
Annual Report 2022

Land use changes in Alberta

South Saskatchewan Regional Plan Strategy 1.1:
Maintain an agricultural land base by reducing
fragmentation and conversion of agricultural land



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Preface

From 1976 to 1996, Alberta Agriculture and Irrigation (AGI) monitored and reported on the conversion of agricultural land to non-agricultural uses. In 2008, public consultation under the provincial Land-use Framework (LUF) identified agricultural land loss (i.e., conversion to non-agricultural uses) as a public concern. The department resumed reporting in 2011 and committed through the approved LUF regional plans to continue reporting on annual changes in the agricultural land base. Reports are published annually for Alberta and each of the seven LUF regions. AGI reviews these reports when assessing future needs for policies to preserve and protect Alberta's agricultural land. AGI reported a net loss of agricultural land and a gradual increase in urban and rural residential areas during 2011-2021. See the graphs below for a visual trend.

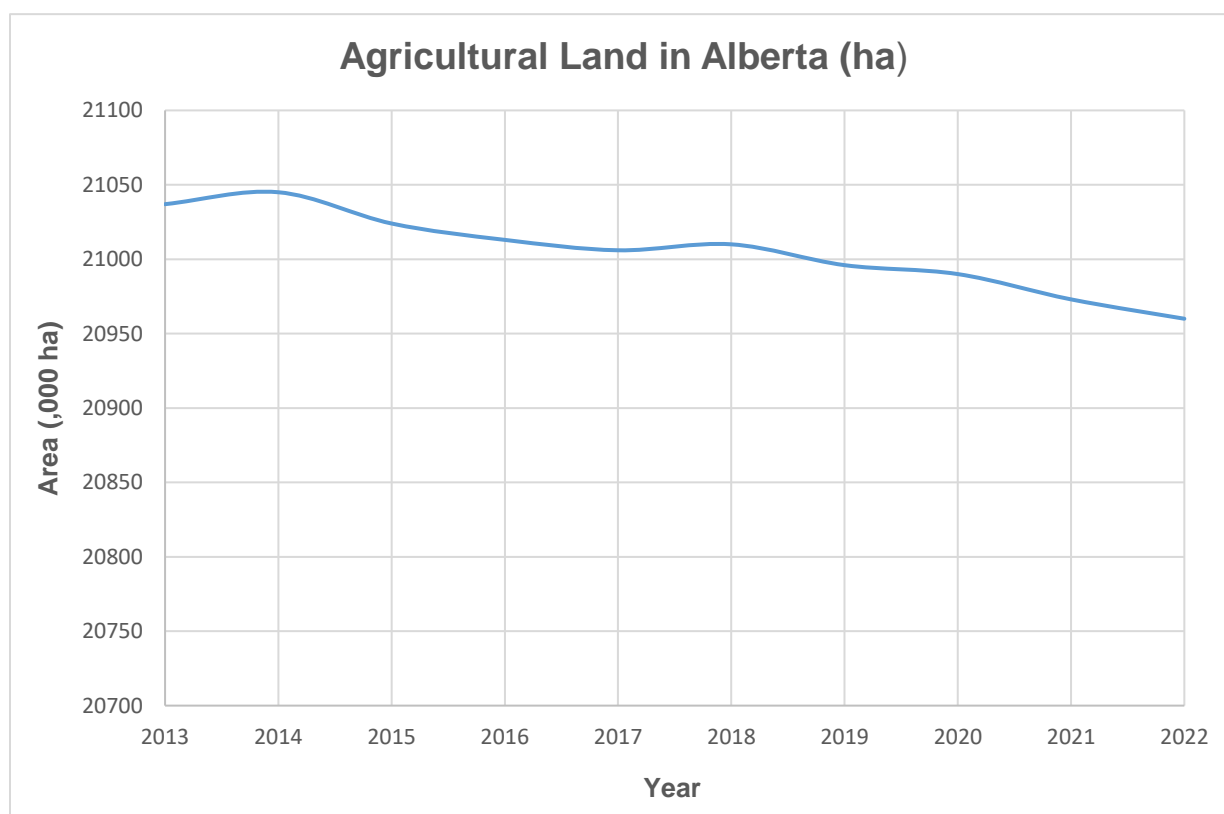
Agriculture and Irrigation reports lands under agricultural uses as per the Land Suitability Rating System (LSRS) - a procedure for rating the suitability of land for cultivating spring-seeded small grains (and hardy oilseeds). The system incorporates the soil-climate-landscape potential and is an improvement on the Canada Land Inventory (CLI) capability rating that it replaces. The land use data that AGI reported during 2011-2020 used an LSRS based on 30-year climate data from 1961 to 1990. In 2021, AGI updated the LSRS with the more recent 30-year climate data from 1981 to 2010. Thus, the distribution of agricultural lands under the LSRS Classes in 2021 is not comparable with the previous years. Historically, LSRS Class 1 soil did not exist in Alberta due to climate (heat) limitations. The incorporation of more recent climate data and an update of the LSRS classification has resulted in small pockets of Class 1 soil emerging in Alberta – specifically in the Lower Peace and North Saskatchewan regions.

