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Strategic Planning for Melbourne's Green Wedges

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Strategic Planning for Melbourne's Green Wedges

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Authors

Associate Professor Janet Stanley is Principal Research Fellow at the Melbourne Sustainable Society Institute, University of Melbourne. Janet's work focuses on the interface between social, environmental and economic issues across policy, system design, and at community levels. She has approximately 80 refereed publications, including five authored and edited books.

John Stanley is Adjunct Professor, Institute of Transport and Logistic Studies, The University of Sydney Business School. John has an extensive background in transport and land use policy and planning and has written extensively in these areas. He was a member of the Ministerial Advisory Committee advising Victoria's Planning Ministers on Plan Melbourne and Plan Melbourne 2017-2050.

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Summary

Twelve areas of land within seventeen municipalities that surround the urban boundary of Greater Melbourne, have been designated by the Victorian Government as Green Wedges. These areas include public land, water catchments, agricultural land, conservation areas, cultural sites and have included quarries, totalling about three times the size of Urban Melbourne.

Their proximity to Melbourne's large and growing population base, together with their diverse land uses, make Melbourne's Green Wedges increasingly important for the health and wellbeing of Victorians and visitors, as well as for biodiversity conservation. This paper highlights some critical trade-offs between competing land uses in the Green Wedges, particularly where areas with high biodiversity values are involved. Rapid biodiversity loss, at a time when the importance of nature for health and well-being is being increasingly recognised, argues for biodiversity values to be given primacy in Green Wedge policy and planning, but these values are grossly underrepresented in the State Government Consultation Paper, *Planning for Melbourne's Green Wedges and Agricultural Land* (DELWP 2020), which places priority on protecting agricultural land uses. A likely consequence of the approach taken by the Consultation Paper is further and continued

irreversible destruction of Victoria's biodiversity and socio-ecological systems, at a time when we should be strengthening these values.

Integrated strategic planning for the Green Wedges, set within a state policy and planning context that asserts the primacy of Ecologically Sustainable Development principles in general, and biodiversity conservation in particular, is key to a more sustainable future for Melbourne's crucial and increasingly valuable Green Wedges. This should involve integration of sector level strategic planning for potential valued uses of Green Wedge land with regional strategic planning for the Green Wedge areas. Because of the significance of the Green Wedges, the integrated strategic planning process should be led by the State Government, with local government and community involvement. Implementation planning should then be led by Green Wedge local governments, within the policy and planning framework set by the state. Visioning and policy setting processes need to provide clear signals about the outcome intentions for biodiversity conservation within the Green Wedges. A Mornington Peninsula case study is used to show how biodiversity and tourism values should be given priority over quarrying on land with high natural values.

1. Context

Melbourne's Green Wedges are non-urban areas that lie outside the Urban Growth Boundary. There are 12 such areas, spread across 17 municipalities¹, and State Government planning policies since the 1970s have generally sought to protect the non-urban values of these areas. The Consultation Paper, *Planning for Melbourne's Green Wedges and Agricultural Land* (DELWP 2020), highlights these non-urban values, particularly agriculture, and some of the threats they face.² Competition between alternative possible uses of scarce land is common and policy frameworks are needed to help resolve these trade-offs. The Consultation Paper intends to assist development of such a framework to help guide Melbourne's future growth. In so doing, it builds on the foundations established by *Plan Melbourne 2017-2050* (Victorian Government 2017).³

The purpose of this paper is to highlight some critical trade-offs between competing land uses in the Green Wedge (GW) areas, particularly where areas with high biodiversity values are involved, values that are grossly underrepresented in the Consultation Paper. We emphasise the importance of nature and the urgency of biodiversity protection and enhancement, which we conclude should lead to the identification and absolute protection of those GW areas of most national, state and regional significance, to the exclusion of any thought of possible trade-offs. A likely consequence of the approach taken by the Consultation Paper is further and continued destruction of Victoria's biodiversity and socio-ecological systems.

The GW policy and planning process needs to protect biodiversity and ecological systems values rather than fostering their continuing erosion. This requires a shift to ecosystem stewardship as part of more integrated thinking than has been demonstrated to date. Multiple

gains can be achieved by facilitating such an approach, including growth in employment sectors that build on a region's **sustainable competitive strengths**. We demonstrate this in a Mornington Peninsula case study, illustrating how tourism and lifestyle type activities, which draw substantially on the natural assets of the region, including its agricultural base, provide sustainable economic opportunities. This is in contrast to land uses, such as quarries, that irreversibly erode environmental values and life-support systems, while threatening sustainable opportunities in tourism and lifestyle activities.

Examining biodiversity, economics and social choices in a case study setting helps to crystallise some of the key political and policy choices that are required in GW planning. In particular, they go to the heart of the meaning of the over-used idea of **balance** that is deeply embedded in the Consultation Paper. There are few words with less meaning in our language! The thesis of this paper is that balance is only a relevant concept when key sustainability thresholds are met. We identify such thresholds in our case study example.

This paper is structured as follows. Section 2 sets out high level arguments about the increasing importance of nature/biodiversity and of protection and enhancement of remaining areas of native vegetation, as growth and social pressures continue. Section 3 provides a strategic response to many of the options identified in the Consultation Paper, highlighting the lack of focus on the environment and proposing a greater focus on integrated sectoral and regional strategic policy and planning for GW areas. Section 4 presents a Mornington Peninsula case study to illustrate some of the conflicts inherent in GW planning, to illustrate an example where biodiversity/environmental enhancement should be given a higher priority than all other alternative land uses. Section 5 sets out our main conclusions.

2. The importance of nature and biodiversity protection

Loss of biodiversity and natural cover

Biodiversity and natural environments, the ecosystem services that support life on earth, are currently being lost at a rate that is placing the life of many humans at risk. These losses include reduced carbon sequestration (Bradshaw and Blumstein 2021, Heath et al. 2005, Lal 2008), reduced pollination (Potts et al. 2016), soil degradation (Lal 2015), poorer water and air quality (Smith et al. 2013), more frequent and intense flooding (Bradshaw et al. 2007, Hinkel et al. 2014) and compromised human health (Díaz et al. 2006, Bradshaw et al. 2019).

The Stockholm Resilience Centre has begun to define and measure the critical threats to sustaining the planet, known as Planetary Boundaries (Steffen et al. 2015). Nine areas have been defined: climate change, ozone depletion, ocean acidification, biogeochemical flows (phosphorus and nitrogen), freshwater use, land system change, biosphere integrity, atmosphere aerosol loading and novel entities (not yet defined). Two areas are now considered at high-risk levels: biodiversity loss and biogeochemical flows. While climate change and land system change are in the increasing risk zone, these nine areas function as an inter-dependent system.

