

Nashoba Conservation Trust Spring 2022 News

Conservation Corner

Ken Hartlage

Throughout its five-plus decades of conservation work, NCT members and directors have generously shared their expertise and experience with the community. Whether it was Herbert and Lorna Levi identifying spiders or Pat Swain Rice educating us on plant communities, our understanding of the land we inhabit is all the better for their efforts. In this newsletter, we highlight two additional contributions to that body of knowledge from NCT's current board members.

Many of you will know Michael Veit, who enthusiastically leads our annual Breakfast with the Birds walk at Heald Orchard. But did you know that Michael is also a recognized authority on bees? Indeed, he and several colleagues recently published "A Checklist of the Bees of Massachusetts", which documents the presence of some 390 different species in Massachusetts, including rare species found right here in Pepperell. You can read more about the study and its findings in Michael's article in this newsletter.

In addition to managing our financial records, NCT Treasurer Patty Franklin is also an avid birder. As part of Mass Audubon's Birder Certificate Program, Patty conducted a year-long bird survey at the Keyes-Parker Conservation Area, documenting 80 species. Due to its varied habitats of upland forest, field, stream and wetland, Keyes-Parker is a good place to evaluate biodiversity in Pepperell. It's also the site of a project to restore stream connectivity in Sucker Brook and another to replace invasive plants species with native plants. Patty's survey contributes to our knowledge of the area and provides a baseline for monitoring the impact of these projects on bird diversity. You can read more about the survey in Patty's article in this newsletter.

The articles and accompanying papers remind us of the importance of protecting our remaining natural spaces and restoring those that have become degraded. There are also many opportunities within our community to create new natural spaces within our own yards. Everyone can make a difference and NCT is available to help. If you are interested in contributing to these efforts or tackling a project on your own, and want information on how to get started, please email us at contact@nashobatrust.org.

B is for Birds

Paula Terrasi

A collaborative effort of four entities joined together as part of the Freedom's Way National Heritage Area's May events to sponsor "B is for Birds." The day began with breakfast and a 6:30 AM bird walk at the Heald Street Orchard sponsored by the Pepperell Conservation Commission and the Nashoba Conservation Trust.

With the threat of rain, a determined group of over 25 people joined local bird expert Michael Veit for a walk through the Heald Street Orchard to enjoy the start of the spring migration. The day began with the opportunity to enjoy coffee, donuts, muffins, and bagels donated by Dunkin Donuts.

Thank you, Dunkin Donuts! Stories were shared of various bird species who had passed through



the Orchard from those who had been staking out the Orchard for weeks. Using information from weather radar, many of the migrating birds were stalled in Connecticut but changing weather patterns would mean additional opportunities to witness an increase in the species moving towards Pepperell in a day or two. Some of the over 25 bird species enjoyed included Baltimore Orioles, Rose-breasted Grosbeaks, Indigo Buntings, Eastern Bluebirds, Wood Thrush, Hummingbirds, Common Yellowthroat, and Blue-winged Warblers. Our thanks to Michael Veit for his knowledge and willingness to share his expertise in identifying birds by flight pattern, sight, and sound and for providing helpful hints to identify bird species and their calls.



common yellowthroat

The walk was followed by a 10:30 AM brunch at the Lawrence Library, which included an opportunity to enjoy the Shattuck Bird Collection and several fun bird-themed activities sponsored by the Lawrence Library and the Invasive and Native Plant Advisory Committee (INPAC). INPAC also developed and distributed a free "Gardening for Birds" handout to library patrons.

Rock Talk

Bob Cataldo

Rock outcrops typically don't talk to the average person; however, if you spend some time with them, they might give you some insight as to why they look like they do and how they came to be. One such outcrop is located on the left (east) side of Nashua River Rail Trail about 2/3 of a mile south of Railroad Square in Pepperell, Massachusetts (Figure 1). Run your eyes over the rock wall, and you will easily notice the breaks and layers that change orientation over very small distances, speaking to its rather "tortured" past (Photo 1). It is unusual for such a relatively small outcrop to show so many bends, breaks and directional changes.



figure 1: location of outcrop



Photo 1: Rock outcrop looking north

So, what's behind this unique-looking rock formation?

This outcrop is part of the Berwick Formation, a grayish-black colored rock that is made up of metamorphosed (squeezed) sands and silts, which are about 430 million years old. Geologically speaking, this outcrop underwent significant change while spending millions of years several miles underground. While buried, pressure and heat caused the rocks to harden, bend, break and shift such that layers of different ages were juxtaposed to what we see now. Finally, this assemblage of rocks was pushed to the surface, scoured by more than a mile of ice, and finally exposed when the railroad decided to create the track line through Pepperell.

Starting from the southern (Groton) end of the outcrop, you will notice relatively horizontal layers that quickly bend up and then abruptly end against layers that are almost vertical in orientation. If you

Rock Talk continued....

