

# BioLink

The Official Newsletter of the  
Atlantic Society of Fish and Wildlife Biologists



VOLUME 53, ISSUE 1

Spring 2016

## A Review of the 2015 ASFWB Annual General Meeting in Cape Breton

The 52nd Annual General Meeting of the Atlantic Society of Fish and Wildlife Biologists Meeting was held in beautiful Englishtown Cape Breton at the Gaelic College on October 28<sup>th</sup> and 29<sup>th</sup>. The meeting was well attended with 42 participants listening to talks on a wide variety of topics. The plenary speakers Rebekah Cluett-Chan and Jean-Marc Nicolas spoke on the environmental planning process for the Maritimes Link. This was followed up by a talk on the Bras D'Or Watershed, Canada's newest Biosphere Reserve.

Other talks on day one included work on Glossy Buckthorne on Nature



Above Student award winners with ASFWB President Stephanie Walsh (Left to Right: Katherine Shlepr 1st place, Stephanie Symons 2nd place, Stephanie Walsh, Robin Dornan 3rd place Jillan Arany 3rd place)

Conservancy of Canada Atlantic Salmon smolt properties, White-tailed Deer

wintering grounds, the Also on day one, students Southern Twayblade as an from University of New environmental indicator, and Brunswick and Acadia the migratory decisions of University

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### **Don't miss this!**

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**Do you have a research project, wildlife topic, event, photos, or other related information that you would like to see included in BioLink? If so, email Danielle Quinn ([danielle.quinn@acadiu.ca](mailto:danielle.quinn@acadiu.ca)) or Holly Lightfoot ([hlightfoot@birdscanada.org](mailto:hlightfoot@birdscanada.org))! We're always looking for content ideas and photos from our membership!**

## 2015 AGM in Cape Breton (continued)

presented on some of their research.

Up first was Katherine Shlepr who spoke on her work examining the “Gull Problem” in Atlantic Canada. Katherine and her collaborators tagged and tracked gulls in areas with high anthropogenic food sources. Following Katherine, Stephanie Symons spoke on her work on niche segregation between Atlantic Puffins and Razorbills on their foraging areas. Despite their smaller size, the Atlantic Puffin were found to be diving deeper and travelling further off shore than their close relatives, the Razorbills. In the afternoon, two undergraduate students spoke on some of their work at Acadia University tracking fish and tadpoles to examine the effects of culvert installation. Both Robin Doran and Jillian Arany captivated the audience with their detailed explanations of this type of tracking for very small organisms. All four students gave excellent presentations making it a difficult decision for the

Judging Committee. Congratulations to Katherine (1st place), Stephanie (2nd place), and Robin and Jillian (tie for 3rd place)!

After a great day of talks and some time spent in the hospitality room, banquet attendees were treated to haggis and neaps, turkey dinner, and Scottish trifle. With a wide variety of items up for grabs at the silent auction, over \$449.40 was raised for the Holland College Scholarship fund! Thank you to everyone who contributed or purchased items (see page 21 for one of the lucky winners)!

Day two started with several very interesting plant talks on the acidification of forest ecosystems, work on the Boreal Felt Lichen, work on the recovery of Eastern Mountain Avens, and recovery by inventory for poorly documented species. These talks were followed by a couple of talks on birds, and the day wrapped up with an excellent talk on Eastern Coyotes in Cape Breton Highlands National Park.

**Thank you to everyone who attended the AGM and we look forward to see you all again at the 53rd meeting in Summerside on Prince Edward Island!**

**25-27 October 2016**

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## Using Bird Communities to Assess Forested Wetland Health in Western Nova Scotia: A New Project at NSDNR Wildlife Division

*Written By John Brazner*

Forested wetlands are frequently impacted by forestry activities, watershed changes that alter their hydrology, and urban and commercial projects that drain or fill these important habitats. Forested wetlands include shrub and treed swamps, bogs and fens and are among the most common wetlands in Nova Scotia. Despite their prevalence in the landscape, their significance in controlling and purifying water flowing through watersheds and the biodiversity they support, very little is known about their ecology here or what reflects a healthy condition.



*Above* Palm warblers had a strong affinity for shrub bog habitats. (Photo: Mark Elderkin)



*Above* Red maple swamp along the North River Road near Aylesford Lake. (Photo: John Brazner)

In 2014, a pilot study was initiated to assess the ecological integrity of forested wetlands in western Nova Scotia using bird communities. The overall goals of the project are to identify best biotic indicators for developing an index of forested wetland integrity, improve knowledge of forested wetland species-habitat associations and refine priorities for conservation and management of these unique ecosystems.

We used the wetland and forest inventory to identify potential field sites and surveyed 86 forested wetlands in three broad classes (shrub swamps, treed swamps, shrub peatlands) in 2015 using two, ten minute point counts per site between June 1 and July 3. Six volunteer birders (Alix D'Entremont, Anne Lambert, Eric Mills, Chris Pepper, Kate

Steele, and Rick Whitman) surveyed 14 of the 86 sites. Sites were approximately evenly distributed among wetland types and among the Western, Valley and Central Lowlands, and Fundy Shore Ecoregions. Habitat was characterized at local (e.g., % canopy cover, stem density) and landscape (e.g., % land cover, fragmentation) scales during August for more than 70 variables.