A second way of understanding environmental risk is through a measure of the Ecological Footprint.⁴ This footprint now requires 1.7 Earths (2016 data) to sustain current resource use, this ecological overshoot continues to grow (Lin et al. 2018). Growth in atmospheric carbon accounts for the highest component of the Ecological Footprint, reflecting the rapid loss of forests, some 11.9 million hectares of tree cover being lost in 2019

(IPBES 2019, Steffen et al. 2015, Weisse and Goldman 2020). The decline in biodiversity is happening at rates that are unprecedented in human history. It is estimated that 1 million species are threatened with extinction in the near future, out of an estimated 7–10 million species on the planet (Mora et al. 2011, Webb and Mindel 2015). At the same time, there is estimated to be a 60% loss of population sizes of animal species since 1970 (World Economic Forum 2019).

Australia has the highest extinction rate of mammals in the world and is the fourth worst country for all animal extinctions (IPBES 2019). There are more than 1800 plants and animals on Australia's threatened species list (Wintle 2019). Wintle notes that a third of Australia's threatened species are not being monitored, as the resources are insufficient to enable monitoring or to prevent extinctions. Australians are very reliant on volunteers identifying and locating species and undertaking the preservation work.

At the time of European settlement in Victoria, about 90% of the state was covered by forest or woodlands (Spencer 2021). Since then, 60% has been cleared for agriculture and urban development. As a result, there are 194 animals, 53 invertebrates and 380 plants listed as threatened under the Victorian Flora and Fauna Guarantee Act 1988. Entry on this list is dependent on nomination by an expert, assessment of its status by the government Scientific Advisory Committee and approval for inclusion by the Minister for Environment.

Three other 'advisory' lists in Victoria, populated by environmental experts, cover flora, fauna and invertebrates considered threatened in the state (Department of

Environment and Primary Industries 2014, Department of Sustainability and Environment 2009, 2013). Removing species thought to be extinct, there are 2065 plants listed as endangered, vulnerable, rare or poorly known, of which 380 are also listed under the Victorian Fauna and Flora Guarantee Act 1988. This suggests that about four-fifths of Victoria's flora that is believed to be threatened has not been officially recognised under the Victorian Government Flora Guarantee Act.

Looking at fauna, there are 293 entries of species in the Advisory List. Of these, nine mammals are considered as extinct, leaving 284 species of fauna considered to be at risk. Of these 284 species, 168 (59%) have not been examined (2013) for protection under the Victorian Act. It appears that 12 mammals and 15 other fauna have been added to the listing under the Act between 2013 and the revised list in 2019.

Fifty-three invertebrates are listed as threatened in the *Flora and Fauna Guarantee Act 1988 – Threatened List November 2019*. The Advisory List includes 178 species, one of which is extinct. Thus 30% of those in the advisory list are listed under the Act, leaving 70% unprotected. However, it would appear that most invertebrates have been left out of the Advisory List. The list comprises those species that have been formally described, are curated specimens, or the species is recognised by Museum Victoria. The list only includes six of the 33 phyla of invertebrates and the coverage is even limited within these six.

These data demonstrate the large number of threatened species in the state and the urgency of updating species listed in the Flora and Fauna Guarantee Act. They emphasise the importance of protecting what we have left, especially in the context of being uncertain about the status of many species.

The importance of the natural environment for human health and wellbeing

Research evidence is strongly growing on the vital links between people and their environment, the social-ecological system. In addition to the threats to ecosystem services noted above, the environment has been shown to directly impact wellbeing and quality of life, including mental and physical health. Perception of adverse impacts on the environment can also lead to reduced mental health. The many positive impacts of a natural environment include:

- Improvement in wellbeing and self-esteem (Bratman et al. 2012, Frumkin et al. 2017, Martin et al. 2020)
- An improvement in affect, including decreased anxiety and negative affect and preservation of positive affect (Bratman et al. 2015, Friedman and Loria 2016, Frumkin et al. 2017, Shanahan et al. 2016)
- Improvement in attention span and memory (Bratman et al. 2012, 2015, Friedman and Loria 2016, Hedblom et al. 2019)
- Reduction in stress responses and blood pressure (Friedman and Loria 2016, Hedblom et al. 2019)
- Improvement in cardiovascular, endocrine health and immune function and related mortality (van den Bosch and Ode Sang 2017, Bowler et al. 2010, Friedman and Loria 2016)
- Reduction in blood pressure (Bratman et al. 2012)
- Positive health related quality of life among children and lower mental health problems when adult (Louv 2005, 2008, Preuss et al. 2019).
- Benefits in social interactions and community cohesion and pro-social behaviour (Hartig et al. 2013, Shanahan et al. 2016)

- Improved sense of attachment and belonging to place, leading to improvements in the quality of life (Bayulken et al. 2015).

While more research is needed on the specific influencing components of natural areas (dose-response relationships), there is evidence that suggests that natural areas provide higher well-being than urban parks and that the greater the biodiversity the higher the positive perception of the environment, especially for older age groups (Bratman et al. 2015, Knez et al. 2018, Schwarz et al. 2017). Other natural sensory perceptions were also found to be important for stress reduction, such as bird song and rustling leaves (Franco et al. 2017, Hedblom et al. 2017). Differing natural exposures and uses have been found to relate to differing impacts (Liu 2018). For example, people who made long visits to green spaces had lower rates of depression and less high blood pressure, those who visited more frequently had greater social cohesion, while higher levels of physical activity were linked to both duration and frequency of green space visits (Shanahan et al. 2016). Anecdotal evidence suggests there has been a strong move to spend more time in natural environments during the the current COVID pandemic.

Natural environments also have a less direct health and life quality impact, through providing pleasant areas for walking, lowering local temperatures and filtering pollution from air and water, thus contributing to pulmonary, cardiovascular and neurological system health (van den Bosch and Ode Sang 2017, Nowak et al. 2014). Solastalgia describes a chronic stress syndrome relating to environmental loss near to their home environment (Albrecht et al. 2007). Personal sense of place and identity, physical and mental health, and general wellbeing have all been found to be challenged by profound environmental change, often accompanied by feelings of powerlessness and hopelessness and other psychological symptoms.

