



Missisquoi Matters

is the quarterly newsletter of the Friends of Missisquoi National Wildlife Refuge, Inc., a non-profit 501(c)(3) organization, dedicated to promoting a better awareness, appreciation, conservation, and responsible utilization of the Missisquoi National Wildlife Refuge.

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(802) 868-4781 ext 121

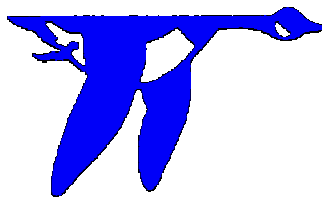
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Newsletter edited by Ken Copenhaver

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MNWR Visitor Center hours
are Monday thru Friday
8:00am – 4:30pm

Manager's Update – May 2017

by Ken Sturm, Refuge Manager, Missisquoi NWR

It seems like I always get a bit antsy this time of year. Restless, fidgety, impatient, and eager; all good definitions of antsy and pretty much what I feel as we move out of winter and into spring. In northern Vermont it seems this is a give-and-take process where Mother Nature provides sure signs of spring like the first spring beauties in the woods or the first Great Blue Herons which show up on the refuge. But then as fickle as Mother Nature can be, we dip back into colder, wetter, and grayer weather for longer than most of us want to think about.

Nonetheless, the great thing about spring is that it DOES eventually come. If you are a student of nature and take the time to look and listen to the world around you, it is one of the most exciting times of the year. Ice breaks up and soon wood frogs are calling and spotted salamanders are making their way to vernal pools to breed. The buds on trees swell and suddenly, with a few warm days, burst into minute flowers and new sets of leaves. In particular I get eager to see the spring wildflowers – so ephemeral that if you aren't paying attention they will be just part of the forest greenery in a few weeks.

But perhaps the sweetest part of spring (other than tasting new maple syrup!) is the return of the songbirds. Each year I eagerly anticipate the first Yellow Warbler or Baltimore Oriole to appear. The presence of many birds, warblers in particular, is always something to appreciate after many months of grey landscapes and quiet forests. During the first few weeks of May, Vermont is host to so many incredibly beautiful songbirds, some who stick around to raise young and others who are simply passing through. One of the things we can do as birders or observers of nature is to talk about these incredible inhabitants of our wetlands, woodlands, and grasslands. So many people do not take the time to see many of these smaller birds, and I would challenge anyone not to be awed by the contrasting colors of an American Redstart or the bright red of a Scarlet Tanager! Helping others appreciate wildlife and wild places is important, now perhaps more than ever.

And it is with anticipation that we all here at the refuge look forward to our busy season at Missisquoi National Wildlife Refuge. With the warming weather and returning birds, much work again needs to be accomplished. If you visit the refuge this spring and early summer, you will undoubtedly see signs of our activity: in the trails being maintained, new kiosks installed, boats being launched with buoys, and biologists at work. I hope that everyone reading this newsletter will come and take a walk on a refuge trail or canoe down the Missisquoi River at least a few times this spring. Take in all that spring has to offer and see the amazing wealth of wildlife Missisquoi NWR protects and manages. See it before it's gone. And bring a friend too.

Field of Dreams

by Judy Sefchick Edwards, Wildlife Biologist, Missisquoi NWR

“If you build it, they will come,” or at least, that’s what we’re hoping! This winter, the Friends of Missisquoi National Wildlife Refuge generously purchased a luxury condominium of sorts, for very special, but selective, tenants. Not just any old dwelling would do—these occupants fancy housing with a white exterior and large interior, that’s close to human habitation. But that’s not all. Being part of an extensive social circle means they insist on living in a “good neighborhood,” so others of their liking (not just any old riff-raff) will move in too!

