

FEBRUARY 15 – 28, 2018 NATURAL HISTORY NOTES FOR EASTVIEW

By Dick Harlow

WINTER SUMMARY

December, January and February represent winter, although some would still consider March as being winter; this summary will include the aforementioned months.

This has been an interesting winter. We have had frigid temperatures down to -20F+ and as high as 60's F. These up again down again temperatures create havoc with plants especially if the temperatures stay above freezing for very long and then dive to sub-zero shortly thereafter. Our family in GA has had measurable snow and ice this winter, something the south is not used to. Changing climate, changing times.



Coyote and Rabbit tracks in snow © Dick Harlow

However, snow provides insulation from the frigid air temperatures, whereas bare ground does not. Organisms have been fortunate that we have had snow, sometimes over ice, but snow just the same and that will provide some safety to organisms.

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Coyote and Rabbit Tracks in snow © Dick Harlow

Also, snow allows one to see who has been visiting during the night. After a snowfall this past week I observed tracks outside our patio. As you can see from the picture there were two visitors, a rabbit and a coyote. Both foxes and coyotes walk as if their paws are in single file. However, a fox has a smaller and daintier footprint than a coyote, the paw prints are closer together and they show paw nails.

It doesn't appear the coyote is chasing the rabbit. The two sets of tracks were put down at different times. However, I can say the coyote tracks are going from one bird feeder area to another, i.e. Venmans' and the Harlows' as well as inspecting other cottage feeders along Deer Meadow Drive.

WINTER EFFECTS ON PLANTS

I have talked about insect cells and their need to have water along with their ability to produce glycol which acts as an antifreeze in the cells.

All cells need water. However, ice is the death knell for cells. In other words, ice within the environment of plants can be lethal.



Hoarfrost/Ice crystals on a twig. © Dick Harlow

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Inside a cell, water is necessary as a fluid to move nutrients and waste, allowing movement across the cell membrane by diffusion. However, if the water freezes, forming ice, the ice crystals pierce or shatter a cell membrane and/or cell wall. Once the weather warms and temperatures go above freezing there will be leakage through the punctures made by the previous ice crystals. Unless the cell membrane or cell wall can self-repair, this cell will die.

Therefore, if plants are to survive in freezing temperatures they have to develop a way to restrict ice or repair cell wall openings caused by the crystals. Plants that have living cells do have that function of restrict and repair. I think it can be determined that plants that can tolerate freezing temperatures have evolved this ability.

Plants are constantly and slowly changing to adapt to various climatic changes that have occurred over eons. But, since the industrial revolution the speed of changes has increased, slow at first, but becoming faster and faster as the years progress.



Hoarfrost/Ice crystals on a plant stem. © Dick Harlow

What does all this mean? Can plants adapt quickly to change? We are at a static point in time. We can only see what plants and animals look like today and from fossil history what they must have looked like eons ago. We do know that our planet's climate is changing. Glaciers are melting, permafrost is giving way, Arctic and Antarctic ice is melting, sea levels are rising. Plants

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and animals will have to call on what has evolved in their DNA to be able to adjust quickly to whatever changes occur. We may not be around for these changes or for other climate catastrophes, but our Grandchildren and Great Grandchildren will encounter some of these climatic changes. Have we done enough in our life time to mitigate climate change for our family members, our neighbors, communities, our world?

OBSERVATIONS

MAMMALS

Coyote - calling

Red Fox – adult in good condition

Eastern Cottontail Rabbit – tracks in snow

WEATHER TIDBITS

Month of FEBRUARY 15-28, 2018

[All Measurements taken at solar noon \(1230 EST\).](#)

PRECIPITATION

Total Precipitation: 7.2 mm or 0.4 inches

OVERCAST DAYS - 7