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News from the Wildlife Division

Department of Environment & Conservation, Natural Heritage Branch

Aerial surveys provide population estimates - one moose at a time

Depending on where you live on the

Island of Newfoundland, helicopters flying around during the months of February and March may not be such an uncommon sight. In particular, some residents may notice helicopters flying in what appear to be lazy, zig-zag patterns, occasionally dropping towards the forest for brief periods.

To any onlooker it would appear the pilot or passengers are searching for something they've lost, like someone who has dropped a contact lens, stooping to stare at anything shiny that catches their eye. In this case, that isn't far from the truth.

Every February and March, biologists with the Wildlife Division conduct an annual moose survey of several of the province's Moose Management Areas (MMAs). These surveys are a key component of moose management. Along with information gained from hunters through their licence return information, they form the basis of the annual moose quota-setting process for each MMA.

On average, three to four MMAs are surveyed each year, with a given MMA being surveyed approximately once every seven to 10 years. Priority for areas to survey during a given year is evaluated based on the time since the last survey, current hunting trends from licence returns, and concerns raised by the public or other agencies.

Once the priority schedule for the year has been determined, Division biologists begin planning for and implementing two major components: **Stratification** and **Survey**.

Stratification typically requires a single helicopter with a pilot and three-person crew consisting of a navigator/recorder and two observers.

The observers' task is to look for signs of moose activity on the landscape - either tracks or actual moose - and to notify the recorder when they sight any. The recorder then marks the location of the tracks or moose on a GPS and writes down the type of sign observed. This is done while flying lines spaced four kilometres apart and evenly distributed over the entire MMA.

How to identify a moose calf:

- Calves appear to have a small nose and a short face

Calves appear to have more leg than body; hind quarters appear slender

- A calf's shoulder height is about four feet; a cow's shoulder height is about six feet

- Calves are seldom alone

- Source: NL Hunting & Trapping Guide

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Biologists spot moose, including a rarely seen white animal, during aerial surveys of the Island's Moose Management Areas. Photos, Pages 1 and 2: Emilie Kissler



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The next step is for management biologists to overlay the MMA with 4-km² survey blocks and, using the data collected from the stratification flight, identify those blocks where the density of moose is likely to be high, medium or low for that MMA.

A random sample of these blocks is then selected from each strata (high, medium, low) and this forms the basis for the survey.

Similar to the stratification, the survey typically requires helicopter crews of three staff and a pilot; however, two crews are often required depending on the size of the area. This is the point where it seems as if the crews are looking for that elusive contact lens: each crew is assigned a series of 4-km² blocks to survey, and transect lines are flown within the block looking for signs of moose. When moose or tracks are spotted, the helicopter descends low enough for the observers and recorder to locate and determine the sex and age of the animals, and whether or not calves are present. This is a straightforward process when single animals are standing out in the open; it becomes interesting when several (eg. 10+) animals are all located in a group, and all decide to run in opposing directions as the helicopter descends.

After the data is collected, it is analysed by statisticians, and both density and population estimates are generated for each area. These estimates aid in the management of Island-wide populations, and help wildlife managers determine the annual hunting quotas of the Island's MMAs.

Wildlife Division botanists will go to the edge to study Newfoundland and Labrador's rare and endangered plant species.

Must not be afraid of heights or sore knees!

When we think of plant biologists, helicopters and cliff edges do not usually come to mind; but to study the rare plants of Newfoundland and Labrador, a love of heights and small plants is required.

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Nine plants are currently protected under the provincial *Endangered Species Act*. Five of these are less than 10 cm in height, and two are found on cliffs or cliff edges. To study these species, botanists must be willing to literally go to the edge!

Porsild's Bryum (threatened) and Crowded Wormseed Mustard (endangered) are both small plants found on the edges of cliffs. Porsild's Bryum is a small moss that grows on wet cliffs containing calcium on the northernmost tip of the Great Northern Peninsula. Threats to the species include both natural and human-caused rock falls. The Crowded Wormseed Mustard is a yellow-flowered, shortlived perennial, found on one cliff edge between the Bay of Islands and Gros Morne National Park that is only accessible by helicopter. The endangered and threatened plants of the Limestone Barrens (Long's Braya, Fernald's Braya, Low Northern Rockcress, and Barrens Willow) are all very tiny, making a pair of kneepads - or maybe even two - absolutely essential field gear! The jagged rocks of the Limestone Barrens create the perfect habitat for the rarest plants in Newfoundland and Labrador, but make it a challenge to study them. The small size of even adult plants makes long-term monitoring difficult. In order to identify individual plants from year to year, adult plants are tagged with a nail and flagging tape inserted into the ground next to the plant. Seedlings are so small, they must be marked with coloured toothpicks. Finding these plants requires crawling, not walking, through their habitat.

