Roxburgh Rohe, Manuherekia Rohe and Upper Taieri Economic Snapshot

Summary

The Roxburgh Rohe (area) is one of the five Rohe in the Clutha/Mata-Au Freshwater Management Unit (FMU)[1]. It runs from Clyde in the northeast to Beaumont in the south. The Fraser River (also known as the Earnscleugh River) and Teviot River both run through the Rohe, feeding into the Clutha/Mata-Au main stem.

While freshwater policies might be designed and applied specifically to the Roxburgh Rohe, their impacts may be felt beyond. Hence the Roxburgh Rohe, the neighbouring Manuherekia Rohe, and the northern part of the Taieri Rohe[2] are combined when considering socio-economic information. These communities have close economic ties, i.e., residents are likely to live in one of the areas while working/spending in the other areas. The three areas combined are referred to as the 'Inland' area in the snapshot.

The 'Inland' area is the driest area in the Otago Region. In 2018, the area was home to around 13,000 residents (6% of Otago's population), which had increased by 15% since 2006. The economy of this area depends on the water-reliant agriculture sector (which provides for one in five jobs) and tourism related industries[3] (15% of all jobs). Administrative Services (13%) is the third largest sector in the area; and the Employment Services sub-category provides 10% of all jobs. Together, all of these industries account for around half of the employment in the 'Inland' area.

[1] A water body or multiple water bodies that ORC believe is the appropriate scale for managing water, including the setting of freshwater objectives and limits. This can be a river catchment, part of a catchment, or a group of catchments.' https://www.orc.govt.nz/plans-policies-reports/regional-plans-and-policies/water/freshwater-management-units

[2] The communities in the southern part of the Taieri FMU (e.g., Mosgiel and Middlemarch) have more economic ties (e.g., spending and working) with Dunedin and Coast FMU.

[3] Tourism is represented by a range of industries including (but not limited to) accommodation, cafes and restaurants, and scenic and sightseeing transport.

Image 1. Central Otago Rail Trail
Source: 100% Pure New Zealand

An understanding of Māori history and Māori economy is essential for policy development and policy impact assessment. Not only does pre-European Māori history help shape modern day New Zealand, but the Māori economy is also integral to New Zealand's economic system. ORC is partnering with Aukaha[4] and Te Ao Marama[5] to develop an overview of Kāi Tahu history and economy. This work will be included in the economic impact assessment.

Geography and climate

The Roxburgh Rohe (area) is one of the five Rohe in the Clutha/Mata-Au Freshwater Management Unit (FMU). It runs from Clyde in the northeast to Beaumont in the south. The Fraser River (also known as the Earnscleugh River) and Teviot River both run through the Rohe, feeding into the Clutha/Mata-Au main stem.

Figure 1 below shows the Roxburgh Rohe with its major waterbodies and topography.

[4] Aa Rūnaka based consultancy service with Governance from five Rūnaka owners: Te Rūnanga o Waihao, Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou, Hokonui Rūnanga' https://aukaha.co.nz/about/
[5] Te Ao Mārama Inc represents Ngai Tahu ki Murihiku tangata whenua for resource management and local government purposes. https://www.facebook.com/Te-Ao-Marama-INC-1669235646693199/