Only limited analysis has been completed to date but results from the pilot study indicated that there are important differences in the bird communities among wetland types (e.g. shrub swamps had the highest species richness and abundance and treed swamps the lowest) and provided a sense of which species might be the best

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## Using Bird Communities to Assess Forested Wetland Health (continued)

indicators for different wetland types (e.g., northern waterthrushes had a strong affinity for treed swamps, palm warblers for bogs). Across all surveys in 2015, 84 species of breeding birds were recorded. Several relatively rare species were not uncommon at our study sites (e.g., Canada warbler - 14 sites, Olive-sided flycatcher – 6 sites, Eastern wood peewee – 13 sites, northern waterthrush – 12 sites) suggesting forested wetlands may be important refugia for certain at-risk or rare species.

We anticipate needing about 250 sites to have sufficient data to complete the full suite of analyses that are planned and hope to be at that number by the end of 2016. Laura Achenbach has recently been added to the project team and will be conducting surveys this year as part of the new Master's program she is taking on with Phil Taylor at Acadia University.

### Volunteers Needed!

Laura's addition to the team will really help us add to the number of sites surveyed but the efforts from our volunteers have been essential to spread the surveys more broadly across the western part of the province. We welcome new volunteers and encourage you to contact John Brazner ([John.Brazner@novascotia.ca](mailto:John.Brazner@novascotia.ca); (902) 679-6247) for more information.

*John Brazner is a Wetland Habitat and Ecosystem Specialist at the NSDNR Wildlife Division, in Kentville, NS.*

## Predatory Deformities of Wood Turtles in Sackville River, NS

*Contributed by ASFWB member Mike Parker, East Coast Aquatics Inc.*

A population of Wood Turtle *Glyptemys insculpta* was recently confirmed in the Sackville River, in Nova Scotia. East Coast Aquatics Inc. recently completed an 18 month radio telemetry study of the provincially threatened species, identifying nesting, overwintering, and key forage habitats within our project area. One interesting observation was the high incidence of what appear to be predatory deformities such as lost limbs, digits, and eyes in more than 90% of the turtles encountered over the four year study. This appears higher than anything reported in the literature, and the researchers hypothesize that the injuries may be the result of interaction with racoons that are particularly numerous close to the urban development within the watershed. The photos show a turtle missing both front paws, but they appear to have fully healed. The plastron was well worn from the turtle having to "belly slide" to move around, a further indication that it had survived with the injuries for some time.





## Only in BC ... Gulls Rescued from Vancouver Tofu Vat Get Scrubbed Clean



*Above* A gull's bill is held shut to keep it from pecking staff and volunteers at the Wildlife Rescue Association of B.C. while it gets towel-dried.  
(Photo: Rafferty Baker/CBC)

Staff and volunteers with the Wildlife Rescue Association of B.C. began the task, on Tuesday, of cleaning the 62 gulls rescued from a vat at an East Vancouver tofu processing plant. The gulls somehow made their way into the waste tofu by product vat at Superior Tofu sometime Thursday night or Friday morning.

"Today we're bathing them. We're doing a full oil spill bath, even though it isn't exactly an oil substance - contaminant - on them. It was a powder, but it has become oily on their feathers," said Janelle Stephenson, the

Wildlife Rescue Association's hospital manager. "It will kill them, because they won't be able to thermo-regulate, and if they get into the water they will drown, because they won't be able to float, so they'll end up just going down. If it rains, also, they'll become hypothermic and they'll die."

Staff at Wildlife Rescue gave the gulls a couple days to try to clean themselves off, and they spent Monday in warm water pools, in hopes that would help rinse out the residue. On Tuesday, both staff and volunteers were called into the centre to begin the cleaning effort in earnest, after the residue remained on the birds' feathers. More than 30 people took part, scrubbing each feather by hand and using a toothbrush and dish detergent to clean the gulls' heads. The birds were then rinsed off and put into blow-drier-warmed kennels to preen themselves and dry off.

The gulls seemed mostly calm, with towels over their heads and workers holding their bills shut, but Stephenson warned that handling them could be tricky. "With gulls, they are quite dangerous. They do bite a lot. They have very sharp bills so we need to take safety precautions when we're [handling them] as well." Staff also checked on the birds' health, doing blood work and weighing each gull.

Stephenson said it was a huge job - Wildlife Rescue estimates the whole rescue will cost more than \$10,000 - but she said it actually came at a good time. Once summer begins, the centre is filled with birds - staff handled more than 5,500 animals last year.

Staff and volunteers got through nearly half of the flock on Tuesday, with hopes the job would be complete Wednesday. The birds will then be monitored for a few days and released somewhere nearby. "Everybody is doing a fabulous job. We couldn't do it without our volunteers," said Stephenson.



