

Delivered Files

ABMI 3x7 km Human Footprint Inventory: 1999 – 2014 (Version 1).

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The ABMI defines Human Footprint (HF) as: the temporary or permanent transformation of native ecosystems to support residential, recreational or industrial land uses. Under this definition, HF includes the geographic extent of areas under human use that either have lost their natural cover for extended periods of time (alienating HF; e.g., cities, roads, agricultural land, and surface mines) or whose natural cover is periodically reset to earlier successional conditions by industrial activities (successional HF; e.g., cut blocks and seismic lines). The Alberta Biodiversity Monitoring Institute (ABMI) tracks the status and trends in HF across the province of Alberta. The ABMI 3x7 km Human Footprint Inventory (Version 1) is a GIS polygon layer that describes the spatial distribution of HF collected for a grid of 1,656 sample sites distributed across the province of Alberta from 1999 to 2014, where each polygon indicates a HF type (Table 1).

The ABMI updates 3x7 km human footprint information annually. First dataset was created for 1999 year. HF information has not been mapped for 2000 as there is no imagery coverage available to ABMI for that year. Datasets for years 2002 and 2003 were created based on an imagery mosaic that does not cover entire province therefore these two years are not a part of the public dataset. ABMI will continue to work on missing and uncomplete dataset.

At each of the 1,656 locations, a 3x7 km rectangle was examined at a 1:5,000 scale to delineate all detectible human footprints. All of the features were created and/or verified using a heads-up digitizing of all the human footprint attributes manually interpreted from satellite imagery. Government of Alberta Base Feature Datasets were used as a base layer.

This process was conducted for 1999 using Valtus orthorectified aerial imagery, 2001-2004 using IRS satellite imagery for each year, 2005-2012 using SPOT 5 satellite imagery for each year, 2013-2014 using SPOT6 satellite imagery and also using high resolution orthorectified aerial imagery mosaic provided by Valtus online image service.

IMPORTANT: this version of the ABMI 3x7 km HF inventory does not account for succession (or reclamation) of human footprint, but treats all types of human footprint on the landscape equally. Put another way, “successional” HF (HF in which natural vegetation regenerates after the human use) is treated the same as “alienating” HF (HF types which are maintained permanently with altered vegetation) despite the vegetation recovery that almost certainly will have occurred since the development.

The current dataset does not present age of disturbance or the current habitat/vegetation cover within features such as harvested areas (former cut blocks) or seismic lines.

This product is not error free. We continuously work to improve the accuracy and precision of this product.

This GIS polygon layer is updated annually, and new versions will be released accordingly.

Table1: ABMI HF type descriptions. HF type values are stored in [PublicCode] field of ESRI file geodatabase.

HF Type	HF Description
Urban & Rural Features	
Urban	Cities and towns
Rural (Residential/Industrial)	Small rural development (mostly residential but some industrial)
Other Disturbed Vegetation	Recreation areas and other vegetated areas created for human use, including golf courses, grave yards, vegetated edges of airports, and any other disturbed areas that have recovered vegetation
Industrial & Resource Extraction Features	
Industrial Site Rural	Rural area developed for industrial use
High Density Livestock Operation	Confined feeding operation and other high density livestock area
Peat Mine	Area where vegetation is disturbed
Well Site	Well pads created by the energy industry
Mine Site	Area where vegetation is disturbed
Wind Generation Facility	Area around the windmill
Hard Linear Features	
Road – Hard Surface	Paved or gravel
Rail – Hard Surface	Usually gravel
Airport Runway – Hard Surface	Paved or gravel
Soft Linear Features	
Pipeline	Area where vegetation is disturbed
Transmission Line	Area where vegetation is disturbed
Seismic Line	Area where vegetation is disturbed
Vegetated Roads, Verges and Ditches	
Road/Trail (Vegetated)	Road/Trail without gravel or pavement
Road – Vegetated Verge	Vegetated strips along paved/gravel roads
Rail – Vegetated Verge	Vegetated strips along railways
Human-created Water Bodies	
Borrow-Pits, Dug-outs, Sumps	Created to extract fill, or for livestock watering
Municipal (Water and Sewage)	Created for municipal purposes
Reservoirs	Man-made lake
Canals	Created to transport water
Cultivation	
Cultivation (Crop/Pasture/Bare Ground)	Any area where evidence of cultivation is visible during the photo interpretation
Managed Forest	
Cut Blocks	Area with trees harvested for industrial purposes

GIS Data

The ABMI 3x7 km Human Footprint Inventory (Version 1) is stored in ESRI File Geodatabase (ArcGIS 10.1) format. It contains one High Precision Feature Dataset and thirteen Feature Classes.

Coordinate System of HF Feature Dataset (ESRI File Geodatabase)

Datum: North American 1983
 Projection: Transverse Mercator
 Coordinate System: 10TM AEP Forest
 Well known ID: 3400; Authority: EPSG

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)

Properties of [PublicCode] field:

Data Type: Text
Length: 77

Image 1: ABMI sampling site (3km by 7km) locations.

