METADATA SHEET

Geographic data for the Southern Québec Land Accounts project

2018 Edition

Overview

The geographic data from the Southern Québec Land Accounts correspond to a set of raster files with a spatial resolution of 50 metres that qualify, at two different points in time, the type of land cover for the Québec territory located south of the 51st parallel.

These geospatial data are the ones used in the report *Comptes des terres du Québec méridional* released on October 11, 2017. All references in this metadata sheet relate to that publication.

These data are structured around nine land cover classes based on the standardized System of Environmental Economic Accounting or SEEA (p. 153): artificial surfaces, agricultural lands, forested wetlands, shrub covered and/or herbaceous wetlands, inland water bodies, closed coniferous forests, closed deciduous forests, closed mixed forests, and open forests (p. 39).

The two Québec land cover maps relate to two different periods of time: the first corresponds to the 1990s, and the second, to the 2000s (p. 37). A comparison of these two land cover maps provides us with a third map, which reflects the land cover changes (transitions from one land cover class to another) (p. 31).

These geospatial data allow us to compile statistical tables of land cover stocks according to a given geography for the two time periods mentioned and to quantify increases or decreases in certain land cover classes during the study period (p. 79).

These geographic data are disseminated in a 50-metre resolution raster format (p. 47) in the Albers Cartographic Projection System for Québec (NAD 83) (p. 104).

Terms of use:

The use of these geographic data is subject to the terms of the Creative Commons 4.0 – Attribution CC BY, and must be credited to: Institut de la statistique du Québec, land cover data from the Southern Québec Land Accounts project, October 2017.

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About the Southern Québec Land Accounts

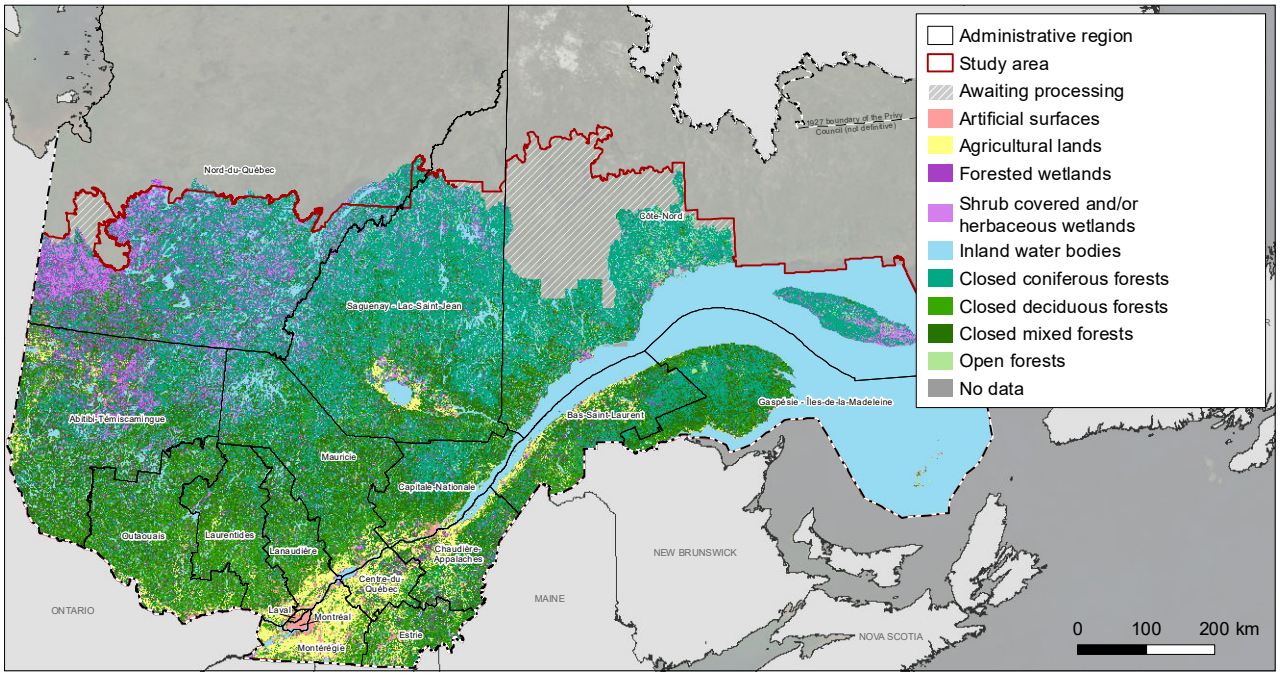
Objective of the product

The geographic data developed by the ISQ are disseminated so that users can compile land account results according to their own geographic breakdown or combine these results with other sources of geographic data.