*Above* Volunteers Riley McDonnell and Jenna Duncan, along with the Wildlife Rescue Association's Neil Merchant, scrub one of 62 rescued gulls to remove a tofu byproduct residue.  
(Photo: Rafferty Baker/CBC)

*Source: CBC News 15 March 2016*

## First Evidence of Northern Saw-whet Owls Crossing Large Water Body

By Taylor Brown, Acadia University

In a study by collaborators at Université Sainte-Anne and Acadia University, a sample of 26 northern saw-whet owls (*Aegolius acadicus*) were trapped and equipped with radio-tags between October and November, 2015 at two sites in Nova Scotia. One site was situated on Bon Portage Island, offshore the southern tip of NS, and the other on the campus of Université Sainte-Anne in Church Point, NS. The tagged owls were tracked using a network of radio-telemetry towers along the eastern seaboard of the United States and Canada in the following months. Some interesting results were obtained.

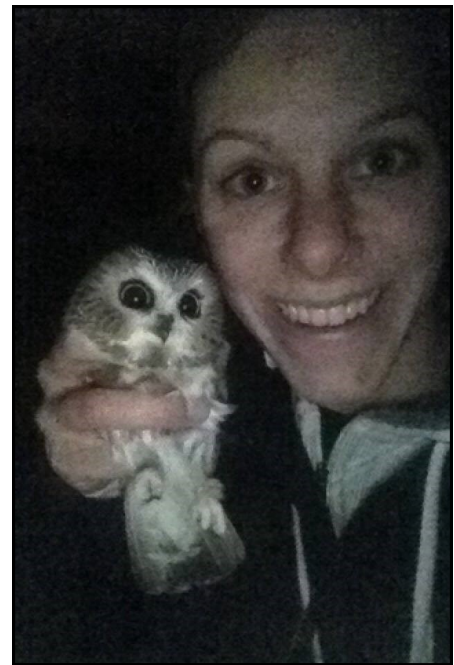
Of the tagged birds, seven were never detected following tagging, due to either malfunction, subsequent removal by the owl, or mortality. Of the remaining birds, five stayed in the general area where they were tagged, eight stayed in the general area but disappeared soon after tagging, four left the tagging area and moved about Nova Scotia, and two departed the tagging area and crossed the Gulf of Maine.

These latter two birds represent the first hard evidence that saw-whet owls cross large bodies of water. Studies going as far back as the turn of the 20<sup>th</sup> century have hypothesized possible water-crossing behaviour of saw-whets as they approach the Great Lakes, but to our knowledge, no study has been conducted previously that has found such strong evidence for this behaviour in either the Great Lakes region or that of the Gulf of Maine. One of the two owls that crossed the Gulf of Maine in this study journeyed for over two weeks from mainland Nova Scotia to central Massachusetts. This represents a total (straight-line distance) journey of 611 km and minimum average speed of ~30 km/day. The second bird that crossed the Gulf of Maine did so in roughly three days between detection on Digby Neck and subsequently in inland Maine.

Other interesting movements included an owl that flew from the Bon Portage study site to Church Point, travelling 108 km in 28 days (~3.8 km/day); and one that departed Bon Portage, travelled 63 km to Matthew's Lake, NS (minimum ~9 km/day), then ~45 km south again to Baccaro in two days (~22.5 km/day). At Church Point we even caught a saw-whet that had been banded near Bobcaygeon, Ontario twelve days previous, representing a total minimum journey of more than 1000 km (~83 km/day). The possibility exists that this bird also crossed the Gulf of Maine to get to NS.

Although statistical tests revealed no significant influences of age, body condition or tagging location on the types of movements the owls exhibited following tagging, our sample size of 26 was quite small and so definitive conclusions regarding these potential factors of migratory decisions could not be made. We hope to continue receiving detections data for these owls as they return from wintering grounds to breed, up until the ~300-day battery life of the tags.

*Congratulations to Taylor, who won 3rd place for her oral presentation at Science Atlantic!*



## Recent Literature *Keep up to date with fish & wildlife research from Atlantic Canada & beyond!*

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**Quick Tip: To find an article,  
paste the DOI in your browser.**



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**A Friendly Reminder:** We are still raising funds for the Gilbert R. Clements Scholarship!

**If you would like to donate to the scholarship you can do so:**

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**By phone:** 902-566-9590

Cheques are payable to the Holland College Foundation; please indicate the award name in the cheque memo.

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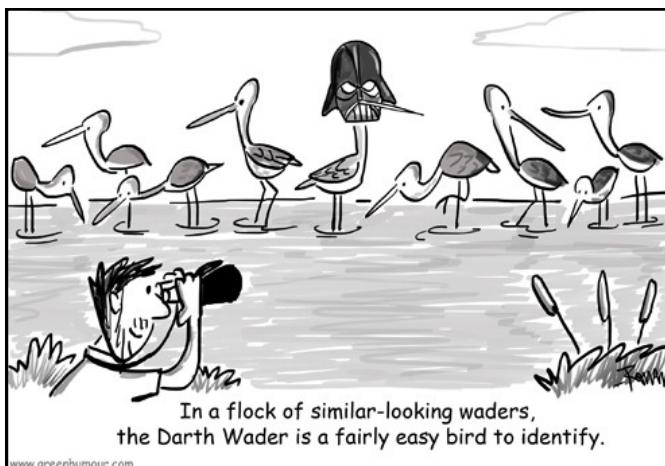
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## Science Atlantic Aquaculture and Fisheries and Biology Conference

ASFWB was pleased to be able to support this year's Science Atlantic Aquaculture and Fisheries and Biology Conference, held at St. Mary's University from March 11-13. This annual student conference brings together undergraduate and graduate students from across Atlantic Canada to share their research. In recognition of their work and a wide variety of well-delivered presentations and posters, we chose four students from the conference to be featured in this newsletter!