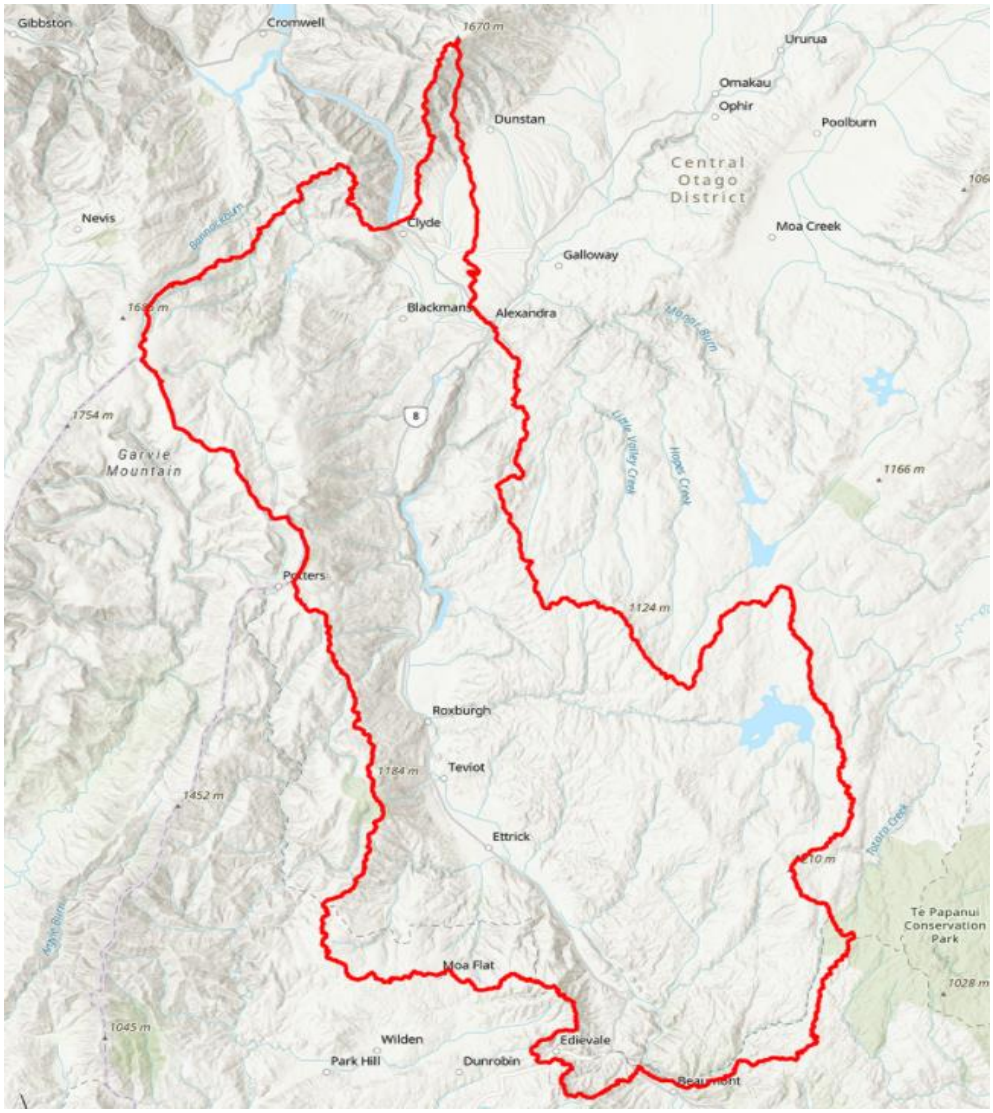

Figure 1. Map of the Roxburgh Rohe

In total, the land area of the Roxburgh Rohe is around 182,000 hectares (or roughly 6% of the Otago Region). As such, it is the smallest Rohe in the Clutha/Mata-Au FMU by land area; it is also slightly smaller than most FMUs in Otago except for the Dunedin and Coast FMU. However, land area is only one measure and part of the Rohe's importance lies in the way it connects the region's other localities.

Due to its inland location, the Roxburgh Rohe has a seasonal climate with hotter summers and colder winters than coastal Otago. This part of Otago generally has a more days with a maximum air temperature above 25°C and a minimum temperature below 0°C compared to coastal Otago (based on data between 1981 and 2010[6]). This area is also the driest area in New Zealand with annual rainfall averaging around 400mm between 1981 and 2010, which is much lower than other areas in Otago, such as Dunedin (800 – 1,000mm) and Balclutha (700mm). However, this area receives more rainfall during summer compared with more evenly distributed rainfall year-round elsewhere. Alexandra, Lauder and Middlemarch each receive 36% of their annual rainfall during summer[10].

[6] https://www.orc.govt.nz/media/7591/niwa_climatechangereport_2019_final.pdf

Socio-economic background

Land use

The Roxburgh Rohe has roughly 155,000 hectares (or 85% of the Rohe's land area) of primary production land use, the second highest proportion in the Clutha/Mata-Au FMU (only lower than the Lower Clutha Rohe); and also the second highest amongst all of Otago's FMUs (only lower than the North Otago FMU). The agricultural land consists mostly of drystock properties; and a few dairy properties. Based on land area, over one third (or 36%) of Otago's horticulture is in the Roxburgh Rohe. The urban areas cover around 6,500 hectares (4% of the Rohe). It is important to note that the extent of land use does not reflect the value created from or the number of jobs provided by the land use. There is also roughly 21,000 hectares (or 12%) of public conservation land to the north-west of the Rohe.

Table 1 gives estimates of the extent of the main land use activities. Figure 2 below shows the distribution of these land uses within the Rohe.

Table 1. Table 2. The extend of Land use in the Roxburgh Rohe
Source: Otago Land Use Map (Great South, 2021)

Land use in the Roxburgh Rohe	Total land in this Rohe (ha)	Share of land use in this Rohe	Share of land use in Otago that is present in this Rohe
Total land use	**182,079**	**100%**	**6%**
Primary Production-use	**154,579**	**85%**	**7%**
Sheep and beef	114,851	63%	9%
Sheep	12,485	7%	8%
Mixed Livestock (incl. support)	11,992	7%	4%
Plantation Forest	3,771	2%	3%
Horticulture (incl. flower and bulb growers and nurseries, orchards, and vineyards)	3,539	2%	36%
Other Agriculture use (incl. other animals and grazing pasture)	3,046	2%	3%
Dairy (incl. support and Other livestock)	2,559	1%	2%
Beef	1,189	1%	3%
Deer (incl. specialised and majority deer and mixed stock)	1,044	1%	2%
Arable	103	0%	1%
Urban use	**6,495**	**4%**	**6%**
Other (incl. conservation land, rivers, and lakes etc.)	**21,005**	**12%**	**2%**