Examples of representations

Map 1

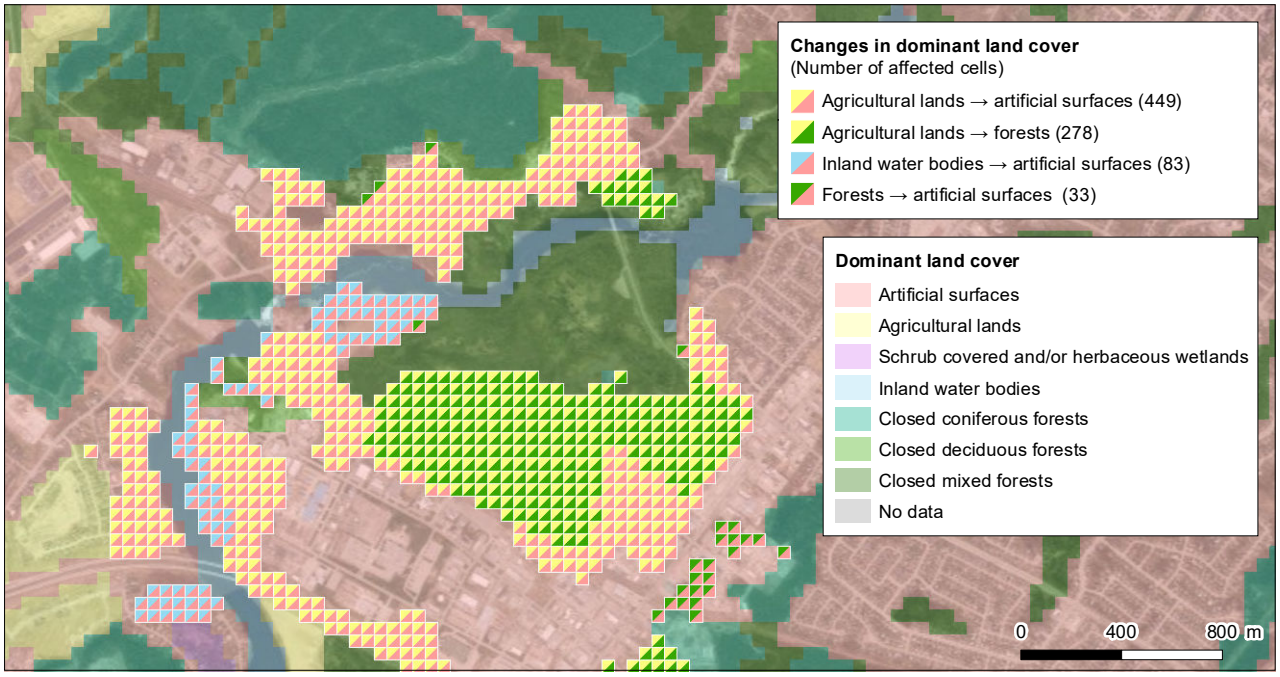
Dominant land cover based on 50-metre cells and administrative region boundaries, Southern Québec, 2002-2013 (p. 50)



Sources: Institut de la statistique du Québec, using ecoforestry maps and data from the Ministère des Forêts, de la Faune et des Parcs, May 2016; Ministère de l'Énergie et des Ressources naturelles, Système sur les découpages administratifs, June 2017; and RapidEye satellite image mosaic (2010-2013).

Map 2

Changes in dominant land cover based on 50-metre cells, Chicoutimi River sector, Saguenay RCM, 1995-2008 (p. 56)



Sources: Institut de la statistique du Québec, using ecoforestry maps and data from the Ministère des Forêts, de la Faune et des Parcs, May 2016; Ministère de l'Énergie et des Ressources naturelles, Système sur les découpages administratifs, June 2017; and RapidEye satellite image mosaic (2010-2013).