The data being presented in this report only represents raw data extracted from spatial data layers. For conversion reporting, every parcel of land in Alberta is assigned to a land-use class according to the defined rule set (see methodology report linked below) using Geographic Information Systems (GIS). Then the total area of each land use class, in each LUF region, is calculated. Using those totals, the area of each land use class is subtracted from the area in the next year to determine the change in area from year to year. Fragmentation reporting sorts titled parcel sizes under the Agricultural classification into discreet categories. The number of parcels in a given category provides an indication of the level of fragmentation of agricultural land.

The reporting methodology, including challenges and limitations, can be found in [Fragmentation and Conversion of Agricultural Land in Alberta – Land Use Framework Reporting: Background and Methodology](#).

Previous reports are available [here](#).

Land Use Changes 2013 – 2022



Land Use Changes in Alberta

Table 1a: Conversion – Land Use in Alberta

Area by Land Use Class (hectares) (Definitions)¹				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	21,010,403	38,054,915	232,459	459,693
2019	20,996,654	38,058,760	234,275	466,800
2020	20,990,373	38,049,485	235,631	468,949
2021	20,973,168	38,064,249	235,941	418,339
2022	20,960,097	38,061,844	239,716	422,237

Table 1b: Conversion – Land Use Change in Alberta

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
Net Change (2011-2020)	-23,297	-80,964	25,190	40,099
2021-2022 ⁵	-13,071	-2,405	3,775	3,898

Table 2a: Conversion – Area of Agricultural Land in Alberta by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1 ²	2	3	4	5	6	7	0 ³
2021 ⁴	11,478	6,895,476	5,832,278	4,292,747	2,170,504	1,020,120	719,273	31,291
2022	11,439	6,887,983	5,828,493	4,291,439	2,170,147	1,020,056	719,268	31,275

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in Alberta

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)	0	-20,938	-30,929	6,009	7,553	14,488	-1296	1827
2021-2022 ⁵	-39	-7,493	-3,785	-1,308	-358	-64	-6	-16

Table 3a: Fragmentation – [Parcel Size](#) Distribution in Alberta

Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels ⁶	>240	160-240	80-160	10-80	% < 80
2018	635,252	15	53,342	266,106	96,409	15.2
2019	637,088	16	53,072	266,167	97,206	15.3
2020	639,458	13	52,782	266,435	95,710	14.97
2021	664,639	13	52,558	266,584	95,668	14.39
2022	669,029	13	52,158	266,458	97,186	14.53

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in Alberta

Annual Change in Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	1,836	1	-270	61	797	0.1
2019-2020	2,370	-3	-290	268	-1,496	-0.29
2020-2021	25,181	0	-224	149	-42	-0.57
2021-2022	4,390	0	-400	-126	1,518	0.13
Net Change (2011-2022)	57,468	0	-2,793	1,269	6,339	-0.33

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

¹ The total area under these four land use classes do not include the total land area of Alberta (other land classes exist that are not included in this analysis).