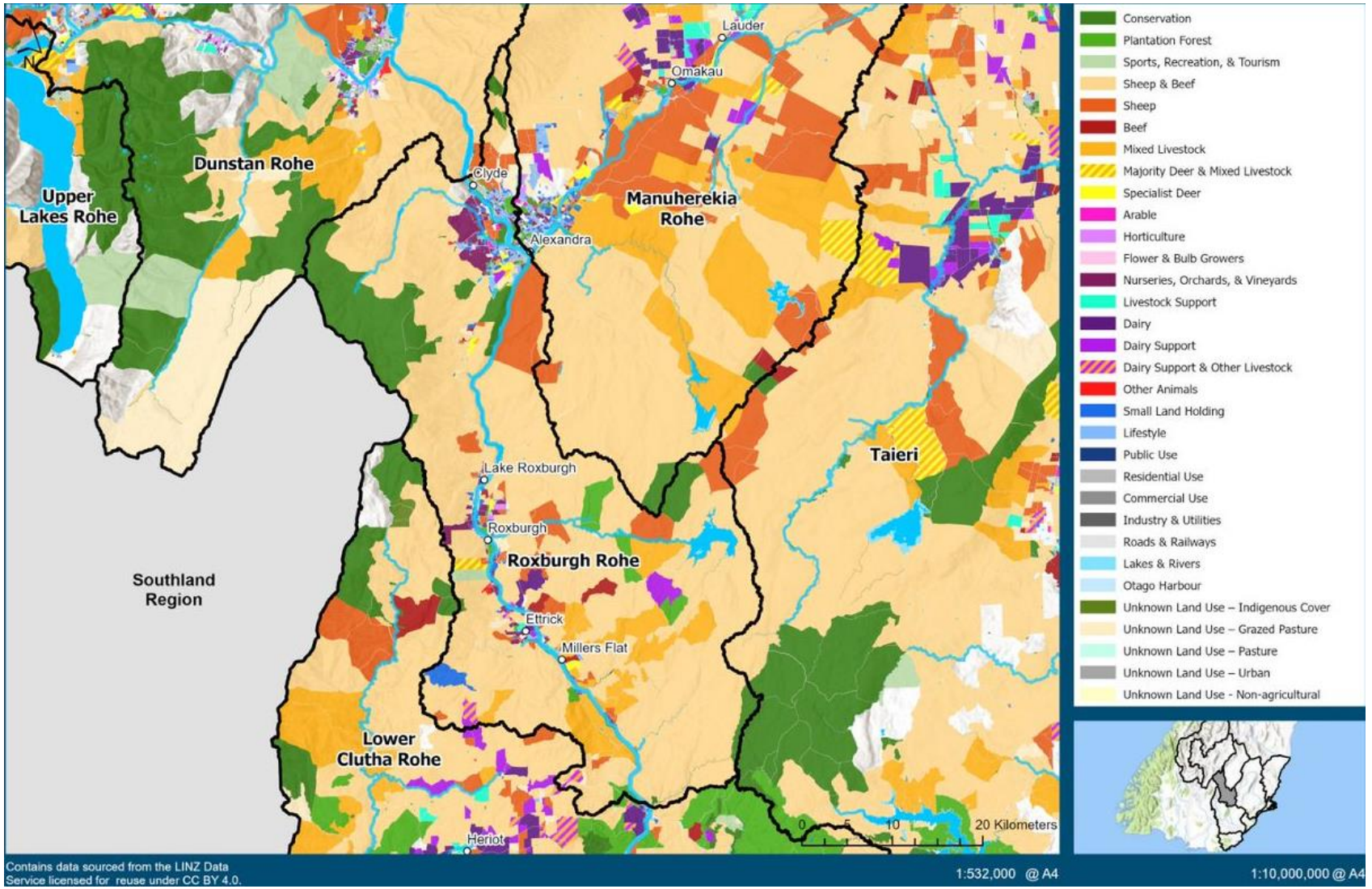

Figure 2. Land uses within the Roxburgh
Source: Otago Land Use Map (Great south, 2021)

The people and the economy[7]

The Roxburgh Rohe lies in the Central Otago District. Alexandra, the largest town, in this Rohe is located on the border of the Roxburgh Rohe and its neighbouring Manuherekia Rohe. Alexandra is also the closest town to the surrounding smaller service centres located in the Manuherekia Rohe (i.e. Omakau) and the northern part of the Taieri FMU (i.e. Naseby and Maniototo). Consequently, the economic impacts of policy for the Roxburgh Rohe might be felt beyond the area where they apply. Hence the Roxburgh Rohe, the Manuherekia Rohe, and the northern part of the Taieri FMU are combined for this analysis and are referred to collectively as the 'Inland' area.

As of 2018, there were approximately 13,000 residents in the 'Inland' area (or 6% of the region), which was an increase of 1,750 people (or 15%) from 2006. This population growth rate is similar to that of the Otago region (+16%), and New Zealand as a whole (+17%) over the same period.

Image 2. Alexandra bridge
Source: 100% Pure New Zealand

Alexandra and its neighbour Clyde, the two most populated towns in the 'Inland' area, are built along the Clutha River/Mata Au. The duo are known as the hottest, driest and coldest towns in New Zealand[8]. The Alexandra area is a popular destination for visitors, with many eateries, wineries, parks and artists' studios, as well as golf courses, boating, swimming, fishing, mountain biking or four-wheel driving[9]. Alexandra and Clyde are also only around 1 hour's drive from Queenstown and Wānaka, which are popular domestic and international tourist destinations.

There are three smaller service centres in the 'Inland' area, namely Ranfurly and Naseby (located in the northern part of the Taieri FMU), Roxburgh (including Ettrick and Millers Flat), and Omakau in the Manuherekia Rohe.

Ranfurly is known for its 1930's Art Deco architecture, and the Centennial Milk Bar, located on the main street, is popular with cyclists biking the Central Otago Rail Tail[10]. Naseby, quietly tucked away

[7] Most data in this section are based on the 2018 NZ Census.
[8] https://docs.niwa.co.nz/library/public/NIWAsts67.pdf
[9] https://alexandra.co.nz/
[10] https://centralotagonz.com/discover/our-towns-and-communities/ranfurly-naseby-and-the-maniototo/

in forestry surroundings, used to be a major gold mining centre. Nowadays Naseby is a popular holidaying place for Otago residents with its outdoor walking tracks, water race, ice rink and indoor curling rink[14].

The Roxburgh area (incl. Ettrick and Miller Flat) is known for its orchards and fruit stalls. Summer stone fruit grown in this area is also sought after by both local and international visitors. There is a variety of parks, reserves and sports facilities available, as well as two cycle trails (the Roxburgh Gorge and Clutha Gold trails) and walking tracks. Roxburgh is also home to the 'world famous in Otago' Jimmy's Pies and the annual Cheery Chaos event.

Omakau was created as a new railhead and settlement by the New Zealand Government between late 1800's and early 1900's. The Omakau Railway Station was built in 1904 and was at one time New Zealand's busiest stock loading stations[11]. Omakau is part of the Central Otago Rail Trail. From there, visitors can walk or cycle over the bridge crossing the Manuherekia River to Ophir.

Figure 3 below shows that between 2006 and 2018, the 'Inland' area experienced 15% population growth, with most of this growth occurring between 2013 and 2018. The populations of Alexandra and Clyde grew nearly 20%, while the smaller service centres grew 2%. (Omakau and Naseby's population grew faster than other service centres at 13% and 8% respectively). In rural areas the population ogrew around 16% over the same period.

