Nephelodes minians</i>
Signate quaker	<i>Orthodes cynica</i>
Master's Dart	<i>Tricholita signata</i>
Flame-shouldered Dart	<i>Feltia herilis</i>
Great Brocade	<i>Ochropleura implecta</i>
Setaceous Hebrew Character	<i>Eurois occulta</i>
Greater Black-letter Dart	<i>Xestia c-nigrum</i>
Pink-spotted Dart	<i>Xestia dolosa</i>
Green Arches	<i>Pseudohermonassa bicarnea</i>
Large Yellow Underwing	<i>Anaplectoides prasina</i>
Arcigera Flower Moth	<i>Noctua pronuba</i>
Primrose Moth	<i>Schinia arcigera</i>
Goldenrod Flower Moth	<i>Schinia florida</i>
	<i>Schinia nundina</i>

Invertebrates, other terrestrial

Arachnids (20 Species)

Araneidae

- Cross Orbweaver (*Araneus diadematus*)
- Shamrock Orbweaver (*Araneus trifolium*)
- Fierce Orbweaver (*Araneus saevus*)
- Marbled Orbweaver (*Araneus marmoreus*)
- Arabesque Orbweaver (*Neoscona arabesca*)
- Banded Garden Spider (*Argiope trifasciata*)
- Yellow Garden Spider (*Argiope aurantia*)
- Ornamental Orbweaver (*Larinioides patagiatus*)
- Gray Cross Spider (*Larinioides sclopetarius*)

Thomisidae

- Goldenrod Crab Spider (*Misumena vatia*)

Agelenidae

- Barn Funnel Weaver (*Tegenaria domestica*)
- Grass Spider (*Agelenopsis* sp. likely *A. pennsylvanica*,
1 September 2022)⁷⁷

Pisauridae

- Six-spotted Fishing Spider (*Dolomedes triton*, 17 May 2021,
25 April 2022)

Salticidae

- Brilliant Jumping Spider (*Phidippus clarus*, 26 July 2021)
- Zebra Jumping Spider (*Salticus scenicus*, 8 May 2022)

Clubionidae

- Leaf-curling Sac Spider (*Clubiona* sp.)

Miturgidae

- Yellow Sac Spider (*Cheiracanthium mildei*)

Tetragnathidae

- Versicolor Long-jawed Orbweaver (*Tetragnatha versicolor*)

Theridiidae

- Candy-stripe Spider (Complex) (*Enoplognatha* sp.)

Linyphiidae

- Sheetweb Spider (*Linyphia* sp., 7 Septembr 2022)

Opiliones

Phalangidae

- European Harvestman (*Phalangium opilio*)

⁷⁷ Not previously reported in Maine according to Rose, S. 2022. *Spiders of North America*. Princeton University Press.

Acari

Ixodidae (Ticks)

American Dog Tick (*Dermacentor variabilis*. 28 June 2021)

Trombiculidae (Chiggers, unfortunately)

Trombicula sp.

Miscellaneous Terrestrial Invertebrates

Diplopoda

Milliped

Crustacea

Isopoda (Sow bugs)

Common Rough Woodlouse (*Porcellio scaber*)

Common Shiny Woodlouse (*Oniscus asellus*)

Gastropoda

Snail, Amber (Family Succineidae)

Slug, *Arion* sp.

Annelida

Common Earthworm

Invertebrates, marine (intertidal inhabitants and flotsam)⁷⁸

Porifera

- Finger Sponge (*Haliclona oculata*)
- Palmate Sponge (*Isodictya deichmannae*)
- Crumb-of-Bread Sponge (*Halichondria panacea*)

Cnidaria

Class Hydrozoa

- White-cross Jellyfish (*Obelia* sp.; Hydromedusae)

Class Anthozoa

- Dahlia anemone (*Urticina felina*) [syn. *Tealia feline*; Northern Red Anemone]

Class Scyphozoa

- Moon Jelly (*Aurelia aurita*)
- Lion's Mane Jellyfish (*Cyanea capillata*)
- Egg-yolk Jellyfish (*Phacellophora* sp.)

<https://www.inaturalist.org/observations/14845289>

Ctenophora

- Beroe's Comb Jelly (*Beroe cucumis*)

Nemertea

- Ribbon Worm (*Lineus ruber*)

Polychaeta

- Scale Worm (*Lepidonotus squamatus*) [syn. Twelve-scale worm]

Mollusca

Gastropods

- Periwinkle (*Littorina littorea*)
- Tortoise-shell Limpet (*Tectura testudinalis*)
- Red Chiton (*Tonicella rubra*) [syn. *Ischnochiton ruber*]
- Waved Whelk (*Buccinum undatum*)
- Ten-ridged Whelk (*Naptunea decemcostata*)
- Dog Whelk (*Nucella lapillus*)

⁷⁸ Taxonomy follows Trott, T.J. 2004. Cobscook Bay Inventory: A historical checklist of marine invertebrates spanning 162 years. Northeastern Naturalist 11: 262-324, who along with Herb Wilson (Colby College, emeritus), has helped us with identifications.

Bivalves

- Soft-shelled Clam (*Mya arenaria*)
- Northern Cardita (Ark) (*Cyclocardia borealis*)
- Blue Mussel (*Mytilus edulis*)⁷⁹
- Ocean Scallop (*Placopecten magellanicus*)

Arthropoda

Crustacea

- Barnacle (*Semibalanus balanoides*)
- Scud (*Gammarus oceanicus*)
- American Lobster (*Homarus americanus*)
- Green Crab (*Carcinus maenas*)
- Jonah Crab (*Cancer borealis*)
- Atlantic Rock Crab (*Cancer irroratus*)
- Hermit Crab (*Pagurus pollicaris*)
- Hermit Crab (*Pagurus acadianus*)

Echinodermata

Holothuroidea

- Sea Cucumber (*Cucumaria frondosa*)
- Sea Cucumber (*Epitomapta roseola*)
- Sea Cucumber (*Chiridota laevis*)
- Silky Sea Cucumber Synaptas (*Leptosynapta tenuis*)

Echinoidea

- Green Sea Urchin (*Strongylocentrotus droebachiensis*)

Stelleroidea

- Forbes Sea Star (*Asterias forbesi*)
- Sea Star (*Asterias rubens*) [syn. *A. vulgaris*]
- Atlantic Blood Star (*Henricia sanguinolenta*)
- Brittle Star (*Ophiopholis aculeate*)

Chordata

Ascidiacea (Tunicates)

- Sea Peach (Sea squirt) (*Halocynthia pyriformis*)
- Sea Squirt, *Ciona intestinalis* [syn. Sea vase]
- Chain Tunicate (*Botrylloides violaceus*)

⁷⁹ Sarah Kingston (Bowdoin College) reports some introgression of *M. trossulus*, an arctic species, in Comstock Point populations. (Kingston, S.E., P. Martino, M. Melendy, F.A. Reed, and D.B. Carlon. 2017. Linking genotype to phenotype in a changing ocean: Inferring the genomic architecture of a blue mussel stress response with genome-wide association. *Journal of Evolutionary Biology* doi: 10.1111/jeb.13224).

Separately, Sorte et al. (2016, *Global Change Biology* doi: 10.1111/gcb.13425) report a 60% decline in the mussel populations of coastal Maine over the past 40 years.



Figure 21. Sunset over Small's Cove on 22 September 2018