



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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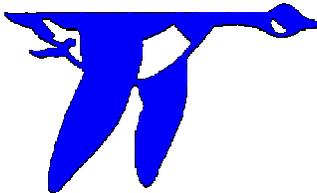
www.friendsofmissisquoi.org

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Newsletter edited by Ken Copenhaver

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MNWR HQ hours are
Monday thru Friday
8:00am – 4:30pm
Saturdays
10:00 am – 2:00 pm

Manager's Update – November 2014

by Ken Sturm, Refuge Manager, Missisquoi NWR

The leaves are down and the field season is wrapping up. This is the time of year the refuge spends looking back at what was accomplished and begins looking ahead to next year's projects. The refuge had a productive year in many ways – finishing the cultural resources protection project at the Dead Creek/Missisquoi River junction, successfully applying for and being designated a Ramsar Wetland of International Importance, providing outreach and educational opportunities for hundreds of area school children and college students, and of course taking care of the habitats and wildlife the refuge was established for.

Speaking of taking care of habitats and wildlife, many of you have surely noticed that the refuge has cut patches of trees at the Stephen J. Young Marsh this fall. Approximately 3.6 acres were cut this year to set back successional growth of young trees to maintain high quality habitat for early successional ("young forest") wildlife species. Cutting these trees will allow root sprouts and dormant seeds to regrow forming a dense young forest and shrubland.

So why is it important for the refuge to do this? Over the past 50 years, Vermont and other New England states have seen a drastic decline in early successional forest habitat as forests mature, development continues, and other changes in land use occur. In the process, wildlife populations that depend on young forests for food and cover are declining as well.

Birds that depend on young forests and shrublands are especially at risk in the northeast. In New England and the Mid-Atlantic, two-thirds of these bird species experienced significant population declines between 1966 and 2010. Providing and maintaining this habitat will benefit bird species such as: American Woodcock, Rusty Blackbird, Black-billed Cuckoo, Brown Thrasher, Hermit Thrush, Gray Catbird, Ruffed Grouse, White-throated Sparrow, Chestnut-sided Warbler, and many others that use early-successional habitat for some or all of their life stages. In addition, a variety of other species, including butterflies, bees, white-tailed deer, snowshoe hare, garter snakes, and frogs will benefit from the flush of new growth that occurs in early successional habitat, providing both food and cover.

Early successional forests don't stay young for long. In most cases, when forests become older, they also become less productive and less valuable for certain species of wildlife. In order to maintain this forest in an early successional stage, the refuge will most likely cut this area again in 8 to 10 years. As you spend time at Stephen Young Marsh, pay attention to the changes you see in the young forest regrowth. It won't stay open long, and with the new vegetation will come the wildlife that will make these areas their new home.

Winter is coming but I hope that it doesn't discourage you from coming out to enjoy the refuge. Remember that our trails are open for snowshoeing and cross-country skiing and that winter can be a magical time to visit our wild places. Also be sure to stop into the Visitor Center and let us know about your experiences on the refuge!

A Feast Worth Quacking About

by Judy Sefchick Edwards, Wildlife Biologist, Missisquoi NWR

What's all the quacking about at Missisquoi National Wildlife Refuge? In refuge wetlands, there's been a feast of magnificent proportions (and portions!) going on since August. It could certainly rival the best Thanksgiving dinner, but don't expect turkey, mashed potatoes, or cranberries on this menu. Instead, this extraordinary, long-lasting meal is made up of one main dish: the seeds of *wild rice*, served wet and cold, just the way migratory waterfowl like it!

What is wild rice? It's not rice at all. Instead, it's an annual aquatic grass, adapted to northern latitudes, that benefits a variety of wildlife because of the food, cover, and structure it adds to wetlands and rivers. Prized for its nutritious seeds that are awesome, energy-rich duck food, you may recognize its mature plants in July or August. That's when wild rice has dense, upright stalks (sometimes towering up to 10 feet) with flowering heads at the tips. But there's a lot more than meets the eye with this plant!