² According to the previous LSRS classification that used 30-year climate data from 1951 to 1981, Alberta reported no agricultural lands under Class 1 during 2011-2020.

³ Not classified

⁴ Based on updated LSRS classification from 2021 onward. For past data please see previous reports.

⁵ Due to the significant redistribution of lands under revised LSRS classes, 2021 is not comparable to previous years with older LSRS data. Therefore 2021 is a starting point for the revised LSRS layer and net change will be calculated going forward from 2021.

⁶ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Upper Athabasca Region

Table 1a: Conversion – Land Use in the Upper Athabasca Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	1,832,844	5,645,827	26,978	21,606
2019	1,831,638	5,646,311	27,220	21,886
2020	1,830,177	5,645,589	27,122	21,924
2021	1,821,215	5,650,102	27,168	20,616
2022	1,819,669	5,650,780	27,861	20,616

Table 1b: Conversion – Land Use Change in the Upper Athabasca Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
Net Change (2011-2020)	-14,293	7,189	2,992	374
2021-2022	-1,546	-349	693	0

Table 2a: Conversion – Area of Agricultural Land in the Upper Athabasca Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ⁷		889,915	436,383	110,835	99,696	63,395	219,630	1,360
2022 ⁷		889,161	435,365	111,423	99,417	63,155	219,787	1,359

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the Upper Athabasca Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-532	-8045	-3425	-771	-240	-1301	30
2021-2022 ⁸		754	-1,018	588	-279	-240	157	-1

Table 3a: Fragmentation – Parcel Size Distribution in the Upper Athabasca Region

Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels ⁹	>240	160-240	80-160	10-80	% < 80
2018	62,213	0	3,526	23,946	10,768	17.3
2019	62,469	0	3,473	23,966	11,006	17.6
2020	62,464	0	3,543	23,894	10,668	17.1
2021	66,194	0	3,522	23,865	10,643	16.1
2022	66,599	0	3,494	23,754	10,856	16.3

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the Upper Athabasca Region

Annual Change in Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	256	0	-53	20	238	0.3
2019-2020	-5	0	70	-72	-338	-0.5
2020-2021	3,730	0	-21	-29	-25	-1.0
2021-2022	405	0	-28	-111	213	0.2
Net Change (2011-2022)	7039	0	-241	-328	1151	0.0

The data is rounded to the nearest 10 ha in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

⁷ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

⁸ Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

⁹ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Upper Peace Region

Table 1a: Conversion – Land Use in the Upper Peace Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	2,169,905	4,874,281	16,192	30,125
2019	2,168,943	4,878,340	16,531	26,499
2020	2,167,487	4,879,247	16,431	26,557
2021	2,167,703	4,879,259	16,519	23,112
2022	2,164,152	4,880,752	17,194	23,369

Table 1b: Conversion – Land Use Change in the Upper Peace Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
Net Change (2011-2020)	-17,623	10,828	2,042	2,227
2021-2022	-3,551	1,493	675	257

Table 2a: Conversion – Area of Agricultural Land in the Upper Peace Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2018		298,155	1,259,705	336,270	91,422	144,479	39,613	261
2019		298,139	1,259,072	336,071	91,154	144,442	39,614	451
2020		297,998	1,258,383	335,980	91,128	144,228	39,514	255
2021 ¹⁰		535,123	1,267,902	86,202	166,410	70,320	41,485	261
2022 ¹⁰		534,907	1,266,311	85,831	165,245	70,105	41,490	261

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the Upper Peace Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normal, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-672	-8,477	-2,440	-1,792	-3,442	-506	-295
2021-2022 ¹⁰		-216	-1,591	-371	-1,165	-215	5	0

