



The Wells Reserve: A Much-needed Breath of Fresh Air

by Faith Gillman

For Scott Richardson, every visit made to the Wells National Estuarine Research Reserve at Laudholm Farm provides a chance to discover something new.

“With seven miles of trails and hundreds of acres of varied habitats to explore, frequent visits can be truly rewarding,” said Richardson, who serves as communications director for the Reserve.

Headquartered at a restored saltwater farm in Wells, Maine, the Wells Reserve’s mission is threefold: to understand nature through exploration and educational programs for all ages; to conserve and protect the 2,250 acres of coastal habitats that comprise the Reserve and serve as a model for best management practices in conservation; and to engage in research that will ensure healthy salt marsh ecosystems by studying watersheds, estuaries and the coast.

The Reserve’s campus offers a mix of upland fields and forests, wetlands, salt marsh, swamps, intertidal and beach environments ripe for exploring, especially in the spring, as nature rouses from its winter slumber.

Spring at the Reserve also provides a perfect opportunity to “join the ranks of naturalists, scientists and careful observers like Gilbert White, Henry David Thoreau, and Nina Leopold Bradley in studying and keeping records of plant and animal life cycles (known as phenology),” said Caryn Beiter, the Reserve’s coordinator of School and Docent Programs.

Beiter provides programs, along with resources and information on the Reserve’s website – including a “seasons scavenger hunt” and “nature notebook” worksheet – for anyone interested in learning more. In her blog on the website, Beiter encourages naturalists of all ages to practice phenology by choosing a plant in their “yard, neighborhood or another favorite spot and visit it every week. Bring a magnifying lens and a notebook if you have them. Notice: Does your plant have flowers, newly emerged leaves or fruits? Record your observations, making sure to note the date, weather and anything else that calls your attention. In phenology, catching the “firsts” is vital. See if you can find the first flower, first leaf, first fruit, first appearance or first song while at your special spot.”

Beiter notes that phenology relates specifically to the timing of biological life cycle events in plants, animals and other organisms.

— continued on next page



Above: Flowering apple trees and lilacs let you know spring is in full swing and summer is just around the corner.

“Phenology originates from the Greek word *phainos*, meaning “to appear, to come into view” and *logos*, meaning “to study,” which provides a great description for what is often talked about as the science of ‘firsts’ – the first bud to burst, the first open flower, the first change in leaf color, the first warbler to arrive back in the spring,” said Beiter. “Projects like iNaturalist and Nature’s Notebook encourage each of us to spend time in and take a closer look at nature, while contributing to science.”

On the broader scale, data collected through phenology can be a valuable scientific resource on numerous levels. Changes in nature are “often cued by temperature, so the study of phenology is seen as a tool for monitoring the effects of climate change over the long term,” said Richardson.

According to Beiter, the data collected can also “help inform decisions in many sectors: climate change, natural resource management, public health – such as allergens – agriculture, energy and even tourism; think flowering cherry trees in Washington D.C.”

Beiter explains that biological life cycle activities, such as flowering and hibernation are often prompted by temperature and precipitation, along with daylength. As the climate changes, biological events may also change.

“Living organisms certainly adapt and evolve, but this takes time and often many generations. Evidence of rapid climate change can be found all over the globe, as well as right here in the Gulf of Maine. A changing climate can create asynchrony, in space and/or time, between species that interact or rely on each other,” said Beiter.

This ‘phenological mismatch’ could have local, regional and global consequences.

“An often-used example is that of the pied flycatcher that winters in Africa but migrates back to Europe to nest and raise its young in the spring. The bird is likely cued to start its journey back to Europe by day length but the oak trees and caterpillars that feed on the leaves are cued by temperature. The birds rely on these caterpillars to raise their young,” said Beiter. “A warmer spring means that the timing of the oaks and caterpillars is often earlier but the bird doesn’t get the memo and arrives too late, presenting a major challenge to raising young.”

— continued on next page



Clockwise from top left: This beautiful farmhouse setting overlooking fields and meadows serves as headquarters for the Wells National Estuarine Research Reserve Laudholm Farm; Blooming tulips make for a stunning display near the farmhouse; Skunk cabbage along the Laird Norton boardwalk at the Reserve loves spring weather. All photos courtesy of the Wells Reserve

Beiter presents a more local example.

“Comparing current data with that of Henry David Thoreau’s observations from the 1850s, has shown that canopy tree leaf out is more responsive to warmer spring temperatures than are the understory wildflower species. This has implications for the wildflower populations and in turn, the insects that interact with them.”

