

ALBERTA'S FORESTS

A RENEWABLE STORY





THE FORESTS OF ALBERTA

Alberta is recognized as a world leader in forest stewardship and management. Over 60% of Alberta is forested, providing many values including economic, social, and environmental. The Alberta Forest Products Association (AFPA) is a non-profit association that represents companies manufacturing wood products. The AFPA's vision is for a safe, prosperous, environmentally responsible, sustainable forest industry in Alberta.

ECONOMIC VALUES

The forest industry in Alberta is one of four pillars of the economy. The industry directly employs 15,000 Albertans, creates thousands more spinoff jobs and contributes over \$5 billion to the economy.

There are 70 communities in the province that are dependent on the forest industry. Forestry makes significant contributions to these communities by providing employment, helping to develop infrastructure and supporting community initiatives.

Forest products made in Alberta are some of the highest quality in the world and are shipped globally every day.

SOCIAL VALUES

Forests provide ideal venues for recreational and cultural activities, such as:

- ◆ Enjoying off highway vehicles like ATVs and snowmobiles;
- ◆ Hiking;
- ◆ Fishing;
- ◆ Cross country skiing;
- ◆ Photography and wildlife viewing.

ENVIRONMENTAL VALUES

The forests of Alberta provide many environmental benefits that are vital to the future of our planet.

- ◆ Global cycles and air quality - Trees store carbon and produce oxygen
- ◆ Water quality and quantity - Trees hold large quantities of water and prevent erosion
- ◆ Soil - Roots maintain soil stability and productivity
- ◆ Wildlife - Many forests provide vital habitat for diverse species of animal life