Fragile, submerged seedlings of wild rice start growing in May. Anchored by only a tiny hair root, they need constant water levels so they won't uproot; and clear water, so sunlight can reach them and help them grow. In June, the ribbon-like leaves of wild rice float on the water at 90 degree angles to the stalk. This is when wild rice is at its most vulnerable: if water levels rise, the plant may uproot; if water levels fall, the stalks may collapse; and if high winds or waves occur, the whole stand of wild rice could be lost. With all the odds against it, it's amazing that wild rice can even survive, let alone thrive!

As the refuge biologist, I would love to take some credit for this Thanksgiving smorgasbord...but I can't. There was only one cook in the kitchen preparing this meal, and her name, of course, is Mother Nature. After all, who else could provide exactly the right recipe and ingredients for this bumper crop of wild rice to occur?



Besides needing relatively shallow (1–3 feet) water, with a slight current, over mucky organic soils, some secret ingredients have to be added for the perfect crop of wild rice to grow. Water levels are essential—they have to remain constant or slowly recede throughout the growing season (apparently, Lake Champlain doesn't always get the memo!). In addition, scientists have discovered that wild rice needs a certain amount of nitrogen, available from sediments, in order to flourish. The sentiment, "It's not easy being green," said by a fabulously famous frog, certainly holds true for wild rice as well!

How long will this seemingly never-ending Thanksgiving buffet last? It's hard to say. In a bumper crop year like this one, wild rice can produce as much as 500 pounds of seed per acre (that's a lot of delighted ducks!). But wild rice, like most plants, has a survival strategy: its seeds don't mature all at once. In fact, usually, only around 10% of a seed head matures at a time, with seeds at the top of the stem ripening first. Sediment type, water depth, and weather also influence the ripening process, ensuring that no matter how many hungry ducks there are, some seeds will be left in the soil to sprout in years to come.

After learning more about the wonders of this plant, can you see how a biologist, like me, could never pull off the perfect crop of wild rice without some help? Though migrating waterfowl are the main recipients of the gifts of wild rice, there are lots of other beneficiaries: aquatic insects and invertebrates live among the growing stalks, muskrats feed on the tender shoots, grebes use bent-over stems for nesting, blackbirds and sparrows readily gobble up seeds, white-tailed deer sometimes eat the whole plant, and black terns will use the decaying rice straw for next year's nesting material. This year, we need to give special thanks to Mother Nature for all she does...especially for providing a Thanksgiving feast at Missisquoi worth quacking about for many years to come!