The implications of the trends of environmental loss and environmental benefits

The necessity to conserve the environment is recognised in many government targets and documents. For example, the Victorian Government Advisory Lists state that the information should be used in planning “...and in setting priorities for actions to conserve biodiversity” (Department of Sustainability and Environment 2009, p.3). The Victorian Government has listed 43 processes which relate to clearing, fragmentation and degradation, in accordance with Section 10 of the Flora and Fauna Guarantee Act 1988 (2016), that potentially threaten biodiversity. Parks Victoria’s *Healthy Parks Healthy People* initiative recognises the importance of nature:

Conserving parks for present and future generations provides inspirational and therapeutic settings that foster lifelong connections with nature and each other. Parks that are valued and maintained are also fundamental to economic growth and vibrant and healthy communities. (<https://www.parks.vic.gov.au/healthy-parks-healthy-people>)

The irony is, as research is documenting the social-ecological interdependence in the form of ecosystem services and the multiple benefits that are derived from human exposure to natural environments, the natural environment is being lost at a dramatic and escalating pace. Common reasons for this loss are land clearance, also leading to problems such as erosion and dust as well as the spread of weeds and feral animals, population growth, and climate change, with the accompanying extreme events such as drought and wildfire (IPBES 2019, Steffen et al. 2015).

The 2019/20 Australian bushfires covered 19 million hectares, destroying up to 7 billion trees, and have been calculated to have adversely impacted nearly 3 billion animals, comprising an astounding 143 million mammals, 181 million birds, 51 million frogs and 2.46 billion reptiles (O'Malley 2020, WWF 2020). Large areas of the habitat of native species in Victoria have been destroyed or damaged by fire in the past few decades, and some areas have been hit with repeated fires, such that regrowth of the prior ecosystem, such as in Alpine Ash areas, is not occurring.

Thus, the importance of the GWs has clearly grown as important areas of biodiversity, especially when they provide habitat for threatened species and koalas. While not listed as threatened in Victoria, an estimated 11,000 koalas were killed or severely impacted by the Victorian fires in 2019/20. With

GWs in close proximity to urban areas, their value increases for residents due to greater accessibility, familiarity and environmental amenity.

In summary, biodiversity/environmental system services protection is of increasing importance for human health and wellbeing and for species survival, including humans. The scale of the threats to the biosphere and all its lifeforms, including humanity, is in fact so great that it is difficult to grasp, even for well-informed experts (Bradshaw et al. 2021, Convention on Biological Diversity 2020, WWF 2020). Against this background and because of proximity to large and growing population numbers, including visitors, the preservation and restoration of natural habitat must be a high priority in GW policy and strategic planning, both for human and ecosystem health.

3. Responses to particular aspects of the Green Wedge Consultation Paper

Agricultural land use is the focus of the Consultation Paper, which outlines “a number of reform options that aim to deliver lasting protection of agricultural land and guide decision-making on our green wedge areas” (DELWP 2020, p. iv). The Paper recognises that establishment of the GW, and Melbourne’s urban growth boundary (UGB), have played important roles in helping to protect farmland and the natural environment from competing uses. Importantly, the Paper highlights the need to modernise the policy and planning framework, so that it is fit for current and future purposes, which includes the need to “avoid irreversible changes to land use” (DELWP 2020, p.4). However, our research suggests that, in terms of avoiding irreversible changes to land use, the Consultation Paper seriously undervalues the importance of nature and biodiversity protection and enhancement in the GW.

On Vision and guiding principles

The Consultation Paper’s draft Vision section includes, inter alia, the following aspiration:

Much of the natural biodiversity and unique landscapes of Melbourne in 2020 have been retained in 2050, as have the environmental values that have enabled the city’s vital ecosystem services. (DELWP 2020, p.7)

We propose that Victoria and Melbourne should aspire to a better outcome. As currently worded, the Vision in fact endorses continued erosion of the natural biodiversity and unique landscapes of the GWs. In Section 2, we illustrated the human and ecological values of nature and biodiversity and argued that, under increasing popula-

tion pressures, any loss of these values is detrimental to the wellbeing of both people and planet. **The aspiration should be for unequivocal absolute protection and enhancement of biodiversity and landscape values in the GW**, recognising that they will be serving increasingly larger populations and are largely irreplaceable. Reduction in availability, or significant degradation in quality, as is implied by only conserving much of these values, invokes problems of irreversibility, which we and the Consultation Paper (DELWP 2020, p.4) agree should be avoided.

The **guiding principles** of the Consultation Paper add little value. Principle 1 “The proposed options should be consistent with the desired planning outcomes for Melbourne’s green wedges and agricultural land as outlined in Plan Melbourne” (DELWP 2020, p.7) is stating the obvious, which should not be necessary. Different desired policy outcomes can be considered during policy review processes, including reviewing Plan Melbourne, but in delivery the current desired planning outcomes should provide strong constraints on what is included. There should be no need for **Principle 1**.

Principle 2 “The proposed options should recognise and strengthen agriculture as one of the primary land uses in Melbourne’s green wedge and peri-urban areas” (DELWP 2020, p.7) should not single out agriculture. The focus on agriculture in the GW area increases the likelihood of outcomes that are suboptimal for other land uses, including biodiversity conservation. As noted by Carey et al. (2016) food growing areas are being lost to housing and a failure to increase urban density in Melbourne, again signifying the failure to have a ‘joined-up’ policy framework.

Principle 3 “The proposed options should respond to pressure from urban and incompatible land uses that threaten green wedge values and productivity of Melbourne’s agricultural land” (DELWP 2020, p.7) sounds reasonable but is of little value because it provides no guidance on what a response to such pressure might actually look like. Should the pressures be mitigated, accommodated, a bit of both, or something else? How would one know? Presumably the Principle is intended to **prevent** land uses that are incompatible with Green Wedge values. If so, then that is what the Principle should say, rather than **respond to** such pressures. If it means something different, then it should be explicit about meaning.

The Principle that has value, as currently expressed, is **Principle 4** “The proposed options should ensure that applications to develop or change the use of land addresses public and natural interests and respects the roles and values of green wedge and peri-urban areas” (DELWP 2020, p.7). However, it begs the question of just what “the public and natural interests” and “roles and values of green wedge and peri-urban areas” (DELWP 2020, p.7), are. Some of the relevant values are considered in the Consultation Paper but are not given comparable treatment to agricultural land uses, which is likely to bias policy responses against realising other values of the GW areas. In particular, treatment of the nature/biodiversity/ecosystem services values of the GWs is given scant treatment, suggesting that they are likely to be under threat from the pursuit of measures that promote achievement of alternative uses of the GWs and peri-urban areas, including (but not only) agricultural pursuits.

