

# 01 CONTEXT



Marian Mahony watercolour of proposed Canberra city. Source: Kindly provided by the National Capital Authority.

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‘... climate change has arrived and is accelerating faster than most scientists expected ... it is more severe than anticipated, threatening natural ecosystems and the fate of humanity. Especially worrisome are potential irreversible tipping points.’<sup>1</sup>

## THE CLIMATE EMERGENCY — THE GLOBE, THE CLIMATE AND ECOSYSTEM SERVICE DEPLETION

The shadow of climate and biodiversity emergencies hangs over this report. Multiple recently published scientific reports warn us about our trajectory.

In 2019 the Intergovernmental Panel on Biodiversity and Ecosystem Services, in its Global Assessment Report, issued a dire warning about the impending threats to biodiversity as a function of the manner in which humanity exploits and undermines environmental services and resources.<sup>2</sup> Again in 2019, the Intergovernmental Panel on Climate Change (IPCC) has reported that many environmental services will struggle to provision, regulate and support humanity, if we fail to meet the Paris COP target, and that even if we were able to meet the target of 1.5 °C, much of the environment will still be badly impacted.<sup>3</sup> In its latest report on climate change and land, the IPCC echoes these conclusions.<sup>4</sup> Again in 2019, the IPCC synthesis report *United in Science* brings the data and the climate implications into sharp relief,<sup>5</sup> and the IPCC Special Report on Oceans and the Cryosphere telegraphs climate emergency concerns, while indelibly linking oceans, marine life, terrestrial and freshwater species.<sup>6</sup> In our region, the 2019 outlook report for the Great Barrier Reef concludes that ‘the greatest threat to the Reef is climate

change’ and that the overall outlook for the reef’s ecosystem is ‘very poor’.<sup>7</sup>

Multiple bushfires have occurred in Queensland and NSW from September to November 2019. These fires have been described by the Queensland Fire Service as the worst bushfire threat in recorded history. Lives have been lost and houses burnt, native species incinerated, soils roasted, communities evacuated, schools closed, and stock were shifted in circumstances of urgency. The ACT bushfire season was extended in 2018–19, at which time it was the longest season since 2003.<sup>8</sup>

The Australian BOM reports that eastern Australia is experiencing a drought worse than the Federation or the Millennium droughts and that rainfall figures in the northern Murray-Darling Basin are the worst on record. Rainfall in the ACT reflects these observations.<sup>9</sup>

Some responses to the crisis we face illustrate the serious and highly unusual steps we are taking to respond. Following a 2019 technical report about water sharing in the Murray-Darling Basin, ascribing the blame for fish deaths, algal blooms and reduced water run-off to catchment management and climate change, the NSW Government committed

