Demographic change in the Sparsely Populated Areas of Scotland (1991-2046)

The James Hutton Institute

Andrew Copus and Jonathan Hopkins

Project context

This research note presents the key findings of the first three working papers produced by a five-year Scottish Government-funded project, which considers the question: "*What are the links between trends in farming/crofting/key rural industries and population change, and how do these affect the provision of ecosystem services, and threaten the resilience of rural communities?*"

Key finding

The Sparsely Populated Areas (SPA) of Scotland have a demographic legacy which, in the absence of intervention, will result in decades of population decline, and shrinkage of its working age population, on a scale which implies serious challenges for economic development, and consequences for its landscape and ecology which are poorly understood.

Defining the SPA

For this project, the Scottish SPA (Figure 1) is defined as rural areas and small towns where less than 10,000 people (the minimum population of an Urban area) can be reached within 30 minutes travel using roads and ferries. The SPA extends to almost half (48.7%) of the area of Scotland, but contains only 2.6% of its population.

In order to highlight differences within this area, it has been divided into six sub-regions: the *Northern Isles*, *Western Isles*, the *North and West Highlands*, the *South and East Highlands*, *Argyll and Bute* and the *Southern Uplands*.

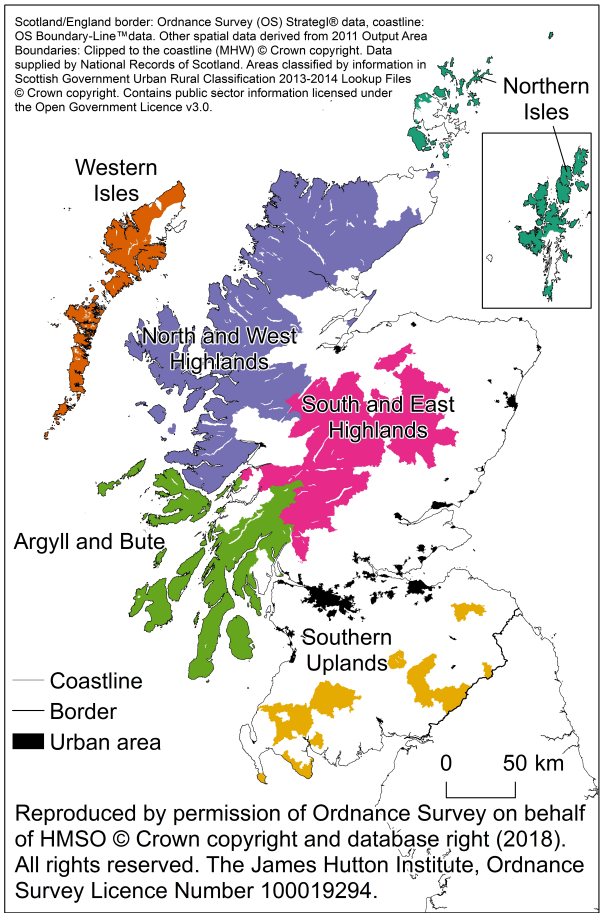

Figure 1: The Scottish SPA and its sub-regions

Data sources and approach

The principal population data sources used in this research were the Population Census (1991, 2001, 2011) and National Records of Scotland (NRS) population estimates. These data were available for small geographical units: Output Areas and Data Zones, respectively. In addition, we have produced population projections for every 5 years from 2011 to 2046, using standard assumptions from the official NRS projections, combined with a projection model specifically designed for use with smaller populations.

The legacy

Over the two decades from 1991 to 2011, the population of Scotland's cities grew by 5%. The population of rural areas and small towns outside the SPA grew by over 9%, but the population of the SPA as a whole declined by almost 2% (Figure 2). Within the SPA, the Western Isles sub-region saw the largest reduction, at more than 11%, whilst at the other extreme both the North and West and South and East Highlands experienced modest population growth.

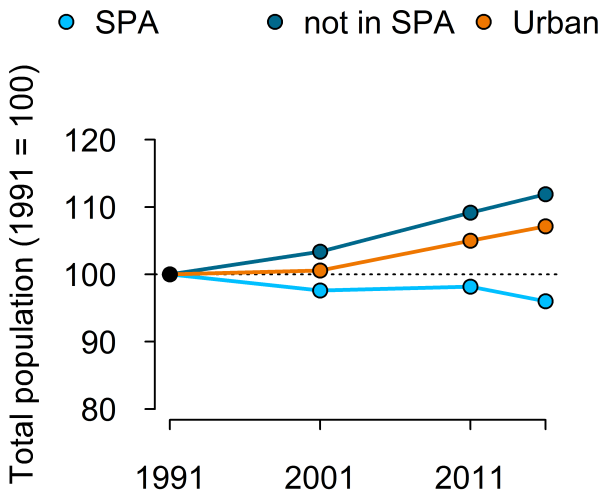

Figure 2: Change in the total populations of the SPA, rural areas and small towns outside the SPA ('not in SPA') and urban areas, 1991-2016.

