



ABMI Species Profile Series

Russian Pigweed

Axyris amaranthoides

Russian Pigweed is an annual herb with long flowering stems growing alternately on the upright stem. It is an invasive weed of cultivated fields and road margins of the Parkland and Grassland Natural Regions.

Conservation Status: AEP - Exotic | SRANK - SNA

Taxon data collected: 2003 - 2019

Data Summary: Prairie

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.

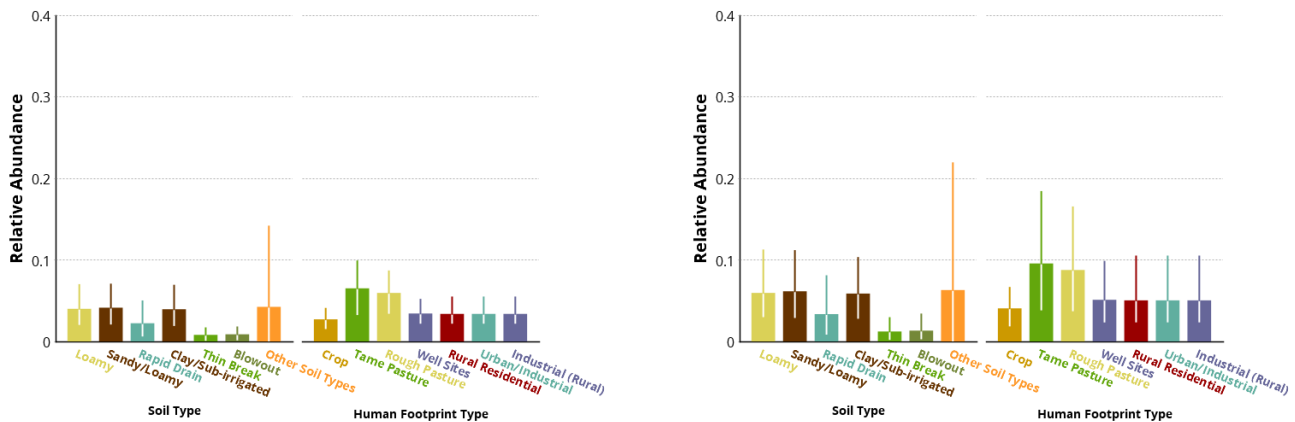
Habitat & Human Footprint Associations

Russian Pigweed is a weed of disturbed habitats including tilled fields, grazed pastures, dugout margins, shelterbelts and untended residential gardens. As an annual plant, it regenerates each spring from seed that it produces in abundance.



Species-habitat Associations in the Prairie Region

Non-Treed Sites in the Prairie Region Treed Sites in the Prairie Region



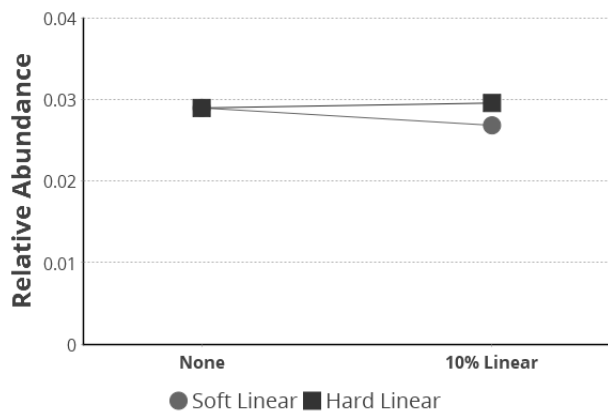
Prairie Region - Species Habitat Association Graph: Predicted species relative abundance (bars) in each soil type and human footprint type in the prairie region. Vertical lines indicate 90% confidence intervals. The presence/absence of trees greatly affects the presence and abundance of many species; therefore, separate figures are presented for treed and non-treed sites in the prairie region.

- Russian Pigweed relative abundance is similar at treed and non-treed sites in the prairie region.
- Russian Pigweed relative abundance is highest in rough and tame pasture human footprint types in the prairie region.

