

## **Boreal Canada: Current and Future Industrial Land Uses (A Mapping and Geospatial Data Compilation Project)**

### **Data Sources for Maps**

#### **Access in Boreal Canada – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Digitized access disturbances from 1990 to 2001 Landsat satellite imagery (unpublished dataset; copyright Global Forest Watch Canada);
- Active Mines of Canada (Global Forest Watch Canada);
- National roads dataset (copyright DMTI);
- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v3.1. Agriculture and Agri-Food Canada. (Digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>;
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca))

Access is defined for this map as: anthropogenic disturbances -- as identified on *circa* 1990 to 2002 Landsat satellite imagery; and as provided in the DMTI national roads dataset, major hydro-electric reservoirs datasets, and active mines of Canada datasets (GFWC). Access includes, but may not be limited to: roads of all types; railroads; seismic and other cutlines clearly visible in satellite images; power lines and communication lines; pipelines; recently anthropogenically-converted areas, such as settlements; built-up populated and industrial areas; croplands (both current and abandoned); clearcuts; all types of mining and drilling activity areas; and other areas affected by industrial activity.

#### **Agriculture Areas – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Agricultural Ecumene Census Division Boundary File. 2001 Census of Agriculture. Reference Guide. Catalogue No. 92F0175GIE. May 2003. [www.statcan.ca](http://www.statcan.ca)
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

The agricultural ecumene for the 2001 Census of Agriculture was derived using agricultural data at the dissemination area level rather than the enumeration area level used in 1996. The dissemination area was introduced for 2001 as a new standard

geographic area. The agricultural ecumene product has a data layer that includes the 2001 agricultural ecumene with integrated census division boundaries

***Definitions:***

Ecumene is a term used by geographers to mean inhabited land. It generally refers to land where people have made their permanent home, and to all work areas that are considered occupied and used for agricultural or any other economic purposes. Thus, there can be various types of ecumenes, each having their own unique characteristics (population ecumene, agricultural ecumene, industrial ecumene, etc.). Ecumene is derived from the Greek roots *oixos*, meaning inhabited, and *nenon*, meaning space.

**Agriculture Areas – Future**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

***Data Sources:***

- Canada Land Inventory (CLI) Level II Digital Data. Soil Capability for Agriculture. Geogratis. [www.geogratis.ca](http://www.geogratis.ca);
- Agricultural Ecumene Census Division Boundary File. 2001 Census of Agriculture. Reference Guide. Catalogue No. 92F0175GIE. May 2003. [www.statcan.ca](http://www.statcan.ca);
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

The agricultural ecumene for the 2001 Census of Agriculture was derived using agricultural data at the dissemination area level rather than the enumeration area level used in 1996. The dissemination area was introduced for 2001 as a new standard geographic area. The agricultural ecumene product has a data layer that includes the 2001 agricultural ecumene with integrated census division boundaries.

In order to map potential future agricultural areas, the CLI data is limited in geographic extent. Using this dataset, our initial mapping included Classes 1, 2, 3, 4 and 5 as areas where there might be future potential for agricultural areas. It does not include Classes 6 (Forage Crops - Improvement practices not feasible), 7 (No Capability for arable culture or permanent pasture) and 8 (Unclassified areas) and the original data did not include organic soils. Under the inventory system, soils classes as 1, 2, 3, or 4 are considered capable of sustained use for cultivated field crops, those in classes 5 and 6 only for perennial forage crops and those in class 7 for neither.

***Definitions:***

CLI Classes:

1. No Significant Limitations
2. Moderate Limitations; moderate conservation practices required.

3. Moderately Severe Limitations; range of crops restricted or special conservation practices required.
4. Severe Limitations.
5. Forage Crops - Improvement practices feasible.

Ecumene is a term used by geographers to mean inhabited land. It generally refers to land where people have made their permanent home, and to all work areas that are considered occupied and used for agricultural or any other economic purposes. Thus, there can be various types of ecumenes, each having their own unique characteristics (population ecumene, agricultural ecumene, industrial ecumene, etc.). Ecumene is derived from the Greek root oixos meaning inhabited and nenon meaning space.