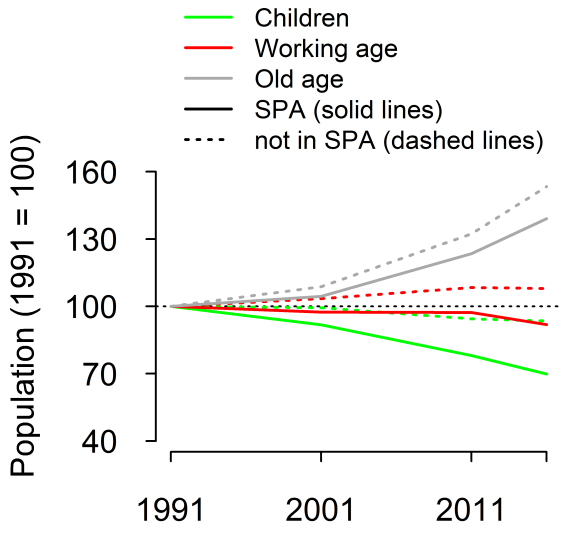

Figure 3: Change in the populations of children, people of working age, and older people in the SPA and in rural areas and small towns outside the SPA, 1991-2016.

Over the same 20 years, the age composition of the SPA population diverged from that of other rural areas and small towns in Scotland (Figure 3). Perhaps surprisingly, the population of older people (age: 65 and over) in the SPA grew less rapidly (+23%) than it did in the rest of rural/small town Scotland (+32%). The number of children (age: under 16) shrank by 22% in the SPA, compared to a much smaller decline (below 6%) in other rural areas and small towns. The SPA's working age population (age: 16-64) shrank by almost 3%, whilst elsewhere in other rural areas and small towns, there was a modest increase of over 8%.

These changes in age structure have profound significance both for future demographic sustainability, and for the balance between local council revenue and the demand for services. The former is explored below, whilst the latter is reflected in dependency rates. By 2011, for every 100 persons of working age in the SPA, there were 64 people in the dependent age ranges (under 16, and age 65 and over). This compares with a lower figure of 58 people in rural areas and small towns outside the SPA, and just 49 people in urban areas.

Implications for the future

Using a projection model specially adapted for smaller populations, it has been possible to estimate the likely future population trends for the SPA and each of its constituent sub-regions. In this initial analysis, the assumptions about fertility and mortality rates in the SPA have been derived from the official projections by National Records of Scotland. It has been further assumed that migration patterns will be a continuation of recent trends. Of course, these assumptions may readily be challenged, and they will be the subject of continued research. The projections presented here represent a baseline, a continuation of the status quo.

Table 1: Projected population of the SPA and its sub-regions, 2011-2046

	2011	2016	2021	2026	2031	2036	2041	2046
Northern Isles	13,430	13,410	13,300	12,790	12,290	11,830	11,350	10,860
Western Isles	13,580	13,190	12,720	11,800	11,030	10,410	9,810	9,250
N and W Highlands	39,210	38,630	37,800	35,740	33,840	32,080	30,220	28,400
S and E Highlands	20,600	20,350	19,970	18,990	18,110	17,270	16,390	15,510
Argyll and Bute	42,440	41,510	40,330	37,680	35,380	33,340	31,340	29,530
Southern Uplands	8,270	8,090	7,870	7,360	6,930	6,530	6,130	5,780
SPA	**137,540**	**135,180**	**132,000**	**124,360**	**117,580**	**111,470**	**105,240**	**99,350**

Note: all figures are rounded to the nearest 10 persons. Sub-region totals may not sum to the SPA total due to rounding.

According to these initial projections, the SPA will lose more than a quarter of its population by 2046 (Table 1). The worst affected sub-regions are likely to be the Western Isles, Argyll and Bute, and the Southern Uplands: these are forecast to lose more than 30% of their 2011 population. At the other extreme, the population of the sparsely populated part of the Northern Isles is forecast to shrink by less than 20%.

A look at the projections for the three broad age groups (Figure 4) reveals the disturbing fact that it is the working age population which seems likely to shrink most – by 33% by 2046.

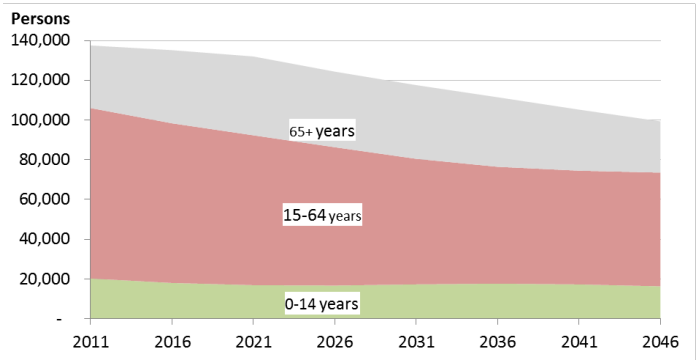

Figure 4: The age structure of projected populations of the SPA, 2011-2046.

The populations of children and older people are forecast to fall by less than 20%. As a result, the SPA's dependency ratio will increase. By 2046, each 100 people of working age will be supporting 74 persons.