Taylor Brown, Acadia University (page 6)

Jacob Hambrook, University of New Brunswick (page 14)

Lauren Douglas, Cape Breton University (page 18)

Celina Campbell, St. Mary's University (page 20)

### Purple Gallinule Sightings in Atlantic Canada



*Contributed by ASFWB member Mike Parker, East Coast Aquatics Inc.*

A dead Purple Gallinule *Porphyryla martinica* was found during some February field work at Big Meadow Bog on Brier Island, NS. The bright blue/purple colors of the bird stood out against dead winter

foliage. This, along with its long yellow wading legs made it immediately evident this bird should be nowhere near Brier Island in February.

The Purple Gallinule is a wading bird, and a member of the rail family. The summer range for the Purple Gallinule is Florida and northern Gulf of Mexico and its overwinter range is in Central/South America.

Historical records of Purple Gallinule in the Maritimes are sparse but do include records from 2006 in Windsor, NS and Halls Harbour, NS, from the spring of 2009 in Lavilette, NB, from the falls of 2011 and 2014

in Shag Harbour, NS and Bon Portage, NS, respectively, and from the fall of 2014 in Makkovik, Labrador. There are also several records from 2013 and 2014 on Newfoundland.

More recently, a Purple Gallinule was spotted in June of 2015 in Kingsburg, on the South Shore of NS, and a record of an apparently injured Gallinule at a Halifax Park in January 2016 leads to speculation that the bird on found on Brier might be the same individual!



#### Did you know...

A relative to the Purple Gallinule, the American Coot, is found sporadically in the Maritimes in the summer, and one was observed quite regularly this winter at Sullivan's Pond in Halifax.

(Photo N. Beaulac)



## Motus Wildlife Tracking System

The conservation of migratory animals and their habitats relies on detailed knowledge about their ecology throughout their annual cycle, often encompassing breeding ranges in the northern United States and Canada, and stopover and wintering grounds in Central and South America. Acquiring this knowledge requires an ability to track individuals in detail over vast distances. Thanks to technological and web-based database advancements embedded within the Motus Wildlife Tracking System (Motus), collecting this kind of information is now possible.

Motus, (latin for movement) is a coordinated hemispheric tracking system for migratory animals. It is a program of Bird Studies Canada in partnership with collaborating researchers and organizations. Researchers affix tiny radio transmitters to migratory birds and bats. These transmitters emit a pulse with a unique pattern that is detected and recorded by automated receiving stations strategically positioned across the landscape.



*Above* The Motus Array - September 2015



Thousands of tags, each broadcasting unique signals, can be simultaneously deployed and tracked throughout the array. These data are then transferred to a central database at Bird Studies Canada's National Data Centre and become accessible to the researchers and the public.

The system currently consists of an array of more than 225 receiving stations throughout northeastern North America. Each telemetry station can detect signals at distances of up to 15km. When combined they can track individuals over hundreds and even thousands of kilometres. The map above shows the arrangement of these stations and prospective stations for the coming year as Motus expands throughout the Western Hemisphere. *Continued on page 14*

*Left* Silver-haired Bat (Photo: Liam McGuire)

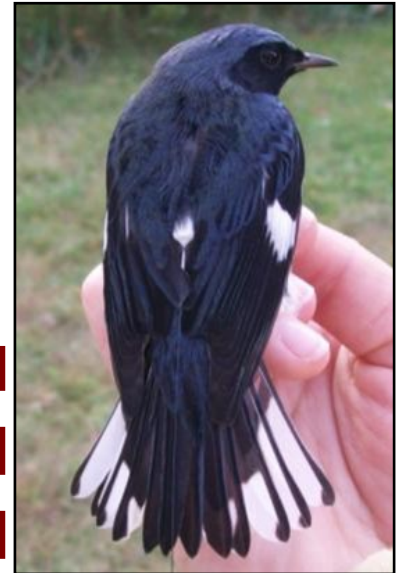


(Photo: David Bell)



## Motus Wildlife Tracking System *(continued)*

Since 2013, ~3,000 individuals representing more than 30 species of birds and bats were tagged, resulting in > 60 million detection records. There are currently over 30 research and conservation projects utilizing the system, involving over 100 collaborators. The information collected from thousands of tracked birds and bats of numerous species in the coming years will provide providing unprecedented insight into how animals use habitats and landscapes throughout their life which is critical for conservation planning, management and policy.