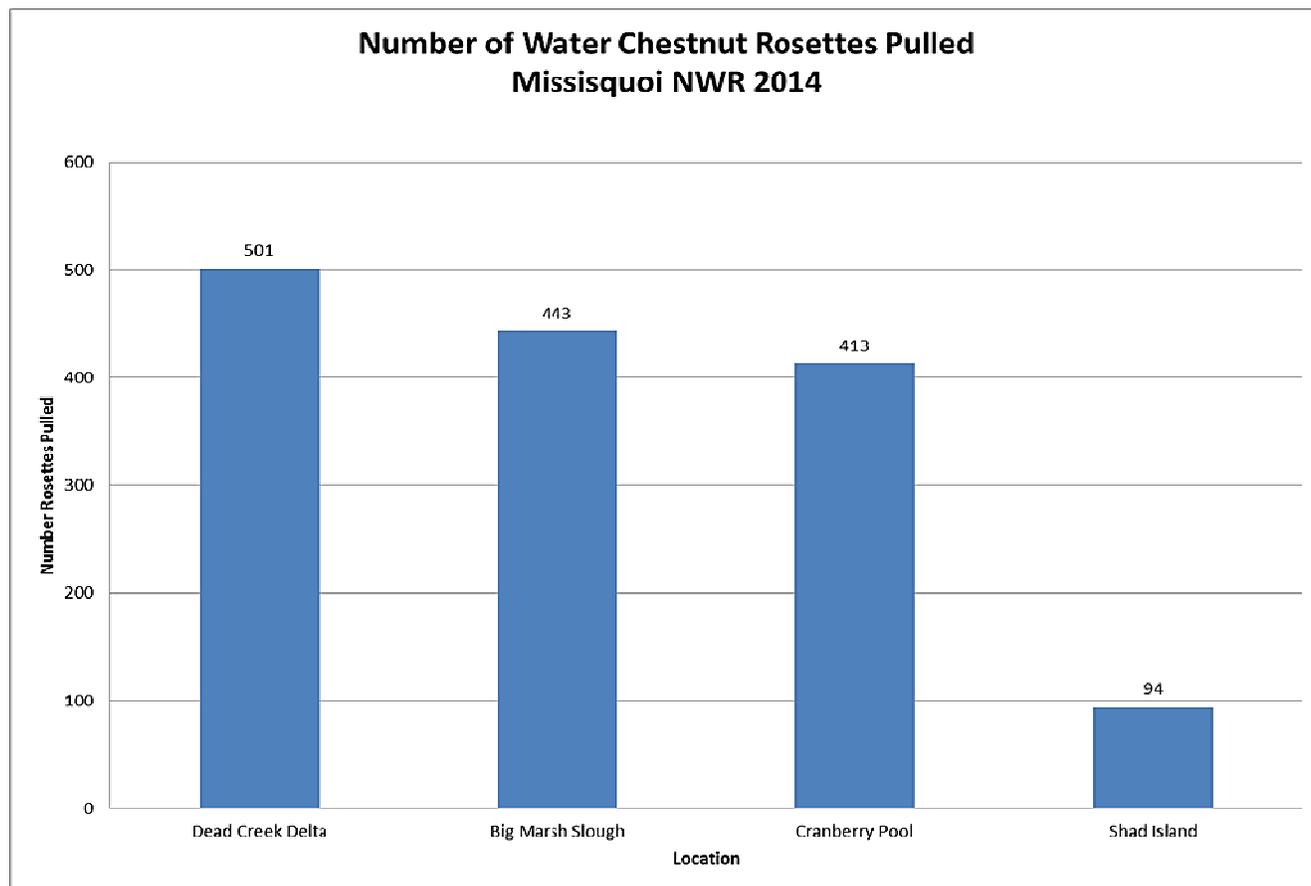
Water Chestnut Update – Fall 2014

by Ken Sturm, Refuge Manager, Missisquoi NWR

Thanks to the Friends of Missisquoi NWR we were able to get another grant this year to hire contractors to control the aquatic invasive water chestnut on the refuge. Water chestnut is a big concern on the refuge as it can out-compete our native wetland plants reducing biological diversity, eliminating valuable habitat, and reducing native forage plants for the thousands of ducks that rely on the refuge during fall migration. Special thanks goes out to Cathie Waltz and Rich Kelley who were instrumental in shepherding the grant along in the approval process and ensuring that our contractors were paid on a timely basis.

