Research Matters

Welcome to Issue 75 of *Research Matters*, the Department of Environment, Land, Water & Planning's quarterly planning research bulletin, featuring DELWP research and analysis, news about recently released data, and research from other sources. If you have any questions or comments, you can contact us at:

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It has been a busy few months in the DELWP research area.

A recent publication produced by the group uses demographic data for the purpose of better understanding risks and impacts of bushfires. The publication pulls together information on key indicators that show potential vulnerabilities in Victorian communities. The report also summarises our knowledge about mobile populations and how these are related to the risk profiles of certain regions.

The second article in this edition reports on a regional population summit which was held in July. The summit was organised by Regional Development Victoria (RDV) and featured a presentation by one of our own team members.

The latest edition of *Victoria in Future 2016* population projections has been released – The final article in this edition of *Research Matters* outlines some of the key highlights.

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Publication: *Demographics for Fire Risk Analysis*
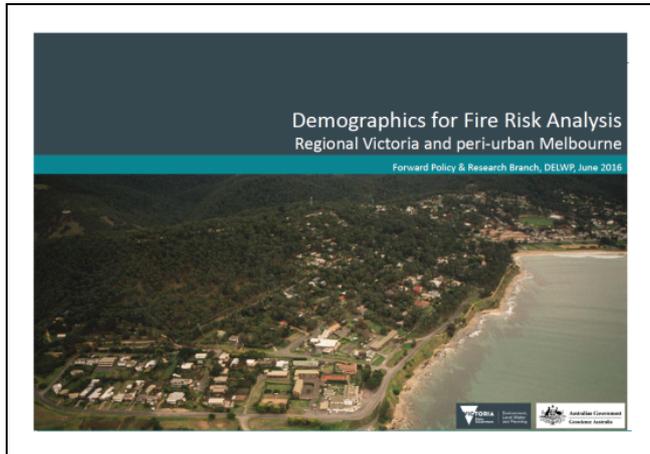
http://www.dtpli.vic.gov.au/__data/assets/pdf_file/0011/297677/Demographics-for-Fire-Risk-Analysis-June-2016.pdf

Over the years, the research team here in DELWP has undertaken demographic analysis for various environmental policy purposes. One of our recent publications brings together a range of data to inform fire risk analysis. The report entitled: *Demographics for Fire Risk Analysis. Regional Victoria and Peri-urban Melbourne*, is jointly published by the Victorian Government and Geoscience Australia

DELWP has several teams with an interest in this topic. The Fire Division has a direct role in firefighting but also undertakes sophisticated modelling work for fire behaviour and risk analysis. Community engagement for fire preparedness and fire recovery is also undertaken by this Division. Meanwhile, land use planning has an interest in considering fire risk before making decisions about new suburban development.

The compilation of information presented in the publications is divided into four sections:

1. a review of previous bushfires in Victoria and their impact on population growth;
2. mapped indicators highlighting potential population vulnerabilities in relation to fire hazard;
3. population dynamics and changing risk profiles over time; and,

4. part time and peak populations.

Fire is a natural part of the Australian landscape. Despite the massive personal and financial impacts of major bushfires on communities, population levels and growth rates generally return to the pre-disaster situation within 3-5 years (figure 1).

The concept of risk involves the interplay of hazard, exposure and vulnerability(Canterford 2011). Vulnerability refers to the degree to which individuals and communities may be impacted by the hazard. Although individuals vary in how they respond to, and recover from, an emergency event, vulnerability assessment can provide some insights for planners and policy makers in relation to 'at risk' communities and locations.

Table 1 outlines the factors which may increase the vulnerability of individuals and communities. These factors were developed for use by the Geoscience Australia Risk Impact and Analysis Group and are based on a literature review and stakeholder feedback. These indicators may be important for pre-disaster situations (eg. preparedness) or post-disaster situations (eg. ability to recover).

Measures of vulnerability are indicative – they do not predict how a particular individual will respond to a specific event. Nevertheless, research studies have shown that some characteristics are associated with an individual's level of vulnerability before, during or after a disaster.

Population characteristics change over time which means that patterns of vulnerability can also change over time. Children may be born, increasing the number of infants, or people may age in place. In Melbourne's fringe and peri urban areas, the pattern of ageing in place is likely to cause a significant increase in numbers of older people.

Vulnerabilities may differ seasonally. People can be highly mobile in how they live and work. They may have more than one residence, for example, holiday

homes, weekenders, and, for regional populations, a townhouse in the city. Population mobility presents particular challenges for risk assessment and emergency management.

Towns may vary in population size by a factor of four or five during particular seasons of the year. Popular visitor and holiday locations such as the Dandenong Ranges and Great Ocean Road have particularly high fire risk. Planning for fire therefore requires an understanding of both permanent and part-time populations.