### **Dams and Reservoirs – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v. 3.1. Agriculture and Agri-Food Canada (digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>
- Dams -- National Topographic Database. Standards and Specifications of the National Topographic Data Base. Edition 3.1. Geomatics Canada. 2007.
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

The dams dataset includes all small and large dams that are recorded and mapped by the National Topographic dataset. However, there is no attribute information provided that would allow determination if these dams are presently active or abandoned.

### **Dams and Reservoirs – Future**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v. 3.1. Agriculture and Agri-Food Canada (digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>;
- Dams -- National Topographic Database. Standards and Specifications of the National Topographic Data Base. Edition 3.1. Geomatics Canada. 2007.
- Hydro Development Potential -- the file was created by digitizing the undeveloped water power sites from the digital copies of the maps: Hydro and Fuel Electric Power

- Western Canada and Hydro and Fuel Electric Power - Eastern Canada. From the Atlas of Canada. 1957. <http://atlas.nrcan.gc.ca/site/english/index.html> (Map Archives -- 1957);
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

Canada-wide hydro development potential is based on dated (1957) information from the Atlas of Canada. Likely there are more recent analyses and maps of hydro potential.

## **Forestry – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

### ***Data Sources:***

#### Logging Tenures:

- British Columbia: British Columbia Integrated Land Management Bureau (<http://ilmbwww.gov.bc.ca/>)
- Alberta: AltaLIS (<http://www.altalis.com/>); Alberta Sustainable Resource Management (<http://www.srd.gov.ab.ca/forests/managing/fma/index.html>); Alberta Sustainable Resources Management – Forest Service (pers. comm.);
- Saskatchewan: Saskatchewan Environment Forest Service (pers. comm.);
- Manitoba: Manitoba Conservation, Forest Resources Management, Forestry Branch: Web-reference for linking corporate tenure holders for Manitoba FMLs and IWSAs to the spatial file is <http://manitobawildlands.org/maps/ind-map-fmlas.jpg>
- Ontario: Land Information Ontario (<http://www.lio.gov.on.ca/>);
- Québec: (<http://www.mrnfp.gouv.qc.ca/english/forest/quebec/quebec-system-management-tools.jsp>); (<http://www.mrnfp.gouv.qc.ca/forets/connaissances/connaissances-inventaire-cartes-spatiocartes.jsp>); (<http://www.mrnfp.gouv.qc.ca/cartes/index.jsp#forets>)
- Newfoundland and Labrador: Newfoundland and Labrador Department of Natural Resources (pers. comm.); [http://www.nr.gov.nl.ca/forestry/maps/nf\\_timber.stm](http://www.nr.gov.nl.ca/forestry/maps/nf_timber.stm) map;
- Yukon: Government of Yukon, Yukon Spatial Data Clearinghouse [http://www.geomaticsyukon.ca/data\\_download.html](http://www.geomaticsyukon.ca/data_download.html).

#### Roads:

- Merged National Roads Network files from [www.geobase.ca](http://www.geobase.ca).

#### Access:

- Digitized access disturbances from 1990 to 2001 Landsat satellite imagery (unpublished dataset; copyright Global Forest Watch Canada);
- Active Mines of Canada (Global Forest Watch Canada);
- National roads dataset (copyright DMTI);
- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v3.1. Agriculture and Agri-Food Canada. (digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>;

#### Boreal boundary:

- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

Logging tenures include area-based and volume-based tenures on crown land. In some cases (i.e., Yukon and British Columbia) they also include those forest districts or sub-districts where logging permits/tenures have been issued.

## **Forestry – Future (A)**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

### ***Data Sources:***

Future Forestry Potential by Ecoregion:

- Atlas of Canada: Forest productivity by ecoregion:  
[http://atlas.nrcan.gc.ca/site/english/maps/environment/forest/useforest/proforlanduse?mapsize=428+380&scale=5244128.158379&mapxy=-1138547.4891204107+794658.9891214115&mode=zoomin&layers=&urlappend=%26map\\_scalebar\\_imagecolor%3D255%20255%20255](http://atlas.nrcan.gc.ca/site/english/maps/environment/forest/useforest/proforlanduse?mapsize=428+380&scale=5244128.158379&mapxy=-1138547.4891204107+794658.9891214115&mode=zoomin&layers=&urlappend=%26map_scalebar_imagecolor%3D255%20255%20255)

Logging Tenures:

