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Protecting the Boreal Forest

Because of its location in the remote areas of the province, large tracts of the boreal forest remain natural and unspoiled. However, with resources in the south becoming more and more scarce, developers are turning to the north for new sources of wood, hydroelectric generation and mineral extraction. Canada currently loses about 1 percent of its boreal forest each year; a rate that is roughly equivalent to the disappearance of the tropical rainforests. It is important to protect the boreal forest for the sake of the countless species of flora and fauna that rely on this unique and often inhospitable landscape.

You can help protect the boreal forest by reducing the amount of paper that you use and always recycling paper products. Buying environmentally friendly, post-consumer recycled writing paper and paper products also helps protect our old-growth forests for future generations.

Did you know...the word boreal means "northern." According to Greek mythology, "Boreas" is the god of the north wind.

Word Search Solution:
THE BOREAL FOREST - ONTARIO'S LAST FRONTIER

For more information about the boreal forest, visit your local library or check out these sites:

- Ontario Nature : www.ontarionature.org
- The Faculty of Forestry and the Forest Environment at Lakehead University: www.borealforest.org
- The Ontario Ministry of Natural Resources: <http://ontariosforests.mnr.gov.on.ca/>

The Boreal Forest

Ontario's Last Frontier



The boreal forest is the largest forested region in the country, covering about 35 percent of the total land area of Canada. This 1,000-kilometre wide band of forest stretches from the Yukon Territory to Newfoundland and Labrador in the east and from the tundra in the north to the mixed woodlands and grasslands in the south. Despite its sometimes harsh environment the boreal forest is home to a wide variety of plants, mammals, insects, birds, reptiles and amphibians.



golden eagle

Canada contains nearly one-third of the world's boreal forests.

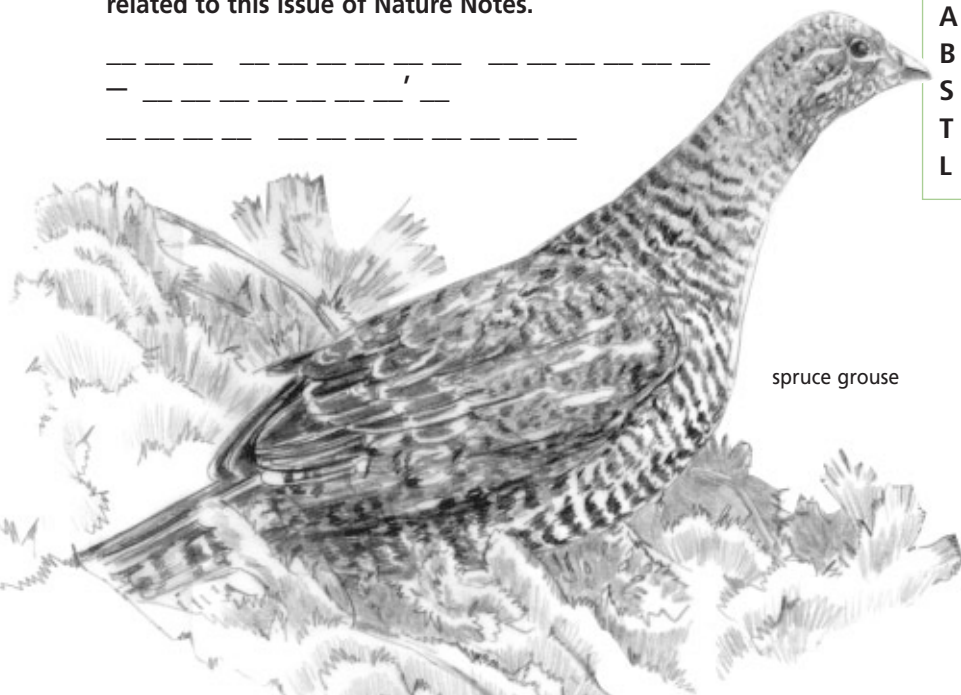
Boreal Forest Word Search

Many species in the boreal forest have adapted well to their environment. See how many boreal species you can find in this word search — they are well camouflaged too!

- | | | |
|--------------|------------------|----------------|
| BAKE APPLE | GOLDEN EAGLE | POPLAR |
| BALD EAGLE | GREAT HORNED OWL | RED MAPLE |
| BALSAM FIR | JACKPINE | RED PINE |
| BEAVER | LABRADOR TEA | SNOWSHOE HARE |
| BLACK BEAR | LARCH | SPRUCE BUDWORM |
| BLACK SPRUCE | MOUNTAIN ASH | WOLVERINE |
| CONIFEROUS | NORTHERN PIKE | WOODPECKERS |
| CROSSBILL | | |

Write the remaining letters, in order to spell a phrase that is related to this issue of Nature Notes.