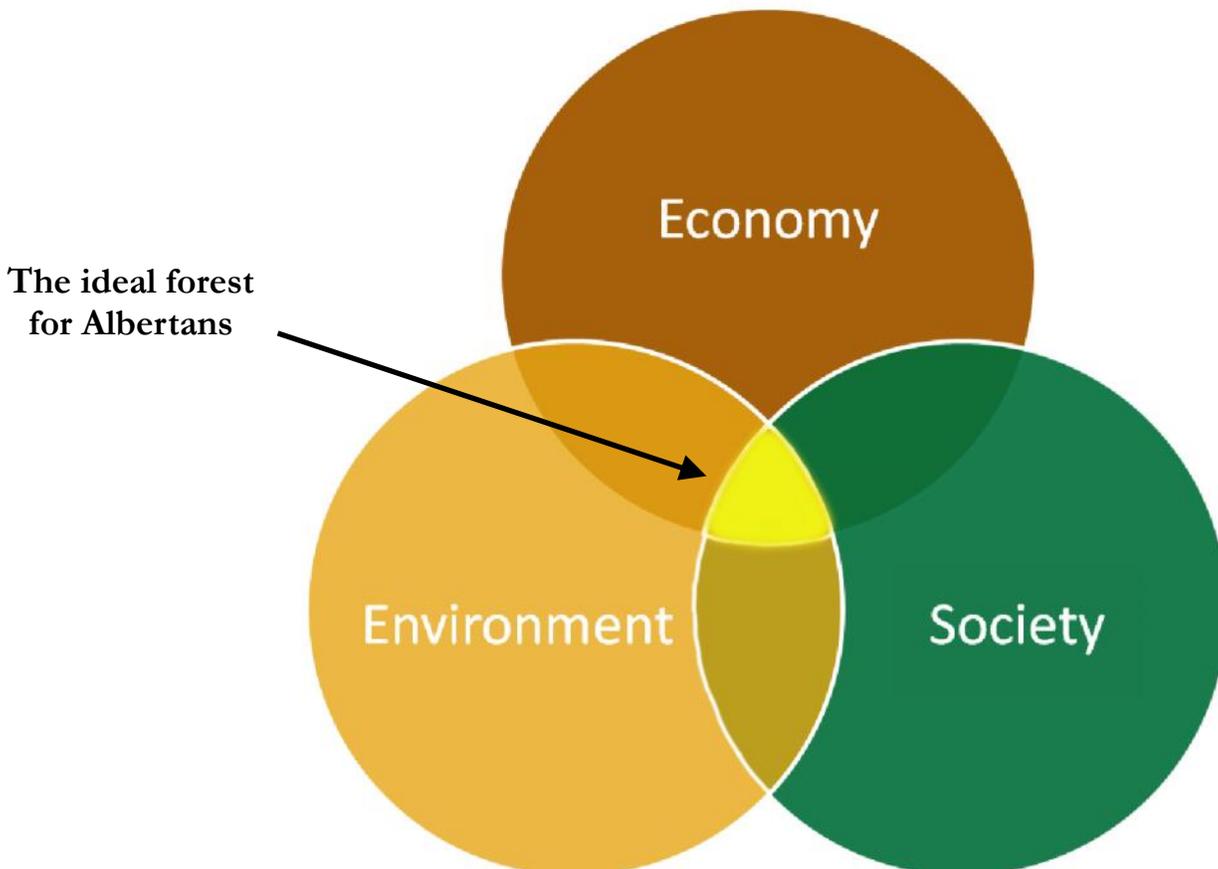


BALANCING VALUES

Whose job is it to ensure that the forests of Alberta are being managed to balance all of these values? That is the role of forest companies in cooperation with the Government of Alberta. The Government of Alberta signs Forest Management Agreements with companies to ensure economic, social and environmental values are achieved.

GUIDING VALUES OF AFPA MEMBERS

- ◆ Ensure that harvest levels do not exceed the capacity of the forest, that all harvested areas are reforested, and that harvest and reforestation methods foster a healthy new forest, supporting a diversity of species.
- ◆ Manage their activities on forest lands for multiple uses and values, including timber growth and harvest, watershed protection, wildlife and aquatic habitat and recreational and aesthetic benefits.
- ◆ Manage their forest and manufacturing operations in a manner that protects the environment, placing special emphasis on the quality of air, water, soil and habitat.
- ◆ Operate in a manner that protects the health and safety of employees, contractors and the general public.
- ◆ Be open and responsive to community views and questions regarding the industry.
- ◆ Conduct operations to ensure that the renewable forest resource provides economic activity and employment now and in the future, while conserving other forest values.





ENVIRONMENT

What's In Our Forests?

To ensure that harvesting is sustainable, forest companies must develop a 200 year plan showing:

- ◆ How much wood they are going to harvest;
- ◆ Wildlife habitat;
- ◆ Soil stability and productivity;
- ◆ Water quality and quantity;
- ◆ Oxygen and carbon balances.

These plans are done every 10 years and cost companies millions of dollars to complete, but it's all in the name of sustainability! It is vital that forests remain mixed-use and allow sustainable forestry operations to take place. Having access to the land allows forest companies to make long-term plans that protect our forest resources. Access also promotes investment in communities, creates jobs and provides a stable revenue source.

SEEING THE FOREST IN 3D

Before any trees are harvested in Alberta, the forest is flown over and pictures are taken. These images are now so accurate that it is possible to identify individual trees, tree types, tree heights and even tree health. This can give a nearly exact representation of what's in the forest, and also helps identify water bodies and other valuable ecosystems.

WORKING IN THE WOODS

Once forest companies have a representation of what exists in the forest, they must physically go into the area and measure trees to ensure accuracy. Hundreds of forestry workers province-wide do tens of thousands of measurements every year. This allows for an extremely accurate inventory of trees that exists for our forests that includes:

- ◆ Tree counts;
- ◆ Age;
- ◆ Size;
- ◆ Species;
- ◆ Health.

Spending this much time in the woods also gives forestry workers the time to look for critical wildlife habitat such as bear dens and nesting sites.

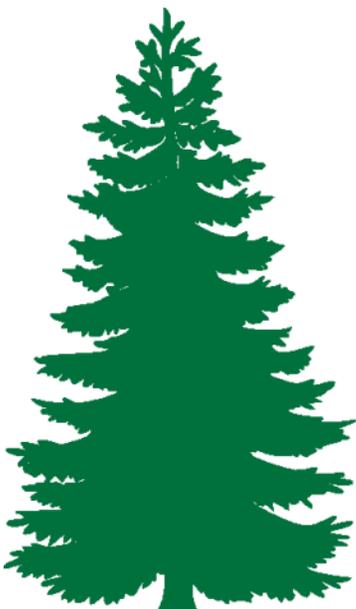




Photo courtesy Foothills Research Institute



HOW THE TREES GROW

With thousands of tree measurements taken over the last 70 years, there is a very accurate inventory of what is in Alberta's forests, and forest companies can project how the forest will change and grow over time. Not only is this useful information in the present, it also allows understanding of what will likely happen in the future. Trees grow much like humans do, growing substantially at a young age before stopping growth when they reach maturity.