One of the interesting features of the model used to produce the above projections is its ability to estimate the net migration that would be required to stabilise the population. For example, during early years of the current decade, it is estimated that a net migration of about 430 persons per year to the SPA as a whole would have kept the population at 2011 levels (Table 2). However, this requirement seems likely to increase to more than 1,300 during the five years after 2021, falling back to around 1,000 in the 2030s and 2040s.

In the current decade, the highest net migration requirements (as a proportion of the population size) are found in the Western Isles, Argyll and Bute, and the Southern Uplands. Later on, the North and West Highlands and the Southern Uplands have the highest net migration requirements. The Northern Isles has a consistently lower requirement than the other sub-regions. The shifting rankings of the sub-regions in terms of migration required reflects the slow-running dynamics of their population systems, and their differing age structure legacies from previous periods.

Table 2: Annual net migration requirement (number of people) required to halt shrinkage of the SPA and sub-region populations, 2011-2046

	2011-15	2016-20	2021-25	2026-30	2031-35	2036-40	2041-46
Northern Isles	5	21	95	87	78	85	86
Western Isles	65	77	157	125	96	97	95
N and W Highlands	112	151	374	333	304	333	335
S and E Highlands	54	73	184	158	147	161	163
Argyll and Bute	159	189	445	357	308	308	276
Southern Uplands	37	42	93	77	71	74	66
SPA	**432**	**553**	**1,348**	**1,137**	**1,005**	**1,058**	**1,021**

The demographic narrative of the SPA: 1991-2046

In 'broad brush' terms, the total population of the SPA was in decline during the 1990s, but saw a brief period of expansion during the first decade of the new century. By 2007 or 2008, this increase was reversed and the falling trend is projected to continue through to the 2040s. This rather negative prognosis for the SPA contrasts with the more positive future which is foreseen for the rest of Scotland, both rural and urban.

This divergence in the demographic development of the SPA, compared to the rest of Scotland, is associated with an age structure which is both a legacy of past out-migration and forms a key driver of the future trend. The key demographic issue for the SPA is not an excess of elderly people, but the relatively small number of children and young people, which in the years to come will translate into a shrinking working age population. This will have serious implications for the workforce, the economy, and the capacity for demographic regeneration. The relatively small cohorts in the child bearing age group seem likely to lead to a spiral of decline, unless counterbalanced by substantial net in-migration.

Some reflections

Recent proposals for 'repopulation' of the Highlands and Islands[1], or a reversal of the clearances[2], present a stark contrast to calls for 'rewilding' of extensive agricultural land[3]. Our findings begin to place this debate in an objective, evidence-based context. It is not our intention, however, that our analysis should provide support for either of the above views.

At this stage it would not be prudent to draw any firm conclusions about the need to intervene to support increased levels of migration into the SPA. Among the issues that we will need to explore during the remaining years of our project are:

- The likely changes in land use associated with population shrinkage (or resettlement), and their effects on the environment and ecology.
- Evolving settlement patterns, and population redistribution, which seem to favour small towns and accessible rural areas at the expense of sparsely populated areas.
- The likely medium-term changes in land-based activities in the SPA, as a consequence of changing technology, market developments, and policy.
- The implications of increased personal mobility, and opportunities afforded by information and telecommunications technology, for the lifestyles and economic activity of residents in, and near, the SPA.
- The role and potential of the SPA as a resource to support the wellbeing of the population of the rest of Scotland.
- The social and cultural implications of in-migration.
- The implications of resettlement for the provision of services.

All these considerations point to the need for a careful and balanced foresight exercise before any conclusions about the desirability of increased migration can be assessed.

SEFARI

Scottish Government
Riaghaltas na h-Alba

[1]See, for example, Community Land Scotland's proposal: http://www.communitylandscotland.org.uk/find-out-more/renewal_repopulation/ (Accessed 1st March 2018). [2]Hunter, J. (2014) On the Other Side of Sorrow. Birlinn Ltd. [3]See, for example: http://www.rewilding.scot/ and https://treesforlife.org.uk/forest/missing-species-rewilding/rewilding/ (Accessed 1st March 2018).

Acknowledgements: This work was funded by the Rural & Environment Science & Analytical Services Division of the Scottish Government as part of the 2016-2020 Strategic Research Programme. Any views expressed are those of the authors and do not necessarily represent those of the Scottish Government or RESAS. Projection model developed during Andrew Copus' secondment at Nordregio (Stockholm) during the Northern Periphery and Arctic Programme project REGINA. Responsibility for any errors in data analysis or interpretation of data lies solely with the authors. Raw Census and NRS data used: © Crown copyright.

Further information: This research note is a summary of three working papers (1, 2, 3) which are available for download at the project webpage http://www.hutton.ac.uk/research/projects/demographic-change-remote-areas. These papers contain full details of data sources (and acknowledgements for these), and descriptions of methods and software used. **Contact:** Andrew Copus, Social Economic and Geographical Sciences Group, The James Hutton Institute, Craigiebuckler, Aberdeen AB15 8QH. Email: andrew.copus@hutton.ac.uk.