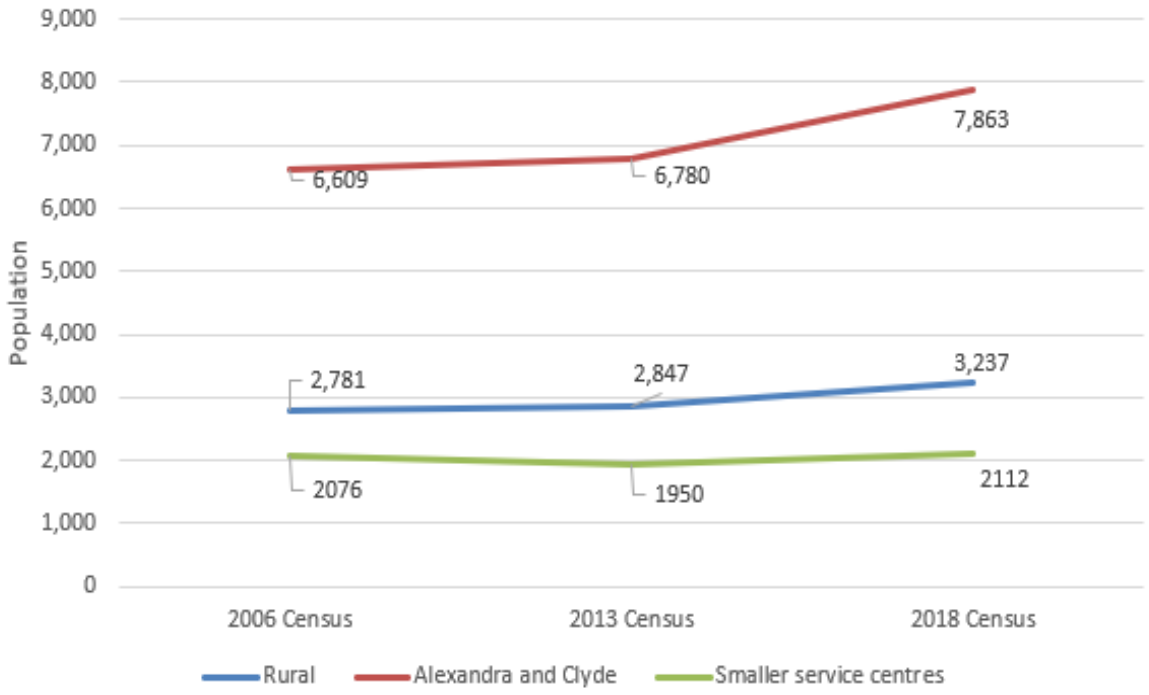

Figure 3. 'Inland' area population by selected group, 2006 – 2018
Source: Stats NZ Census 2018

Overall, people who live in the rural areas tend to be younger. Figure 4 below shows that around one third of rural residents are under 30 years of age, compared to a quarter of people living in towns and

[11] https://www.otagorailtrail.co.nz/omakau-accommodation

service centres are under 30 years of age. Similarly, a lower proportion of residents 65 years and over live in rural areas (16%) compared to Alexandra and Clyde (28%) and smaller service centres (32%).

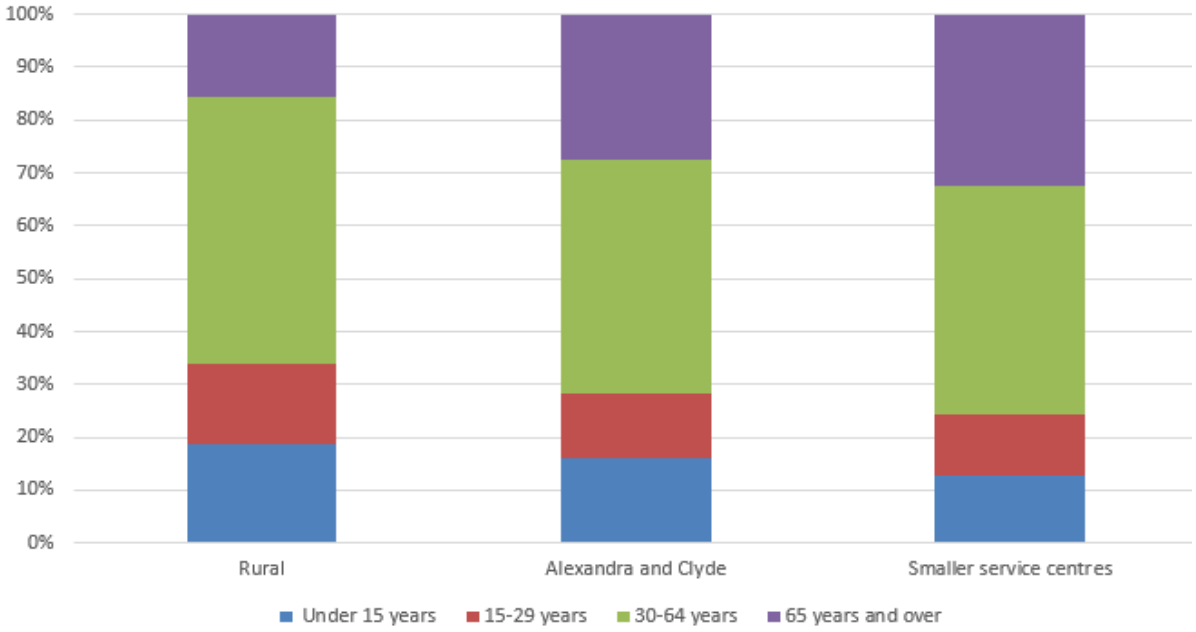

Figure 4. 'Inland' population distribution by age group, 2018
Source: Stats NZ Census 2018

As of 2018, roughly 9% of the population in the 'Inland' area identified as Māori. This proportion has been increasing since 2006 (7%) and is on par with the overall Māori population proportion in Otago.