A E T R O D A R B A L T H E M
G C K E L P P A E K A B B G O
O O R I F M A S L A B R R M U
E N L E P R E D P I N E A R N
L I L D E N I P K C A J W O T
G F I L E F R B O T O R O W A
A E B E S N E E H P T O L D I
E R S N T A E O H A L R V U N
D O S I V O R A S T L A E B A
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S N O W S H O E H A R E E R N
T W E C U R P S K C A L B P I
L W O O D P E C K E R S E S R



spruce grouse



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Plants of the Boreal Forest

The boreal forest's terrain ranges from lowland peat bogs and deep, fertile soils to exposed rocky outcrops covered in mosses and lichen. Much of the soil is nutrient-poor and has inadequate drainage, and is, consequently, waterlogged. Permafrost — soil that is frozen for most of the year — covers large areas of the forest. Winters are long and extremely cold while summers are short, cool and moist. Nevertheless, lush coniferous forests are able to grow and thrive. These forests play an important role in the environment by releasing oxygen for us to breathe and by storing carbon, thus slowing global warming.

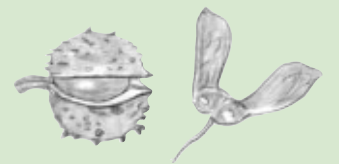
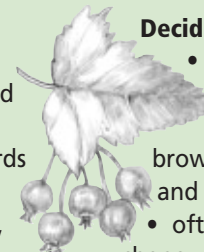
Coniferous Trees

- thin, needle-like leaves
- leaves are not usually shed in the autumn
- the branches grow upwards rather than outwards from the trunk, compact, like a folded umbrella
- seeds are inside cones

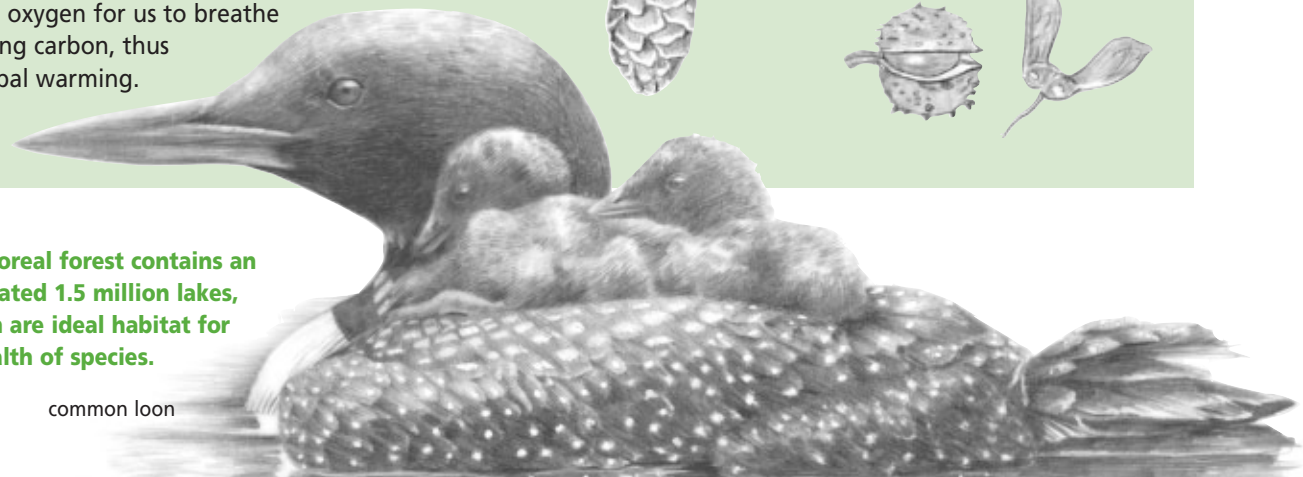


Deciduous Trees

- broad, flat leaves
- leaves turn red, yellow, orange or brown in the autumn and are shed
- often rounded in shape, growing large distances outward from the trunk
- seeds are inside nut or fleshy fruit



The boreal forest contains an estimated 1.5 million lakes, which are ideal habitat for a wealth of species.