- British Columbia: British Columbia Integrated Land Management Bureau (<http://ilmbwww.gov.bc.ca/>)
- Alberta: AltaLIS (<http://www.altalis.com/>); Alberta Sustainable Resource Management (<http://www.srd.gov.ab.ca/forests/managing/fma/index.html>); Alberta Sustainable Resources Management – Forest Service (pers. comm.);
- Saskatchewan: Saskatchewan Environment Forest Service (pers. comm.);
- Manitoba: Manitoba Conservation, Forest Resources Management, Forestry Branch: Web-reference for linking corporate tenure holders for Manitoba FMLs and IWSAs to the spatial file is <http://manitobawildlands.org/maps/ind-map-fmlas.jpg>
- Ontario: Land Information Ontario (<http://www.lio.gov.on.ca/>);
- Québec: (<http://www.mrnfp.gouv.qc.ca/english/forest/quebec/quebec-system-management-tools.jsp>); (<http://www.mrnfp.gouv.qc.ca/forets/connaissances/connaissances-inventaire-cartes-spatiocartes.jsp>); (<http://www.mrnfp.gouv.qc.ca/cartes/index.jsp#forets>)
- Newfoundland and Labrador: Newfoundland and Labrador Department of Natural Resources (pers. comm.); [http://www.nr.gov.nl.ca/forestry/maps/nf\\_timber.stm](http://www.nr.gov.nl.ca/forestry/maps/nf_timber.stm) map;
- Yukon: Government of Yukon, Yukon Spatial Data Clearinghouse [http://www.geomaticsyukon.ca/data\\_download.html](http://www.geomaticsyukon.ca/data_download.html).

Roads:

- Merged National Roads Network files from [www.geobase.ca](http://www.geobase.ca).

Access:

- Digitized access disturbances from 1990 to 2001 Landsat satellite imagery (unpublished dataset; copyright Global Forest Watch Canada);
- Active Mines of Canada (Global Forest Watch Canada);
- National roads dataset (copyright DMTI);

- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v3.1. Agriculture and Agri-Food Canada. (digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>;

Boreal boundary:

- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca))

Logging tenures include area-based and volume-based tenures on crown land. In some cases (i.e., Yukon and British Columbia) they also include those forest districts or sub-districts where logging permits/tenures have been issued.

Future logging areas includes those ecoregions that Environment Canada has determined to be above 25% productive for timber (0 - <1% productive; 1 - 75-100% productive; 2 - 50-75% productive; 3 - 25-50% productive; 4 - 10-20% productive; 5 - 1%-10% productive)

### **Forestry – Future (B)**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

Future Forestry Potential by Percent Forested:

- Canadian Forestry Service: CANFI (Canada Forest Inventory) (pers. comm.)

Logging Tenures:

- British Columbia: British Columbia Integrated Land Management Bureau (<http://ilmbwww.gov.bc.ca/>)
- Alberta: AltaLIS (<http://www.altalis.com/>); Alberta Sustainable Resource Management (<http://www.srd.gov.ab.ca/forests/managing/fma/index.html>); Alberta Sustainable Resources Management – Forest Service (pers. comm.);
- Saskatchewan: Saskatchewan Environment Forest Service (pers. comm.);
- Manitoba: Manitoba Conservation, Forest Resources Management, Forestry Branch: Web-reference for linking corporate tenure holders for Manitoba FMLs and IWSAs to the spatial file is <http://manitobawildlands.org/maps/ind-map-fmlas.jpg>
- Ontario: Land Information Ontario (<http://www.lio.gov.on.ca/>);
- Québec: (<http://www.mrnfp.gouv.qc.ca/english/forest/quebec/quebec-system-management-tools.jsp>); (<http://www.mrnfp.gouv.qc.ca/forets/connaissances/connaissances-inventaire-cartes-spatiocartes.jsp>); (<http://www.mrnfp.gouv.qc.ca/cartes/index.jsp#forets>)
- Newfoundland and Labrador: Newfoundland and Labrador Department of Natural Resources (pers. comm.); [http://www.nr.gov.nl.ca/forestry/maps/nf\\_timber.stm](http://www.nr.gov.nl.ca/forestry/maps/nf_timber.stm) map (no spatial file available) of the timber tenures in Newfoundland;
- Yukon: Government of Yukon, Yukon Spatial Data Clearinghouse [http://www.geomaticsyukon.ca/data\\_download.html](http://www.geomaticsyukon.ca/data_download.html).

