

# Human Footprint Inventory 2014

## Linear Features

**Alberta Biodiversity Monitoring Institute**

**Geospatial Centre**

Version 1

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## 1. Overview

### 1.1 Summary

This dataset represents addition to 2014 Human Footprint Inventory of Alberta for public use. It is intended to aid human footprint and land use inquiries in Alberta.

### 1.2 Description

This dataset represents visually interpreted human made disturbances on the land surface throughout the province of Alberta in the year 2014. It is an addition to existing Human Footprint Inventory dataset for year circa 2014. Representative Polylines were updated from visual interpretation of SPOT6 satellite imagery and organized into 5 categories: Roads, Railways, Transmission Lines, Pipelines and Seismic Lines.

About 20% of the 2014 SPOT6 mosaic contains imagery acquired in 2013, therefore this dataset represents circa 2014 human footprint updates. Figure 1 and Figure 2 display spatial distribution of satellite imagery coverage for 2013 and 2014 and spatial distribution of circa 2014 Human Footprint, respectively (See Appendix).

This dataset consists of digital representations of linear features, centerlines within the HFI2014 dataset, including: pipelines, roads, railways, transmission lines, and seismic lines. Please refer to a separate dataset of polygonal representation (HFI2014\_FTV2) for an entire digital representation and complete thematic information (attribution, including source of the data) on these features.

### 1.3 Credits

This dataset includes data collected and created by the Alberta Human Footprint Monitoring Program and the Alberta Biodiversity Monitoring Institute.

#### 1.3.1 Acknowledgments

A few of the sublayers used in the public version of the 2014 Human Footprint Inventory, e.g., the enhanced sub-layers for Roads, Railways, Well Sites, were obtained from the Government of Alberta through the Alberta Human Footprint Mapping Program (AHFMP), a collaboration program between the Government of Alberta (GoA), the Alberta Biodiversity Monitoring Institute (ABMI), and non-governmental organizations. The AHFMP governance and organization structure is designed to promote relevancy, accessibility, and transparency of human footprint

information. The AHFMP organization structure includes two Steering Committees (Data Steering Committee and Stakeholder Steering Committee) and a Technical Committee. The Technical Committee is directly involved in the assembling of the enhanced sub-layers (i.e., Roads, Railways, Well Sites) and includes members from the GoA and the ABMI.

## 1.4 Contact Information

If you have questions or concerns about the dataset, please contact:

Geospatial Centre  
 Alberta Biodiversity Monitoring Institute  
 CW 405 Biological Sciences Centre  
 University of Alberta  
 Edmonton, Alberta, Canada, T6G 2E9  
 Email: [abmiinfo@ualberta.ca](mailto:abmiinfo@ualberta.ca)

For inquiries specific to the sub-layers obtained through the AHFMP collaboration (i.e., the enhanced Roads, Railways, Well Sites), please contact:

Don Page (403.340.7117 – [don.page@gov.ab.ca](mailto:don.page@gov.ab.ca)) and/or Tom Churchill (780.427.8832 – [tom.churchill@gov.ab.ca](mailto:tom.churchill@gov.ab.ca))

## 1.5 Keywords

Alberta, human footprint, 2014, centerlines, roads, rails, transmission lines, pipelines, seismic lines.

## 2. Use Limitation

This dataset contains data originating from proprietary sources, which has subsequently been enhanced through active visual interpretation and computer processing (the “Proprietary Sourced Data”). The Proprietary Sourced Data shall not be used or reproduced in whole or in part or in any form. By accessing the Proprietary Sourced Data, you agree to indemnify and hold harmless The Alberta Biodiversity Monitoring Institute (“ABMI”) and the ABMI’s subsidiaries, affiliates, related parties, officers, directors, employees, agents, independent contractors, advertisers, partners, and co-branders, from any and all actions, proceedings, claims, demands, liabilities, losses, damages, and expenses which may be brought against or suffered by the ABMI or which it may sustain, pay or incur, arising or resulting from your violation of this clause. The Proprietary Sourced Data is provided on an “As Is” and “As Available” basis and the ABMI does not guarantee that the Proprietary Sourced Data will be suitable for your purposes or requirements. The ABMI further states that the Proprietary Sourced Data is subject to change,