People living in the 'Inland' area tend not to move as often (both into and out of the area) compared to the Otago average. In 2018, 71% of the population were still living in the same residence as one year ago, which was higher than Otago average of 65%. Around 1% of the population had arrived from overseas, which was lower than the Otago average (3% overseas arrival).

Total business activity accounts for around 8,310 "jobs" (measured by employment counts, which does not include working proprietors[12]). In New Zealand 20% of all jobs are working proprietors[13]. In 2020, the largest industries by employment (using ANZSIC 2006[14]) in the 'Inland' area were agriculture (provided 22% or more than one in five jobs), in which horticulture (Fruit and Tree Nut Growing), provides nearly three quarters (or 73%) of all Agriculture jobs. Tourism related sectors[15] (Retail (8%), Accommodation and Food Services (6%) and Arts and Recreational Services (1%)) are the second largest sector. Administrative Services (13%) is the third largest sector in the area. The Employment

[12] Employee Counts data are used by Stats NZ's Business Frame. Employment Counts is a head count of salary and wage earners for a reference period. It includes most employees but does not capture all working proprietors – people who pay themselves a salary or wage (or 'drawings').
[13] 2019 numbers according to Stats NZ Linked employer-employee data http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7240#
[14] Australian and New Zealand Standard Industrial Classification (ANZSIC) was jointly developed by Statistics New Zealand and the Australian Bureau of Statistics. ANZSIC system classifies entities based on their main business activity and is used to collect and analyse data across industries. The 2006 edition is arranged into 19 broad industry divisions and 96 industry subdivisions.
[15] Tourism is represented by a range of industries including (but not limited to) accommodation, cafes and restaurants, and scenic and sightseeing transport.

Services sub-category provides 10% of all jobs. Together, these top three industries account for around half of employment in the area.

Image 3. Curling in Naseby
Source: 100% Pure New Zealand

The working age (15 – 65 years) population in the 'Inland' area is likely to be earning a work-related income. In 2018, 6% of the working age population had no source of income, which was slightly higher than the Otago average of 5%, while 17% of the people within this population group was receiving some type of government benefit[16], which was higher lower than the Otago average of 15%.

Figure 5 below shows that, compared with the Otago average, the 'Inland' area has a higher proportion of the population with no formal qualification and a lower proportion with higher formal qualification (bachelor's degrees and above). In addition, a similar proportion of the people are in a lower personal income bracket ($30,000 or less per annum) or a higher personal income bracket ($70,001 or more per annum) than Otago average respectively.

[16] The type of benefits includes ACC or private work accident insurer, job seeker, sole parent support, supported living payment, other govt benefits, govt income support payments, war pensions or paid parental leave, other sources of income including support payments from people who do not live in my household.

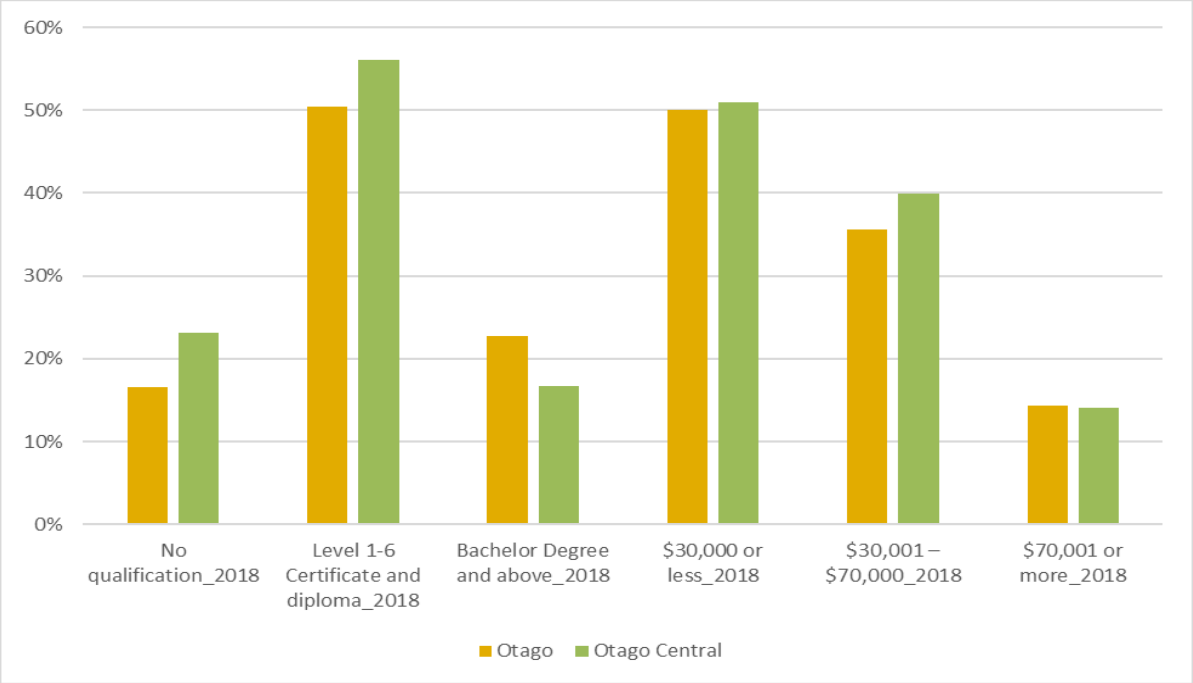

Figure 5. Academic qualification and personal annual income, 'Inland' area vs Otago average, 2018
Source: Stats NZ Census 2018

University of Otago's New Zealand Deprivation Index estimates the relative socio-economic deprivation of an area. The current version of the index is derived from 2018 census and combines census data relating to income, home ownership, employment, qualifications, family structure, housing, access to transport and communications, and access to internet[17]. In the Deprivation Index, decile 1 represents areas with the least deprived scores while decile 10 represents areas with the most deprived scores.