Roads:

- Merged National Roads Network files from [www.geobase.ca](http://www.geobase.ca).

Access:

- Digitized access disturbances from 1990 to 2001 Landsat satellite imagery (unpublished dataset; copyright Global Forest Watch Canada);
- Active Mines of Canada (Global Forest Watch Canada);
- National roads dataset (copyright DMTI);
- Large Reservoirs -- Soil Landscapes of Canada Working Group. 2006. Soil Landscapes of Canada v3.1. Agriculture and Agri-Food Canada. (digital map and database at 1:1 million scale). <http://wwdrii.sr.unh.edu/download.html>;

Boreal boundary:

- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

Future Forestry Potential by Percent Forested is determined from the CANFI dataset as those grid cells in the CANFI dataset that are greater than 20% forested.

### **Mines – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- British Columbia (2007) <http://www.em.gov.bc.ca/Mining/geosurv/minfile/>;
- Alberta - Oilsands Mines (2007) <http://www.energy.gov.ab.ca/155.asp>: Coal Mines (2005) Canadian and American Mines Handbook 2006:
- Saskatchewan (2006) [http://www.infomaps.gov.sk.ca/website/SIR\\_Geological\\_Atlas/viewer.htm](http://www.infomaps.gov.sk.ca/website/SIR_Geological_Atlas/viewer.htm);
- Manitoba (2006) <http://www.gov.mb.ca/iedm/mrd/busdev/explore/index.html>;
- Ontario (2004) [http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal\\_mines/metal\\_mines\\_2004/active\\_metal\\_2004](http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal_mines/metal_mines_2004/active_metal_2004); (2006) [http://www.mndm.gov.on.ca/mndm/mines/ims/facts/Mining\\_Operations.pdf](http://www.mndm.gov.on.ca/mndm/mines/ims/facts/Mining_Operations.pdf);
- Québec (2007) <http://www.mrnf.gouv.qc.ca/publications/mines/quebec-minier/carte-mines-production.pdf>;
- Newfoundland and Labrador (2007) <http://gis.geosurv.gov.nf.ca/resourceatlas/viewer.htm>;
- Nova Scotia (2006) <http://www.gov.ns.ca/natr/meb/pdf/06ofi03/06ofi03.pdf>;
- New Brunswick - Metal Mines (2004) [http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal\\_mines/metal\\_mines\\_2004/active\\_metal\\_2004](http://atlas.nrcan.gc.ca/site/english/maps/economic/mining/metal_mines/metal_mines_2004/active_metal_2004);
- Potash Mines (2006) <http://www.nrcan.gc.ca/ms/cmy/content/2005/appen.pdf>;
- North West Territories (2006) <http://www.iti.gov.nt.ca/mog/minerals/pubsb.htm>
- Nunavut Territory (2006) <http://www.nrcan.gc.ca/ms/cmy/content/2005/appen.pdf>
- Yukon Territory (2005) <http://www.emr.gov.yk.ca/mining/mapsdatapubs.html>

- Mine location were digitized from pdf maps for the following provinces: Alberta (coal), Manitoba, Ontario, Québec, North West Territories and Nunavut
- Canada (2007) Natural Resources Canada. National Topographic Data Base. 1:50,000 Series. GeoGratis <http://www.geogratis.ca/geogratis/en/product/search.do?id=8147>;

Boreal boundary:

- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

Active mines displayed include those that tend to have a higher environmental impact, including all metal mines (including copper, cobalt, gold, lead, nickel, indium, iron / iron ore, magnesium, molybdenum, nickel, platinum, precious metals, selenium, silver, tellerium, uranium, zinc) and some non-metal mines (including ammolite; anorthosite; asbestos; barite; bitumen; cadmium; calcium carbonate; carbonatite; coal; diamond; fullers earth; gabbro; gold; graphite; ilmenite; jade; labradorite; magnesite; mica; epheline syenite; niobium; phosphate; potash; potassium; pumice; pyrophyllite; salt; sodium; spodumene; titaminum; travertine; tungsten; uranium; volcanic ash; zeolite).

Excluded from the display of active mines include those that tend to have a lower environmental impact such as many non-metal mines (e.g., aggregate; dimension stone; dolomitic limestone; flagstone; granite; gypsum; limestone; marble; peat; quartz; sandstone; shale; silica slag; slate; talc; vermiculite).