Why all the fuss for these finicky feathered friends? The close relationship of purple martins with humans distinguishes them from nearly all other birds on the continent. It may come as a surprise, but martins in *eastern* North America are completely dependent on human beings for nest sites. Historically, they nested in woodpecker holes and cliff crevices, like any self-respecting birds would do. But once Native Americans hung hollow gourds, it was the beginning of the end of their nesting independence! In 1831, John James Audubon noted that almost every tavern had a martin box placed on top of its sign, and by 1900, the conversion to human-made houses was complete. Interestingly, purple martins have different nesting strategies depending on whether they’re easterners or westerners. Although fewer

martins live in the wild, wild North American west, the birds there have retained their pioneering spirit.

Instead of cushy nest boxes, these self-respecting “cowboys of the martin world” still prefer to nest in woodpecker holes and natural cavities.

Unfortunately, the human-martin connection is only part of the story. In the northern part of their breeding range, purple martins have experienced population declines for nearly forty years. Vermont’s Breeding Bird Atlas indicates that the state’s overall nesting population decreased 62% from 1980-2006. Even the Champlain Valley--the state’s “hub” for martin nesting—showed decreases

of 56% during this timeframe. With this downward spiral, it’s no wonder that purple martins are listed as a Vermont Species of Greatest Conservation Need. Sadly, our state isn’t alone. Decreasing populations of martins are found throughout the northeast.

Since most purple martin nesting in Vermont occurs within six miles of Lake Champlain, the field near Missisquoi’s Headquarters seems to have the potential to become a martin’s Field of Dreams. So we built it, hoping they would come. Stay tuned—with a bit of luck, we may be able to tell the rest of the story soon....



Special Thanks to the Friends of Missisquoi NWR for purchasing this martin house



Summer Activities Schedule at Missisquoi National Wildlife Refuge

29 Tabor Rd.
Swanton, VT 05488

All programs and tours are free, but registration is required where noted.

Kids Fishing Clinic

Saturday, June 3, 8:00 AM to approx 1:00 PM

The annual Kids Fishing Clinic will take place along the Macs Bend Road from Louie's Landing parking lot down to the Mac's Bend boat launch site, a distance of about 1 mile. Fishing will occur along the banks of the Missisquoi River. Numerous educational and informational venues will be operating near the Mac's Bend Building while the fishing is on-going. These include fly casting, fly tying, spincasting, watershed models, and demonstrations, a fish ID aquarium, lure making, and an aquatic invasive species display. Children are encouraged to participate in these activities at some time while they are fishing. A light lunch will be served, and a limited number of random drawing prizes will be given away at the end of the event.

Please call 802-868-4781 to register for this popular annual event.

Junior Waterfowl Hunter Training Program

Saturday, August 19, 8:00am to 4:30pm

The Missisquoi National Wildlife Refuge Junior Waterfowl Hunter Training Program is being offered to young hunters who want to learn more about the sport of waterfowl hunting and experience a high quality waterfowl hunt. The program is offered to youngsters 12 to 17 years of age who have an adult waterfowl hunter to serve as a mentor. Instruction begins at 8:00 AM at the Franklin County Sportsman's Club on Route 36 (Maquam Shore Road) in St. Albans.

The program instructs beginning hunters in the knowledge and skills necessary to become responsible, respected individuals who strive to learn all they can about the species being hunted and to become knowledgeable in firearms safety, hunter ethics, and wildlife conservation.

Upon completion of the training, Junior Hunters and their mentors are awarded exclusive use of several premier hunting areas at Missisquoi National Wildlife Refuge for the first four weekends of the waterfowl hunting season, however, only the Junior Hunter may shoot. Blind sites and hunting dates for the Jr. Hunters are determined by a lottery conducted at the annual training session.

To register for this year's program, or request additional information, call refuge headquarters at 802-868-4781. For registration, please include the mentor's name, the youth's name and age, address, and telephone number.

2017 "Art On the Refuge" Exhibit

May 19 through July 21

The Friends of MNWR are hosting an Art Exhibit again this year at the Refuge Visitor Center, 29 Tabor Road, Swanton, VT. The exhibit opened on May 19 and will continue through July 21, 2017.

