Swan Valley Forest Management Plan Newsletter

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Welcome to the Newsletter, Issue 4

This Issue is for the Birds!!

Welcome to the fourth issue of the Swan Valley Forest Management Plan Newsletter. In this issue we are going to focus on the Bird Research that LP Swan Valley has been working on over the past 7 years. LP was given a "research" condition as part of our Commitment to the Environment Act License Agreement. LP took this very seriously, particularly for birds, and in 1995 assembled a team of top-notch scientists, biologists and bird specialists to help us meet this license condition. In addition, LP has established partnerships with Ducks Unlimited Canada and the Canadian Wildlife Service. LP also protects birds during the breeding season by utilizing a harvesting cap of 100,000 cubic meters of wood that can be harvested during the bird breeding season (April, May and June).

This issue of the newsletter has been written exclusively by our Bird Researchers, including Rob Berger, who is primarily responsible for the sample design and fieldwork on the Duck Mountain Bird Monitoring Project. Alison Hart, a graduate student at Lakehead University, has looked at some habitat relationships of upland birds. Chris Smith and Julienne Morissette, biologists working with Ducks Unlimited Canada report on riparian and water birds.

To date LP has spent almost half a million dollars conducting our bird research, sampling design, data analysis and contributions to partnerships, and in our opinion it has been money well spent.

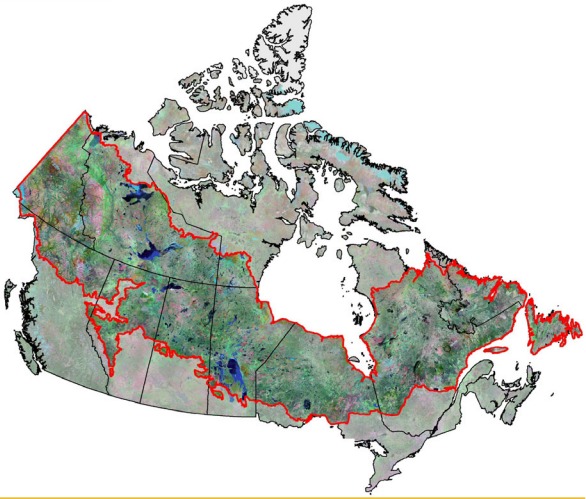
Enjoy our newsletter as this one is for the birds!!

The Boreal Forest - A Breeding Oasis for Birds by Julienne Morissette

The boreal forest is Canada's largest ecosystem, covering 53% of the country, and is included in the breeding range of some 300 bird species. Approximately 200 of these species are landbirds while the rest include shorebirds, waterfowl and other waterbirds. Sparrows, warblers and thrushes account for more than half of all boreal landbirds but this group also includes birds such as eagles, hawks, owls, and grouse among others. The boreal forest landscape has a high percentage of water, sometimes upwards of 50%, and thus provides excellent waterfowl habitat. In fact, it is the second most productive habitat for waterfowl in the world!

Although it is facing increasing development pressures, 25% of Canada's boreal is still considered frontier forest. This represents an excellent opportunity for conservation organizations, universities and forward thinking industry and government partners to effect conservation. Many of these groups are working together to conduct research throughout the boreal to develop the knowledge necessary to make sound decisions so that this very special ecosystem exists for generations to come.

Several research questions exist but they generally fall into these broad areas: a) how much habitat is enough for long-term persistence of populations of boreal birds b) how are current practices affecting plants, wildlife and aquatic resources, c) in what ways should industries and governments modify their



The Boreal Forest Region as mapped by NASA and the Canadian Forest Service.

practices so managed forests can recover to meet economic, ecological and social needs and d) what can the boreal forest tell us about what these changes should be? Hopefully, together we can find common ground and work toward a solution.

Duck Mountain Forest Bird Monitoring Project by Rob Berger

What comes to mind when you hear the words "3:30 a.m….dark forest…crossing a beaver flood…cold…listen, look… chirp… light… movement… explosion of sound?" These words describe one LP Swan Valley research project that started in 1997. Each year during the breeding bird season, researchers that specialize on the identification of birds by song visit often remote sites to collect data on forest birds. In addition to the bird species information, LP conducts follow-up habitat assessments on a sub-sample of the listening stations during July and August. The Duck Mountain Forest Bird Monitoring Project completed it's sixth year of sampling in 2002.

The Duck Mountain Forest Bird Monitoring Project was designed to provide baseline information on forest bird populations, including rare species and their habitat associations. This information will aid in the development of biodiversity conservation strategies within LP's long-term plan. Field investigations focused on describing existing bird population conditions with respect to species composition, abundance and distribution in the study area.

Table 1. The ten most common bird species found from early April to mid-May in two habitat types in the Duck Mountains.