You can help our rare plants by becoming aware of their distribution and staying on approved trails and roads when riding your allterrain vehicles and dirt bikes, and by supporting local stewardship activities and habitat protection.

- Susan Squires

Songbird protected under Endangered Species Act

The Olive-sided Flycatcher, a medium-sized migratory songbird, will be given protection under the province's *Endangered Species Act*.

This follows the listing of the songbird as a threatened species following a recent assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

The committee is recognized under the *Endangered Species Act* as the national body that provides listing advice on species of national conservation concern occurring in all provinces and territories.

The listing is a formal and legal recognition of this species' status, and the need for extra protection under the *Endangered Species Act*.

The Olive-sided Flycatcher is olive-grey, with a white throat, breast patch and belly. Its song is a distinct, loud, three-note whistle. It breeds throughout Canada, including Newfoundland and Labrador. This species winters in Panama and the Andes Mountains. It has shown a widespread continuous decline in numbers over the past 30 years across both Canada and the United States. Causes of these population reductions remain unclear, although habitat alteration and loss, particularly wintering and migration habitat, have been suggested as the most likely factors.

A recovery team made up of stakeholders, researchers and wildlife managers familiar with the species will be established, and a recovery plan must be prepared within two years.

Recovery plans released for two endangered species

A migratory bird called the Red Knot, and a flowering plant called the Crowded Wormseed Mustard are both being addressed by recently released recovery plans.

Both species are listed as endangered under NL's Endangered Species Act.

The **Red Knot** is a medium-sized migratory shorebird that breeds in the Canadian Arctic and winters in South America. Red Knots stop in Newfoundland and Labrador during fall migration, making use of

shorelines, sand flats and salt marshes as feeding and resting areas.

The recovery plan for this species includes such actions as an assessment of the population during its stopover in the province; identification of threats; determination of the appropriate levels of protection; and the need to increase awareness to encourage public responsibility towards the recovery of this species.

Thirty-two species, subspecies and populations are listed under the province's *Endangered Species Act*: 10 are endangered, nine are threatened and 13 are vulnerable. The **Crowded Wormseed Mustard** is a yellow-flowered biennial or short-lived perennial herb. Within Newfoundland and Labrador, it is known to exist in only one location on the West Coast of the island. The plant inhabits the edge of an unstable coastal cliff subject to grazing pressure from livestock in the adjacent meadow.

For more information about Species at Risk in Newfoundland and Labrador and to view recovery plans, visit us online at: www.env.gov.nl.ca/env/wildlife/wildlife_at_risk.htm

The population of Crowded Wormseed Mustard is very small, estimated at **100 mature plants.** Recovery actions include population inventory and monitoring; population and habitat management; off-site conservation measures, which may include seed banking and housing a collection of live specimens; possible introduction of new populations in appropriate habitat; research and informing local

land users of the need for conservation; and soliciting participation in

the recovery of the species.

- Wildlife Division

Photos: Olive -sided Flycatcher, Pierre Bannon; Red knot, Bruce Mactavish; Crowded wormseed mustard, Susan Squires

Hand-drawn goes high-tech

Modern-day mapmakers at the Wildlife Division are using latest technology to evaluate the potential impact of human development on Sensitive Wildlife Areas.

Habitat Management staff evaluate the potential impacts of human development and land use on wildlife populations and habitat throughout Newfoundland and Labrador. Mitigation measures are recommended to minimize the impacts of human-induced disturbance and ensure the ecological integrity of our natural ecosystems for the benefit of current and future generations.

In order to assess potential impacts on wildlife and their habitats, it is necessary to identify wildlife species that are sensitive to human activities and developments on the

landscape, such as species that are in decline, rare, or at risk. Species sensitivity is also based on seasonal variables, such as breeding seasons, staging periods, weather conditions, and the availability of food resources.

Sensitive Wildlife Areas are established to identify areas that are valued and important to various species, such as caribou calving areas, breeding and staging areas for waterfowl, spawning habitat for fish, and habitat to sustain rare plant species.

These types of areas are considered sensitive, and human-induced impacts have the potential to affect the health of local populations.