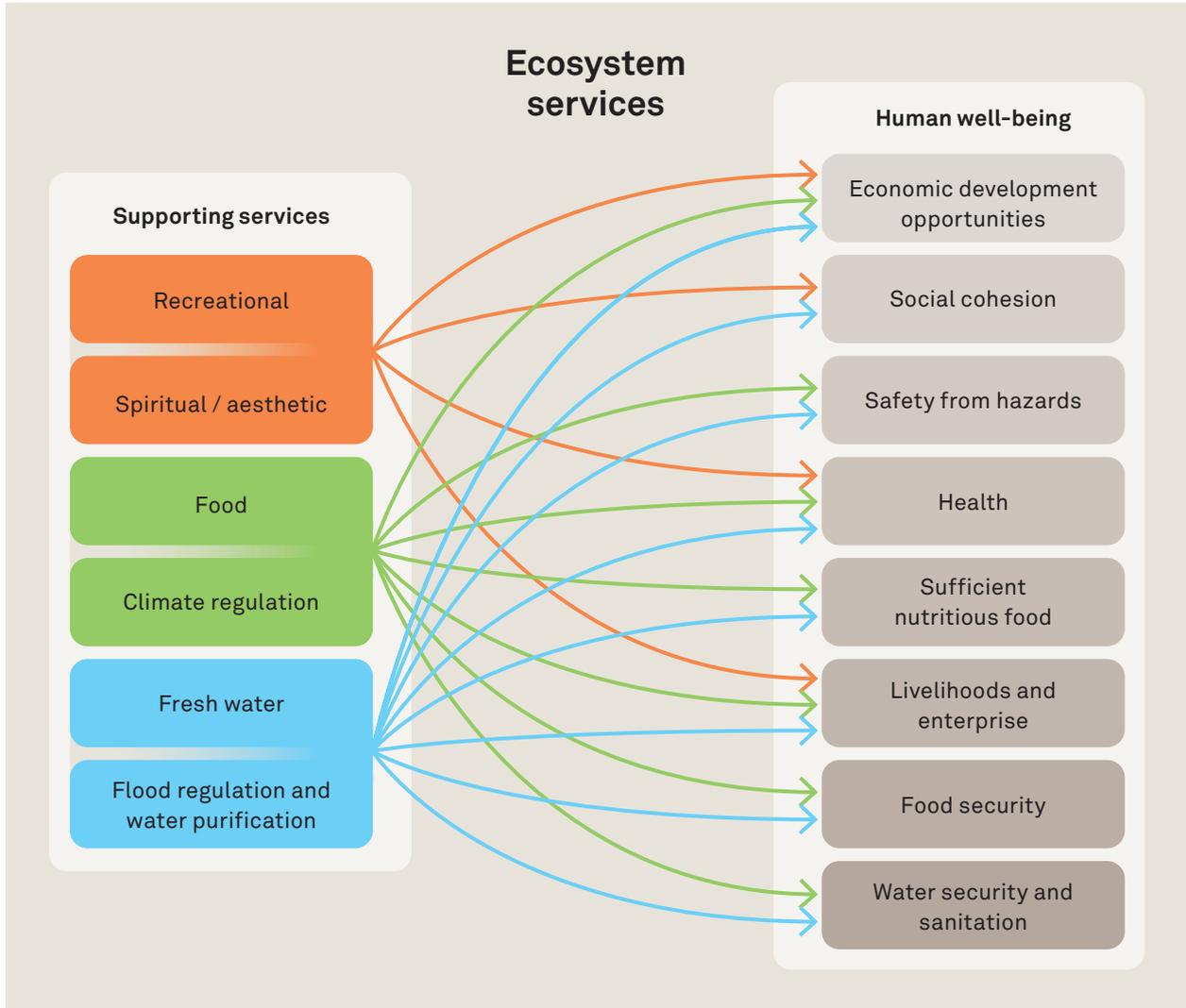
- 1 Ripple, W. J. et al., 2019, ‘World Scientists’ Warning of a Climate Emergency’, *BioScience*, biz088, found at <https://academic.oup.com/bioscience/advance-article/doi/10.1093/biosci/biz088/5610806>, accessed 7 November 2019.
- 2 Brondizio E.S. et al., eds, 2019, *Global Assessment Report on Biodiversity and Ecosystem Services: Summary for Policymakers*, IPBES Secretariat, Bonn, found at <https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services>, accessed 18 November 2019.
- 3 United Nations Intergovernmental Panel on Climate Change (IPCC), Masson-Delmotte, V. et al., eds, 2018, *Special Report: Global Warming of 1.5 °C*, IPCC, Geneva, found at [https://report.ipcc.ch/sr15/pdf/sr15\\_spm\\_final.pdf](https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf), accessed 18 November 2019.
- 4 IPCC, 2019, *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security and Greenhouse Gas Fluxes and Terrestrial Ecosystems*, found at <https://www.ipcc.ch/report/srcl/>, accessed 18 November 2019.
- 5 UN Science Advisory Group to the UN Secretary-General’s Climate Action Summit, 2019, *United in Science: High-level Synthesis Report of Latest Climate Science Information*, World Meteorological Organization (WMO) and Science Advisory Group of the UN, found at <https://reliefweb.int/sites/reliefweb.int/files/resources/climsci.pdf>, accessed 18 November 2019.
- 6 IPCC, 2019, *Special Report on the Ocean and the Cryosphere in a Changing Climate*, found at [https://www.ipcc.ch/site/assets/uploads/sites/3/2019/09/SROCC\\_SPM\\_HeadlineStatements.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2019/09/SROCC_SPM_HeadlineStatements.pdf), accessed 18 November 2019.
- 7 Great Barrier Reef Marine Park Authority, 2019, *Outlook Report 2019*, found at <http://www.gbrmpa.gov.au/our-work/outlook-report-2019>, accessed 18 November 2019.
- 8 ACT Emergency Services Agency (ESA), 25 March 2019, ‘Bushfire Season Extended – Longest Season Since 2003’, <https://esa.act.gov.au/2019/03/25/bushfire-season-extended-longest-season-since-2003>, accessed 18 November 2019.
- 9 Australian Bureau of Meteorology (BOM), 1 November 2019, ‘Australian Capital Territory in October 2019: Warm Days and Drier Than Average’, found at <http://www.bom.gov.au/climate/current/month/act/summary.shtml>, accessed 18 November 2019.

an unprecedented \$10 million to fish relocations to avoid a ‘fish armageddon’ and an ‘ecological disaster’.<sup>10</sup>

And, as we know, everything is linked and action or inaction have unintended consequences. The crash in Bogong Moth numbers in the last 2 years from 4.4 million to insignificant numbers – likely associated with drought and human induced climate change<sup>11</sup> – is already affecting the critically endangered Mountain Pygmy-possum which,

when it emerges from its 5–7 month hibernation, depends on the moth for food.