Works will be focused on birds found on the refuge and any subject related to bird migration, nesting, etc. Media may include oil, acrylics, watercolor, pen and ink, pastels, photographs, and fabric-related works. Most works will be for sale.

Artwork can also be viewed and purchased during normal refuge office hours through July 21, Monday to Friday, from 8:00 AM to 4:30 PM.

Monthly Nature/Photography Walks 1st Saturday of each month, 9:00 to 11:00 AM

Join Friends of Missisquoi NWR members Joe Belanger and Bob Chaperon for nature/photography walks on various refuge trails, held the first Saturday of each month. Registration is not required. The schedule for the next three months is:

- June 3: Stephen Young Marsh Trail.** Meet at the parking lot on Tabor Rd, about a mile past the refuge Visitor Center and across the road from the marsh.
- July 1: Maquam/Black Creek Trail.** Meet at the parking lot located on Rte 78 approx. 2 ½ miles west of Swanton village.
- August 5: Railroad Trail.** Meet at the parking lot on Tabor Rd, about a mile past the refuge Visitor Center and across the road from the marsh.

Monthly Bird Monitoring Walks 3rd Saturday of each month, 8:00 to 10:00 AM

Friends of MNWR members Ken Copenhaver and Julie Filiberti will lead bird monitoring walks year-round on various refuge trails on the third Saturday of each month. The purpose of the walks is to gather long-term data on the presence of birds, their abundance, and changes in populations. Observations are entered into the Vermont eBird database where data is stored by the Cornell Lab of Ornithology and the National Audubon Society. These walks are appropriate for birders of all skill levels and provide a wonderful opportunity to learn about birds throughout the seasons. **After 85 months of walks we have recorded 145 species of birds.** Registration for the walks is not required. The schedule for the next three months is:

- June 17: Railroad Trail.** Meet at the parking lot on Tabor Rd, about a mile past the refuge Visitor Center and across the road from the marsh.
- July 15: Maquam/Black Creek Trail.** Meet at the parking lot located on Rte 78 approx. 2 ½ miles west of Swanton village.
- August 19: Jeep Trail.** Meet at the Louie's Landing parking lot on Rte 78 approx. 3 ½ miles west of Swanton. We will meet at the gate and drive in to the trail head at Mac's Bend.

Other Summer events will be posted on the Friends website as soon as dates are known.

To check for any schedule changes or additions, visit the Friends website at

www.friendsofmissisquoi.org and click on "Calendar."

For more information about the refuge, visit www.fws.gov/refuge/missisquoi/

Also check out the Friends Facebook page at <https://www.facebook.com/friendsofmissisquoi> to learn more about the refuge and coming events.

You can also look at, comment on, and share your own photos.

You do not need to have a Facebook account to view the page.



How does the American Woodcock do that?

Used with permission from an article by Casey Rucker, Friends of the 500th, Canaan Valley NWR

The American Woodcock is an unusual bird in many ways. It is a shorebird that has taken to the forest, a skulker that engages in spectacular aerial displays, and one of our most startling birds to stumble across, as it rockets away from practically underfoot.

The most amazing characteristic of the woodcock, however, may be its prehensile bill. It is a standard bit of bird lore that the woodcock can use the tip of its bill to probe in the mud for earthworms, insects and other delectables, and then grab and swallow them. It occurred to me to wonder, how does the woodcock do that?

The starting point of my inquiry is the structure of a bird's bill. If you have seen a bird's skeleton, you will remember that the skull extends out to the tip of the bill. So the bill has living tissue at its core. In living birds, the bone of the bill is covered in plates called "rhamphotheca" and made of keratin, which consists of fibrous structural proteins and is the primary ingredient in our hair, fingernails, and outer skin. The upper part of the bill is called the "maxilla" and the lower part the "mandible."