Content

Table 1

List of files provided

File name	Format	Content
T00_PROVINCE.tif	GeoTIFF	Land cover based on the 9 classes at the start of the period (t0).
T01_PROVINCE.tif	GeoTIFF	Land cover based on the 9 classes at the end of the period (t1).
Changement_PROVINCE.tif	GeoTIFF	50-metre cells where land cover changes occurred between the start and the end of the period.
correspondance_raster_CL_COUV.dbf	DBF table	Correspondence table between the numerical values of the raster files (*ID* field) and the land cover class codes and change codes (*CL-COUV* field) as well as their descriptions (*Descriptio* field).
CL_COUV_thematique_raster.lyr	LYR thematic file (ArcGIS)	Thematic file for the ArcGIS software. Illustrates the T00_PROVINCE and T01_PROVINCE rasters with the colours and names of the cover classes used in the Southern Québec Land Accounts project report. (*Contains no data.*)
emprise_projet.shp	Surface shape file	Polygons delineating the project study area, the sectors awaiting processing as part of the 4th ecoforestry inventory, and the water sectors added.

General data creation methodology

Consult the publication *Comptes des terres du Québec méridional*, annexe I : méthodologie détaillée (p. 103).

Sources of geographic data

- Ministère des Forêts, de la Faune et des Parcs, ecoforestry maps and data (3rd and 4th inventories), May 2016.
- Ministère de l'Énergie et des Ressources naturelles, Système sur les découpages administratifs (SDA), June 2017.
- Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques, Cadre écologique de référence du Québec (CERQ), 2013.
- Agriculture and Agri-Food Canada (AAC), land use (LU) maps for 1990 and 2010.
- United States Geological Survey (USGS), images from the Landsat 4-5 TM and Landsat 8 OLI satellites (1990 to 2013).

Use restrictions

Land cover data are compiled at a relatively high resolution (50-metre cells). These data should be interpreted with caution at a large scale (1:20,000 or less). The automated land account methodology (p. 31) is based on the integration and interpretation of existing geographic data. The objective of these geographic data is to observe trends over large portions of the territory, not to reflect changes in a specific parcel of land. As such, the Institut cannot guarantee the accuracy of the data at the scale of individual 50-metre cells or small groups of cells.

In addition, the 50-metre cells contain the dominant land cover class at this scale of observation, i.e. the simplified land cover occupying the largest proportion of a 2,500 m^2 cell (p. 149). These cells are used for data storage and the creation of change statistics. However, the minimum area of interpretation of ecoforestry polygons, which varies depending on the land cover class (p. 141), affects the actual spatial resolution of the data. Because of this, only cover changes of more than two hectares (or more than eight hectares for some changes) are considered valid and are compiled in the land accounts (p. 143).

The statistics from cells are considered reliable when compiled at a spatial scale large enough that the proportion of misclassification is negligible relative to the entire territory. Uncertainty related to the precision of the data cannot be quantified overall; only a qualitative, case-by-case assessment of the results can be made, highlighting those estimates that are considered imprecise or unreliable (p. 61).

Reference dates

The reference period for the land accounts is determined by the years of capture of the photos from the ecoforestry inventories (p. 37). For each data compilation based on a specific geography, we are able to determine the most representative years of capture for each geographic entity. This exercise can be based on the median year weighted by area method, or more simply on the dominant year method.

Table 2

Reference years for the start (t0) and end (t1) of the reference period by administrative region

Geographic code	Name	t0	t1	Duration (years)
01	Bas-Saint-Laurent	1993	2004	11
02	Saguenay–Lac-Saint-Jean	1995	2008	13
03	Capitale-Nationale	1990	2002	12
04	Mauricie	1997	2008	11
05	Estrie	1995	2007	12
06	Montréal	1994	2007	13
07	Outaouais	1990	2003	13
08	Abitibi-Témiscamingue	1994	2005	11
09	Côte-Nord	1999	2013	14
10	Nord-du-Québec	1996	2011	15
11	Gaspésie–Îles-de-la-Madeleine	1992	2004	12
12	Chaudière-Appalaches	1990	2003	13
13	Laval	1994	2007	13
14	Lanaudière	1995	2008	13
15	Laurentides	1991	2005	14
16	Montérégie	1994	2009	15
17	Centre-du-Québec	1991	2006	15

Technical specifications

Land cover data (start and end of period) and changes are provided in GeoTIFF raster format (raster image in georeferenced TIFF format). The spatial resolution of the pixels (cells) is 50 metres. The other data accompanying the project are provided in DBF (data base file), LYR (ArcGIS layer file) and SHP (geographic shape file) format.