According to the article, “Phenological mismatch with trees reduces wildflower carbon budgets,” published in the April 2019 issue of *Ecology Letters*—a monthly peer-reviewed scientific journal—many wildflowers that reside on the ground (“understory”) in deciduous forests leaf out and flower in the spring when light availability is the highest before the trees above (“overstorey”) block the light.

“Therefore, different phenological responses by understory and overstorey species to increased spring temperature could have significant ecological implications. Pairing contemporary data with historical observations by Henry David Thoreau, we found that overstorey tree leaf out is more responsive to increased spring temperature than understory wildflower phenology, resulting in shorter periods of high light in the understory before wildflowers are shaded by tree canopies. Because of this overstorey–understory mismatch, we estimate that wildflower spring carbon budgets in the northeastern United States were 12–26 percent larger during Thoreau’s era and project a 10–48 percent reduction during this century. This underappreciated phenomenon may have already reduced wildflower fitness and could lead to future population declines in these ecologically important species.”

In terms of climate change, current observations hold the greatest significance in the context of historical observations which can “create baselines from which comparison can be made,” said Beiter. “Phenological observations made by researchers and citizen scientists can be merged with things like historical frost or ice out dates or melt of land glaciers to create a deeper story of how things are changing.”

Both Beiter and Richardson encourage everyone to visit the Reserve, whether it’s to practice phenology

— continued on next page

WELLS RESERVE PROGRAMS

Morning Yoga: Tuesday mornings from 8-9:15 AM beginning May 4 and running through June (via Zoom until it is safe to hold indoors).

Summer Solstice Yoga: One morning in late June. TBD

Earth Day: Take a walk and view inspirational quotes from around the world, posted on campus and on trails, that highlight Nature and Mother Earth.

Story Walk on the Saw-Whet Owl Trail: These walks are held in April, May and June.

ReVision Energy’s “Save the Planet with Sunsquatch” Story Walk: Featuring the importance of solar energy, this will be installed on the Reserve’s Barrier Beach Trail in June.

Monthly “Lunch & Learn” Speakers (noontime lectures on a variety of topics) and monthly Climate Stewards Speakers (noontime in April, and in the evening in May and June, focused on climate change topics), on Zoom or indoors, as conditions permit.

Kayaking on the Little River Estuary: Resumes in late June.

Summer camps begin the last week of June.

Nature Journaling with Suzanne Kahn: Date/time TBD

Docent-led Nature Walks, Laudholm’s Farming Past, Secrets of the Salt Marsh, and Explore the Shore: These trail-based programs will resume in late June.

“Meet the Scientist” programs: Held in the summer months.

FMI: The Wells Reserve is located at 342 Laudholm Farm Road, Wells. For more information, see www.wellsreserve.org/visit/helpful-info or call 207-646-1555. Trails are open from 7 AM to sunset. For more information on phenology and focused programs at the Wells Reserve, contact Caryn Beiter at cbeiter@wellsnerr.org or 207-646-1555 ext 110.

Online phenology resources:

www.wellsreserve.org/blog/keeping-natures-calendar

www.usanpn.org/natures_notebook

<https://budburst.org/>

www.usanpn.org/about/why-phenology

or just to take a walk and be out in nature. And while the Covid pandemic has created programming challenges at the Wells Reserve, Richardson reports many new visitors in 2020 as “people broadened their search for places to get outdoors for exercise.”

“Last spring, summer, and fall required visitors, along with our staff and volunteers, to adapt to circumstance and adopt new routines. With extra effort by everyone, things went well,” said Richardson. “This year, we are better prepared from the start so we are optimistic. We have also joined the “Look Out for ME” campaign by the Maine Office of Tourism to promote responsible recreation.”

Wells Reserve Education Director Suzanne Kahn said that while the Reserve is “largely taking things one month at a time these days due to the pandemic’s uncertainties,” there are a wide variety of programs available this spring and summer, with more to come as conditions improve. Kahn encourages everyone to check the Reserve’s website for updates.

“We will begin a new Morning Yoga series on Tuesday, May 4. It will run through June, Tuesday mornings from 8-9:15 AM, held virtually on Zoom until it is safe to hold it indoors at the Reserve’s auditorium again,” said Kahn. “We will also have a Summer Solstice yoga class one morning in late June, and for Earth Day, we will post inspirational quotes from around the world on our campus and trails that highlight Nature and Mother Earth.”

So, grab your notebook, binoculars and magnifying glass, put on your walking shoes and explore all the Wells Reserve has to offer. It’s a breath of fresh air everyone could use.



51 Western Ave, Kennebunk, ME 04043
kennebunkoutfitters.com