Unlike those of mammals, the bones that compose a bird's maxilla can actually move relative to the bird's skull, without an actual joint between them. Ancient in origin, this movement of head bones is called "cranial kinesis," and is also found in some fish, lizards, and dinosaurs. Surprisingly to me, almost all modern birds have a kinetic skull. The mechanisms and evolutionary functions of cranial kinesis have been studied for more than a century, yet the subject still harbors many mysteries.

The American Woodcock turns out to be one of many shorebird species that have the ability to raise the tip of their upper bill independently of the base. The name given to this mechanism is "distal rynchokinesis," which helpfully means "moving the bill (or snout) at the tip" in Ancient Greek.



The maxilla of a distally rynchokinetic bird makes use of four thin and flexible areas of bone on the bill, referred to as hinges since they do not amount to actual joints between bones. The upper bill is composed of a number of bones, but essentially there are a top layer of bone and a bottom layer, with room in between them for the bird's nostrils, that join near the tip of the bill, and a number of pairs of rib bones connecting the two layers. The hinges are located near the base of the maxilla at its top, and about two-thirds of the way down the length of the bill, past the nasal openings; on the upper and lower side of the maxilla, and where the rib bone pair nearest the base of

the bill connects with the bird's skull. Muscles in the bill extend the bottom layer of bone relative to the top layer, forcing the tip of the maxilla to pivot on the hinges and so go up in relation to the mandible.

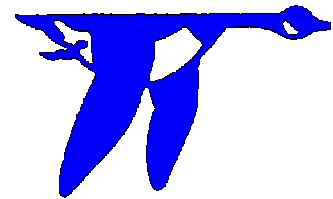
With the help of a rough-surfaced tongue and mandible, the woodcock uses the tip of its maxilla to grasp and transport prey into the bird's mouth. The tip has a concentration of blood vessels and nerves that may also aid in sensing below-ground vibrations. It has also been suggested that the ability to vary the distance between the maxilla's tip and the mandible helps a bird to exploit various sizes of prey in the earth or suspended in water.

For tens of millions of years, woodcocks have flexed their maxillae to grasp and swallow worms. An architectural structure of nerves, muscles, and bone produces the ability to flex the tip of the bill to probe, strike, and swallow. Yet the lineage of this adaptation, the mechanics of its operation, and its evolutionary purpose are all still incompletely understood. One mystery leads to many others, as so often happens when I look a little deeper into the wondrous complexity of life.

A Beginner's Guide to the National Wildlife Refuge System

Adapted from the U.S. Fish & Wildlife Service Website: <https://www.fws.gov/refuges/features/beginners-guide.html>

- The National Wildlife Refuge System conserves land and water for the benefit of fish, wildlife, plants and all Americans. Think clean water, clean air, abundant wildlife and world-class recreation.
- The Refuge System, part of the [U.S. Fish and Wildlife Service](#), includes 565 national wildlife refuges from the Caribbean to the Pacific, Maine to Alaska.
- The Refuge System also includes 38 wetland management districts, most of them in the Prairie Pothole Region of the upper Midwest. Wetland management districts have been called "[jewels on the prairie.](#)"
- And the Refuge System includes four marine national monuments in the Pacific: [Papahānaumokuākea](#), [Pacific Remote Islands](#), [Rose Atoll](#) and [Mariana Trench](#).
- President Theodore Roosevelt [established the Refuge System](#) in 1903 at what is now [Pelican Island National Wildlife Refuge](#) in Florida.
- The [Blue Goose](#), originated by cartoonist J.N. "Ding" Darling, is the symbol of the Refuge System. [Rachel Carson](#), author of "Silent Spring" and former U.S. Fish and Wildlife Service biologist, said: "Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization."
- National wildlife refuges provide important habitat for more than 380 threatened or [endangered species](#). Many refuges also conserve [Congressionally designated wilderness](#) and a range of historical and [cultural resources](#).
- National wildlife refuges conserve habitat for fish, wildlife and plants. But refuges are for people, too. On hundreds of wildlife refuges, you can [fish](#), [hunt](#), [hike a trail](#), [photograph wildlife](#) and enjoy environmental education programs. There is at least one national wildlife refuge in each state and territory.
- People who live in some of America's biggest cities are learning about the Refuge System via the [Urban Wildlife Conservation Program](#) and 17 [Urban Wildlife Refuge Partnerships](#). Join us on [Facebook](#), [Twitter](#), [Flickr](#) and [YouTube](#).
- You can learn about fish, wildlife and the Refuge System by [volunteering](#), joining a [Friends](#) organization or getting involved with [our numerous conservation partners](#).
- And you can learn about the Refuge System by [visiting](#) in person. "Being able to get out on the refuge calms my heart, restores my soul and helps me put things back into perspective."