SUSTAINABLE HARVESTING

It is the law in Alberta that harvesting be done in a sustainable manner. Forest companies collect comprehensive data on how trees grow and inventory plant and animal life in the forest. All of this data is used to determine how much can be harvested sustainably.

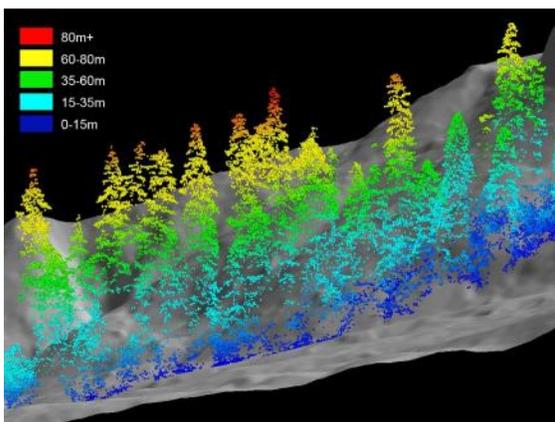
Sustainable harvesting can mean different things to different people, but to a forest company it means ensuring more trees are being grown than are being cut down. It also means maintaining harvest levels in order to create jobs and sustain forest communities. Sustainable harvesting also takes into account maintaining wildlife habitat, air, water and soil quality.

FOREST FIRES IN ALBERTA

Alberta's forests have been shaped by fires for hundreds of thousands of years. This unpredictable force of nature has always worked to balance the age of our forests and keep them healthy. The forest industry has done in depth research to find out what our forests were like before humans began to have an impact.

The forest industry, in partnership with the Foothills Research Institute, has conducted extensive research to understand how fires burn without human intervention. It has been found that most forests would burn every 50-100 years. This means that the majority of Alberta's forests would be less than 50 years old.

Currently, forests of Alberta are much older than 50 years, and we have an unnaturally large area of forests that are older than 80. Much of the research that has been done in Alberta has centered around determining exactly how much of each age and species of tree would be in the province naturally, and what forest companies can do to help maintain a natural and healthy forest.





ENVIRONMENT

Healthy Forests

OLD FORESTS: GOOD OR BAD?

Old forests provide many benefits. They are often very diverse areas that are highly attractive for tourism. Unfortunately, old forests are also very susceptible to large-scale natural disasters caused by insects, diseases and fires. Often insects and disease are naturally adapted to infect older trees as they are less capable of resisting invaders than younger trees.

Although many wildlife species need old forest to survive, this is not true for all species. Some species prefer younger forests, or even open meadows, similar to what exists after forest fires or harvesting.

There are also major fire risks when forests are older and drier. As forests grow older and the canopy closes, trees lose the lower branches that aren't getting sunlight anymore. This dry wood provides fuel for potential fires. In order to protect forests, communities and human life it is important that forests do not get too old.

This is possible by harvesting trees with methods that mimic fire. That is the reason "clearcuts" are done in Alberta. Clearcuts most closely resemble what a landscape would look like after a fire. Wildlife are naturally adapted to large disturbance. A common misconception is that a clearcut removes all of the trees, when in fact, many retention areas are left. Clear-cutting also allows for better re-growth of the forest.

A HEALTHY FOREST

A healthy forest is one that is able to resist large scale natural disturbance, thrive and regenerate. A healthy forest should be diverse not only in number of species, but also in age. Currently in Alberta, forests are unnaturally old. It is the role of forest companies to ensure forests are healthy and resistant to disturbance so people are able to enjoy them forever!