Some communities will have a greater measure of vulnerability than others and some locations may display multiple types. While the indicators may reflect an individual measure, the vulnerability level of a household will be determined by its weakest rather than its strongest member.

Measures of vulnerability are the flip side of resilience - a community which has low levels of vulnerability can be considered resilient.

References

Canterford, S. 2009, 'Demographic analysis' in Bushfire CRC, *Victorian 2009 Bushfire Research Response, Final Report*. October 2009.

Canterford, S. 2011, 'Locating people spatially: 2006, 2010 and 2.36pm on Friday', *Australasian Journal of Regional Studies* 17(1), 46-59.

Table 1: Population vulnerability indicators relevant to natural hazard risk analysis

Indicator	Rationale
Young at risk	The very young are at risk because they are dependent on others for care.
Elderly at risk	Elderly tend to be more frail, have more health issues and may be dependent on others for care. While individual older people may be fit and active, aggregate data show that the number of people needing assistance increases with age.
Single parents	Single parents may face the demands of dependant children but with no additional support.
Volunteering	People who undertake volunteer activity within their community are more likely to have social networks which can be of assistance in times of emergency by providing information, support and resources.
Income	Low income households may face more difficulty in recovering materially from a disaster. They may also be underinsured or uninsured.
New to region	If a person has moved to an area in recent years, they may be unfamiliar with local environmental hazards and may be unaware of procedures for preparing for, or responding to, an emergency.
Public housing	Socio-economic disadvantage is a requirement for receiving public housing and those who are disadvantaged are likely to have a variety of social and economic problems that may require additional support in an emergency situation.
Education level	People with high levels of education are more likely to understand a range of information related to risk and preparation as well as warnings information.
Need assistance	People who identify that they have a need for assistance with self-care are likely to need help in an emergency, for instance with evacuation.
Car ownership	People with no car access will be unable to evacuate themselves in an emergency.
Insufficient English	People with limited English may find it more difficult to access or understand various emergency messages and information.
Unoccupied dwellings	Absentee owners may not have high levels of engagement with the local community nor may they have the time to attend meetings or undertake full fire preparations on their property.

Figure 1: Extent of Ash Wednesday, 16 February 1983 and subsequent impacts on population in selected towns.
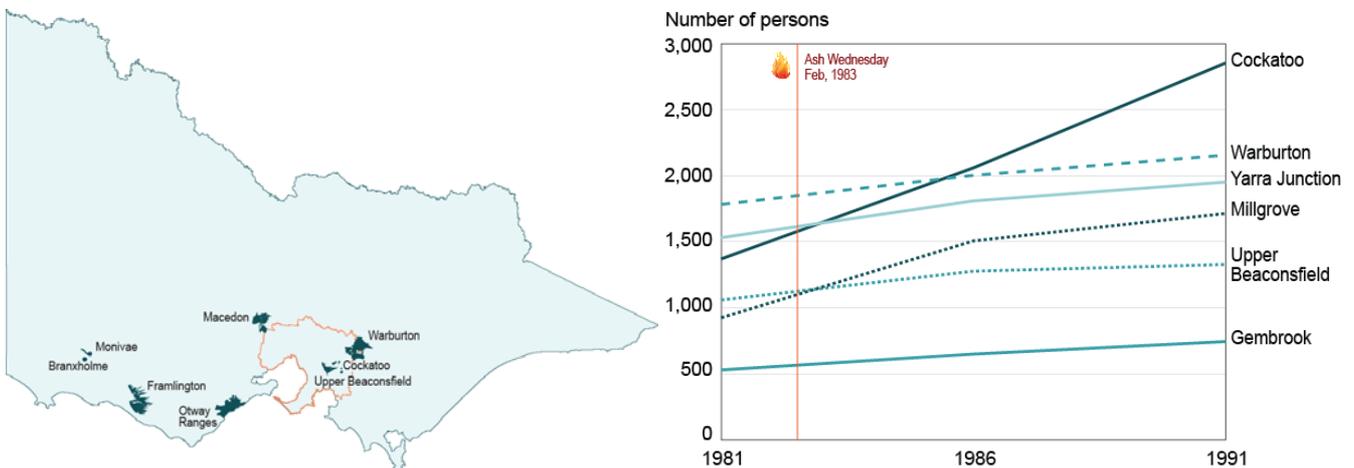
Conference Report: Regional Futures Summit

The Regional Futures Summit was held in Bendigo, 19-20 July 2016. It was hosted by Regional Development Victoria (RDV) and included speeches from two State Government Ministers – the Minister for Planning, the Hon. Richard Wynne and the Minister for Regional Development, the Hon. Jaala Pulford. Over 100 people attended the Summit including: local government representatives, CEOs and economic development managers; industry and economic development associations; and community and not-for-profit groups.

The theme of the Summit was population attraction and retention and it aimed to deepen participants' understanding of forces affecting regional and rural populations. This included a review of case studies where population attraction had been successful, but also a review of demographic constraints on population growth in some areas.