FRIENDS OF MISSISQUOI NATIONAL WILDLIFE REFUGE

Bi-monthly Board Meeting

Wednesday, July 12, 2017 at 6:30 pm

At the Refuge Visitor Center

Members are always welcome to attend. Come and see what the board is planning and contribute your ideas.

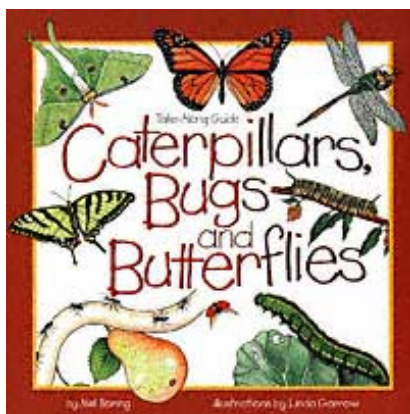
Next meeting: Wednesday, September 13, 2017 at 6:30 pm

The Friends' Store

at the Missisquoi National Wildlife Refuge

BOOKS GAMES GIFTS TEE SHIRTS HATS

for people of all ages who love the outdoors



Take-Along Guide: Caterpillars, Bugs and Butterflies

Mel Boring

Illustrated by Linda Garrow

\$ 7.95, paper

48 pages, 8 1/2 x 8 1/2
full-color illustrations

Ages 8–12

Each book has descriptive text and color illustrations to aid in identification. Basic natural history information is also provided. Blank pages are included to use as a scrapbook of notes and drawings.

Peterson Field Guide to Insects

Donald J. Borror & Richard E. White

\$ 19.00, paper

404 pages, 4 1/2 x 7 1/4
full-color illustrations, b&w illustrations

The insects of America north of Mexico are detailed with descriptions of insect orders, 579 families and many individual species. Size lines on the illustrations show you at a glance the actual length of each insect. Also included is a glossary and text that explains the technical terms for insect anatomy.



The Bug Book & Bug Bottle

How to Catch, Identify, and Care for Insects and Other Creepy Crawlies

An Illustrated Field Guide & Activity Book

Hugh Danks, Ph.D.

\$ 18.95, boxed kit

bottle: 5 1/2 x 5 1/4 x 2 1/2
book: 110 pages, 5 x 4 1/2, full-color illustrations includes magnifier, bug chart, bug journal, ages 8 and up

The ingeniously designed, safe plastic bottle is perfect for catching and viewing creepy crawlies, then letting them go unharmed. (This is a bug kit with a conscience!) The full-color book provides field notes to 46 bugs arranged by habitat, including pond, forest, ground, leaves, field, flower. Written by entomologist Hugh Danks, *The Bug Book* gives comprehensive information about these fascinating creatures—how they live, what they eat, unusual characteristics, and more. It offers simple, clear guidelines on how to collect and care for bugs, and equally helpful hints on which bugs not to catch. Includes a fold-out bug chart for quick identification, a magnifier to see the critters up close, and a bug explorer's journal to record discoveries.