

MAY 1 - 14, 2019 NATURAL HISTORY NOTES

By Dick Harlow

TIME TO FLOWER



Stargazer Day Lily, *Lilium orientalis*,
Cultivar 'Stargazer' 1974 hybrid. © Dick Harlow

Have you ever wondered **what** it is that tells a plant when it is time to flower? A simplified answer might be: It's in the genes! Or, Nature tells it when to flower. In a way, both are correct, but science is a bit more exact! For example, there are plants that flower while the snow melts; and there are plants that flower come spring, early summer, middle summer or only in the fall. What tells the genes in a plant that it is time to set the stage for flowering so that pollen can form in the anthers and transfer to the pistil thereby setting seed to form a new generation of a particular flowering plant?

Since the Watson and Crick discovery of the double helix, DNA molecule in 1953, we have learned a great deal about the wiles of both animal and plant genes!

Scientists also know that sunlight has something to do with initiating a response to flowering. Photoreceptors are proteins and these proteins exist in plant cells. A particular protein is a molecule of DNA code. We know that the whole DNA molecule represents codes for many activities in all cells. Therefore, a spring flowering plant will have a code, a message to initiate the plant to flower in spring that is activated by early spring sunshine. Whereas, late summer or fall flowering plants' code will not awaken until the sunshine coupled with the shortening of the daylight is transferred to its gene photoreceptors.

Ah, the root of all that develops is protein, DNA and code messaging. All living things transfer protein messaging via molecular processes. These molecular processes produce specific proteins whose function it is to carry out specific jobs, like forming flowers, etc. I could be more specific, but I don't want to lose you from understanding that the flowering gene is named **Apetala1**. There is also Apetala 2 and 3. Apetala1 is responsible for producing the various proteins that turn on over a thousand more genes responsible for flowering.

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Blanket Flower, *Gaillardia pulchella*. © Dick Harlow

Try to remember that change occurs in animal and plants through molecular and chemical action. These changes occur within the many cells of an organism. Apetala (genes) 1, 2, 3 are examples of transfer mechanisms that determine changes along with the development of flowers.



Wild Aster *Symphyotrichum* species. © Dick Harlow

What we take for granted when we walk by a bed of beautiful flowers or see the indiscriminate flowers of grasses and rushes is really a very active and detailed chemical process!

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POLLINATION-BEES

Personally, I am concerned that we are seeing less and less insects during spring, summer and fall. I can remember being out in my vehicle for a day and having the windshield covered with the remains of dead insects. Not so today! Take a moment and tell me you don't enjoy the beauty of Vermont, the view of the mountains, the forested hills, fields of clover, flowers in gardens, the birds at your feeder or just the beauty of the natural world.



Bumblebee, *Bombus* species. © Gretel Kiefer

If our children, grandchildren and great grandchildren are going to have a beautiful and survivable life, then the natural world we live in, love to look at and enjoy also needs to live, eat and survive. We must quickly learn, more so than ever before how to share this environment we live in with the critters that surround us. We all are trying to survive the best we can.

The chemical industry has done a fantastic job in maximizing agricultural production by minimizing harmful insects. However, those chemicals also kill beneficial insects as well. As an example: Biochemistry and the pesticides that are produced are deleteriously affecting bee populations, both native and non-native. Pollinators pollinate all plants regardless whether those plants are agricultural or wild plants of the forest. By eliminating harmful insects and also destroying many natural bee populations we have inadvertently skewed many farm businesses, such as fruit growers and grain and vegetable producers. That does not count the many associated businesses that depend on fruit and vegetable production. Of course, that also doesn't take into account the people who depend on these businesses for their own food and survivability.



Honey Bee, *Asclipsis* species. © World Atlas.com

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We can use the words "c'est la vie," which in my mind doesn't help the situation that the world is in let alone this country. We can try to be proactive, by voting to protect the natural diversity of our planet. We also need to be proactive in preventing global warming and the many complications that will result

OBSERVATIONS

MAMMALS

Red Fox – 2 separate sightings of a single fox either running along the berm or sitting on South Pond berm.

Coywolf – calling howling at night

Weather Tidbits

Month of MAY 1-14, 2019

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

PRECIPITATION

Total Precipitation: 60.0 mm or 2.4 inches for two weeks.

Overcast Days: 9 9/14 = 64% of the first two weeks of May were overcast or raining.