Aspen Dominated Forest	Aspen Dominated Mixedwood Forest
Dark-eyed junco	Dark-eyed junco
Evening grosbeak	Evening grosbeak
Ruffed grouse	Red-breasted nuthatch
Common raven	Common raven
Black-capped chickadee	Common redpoll
Common redpoll	Ruffed grouse
Brown creeper	Brown creeper
Hairy woodpecker	Blue jay
Blue jay	Pine siskin
Pileated woodpecker	Pileated woodpecker

Sampling is based on a stationary point count method known as 'I.P.A.' or 'Indice Ponctual D'Abondance' technique developed by Blondel *et al* (1970). Each bird monitoring station is placed at a minimum of 250 metres apart. Researchers record birds that are heard or seen on a map, along with relevant data such as number of individuals, and what each individual was doing at the time (e.g., singing, foraging, flying over the plot, etc.). The map is used to keep track of birds to avoid double counting individuals. Over 6 years, researchers visited more than 3,500 bird monitoring stations, and collected over 63,000 bird observations through this period. A total of 239 bird species were observed from 1997 to 2002 in the Duck Mountain area. This total also includes incidental observations from habitats such as pastureland and prairie potholes adjacent to the provincial forest and park. In the peak of the June breeding bird season, about 120 bird species, averaging 19 individuals per monitoring station are recorded in forested habitats. The number of individuals and species can be highly variable among habitat types, between seasons and years.

"A total of 239 bird species were observed from 1997 to 2002..."

The habitat associations of migrant and resident bird populations within the Duck Mountain were examined closely during the first four years of research. Habitat monitoring included aspen dominated mixedwoods and softwood dominated mixedwoods, and covered a variety of forest age and structure classes. In 2001, data was collected on the abundance of birds associated with riparian habitats, or forest, shrub and wetland vegetation types adjacent to creeks, rivers and lakes. Resident bird point-count sampling commenced in early April 2002, and focused primarily on pre-established listening stations in aspen stands and aspen dominated mixedwood stands.

Table 1 summarizes data from early April to mid-May, that includes the top resident, winter resident, and early migrant bird species in the Duck Mountain region. The dynamics of the bird communities begin to change soon after the arrival of neotropical and other migrants into the boreal forest.

Looking at the survey results, we begin to see how some birds prefer certain forest types. Many of these species are known as habitat specialists. For example, American redstart occurs most often in aspen dominated forest.

As coniferous tree species become more common, their abundance ranking drops considerably, and when conifers dominate a forest stand, the American redstart decreases in abundance. Conversely, the white-throated sparrow, known as a common boreal forest bird, is often described as a habitat generalist. In other words, it may be found in nearly all forested habitats, and nearly everywhere on the Duck Mountain.

Forest Songbird Research Project Update by Alison Hart

A large amount of data has been collected for the Duck Mountain Forest Bird Monitoring Project, and as a graduate student at Lakehead University in Thunder Bay I have been given the opportunity to conduct specific analysis for this project. The Biodiversity Effects Assessment Team that is preparing the biodiversity conservation strategy for LP Swan Valley's Forest Ecosystem Management Plan will be using results from the analysis conducted. So what exactly are we up to with all this data? Well…

The research objectives for this project are focused on determining the broad scale relationship between patterns of songbird distribution and patterns of forest landscape structure, the scales at which these patterns become significant, and if patterns for individual songbird species are similar for nesting or feeding guilds. The maintenance of songbird diversity is an important component of an integrated approach to sustainable forest management. The songbird community in this region has adapted to the natural patterns and processes of the forest landscape. Forest managers require a toolbox of indicators for monitoring and assessing the sustainability of the forest management activities, and this research will help build this toolbox.

Neotropical migrant songbird species are being targeted for this project. Neotropical migrants are territorial; the male sings when the female is on the nest, making them relatively easy to census during the breeding season. They are considered by many researchers to be sensitive indicators of habitat at different scales. Different species exhibit distinctive life-history strategies and use varying forest stand ages and vegetation types.

Although we are using data collected from close to 2,000 bird monitoring stations, we are also interested in the bird densities between the stations. Using a geographical information system (GIS), statistical and mapping software, we have been able to develop maps that show where different songbird species are likely to be found across the Duck Mountain region. Further, an extensive forest land inventory (FLI) has been created for the Duck Mountain region that contains detailed information about the age, composition and condition of the forest, as well as for the herb and shrub vegetation. We have classified this inventory into meaningful habitat categories for songbirds. So now by placing these two layers (bird density distribution map and FLI) over top one another, we are able to look more closely at the habitat associations. For example, our results show that ovenbirds are likely to be found throughout the Duck Mountain region in any area where there is old, deciduous (aspen and birch) forests. They are not likely to be found in young forests, or forests with high percentage of conifers (spruce and pine).