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This dataset contains data created by The Alberta Biodiversity Monitoring Institute (“ABMI”) through active visual interpretation and computer processing (the “ABMI Sourced Data”). The ABMI Sourced Data may be reproduced in whole or in part and in any form for educational, data collection or non-profit purposes without special permission from the ABMI provided acknowledgement of the source is made. No use of the ABMI Sourced Data may be made for resale without prior permission in writing from the ABMI. By accessing the ABMI Sourced Data, you agree to indemnify and hold harmless the ABMI and the ABMI’s subsidiaries, affiliates, related parties, officers, directors, employees, agents, independent contractors, advertisers, partners, and co-branders, from any and all actions, proceedings, claims, demands, liabilities, losses, damages, and expenses which may be brought against or suffered by the ABMI or which it may sustain, pay or incur, arising or resulting from your violation of this clause. The ABMI Sourced Data is provided on an “As Is” and “As Available” basis and the ABMI does not guarantee that the ABMI Sourced Data will be suitable for your purposes or requirements. The ABMI further states that the ABMI Sourced Data is subject to change, and the ABMI gives no guarantee that the content is complete, accurate, error or virus free, or up to date. The ABMI disclaims all warranties, conditions, and other terms of any kind, whether express or implied, whether in contract, tort (including liability for negligence) or otherwise, including, but not limited to any

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### **3. Data Product Specification**

#### **3.1 Scale Range**

Maximum (zoomed in): 1:5,000

Minimum (zoomed out): 1:50,000

#### **3.2 Spatial Resolution**

Dataset’s scale denominator: 30,000

#### **3.3 Processing Environment**

Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.1.1.3300

#### **3.4 Extents**

This dataset comprises visually interpreted human footprint in Alberta in 2014.

### Geographical Extent

West Longitude: -120  
East Longitude: -110  
South Latitude: 49  
North Latitude: 60

### Extent in the Item's Coordinate System

West Longitude: 172077.519400  
East Longitude: 865132.571100  
South Latitude: 5425699.141800  
North Latitude: 6659292.313800

## 3.5 Resource Maintenance

Resource maintenance updates frequency: as needed

## 3.6 Spatial Reference

NAD\_1983\_10TM\_AEP\_Forest  
WKID: 3400 Authority: EPSG

Projection: Transverse Mercator  
False Easting: 500000.0  
False Northing: 0.0  
Central Meridian: -115.0  
Scale Factor: 0.9992  
Latitude of Origin: 0.0  
Linear Unit: Meter (1.0)

Geographic Coordinate System: GCS\_North\_American\_1983  
Angular Unit: Degree (0.0174532925199433)  
Prime Meridian: Greenwich (0.0)  
Datum: D\_North\_American\_1983  
Spheroid: GRS\_1980  
Semi major Axis: 6378137.0  
Semi minor Axis: 6356752.314140356  
Inverse Flattening: 298.257222101

## 4. Lineage

The HFI2014\_LinearFeatures was built using open sourced, proprietary, and historical data from the ABMI as a baseline dataset. Polygons were created using visual interpretation and heads up, on screen digitization. Research was conducted to identify new features, and these were digitized and added to the 2014 dataset. Features from the 2012 Human Footprint dataset were re-digitized to reflect land disturbance in the year 2014. This dataset is representative of the visual interpretation of disturbances on the Alberta landscape as seen from SPOT6 satellite imagery mosaic, representing human footprint circa 2014. Centerlines were created from digital representation of features.