In terms of Principles, the Consultation Paper would be better to stick with core principles

for ecologically sustainable development. Section 3A of the *Commonwealth’s Environment Protection and Biodiversity Conservation (EPBC) Act* defines the principles for Ecologically Sustainable Development as⁵:

- a) Decision-making processes should effectively integrate both long-term and short term economic, environmental, social and equitable considerations (the ‘integration principle’).
- b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the ‘precautionary principle’).
- c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the ‘intergenerational principle’).
- d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making (the ‘biodiversity principle’).
- e) Improved valuation, pricing and incentive mechanisms should be promoted (the ‘valuation principle’).

These principles are highly relevant to decision-making in the GWs, where land use conflicts abound, and sustainable solutions are needed to respond to growth pressures. Australian Governments have long espoused these (or similar) ecologically sustainable development principles and they were important considerations in shaping *Plan Melbourne 2017-2050* (Victorian Government 2017).

Ecologically sustainable development principles should then be supplemented by specific consequential principles that identify the explicit values of GW areas and outcomes that are intended to protect these values. These might include:

- Protect high-quality (not all) agricultural land for future agricultural purposes (where a definition of high quality is required)
- Increase the availability of natural areas and their biodiversity value and improve management of, including access to, such areas
- Protect unique landscape values.

Protecting high value land use

The general approach that we have suggested above seems to be implied by the Consultation Paper when it argues:

...there is scope for stronger articulation and protection of the significant values and attributes of green wedges in these legislative provisions. A recent example of legislative protection of sensitive land in Victoria relates to its distinctive areas and landscapes. Part 3AAB of the Act (Distinctive Areas and Landscapes) was introduced to strengthen recognition, at a state level, of the importance of distinctive areas and landscapes and protect their unique characteristics. (DELWP 2020, p.14)

Distinctive Areas and Landscapes provisions currently apply only for Macedon Ranges, Bass Coast, Bellarine Peninsula and Surf Coast. They should apply more widely, including in GW areas, particularly to protect their distinctive natural/biodiversity values and landscape values, which are largely irreplaceable.

Areas of highest biodiversity value have recently been identified by the Department of Environment, Land, Water and Planning (see, for example, NatureKit environment.vic.gov.au) but this identification process has not been reflected in the Consultation Paper in its discussion of the values espoused and outcomes sought for the GW areas. It should be a core foundation for future strategic planning of GW areas.

The Consultation Paper notes that there is a single objective relating to Green Wedges contained in the Victorian Planning Policy Framework: “to protect the green wedges from inappropriate development (Clause 11.01-1R)” (DELWP 2020, p.15). It suggests that this could be strengthened by “asserting a preference for non-urban rural land use and development and clarifying expectations to maintain natural systems and rural landscapes” (DELWP 2020, p.15). The Consultation Paper suggests this can be achieved by more clearly articulating the preferred outcomes for Melbourne’s Green Wedges in state planning policy.

We generally support this suggestion and believe that, if there is a conflict between productive use (eg a quarry) and environmental significance, the Paper should assert the primacy of nature/biodiversity conservation values and landscape.

Green Wedge Management Plans

The Consultation Paper recognises that Green Wedge Management Plans (GWMPs) are critical to better outcomes. It points out that:

GWMPs were intended to achieve two important purposes:

- set the strategic planning direction on use and development of land in each green wedge with a view that these directions would be translated into local policy, zones and other planning provisions
- act as a framework for land management, action and practice. (DELWP 2020, p.17)

These purposes are agreed and underline for us that the state government should be driving the strategic planning process, in consultation with local government and communities, given the widespread incidence of benefits deriving from GW land use. These benefits are not confined to the host municipalities.

The state policy context, and GW guiding principles, as discussed in Section 3, need to set high level directions for GWMPs, informing how to manage key regional trade-offs between competing uses. This includes when biodiversity/landscape protection and enhancement should have priority (in most cases in our view), when agriculture should be the highest priority for use, and when other uses should be accorded priority. The Consultation Paper, and state policy, does not currently provide such guidance. Individual GWMPs would then elaborate, among other things, the key roles and purposes of the GW, its unique regional land uses that will have absolute priority (eg biodiversity conservation and landscape protection, prime agricultural land plus sites of significance for Traditional Owners) and areas where trade-offs between competing

alternatives will be countenanced. Regional Green Wedge Implementation plans, which would have shorter time horizons than GW Strategic Plans, can then be led by local government, aiming to ensure a policy line-of-sight through to the higher-level strategic plans and policy settings.

Legislative and policy framework for Melbourne's agricultural land

The Consultation Paper takes the strong stance of proposing to protect all agricultural land and includes some argument as to why this is an appropriate policy direction (eg threats from urban expansion). Discussion about agriculture is about one-third of the core document length. We expected to see a similarly detailed argument for protection of natural/biodiversity values and areas of landscape value, with comparable justification. There is no such discussion or consideration of policy requirements, which threatens to distort resource allocation decision-making against the environment, as compared to agricultural pursuits. The paper does not justify this lack of balance.

In circumstances where agricultural land threatens significant areas of flora and/or fauna within the GWs (eg by fragmenting wildlife corridors, or introducing management practices with inputs or outputs that would impact wildlife, native vegetation or hydrological systems), there will be situations when the agricultural use should be replaced by restoration of native vegetation. Replanting of native vegetation on such land to improve habitat opportunities is often led by groups such as Landcare. Policy and planning frameworks should strengthen the opportunities that are available for restoring nature, rather than promoting competing uses, reinforcing the argument against a presumption of the absolute primacy of agricultural uses within the Green Wedges.

Planning for future infrastructure and energy needs

This section of the Consultation Paper provides some consideration of GW land uses such as airports, quarries, waste and resource recovery centres, and water treatment and energy facilities, recognising that these uses can provide benefits that extend beyond the GW localities. It recognises that planning for these land uses can conflict with planning for uses such as agriculture or biodiversity conservation but it does not propose options for the planning of such conflicting uses, including identification of circumstances in which particular uses should have priority. Resolving such trade-offs should be part of the integrated strategic planning for GW areas that we have proposed above. The Consultation Paper argues that:

The core planning challenges of such infrastructure relate to where these facilities are to be located and how planning controls can be applied to ensure their safe and ongoing operation. (DELWP 2020, p.53)

We object strongly to this proposition, which presumes that **ongoing** operation is necessary, whereas in many cases there will be alternative options and places to better meet the needs in question, particularly when the use conflicts with high biodiversity or agricultural values. More broadly, the use of GW land for infrastructure and energy type purposes is highly problematic.

