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By Dick Harlow

El Nino & La Nina (El Nino-Southern Oscillation)

According to NOAA, "El Niño and La Niña are the warm and cool phases of a recurring climate pattern across the tropical Pacific—the El Niño-Southern Oscillation, or "ENSO" for short.

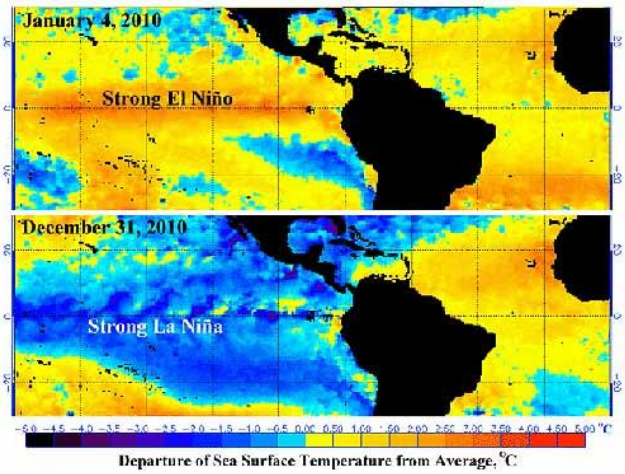
The pattern can shift back and forth irregularly every two to seven years, and each phase triggers predictable disruptions of temperature, precipitation, and winds.

These changes disrupt the large-scale air movements in the tropics, triggering a cascade of global side effects."

Can we simplify this and relate it to the East Coast and us here in Vermont?

Hurricanes will tend to be more abundant on the East Coast during a **La Niña** year whereas **El Niño** will see more cyclones and storms on the West Coast. And, if we use intensity of either an **El Niño** or a **La Niña**, then we can say that intensity will directly impact what happens on either coast. This year has been a good example of how the intensity of El Niño has brought large damaging wind and rainstorms to the west coast, along with catastrophic weather to the south and mid-section of this country. On the east coast fewer hurricanes and a warmer than usual winter.

Do we always have warm winters during an El Niño year? Not always, but certainly warmer than La Niña years; case in point, last year with the heavy snow and a very cold winter. This means that whatever is going on in the Pacific will either directly or indirectly affect us here on the east coast. We live on a planet whose weather interactions in one way or another will affect all of us.



Depature of sea surface temperature from average ^{0}C.

A single cold winter followed by a warm winter does not by itself mean that global climate is changing. If, on the other hand, we have major global disruptions of the weather combined with this phenomenon of El Niño and La Niña in the Pacific, plus the melting sea ice in the Arctic during February, then I believe we all should be concerned about a faster than normal global change in climate. As a matter of fact scientists have been aware of this

change in the Arctic, as well as melting world glaciers for years and have warned that we as a global community should be concerned.

As each of the Pacific events moderates we will see a moderate trend back to what weather forecasters consider normal for our area. However, those normal situations will become shorter and shorter, while the severity of what we don't want to experience will become more prominent.

We live in changing times, but to me interesting ones. My concern is with the wildlife - how will we share their habitat and will they adjust to our changing globe? What will our grandkids experience?

RED-WINGED BLACKBIRD

Red-winged Blackbird, *Agelaius phoeniceus*, displaying his epaulets

Individuals like this Red-winged Blackbird male have been displaying in our backyard since the end of February. At this time of year the male hormone testosterone has been increasing in concentration within their bloodstream causing them to be hyperactive in their

displays. We can anthropomorphize as to what they are thinking, but in reality their bodies are becoming acclimated to the demands for an extremely large amount of energy. Red-winged Blackbirds are polygynous, averaging three breeding mates and a known maximum of 15 mates for one male during the nesting season. But, the male that holds a particular territory may have females living in his territory that mated with a different male. This is called polygyny rather than polygamy. However, besides trying to entice a female into his territory, the dominant male needs to defend his territory; all this flying about, gesturing and defensive posturing requires him to be fit.

A few definitions: There are three types of sexual relationships among animals. Polygamy is where one male is mated with many females. Polygyny is a narrow form of Polygamy, where one male will accept more than one female, but may not have a sexual relationship with each one. Polyandry is the opposite of Polygamy where one female has a sexual relationship with many males.

Older Red-winged Blackbird males are the first ones back in the early spring. Breeding success for Red-winged Blackbirds, and for that matter most birds, is based on who has the best territory and the one who has been most successful in breeding, defending territory and raising young. Thus, it is believed that Red-winged males associate a particular habitat as being the most successful by watching other males when they were younger. Thus, they will try for that habitat as they become of age. A great deal of energy is expended during this time of acquiring mates and defending against other males trying to usurp their territory. Consequently, the female does most of the caring for the young.