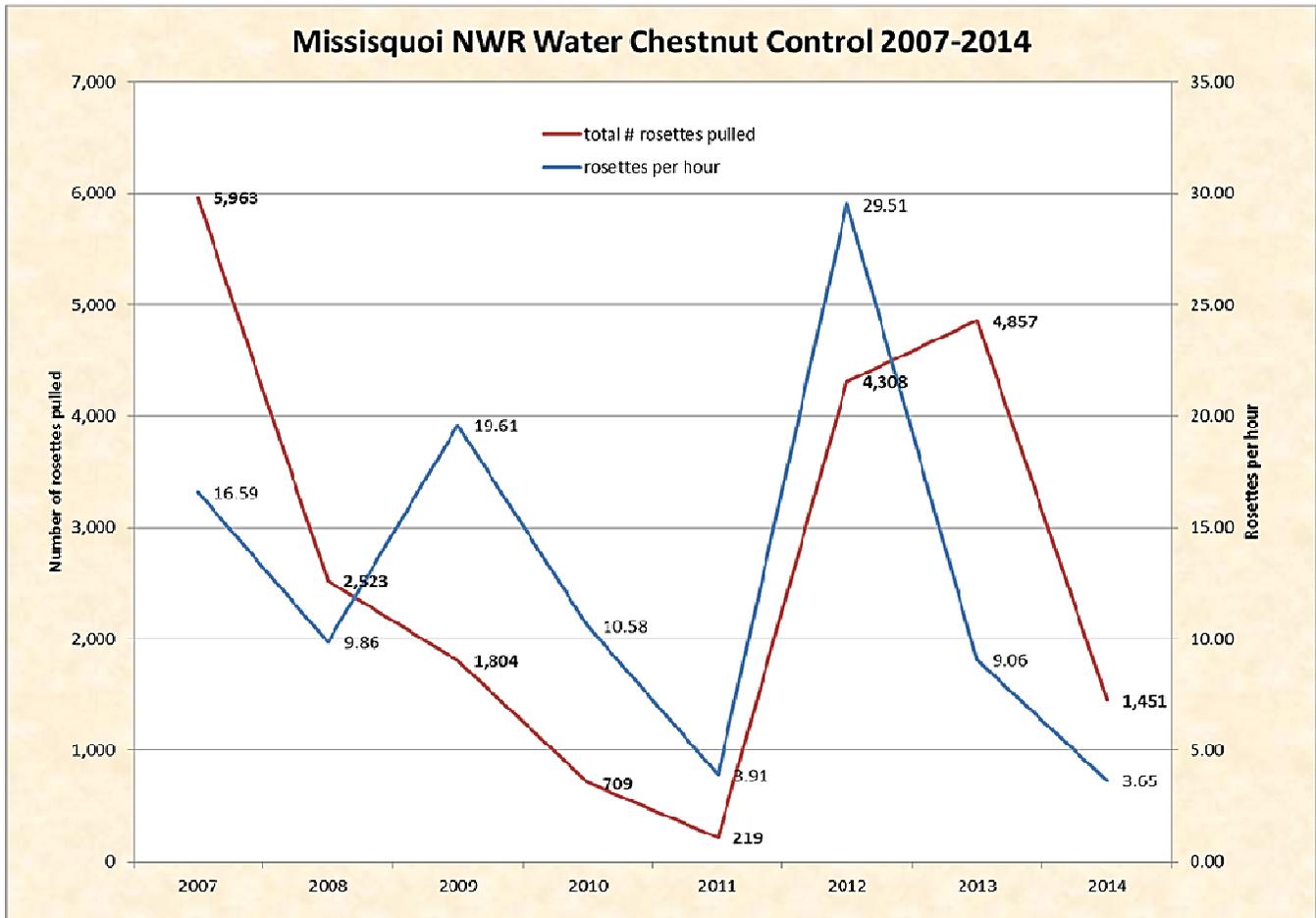
So what happened in 2014 and how does it compare to the previous year’s work to control water chestnut? A total of 397 person hours were spent pulling 1,451 water chestnut rosettes. The contractors covered at least 776 acres surveying and pulling chestnut. Of this, 682 acres were on the Missisquoi National Wildlife Refuge and 94 acres in Missisquoi Bay (Rock River Bay and Dead Creek Delta).

The graph below shows the areas where water chestnut was found and pulled. It’s apparent by this graph that the area of greatest concern for continued infestation is the Dead Creek Delta area, newly identified during field work in 2013 and off refuge property. The refuge is working with state and NGO partners to ensure that this site receives continued attention in the future.



Overall the work the refuge has been doing, supplemented by the Friends of Missisquoi NWR, is working to get a handle on our water chestnut problem. The next graph shows the number of water chestnut rosettes pulled each

year since 2007. It also shows the number of rosettes per hour pulled in each year, an indicator of the density of plants growing on the refuge. The good news is, thanks to the last two years of grant funded contract work, we have reduced chestnut infestation back to levels similar to 2009. The bad news is that water chestnut seeds remain viable for 8 to 10 years and we expect to have to continue this control effort annually to ensure we don't lose control of this damaging aquatic invasive species. Thanks again to the Friends of Missisquoi NWR for supporting these efforts; we could not do it without you!