The ACT’s ecological footprint, which we have calculated for this report, informs us that we require nine times the area of the ACT to maintain our current lifestyles. Our use of resources is depleting the ecosystem services that we rely upon. Our resource use is unsustainable and has implications for the nature world and human settlements (see the infographic below).



Infographic created by OCSE, sourced from the International Union for Conservation of Nature (IUCN).

It is in this context that this ACT State of the Environment Report is provided to the ACT community to inform, empower and hopefully inspire environmental action.

10 Moritz, C. et al., 2019, *Investigation of the Causes of Mass Fish Kills in the Menindee Region NSW over the Summer of 2018–19*, Australian Academy of Science, Canberra, found at <https://www.science.org.au/files/userfiles/support/reports-and-plans/2019/academy-science-report-mass-fish-kills-digital.pdf> accessed 18 November 2019; Vertessy, R. et al., 2019, *Independent Assessment of the 2018–19 Fish Deaths in the Lower Darling*, found at [https://www.mdba.gov.au/sites/default/files/pubs/Final-Report-Independent-Panel-fish-deaths-lower%20Darling\\_4.pdf](https://www.mdba.gov.au/sites/default/files/pubs/Final-Report-Independent-Panel-fish-deaths-lower%20Darling_4.pdf), accessed 18 November 2019; see also Sheldon, F., 2019, *Technical Review of the Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Sources*, NSW Natural Resources Commission, found at <https://apo.org.au/node/254626>, accessed 18 November 2019.

11 Landcare Australia, 2019, ‘Help Monitor Plummeting Bogong Moth Numbers and Protect Endangered Mountain Pygmy-Possum’, found at <https://landcareaustralia.org.au/news/help-monitor-plummeting-bogong-moth-numbers-and-protect-endangered-mountain-pygmy-possum>, accessed 18 November 2019.

# CANBERRA AND THE ACT — THE ENVIRONMENT AND ITS CHALLENGES

The Australian Capital Territory sits entirely within the Murray-Darling Basin and is the site of a vast national park, Namadgi, and a wilderness zone at Tidbinbilla. Remarkably, 60% of the ACT's land mass is designated as some form of nature conservation. Canberra Nature Park covers 11,000 hectares and includes 37 nature reserves.



Snow in Namadgi National Park. Source: OCSE.

While it is the national capital and a 'planned city', Canberra is routinely described as the 'bush capital'.<sup>12</sup> Unlike any other Australian capital city, almost 50% of Canberrans live within 500 metres of native bushland.

The region's population has been growing steadily and the expansion of the city has relied heavily upon the provision of biodiversity offsets, some of which, when associated with Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* strategic assessments, have been the subject of independent audits.<sup>13</sup> It is encouraging that the ACT Government now aspires to have 70% of new development constructed as infill within the present city footprint.<sup>14</sup>



Plans for Canberra. Source: National Capital Authority.

The proximity of the city to the natural environment creates vulnerabilities and risks which need to be carefully managed. In 2003 4 people died, 435 people were injured, and 5,000 people were evacuated as a result of bushfires which devastated suburbs of the city. These fires burned nearly 70% of the ACT, 90% of Namadgi National Park was damaged, insurance costs ran to \$660 million, and the value of lost forestry was \$1,494 billion. In the agricultural sector, 4,000 kilometres of fencing and 300 agricultural buildings were destroyed, and 4,000 cattle and 13,000 sheep were killed or had to be euthanised.<sup>15</sup> The impact on native species was incalculable.

Although small in size, management and governance arrangements in the ACT are complicated. The ACT Government assumes both local and state government responsibilities. It also works across the border with NSW and with regional local governments, and is impacted by and has contributions to the decisions taken and policy and regulatory interventions in those jurisdictions. This level of complexity plays out in cross-jurisdictional policy challenges, all of which compound the difficulties associated with the intricate, multifaceted, non-linear nature of environmental policy generally.