## 5. Feature Types and Categories

<b>FEATURE_TY</b>	<b>CATEGORY</b>
Pre-Low Impact Seismic	Seismic Lines
Low Impact Seismic	Seismic Lines
Trail	Seismic Lines
Seismic-Trail	Seismic Lines
Pipeline	Pipelines
Transmission Line	Transmission Lines
Railway Abandoned	Railways
Railway Double Track	Railways
Railway Multi Track	Railways
Railway Single Track	Railways
Railway Spur	Railways
Road Gravel 1L	Roads
Road Gravel 2L	Roads
Road Paved 1L	Roads
Road Paved 2L	Roads
Road Paved 3L	Roads
Road Paved 4L	Roads
Road Paved 5L	Roads
Road Paved 6L	Roads
Road Paved 7L	Roads
Road Paved Undivided 1L	Roads
Road Paved Undivided 2L	Roads
Road Paved Undivided 4L	Roads
Airport Runway	Roads
Ferry Route	Roads
Ford Winter Crossing	Roads
Interchange Ramp	Roads
Road Unpaved 1L	Roads
Road Unpaved 2L	Roads
Road Winter Access	Roads
Road Winter Road	Roads
Trail ATV	Roads
Truck Trail	Roads

## 6. Data References

Title	Association Type	Location/Reference
Alberta Vegetation Inventory (AVI)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Grassland Vegetation Inventory (GVI)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Primary Land and Vegetation Inventory (PLVI)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Alberta Human Footprint Mapping Project (AHFMP)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Reclamation Information System (RIS)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Digitally Integrated Dispositions (DIDs)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
Alberta Vegetation Inventory Enhanced (AVIE)	Source	Government of Alberta, 2016. Data provided by Alberta Human Footprint Mapping Project (AHFMP), <a href="https://open.alberta.ca/opendata/ahfmp">https://open.alberta.ca/opendata/ahfmp</a>
SPOT6 Satellite Imagery 2014	Source	Alberta Environment and Sustainable Resource Development, 2014. <i>Informatics Branch, 1.5 m Colour SPOT 6 Mosaic</i> . Retrieved from <a href="http://environment.alberta.ca/">http://environment.alberta.ca/</a>
Valtus Orthophoto Mosaic	Reference	Alberta Environment and Parks, 2016. <i>Informatics Branch</i>
IRS Satellite	Reference	Alberta Environment and Parks, 2016. <i>Informatics Branch</i>
Base Features (BASEFE)	Source	Government of Alberta, 2016. Open Data License, Retrieved from <a href="http://www.altalis.com/products/base/20k_base_features.html">http://www.altalis.com/products/base/20k_base_features.html</a>
Google Maps	Reference	<a href="https://maps.google.ca">https://maps.google.ca</a>
Google Earth Engine-Google Time-lapse	Reference	<a href="https://earthengine.google.com/timelapse/">https://earthengine.google.com/timelapse/</a>
Alberta Recycling Management Authority	Reference	<a href="http://www.albertarecycling.ca/collection-site-search-results">http://www.albertarecycling.ca/collection-site-search-results</a>
City of Calgary	Source	<a href="https://data.calgary.ca/Base-Maps/Land-Use-Polygons/gbpb-ymc5/about">https://data.calgary.ca/Base-Maps/Land-Use-Polygons/gbpb-ymc5/about</a>