Bob Cataldo

look closely at the intersection, you can make out the fault line (zone of movement) where the two rock types came together (Photo 2). Looking up, you will notice that this vertical section starts rolling over to the left and abruptly changes to a slightly different rock type at a different orientation.

Looking north to the middle of the outcrop, the rock continues to flow and change orientation, as if it were bending under extreme pressure, which it did (Photo 3). Continuing to the left, the rock curves



Photo 2: Note the rock orientation lines in **RED** and the Fault Lines in **Blue Dashes**.

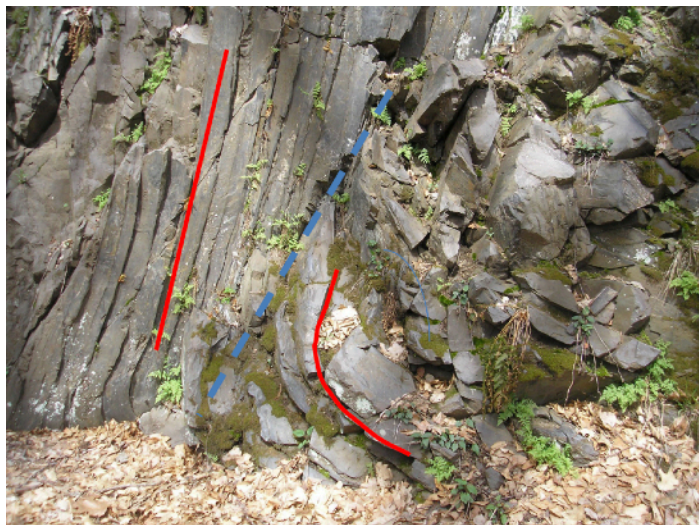
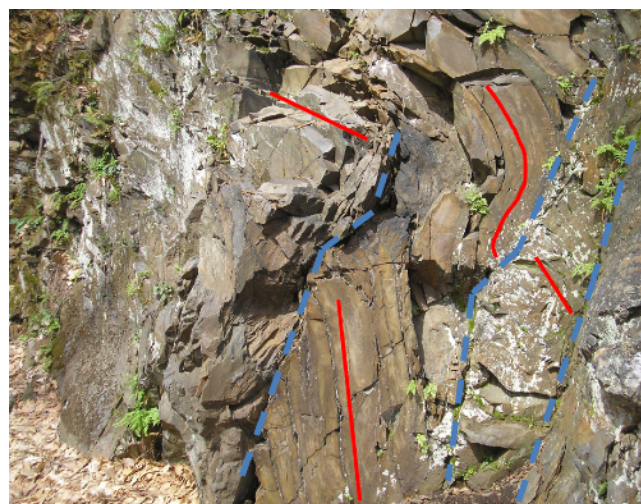


Photo 3: Center of outcrop. Note the rock orientation lines in **RED** and the Fault Line in **Blue Dashes**.

You can follow the fault up the face of the rock and pick out the small changes; breaks and lines that identify where different rock types were thrust together.

On the far left where the outcrop comes to an end, you can easily make out small curves, breaks, layer changes, color changes, and orientation changes (Photo 4). Pretty much everywhere you look, something different is happening.



Hopefully, you will get a chance to stroll by this part of the Rail Trail and take some time to ponder the story of how much pressure, energy and movement was involved in the creation of what we are fortunate to witness today. I guarantee that each time you look at this outcrop you will find some additional features and items of interest. Happy rocking.

Bee Diversity in the Commonwealth

Michael Veit

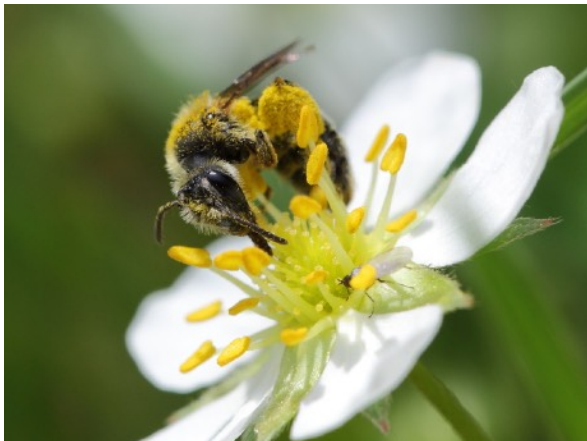
Earlier this spring I was fortunate to have published a paper on the bees of Massachusetts along with several esteemed colleagues. In our paper we document 390 species of bees confirmed to occur in Massachusetts, a greater diversity of bees than currently known from any New England state. This large number is probably surprising to most individuals. The diversity of body structure, size, and behavior is remarkable and includes bees that are pollen generalists, as well as those that specialize on collecting pollen from only particular native wildflowers, such as Trout Lily, Wild Geranium, Golden Alexanders, and Yellow



Loosestrife. Some people might be surprised to learn that within our bee fauna are numerous species, known as cleptoparasites, which, rather than collect their own pollen, exploit the pollen stores of other bee species by stealthily laying their eggs in their nests. The cleptoparasite larva then kills a host bee's egg or larva and consumes its provisions.