FRIENDS OF MISSISQUOI NATIONAL WILDLIFE REFUGE

Bi-monthly Board Meeting

Wednesday, January 14, 2015 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, March 11, 2015 at 6:30 pm

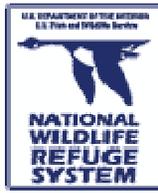
Bird Monitoring Walk Statistics

After 55 months of Bird Monitoring Walks, a total of 605 observers have recorded 134 species and 8561 individual birds. The following chart lists the species by the date each species was first observed.

| Date | Trail | Species |
|-----------|-------|------------------------------|
| 3/20/2010 | RR | American Crow |
| 3/20/2010 | RR | American Goldfinch |
| 3/20/2010 | RR | American Robin |
| 3/20/2010 | RR | American Tree Sparrow |
| 3/20/2010 | RR | Black-capped Chickadee |
| 3/20/2010 | RR | Brown-headed Cowbird |
| 3/20/2010 | RR | Blue Jay |
| 3/20/2010 | RR | Canada Goose |
| 3/20/2010 | RR | Common Grackle |
| 3/20/2010 | RR | European Starling |
| 3/20/2010 | RR | Hairy Woodpecker |
| 3/20/2010 | RR | Killdeer |
| 3/20/2010 | RR | Mallard |
| 3/20/2010 | RR | Northern Cardinal |
| 3/20/2010 | RR | Pileated Woodpecker |
| 3/20/2010 | RR | Ring-billed Gull |
| 3/20/2010 | RR | Red-tailed Hawk |
| 3/20/2010 | RR | Red-winged Blackbird |
| 3/20/2010 | RR | Snow Goose |
| 3/20/2010 | RR | Song Sparrow |
| 3/20/2010 | RR | White-breasted Nuthatch |
| 4/17/2010 | Maq | American Woodcock |
| 4/17/2010 | Maq | Brown Creeper |
| 4/17/2010 | Maq | Dark-eyed Junco |
| 4/17/2010 | Maq | Downy Woodpecker |
| 4/17/2010 | Maq | Eastern Phoebe |
| 4/17/2010 | Maq | Great Blue Heron |
| 4/17/2010 | Maq | Golden-crowned Kinglet |
| 4/17/2010 | Maq | Northern Flicker |
| 4/17/2010 | Maq | Northern Harrier |
| 4/17/2010 | Maq | Rusty Blackbird |
| 4/17/2010 | Maq | Sharp-shinned Hawk |
| 4/17/2010 | Maq | Tree Swallow |
| 4/17/2010 | Maq | Tufted Titmouse |
| 4/17/2010 | Maq | Winter Wren |
| 4/17/2010 | Maq | Wood Duck |
| 4/17/2010 | Maq | White-throated Sparrow |
| 4/17/2010 | Maq | Yellow-bellied Sapsucker |
| 5/15/2010 | SYM | American Redstart |
| 5/15/2010 | SYM | Baltimore Oriole |
| 5/15/2010 | SYM | Black-and-white Warbler |
| 5/15/2010 | SYM | Belted Kingfisher |
| 5/15/2010 | SYM | Black Tern |
| 5/15/2010 | SYM | Bobolink |
| 5/15/2010 | SYM | Black-throated Green Warbler |
| 5/15/2010 | SYM | Blue-winged Teal |
| 5/15/2010 | SYM | Common Yellowthroat |
| 5/15/2010 | SYM | Eastern Kingbird |
| 5/15/2010 | SYM | House Wren |
| 5/15/2010 | SYM | Least Flycatcher |
| 5/15/2010 | SYM | Magnolia Warbler |
| 5/15/2010 | SYM | Osprey |
| 5/15/2010 | SYM | Ovenbird |
| 5/15/2010 | SYM | Rose-breasted Grosbeak |
| 5/15/2010 | SYM | Red-breasted Nuthatch |
| 5/15/2010 | SYM | Ruffed Grouse |
| 5/15/2010 | SYM | Turkey Vulture |
| 5/15/2010 | SYM | Warbling Vireo |
| 5/15/2010 | SYM | White-crowned Sparrow |
| 5/15/2010 | SYM | Yellow Warbler |
| 6/19/2010 | RR | Alder Flycatcher |
| 6/19/2010 | RR | Barn Swallow |
| 6/19/2010 | RR | Cedar Waxwing |
| 6/19/2010 | RR | Chestnut-sided Warbler |
| 6/19/2010 | RR | Gray Catbird |
| 6/19/2010 | RR | Northern Waterthrush |
| 6/19/2010 | RR | Savannah Sparrow |

