



Black-capped Chickadee

Poecile atricapillus

The Black-capped Chickadee is a small cavity-nesting bird that can be found year-round in all natural regions of Alberta; while it occurs throughout the province, it is less common in the Grassland Natural Region and the northerly portion of the Boreal Forest Natural Region.

Conservation Status: AEP - Secure

Taxon data collected: 1997 - 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.

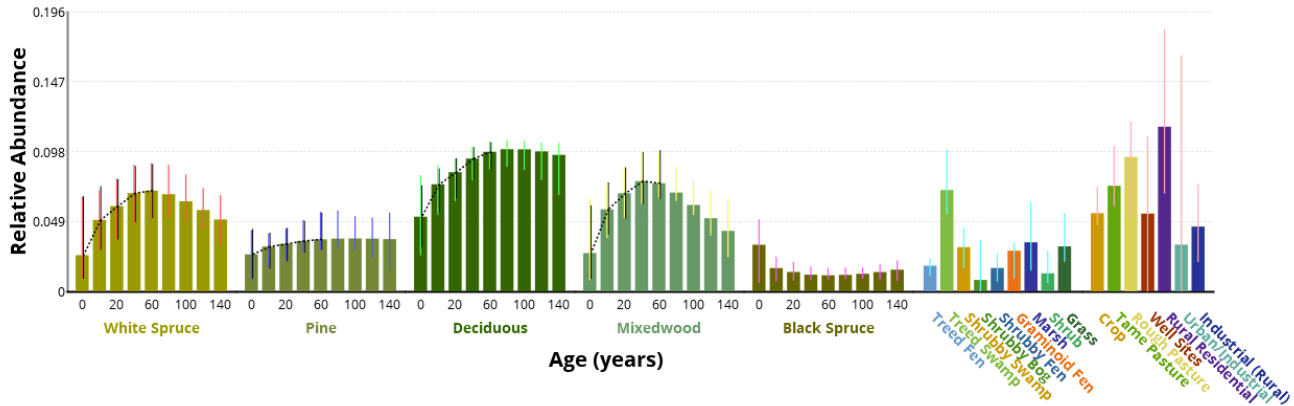
Please note that the results are predictions based on the best available data at the current time. All results must be considered with caution; interpretation caveats are presented with each result. As with any statistical model, our confidence in the modelled outputs will increase as we gather more 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

In northern Alberta, the Black-capped Chickadee prefers stands with deciduous trees; in southern Alberta, it is likely to be found in wooded coulees and valleys as well as urban and rural areas. Old or dead deciduous trees with softer wood are essential for cavity nest excavation.

Species-habitat Associations in the Forested Region



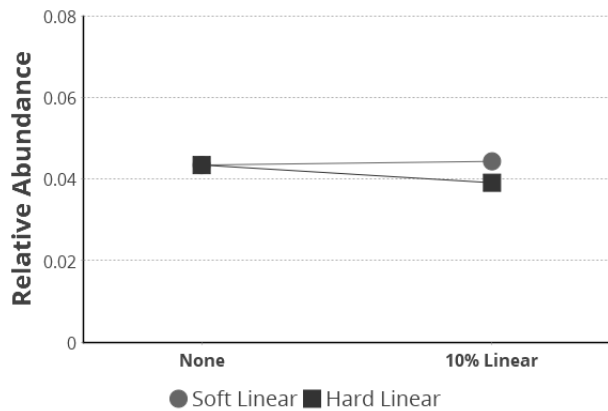
Forested Region - Species Habitat Association Graph: Predicted species relative abundance (bars) as a function of vegetation and human footprint type in the forested region. Dots are added to forest types where harvesting occurs and show the predicted species abundance in harvested stands of various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

- Black-capped Chickadee relative abundance is high in deciduous and mixedwood forest stands and treed swamp vegetation types; it is generally common across all upland forest types. Relative abundance is also high in human footprints including rural residential, rough pasture, and tame pasture.
- In general, Black-capped Chickadee show a preference for mid-aged forest stands.
- Black-capped Chickadee relative abundance is similar in harvested stands compared to naturally-disturbed stands of the same age.

Relationship to Linear Footprint



Relationship to Linear Footprint in the Forest Region

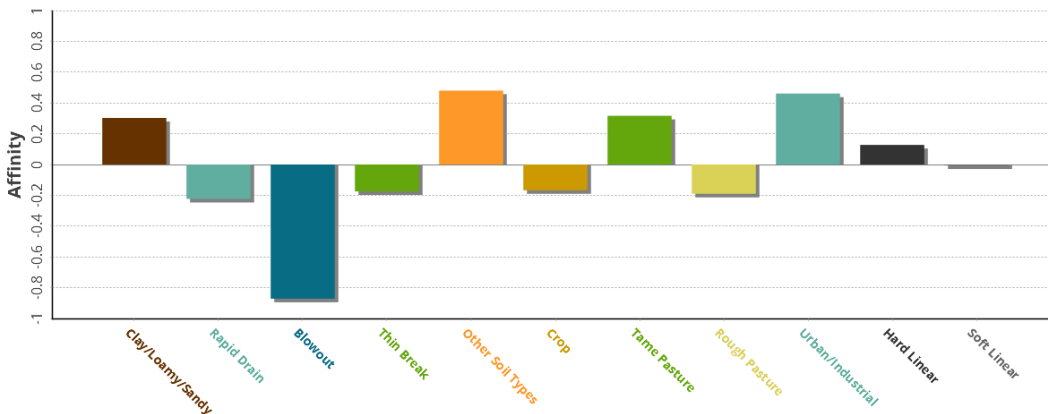


Linear Footprint Graph: Species relative abundance predicted for habitat with no human footprint compared to habitat in which 10% of the area is converted to either soft or hard linear footprint.