Relationship to Linear Footprint



Relationship to Linear Footprint in the Prairie Region

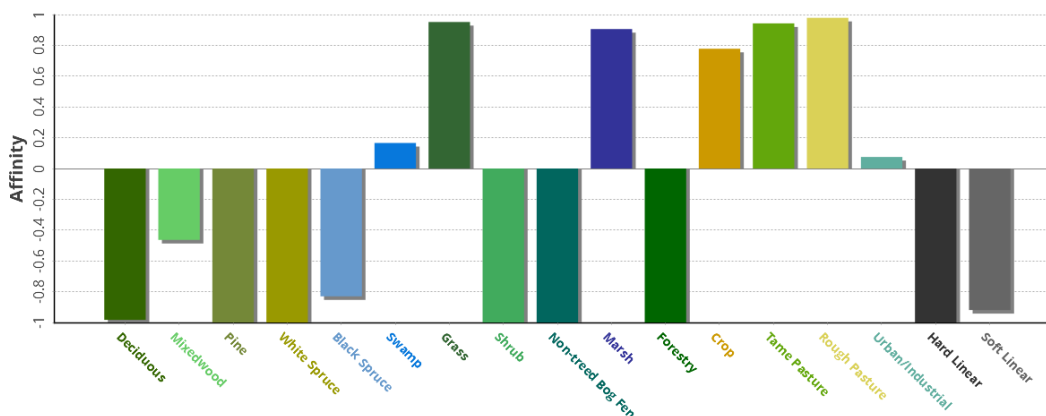


Linear Footprint Graph: Species relative abundance predicted for habitat with no human footprint compared to habitat in which 10% of the area is converted to either soft or hard linear footprint.

- Russian Pigweed relative abundance is predicted to have a slight negative relationship with hard linear footprint and soft linear footprint in the prairie region.



Habitat Associations for Species with Few Detection in the Forested Region



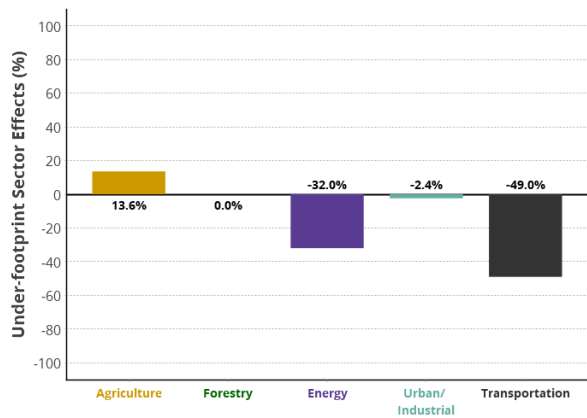
Use-availability index graph: Index of species habitat use based on the proportion of species detections in each native vegetation and human footprint type in comparison to the habitat availability. The index (bars) range from -1 (avoidance) to +1 (preference), given availability of a particular vegetation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

Impacts of Human Footprint

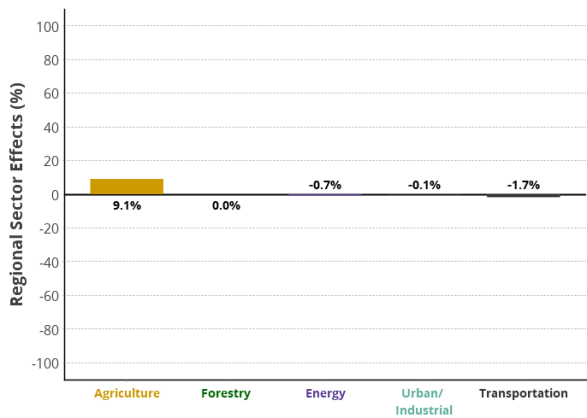
Russian Pigweed is an agricultural weed adapted to establishing and growing in disturbed soils in open areas and human-altered habitats.

Human Footprint Effects in the Prairie Region

Under-footprint Sector Effect



Regional Sector Effect



Predicted Relative Abundance

Russian Pigweed is found throughout the Grassland and Parkland Natural Regions.

Reference Conditions

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

Difference Conditions

- Russian Pigweed relative abundance is predicted to be higher than expected under current conditions, especially in the central prairie region.
- Russian Pigweed relative abundance is predicted to be lower under current conditions in parts of the Parkland and northern Grassland Natural Regions.

Other Issues

Russian Pigweed is common and problematic agricultural weed but is not listed in Alberta as a Noxious Weed.

References & Credits

References

- Alberta Queen's Printer. 2010. Weed Control Regulation. Government of Alberta, Edmonton, AB.
- Blackwell, W.H. 1978. The history of Russian Pigweed, *Axyris amaranthoides* (*Chenopodiaceae*, *Atripliceae*), in North America. *Weed Science* 26(1):82-84.
- Budd, A.C. 1987. Budd's Flora of the Canadian Prairie Provinces. Second Edition. Agriculture Canada, Hull, QC.
- Moss, E.H. 1994. Flora of Alberta. Second Edition. University of Toronto Press, Toronto, ON.
- Shultz, L.M. 2004. 1. *Axyris amaranthoides* Linnaeus. In: Flora of North America North of Mexico. Volume 4, ed. Flora of North America Editorial Committee. Missouri Botanical Garden, St. Louis, MO & Cambridge, MA.
- http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=200006786. Accessed January 27, 2017.

Data Sources

Data collected by ABMI.

Recommended Citation

Alberta Biodiversity Monitoring Institute. 2020. Russian Pigweed (*Axyris amaranthoides*). ABMI Website: abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=99004272.

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](#).