## **Mines – Future**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

### ***Data Sources:***

- British Columbia - EMPR - Mineral and Placer Claims. BC Integrated Land Management Bureau (September, 2007). <http://www.lrdw.ca/> [downloaded September 13, 2007]. Metadata: <http://aardvark.gov.bc.ca/apps/metastar/metadataDetail.do?recordUID=33850&recordSet=ISO19115>;
- Alberta - Interactive Metallic and Industrial Minerals Map. Alberta Energy (September 2007). <http://www.energy.gov.ab.ca/2741.asp>. [downloaded September 12, 2007];
- Saskatchewan - Mineral Disposition, from the Geological Atlas of Saskatchewan. Saskatchewan Industry and Resources (September 2007). [http://www.infomaps.gov.sk.ca/website/SIR\\_Geological\\_Atlas/viewer.htm](http://www.infomaps.gov.sk.ca/website/SIR_Geological_Atlas/viewer.htm). [downloaded September 7, 2007];
- Manitoba - Mining Claims. Manitoba Science, Technology, Energy and Mines (September 2007). [http://geoapp2.gov.mb.ca/website/claim\\_map/viewer.htm](http://geoapp2.gov.mb.ca/website/claim_map/viewer.htm). [downloaded 14 September, 2007];
- Ontario - Mining Claim (applications) Polygon Data. Ontario Ministry of Northern Development and Mines (September 2007).

- [http://www.mndm.gov.on.ca/mndm/mines/lands/claimap3/datadownload\\_e.asp](http://www.mndm.gov.on.ca/mndm/mines/lands/claimap3/datadownload_e.asp). [downloaded 17 September, 2007];
- Québec Titres miniers au Québec. Gestion des titres miniers - Ressources naturelles, Faune et Parcs du Québec (July 2007). [downloaded 19 November, 2007; data effective for 16 November, 2007]. [Note: Québec active titles data includes mine claims and mine lease areas.];
  - New Brunswick - New Brunswick Mineral Claim Blocks. New Brunswick Department of Natural Resources (September 2007). <http://www.gnb.ca/0078/minerals/ftp-e.asp>. [downloaded 17 September 2007]. New Brunswick mineral claim blocks with lease and agreement boundaries, in DXF, SHP and CARIS NTX formats.
  - Nova Scotia - Nova Scotia Mineral Rights Database - DP ME 51. Nova Scotia Department of Natural Resources. (July 2007). <http://www.gov.ns.ca/NATR/MEB/download/dp051dds.htm>. [downloaded 17 September 2007];
  - Newfoundland and Labrador - Newfoundland and Labrador Mineral Resource Atlas. Newfoundland and Labrador Department of Natural Resources. (September 2007). <http://gis.geosurv.gov.nf.ca/resourceatlas/viewer.htm>. [downloaded 17 September 2007];
  - Yukon Territory - Yukon Mining Recorders. Yukon Energy Mines and Resources (September 2007). <ftp://ftp.geomaticsyukon.ca/Mining/>. [downloaded 13 Sep 07]. (MIN\_BND - Mining District Boundaries; MIN\_INDEX - Mineral Index (1:50K Mapsheets); MIN\_INDEX10k - Mineral Index (1:10K Mapsheets); MIN\_PBASELN - Placer Baseline; MIN\_PCLAIMS - Placer Claims; MIN\_PHISTORICAL - Historical Placer Claims (expired or lapsed claims are moved to this layer if new claims are staked in the same area); MIN\_QARROWS - Quartz Claim Staking Direction Arrows; MIN\_QCLAIMS - Quartz Claims; MIN\_QHISTORICAL - Historical Quartz Claims (expired or lapsed claims are moved to this layer if new claims are staked in the same area);
  - North West Territories and Nunavut Territory - Location of Mineral Claims, Mineral Leases and Prospecting Permits. Indian and Northern Affairs Canada (September 2007). [http://nwt-tno.inac-ainc.gc.ca/ism-sid/index\\_e.asp](http://nwt-tno.inac-ainc.gc.ca/ism-sid/index_e.asp). [downloaded 14 Sep 07]

It is important to note that terminology regarding claims, leases and permits, and legislation and policy regarding allocations varies between jurisdictions. Also, jurisdictions make available data in various formats and are publicly updated at different temporal resolutions from daily to annually.