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



Habitat Associations for Species with Few Detection in the Prairie Region



Use-availability index graph: Index of species habitat use based on the proportion of species detections in each native vegetation and human footprint type in comparison to the habitat availability. The index (bars) range from -1 (avoidance) to +1 (preference), given availability of a particular vegetation or human footprint type.

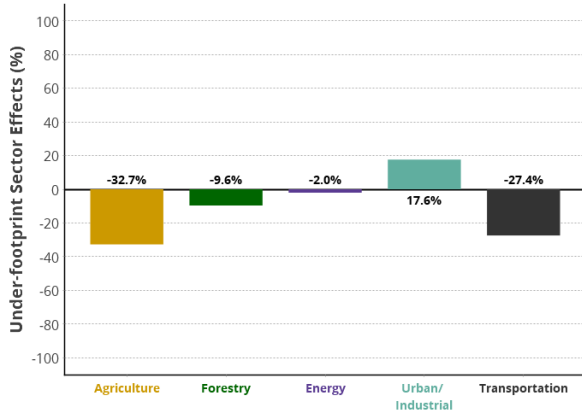
Impacts of Human Footprint

The Black-capped Chickadee is generally tolerant of human footprint; it is commonly observed in human-affected areas such as urban areas. It is also attracted to forest edge; however, forestry practices that eliminate preferred nesting locations such as old or dead deciduous trees or that result in excessive fragmentation can negatively affect nesting and winter travel.



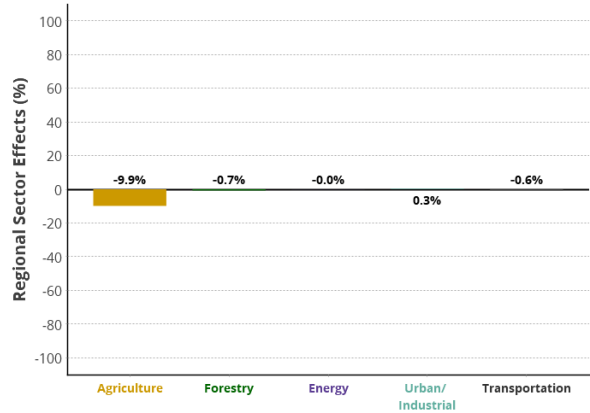
Human Footprint Effects in the Forested Region

Under-footprint Sector Effect



- Black-capped Chickadee relative abundance is predicted to be lower than expected in all human footprint categories, except urban/industrial, compared to the habitat each footprint replaces in the prairie region.

Regional Sector Effect



- Agriculture has the strongest negative regional population effect on Black-capped Chickadee relative abundance because it is the largest sector in the prairie region.
- The regional population effects on the Black-capped Chickadee were small for other industrial sectors in the forested region.

Predicted Relative Abundance

The Black-capped Chickadee is commonly found in all of Alberta's forested natural regions and is most common in the Parkland, Foothills, and Boreal Forest Natural Regions.

Reference Conditions

- The reference condition shows the predicted relative abundance of the Black-capped Chickadee 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 Black-capped Chickadee taking current human footprint (circa 2012) into account.

Difference Conditions

- Black-capped Chickadee relative abundance is predicted to be lower under current conditions compared to reference conditions throughout much of its range in Alberta, especially in parts of the Boreal Forest and Parkland Natural Regions.

References & Credits

References

- Boreal Avian Modelling Project. 2016. Black-capped Chickadee. http://www.borealbirds.ca/avian_db/accounts.php/Poecile+atricapillus. Accessed July 7, 2016.
- Cornell Lab of Ornithology. 2016. All About Birds: Black-capped Chickadee. https://www.allaboutbirds.org/guide/Black-capped_Chickadee. Accessed June 11, 2016.
- Proppe, D.A., K.A. Byers, C.B. Sturdy, C.C. St. Clair. 2013. Physical condition of Black-capped Chickadees (*Poecile atricapillus*) in relation to road disturbance. *Journal of Zoology* 91(11): 842-845.
- Sibley, D. 2000. *The Sibley Guide to Birds*. Chanticleer Press, New York, NY.
- St. Clair, C.C., M. Bélisle, A. Desrochers, and S. Hannon. 1998. Winter responses of forest birds to habitat corridors and gaps. *Conservation Ecology* 2(2):13.

Data Sources

Information from ABMI bird point counts was combined with information from other organizations and individuals:

- Environment Canada (North American Breeding Bird Survey and Joint Oil Sands Monitoring programs)
- Ecological Monitoring Committee for the Lower Athabasca (EMCLA)
- Dr. Erin Bayne (University of Alberta)

Recommended Citation

Alberta Biodiversity Monitoring Institute and Boreal Avian Modelling Project. 2020. Black-capped Chickadee (*Poecile atricapillus*). ABMI Website: abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=554382.

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.

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.

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.

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

View [ABMI Collaborations](#).