Alberta Environment and Sustainable Resource Development	Reference	Alberta Environment and Sustainable Resource Development, 2014. <i>Informatics Branch, 1.5 m Colour SPOT 6 Mosaic</i> . Retrieved from <a href="http://environment.alberta.ca/">http://environment.alberta.ca/</a>
Valtus Imagery Services	Reference	Valtus Imagery Services, 2010. <i>Valtus Imagery</i> . Retrieved from <a href="http://www.valtus.com/">http://www.valtus.com/</a>
Valtus Imagery Services	Reference	Valtus Imagery Services, 2011. <i>Valtus Imagery</i> . Retrieved from <a href="http://www.valtus.com/">http://www.valtus.com/</a>
Valtus Imagery Services	Reference	Valtus Imagery Services, 2012. <i>Valtus Imagery</i> . Retrieved from <a href="http://www.valtus.com/">http://www.valtus.com/</a>
Valtus Imagery Services	Reference	Valtus Imagery Services, 2013. <i>Valtus Imagery</i> . Retrieved from <a href="http://www.valtus.com/">http://www.valtus.com/</a>
Valtus Imagery Services	Reference	Valtus Imagery Services, n.d. <i>Valtus Imagery</i> . Retrieved from <a href="http://www.valtus.com/">http://www.valtus.com/</a>
Venskaitis	Reference	Venskaitis, S., n.d. <i>Human Footprint Image</i> . Unpublished photograph.
Williams	Reference	Williams, E., n.d. <i>ABMI Human Footprint Image</i> . Unpublished photograph.
HFI2014_FTv2_Metadata.pdf	Reference	<a href="http://abmi.ca/home/data-analytics/da-top/da-product-overview/GIS-Land-Surface/HF-inventory.html">http://abmi.ca/home/data-analytics/da-top/da-product-overview/GIS-Land-Surface/HF-inventory.html</a>
<i>Quality Farm Dugouts</i> (3rd Edition)	Reference	<a href="http://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/agdex15866">http://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/agdex15866</a>
Alberta Vegetation Inventory Standards and Data Model Documents	Reference	<a href="https://www.agriculture.alberta.ca/app21/forestry/page?cat1=Vegetation%20Inventory%20Standards">https://www.agriculture.alberta.ca/app21/forestry/page?cat1=Vegetation%20Inventory%20Standards</a>
Grassland Vegetation Inventory Standards	Reference	<a href="https://geodiscover.alberta.ca/geoportal/catalog/search/resource/details.page?uuid=%7BD3AB9031-8EC0-4589-9335-C1E50AE05992%7D">https://geodiscover.alberta.ca/geoportal/catalog/search/resource/details.page?uuid=%7BD3AB9031-8EC0-4589-9335-C1E50AE05992%7D</a>
Primary Land and Vegetation Inventory Standards	Reference	<a href="https://geodiscover.alberta.ca/geoportal/catalog/search/resource/details.page?uuid=%7BF640CD9D-C232-481D-9CFF-7A7B66E51E49%7D">https://geodiscover.alberta.ca/geoportal/catalog/search/resource/details.page?uuid=%7BF640CD9D-C232-481D-9CFF-7A7B66E51E49%7D</a>
road_album_2.ppt	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
Alberta Transportation Guide to Reclaiming Borrow Excavations – 2013 Edition	Reference	<a href="http://www.transportation.alberta.ca/Content/docType245/Production/borrowguide.pdf">www.transportation.alberta.ca/Content/docType245/Production/borrowguide.pdf</a>
AHFMP - Road Processing 2014 Footprint.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
AHFMP - Well Pad User Guide 2014 Footprint.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
AHFMP - Well Pad Procedures for 2014 Footprint.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
AHFMP - Well Pad User Guide 2014 Footprint.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)

AHFMP_Cultivation_User_Guide_Footprint_HFI_2014_FTV2.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
AHFMP_Cultivation_User_Guide_HFI_2014.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
ISO_19131_AAFC_Annual_Crop_Inventory_Data_Product_Specifications.pdf	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)
AHFMP - Seismic User Guide 2014 Footprint Ver3.docx	Reference	Government of Alberta document, provided by Alberta Human Footprint Mapping Project (AHFMP)

## 7. Metadata Details

Metadata language: English (CANADA)