Table 3a: Fragmentation – Parcel Size Distribution in the Upper Peace Region

Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels ¹¹	>240	160-240	80-160	10-80	% < 80
2018	53,707	0	7,559	25,931	7,342	13.7
2019	54,257	1	7,524	25,956	7,363	13.6
2020	53,871	0	7,529	25,930	7,220	13.4
2021	56,703	0	7,515	25,948	7,228	12.7
2022	57,433	0	7,438	25,956	7,478	13.0

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the Upper Peace Region

Annual Change in Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	550	1	-35	25	21	-0.1
2019-2020	-386	-1	5	-26	-143	-0.2
2020-2021	2,832	0	-14	18	8	-0.7
2021-2022	730	0	-77	8	250	0.3
Net Change (2011-2022)	5,900	-1	-438	103	949	0.4

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

¹⁰ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

¹¹ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Lower Athabasca Region

Table 1a: Conversion – Land Use in the Lower Athabasca Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-agricultural	Rural Residential	Urban
2018	535,380	7,071,969	9,468	33,482
2019	534,495	7,071,980	9,499	34,124
2020	534,172	7,066,439	9,630	35,101
2021	533,999	7,072,185	9,609	23,506
2022	533,184	7,071,927	9,932	23,506

Table 1b: Conversion – Land Use Change in the Lower Athabasca Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-agricultural	Rural Residential	Urban
2018-2019	-885	11	31	641
2019-2020	-323	-5,541	131	977
2020-2021	-19	5,748	1	-261
2021-2022	-815	-258	323	0
Net Change (2011-2022)	-12,512	4,469	1,604	10,762

Table 2a: Conversion – Area of Agricultural Land in the Lower Athabasca Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ¹²		331,686	129,664	10,752	22,719	10,952	28,034	190
2022 ¹²		331,224	129,559	10,559	22,688	10,945	28,019	190

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the Lower Athabasca Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-141	-9043	-592	-227	-467	-149	-1068
2021-2022 ¹³		-462	-105	-193	-31	-7	-15	0

Table 3a: Fragmentation – Parcel Size Distribution in the Lower Athabasca Region

Parcel Size (acres) Distribution in the Lower Athabasca Region (number of parcels)						
Year	Total Parcels ¹⁴	>240	160-240	80-160	10-80	% < 80
2018	19,900	0	1,309	6,990	2,842	14.3
2019	19,798	0	1,297	6,992	2,775	14.0
2020	20,047	0	1,294	6,985	2,768	13.8
2021	22,133	0	1,291	6,988	2,770	12.5
2022	22,676	0	1265	6992	2,840	12.5

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the Lower Athabasca Region

Annual Change in Parcel Size (acres) Distribution in the Lower Athabasca Region (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	-102	0	-12	2	-67	-0.3
2019-2020	249	0	-3	-7	-7	-0.2
2020-2021	2,086	0	-3	3	2	-1.3
2021-2022	543	0	-26	4	50	0.0
Net Change (2011-2022)	3,333	-1	-68	-95	15	-2.0

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

¹² Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

¹³ Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

¹⁴ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Lower Peace Region

Table 1a: Conversion – Land Use in the Lower Peace Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	805,521	16,724,205	7,524	3,680
2019	805,088	16,724,599	7,630	3,680
2020	804,952	16,723,404	7,571	3,682
2021	804,593	16,725,042	7,585	3,667
2022	804,869	16,724,273	7,998	3,667

Table 1b: Conversion – Land Use Change in the Lower Peace Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018-2019	-434	394	106	0
2019-2020	-136	-1,195	-59	2
Net Change (2011-2020)	15,442	-33,866	1,261	2
2021-2022 ¹⁶	276	-769	413	0

Table 2a: Conversion – Area of Agricultural Land in the Lower Peace Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ¹⁵	7,709	184,605	367,547	123,547	58,098	33,432	29,358	296
2022 ¹⁵	7,663	184,458	367,741	123,459	58,240	33,670	29,341	296