There should be no a priori assumption that such GW land uses should have planning controls to protect their future establishment and/or ensure their continued protection wherever they might exist. Instead, the need for such facilities should be established through state and metropolitan level strategic resource planning processes that identify

needs, alternative supply opportunities and priorities for resource protection at **sector level**, integrated with **regional** strategic planning for the GWs, at both metropolitan and regional levels.

At a sectoral level, such a process was pursued by the Victorian Government, in relation to strategic sectoral resource planning for extractive resources, as elaborated in PWC *Extractive Resources in Victoria: Demand and Supply Study 2015-2050* (2016). We discuss this report in relation to our Mornington Peninsula case study in Section 4.3 below. That State study showed that granite is not a resource in scarce supply state-wide. Why, then, should planning frameworks seek to ensure ongoing operation and protection of all future supply sources of this material, beyond reasonable planning time horizons, through measures such as enduring Works Approvals and zoning. Such sectoral studies must be linked to regional strategic GWMP processes but this is not recognised in the Consultation Paper, highlighting weaknesses in integrated state thinking about land uses.

4. Mornington Peninsula Case Study: Some strategic considerations for Green Wedge planning

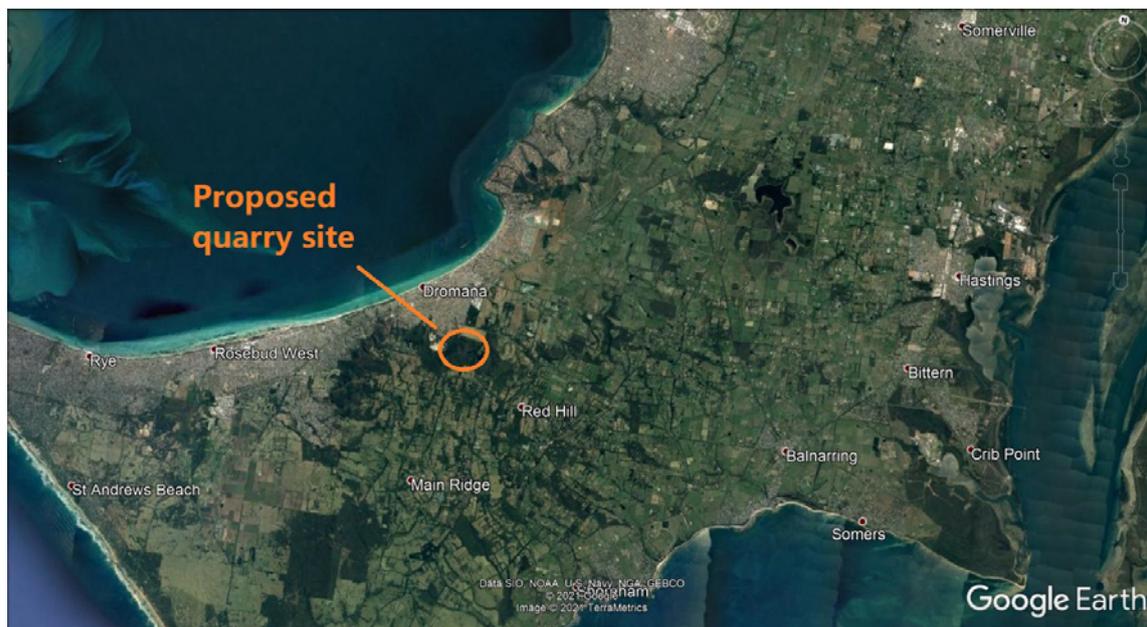
Scarcity of nature on the Peninsula and environmental impacts of a proposed new quarry

The Consultation Paper identifies **quarry products** as a valuable land use in the GW zone. This section illustrates how decisions about such land uses need to be taken in full recognition of relevant trade-offs. We illustrate this with a Mornington Peninsula case study.

Hillview Quarries, owned and operated by The Ross Trust, is currently operating a quarry in Mornington Peninsula Shire within the GW. They have applied to the Minister for Planning for an Environmental Effects Statement (EES) to be prepared for a new quarry (considerably larger than the current operational quarry) which they are proposing for land they own within the GW area. The proposal suggests that the new quarry would

have an output of around one million tonnes of granite a year for 70 years, from a pit that is up to 43 hectares in area and 190 metres in depth.⁶ The EES is currently in preparation.

The new quarry would require clearing up to 38 hectares of native vegetation, in the heart of one of only two substantial contiguous areas of intact native vegetation remaining on the Mornington Peninsula. It would be bordered on two sides by the Arthurs Seat State Park. Such a quarry would result in further loss from the remaining 18% of native vegetation that is present across the Mornington Peninsula. An ecological assessment of the proposed quarry area has identified at least 28 endangered species as present or likely to be present on the site⁷, including six listed under the Federal Environmental Protection and Biodiversity Conservation Act 1999, including the Swift Parrot.



The site is also an important koala habitat and breeding ground – significant habitat loss is likely to make them functionally extinct in the southern Peninsula. It also contains what is likely to be the oldest eucalyptus trees on the Peninsula, there before European settlement and providing important nesting locations for the threatened Powerful Owl. It has many native orchids, some as yet not formally catalogued, and is rich in fungi, not yet officially identified. Thus, in the context of a climate and biodiversity extinction crisis, it is argued that conservation of such high value ecosystems must be ensured within the GWs of Melbourne. There should be no trade-off here, the area is irreplaceable. Ancient trees, and complex habitats for particular species, such as orchids, cannot be offset or replanted elsewhere. This point is recognised in a letter written by the local Federal Member of Parliament, the Hon Greg Hunt, to Planning Minister Wynne on 21 January 2019, in which Mr Hunt says:

I wish to voice my strong opposition to this proposal. Proceeding with such a proposal would result in the fundamental erosion of the Green Wedge on the Mornington Peninsula. (personal communication)

The Consultation Paper overviews the Policy Settings that guide use of GW land, such as Planning Strategies and Overlays and the General Principles that cover many issues, such as water, landscapes, extractive industries, tourism, biodiversity and agricultural. Yet the decision-making criteria in the Consultation Paper largely entail consideration of agriculture.