12 Pegrum, R., 2008, *The Bush Capital: How Australia Chose Canberra as its Federal Capital*, Watermark Books, Sydney.

13 See the OCSE's Independent Audits of the Gungahlin and Molonglo Valley Strategic Assessments, for an extended discussion, found at [https://www.envcomm.act.gov.au/\\_\\_data/assets/pdf\\_file/0007/1168405/FINAL-report-7-Dec-with-changes-from-EPS-DD-Independent-Audit-of-the-Gungahlin-Strategic-Assessment-November-2017-A14477882.pdf](https://www.envcomm.act.gov.au/__data/assets/pdf_file/0007/1168405/FINAL-report-7-Dec-with-changes-from-EPS-DD-Independent-Audit-of-the-Gungahlin-Strategic-Assessment-November-2017-A14477882.pdf) and <https://www.envcomm.act.gov.au/investigations/independent-audit-of-the-molonglo-valley-strategic-assessment>, both accessed 18 November 2019.

14 ACT Government, 2018, *Planning Strategy*, found at [https://www.planning.act.gov.au/\\_\\_data/assets/pdf\\_file/0007/1285972/2018-ACT-Planning-Strategy.pdf](https://www.planning.act.gov.au/__data/assets/pdf_file/0007/1285972/2018-ACT-Planning-Strategy.pdf), accessed 18 November 2019.

15 Steffen, W. and L. Hughes, 2014, *Be Prepared: Climate Change and the ACT Bushfire Threat*, report for the Climate Council of Australia Ltd, found at <http://www.climatecouncil.org.au/uploads/a56c563caa5bb336050ed88c60dba7e4.pdf>, accessed 18 November 2019.

## CROSS-JURISDICTIONAL COMPLEXITY — FROM WASTE TO BIODIVERSITY

### Waste

Jurisdictional complexity is evident in the waste sector.

The ACT deals with operational and local government matters including the street collection of rubbish; sub-national responsibilities such as cross-border waste, including the legislated establishment of the Container Deposit Scheme in partnership with NSW, and the potential for and difficulties in policing illegal waste transfers across borders; and high-level and national responsibilities, including contributing to the emerging national commitment to develop a circular economy.

### Biodiversity, brumbies and the cross-border complexities of national parks

The ACT's 'landlocked' status has implications for both biodiversity policy and practice.

The Australian Alps and the Kosciuszko National Park lie to the south of the ACT, a connection which leaves the Namadgi National Park, the unique Ginini Ramsar Wetland, and other – now protected – bogs and fens, vulnerable to pest species such as brumbies crossing into the ACT. Differences in state and territory policies about such matters results in the natural environment of the ACT being exposed to risks over which it has little control, notwithstanding the launch of the ACT's Biosecurity Strategy in 2016.



Brumbies in the wild. Source: Dianne Thompson of SaveKosci and the National Parks Association.

It is important to note that the things that define the 'bush capital' and its people are an interest in and commitment to the natural environment, the promotion of community engagement and co-design of policy and activities, and an abiding interest in environmental volunteering across a very wide spectrum. Other core values and interests include

- a critical and active interest in planning and development as well as the design of a compact future-focused national capital
- bringing youth along on the environmental journey with the sustainability in schools programs where they learn leadership and other skills, and
- a genuine commitment to celebrating and protecting both our Indigenous and European heritage.

Community interest and government commitment align neatly in respect of the importance ascribed to heritage in the ACT. An understanding of our post-settlement cultural roots is just one limb of the Canberra community's immersion in 'place'.



Callam Offices, Phillip. Source: <https://matthewsherrenphotography.com/>

## HERITAGE: 2015–2019<sup>16</sup>



The Cameron Offices, Belconnen. Source: Shannon Battisson, The Mill Architecture and Design. National Museum of Australia. Source: OCSE.

The *Heritage Act 2004*, Heritage Assessment Policy 2015, Heritage Council, ACT Heritage, and the Heritage Advisory Service guide the ACT's heritage policy. The Heritage Register captures 464 historic places and 25 precincts, 197 registered historic places (including precincts), and 13 registered historical objects. In 2018–19, the ACT Government supported community heritage projects through grants totalling \$363,784.<sup>17</sup> In 2019, projects which received grants included the preservation of

Indigenous cultural learning centres, an exhibition on the evolution of cricket, and restoration of historic street signage.