In order to identify Sensitive Wildlife Areas for various species, the Division undertakes surveys to determine species presence over time and space, population size estimates, overall health and fitness, species composition (sex and age ratios), behaviour, density, and associated food sources. Information pertaining to species habitat use and habitat preferences is also gathered to identify key habitat use areas on the landscape.

The historic age: Historically, this information has been hand-drawn on topographic paper maps, and areas were added or boundaries refined as new information became available. Information was based on public input and on-

the-ground field surveys such as waterfowl monitoring or caribou surveys. Distributing the information was cumbersome, as paper copies had to be multiplied either by hand or by tracing maps on top of each other.

Depending on the species, some location descriptions included estimated distances to nearest landmarks, such as trails, water bodies or remote cabins. Inherent in this process were errors of unknown magnitudes, which are difficult to re-survey.

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The transition phase: The advance of computer technology and other innovative tools led to a more efficient means of database creation and maintenance, as well as the visual display of Sensitive Wildlife Areas. This mechanism allowed for the transformation of historical paper map data to digital format through digitization.

The digital age: Most data is now collected using Global Positioning Systems (GPS) that enable the user to generate new location data in the field. This data can then be transferred into a format used in various spatial software applications, including Geographic Information Systems (GIS), Google Earth, Remote Sensing, Access and Excel.

This software enables data to be displayed, shared easily, and overlaid with other resource data to be analysed, and to generate new findings and relationships such as home range analysis with vector or raster habitat modelling.



Top: Norris Point. Above: GIS technicians with the Habitat Management Program use GPS data to assess proposed development projects. Below: Aerial surveys are conducted to collect information about habitat. Bottom: Ecosystem management ecologists on a site visit to the Limestone Barrens on the Northern Peninsula.



The Division maintains databases and GIS layers for Sensitive Wildlife Areas that contain species information, geographic location coordinates, information sources, date of designation, reason for internal designation, and potential restrictions to consider when assessing proposed projects and activities.

Due to species dynamics, Sensitive Wildlife Areas are under constant review to ensure the most up-to-date information is available and being utilized when assessing potential impacts of human development and land use on wildlife populations and habitat.

Sensitive Wildlife Areas may also be recognized through special designation such as Stewardship Agreements, Wildlife Reserves or Seabird Sanctuaries.

> - Jana Fenske, Kirsten Miller, Carl Marks

For further information on Sensitive Wildlife Areas or other special places, please contact the Habitat Management Program at (709) 637.2920 or visit our website:**www.env.gov.nl.ca/env/wildlife** **Many hunters and trappers** contribute significantly to conservation and wildlife management. Because of their intimate involvement in outdoor pursuits, they are more keenly aware than many regarding the condition of our environment, and most are responsible stewards of our natural heritage. Unfortunately, some do not embrace these values, and will shoot at eagles, poach moose, leave their garbage behind, or partake in other unethical and unacceptable activities. Though rare, this behavior should not be tolerated.



Steel shot found in the skull of Gwaihir, a bald eagle fitted with a satellite transmitter.

Top of the food chain

Highly visible and at the top of the food chain, bald eagles are good indicators of ecosystem health, particularly in coastal environments. Through the years the Wildlife Division has conducted or supported bald eagle research, including **Eagle Watch**, an opportunity for public eagle monitoring; toxicology and nest site selection studies in partnership with Memorial University; and eagle surveys with support from Natural Resources (DNR), Forest Resources.

The Wildlife Division has conducted eagle surveys since 1983, mainly in Placentia Bay, home to one of the largest bald eagle populations in eastern North America. Surveys have provided a long-term dataset that quantifies trends in eagle populations over the last 20+ years. But a number of questions still remain:

- Given that Placentia Bay remains ice-free all year and is also an area of high industrial activity, how important is this bay to bald eagle breeding and wintering populations from across the island?

- Do insular Newfoundland's eagles migrate, or stay put? If eagles do not leave the island, then we may have a unique subpopulation here.

To help answer these and other questions, the Division affixed five eagles with GPS satellite transmitters between 2008 and 2009. GPS satellite technology allows accurate tracking of eagles, giving a clear understanding of location, seasonal movements and habitat preferences.

Catching and tagging a wild adult eagle is not without its challenges and excitement. Through trial and error, researchers determined that an anchored, floating fish booby-trapped with nooses was the most successful capture method, and the technique that raised the least amount of suspicion in eagles. The eagle swoops down on the bait fish and, with luck, gets its talons caught in the nooses. As the caught eagle tries to swim to shore, researchers rapidly approach by boat. The next trick is getting the eagle out of the water. With a beak designed for ripping and shredding, powerful wings, and locking talons capable of exerting more than 450 lb of pressure per square inch, care and safety are definitely a priority when handling eagles. Once aboard the boat, the bird is hooded to reduce its stress level, and brought to shore for processing.