The following discussion offers a broader approach to dealing with trade-offs that should

be part of the decision-making process around the use of GWs. It involves recognition of the irreplaceability of biodiversity and its attendant values, and the need to take an integrated strategic approach to GW planning, encompassing regional and sectoral qualities, as argued in Sections 2 and 3 of this paper.

Green Wedge/urban fringe competitive strengths: Tourism/Lifestyle

It has long been recognised that regional economic growth depends substantially on regional exports, which depend on the specific characteristics of a region that set it apart from others, sometimes called its competitive strengths. These characteristics provide the foundation for regional distinctiveness, growth and employment outcomes. The characteristics might relate, for example, to the region's natural resource base, the talents of its people, its location, accessibility, its historic legacy or, more likely, some combination of such characteristics.

We focus here on tourism as a regional competitive strength, since this is important in many parts of Melbourne's GWs and is a key competitive strength of the Mornington Peninsula. The Consultation Paper recognises "that green wedge and peri-urban areas support thriving visitor economies attracted to natural and rural landscapes, food and wine experiences, recreation and tourism opportunities." (DELWP 2020, p.2)

Employment by sector is a handy guide to a region's competitive strengths, relative to other places. In terms of total regional employment generated (direct and indirect), Melbourne dominates Victorian tourism, with an estimated 142,300 jobs in 2018-19, compared to 120,500 in regional Victoria.⁸

The Peninsula Region (Mornington Peninsula Shire and Frankston) is one of the three biggest regions outside Melbourne in terms of tourism jobs generated (12,200 jobs), with this employment growing at an annual average rate of 8.4% over the six years to 2018/19. If Peninsula Region tourism employment continues to grow at half this rate, it would add a further 6,000 jobs by 2030. By way of comparison, Melbourne's population grew at about 2.3% per annum in the decade to 2018. Any sector whose employment growth rate is well above the city's population growth rate is making a solid contribution to employment opportunities.

A number of Green Wedge/urban fringe locations are prominent among Melbourne's most popular day-trip destinations, particularly the Mornington Peninsula, Yarra Valley/Dandenongs and the Macedon Ranges, with the Peninsula Region (as defined by Tourism Research Australia) the largest in employment terms (12,200 jobs in 2018-19). Melbourne's East (8100) plus Upper Yarra Region (1200) combined reflect the Yarra Valley/Dandenongs tourism market, accounting for about three quarters the number of tourism jobs in the Peninsula Region. Macedon Ranges Region is much smaller (1800 jobs). In short, tourism is a very important and strongly growing competitive strength of the Peninsula Region.

Mornington Peninsula Shire's *Economic Development Strategy 2016 to 2019* (MPS nd) recognises the significance of tourism/lifestyle activities to the Shire and the importance of nature as a foundation therein:

Businesses within the Mornington Peninsula acknowledge one of its key competitive advantages is lifestyle opportunities. The natural and recreational amenities, world class attractions, food and wine, golf courses and the commu-

nity and village culture help to provide a high quality lifestyle. (MPS nd, p.ii)

Data published by the Shire (Mornington Peninsula Shire 2019) indicates that there were 7.5 million Peninsula Region tourists in 2018, some 5.6 million being day trippers. Of the 7.5 million, 6.3 million were estimated to be Mornington Peninsula Shire (MPS) visitors. Growth in total tourism to the wider Peninsula Region was an estimated 39% between 2012 and 2018, an average annual growth rate approaching 6%, which is very strong. The overnight component has been growing even faster (55% between 2012 and 2018). COVID-19 is likely to accentuate strong tourism growth performance in this Region, as Victorians look to spend more of their leisure time closer to home, at least for the next year or two.

The two largest tourist destinations in the MPS are the Southern Peninsula (47%) and the hinterland (19%), with hinterland tourist numbers increasing by 50% between 2012 and 2018. Estimated visitor expenditure in the hinterland areas increased by a massive 84% between 2012 and 2018, indicating that visitor spending is growing faster than visitor numbers, which is positive for job creation.

MPS suggests that direct tourism employment in the Shire was 7400 jobs in 2018, which would gross up to around 10,000 total jobs if the Tourism Research Australia implicit employment multiplier for the Peninsula Region (of 1.34) is applied. The Shire's total employment base is just over 60,000, so a huge one in six jobs in the Shire are tourism/lifestyle related, with this share growing as the tourism/lifestyle sector continues to grow at a fast pace. Tourism growth then needs careful management to ensure it sustains the fundamental values on which it is based.

The threat from quarrying

The substantial numbers employed in tourism/lifestyle type activities contrast starkly with the number of jobs in MPS in non-metallic mineral mining and quarrying. Data from the National Institute of Economic and Industry Research indicates that this sector represented only 20 to 40 or so jobs for most of the 1992-2018 period and only exceeded 50 between 1998 and 2000 (Peter Brain, personal communication). The new quarry is expected to involve around 30 direct jobs. Tourism thus accounts for well over 200 times as many jobs in MPS as non-metallic mineral mining and quarrying and this disparity is increasing as strong tourism growth continues. Given the relative regional significance of tourism/lifestyle activities, there is a serious concern that a new Mornington Peninsula industrial scale quarry, which is much larger than the existing active quarry, will harm regional tourism and diminish the lifestyle values. These values attract people to the Peninsula to live, holiday and/or recreate, and enjoy and recuperate in the green, natural setting.