Above Black-throated  
Blue Warbler  
(Photo: Beth Thurber)

**You can help to expand the capability of the network by adding a station to the network or starting a project of your own.**

**For more information visit [www.motus-wts.org](http://www.motus-wts.org),  
or contact [motus@birdscanada.org](mailto:motus@birdscanada.org)**

**A complete list of all of our partners and supporters is available at  
[www.motus-wts.org](http://www.motus-wts.org) .**

## Range expansion by the invasive parasite *Anguillicola crassus* in American eels

*By Jacob Hambrook, University of New Brunswick*

American eels (*Anguilla rostrata*) are experiencing a population decline. In Canada, this is most apparent within the St. Lawrence River and Lake Ontario (Castonguay *et al.*, 1994) where a 99% reduction in numbers prompted closure of commercial eel fisheries in Ontario in 2004 (MacGregor *et al.*, 2008). The American eel population in Canada is classified as “threatened” overall (COSEWIC, 2012).

Postulated reasons for population decline include overfishing (both adult and glass eels), habitat loss due to anthropogenic barriers, turbine-induced mortality at hydroelectric dams, and environmental toxins (Castonguay *et al.*, 1994; COSEWIC 2012). Another factor

impacting American eels is a swim bladder parasite called *Anguillicola crassus*. This parasite occurs naturally in Japanese eels (Kuwahara *et al.* 1974). It was introduced to European eels in the 1980’s (Peters and Hartmann, 1986) and subsequently to North America with establishment confirmed in South Carolina in 1995 (Fries *et al.*, 1996). It spread north to Maine by 2005 and was observed in parts of New Brunswick and Cape Breton by 2007 (Aieta and Oliviera, 2009; Rockwell *et al.*, 2009).

This parasitic nematode exists as an adult in the swim bladder of American eels where it feeds on blood (Sures and Knopf, 2004). It induces pathology to the swim bladder and interferes with function (Figure 1), thereby impairing eel swimming

capabilities (Palstra *et al.*, 2007). Population-level effects are easy to envision if reproduction is precluded by an inability of infected eels to migrate to spawning grounds in the Sargasso Sea.

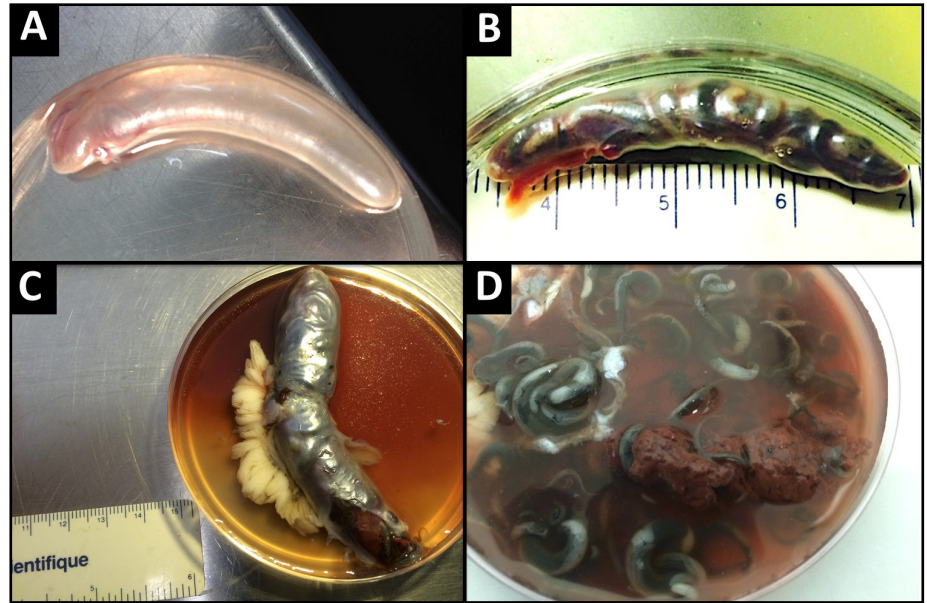
We monitored invasion and establishment of *A. crassus* in American eels in several New Brunswick rivers and in one Prince Edward Island river over the past few years. Ongoing establishment of *A. crassus* infection is occurring in New Brunswick river systems draining into the Bay of Fundy and in a river in Prince Edward Island. American eels from four New Brunswick Rivers draining into the Northumberland Strait were free of *A. crassus* infection in 2014 but three rivers had establishment of this parasite as of 2015. Our research shows ongoing

*Continued on page 15*



## *Anguillicola crassus* Range Expansion (continued)

parasite establishment in American eels and ongoing invasion of Atlantic Canadian river systems by this exotic parasite. This is a major concern given that the American eel fishery is valued at \$2-6 million annually (Cairns *et al.*, 2008) and that eels hold great cultural importance to Aboriginal people who have depended historically on this fish for food, trade, medicine, and ceremony (Prosper, 2001). Methods for accurate diagnosis and screening of infections in live eels is essential for ongoing monitoring of invasion so as to prevent translocation of this parasite to non-endemic regions. Transmission dynamics supporting such rapid parasite range expansion remain to be elucidated. Range expansion of the parasite could be mediated by: 1) inter-river migration by infected eels; 2) translocation of *A. crassus* larvae by species that feed on eels; 3) translocation of infected eels by humans; and, 4) translocation of infected baitfish (paratenic hosts) by humans.