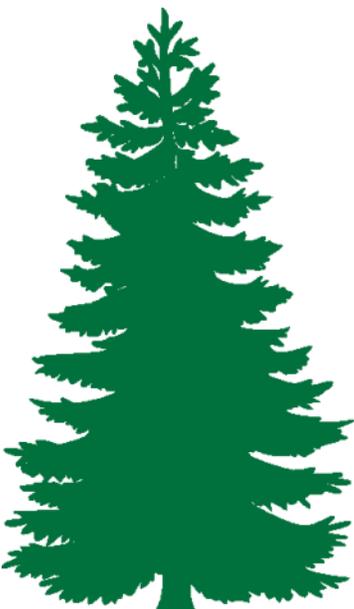




Photo courtesy Foothills Research Institute



Photo courtesy Weyerhaeuser

MOUNTAIN PINE BEETLE

The mountain pine beetle has devastated the BC forest industry, killing over half the mature pine in the province. In Alberta, the forest industry has worked with Government to reduce pine beetle habitat by harvesting trees susceptible to the insect. This proactive management has kept the pine beetle spread in check, but work continues to build a diverse forest that is more resistant to insects and disease.

SPECIES DIVERSITY

Wildlife habitat is a key component in the development of 200 year management plans for the forest. In the case of species at risk, such as caribou and grizzly bear, forest companies must ensure that habitat increases over the life of the plan. The requirements for wildlife habitat are decided through extensive third-party research that is verified by Registered Professional Foresters and the Government of Alberta.

Conserving species diversity is a priority of forest management in Alberta. A big part of ensuring that every species of plant and animal continues to thrive is maintaining the habitats of all native species. The goal of forest companies is to keep all habitat types intact and maintain a natural range of species. Not only does this ensure there is habitat for a diversity of species, it also makes for a resilient variety of ecosystems in case of insect, disease, fire or climate change issues.

CARIBOU

Woodland caribou in Alberta are currently listed as a “Threatened” species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). As such, it is legally mandated that caribou habitat area in Alberta be increased over the course of a forest management plan (200 years).

Through research done at the University of Alberta and Foothills Research Institute (Hinton), it has been found that caribou habitat consists of large, intact areas of mature pine forests and peat-lands. These areas have large amounts of lichens that caribou can feed on in winter and minimal competition from other ungulates or prey.

Forest companies have committed to increasing the amount of intact pine and black spruce forests over time to continue caribou habitat growth. The forest industry is partnering with other industries, the Government of Alberta and the Federal Government to develop a plan that will ensure long-term health of caribou herds.

GRIZZLY BEAR

Grizzly bears are currently listed as a species of “Special Concern” by COSEWIC. Grizzly bear habitat can range from dense forest to alpine meadow or even arctic tundra. Grizzly bears are averse to human interaction. Forest companies can meet grizzly bear habitat requirements by creating harvest areas that look like fires; large disturbances with lots of standing trees and retention patches throughout, and reclaiming roads to reduce access.

Alberta has a world class Grizzly Bear Research program managed by the Foothills Research Institute and supported by the Government of Alberta, the forest industry and other industries in the province.

DIVERSE HABITAT

To ensure all wildlife and tree species continue to thrive in Alberta, it is vital that a variety of forest types and ages are maintained. A diversity in habitat types within the natural range is a priority of forest management planning and the key to protecting rare species in Alberta.



ENVIRONMENT

Carbon, Water and Regeneration

The forest is constantly changing. Trees are being harvested, planted, growing naturally, getting older and often dying. Forests are also under constant threat from insects, disease and fire. When forest companies make 200 year plans, they ensure that soil, air and water quality and quantity are maintained, or even improved, in spite of constant changes to the forest.

WATER

With the population of Alberta expected to nearly double in the next 30 years, water quality and quantity must be preserved for future generations.

Pulp mills in Alberta have an exemplary record in the management of water. Since the Government of Alberta instituted the *Water for Life* strategy in 2003, the forest industry has spent over \$5 billion to improve water use. This investment has resulted in a 17% reduction in the amount of water needed to make pulp.

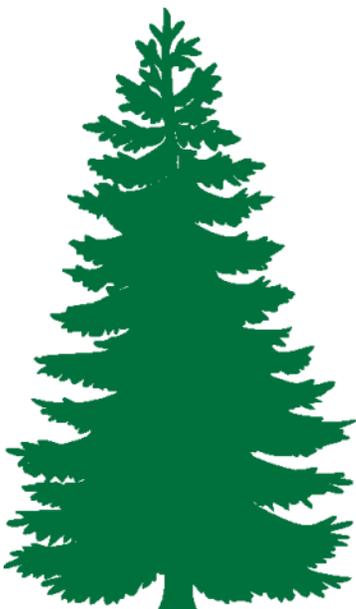
As part of a forest company's planning, they also have to undertake water modelling. That means, once they know where harvesting is going to happen, they have to use the most up to date scientific data to determine if that harvesting will affect water quality and quantity in streams.