Metadata character set: utf8 - 8 bit UCS transfer format

Metadata identifier: HFI2014\_public

Function of the resource: Information

Scope of the data described by the metadata: Dataset

Last update: 2017-03-05

## 8. Appendix

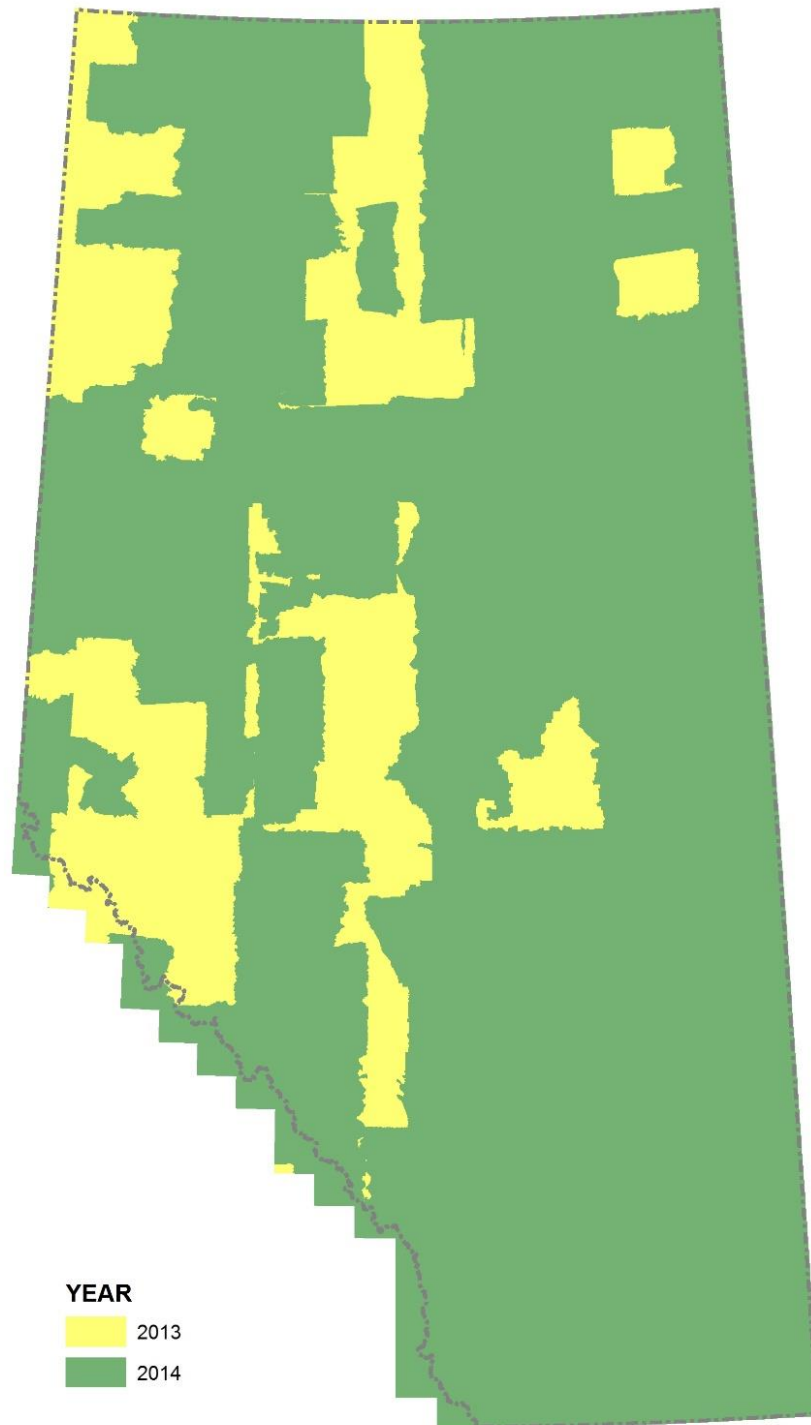


Figure 1: Spatial distribution of satellite imagery available for 2014 SPOT6 mosaic