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the Lower Peace Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		414	7940	4605	-2991	5036	363	85
2021-2022 ¹⁶	-46	-147	194	-88	142	238	-17	0

Table 3a: Fragmentation – Parcel Size Distribution in the Lower Peace Region

Parcel Size (acres) Distribution in the Lower Peace Region (number of parcels)						
Year	Total Parcels ¹⁷	>240	160-240	80-160	10-80	% < 80
2018	22,485	0	1,703	10,722	2,758	12.3
2019	22,559	0	1,692	10,731	2,818	12.5
2020	22,615	0	1,679	10,742	2,730	12.1
2021	23,512	0	1,678	10,737	2,727	11.6
2022	23,905	0	1,653	10,759	2,853	11.9

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the Lower Peace Region

Annual Change in Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	74	0	-11	9	60	0.2
2019-2020	56	0	-13	11	-88	-0.4
2020-2021	897	0	-1	-5	-3	-0.5
2021-2022	393	0	-25	22	126	0.3
Net Change (2011-2022)	2,823	0	-123	353	431	0.4

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

¹⁵ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

¹⁶ Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

¹⁷ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

North Saskatchewan Region

Table 1a: Conversion – Land Use in the North Saskatchewan Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	5,160,143	2,406,209	80,520	151,215
2019	5,148,978	2,407,175	81,078	160,570
2020	5,148,154	2,405,994	81,648	161,111
2021	5,145,502	2,406,718	81,706	144,816
2022	5,140,169	2,406,750	83,290	147,843

Table 1b: Conversion – Land Use Change in the North Saskatchewan Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
Net Change (2011-2020)	-10,558	-21,188	10,152	17,877
2021-2022	-5,333	-32	1,584	3,027

Table 2a: Conversion – Area of Agricultural Land in the North Saskatchewan Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ¹⁸	3,768	2,753,077	1,135,922	779,107	254,019	75,991	129,130	14,488
2022 ¹⁸	3,776	2,748,763	1,135,419	778,677	254,090	75,900	129,080	14,466

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the North Saskatchewan Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-16,537	-4,126	7,461	9,003	-790	-213	-13
2021-2022 ¹⁹	8	-4,314	-503	-430	71	-91	50	-22

Table 3a: Fragmentation – Parcel Size Distribution in the North Saskatchewan Region

Parcel Size (acres) Distribution in the North Saskatchewan Region (number of parcels)						
Year	Total Parcels ²⁰	>240	160-240	80-160	10-80	% < 80
2018	183,242	3	9,519	67,294	31,267	17.1
2019	183,509	3	9,393	67,256	31,488	17.2
2020	184,390	2	9,353	67,303	30,968	16.8
2021	190,478	2	9,338	67,307	30,963	16.3
2022	192,018	2	9,206	67,277	31,475	16.4

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the North Saskatchewan Region

Annual Change in Parcel Size (acres) Distribution in the North Saskatchewan Region (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	267	0	-126	-38	221	0.1
2019-2020	881	-1	-40	47	-520	-0.4
2020-2021	6,088	0	-15	4	-5	-0.5
2021-2022	1,540	0	-132	-30	512	0.1
Net Change (2011-2022)	17,604	0	-765	121	2,492	-0.3

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

¹⁸ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

¹⁹ Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

²⁰ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Red Deer Region

Table 1a: Conversion – Land Use in the Red Deer Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	4,359,013	283,378	31,928	52,042
2019	4,359,473	282,632	32,121	52,038
2020	4,356,733	283,804	32,445	52,163
2021	4,356,613	283,942	32,373	46,428
2022	4,354,795	283,034	33,039	46,622

Table 1b: Conversion – Land Use Change in the Red Deer Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018-2019	461	-746	193	-4
2019-2020	-2,740	1,172	324	125
Net Change (2011-2020)	9,063	-17,556	3,594	1,793
2021-2022	-1,818	-908	666	194