Sexual dimorphism is seen in Red-winged Blackbirds where the female looks quite different from the male. The female is a brown striped bird like the picture below. She is quite cryptic and does the nest building. She will lay 3-5 eggs and incubate them for about 12 days. The young will leave about 2 weeks later. She can have 1 to 2 clutches a year depending on weather and predation. Both parents defend against predators.

You can see that having the color she does allows her to be quite camouflaged while incubating her eggs in a nest, either near the ground or in the cattails of a marsh.

Red-winged Blackbird female *Agelaius phoeniceus*,

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Blackbirds in general feed on seed, grass seed including millet and grain, and in the winter and early spring will visit bird feeders. Although blackbirds will take an insect or spider when the opportunity presents itself, they will persist on seed until breeding season.

However, during the breeding season insects become a major part of their diet. Insects provide the necessary protein, minerals and vitamins that their young need to survive.

HIDDEN IN PLAIN SIGHT

Hidden in plain sight © Sara Green

To hide from predators or to be a predator and to hide from your prey is a means of survival. Those animals that have that ability and use it wisely or use it the way their DNA intended will be successful. The picture above is a perfect example of hidden in plain sight. Can you find who it is? The answer will be in the next issue of Nature Notes.

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INSECTIVOROUS BIRDS

SWIFTS & SWALLOWS

Barn Swallow, *Hirundo rustica* © Lyn Topinka, 2008

The Barn Swallow is disappearing from Canada. Are we seeing fewer Barn Swallows then in the past? Anecdotally yes. Do Barn Swallows nest in just barns? No, they will nest under bridges, under eves, in old abandon buildings, sheds, run down farm buildings. There are still plenty of places for them to nest, especially here in the Northeast. But, there has been a drastic decrease in insectivorous swallows and swifts in my lifetime. Add to this the drastic decrease, by 98%, in Canada; one wonders what could be the reason for this decline?

Swifts and swallows all feed on flying insects. Yes, they feed on different types of flying insects, but what links them together is flying food. Ornithologists say that they catch insects on the wing. They do it differently, within different habitats, but they're catching them all on the wing.

Beetles have more calories as food than do mosquitoes. Therefore, a flying beetle would provide a better meal than a few mosquitoes. Swifts feed on flying beetles and Swallows feed on other types of flying insects.

The function of an insecticide/pesticide is to kill insects, to protect humans from disease and crops from insect damage. It is believed that the decline of swifts and swallows began with the use of DDT and DDE during WWII. The purpose of DDT was to stop Malaria and

disease to our troops during WWII, especially in the tropics as well as providing an insecticide to kill insects. DDT did this dramatically. It also negatively affected the growth and life of other animals to a deleterious affect. DDT was banned from Canada and the United States in 1972.

Because there were and are fewer beetles to feed on and there were and are fewer nutritional flying insects to feed on, swifts and swallows had to alter their diet, which forced the insectivorous birds into a less nutritious diet. This in turn created an energy void for these flying insect eaters. Since swifts and swallows were successful nesters before DDT, people would see adults and young swallows collect on telephone wires in the late summer and early fall. It is hard for people to see a decline in a species when the only comparison is between hundreds of thousands of swifts and swallows to now a decrease that is in the thousands. We might get the feeling that there are not as many as last year, but that would be just a passing thought. It wouldn't register as a real concern.

Yet, since 1972 to the present, scientists are waking up to the fact that swallows are not nesting in places where they used to nest. They are not being seen in the numbers that they used to be seen. And, what is unfortunate, since 1972 science has developed even stronger insecticides. I see many problems if we don't act together on sharing this planet with other cultures and the existing wildlife that inhabit it as well.

Do we have a guess as to what will be the first Butterfly seen on campus? Dependent on the weather, the likely possibilities are:

APRIL – 2nd WEEK ON –

MOURNING CLOAK
RED ADMIRAL

MAY – 1st WEEK ON –

SPRING AZURE
EASTERN COMMA
BLACK SWALLOWTAIL
TIGER SWALLOWTAIL
RED ADMIRAL
MEADOW FRITILLARY
EASTERN PINE ELFIN
NOTHERN CRESCENT
CLOUDED SULPHUR

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Weather Tidbits

April 1-14 2016

All Measurements taken at solar noon (1230 EST).

PRECIPITATION

Total Precipitation: 32.6 mm or 1.4 inches

Overcast Days: 8

WIND

Highest wind gust: April 3, 32 MPH, Direction: North

Average Wind speed for April 1-14: 1.0 mph,

Dominate Wind Direction: North

Days w/wind gusts 20-30 MPH: 8
Days w/wind gusts 30 MPH: 1

TEMPERATURE

Mean Temp: 2.0 C^0/35.6 ^0F
High Temp: 19.9 C^0/67.8 ^0F
Low Temp: -8.2 C^0/ 17.2 ^0F

DAYS OF:

Min. Temp. 0.0 C^0/32^0F: 8 days
Max. Temp.: 0.0 C^0/32^0F: 4 days