**Figure 1.** The swim bladder from an American eel showing the intact gas organ in the absence of nematode infection (A). The function of the swim bladder can be reduced dramatically by gas displacement following infection with *A. crassus* (B). 256 adult and larval nematodes were recovered from the swim bladder of one heavily-infected eel (C, D). Individual adult worms and evidence of blood feeding are visible upon dissection of heavily-infected swim bladders (D).

This project is a collaborative effort with the Aboriginal Aquatic Resource and Oceans Management of the North Shore Micmac District Council through interactions coordinated by Mr. Devin Ward (senior biologist). Mr. Edmund Redfield of Fort Folly First Nation's Habitat Recovery program contributes actively to this research project. This research was initiated by Dr. Mick Burt (UNB) and is supported currently by Dr. Mike Duffy (UNB). Several undergraduate and graduate students at UNB are contributing to this project including: Ms. Katie Baba; Mr. Aaron Frenette; and Mr. Jacob Hambrook.

*Congratulations to Jacob, who won 2nd place for his oral presentation at Science Atlantic!*

## A Silviculture Guide to Restoring the Acadian Forest



*By Josh Noseworthy, RPF, AWB*

The Nature Conservancy of Canada is developing a silviculture manual that will guide landowners and managers who wish to restore Acadian Forest biodiversity on degraded and converted lands. There has been a long history of land clearing and intensive forestry in the Acadian Forest region. As a result, the landscape has been significantly altered to disproportionately favor boreal forest communities, either through direct forest conversion, or indirectly from farmland abandonment and highgrading. The long-lived, late-successional forests that once dominated up to 80% of the region now cover less than 1%, and these forests continue to decline. With this decline follows a decline in the community, species, and genetic diversity that characterize our natural heritage.

*Continued on page 16*

## A Silviculture Guide to Restoring the Acadian Forest (*continued*)

The scientific literature is full of calls for the protection and restoration of late-successional Acadian Forest, and there are many individuals and organizations across the region that manage their lands sustainably for a variety of values, including wildlife and biodiversity. There is also an abundance of resources describing best management practices and ethical stewardship guidelines for sustainable forest management, much of which was created with the Acadian Forest in mind. However, technical silvicultural guidance on restoring Acadian Forest on degraded and converted lands



Photo: Josh Noseworthy

is lacking. The purpose of this manual is to provide woodlot owners, land trusts and protected-area managers with that technical assistance, rather than reiterating sustainable management practices.

The manual focuses on five common restoration scenarios: abandoned agricultural land, conifer plantations, borealized clearcuts, highgraded forest, and logging roads / landings. Each of these has been shown to either negatively affect Acadian Forest biodiversity directly, or to have lower biodiversity value as compared to natural forest communities. Under each of these five broad scenarios is a land classification key, which will allow users to pinpoint the silvicultural prescriptions that are best suited to the conditions of their land. Collectively, the prescriptions aim to transition these scenarios towards late-successional Acadian Forest conditions, with emphasis on restoring species compositions, development stage, and structural diversity.

The guide will be free of charge, and will be accessible to small woodlot owners and industrial foresters alike. NCC hopes that the manual will gain wide support, and will be implemented on both public and private lands to begin fulfilling the long-term vision of a large, connected network of late-successional Acadian Forest across the region. Currently, the manual is in the final stage of review by a diversity of partners, and is expected to be publically available in PDF form by mid-2016. If funding permits, NCC would also like to publish hard copies that can be used in the field.

**For more information, please contact the  
Nature Conservancy of Canada's Atlantic Office at  
1-877-231-4400  
or by email at  
[Atlantic@NatureConservancy.ca](mailto:Atlantic@NatureConservancy.ca)**



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A. Manthorne

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## An evaluation of muskrat middens as a tool for monitoring freshwater mussel populations

By Lauren Douglas, Cape Breton University

Around 70% of freshwater mussel species in North America are at risk or vulnerable to extinction<sup>1</sup>. Despite this staggering number, few species are nationally protected in Canada. To ensure the preservation of freshwater mussel species, monitoring programs need to be put in place<sup>2</sup>. Current methods of freshwater mussel monitoring include quadrat sampling and timed searches, which can be costly and labour intensive. The analysis of muskrat middens might provide a cheaper and

more cost effective way to monitor freshwater mussel populations. Muskrats feed on mussels, and leave their shells on shore in conspicuous piles called middens. We wanted to know if middens had the same species composition, average length and sex ratios as that of the adjacent living populations.

To compare middens and living populations, we collected shells from six middens on two lakes within Cape Breton: Pottle Lake and Forrester's Lake. We also sampled living populations of freshwater mussels adjacent to midden sites. All live mussels and mussel valves were

identified to species, measured for length and sexed if a sexually dimorphic species was found.

