



## Lodgepole Pine

### *Pinus contorta*

Lodgepole Pine is a coniferous tree most commonly found in western Alberta, especially in the Boreal Forest, Foothills and Rocky Mountain Natural Regions.

Conservation Status: AEP - Secure | SRANK - S5

Wetland Indicator Status: Other Natural Regions - Facultative species

Taxon data collected: 2003 - 2019

Data Summary: Forest

## Introduction

Over its decade-plus of operations, the ABMI has generated a comprehensive dataset on Alberta's species, their habitats, and the extent and type of human footprint across the province. With this information, the ABMI has developed analyses to predict species' relative abundances and examine species' responses to vegetation and soil types, as well as human footprint in Alberta. These methods have been applied to hundreds of species; this profile provides summary results for one.

There are three main results sections in this species profile. The first section summarizes what vegetation, soil, and human footprint types the species uses in Alberta. Next, the data are used to identify which land use activities have the biggest impact (positive or negative) on the species' relative abundance. Finally, a series of relative abundance maps illustrate the species' predicted distribution under current and reference conditions, and where it's expected to have increased or decreased as a result of human-caused changes to its habitat.

The target audiences for species profiles are resource managers in Alberta. Summary data can be used to support land-use planning and mitigate the risks of development on a species of interest. While developed to support resource management, these species profiles are also of wider interest to anyone wanting information on species that live in Alberta, what habitats they are found in, and how our land use affects their populations.

Please note that the results are predictions based on the best available data at the current time. All results must be considered with caution; interpretation caveats are presented with each result. As with any statistical model, our confidence in the modelled outputs will increase as we gather more data and refine our models; to that end we update the summary results annually based on new data. As an internal check, for species with additional information in the literature, we examine whether our models produce ecologically meaningful results. For data-poor species, our predictions are the first contribution towards developing an understanding of the species' ecology.

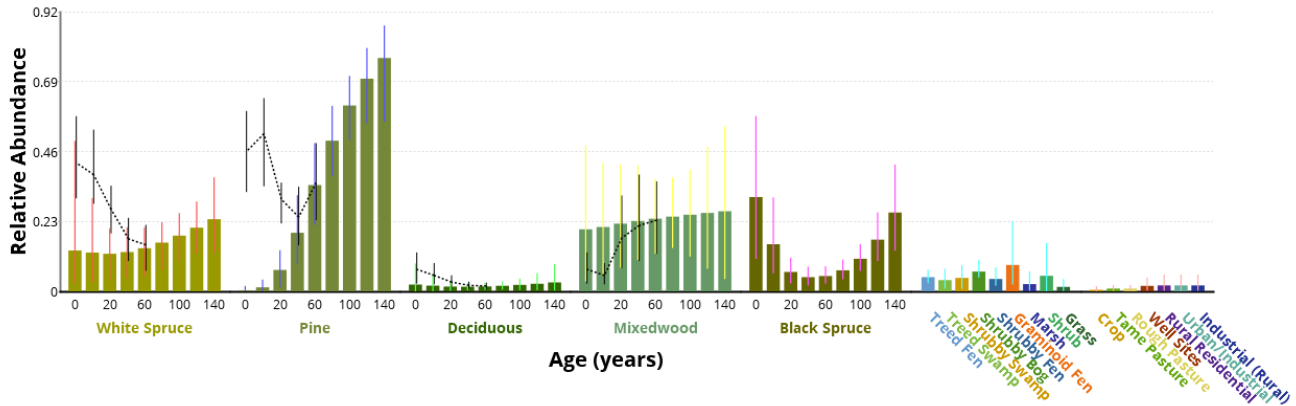
**Please refer to the [ABMI Species Website Manual](#) for a complete description of methods and limitations associated with the analyses included in this species profile.**

# Habitat & Human Footprint Associations

Lodgepole Pine prefers to grow in well-drained, sandy loam soil. It is drought and shade tolerant and depends on wildfire for seed dispersal.



## Species-habitat Associations in the Forested Region



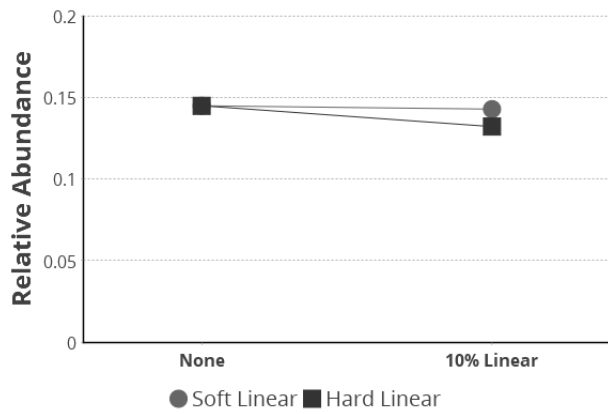
**Forested Region - Species Habitat Association Graph:** Predicted species relative abundance (bars) as a function of vegetation and human footprint type in the forested region. Dots are added to forest types where harvesting occurs and show the predicted species abundance in harvested stands of various ages. Vertical lines represent 90% confidence intervals.

- Lodgepole Pine relative abundance is highest in pine stands in the forested region; it is generally low across vegetation and human footprint types.
- Lodgepole Pine relative abundance is much higher in young harvested pine stands compared to naturally disturbed pine stands in the forested region.