The cartographic projection system used for the design and dissemination of these data is the Albers equivalent conical projection for Québec in the NAD 1983 spatial reference system (p. 104).

Geographic file attributes

Table 3

Raster file attributes (GeoTIFF format)

Field name	Field description
Attribute information for the **T00_PROVINCE.tif**, **T01_PROVINCE.tif** and **Changement_PROVINCE.tif** files Format: GeoTIFF raster file	
OID	Unique identifier
Value	Numeric code for coverage class (see **Table 6** for correspondence table)
Count	Count of the number of pixels in the coverage class

Table 4

Tabular file attributes (DBF format)

Field name	Field description
Attribute information for the **correspondance_raster_CL_COUV.dbf** file (content identical to that presented in Table 6) Format: DBF table	
OID	Unique identifier
ID	Numeric code for coverage class (see **Table 6** for correspondence table)
CL_COUV	Standardized land cover class or land cover change code
Descriptio	Description of the land cover class or land cover change

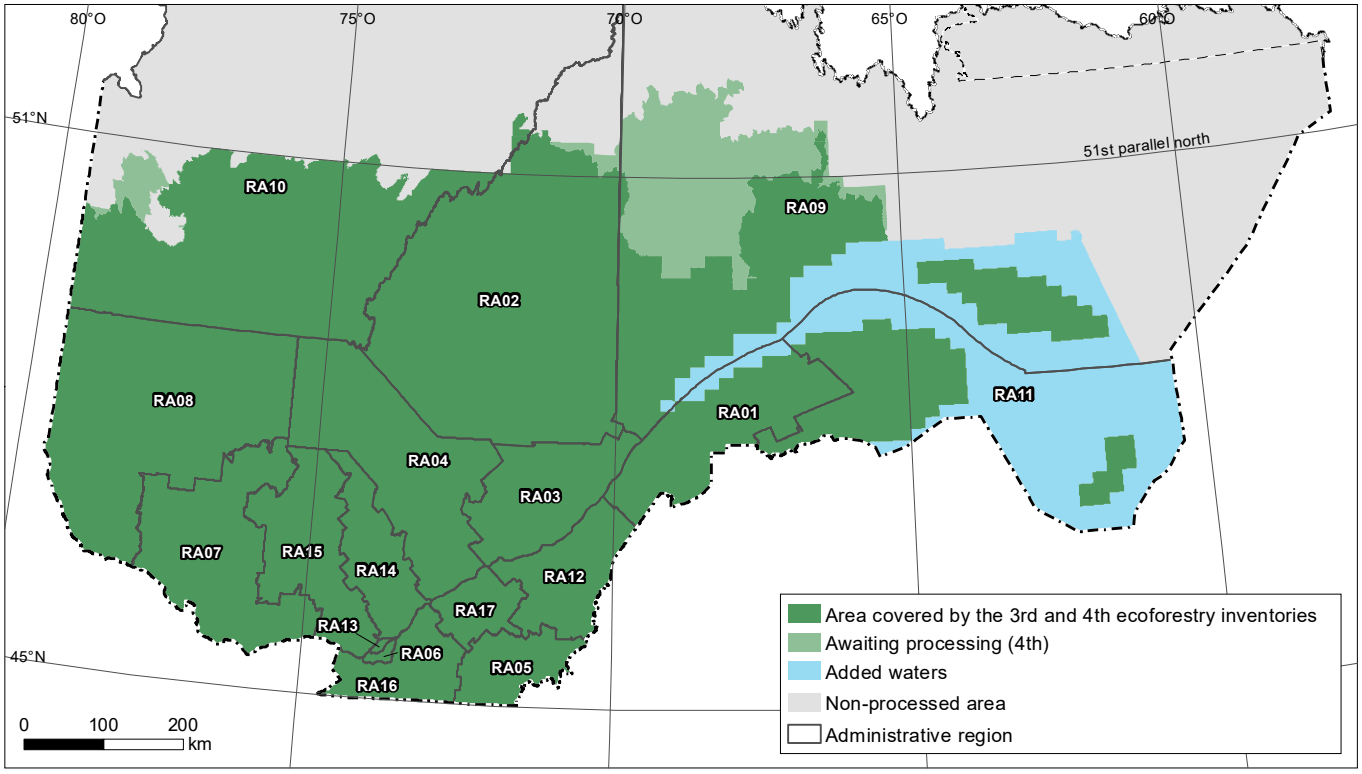
Table 5

Surface shape file attributes (shape format)