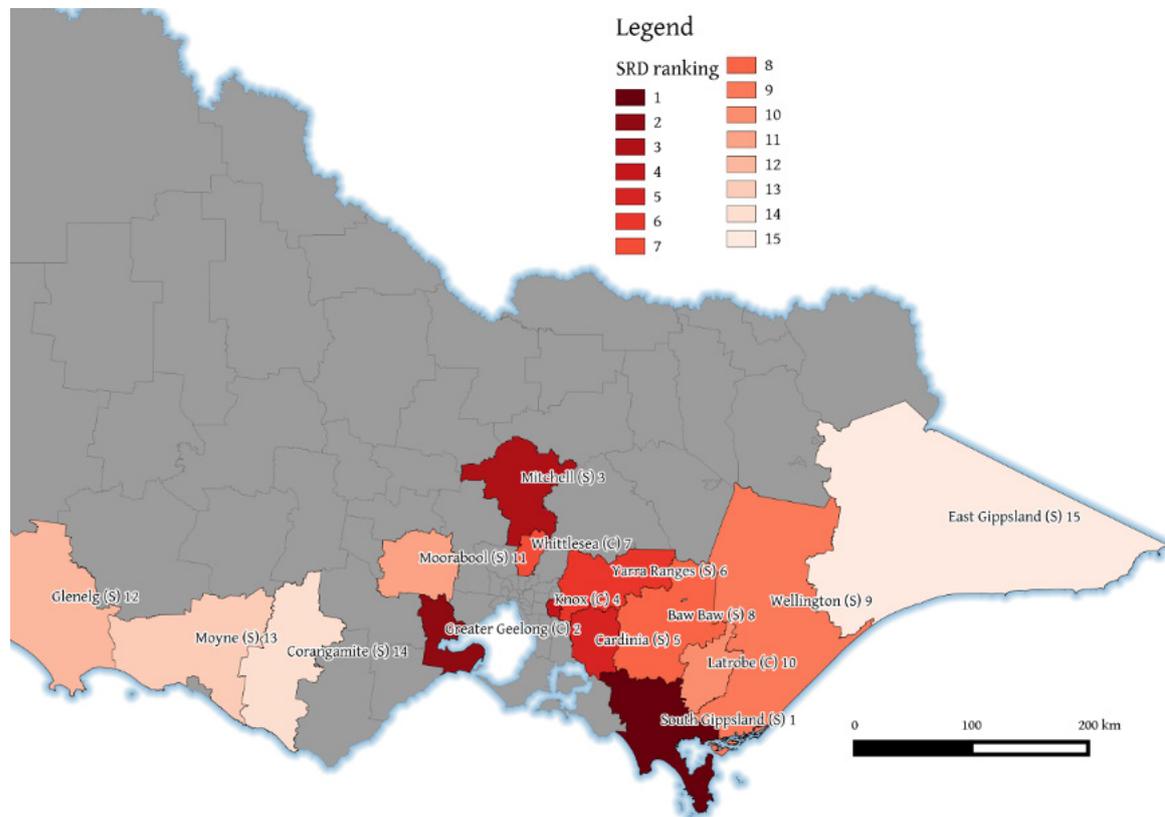
The expansion of the current Ross Trust/Hillview Dromana quarry has resulted in an obvious visual scar along the Arthurs Seat Escarpment, clearly seen from the Mornington Peninsula Freeway and other visitor access routes to the primary tourism and recreational areas of the Shire. The proposed new quarry on Boundary Road Dromana, given its proposed scale, will create a significantly greater visual impact than the current quarry and can be expected to result in first impressions of the Peninsula being an active, unpleasant industrial site, incompatible with tourism. Visitor/tourism activity and local residents will be affected by dust, noise and vibration from large scale blasting, increased heavy vehicle traffic and associated road damage and road safety risks.

For example, the number of cyclists in the area has increased dramatically in recent years, including downhill, road cycling and mountain biking, with the proposed quarry site and adjacent public land already very popular destinations that will be lost or reduced in availability if the new quarry were to go ahead. The heavy vehicle traffic alone, associated with the new quarry, will be detrimental to cycling and other road users all over the escarpment but particularly on Boundary Road, which forms part of a popular cycling circuit (Boundary Road, up Arthurs Seat, along Arthurs Seat Road and down White Hill Road). People will be wary of putting themselves and their children at greater risk to cycle here and small businesses that benefit from cyclist activity will suffer. The proposed quarry thus introduces a tone that is in stark conflict with the areas's tourism/nature/lifestyle qualities.

In summary, current total tourism type employment (direct and indirect) is estimated at around 10,000 jobs in MPS and growing at around three to four times Melbourne's rate of population growth. The tourism/lifestyle sectors are a major economic driver and competitive strength in MPS, accounting for around one in six jobs. The needs of the sector should be central to future land use planning in the Green Wedge and of much greater importance than quarrying. Even a (very small) 0.4% loss in tourism/lifestyle jobs, because of the addition of an industrial scale quarry on the Mornington Peninsula, would suffice to cancel out all the jobs likely to be associated with the new quarry.

What are the implications of this sectoral comparison for regional GW development? The answer partly depends on whether there are alternative sources for granite than from the Mornington Peninsula. PWC (2016) undertook a detailed examination of the future demand and supply outlook for extractive

Figure 1: Critical strategic resource locations - Consolidated view



Source: PWC (2016), *Extractive Resources in Victoria: Demand and Supply Study 2015-2050*, Figure 27.

resources in Victoria and Melbourne, for the Victorian Government. The report identified 15 locations across Victoria as critical to ensuring the future supply of extractive materials at an efficient level. The 15 locations are shown in Figure 1 and the MPS is not one of the 15.

More specifically, in relation to future development planning for the GW, granite is not a scarce resource in Victoria. PWC (2016) estimates cumulative Victorian granite use at 56 million tonnes (Mt) over the 2015-25 period and 178.6 Mt from 2026-2050 (Figure 2). As at 2050, the report estimates that there will still be 658.5 Mt of granite available for future Victorian use (remaining reserves), based on current and indicated sources as at 2015. If the proposed Hillview/Ross Trust 70 Mt is deducted from the projected remain-

ing reserves as at 2050, there would still be 588.5 Mt available. This represents another 64 years supply for Victoria, based on 2050 projected demand levels (of 9.2Mt), or 40 years if Victorian demand grows at 2% annually after 2050. In short, granite is not in short supply in Victoria and is unlikely to be so this century.

The proposed new quarry is thus essentially about the future revenue stream and profitability of the proponent rather than about meeting future Victorian demand for a scarce resource. Granite resources are available elsewhere, from locations that are typically closer to the major sources of Victorian demand.