In Alberta most of this work is done in conjunction with universities and research groups like the Foothills Research Institute. If water quality or quantity goals are not met, harvesting must be adjusted to meet targets.

RESEARCH

The Southern Rockies Watershed Project is a research project being done by the University of Alberta. It is the largest study of its kind worldwide and examines how water flows change with large scale disturbance such as fire or harvesting.

The Foothills Research Institute is studying watercourse buffers to preserve the quality and quantity of our water. Their goal is to find the perfect buffer size, shape and location for all different types of water bodies. Foresters use the most up to date research possible from these types of projects to ensure healthy watersheds during and after harvesting.





CARBON CYCLING

For a tree to grow, it needs to photosynthesize. Plants create food (glucose) by taking in water and storing carbon while also producing oxygen. As trees get older, they store less carbon and begin to release it into the atmosphere.

Forest companies make plans that monitor and enhance the amount of carbon that is stored in the forest. With certain forest practices it is possible to enhance oxygen and reduce carbon levels in the atmosphere.

REGENERATION

It is the law in Alberta that trees harvested on public lands be re-grown. The replacement of diverse forests by “monocultures” is a common misconception. Typical regeneration plans involve replanting species that are natural to the site because they are best adapted to that area.

When one tree is harvested in Alberta, on average, more than two trees are planted. This ensures that the forest is growing faster than it is being harvested. In Alberta alone, over 65 million trees were planted in 2014. In the last 20 years, there have been almost 2 billion trees planted in Alberta, guaranteeing trees for future generations.

Following harvest and re-planting, forest companies monitor the growth of new forests. During monitoring, tending activities can be utilized to assist in seedling growth. Forest companies can thin competing vegetation or apply herbicides to allow for seedlings to establish space. All tending applications are approved by the Government of Alberta and undergo a rigorous application and monitoring protocol.





SOCIAL

Your Forest

Forest companies in Alberta do most of their harvesting in public forests. All plans are made in consultation with stakeholders to ensure that Alberta's forests meet the needs of the public.

ABORIGINAL CONSULTATION

Before any harvesting can occur, it is mandatory for forest companies to consult with First Nations. Aboriginal people provide forest companies with information about historically sensitive, spiritual and hunting areas that are vital to their way of life. It is the forest company's responsibility to work with Aboriginal people to mitigate the effect of harvesting on their lives.

ENERGY, OIL AND GAS

Energy is the largest industry in Alberta. Energy is a driver of the economy; it is vital for forest companies to work with energy producers to reduce the human footprint on the landscape. Forest companies share roads, trails, reforestation duties and planning responsibilities with oil and gas companies in order to minimize disturbance. Working together, as is being done in the Land Use Framework regional plans, is the only way to ensure harvesting is sustainable.

AGRICULTURE

Many forested lands border on agricultural lands. It is vital to communicate with ranchers to ensure forest operations do not impact the vitality of the agriculture industry. Ranchers and forest companies often operate on the same parcel areas of land. This requires consultation and communication between the agriculture and forest industries to reduce the environmental impacts of ranching and forestry.





ARCHAEOLOGICAL STUDIES

Forest companies in Alberta are required to assess their areas of activity to ensure culturally significant areas are not disturbed. To date the forest industry has identified thousands of culturally significant areas. Through partnerships with the Historic Resource Management Branch of Alberta Culture, forest companies are attempting to identify these areas for all users of the forest.

RECREATION

The forests of Alberta are multi-use areas that people come from around the world to visit. We are blessed to have large tracts of intact forests with abundant wildlife and plant species that make for great recreation opportunities. It is the role of forest companies to ensure that recreation is not negatively impacted by their operations.

Forest companies work very closely with the Alberta Government to maintain fish habitat in the province. In Alberta, forest companies have set aside almost half a million hectares in water buffers to ensure riparian habitats are protected.