Figure 7 shows the relative deprivation in 2018 by Census Statistic Area 1 (SA1, which ideally ranges between 100 and 200 residents and a maximum of about 500)[18] in the 'Inland' area. The map only shows Census SA1 for agriculture and urban land developed land; conservation land and plantation forestry are shaded green because no communities are living in these areas.

Figure 7 along with figure 7.1-7.4 show that the rural parts of the 'Inland' area generally have a deprivation score of 5 and below. Generally, the closer an area is located to the service centre the higher the deprivation score. The exceptions are Omakau and Ettrick, where the centre areas have a lower deprivation score (i.e. are less deprived).

[17] https://www.otago.ac.nz/wellington/departments/publichealth/otago830998.html
[18] SA1s were introduced as part of the Statistical Standard for Geographic Areas 2018 (SSGA18); https://www.stats.govt.nz/assets/Uploads/Retirement-of-archive-website-project-files/Methods/Statistical-standard-for-geographic-areas-2018/statistical-standard-for-geographic-areas-2018.pdf

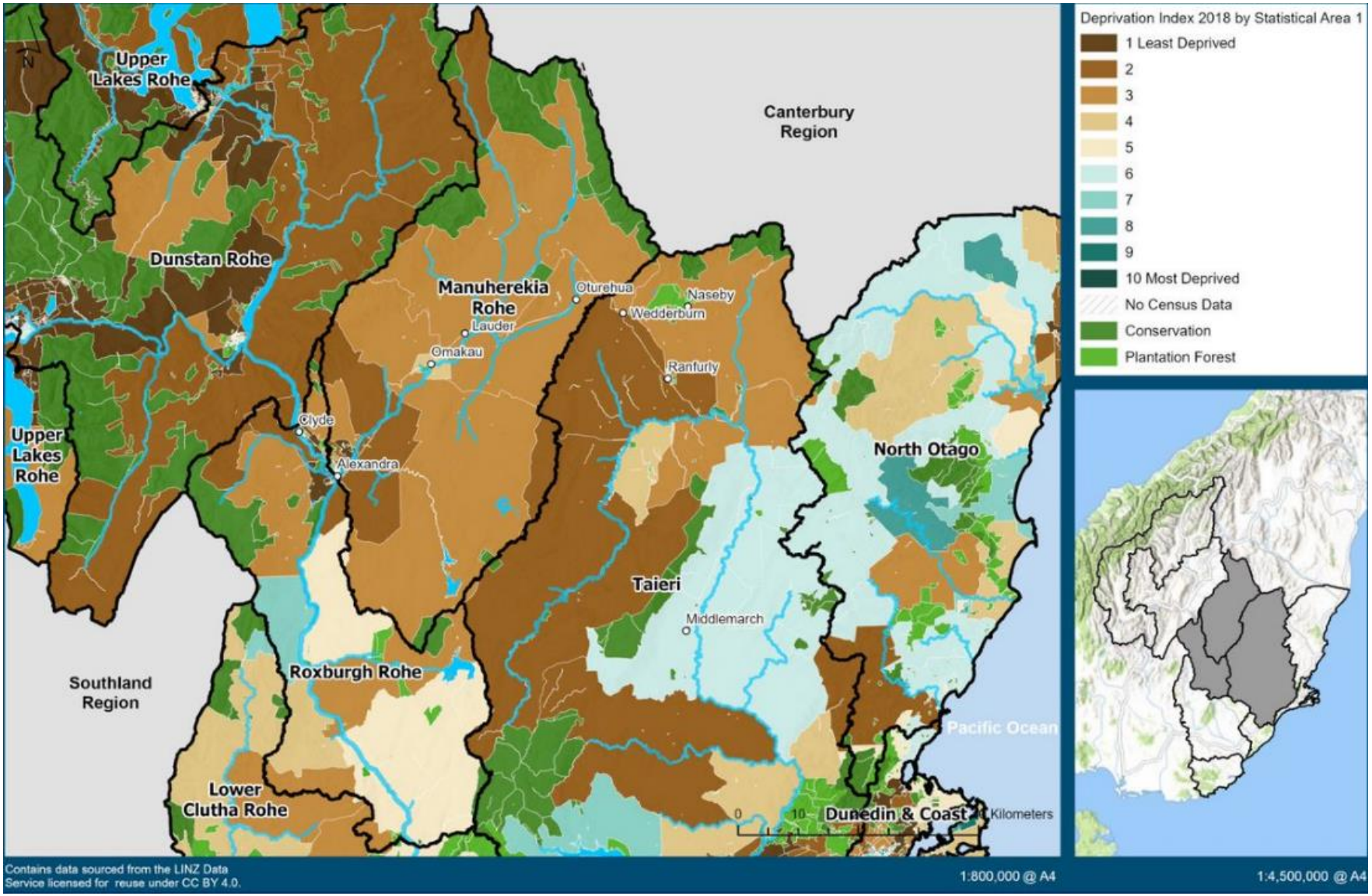

Figure 4. Deprivation Index (by SA1) for 'Inland'