Table 2a: Conversion – Area of Agricultural Land in the Red Deer Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ²¹		1,390,999	837,665	1,057,062	609,608	342,908	112,003	4,550
2022 ²¹		1,390,059	837,749	1,057,009	610,002	343,362	111,962	4,553

Table 2b: Conversion – Change in Area of Agricultural Land by LSRS Class in the Red Deer Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-1,685	-932	3,224	3,649	3,737	1,005	65
2021-2022 ²²		-940	84	-53	394	454	-41	3

Table 3a: Fragmentation – Parcel Size Distribution in the Red Deer Region

Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels ²³	>240	160-240	80-160	10-80	% < 80
2018	112,214	1	9,203	58,794	12,500	11.1
2019	112,648	1	9,188	58,792	12,779	11.3
2020	112,864	1	9,059	58,923	12,472	11.1
2021	114,888	1	9,001	58,978	12,473	10.9
2022	115,628	1	8,936	58,999	12,714	11.0

Table 3b: Fragmentation – Annual Change in Parcel Size Distribution in the Red Deer Region

Annual Change in Parcel Size (acres) Distribution in Alberta (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	434	0	-15	-2	279	0.2
2019-2020	216	0	-129	131	-307	-0.3
2020-2021	2,024	0	-58	55	1	-0.2
2021-2022	740	0	-65	21	241	0.1
Net Change (2011-2022)	7,035	0	-483	565	1096	0.3

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016) and to the nearest tenth in the percentage column of Tables 3a and 3b.

²¹ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

²² Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

²³ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

South Saskatchewan Region

Table 1a: Conversion - Land Use in the South Saskatchewan Region

Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
2018	6,147,597	1,049,046	59,849	167,542
2019	6,148,039	1,047,722	60,197	168,004
2020	6,148,698	1,045,008	60,784	168,412
2021	6,145,363	1,044,596	59,317	156,194
2022	6,143,358	1,045,324	60,403	156,615

Table 1b: Conversion - Land Use Change in the South Saskatchewan Region

Net Change in Area by Land Use Class (hectares)				
Year	Agricultural	Non-Agricultural	Rural Residential	Urban
Net Change (2011-2022)	1,018	-25,382	5,454	9,832
2021-2022	-2,005	728	1,086	421

Table 2a: Conversion – Area of Agricultural Land in the South Saskatchewan Region by Land Suitability Rating System Class

Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
2021 ²⁴		810,072	1,657,196	2,125,140	959,954	423,122	159,633	10,145
2022 ²⁴		809,410	1,656,348	2,124,480	960,463	422,918	159,589	10,150

Table 2b: Conversion - Change in Area of Agricultural Land by LSRS Class in the South Saskatchewan Region

NOTE: Net change calculation only available for 2011-2020 as these years used previous LSRS data. In 2021, LSRS data was updated using new 30-year climate normals, therefore 2021 is not directly comparable. Net change, compared to 2021, will be calculated starting in 2022

Net Change in Area by LSRS Class (hectares)								
Year	1	2	3	4	5	6	7	0
Net Change (2011-2020)		-8247	-2823	682	10654	-496	3023	-1786
2021-2022 ²⁵		-662	-848	-660	509	-204	-44	5

Table 3a: Fragmentation - Parcel Size Distribution in the South Saskatchewan Region

Parcel Size (acres) Distribution in the South Saskatchewan Region (number of parcels)						
Year	Total Parcels ²⁶	>240	160-240	80-160	10-80	% < 80
2018	181,491	11	20,523	72,429	28,932	15.9
2019	181,848	11	20,505	72,474	28,977	15.9
2020	183,207	10	20,325	72,658	28,884	15.8
2021	190,731	10	20,213	72,761	28,864	15.1
2022	190,770	10	20,166	72,721	28,970	15.2

Table 3b: Fragmentation - Annual Change in Parcel Size Distribution in the South Saskatchewan Region