The first wild eagle tagged was an adult male caught near North Harbour, Placentia Bay. This eagle was affixed with a transmitter and named "Gwaihir," a name chosen in appreciation of the more than two decades of eagle work conducted by retired Wildlife biologist and "Lord of the Rings" fan, Joe Brazil.

A transmitter is attached to a bird like a backpack, with straps around its shoulders and sides. The backpack is designed with a weak point; its stitching will disintegrate after a few years to ensure the transmitter will eventually fall off an eagle and not impede its movements. Once affixed, a transmitter allows

monitoring of an eagle's daily movements via satellite downloads.



It didn't take Gwaihir long to provide some new insights into the lives of Newfoundland eagles — he left Placentia Bay in the fall of 2008 and traveled all around the island in one month.

Along with data from the four other tagged eagles, the Division now has evidence that adult eagles remain on the island year-round, and that inland sites – likely related to the availability of the remains of hunter-killed big game – are a significant attraction for these birds outside of the breeding season. Though capable hunters, eagles are also opportunistic feeders. As such, eagles fill an important role as scavengers by reducing the amount of carrion other predators leave behind on the landscape.

Once again in the fall of 2009, and coinciding with the opening of the big game hunting season, Gwaihir went inland. This time, he traveled north past Gander. Near the end of October information received by satellite indicated Gwaihir's transmitter had stopped moving. Subsequent investigation revealed that Gwaihir had been shot. Our look into this eagle's life had come to an end.

- Bruce Rodrigues

Outdoors Woman

BOW volunteers keep on giving

The **Becoming An Outdoors Woman (BOW)** program is successful and affordable because of the many volunteers that give and give, year after year. For 13 years, firearms instructors, fishing instructors, map and compass instructors and the women who drive the vans have not missed a BOW program. Other volunteers attend every BOW program that does not conflict with personal and family commitments. Why do they do this? Why do they give their time to a Wildlife Division-sponsored program? **BOW coordinator Lucy O'Driscoll** asked some volunteers, and this is what they told her.

They volunteer for the personal satisfaction of sharing their love of the outdoors and love of their particular sport. The instructors' enthusiasm is contagious; that makes for good classes. The participants are keeners who want to know everything about the particular sport they have chosen. Keeners make excellent students; they ask good questions. They soak up the



over the years at the rifle range. Some participants go to the shooting range with a total fear and misunderstanding of firearms, but ready to learn. They come back to camp proud and confident, with their bulls-eye paper target showing off their new skill. This is a credit to the volunteer instructors. We have

information, eager to do the hands-on practical components. Volunteers love to teach keeners.

They volunteer to remove the mystery and fear of the outdoors. Liz Dawe, who teaches map and compass, said many of her students were told from a very young age that map and compass was too difficult to learn. So, when she sees a student "get it," and watches the mystery of the map and compass dissolve into thin air, that makes it worthwhile. For many instructors like Liz, empowering women to be outdoors, safe and confident in their outdoor skills and abilities is a reason to volunteer.

They volunteer to hear the shouts of joy and encouragement. Chris Baldwin, John Blake, Jason Foster, and other Wildlife Division staff have witnessed this many times been fortunate to have volunteers like T.A. Loeffler, Memorial University professor and author of "More Than a Mountain, One Woman's Everest." T. A. has made one attempt to summit Everest, and is trying again this spring.

She will be back to Newfoundland one week before the June BOW program. In her book T.A. talks about how important the BOW program is to the women of Newfoundland and Labrador. Like many other volunteers, T.A. is an excellent role model and inspiration.

The next Becoming An Outdoors Woman Program is June 11-13th, at the Burry Heights Camp on the Salmonier Line. The fee is \$180.00 taxes included, and covers two nights' accommodations, seven meals, professional instruction and use of demonstration equipment. There are also a limited number of scholarships available for single moms and students. We can offer this empowering program at such an excellent price because we have so many volunteers who keep giving and giving.