| Date | Trail | Species |
|------------|-------|-----------------------------|
| 6/19/2010 | RR | Swamp Sparrow |
| 6/19/2010 | RR | Veery |
| 7/17/2010 | Maq | Chipping Sparrow |
| 7/17/2010 | Maq | Great Crested Flycatcher |
| 7/17/2010 | Maq | Mourning Dove |
| 7/17/2010 | Maq | Ruby-throated Hummingbird |
| 7/17/2010 | Maq | Scarlet Tanager |
| 7/17/2010 | Maq | Yellow-throated Vireo |
| 8/21/2010 | Jeep | Eastern Wood-Pewee |
| 8/21/2010 | Jeep | Great Horned Owl |
| 8/21/2010 | Jeep | Red-eyed Vireo |
| 8/21/2010 | Jeep | Spotted Sandpiper |
| 9/18/2010 | SYM | Blackburnian Warbler |
| 9/18/2010 | SYM | Canada Warbler |
| 9/18/2010 | SYM | Common Merganser |
| 9/18/2010 | SYM | Wilson's Snipe |
| 10/16/2010 | RR | Fox Sparrow |
| 10/16/2010 | RR | Yellow-rumped Warbler |
| 1/15/2011 | Maq | Common Raven |
| 4/16/2011 | SYM | Common Goldeneye |
| 4/16/2011 | SYM | Great Egret |
| 4/16/2011 | SYM | Pied-billed Grebe |
| 5/21/2011 | SYM | Blackpoll Warbler |
| 5/21/2011 | SYM | Common Gallinule |
| 5/21/2011 | SYM | Marsh Wren |
| 5/21/2011 | SYM | Nashville Warbler |
| 5/21/2011 | SYM | Tennessee Warbler |
| 5/21/2011 | SYM | Willow Flycatcher |
| 6/18/2011 | SYM | Bald Eagle |
| 6/18/2011 | SYM | Cliff Swallow |
| 6/18/2011 | SYM | Green Heron |
| 6/18/2011 | SYM | House Sparrow |
| 7/16/2011 | Maq | Double-crested Cormorant |
| 8/20/2011 | Jeep | Solitary Sandpiper |
| 9/17/2011 | SYM | American Bittern |
| 9/17/2011 | SYM | Blue-headed Vireo |
| 9/17/2011 | SYM | Green-winged Teal |
| 9/17/2011 | SYM | Virginia Rail |
| 10/15/2011 | RR | Northern Shrike |
| 4/21/2012 | Maq | Hermit Thrush |
| 4/21/2012 | Maq | Pine Warbler |
| 4/21/2012 | Maq | Ruby-crowned Kinglet |
| 5/19/2012 | SYM | Black-throated Blue Warbler |
| 5/19/2012 | SYM | Caspian Tern |
| 5/19/2012 | SYM | Cooper's Hawk |
| 5/19/2012 | SYM | Northern Parula |
| 5/19/2012 | SYM | Rock Pigeon |
| 6/16/2012 | RR | Black-billed Cuckoo |
| 6/16/2012 | RR | Common Tern |
| 7/21/2012 | Maq | Black-crowned Night-Heron |
| 7/21/2012 | Maq | Broad-winged Hawk |
| 7/21/2012 | Maq | House Finch |
| 7/21/2012 | Maq | Purple Martin |
| 10/20/2012 | RR | Pine Siskin |
| 11/17/2012 | Maq | Bohemian Waxwing |
| 1/16/2013 | Maq | Barred Owl |
| 3/16/2013 | RR | Common Redpoll |
| 4/20/2013 | Maq | Hooded Merganser |
| 4/20/2013 | Maq | Ring-necked Duck |
| 5/18/2013 | SYM | Eastern Meadowlark |
| 6/15/2013 | RR | Common Loon |
| 8/17/2013 | Jeep | Chimney Swift |
| 8/17/2013 | Jeep | Lesser Yellowlegs |
| 8/17/2013 | Jeep | Wilson's Warbler |
| 4/19/2014 | MAQ | Brown Thrasher |
| 5/17/2014 | SYM | Wood Thrush |
| 7/19/2014 | MAQ | Indigo Bunting |

Trails key: RR=Railroad Trail; Maq=Maquam/Black Creek Trail; SYM=Stephen Young Marsh Trail; Jeep=Jeep Trail



Winter 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.