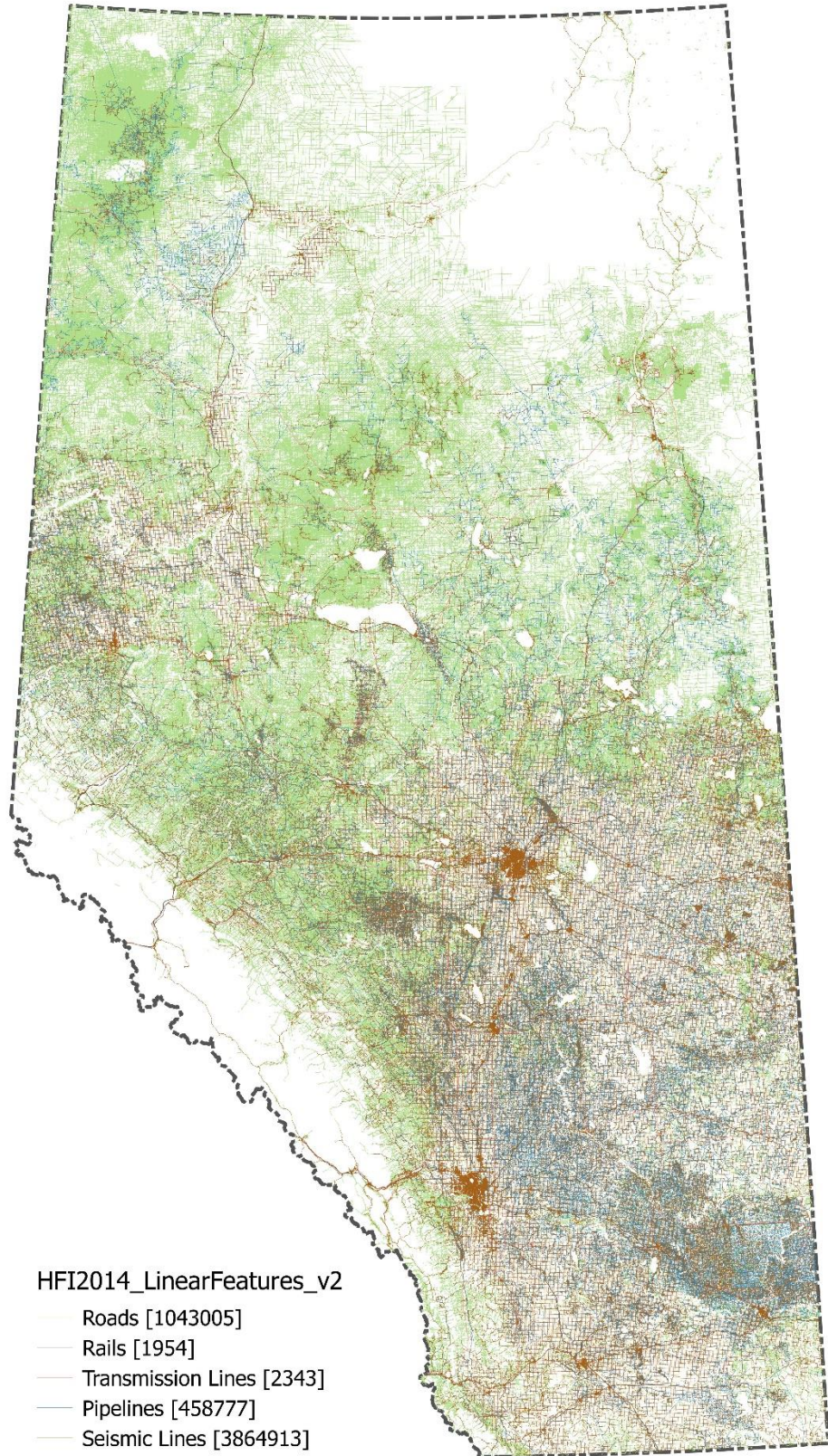


Figure 2: Spatial distribution of 2014 Human Footprint linear features