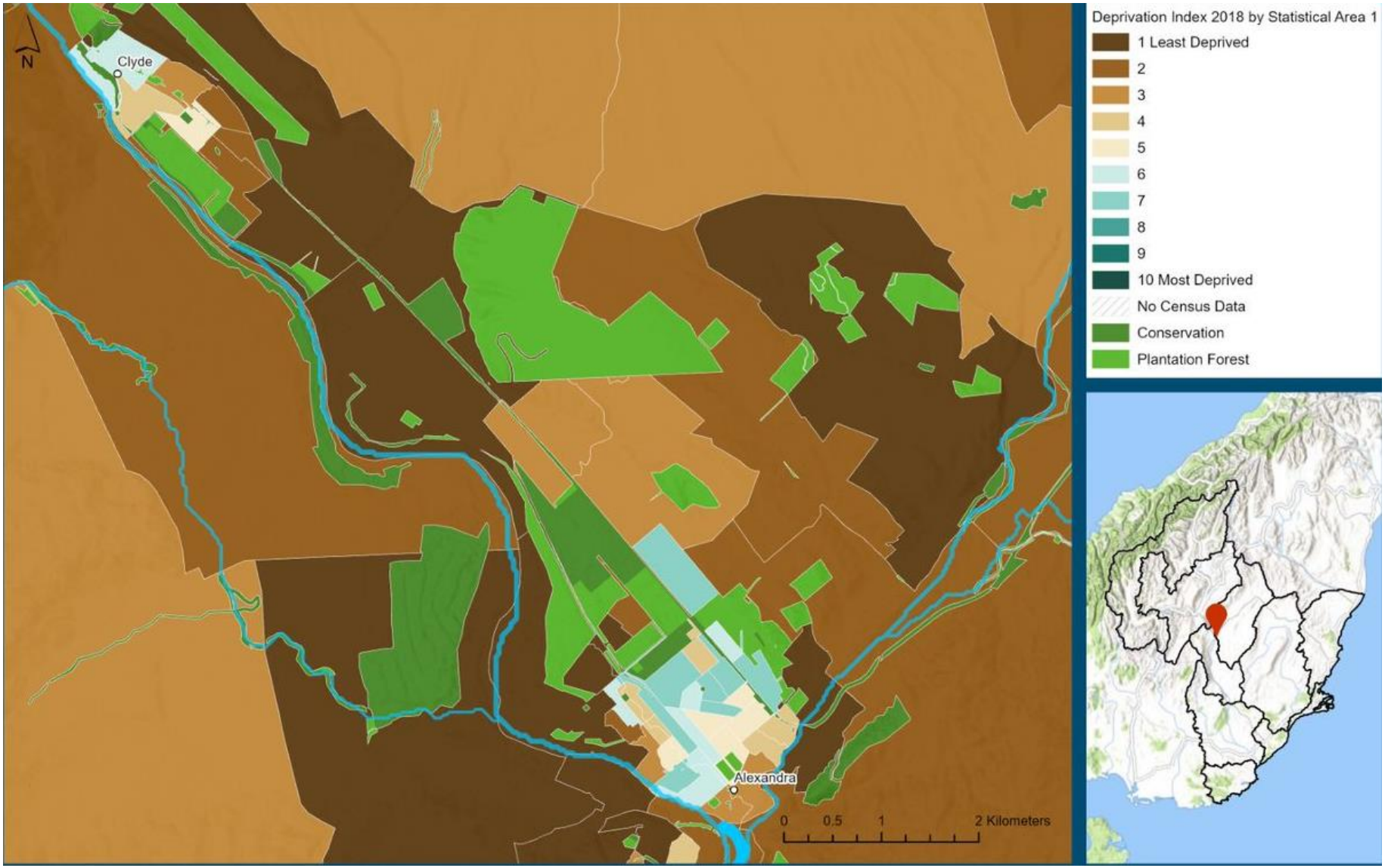

Figure 7.1. Deprivation Index (by SA1), Alexandra and Clyde

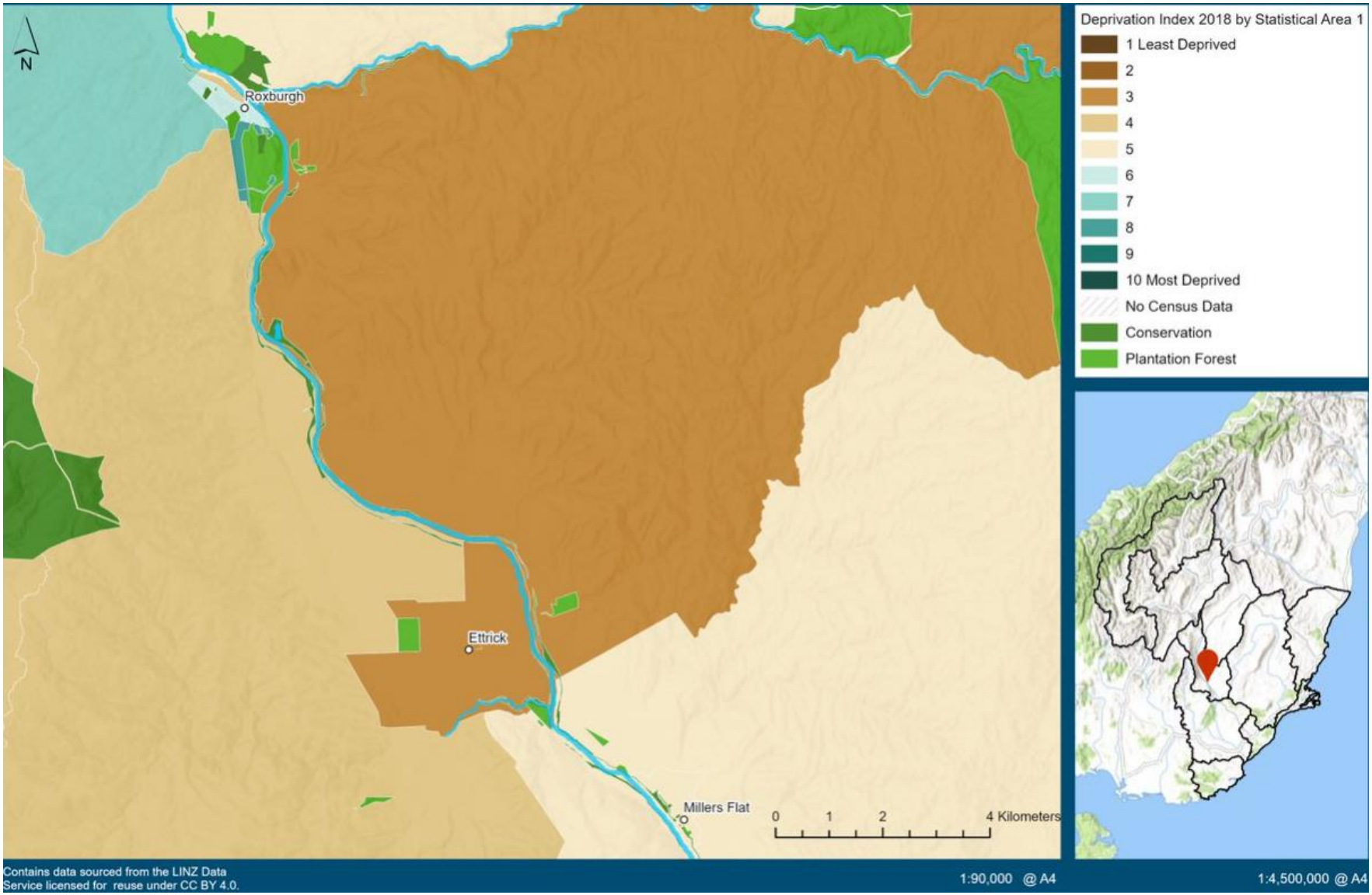

Figure 7.2. Deprivation Index (by