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

Join Friends of Missisquoi NWR members Joe Belanger, Mark Batchelder, and Bob Chaperon for nature/photography walks on various refuge trails, held the first Saturday of each month. Registration is not required. Bob Chaperon will be trying something new with a “photography topic” for each walk. **Come have fun with us!**



December 5: Maquam/Black Creek Trail. Photography topic will be on “Motion.” Meet at the parking lot located on Rte 78 approx. 2 ½ miles west of Swanton.

January 3: Discovery Trail. Photography topic will be on “Color Temperature.” Meet at the refuge Visitor Center on Tabor Rd.

February 7: Stephen Young Marsh Trail. Photography topic to be announced. Meet at the parking lot on Tabor Rd, about a mile past the refuge headquarters and across the road from the marsh.

Monthly Bird Monitoring Walks 3rd Saturday of each month, 8:00 am 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 will be 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 55 months of walks we have recorded 134 species of birds.** Registration is not required. The schedule for the next three months is:

December 20: Jeep Trail. Meet at the Louie’s Landing boat access area. We will drive in to the trail head at Mac’s Bend.

January 17: Maquam/Black Creek Trail. Meet at the parking lot located on Rte 78 approx. 2 ½ miles west of Swanton.

February 21: Stephen Young Marsh Trail. Meet at the parking lot on Tabor Rd, about a mile past the refuge headquarters and across the road from the marsh.

To check for any schedule changes or additions, visit the Friends website at www.friendsofmissisquoi.org and click on “Calendar.”

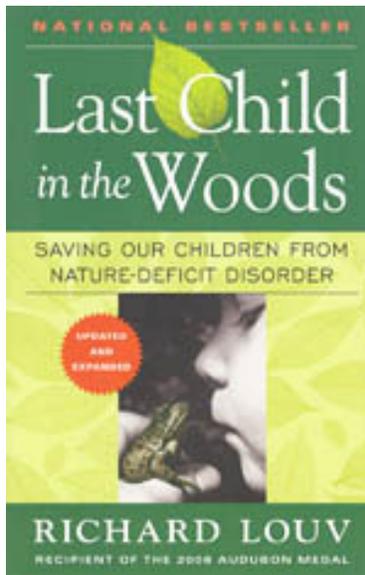
For more information about the refuge, visit www.fws.gov/refuge/missisquoi/

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Last Child in the Woods

Saving Our Children from Nature-Deficit Disorder

Updated and Expanded Edition

Richard Louv

\$ 14.95, paper

390 pages, 5 1/2 x 8 1/2

Richard Louv was the first to identify a phenomenon we all knew existed but couldn't quite articulate: nature-deficit disorder. His book *Last Child in the Woods* created a national conversation about the disconnection between children and nature, and his message has galvanized an international movement. Now, three years after its initial publication, we have reached a tipping point, with Leave No Child Inside initiatives adopted in at least 30 regions within 21 states, and in Canada, Holland, Australia, and Great Britain.

This new edition reflects the enormous changes that have taken place since the book—and this grassroots movement—were launched. It includes:

- 101 things you can do to create change in your community, school, and family
- Discussion points to inspire people of all ages to talk about the importance of nature in their lives
- A new afterword by the author about the growing Leave No Child Inside movement
- New and updated research confirming that direct exposure to nature is essential for the physical and emotional health of children and adults.

This is a book that will change the way you think about your future and the future of your children.

About the author:

Richard Louv is the author of seven books. He is the chairman of the Children & Nature Network, has served as adviser to the Ford Foundation's Leadership for a Changing World award program and the National Scientific Council on the Developing Child. He has appeared on *Good Morning America*, *NBC Nightly News*, NPR's *Morning Edition*, and many other programs.