Regional Victoria faces diverse population challenges. On the one hand, rural councils often struggle with an ageing population and younger residents leaving the area for education and employment opportunities. On the other, many regional city LGAs are faced with the challenge of accommodating strong population growth.

Mr Ian Harper, partner at Deloitte Access Economics, stressed that regional Victoria could flourish if it focused on innovation and played to its comparative advantages. This type of economic development could occur even without population growth.

Fiona McKenzie, senior researcher from DELWP, highlighted the need to define regional success more broadly. Through the use of case studies, she highlighted how success could be defined in other ways. The town of Nhill, by resettling 160 refugees, has addressed local skills shortages and has added to community diversity. Likewise, the town of Stawell which, faced with closure of its gold mine managed to have it turned into an underground physics laboratory. This adaption to circumstance has been a boost to economic and social diversity.

Panel session at the Summit. L to R: Ian Harper, Deloitte; Jack Archer, RAI; Fiona McKenzie, DELWP

Jack Archer, CEO of the Regional Australia Institute, argued that innovative approaches could be used to attract international migrants to regional areas. Mr Archer noted that migrants should be targeted as groups, with rural communities encouraged to advertise that "We have jobs, housing and we want *you*". The experience of Nhill was once again bought up as an example to be emulated.

The workshops which followed the panel discussion showcased various examples of innovation. A representative from Bendigo Bank talked about the bank's commitment to recruiting from regional areas as a means of building human capital, maintaining a stable workforce and giving something back to the regional community.

John Richmond, Principal of the Birchip P-12 School, discussed ways in which the school had developed programs to link students with local employers in the region, thus creating pathways for young people to remain in the area.

The Summit provided a valuable forum at which to discuss a range of population narratives for regional Victoria. Population growth rates will vary across the state but this does not have to limit the ability for communities to be diverse, innovative and prosperous.

Victoria in Future 2016 released

Victoria is growing strongly - and we can expect this to continue. That's the take-home message from the updated *Victoria in Future 2016* population projections, released by the Land Use and Population Research team in July.

Having just reached a population milestone – six million Victorians – the state is headed for a population of over ten million by mid-century. Steady fertility rates and continuing migration from overseas are the key drivers of future population change. Growth is uneven though – not everywhere is growing, and some places grow faster than others.

Wyndham can expect the largest growth of any municipality – increasing by almost 200,000 people to a population of approximately 360,000 by 2031. Greater Geelong, with an expected increase of around 80,000 will have the strongest growth in Victoria's regions.
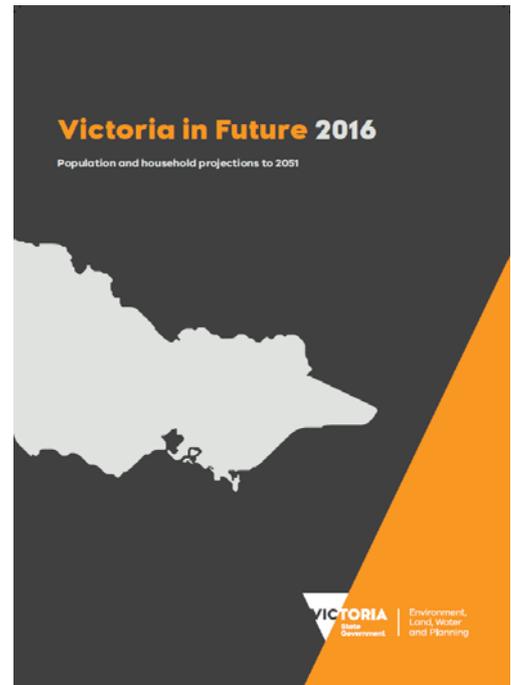
The fastest growth – by annual average rate of increase – will be in Melton (4.4%) and Mitchell (4.3%).

As the population grows, it is also ageing. Right now approximately every fiftieth Victorian is aged 85 years or over. By 2051 one in every 22 Victorians is expected to have reached that age. Our average life expectancy by then will have increased to 88 years for males and 90 years for females.

By 2031 the Shire of Gannawarra can expect 7% of its population to be 85 years old or over. The highest proportion in Melbourne will be in Manningham (5%). The areas with the highest proportion of late teens and young adults (aged 15-24 years) will be the City of Melbourne (18%), and in the regions, Wodonga (14%).

All these details and more are available from the *Victoria in Future 2016* website (www.delwp.vic.gov.au/victoria-in-future

Age Structure Victoria 2011 and 2051

5.5M 2011
1.2m 22.1%
0.8m 14.0%
3.5m 63.9%

10.1M 2051
2.0m 20.3%
2.2m 21.5%
5.9m 58.2%

Age groups
● 0-17 YEARS
● 18-64 YEARS
● 65+ YEARS