common loon

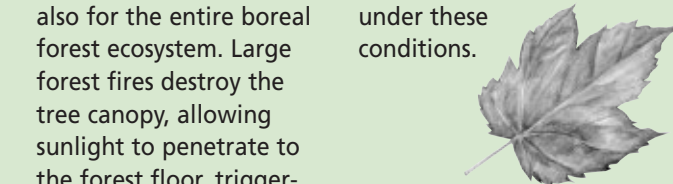
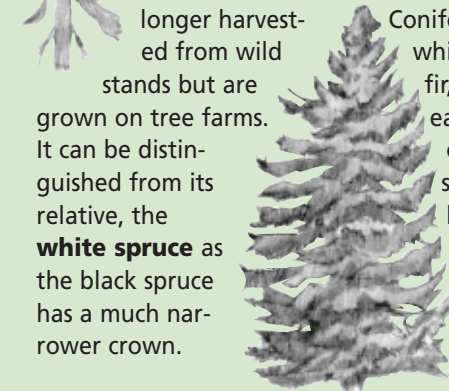


Unlike most habitats that may be permanently damaged after natural disturbances, the boreal forest depends on windstorms, insect damage, floods and fires to rejuvenate itself.

The **Jack pine** is a tall, thin coniferous tree that resembles a bottlebrush. It is well suited to the boreal forest's varying climate and soil conditions. Jack pine depends on fire to reproduce—the intense heat causes the cones to release their seeds.

Like Jack pine, **black spruce** also regenerates quickly after a forest fire. Again, the cones open in response to a fire, and the seeds are deposited on the forest floor. This slow-growing evergreen used to be sold as Christmas trees. Most Christmas trees are no longer harvested from wild stands but are grown on tree farms. It can be distinguished from its relative, the **white spruce** as the black spruce has a much narrower crown.

Fire is not only a necessity for the survival of Jack pine and black spruce but also for the entire boreal forest ecosystem. Large forest fires destroy the tree canopy, allowing sunlight to penetrate to the forest floor, trigger-



ing the growth of blueberries and other shrubs that provide much-needed food for insects, birds and mammals.

Tamarack, sometimes called larch, is found throughout Ontario but thrives in the boreal forest's soil. Tamarack is Ontario's only native deciduous conifer. Unlike other coniferous trees that keep their needles in the winter, the larch sheds its needles in the autumn. This tree is easily recognized during the autumn months as its needles turn a vivid yellow before falling off.

Because of the region's thin soils, trees have shallow roots that use all available nutrients in the leaf litter. Branches can bend and break under the weight of a heavy snowfall, however, the narrow cone-shape of the coniferous tree allows snow to slide off. The dark coloured needles maximize the absorption of sunlight.

