

OCTOBER 1-14, 2014 NATURAL HISTORY NOTES FOR EASTVIEW

By Dick Harlow



This is a mixture of Redpolls and Pine Siskins feeding on a tray full of thistle and sunflower seed.

Photo © Dick Harlow

Each year birders receive a report from the Canadian Ornithological Society about winter finches, and other seed eating birds of Canada. The report projects what species we in the lower 48 can expect to see migrating south in search of food. Species such as Redpolls and Pine Siskins, seen in the above picture, are in jeopardy because of climate change. These winter visitors from Canada as well as Crossbills, Pine Grosbeaks, and Purple Finchs, more often than not, are generally in decline. Many of these species have populations that nest in the boreal forests of Canada. As the climate warms, these populations are under serious threat as a result of habitat depletion and food shortages. The food that they depend on is diminishing because of rising temperatures and the declining health of the boreal forests.

Fall bird transients from north and west of us that could be flying through our area in October are:

Purple Finch
Field Sparrow

White-throated Sparrow
Lincoln's Sparrow

White-crowned Sparrow
Dark-eyed Junco

So, fill your feeders and enjoy these denizens of the north, while we can!

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FALL FOLIAGE

Contrary to popular belief, the color in fall leaves is **NOT** dependent on the coincidence of cold or freezing temperatures. These may help indirectly, but it is not what brings on the beautiful New England color. I wish I could give a reason why this fall, 2014, is so fantastic, the colors so bright and intense, but I can't. It has to be one of the vagaries of nature. But, what I can do is give some insight into how these colors come about.

Chlorophyll is the primary energy gathering green pigment that plants use to manufacture sugar. There are other energy gathering pigments that also help in the manufacture of food, but at different wavelengths of light. Sunlight strikes each of these pigments differently, and each is responsible for providing the energy to produce sugar. Soluble sugar is then changed to starch and stored in the roots. Chlorophyll requires warm temperatures and increasing sunlight as days lengthen for plants to continue to efficiently manufacture chlorophyll. Fall color in deciduous trees and shrubs is due to less sunlight or shorter daylight hours which brings about the demise in the leaf of the production of chlorophyll, thereby releasing for view other pigment colors that are in the leaf such as reds, yellows, purples and browns.



Sugar Maple leaves, *Acer saccharum*.

Photo © Dick Harlow

Generally, there are four types of plant pigments. 1) Chlorophyll, a green pigment, is the basic or primary pigment in plants.

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Red Maple, Acer rubrum

Photo © Dick Harlow

- 2) Carotenoid, the orange color of carrots, along with the reds.
- 3) xanthophyll, the yellow pigment, and

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Sweet Pepperbush, Clethra alnifolia

Photo © Dick Harlow

4) Anthocyanin, found in many plants such as oaks, a pigment that is dependent on pH showing red to blue. There are other pigments, but these are the basic ones that show themselves during fall foliage season.

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All these pigments have a function in plant life. There is such an abundance of green pigment in the cells of leaves; it masks the other pigments that are there as well.



Red Oak, Quercus rubra

Photo © Dick Harlow

Because chlorophyll is dependent on day length to manufacture food for the plant it starts to break down as the day length shortens and the temperature changes. This also can happen to chlorophyll when a part of, or the whole tree or shrub, is stressed e.g. too much water, lack of water, insect damage, etc.

During this transition period from summer to fall, chemical changes are occurring within the leaf, which show the reds and purples of sumacs and dogwoods, and the reds, yellows and brilliant oranges of sugar maples.

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However, birches and aspens show primarily yellow colors, while oaks show reds and browns. These colors are the pigments that remain after Chlorophyll has broken down within that particular species of tree or shrub.



Sugar Maple branch, *Acer saccharum*.

Photo © Dick Harlow

Think about the spring of a given year, regardless of altitude, when we get chance frosts and cold nights; the chlorophyll in the developing leaves does not die. It might be delayed, but the chlorophyll won't be destroyed. Chlorophyll is very resilient as days get longer and spring approaches summer. As it is with many things, it is not just one event that causes a reaction within the leaf for fall colors to show, but several connecting events. Our Vermont Fall Foliage is a spectacle to enjoy, as plants get ready for winter!

Throughout the summer plants are growing, flowering, fertilizing, producing seed and distributing that seed, which will become next year's crop. We here at EastView, have the pleasure of watching this happen as the season's progress to Fall.

Because EastView is situated in what was once a field and on new constructed land, we, the residents of EastView have the opportunity to see these changes more clearly than if we lived surrounded and shaded by trees. We watch and admire the clovers and the waving new grasses as they appear, flower and grow. We even

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complain about the dead seed heads on the clovers as not appealing to our eyes. Then along comes Queen Anne's lace and Black-eyed Susans, along with Chicory on the roadsides that pop up along with new later blooming grasses; they all seem to give new life to our surroundings. Some may think the fields are not as colorful, but they are still producing flowers. With the changing seasons so apparent, the fall colors so vibrant, finally, the last drumbeat of color appears. In the fields and meadows, before November and the on-coming winter, is the New England Aster with its blue, purple and pink flowers forever reminding us that we are very fortunate to experience this tapestry of nature.



New England Aster, *Aster novae-angliae*

Photo © Dick Harlow

Those of you who have gardens here at EastView please don't despair when looking at the dead and dying grasses and wildflower seed heads, because the birds need the seed. All the dead clover heads, Black-eyed Susan, Queen-Ann's Lace, Purple Cone Flower and other wildflower seed-heads represent a food source to birds and other animals. When the fields and meadows are "hogged" or mowed, many seed heads fall to the ground or are left behind either by the mower or by the hay bailer. It is very important to leave that cache of food for birds. Winter represents a tough time for wildlife, especially for those "critters" that don't hibernate.

Now, if you were an Eastern Chipmunk (*Tamias striatus*) it is less of a problem as you would be caching your food all summer underground in your winter burrow. This little fellow holds to the old adage "be prepared."

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I haven't seen nor have I been told that there are Chipmunks on our campus, but as EastView's environment changes and as its landscape evolves, the habitat will become more deciduous; thus I am sure we will see a Chipmunk or two before too long.



<http://w.mawebcenters.com/static/website/158/158262/files/9.jpg>

Eastern Chipmunk, *Tamias striatus*

Photo © Dick Harlow

October: First Two-Week Sightings:

Butterfly List

- Monarch 1/14
- Clouded Sulphur 9/14
- Cabbage White 8/14

of sightings per 14 days

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Dragonfly List

- Canada Darner
- Black Meadowhawk
- Ruby Meadowhawk

Damselflies

No Damselflies observed

Amphibian/Reptiles

- Leopard Frog

Mammal List

- Eastern Cottontail
- Eastern Coyote (h)

First 2 Weeks in October Rainfall: 45.6 mm or 1.8 inches

Highest wind for this two-week period was on October 8, 2014 Max Wind Speed and Direction: 31mph/South

Average Wind speed for this two week period: 3.4 mph, Dominant direction: South

All Measurements based on a 24hr clock for 14 days.