SA1), Roxburgh, Ettrick and Millers Flat

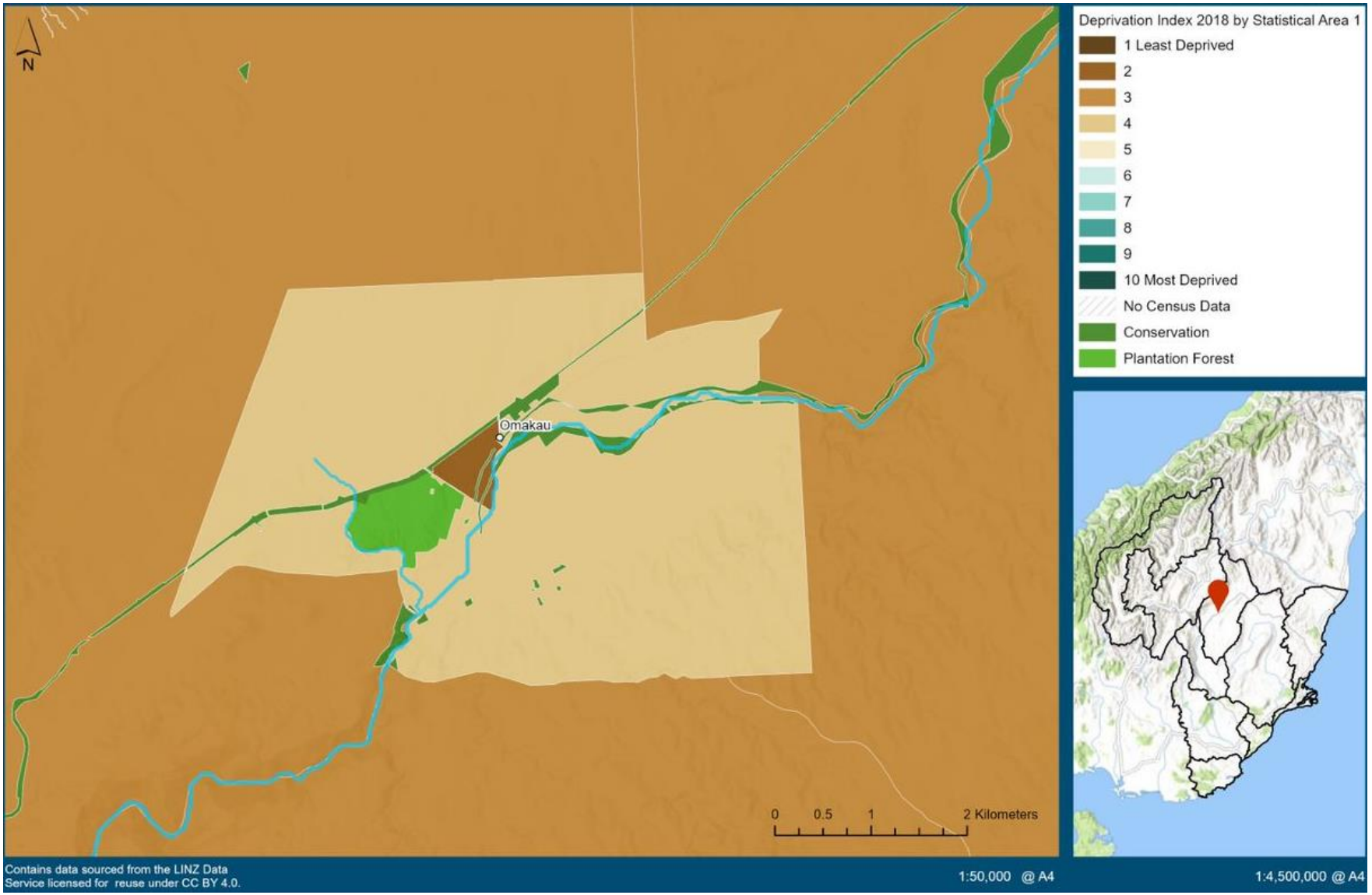

Figure 7.3.5 Deprivation Index by SA1), Omakau

Figure 7.4. Deprivation Index (by SA1), Naseby and Ranfurly