In all of our midden samples and living populations, we found three species of freshwater mussels: Eastern Elliptio (*Elliptio complanata*), Eastern Floater (*Pyganodon cataracta*), and the COSEWIC species at risk, Yellow Lampmussel (*Lampsilis cariosa*). The species composition of midden samples and live populations were not found to be similar, nor were average lengths. *L. cariosa* was the only sexually dimorphic species we found, with male to female ratios being 2:1 in midden samples and living populations.

While muskrat midden samples give us a biased look at living freshwater mussel populations, they are useful in the discovery of new populations of rare species. Previous to this study, there were only two known populations of *L. cariosa* in Atlantic Canada: Saint John River, New Brunswick and Blackett's Lake, Nova Scotia. Mussel populations including *L. cariosa* in Pottle Lake and Forrester's Lake were discovered during preliminary lake searches for this project. By analyzing muskrat middens, perhaps more populations of *L. cariosa* can be discovered.



Above A muskrat midden at Forrester's Lake, Cape Breton.  
(Photo: Alicia Penney)

1 Williams, J.D., M. L. Warren, K. S. Cummings, J. L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. *Fisheries*. 18(9):6-22.

2 Fisheries and Oceans Canada. 2010. Management plan for the yellow lampmussel (*Lampsilis cariosa*) in Canada. *Species at Risk Act Management Plan Series*. Fisheries and Oceans Canada. Ottawa. iv+44 pp.

## Congratulations! UNB MSc Student wins American Fisheries Writing Award

Michelle Lavery, a Masters student out of the Canadian Rivers Institute UNB was awarded the American Fisheries Society Student Writing Award. This award recognizes excellence in the communication of fisheries research to the general public. Undergraduate and graduate students are asked to submit an article explaining their own research or a research project in their lab or school in a language understandable to the general public. Papers are judged according to their quality and their ability to turn a scientific research topic into a paper for the general public and winning articles are published in Fisheries.

**You can read Michelle's article here:**

<http://fisheries.org/2016/01/student-angle-winter-the-forgotten-study-season/>



Migratory birds are an important part of Canadian biodiversity. These birds as individuals, as well as their nests and eggs, are protected everywhere in Canada under the *Migratory Birds Convention Act, 1994* (MBCA) and its regulations. Migratory birds can be inadvertently harmed as a result of many activities including, but not limited to, mowing, clearing trees or vegetation, and draining or flooding land. Planning ahead can assist you, and your clients, in complying with the law and help make proactive avoidance and mitigation decisions for any activities that might have detrimental effects on migratory birds, their nests and eggs. For more information, visit:

**[www.ec.gc.ca/paom-itmb](http://www.ec.gc.ca/paom-itmb)**



Les oiseaux migrateurs sont un élément important de la biodiversité canadienne. Ces oiseaux, en tant qu'individus ainsi que leurs nids et leurs œufs sont protégés partout au Canada en vertu de la *Loi de 1994 sur la convention concernant les oiseaux migrateurs* (LCOM) et de ses règlements. De nombreuses activités peuvent par mégarde tuer ou faire du tort à des oiseaux, ou encore détruire ou déranger leurs nids ou leurs œufs. Ces activités comprennent, sans toutefois s'y limiter, la coupe

d'arbres et d'autres végétaux, le fauchage, le drainage ou l'inondation des terres. La planification à long terme peut vous aider, ou aider vos clients à respecter la loi et à réduire au minimum le risque d'effets néfastes sur ces oiseaux, leurs nids ou leurs œufs. Pour plus de renseignements:

**[www.ec.gc.ca/paom-itmb](http://www.ec.gc.ca/paom-itmb)**



## The effects of increased ambient urban noise on the vocal pitch of European Starling nestlings (*Sturnus vulgaris*)

By Celina Campbell, St. Mary's University

European Starlings are a common site in North America, though many people do not take notice of them except for when they are making too much noise. Starlings are amazing little birds, with highly adaptive capabilities, extensive vocal learning (including the ability to mimic), and huge success around the world as an invasive species. This makes them a great study species.

In my study, I examined the vocalizations of starling nestlings. More specifically, I was studying how the nestlings' sound frequencies (Hz) of their vocalizations (a.k.a. the pitch), changed while under increased ambient urban traffic noise. Noise pollution is becoming more apparent as a problem for both humans and non-human species, affecting everything from health to communication. I focused on how the nestlings' communicated and predicted that they would increase their sound frequencies, as well as their sound frequency ranges, to overcome the effects of masking by the ambient noise.



Above European Starling  
(Photo: Celina Campbell)

Over a period of 10 days starting on Day 5 of life (Day 0 = hatch), ambient urban noise was artificially increased in the experimental nest boxes for ~7 hr/day. Recordings of the nestlings vocalizations were made on Day 14. The experimental group had two parts to its recordings: 1) vocalizations were recorded with the ambient noise playing the background, and 2) vocalizations were recorded after the noise had stopped playing. Including a control group, this resulted in a total of 3 groups.

The results were quite interesting; the nestlings raised in the noisier environment (experimental groups) did not significantly increase their sound frequencies or sound frequency ranges. However, when the experimental nestlings that were recorded with the background noise were compared to the control nestlings, the difference became quite clear with a significant increase in both sound frequencies and sound frequency ranges. It was determined with some background research that birds will change their frequency levels - as well as other factors such as amplitude, call type, and call duration - if necessary to preserve energy when producing calls that can overcome the effects of masking.