Many people who recreate in Alberta's forests do so in the form of hiking, using off highway vehicles, cross country skiing or just getting out and taking pictures. When a forest company makes a management plan, these people are consulted with in many forums:

- ◆ Public Advisory Groups
- ◆ Open Houses
- ◆ Online Surveys
- ◆ Field Tours

These are all opportunities for the public who use our forests to let their voices be heard and help in the management of our public lands.





ECONOMIC

PEOPLE AND PRODUCTS

The trees in Alberta grow more slowly than in many places because of our cold winters and more specifically, the cold soils. Although this might seem like a disadvantage, it actually means that the forest products in Alberta are some of the highest quality in the world.

LUMBER

The lumber in Alberta is made mostly out of spruce and pine with some fir. It is shipped around the world to places such as China, Japan, Korea, Europe and the United States via truck, rail and ship. The typical lumber made in Alberta is very strong and used to build decks, fences, and the walls, roofs and floors of houses.

PULP AND PAPER

To create high quality pulp, the fibers in trees need to be very long, which is what happens when they grow slowly. High quality Alberta pulp is made into a variety of products including photo paper, poster paper, IV bags, HD TVs and many other items. Alberta also has one of the most high-tech newsprint mills in the world.

PANELS

Panels are created when many pieces of wood are fused together to make strong and diverse products. In Alberta we make:

- ◆ Oriented Strand Board - Long fibers of wood are oriented and pressed together to make a panel that is used in residential and commercial building.
- ◆ Medium Density Fiberboard - Small wood particles are pressed together to make a very dense, heavy and strong product used mostly for furniture and cabinets.
- ◆ Laminated Veneer Lumber - Logs are peeled to create paper thin strips of wood that are glued and pressed together to make massive wood beams for floor joists and roof supports.
- ◆ Plywood - Sheets of wood are glued together at right angles to create a flexible, inexpensive panel that can be bent but is still structurally sound.





INNOVATION

Forest companies in Alberta pride themselves on their innovation. They use what was once considered wood waste to create items like bedding for animals, mulch for gardens, fertilizers for fields and pellets for stoves. It is possible to create beams that span hundreds of feet or blend wood with other products to build panels for cars, the exterior of planes or to hold foods together. Wood works for almost any structural purpose because of its strength, flexibility and light weight.

Wood is the most environmentally friendly building material. Unlike other building materials, wood products have the ability to store carbon and reduce the negative impacts of climate change. Wood is also a very affordable building material, offering a 12-20% savings in costs for mid-rise construction. Thanks to legislative changes in Alberta, wood buildings are now permitted to be up to 6 storeys tall. To learn more about innovations in building with wood, please visit www.wood-works.org.

ENERGY

In the past, excess wood shavings left over from the creation of forest products that were considered a byproduct and burned. Presently, this “wood waste” is being used to create electricity and heat to power our province in a carbon friendly way.

In Alberta, about 20% of our energy is considered renewable. In comparison, forest company’s energy use is over 60% renewable. Mills in Alberta generate over 400 MW of green power—enough for 4 Grande Prairies. Green power significantly reduces the environmental footprint of the energy produced in the province and minimizes the need to build new transmission infrastructure.

Forest companies in Alberta create clean, green energy that can power entire towns and contribute to a healthy environment.





THE FORESTS OF ALBERTA

Forestry is a major component of Alberta's economy. The industry uses innovative new technology to transform and diversify markets and be efficient in creating products and managing the forest for different users. As the forest industry grows, forest communities flourish. There are over 13,000 jobs in forestry in Alberta, with thousands more created forestry activity.

The forests of Alberta are managed sustainably for future generations by taking into account water, air, soil, wildlife, recreation and the economy.

To learn more about the forest industry please visit:

FPInnovations - www.fpinnovations.com

Alberta Innovates - www.albertainnovates.ca

The Greenest Workforce - www.thegreenestworkforce.ca

Alberta Wood Works - www.wood-works.org

Foothills Research Institute - www.foothillsresearchinstitute.ca

University of Alberta, Renewable Resources - www.rr.ualberta.ca

Northern Alberta Institute of Technology (NAIT) - www.nait.ca

Alberta Environment and Sustainable Resource Development - www.esrd.alberta.ca





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Alberta Forest Products Association
900 - 107 100 Avenue
Edmonton, AB T5J 3M1

780-452-2841
info@albertaforestproducts.ca