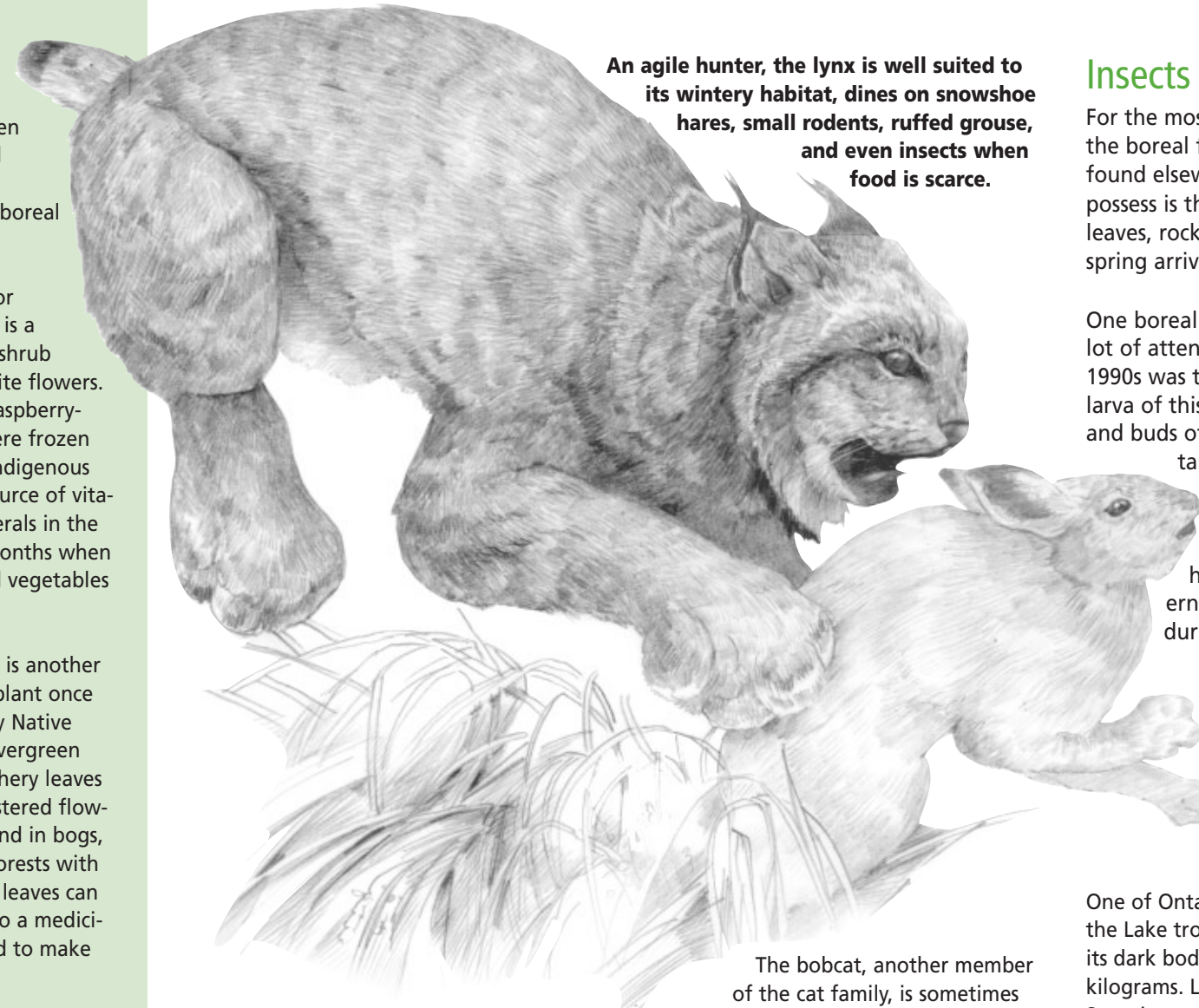
Coniferous trees such as white spruce, balsam fir, red pine, and eastern white cedar are well suited to the boreal forest's cold climate and thin soils. Hearty deciduous trees such as birch, poplar, aspen, willow, red maple, alder, and mountain ash are also able to survive under these conditions.

Small shrubs, herbs, mosses, fungi and lichen are also found throughout Ontario's vast boreal forest.

Cloudberry, or "bake apple," is a low, creeping shrub with small white flowers. Its yellowish raspberry-like berries were frozen and used by Indigenous people as a source of vitamins and minerals in the long winter months when fresh fruit and vegetables were scarce.

Labrador tea is another boreal forest plant once widely used by Native people. This evergreen shrub has leathery leaves and white clustered flowers, and is found in bogs, swamps and forests with acidic soils. Its leaves can be brewed into a medicinal tea or used to make brown dye.

Lichen is a plant found in the northern areas of Ontario. Although classified as a subspecies of fungi, it is actually the result of a close relationship between fungus and algae. These plants usually grow close to the ground and are able to live in some of the most inhospitable climates on earth. In the boreal forest, lichen is usually found on bare rock but can also grow on tree bark. Lichen helps produce soil by breaking down bedrock and is a vital food source for caribou, reindeer and other mammals when little other vegetation is available.



An agile hunter, the lynx is well suited to its wintery habitat, dines on snowshoe hares, small rodents, ruffed grouse, and even insects when food is scarce.

The bobcat, another member of the cat family, is sometimes mistaken for a lynx. But the bobcat has shorter legs and narrower paws that restrict its range to the southern portion of the boreal forest where the snow is not as deep.

Wildlife of the Boreal Forest

Mammals

In order to survive the winter, mammals must adapt to the harsh climate of the boreal forest. To survive the extreme temperature and lack of food in the winter, black bears hibernate in cozy dens. Most rodents will fall into a deep sleep and only occasionally wake up during the winter to feed on stored food. Other species have thick fur, long legs, camouflaging colours, and short ears and tails to reduce heat loss.

The boreal region's dense undergrowth is habitat for one of its most stealthy hunters: the lynx. This member of the cat family has a thick, insulating fur coat, long legs for running through deep snow and wide paws that act like snowshoes.

Insects

For the most part, the insects found in the boreal forest vary little from insects found elsewhere. One adaptation they possess is the ability to hibernate under leaves, rocks or in the bark of trees until spring arrives.