Since 2015 the Heritage Council has made 24 registration decisions including for the Yarralumla Woolshed, Greenhills stone ruin at Stromlo, Tidbinbilla pise homesteads, the Rosebud Apiary slab buildings, the Starlight Drive-In Theatre Sign, and the Glenburn Precinct at Kowen.



Rosebud Heritage Cottage. Source: <http://www.rosebudcottages.com/>

<sup>16</sup> The continued interest in reporting on local heritage in the ACT State of the Environment Report echoes a broader interest in Australian State of the Environment reports.

<sup>17</sup> ACT Government, 2018, media release found at [https://www.cmtedd.act.gov.au/open\\_government/inform/act\\_government\\_media\\_releases/gentleman/2018/heritage-projects-receive-\\$363,000-boost-in-grants](https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/gentleman/2018/heritage-projects-receive-$363,000-boost-in-grants) accessed 28 November 2019.

Transport heritage has been elevated with timber bus shelters in inner Canberra, and the Kingston and Reid railway system remnants receiving recognition. Modern architecture and space exploration technology have been recognised with the registration of the Northbourne Housing Precinct Representative Sample, St Joseph's Catholic Church in O'Connor, and the Orroral Valley and Honeysuckle Creek tracking stations. Indigenous heritage values have been protected at the Ginninderry development.

Where a nomination has been made under the *Nature Conservation Act 1980* (ACT), amendments in 2014 to the Heritage Act restrict the power to register natural heritage. Provisional registration of 12 nominated natural places has been declined in this reporting cycle. However, the Red Hill Historic Plantings (a direct living infrastructure link to the Burley Griffin and Mahony Canberra plan), and the Barton Highway Road Cut in Nicholls (showing the unconformity

in Black Mountain and Camp Hill sandstone) received recognition.

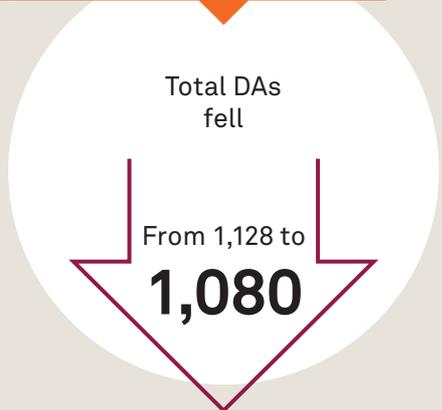
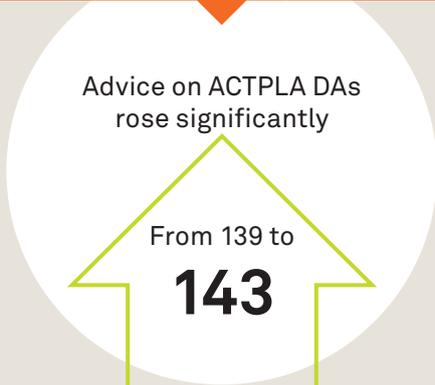
Reflecting observations about the arrival of the digital age in environmental volunteering, heritage communication strategies increasingly use modern digital techniques. These include hologram videos of Indigenous people's perspectives at Molonglo, a range of activities across the ACT's Heritage Festival, and the Canberra Tracks app (Google Play or Apple Store download).

Unfortunately, and notwithstanding the clear commitment to the preservation of heritage in the ACT, the audit of heritage sites recommended in the *State of the Environment 2015* report has not been undertaken due to funding constraints and workload obligations. A number of nominations predating the Heritage Act await assessment.



During the 2018 Canberra and Region Heritage Festival, the public were able to tour the heritage-listed Giralang Primary School with architect Enrico Taglietti. Source: Linda Roberts.

# Heritage in the ACT 2015–2019



# THE CONTENTS OF THIS REPORT

This is the first State of the Environment Report in Australia to start with a chapter on Indigenous people's interests. OCSE has endeavoured to reflect the depth of Aboriginal people's knowledge and commitment to caring for country. **Chapter 2 Ngunnawal Country** is just a beginning.