However this is not startling new information, it is generally known that ovenbirds prefer old deciduous forests. It is the further analysis of these habitat pattern associations at different scales that are allowing us to use these relationships to develop evaluative and prescriptive indicators of biodiversity.

But we are not quite there yet. Keep an eye on future newsletters. We will further update our progress, as we get closer to completing the project.

GLOSSARY

Nesting guild - A group of bird species that nest in similar places, such as on the ground, or in the canopy.

Neotropical migrants – Birds that migrate to spend winter in the tropics and breed in northern forests.

Riparian - Anything connected with or immediately adjacent to the banks of a stream or other body of water.

Natural disturbance emulation - Managing forests to follow the patterns created by natural disturbances such as fire and wind.

Studying Wetlands in the Forest

by Chris Smith

Wetlands in the Western Boreal Forest are becoming increasingly influenced by human caused change to this landscape. However, wetland conservation planning in this ecosystem is limited by a lack of basic information on boreal wetland systems and associated waterbird use. To address this information gap, Ducks Unlimited Canada has initiated a number of landscape-level inventory projects.

The Manitoba connection to this work is a three year project called "Pasquia", an 18 million acre study area that includes the Duck and Porcupine Mountains, shoreline marshes of Lake Winnipegosis and the extensive Saskatchewan River Delta near The Pas. This project includes high-tech satellite based habitat mapping, an inventory of water quality and the most extensive

Previously extirpated trumpeter swans are now nesting in the Duck Mountains.

surveys of waterbirds ever undertaken in this area. Although not yet complete the Pasquia Project has already expanded our knowledge of wetlands and waterbird use in this portion of the boreal forest.

In the Duck Mountains specifically, waterfowl and other waterbirds have been surveyed on over 100 lakes since 2001. Surveys are carried out from early spring and into fall to capture the breeding, brood rearing and fall staging periods. Over 18 waterfowl species have been recorded with mallard, blue-winged teal and ring-necked ducks being most abundant. Significant numbers of Canada geese are also present and impressive numbers of common loon and red-necked grebes have been documented. In addition, information on other species of interest such as heron rookeries and osprey nests has been documented.

Of particular interest is the recent confirmed documentation of nesting trumpeter swans in the Duck Mountains. Although single and pairs of trumpeter swans were recorded in 2002, two nests were found in the spring of 2003, each producing broods of one and four cygnets respectively. This is a most significant find since trumpeter swans were extirpated from most of their former range, which includes Manitoba.

The Pasquia project information will be used to determine how boreal wetland systems function, to identify key wetland habitats and to establish wetland conservation priorities for this region of Manitoba. All information from the project is shared with the project partners that include LP Swan Valley, Manitoba Conservation, Tembec Inc, Saskatchewan Environment and SaskPower. When combined with other ecological data, including information that LP uses to develop forest management plans, boreal wetland conservation will be enhanced.

For more information on Ducks Unlimited's Western Boreal Program, visit the website at www.borealforest.ca.

Riparian Birds - Filling the Gaps

by Julienne Morissette

Riparian areas are abundant throughout the boreal. Because these very special habitats are at the interface of the wetland and upland they represent habitat for a great diversity of plant and animal species. Despite being recognized for this diversity and despite the large portion of the land-base that exists as riparian habitat, very little is known about birds in these areas.

To address this gap, LP Swan Valley is supporting a study developed by Ducks Unlimited Canada and the Canadian Wildlife Service to gather baseline data for riparian bird communities including habitat preferences and factors that influence the presence or absence of bird species in a given riparian bird community.

In the spring and summer of 2003, surveys were conducted at a broad range of wetland types in the Duck Mountains to characterize riparian bird communities in this area. Using visual and auditory surveys, 80 small wetlands were visited throughout the mountain. A total of 113 species were found using wetlands and riparian areas! We even documented a species that had not yet been recorded in the Duck Mountains by other surveys - Nelson's sharp-tailed sparrow. Other typically documented species included common yellowthroat, red-winged blackbird, Bonaparte's gull, the rapidly declining rusty blackbird, as well as a number of shorebirds and waterfowl.

There is a growing acceptance of using natural disturbance emulation as a sustainable forest management tool in western Canada. This shift in thinking has led to discussion among forest managers about appropriate policy regarding harvest practices near riparian areas. A scientific basis to support impending changes to policy and guidelines for riparian management under a natural disturbance regime is needed. In 2004/2005 this study will aim to compare wetland bird communities in areas disturbed naturally and in harvested areas to determine the best practices possible for conserving the ecological integrity of wetlands in the Duck Mountains.

Project partners to date include the Sustainable Forest Management Network, LP Swan Valley, Manitoba Conservation, Ducks Unlimited Canada and the Canadian Wildlife Service.

Provide YOUR input! Subscribe to the Newsletter! For Questions or Comments...

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