Field name	Field description
Attribute information for the **emprise_projet.shp** file Format: Surface shape file	
FID	Unique identifier
Type	ECOFO: Polygon delineating the project study area Awaiting processing: Sectors awaiting processing based on the 4th ecoforestry inventory Added waters: Added water sectors in the Gulf of St. Lawrence

Map 3

Spatial coverage of the data (in green)



Sources: Institut de la statistique du Québec, using ecoforestry maps and data from the Ministère des Forêts, de la Faune et des Parcs, May 2016; Ministère de l'Énergie et des Ressources naturelles, Système sur les découpages administratifs, June 2017.

Table 6

Correspondence table between the numerical values of the raster files (ID field) and the land cover class codes (with their descriptions)

ID	CL_COUV	Description
1	010000	Artificial surfaces
2	020000	Agricultural lands
3	060000	Forested wetlands
4	070000	Shrub covered and/or herbaceous wetlands
5	100000	Inland water bodies
6	110101	Closed coniferous forests
7	110102	Closed deciduous forests
8	110103	Closed mixed forests
9	110200	Open forests
10	000000	No data
11	000001	Awaiting processing
12	010000_020000	Artificial surfaces to agricultural lands
13	010000_060000	Artificial surfaces to forested wetlands
14	010000_070000	Artificial surfaces to shrub covered and/or herbaceous wetlands
15	010000_100000	Artificial surfaces to inland water bodies
16	010000_110101	Artificial surfaces to closed coniferous forests
17	010000_110102	Artificial surfaces to closed deciduous forests
18	010000_110103	Artificial surfaces to closed mixed forests
19	010000_110200	Artificial surfaces to open forests
20	010000_000000	Artificial surfaces to no data
21	010000_000001	Artificial surfaces to awaiting processing
22	020000_010000	Agricultural lands to artificial surfaces
23	020000_060000	Agricultural lands to forested wetlands
24	020000_070000	Agricultural lands to shrub covered and/or herbaceous wetlands
25	020000_100000	Agricultural lands to inland water bodies
26	020000_110101	Agricultural lands to closed coniferous forests
27	020000_110102	Agricultural lands to closed deciduous forests
28	020000_110103	Agricultural lands to closed mixed forests
29	020000_110200	Agricultural lands to open forests
30	020000_000000	Agricultural lands to no data
31	020000_000001	Agricultural lands to awaiting processing
32	060000_010000	Forested wetlands to artificial surfaces
33	060000_020000	Forested wetlands to agricultural lands
34	060000_070000	Forested wetlands to shrub covered and/or herbaceous wetlands
35	060000_100000	Forested wetlands to inland water bodies
36	060000_110101	Forested wetlands to closed coniferous forests
37	060000_110102	Forested wetlands to closed deciduous forests
38	060000_110103	Forested wetlands to closed mixed forests
39	060000_110200	Forested wetlands to open forests

Continued on page 8

Table 6 (continued)

Correspondence table between the numerical values of the raster files (ID field) and the land cover class codes (with their descriptions)