Starlings are not the only species that exhibit this type of behaviour. There have been many studies done on both starlings and other species under this concept; however, there has been relatively little research on nestlings and their vocal responses to increased noise levels. This kind of study can lead to further research on correlating nestling fitness with their vocalization behaviours, for both short and long-term.



## And the scholarship winners are...

### The 2015 David Cartwright Memorial Scholarship: Kirsten Johnsen

"My name is Kirsten Johnsen and I am a fourth year student at UNB. As the 2015-2016 recipient of the David Cartwright Memorial scholarship, I am truly grateful to those who have donated, making this possible. It has been a tremendous help as it allows me to focus more fully on my studies. I am currently working on finishing my Bachelor of Science in Environment and Natural Resources with a major in wildlife conservation and have been able to maintain a 4.0 grade point average thus far. After I graduate, I hope to work with terrestrial animals and plants in a forest setting."

- **Kirsten Johnsen, University of New Brunswick**



### The 2015 Donald G. Dodds Scholarship: Laura Logan-Chesney

"This past year, I was the recipient of the Atlantic Society of Fish and Wildlife Biologists Donald G. Dodds Scholarship and I am writing to thank-you for your generous support. This scholarship was a major help in offsetting my tuition costs and it is so appreciated.

I am originally from Sherbrooke, Quebec but came to Acadia in 2009 to pursue a B.Sc. In Biology. I had never visited Acadia or even Nova Scotia before then, but looking back now, I could not have made a better choice. I have loved being a part of such a close-knit and supportive community. Pursuing an Honours project in the Coastal Ecology Lab was a highlight of my undergrad career. I was exposed to so much amazing scientific research and have been hooked ever since!

After graduating in 2013, I decided to stay on at Acadia for a Masters degree. I am currently in my second year of a M.Sc. In Biology. I am studying population-specific movement patterns and breaching behaviour of Atlantic sturgeon in the Minas Basin. The results of this research will be important in mitigating the potential negative impacts of tidal turbine development on the regular movements patterns of Atlantic sturgeon through the Minas Passage. I am passionate about this research and work with amazing lab mates and supervisors.

Thank-you for helping to make this experience possible for me"

- **Laura Logan-Chesney, Acadia University**



## Whooooo is it??

The first person to correctly identify this happy ASFWB AGM attendee displaying their silent auction spoils at the 2015 banquet, and emails one of the Newsletter Editors will win a great ASFWB prize!

### Any guesses?

#### Newsletter Editors

Danielle Quinn ([danielle.quinn@acadiu.ca](mailto:danielle.quinn@acadiu.ca))

Holly Lightfoot ([hlightfoot@birdscanada.org](mailto:hlightfoot@birdscanada.org))



# Upcoming Events

**29 April - 1 May:** Nova Scotia Hiking Summit. Digby, NS.

**11 May - 14 May:** Atlantic Canada Coastal & Estuarine Science Society Conference. University of Prince Edward Island, Charlottetown, PEI.

**30 July - 3 August:** International Marine Conservation Congress. St. John's, NL.

**16 - 20 August:** North American Ornithological Conference. Washington, DC, USA.

**30 September - 1 October:** Sustainable Oceans Conference. Dalhousie University, Halifax, NS.

**25 October - 27 October:** ASFWB 53rd Fall AGM. Summerside PEI.

**3 November:** Nature Trust 19th Annual Dinner and Auction. Halifax, NS.

Every year, Ducks Unlimited Canada holds hundreds of fundraising events that are open to the public, and encourage everyone to attend. For more information, go to [www.ducks.ca/events](http://www.ducks.ca/events)

## ASFWB Fish and Wildlife Research Grant

The **ASFWB Fish and Wildlife Research Grant** was established in the fall of 1994 to assist members who are conducting or supervising wildlife or fisheries research in Atlantic Canada. The grant provides funding up to \$500 annually for research projects. Any aspect of fish and wildlife research will be considered, but projects with applied management goals will receive preference. Applicants must be members of ASFWB. Projects that are largely government sponsored or funded are not eligible for this award. For more information, go to: <http://www.chebucto.ns.ca/environment/ASFWB/researchgrant.html>

## ASFWB MEMBERSHIP APPLICATION / RENEWAL FORM

Date.....

Name.....

Title.....

Affiliation.....

Telephone (H) ..... (O) .....

Mailing Address.....

.....

Email.....

Regular Member (\$20) \_\_\_\_\_ Student (\$5) \_\_\_\_\_

I would like to receive newsletters, notices, announcements, etc. by email  regular mail

Please remit your cheque or money order to Lee Millett, Ducks Unlimited Canada, P.O. Box 430, Amherst, N.S. B4H 3Z5, [l\\_millett@ducks.ca](mailto:l_millett@ducks.ca), 902-667-8726. You may also pay with PayPal by visiting us on our website at <http://www.chebucto.ns.ca/environment/ASFWB/>