Our paper* includes the first published county-level checklist of Massachusetts bees. Interestingly, Middlesex County has more recorded bee species (307) than any of the other thirteen Massachusetts counties. In fact, our own town of Pepperell is the location of many of these records. However, despite these impressive numbers, bee populations are under pressure. Indeed, three bee species have recently been included on the Massachusetts State List of Endangered, Threatened, and Special

Concern species and one additional species from Massachusetts is Federally Endangered. Threats to bees in Massachusetts are numerous and include pathogen spillover from exotic species (there are 16 known from our state), competition from exotic bee species, loss of forest understory plants due to deer browse, loss of grassland and shrubland from fire suppression and forest succession, misuse of pesticides, landscape fragmentation, spread of invasive plants, and climate change.



I plan to give a talk and slide show on the fascinating lives of bees, their diversity, life histories, and conservation at the Lawrence Library, date and time to be announced.

Bird Survey of Keyes-Parker Conservation Area

Patty Franklin

Last year I completed the Birder's Certificate Program (BCP) at Mass Audubon, which was equivalent to an undergraduate level course in ornithology. The assignments included an independent study. I wanted to do bird surveys at a local conservation area. I decided on Keyes-Parker CA and Sucker Brook Wildlife Conservation Easement particularly because I knew that the dam located at Keyes-Parker CA was scheduled for removal in the fall of 2021. I thought my bird survey would provide documentation of the bird population before the dam removal since I would submit checklists into eBird after every field visit. I made field visits for one year beginning in November 2020.



Barred Owl

The Keyes-Parker Conservation Area has diverse habitats consisting of 70 acres of open fields, woodlands, a pond (prior to dam removal), wetlands, and a vernal pool. This conservation area protects Sucker Brook, a cold-water stream that is an important tributary of the Nissitissit River, one of the highest quality rivers in eastern Massachusetts. It's also a birding hotspot in Pepperell and has become one of my favorite conservation areas to visit.

During my year-long surveys, I observed 80 species of birds including 30 species, which were present all four seasons. Permanent residents included Red-tailed Hawks, Barred Owls, Pileated Woodpeckers, Black-capped Chickadees, Eastern Bluebirds and Cedar Waxwings. Some bird species such as Common Nighthawks, Solitary Sandpipers, Cliff Swallows, Rusty Blackbirds, and Palm Warblers were seen only during Spring or Fall Migration. They stopped for food or shelter as they migrated to either their breeding or wintering territories. In addition to the permanent residents, I observed 31 bird species during breeding season (spring to fall).



American Robin

Bird Survey of Keyes-Parker Conservation Area *continued*

Patty Franklin

In early spring, I welcomed the return of the male Red-winged Blackbirds demonstrating territorial behavior, calling incessantly before the females arrived. Once the females arrived, I saw signs of many pairs nesting in the reeds. Baltimore Orioles nested in a tree on the access road. A pair of Brown Creepers were nesting in a tree near the stone dam which has now been removed. Belted Kingfishers were nesting near the shallow pond created by the former dam. Ovenbirds and Wood Thrushes were nesting in the white pine and hemlock forest. A female Hooded Merganser was observed with her ducklings just beyond the culvert in the wetlands. Northern Mockingbirds were nesting near the brook. Eastern Bluebirds and Tree Swallows were nesting in the bluebird boxes scattered throughout the fields. Eastern Kingbirds were nesting in a tree on the edge of the wetlands. Several pairs of Northern Cardinals and Gray Catbirds were nesting in thick bushes along Sucker Brook.

If you haven't visited Keyes-Parker Conservation Area, I highly recommend it, as a beautiful site to experience the peace and tranquility of nature. There is a well-marked trail, which loops around the property through various habitats. There is also another trail which winds around the brook as you leave the Keyes-Parker CA and enter state conservation land. It's quite lovely walking along the brook.

If you would like more information about my bird survey, my report can be downloaded from the NCT website at <https://nashobatrust.org/papers.html>

NCT Receives Monarch Waystation Certificate

Ken Hartlage

Pepperell's Invasive & Native Plant Advisory Committee (INPAC) applied for and was granted certification of four gardens in town that are now Monarch Waystations. The certificates, awarded by Monarch Watch, recognizes sites that provide host plants for larvae and energy sources for adults applies to all monarch and butterfly populations around the world. The pollinator meadow at NCT's Seminatore Woods conservation area, was one of four places in Pepperell recognized as way stations.

The other sites are:

Town Hall garden-Pepperell Garden Club

Pocket pollinator garden - Friends of the Lawrence Library Gardeners

Peter Fitz native plant garden - Fitz Collaborative



Photo: (L to R) NCT Board Members Linn Clark and Ken Hartlage, and INPAC Chair Deb Fountain

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