Annual Change in Parcel Size (acres) Distribution in the South Saskatchewan Region (number of parcels)						
Year	Total Parcels	>240	160-240	80-160	10-80	% < 80
2018-2019	357	0	-18	45	45	0.0
2019-2020	1,359	-1	-180	184	-93	-0.2
2020-2021	7,524	0	-112	103	-20	-0.6
2021-2022	39	0	-47	-40	106	0.1
Net Change (2011-2022)	13,734	2	-649	550	185	-1.0

The data has been rounded to the nearest 10 in Tables 1a, 1b, 2a, and 2b (up until 2016), and to the nearest tenth in the percentage column of Tables 3a and 3b.

²⁴ Based on updated LSRS classification from 2021 onward. For past data, please see previous reports.

²⁵ Due to the significant redistribution of lands under revised LSRS classes, net change in LSRS in 2021 is not comparable to previous years with older LSRS data. Net change will be calculated going forward from 2021.

²⁶ This total is inclusive also of parcels under 10 acres, which are not included in tables here for our analysis.

Appendix

Definition of Terms

Agricultural Land: Any parcel of land that does not qualify as Urban, is outside the Green Area and privately owned, and has an area between 10 acres (4 hectares) and 240 acres (97 hectares); or any public land parcel (either within or outside of the Green Area) under an agricultural disposition (e.g., grazing lease).

Non-agricultural Land: Any parcel of land that doesn't qualify as Urban, Rural Residential, or Agricultural. This includes all non-urban parcels that are privately owned (outside the Green Area) and are larger than 240 acres (97 hectares), and all publicly owned parcels (inside the Green Area) provided they are not under an agricultural disposition. This class also includes National Parks, Provincial Parks and protected areas.

Rural Residential: Any parcel of land that does not qualify as Urban but is privately owned and has an area of approximately 10 acres (4 hectares) or fewer.

Urban: Any land under the jurisdiction of a city, urban service area, town, village, or summer village.

Conversion: An actual, observable land-use change from an agricultural use to a non-agricultural use (or vice versa), such as agricultural to urban development. Conversion can be temporary (e.g., upstream oil and gas development) or permanent (e.g., urban development). Conversion may be positive or negative (i.e., a gain or loss of agricultural land, respectively).

Fragmentation: Occurs when once contiguous agricultural areas become divided into separate fragments isolated from each other by non-agricultural land uses. Fragmentation can also occur within a given agricultural parcel of land by access roads, oil and gas developments and/or linear infrastructure.

Land Suitability Rating System (LSRS): The LSRS is a comprehensive approach to integrating and modelling soil, landscape and climate factors. The LSRS used until 2020 was developed in 1995 that used 30-year climate data from 1961 to 1990. The updated LSRS, adopted from 2021 onward, uses the 30-year climate data from 1981 to 2010. Lands under LSRS Classes 1, 2 and 3 are considered prime agricultural lands for crop production. Lands under LSRS Classes 4 and 5 are generally considered suitable for pasture.

Green Area: The Green Area (forested portion) comprises most of northern Alberta as well as the mountain and foothill areas along the province's western boundary. In the Green Area, public land is managed for timber production, watershed, wildlife and fisheries, recreation, and other uses. Agricultural use is limited to grazing where it is compatible with other uses.

White Area: The White Area (settled portion) consists of the populated central, southern and Peace River areas of the province. In the White Area, public land is part of the agricultural landscape. It is managed for various uses including agriculture, recreation, soil and water conservation, and fish and wildlife habitat. Most of the public land in the White Area is under disposition or otherwise committed.

Methodology

The Python scripts were updated in 2020 to maintain compatibility with the updated Python and ArcGIS platforms and to streamline the process without changing the methodology of calculating fragmentation and conversion of agricultural lands and overall land use changes in Alberta. To view the background and methodology, click [here](#).

Map showing Land Use Framework Regions