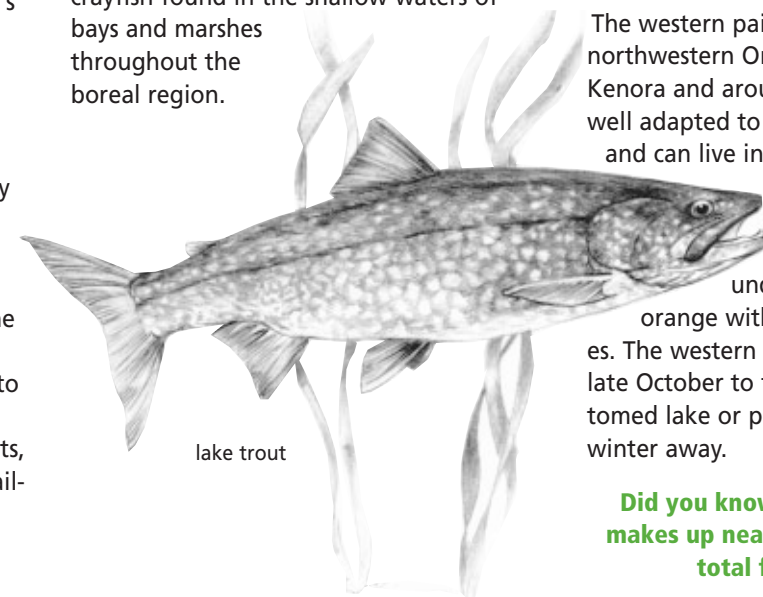
One boreal forest insect that received a lot of attention in the 1980s and early 1990s was the spruce budworm. The larva of this pest burrows into the leaves and buds of balsam fir, spruce, pine, tamarack, and hemlock trees, stunting the tree's growth and eventually killing it. More than 6.6 million hectares of forest in the eastern boreal forest were affected during this outbreak.

Fish

The boreal forest contains an estimated 1.5 million lakes, which are ideal habitat for fish, amphibians and reptiles.

One of Ontario's largest freshwater fish, the Lake trout, has light coloured spots on its dark body and can weigh more than 5 kilograms. Lake trout are found in Lake Superior and deep, cold inland lakes. This species is prized by sport fishermen and, as a result, quotas have been put in place to protect its population.

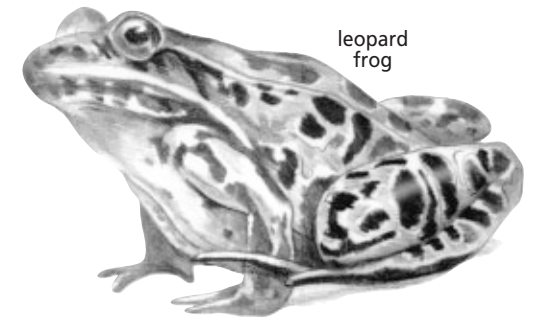
The northern pike is easily recognized by its long, slender body and flattened jaw, resembling a duck's bill. This voracious hunter feeds on fish, ducklings, frogs and crayfish found in the shallow waters of bays and marshes throughout the boreal region.



lake trout

Amphibians and Reptiles

The tiny boreal chorus frog is less than 3 centimetres in length and has a stripe running from snout to rump along either side of its body. Its colourings — shades of brown, reddish or olive — keep it well camouflaged. These frogs seek shelter under fallen logs and rocks during the winter months where they remain until the spring thaw. Boreal chorus frogs make the same sound as when you run your fingernail down a comb.



leopard frog

The northern leopard frog is undoubtedly the most recognized amphibian in northern Ontario.

Green or brown with black spots scattered over its body, the northern leopard frog is about 9 centimetres long. Because of its size, this amphibian eats insects, earthworms and even small fish. Their call resembles a low snore followed by a chuckling noise. These amphibians hibernate deep in freshwater ponds and lakes to escape the forest's cold temperatures and harsh winters.

Did you know...the wood frog hibernates under fallen logs or rocks and partially freezes in the winter!

The western painted turtle is found in northwestern Ontario from Dresden to Kenora and around Thunder Bay. It is well adapted to life in the boreal forest and can live in nearly any body of water.

Its dark shell is covered with a random pattern of thin light yellow lines. Its underside is usually red or orange with black and yellow blotches. The western painted turtle waits until late October to find a suitable muddy bottomed lake or pond in which to sleep the winter away.

Did you know...the boreal forest makes up nearly 25% of the earth's total forested area.