## Relationship to Linear Footprint



### Relationship to Linear Footprint in the Forest Region



**Linear Footprint Graph:** Species relative abundance predicted for habitat with no human footprint compared to habitat in which 10% of the area is converted to either soft or hard linear footprint.

- Lodgepole Pine relative abundance is predicted to have no relationship with soft linear footprint and a slight negative relationship with hard linear footprint in the forested region.

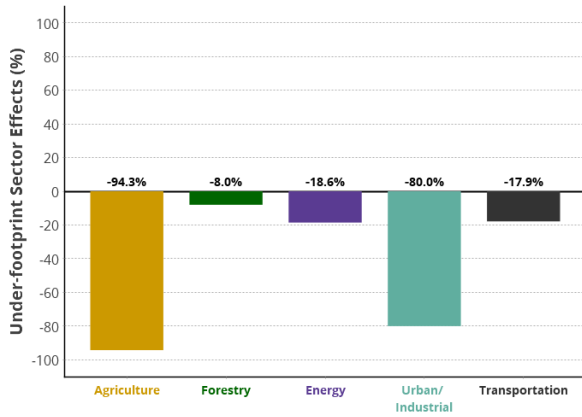
# Impacts of Human Footprint

Lodgepole Pine is commonly logged and is used for lumber and pulp, as well as other uses such as telephone poles, railway ties, and fuel.



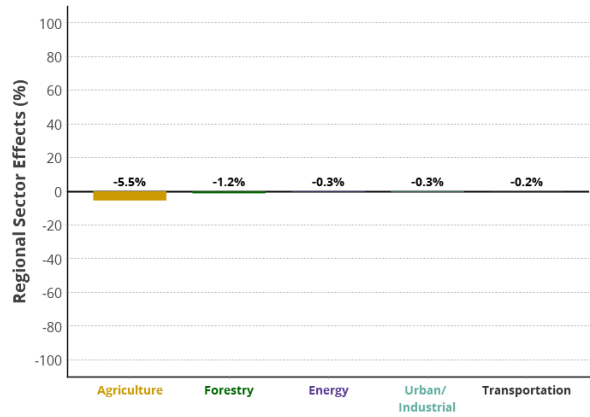
## Human Footprint Effects in the Forested Region

### Under-footprint Sector Effect



- Lodgepole Pine relative abundance is predicted to be lower than expected in all human footprint types, except forestry footprint, compared to the habitat each footprint replaces in the forested region.

### Regional Sector Effect



- Lodgepole Pine total population effects for all industrial sectors are small in the forested region.

## Predicted Relative Abundance

Lodgepole Pine is most commonly found in the Foothills Natural Region, but is also present in pockets of the Boreal Forest Natural Region.

### Reference Conditions

- The reference condition shows the predicted relative abundance of the Lodgepole Pine after all human footprint had been backfilled based on native vegetation in the surrounding area.

### Current Conditions

- The current condition is the predicted relative abundance of the Lodgepole Pine taking current human footprint (circa 2012) into account.

### Difference Conditions

- Lodgepole Pine relative abundance is predicted to be slightly higher under current conditions compared to reference conditions across much of the Boreal Forest Natural Region and some of the Foothills Natural Region.
- Lodgepole Pine relative abundance is predicted to be lower under current conditions compared to reference conditions parts of the Foothills and Boreal Forest Natural Regions.

## Other Issues

Lodgepole Pine is a target of the Mountain Pine Beetle.

## References & Credits

### References

- Inkpen, W. and R. Van Eyk. 1986. Guide to the Common Native Trees and Shrubs of Alberta. Government of Alberta, Environmental Protection Services, Pollution Control Division, Pesticide Chemicals Branch, Edmonton, AB.
- Johnson, D., L. Kershaw, A. MacKinnon, and J. Pojar. 1995. Plants of the Western Forest: Alberta, Saskatchewan, and Manitoba Boreal and Aspen Parkland. Lone Pine Publishing, Edmonton, AB.
- Lindenbach-Gibson, R., D. Fell, M. Marinescu, and J. Rice. 2006. Alberta Facts on Wood: Lodgepole Pine. FPInnovations, Pointe-Claire, QC.

### Wetland Indicator Status References

- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- Lichar, R.W., N.C. Melvin, M.L. Butterwick, and W.N. Kirchner. 2012. National Wetland Plant List Indicator Rating Definitions. ERDC/CRREL TR-12-1. U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. Hanover, New Hampshire

### Data Sources

Data collected by ABMI.

### Recommended Citation

Alberta Biodiversity Monitoring Institute. 2020. Lodgepole Pine (*Pinus contorta*). ABMI Website: [abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=99004829](http://abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=99004829).

## Additional ABMI Resources

Alberta Biodiversity Monitoring Institute. 2016. ABMI Species Website Manual, Version: 2016-12-02. Alberta Biodiversity Monitoring Institute, Alberta, Canada. Report available at: [abmi.ca](http://abmi.ca).

Alberta Biodiversity Monitoring Institute. 2014. Manual for Species Modeling and Intactness, Version 2014-09-25. Alberta Biodiversity Monitoring Institute, Alberta, Canada. Report available at: [abmi.ca](http://abmi.ca).

Alberta Biodiversity Monitoring Institute. 2014. Terrestrial field data collection protocols (abridged version) 2016-05-18. Alberta Biodiversity Monitoring Institute, Alberta, Canada. Report available at: [abmi.ca](http://abmi.ca).

Download [ABMI Species and Habitat Data](#).

View [ABMI Collaborations](#).