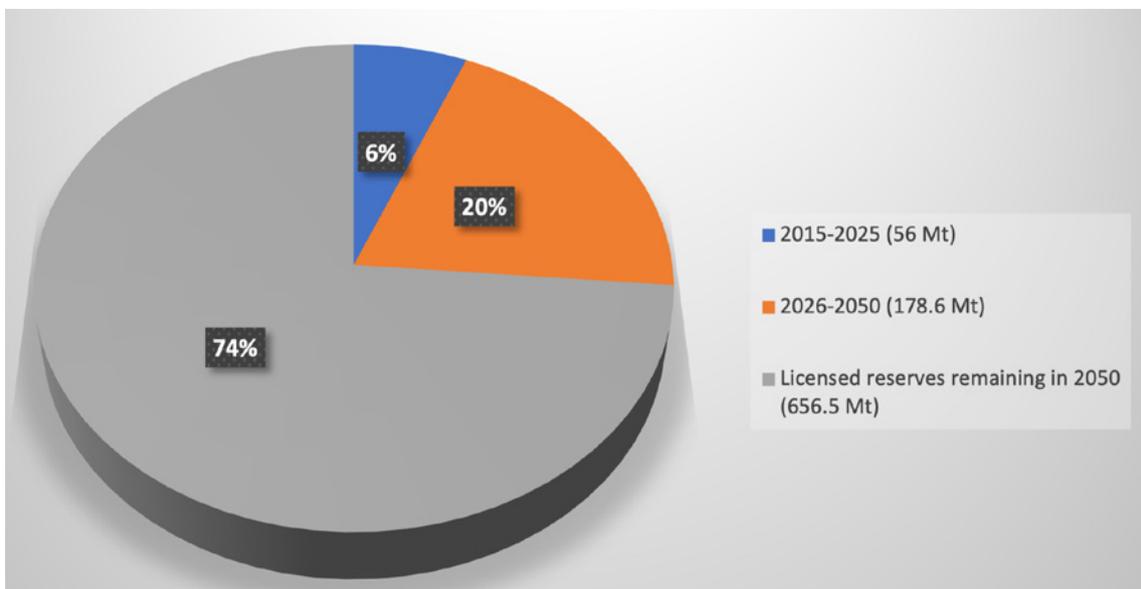
Adding this perspective to that presented about tourism/lifestyle activities on the

Mornington Peninsula, where the nature conservation, landscape and agricultural resource values of the GW are important enabling factors, underlines that quarrying should not be a priority for the Peninsula GW. The particular site proposed for the new quarry would be much more value to Victorians if it was added to the Arthurs Seat State Park, where it can support further growth in tourism, be a nature resource for Melbourne residents, and be an important site for biodiversity/landscape conservation. The rock will remain in situ, should future circumstances change and Peninsula granite become a relatively more valuable resource for the Victorian community. The same cannot be said for the existing biodiversity: once gone, it is forever. The concept of offsets has little meaning in areas of high biodiversity/land-

scape value. How do you offset the loss of a 300 year old tree?

More broadly, the idea of Works Approvals for extractive resources having infinite life also stands as outdated in this context. Such approvals should be time constrained and not granted, or subject to revocation if already in place but unused, whenever high value biodiverse lands, and/or iconic natural landscapes, are at the same location. Good regional strategic planning for GW land use, integrated with good sectoral planning for the high value land uses that have an inherent advantage in the GWs, should support this more adaptable approach to GW planning in general and extractive resource planning in particular.

Figure 2: Victoria’s granite use and licensed reserves in 2050. From existing and planned quarries indicated at 2015.



Source: From data in PWC 2016, *Extractive Resources in Victoria: Demand and Supply Study 2015-2050*, Table 8.

5. Conclusion: To trade-off or not to trade-off

The idea of balancing competing demands from often incompatible land uses in Melbourne's GW zones is a common refrain in the State Government GW Consultation Paper (DELWP 2020). It is our primary contention, however, that there are many circumstances when trade-offs are not appropriate and where, in the interests of sustainability, particular uses should hold sway over all others. Ecologically Sustainable Development principles have been proposed herein as providing appropriate guiding principles for planning GW policy and planning.

Professor Graham Samuel's recent review of the EPBC Act, stated that, without urgent changes, most of Australia's threatened plants, animals and ecosystems will become extinct (Samuel 2020). Given practical irreversibility in terms of biodiversity conservation, when significant biolinks or natural areas are at risk of being lost to another use, there are strong grounds for providing comprehensive protection for those land areas of high biodiversity values, both at landscape level but also in terms of key sites (eg to ensure protection of habitat corridors). These biodiversity values should have pre-eminence in planning for the future of Melbourne's GW areas.

Agricultural land also deserves protection in the GWs, such as from inappropriate urban growth, but not absolute protection and not at the expense of biodiversity conservation, given pressures on our natural systems from rapidly growing population numbers, climate change and poor past management practices. Similarly, irreversibility considerations suggest that extractive uses should be required to demonstrate their value in the integrated strategic planning process and be

absolutely subordinate to land uses of high biodiversity value in the GWs.

Improved integrated strategic planning for the GWs, set within a state policy and planning context that asserts the primacy of ecologically sustainable development principles in general and biodiversity conservation in particular, is key to a more sustainable future for these crucial and increasingly scarce Victorian assets. This should involve integration of **sector level strategic planning** for valued uses of GW land, such as the biodiversity assessment and rating and the Extractive Resources work undertaken by the State Government a few years ago, with **regional strategic planning for the GW areas**.

Because of the significance of the GWs to Victoria and Victorians, the integrated strategic planning process should be led by the State Government, with local government and community involvement. Implementation planning should then be led by GW local governments, within the policy and planning framework set by the state. Visioning and policy setting processes need to provide clear signals about such outcome intentions for our GWs.

Competitive advantage is an important concept in planning for the GWs, as the Consultation Paper recognises. However, it needs to be recognised as including, inter alia, competitive advantage with respect to biodiversity and landscapes. This recognises connections between nature/biodiversity/landscapes and tourism/lifestyle choices, as well as recognising intrinsic values of other species.

Endnotes

¹ Green wedges (planning.vic.gov.au)

² This paper is based on a submission that the authors made on the Consultation Paper.

³ One of the current authors was a member of the Ministerial Advisory Committee for Plan Melbourne and the other was a contributing author to the social and environmental sections of the first version of Plan Melbourne.

⁴ The Ecological Footprint measures how much of nature's regenerative capacity is needed as a result of human activity.

⁵ Guidelines for Section 516A reporting - Environment Protection and Biodiversity Conservation Act 1999 - PDF

⁶ Planning Victoria Public Notice: Reasons for decision under Environment Effects Act 1978, Microsoft Word - Attachment 2 - Reasons for decision - dated.doc (planning.vic.gov.au)

⁷ This list is not complete as the Ross Trust refused permission for an ecological survey on their land to be undertaken, funded by the local community. Thus, ground cover plants, insects, frogs, reptiles, fish, bryophytes (mosses and liverworts) and macrofungi, in particular, are not likely to be identified from the fence line of a 100 acre site, where the survey took place. This survey also drew on past data.

⁸ Tourism Research Australia data <https://www.tra.gov.au/data-and-research/publications>.

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Melbourne Sustainable Society Institute
Glyn Davis Building, Masson Rd
The University of Melbourne
Parkville VIC 3010, Australia

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