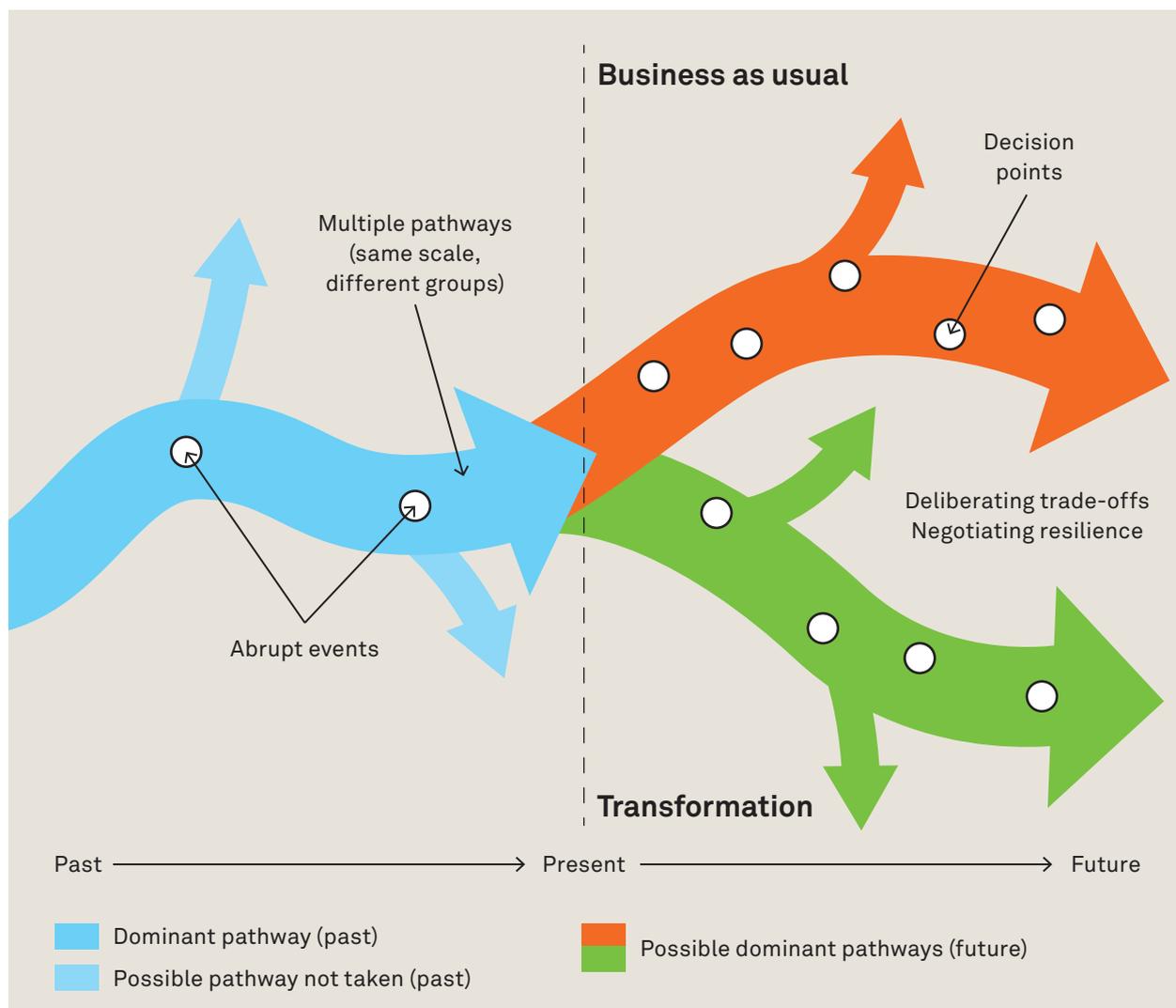
In the chapter which follows the discussion about Ngunnawal concerns, we report on the extraordinary community commitment to the environment and citizen science in the ACT; we then consider the benefits and challenges which attend the design, development, and protection of Canberra's urban forest.

Condition and trends in environmental management follow these introductory chapters. Data has been collected and analysed for trends on climate change, human settlements (energy, water, waste and transport), air, land, biodiversity, water and fire.

A further ecological footprint has been calculated for Canberrans, and whilst our footprint now aligns with that of other Australian states, we know that we still require nine times the land mass of the ACT to service our demands on ecosystem services. The footprint is reported in the chapter on human settlements.

A discussion of the policy responses the ACT Government is adopting on the environment concludes this report. Much in the policy arena is good or best practice even though it is always possible to improve organisational responses.

It is critical to acknowledge that a business-as-usual approach will not be enough to address the growing concern about the climate emergency we face and nor will it arrest the decline in biodiversity and the provision of ecosystem services. There are many potential pathways. We need to act with wisdom when deciding how the ACT wishes to progress.



Graphic derived from the IPCC's Special Report: *Global Warming of 1.5°C* (Figure 5.5).