If you visit islands or other coastal habitat that may be Common eider habitat, please follow this code of conduct:

1) Avoid visiting nesting islands, especially in the spring during the nesting period (May and June)

2) If you must visit a nesting island, stay near shore and out of sight of nesting females

3) Never handle the nests or eggs of eider hens

4) Never chase or harass ducklings

5) Always avoid eiders when boating

6) Practice sustainable hunting by staying within bag limits and seasons

Protecting Eider Ducks

Eastern Habitat Joint Venture (EHJV) stewardship biologists at the Wildlife Division had a busy and eventful fall season working to sign Coastal Stewardship Agreements with Mary's Harbour, Red Bay, and St. Lewis, three communities surrounding St. Peter's Bay on the coast of southern Labrador.

This goal was significant. St. Peter's Bay is the primary moulting area for Common eiders (*Somateria mollissima*) along the southern coast of Labrador, with estimates of up to 3,000 moulting eiders congregating there during the months of July and August. St. Peter's Bay also contains a rich diversity of other waterfowl species, including American black duck, Canada goose, Common merganser, various species of scoter, and Harlequin duck.

The road to these agreements has been long and rocky, but through perseverance and commitment to the ideals of conservation, every-

through perseverance and commitment to the ideals of conservation, everyones' efforts were finally realized. In November 2009, Divisional staff visited Mary's Harbour, Red Bay and St. Lewis with Labrador Affairs Minister John

Hickey, Cartwright-L'Anse Au Clair MHA Yvonne Jones, and St. John's East MHA Ed Buckingham to show the residents of these communities how much their commitment to stewardship is appreciated.

It was a delight for the communities and Wildlife Division staff alike to finally sign official stew-



ardship agreements between the towns and the Department of Environment and Conservation. Most importantly, it is fantastic to now have the stewardship efforts of people from these communities recognized throughout the province. Historically, and continuing today, local residents from Mary's Harbour, Red Bay and St. Lewis have been involved in eider enhancement and conservation work in St. Peter's Bay. This work has included installing and maintaining nest shelters on offshore islands, used to help protect nests and eider young from predators such as gulls.

An additional threat to eider populations is human disturbance on nesting islands. Disturbance of nesting females may cause them to abandon their nests and leave eggs or chicks as easy prey. A main goal of EHJV and Coastal Stewardship Agreements is to provide information on the importance of minimizing these impacts, while continuing to enjoy recreational and subsistence activities that Newfoundlanders and Labradorians value, such as such as berry picking, fishing, small game and waterfowl hunting, boating, sightseeing, hiking, and snowmobiling. Residents of participating communities are prime examples of caring stewards who are putting conservation ethics into action as they conduct traditional land-use activities on a coastline shared with eiders and other seabirds.

- Jessica Humber

Celebrate National Wildlife Week April 4-10, 2010

Dare to Be Different ... Dare to Care About Wildlife

Our Wildlife

is the quarterly newsletter of the Wildlife Division. For more information, please contact:

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Newsletter coordination/design: Linda Skinner Wildlife Division Wildlife Division staff are preparing to celebrate National Wildlife Week during the week of April 4-10. The theme for 2010 is **Biodiversity**, with the slogan **Dare to be Different ... Dare to Care About Wildlife**.

Students from across Newfoundland and Labrador are invited to participate in Salmonier Nature Park's annual poster contest and compete for great prizes. Submissions are invited that portray this year's theme.

Wildlife staff and partners including Parks Canada, MUN Botanical Gardens, the Multi-Materials Stewardship Board, The Fluvarium, and Conservation Corps Newfoundland and Labrador will participate in a National Wildlife Week Exhibit at the Village Mall in St. John's. Each organization will showcase its involvement in biodiversity projects and educate the public on the importance of biodiversity.

Salmonier Nature Park will highlight the value of biodiversity as it relates to hunting, trapping, medicine, shelter and food. There will be an on-site art contest, and the winner will have an opportunity to become an Interpreter for a Day at Salmonier Nature Park during the upcoming park season. Planning for other activities throughout the province is underway, including the annual speaker series at the Division's Corner Brook headquarters. **Please contact (709) 637-2006 for more information.**

Thank you to everyone who contributed to the content of our third newsletter. This newsletter would not be possible without the extensive field work, data analysis, mapping and other tasks performed by our very dedicated staff.

The mandate of the Wildlife Division is to protect and conserve Newfoundland and Labrador's biodiversity and manage its wildlife and inland fish resources for the benefit of present and future generations. To deliver on this mandate requires an incredible amount of work, both in the field and at the office. It is our hope that these newsletters will provide a snapshot into the work of the professionals who are striving to fulfill this mandate, and to highlight the complex nature of wildlife research and management.

> - Gerry Yetman (Editor) Senior Manager Stewardship and Education

Department of Environment & Conservation Wildlife Division