The map is not complete in that sources for some datasets could be readily located or could not be readily distinguished from other categories (e.g., permits in Newfoundland and Labrador; leases and permits in British Columbia and Yukon. Coal leases have not been included on this map.

***Definitions:***

(1) Permits -- These are defined as the first stage of mineral exploration. In Alberta they are defined as "Application for Permits", and this definition has been applied to Ontario and Québec ["Application for Claims" (Ontario) and "Titres en Demandes" (Québec)]. In Saskatchewan, permits give the holder exclusive mineral prospecting rights and the ability to convert the permit into a claim. In Manitoba "Mineral Exploration Licenses" give the holder exclusive right to explore for Crown minerals. In the Northwest Territories and Nunavut "prospecting permits" give the holder exclusive exploration rights within their boundary.

(2) Claims -- Claims are defined as "exclusive mineral exploration and prospecting rights" and some provinces allow the holder to develop mineral properties with claims. These may be converted in Leases.

(3) Leases -- Leases give the holder the right to undertake activities to extract and remove minerals from the site. Whereas prospecting permits indicate that there may be minerals of interest present, leases tend to indicate areas where development and extraction activities are most likely to occur.

### **Petroleum – Current**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Wellsites -- IHS Energy, Calgary (copyright).
- Tar Sands Administrative Area and Surface mines – digitized from PDF map provided by Department of Energy. Oil Sands Agreements: Department of Energy Oil Sands & Surface Mineable Areas: Base Data provided by Spatial Data Warehouse Ltd. January 2006.
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratis.gc.ca](http://www.geogratis.gc.ca)).

From 1901 to June 2003, there were 182,152 drilled in Canada's Boreal. From 1901 to 1989, 6,496 wells were drilled; from 1990 to 1989 52,019 wells were drilled; from 2000 to June 2003 33,637 wells were drilled.

### **Petroleum – Future**

Map prepared by Global Forest Watch Canada for the International Boreal Conservation Campaign.

#### ***Data Sources:***

- Wellsite locations -- IHS Energy, Calgary (copyright).

- Western Canada Sedimentary Basin -- Geological Survey of Canada. Wheeler, JO, PF Hoffman, KD Card, A Davidson, BV Sanford, AV Okulitch, and WR Roest. 1996. Geologic Map of Canada; Geological Survey of Canada, Map 1860A. [http://gsc.nrcan.gc.ca/map/1860a/index\\_e.php](http://gsc.nrcan.gc.ca/map/1860a/index_e.php);
- Coalbed methane boundaries for Alberta represent the Potential Coal Bed Methane zones in Alberta, digitized from the Alberta Energy and Utilities Board EnerFAQ No. 10 available at [http://www.energy.gov.ab.ca/NaturalGas/CBM\\_Pdfs/NGC\\_map\\_coalzones.pdf](http://www.energy.gov.ab.ca/NaturalGas/CBM_Pdfs/NGC_map_coalzones.pdf). (July 2003).
- Coalbed Methane Potentials for British Columbia are digitized from <http://www.empr.gov.bc.ca/DL/GSBPubs/GeoFile/Gf2000-7/GF2000-7.pdf>. Based on Geological Survey of Canada, unpublished: P. Hannigan, P.J. Lee, K Osadetz et al., 1993-1998.
- Ontario - Mining Claim (applications) Polygon Data. Ontario Ministry of Northern Development and Mines (September 2007). [http://www.mndm.gov.on.ca/mndm/mines/lands/claimap3/datadownload\\_e.asp](http://www.mndm.gov.on.ca/mndm/mines/lands/claimap3/datadownload_e.asp). [downloaded 17 September, 2007];
- Mackenzie Valley Proposed Pipeline – digitized from map in Application to the National Energy Board for Approval of the Mackenzie Valley Pipeline: <<http://www.mackenziegasproject.com/theProject/regulatoryProcess/applicationSubmission/Applicationscope/CPCN.html>>
- Boreal boundary -- Canadian Boreal Institute ([www.borealcanada.ca](http://www.borealcanada.ca)), as modified from the Terrestrial Ecozones of Canada from GeoGratis ([www.geogratias.gc.ca](http://www.geogratias.gc.ca)).

The Western Canada Sedimentary Basin is assumed to be where the major oil and gas deposits are located.