ID	CL_COUV	Description
40	060000_000000	Forested wetlands to no data
41	060000_000001	Forested wetlands to awaiting processing
42	070000_010000	Shrub covered and/or herbaceous wetlands to artificial surfaces
43	070000_020000	Shrub covered and/or herbaceous wetlands to agricultural lands
44	070000_060000	Shrub covered and/or herbaceous wetlands to forested wetlands
45	070000_100000	Shrub covered and/or herbaceous wetlands to inland water bodies
46	070000_110101	Shrub covered and/or herbaceous wetlands to closed coniferous forests
47	070000_110102	Shrub covered and/or herbaceous wetlands to closed deciduous forests
48	070000_110103	Shrub covered and/or herbaceous wetlands to closed mixed forests
49	070000_110200	Shrub covered and/or herbaceous wetlands to open forests
50	070000_000000	Shrub covered and/or herbaceous wetlands to no data
51	070000_000001	Shrub covered and/or herbaceous wetlands to awaiting processing
52	100000_010000	Inland water bodies to artificial surfaces
53	100000_020000	Inland water bodies to agricultural lands
54	100000_060000	Inland water bodies to forested wetlands
55	100000_070000	Inland water bodies to shrub covered and/or herbaceous wetlands
56	100000_110101	Inland water bodies to closed coniferous forests
57	100000_110102	Inland water bodies to closed deciduous forests
58	100000_110103	Inland water bodies to closed mixed forests
59	100000_110200	Inland water bodies to open forests
60	100000_000000	Inland water bodies to no data
61	100000_000001	Inland water bodies to awaiting processing
62	110101_010000	Closed coniferous forests to artificial surfaces
63	110101_020000	Closed coniferous forests to agricultural lands
64	110101_060000	Closed coniferous forests to forested wetlands
65	110101_070000	Closed coniferous forests to shrub covered and/or herbaceous wetlands
66	110101_100000	Closed coniferous forests to inland water bodies
67	110101_110102	Closed coniferous forests to closed deciduous forests
68	110101_110103	Closed coniferous forests to closed mixed forests
69	110101_110200	Closed coniferous forests to open forests
70	110101_000000	Closed coniferous forests to no data
71	110101_000001	Closed coniferous forests to awaiting processing
72	110102_010000	Closed deciduous forests to artificial surfaces
73	110102_020000	Closed deciduous forests to agricultural lands
74	110102_060000	Closed deciduous forests to forested wetlands
75	110102_070000	Closed deciduous forests to shrub covered and/or herbaceous wetlands
76	110102_100000	Closed deciduous forests to inland water bodies
77	110102_110101	Closed deciduous forests to closed coniferous forests
78	110102_110103	Closed deciduous forests to closed mixed forests

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Table 6 (continued)

Correspondence table between the numerical values of the raster files (ID field) and the land cover class codes (with their descriptions)

ID	CL_COUV	Description
79	110102_110200	Closed deciduous forests to open forests
80	110102_000000	Closed deciduous forests to no data
81	110102_000001	Closed deciduous forests to awaiting processing
82	110103_010000	Closed mixed forests to artificial surfaces
83	110103_020000	Closed mixed forests to agricultural lands
84	110103_060000	Closed mixed forests to forested wetlands
85	110103_070000	Closed mixed forests to shrub covered and/or herbaceous wetlands
86	110103_100000	Closed mixed forests to inland water bodies
87	110103_110101	Closed mixed forests to closed coniferous forests
88	110103_110102	Closed mixed forests to closed deciduous forests
89	110103_110200	Closed mixed forests to open forests
90	110103_000000	Closed mixed forests to no data
91	110103_000001	Closed mixed forests to awaiting processing
92	110200_010000	Open forests to artificial surfaces
93	110200_020000	Open forests to agricultural lands
94	110200_060000	Open forests to forested wetlands
95	110200_070000	Open forests to shrub covered and/or herbaceous wetlands
96	110200_100000	Open forests to inland water bodies
97	110200_110101	Open forests to closed coniferous forests
98	110200_110102	Open forests to closed deciduous forests
99	110200_110103	Open forests to closed mixed forests
100	110200_000000	Open forests to no data
101	110200_000001	Open forests to awaiting processing
102	000000_010000	No data to artificial surfaces
103	000000_020000	No data to agricultural lands
104	000000_060000	No data to forested wetlands
105	000000_070000	No data to shrub covered and/or herbaceous wetlands
106	000000_100000	No data to inland water bodies
107	000000_110101	No data to closed coniferous forests
108	000000_110102	No data to closed deciduous forests
109	000000_110103	No data to closed mixed forests
110	000000_110200	No data to open forests
111	000000_000001	No data to awaiting processing
112	000001_010000	Awaiting processing to artificial surfaces
113	000001_020000	Awaiting processing to agricultural lands
114	000001_060000	Awaiting processing to forested wetlands
115	000001_070000	Awaiting processing to shrub covered and/or herbaceous wetlands
116	000001_100000	Awaiting processing to inland water bodies
117	000001_110101	Awaiting processing to closed coniferous forests

Continued on page 10

Table 6 (continued)

Correspondence table between the numerical values of the raster files (ID field) and the land cover class codes (with their descriptions)

ID	CL_COUV	Description
118	000001_110102	Awaiting processing to closed deciduous forests
119	000001_110103	Awaiting processing to closed mixed forests
120	000001_110200	Awaiting processing to open forests
121	000001_000000	Awaiting processing to no data

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