

Southern Dandenongs Landcare Group



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Re-Inquiry into Ecosystem Decline in Victoria

The Southern Dandenong's Landcare Group has played an active part in conservation related matters in the Dandenong Ranges since its establishment in 2007. The group lists key specific threats and inadequate management processes in our local area with influence on other landscapes elsewhere in Victoria.

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1. Education

Improved education surrounding environmental management and protection of native biodiversity will need to include a more focussed approach within the curriculum teaching the importance of environmental values.

2. Weeds

Weed invasion has been identified by Southern Dandenong's Landcare Group as the greatest threat to native biodiversity in the Dandenong Ranges landscape. This region has a unique interface between urban, peri-urban and rural landscapes.

2.1 Improving legislation

The spread of exotic plants has been facilitated and influenced by the horticultural industry. Many exotic species with weed potential are still presently distributed.

In 2020 a range of introduced plants with demonstrated weed potential and naturalised infestations in the Dandenong's were available for sale including: - Gossamer Wattle (*Acacia floribunda*), English Ivy (*Hedera helix*) and Portuguese Laurel (*Prunus lusitanica*). Furthermore, the origins of the following 'cultivars' need investigating for future weed potential- Lena (*Cytisus dallimorei*), Genista 'Dwarf', *Pandorea* varieties, *Polygala* 'Grandiflora.'

The 'Catchment and Land Protection Act, 1988, needs to be adapted to prohibit plant nurseries distributing species that have weed potential in their corresponding region. Updated legislation is necessary as part of a strategic approach to dealing with the origin of invasive species, through sale and distribution.

3. Storm-water run-off

Storm-water run-off is a key threatening process in the Dandenong Ranges and elsewhere. Rainwater is collected and transported off hard surfaces in urbanised environment carrying sediment, pollutants, and litter into our waterways. These impacts can be mitigated by implementing Water Sensitive Urban Design (WSUD). WSUD is essential in urban environments to capture, treat and filter stormwater before flowing into waterways. Impervious surfaces do not allow for the permeation of water into the substrate. The urbanisation of the Dandenong Ranges and elsewhere is contributing to hard impermeable surfaces transporting high amounts of stormwater run-off into the closet waterway. Additionally, the increased velocity of flow captured from hard surfaces is exacerbating creek bank erosion. Creek banks in the Dandenong's as witnessed by residents have become steeper and deeper in shape over time.

4. Absence of Native Fauna

Historical records show a range of species previously inhabited the Dandenong Ranges. Species like the Long-Nosed Bandicoot are sparsely present in exceedingly low numbers. The known remaining populations in the Dandenong Ranges include Mt Evelyn and Sassafras Creek Corridor. These areas need strategic plans to ensure the populations can recover. Bandicoots have been lost extensively across much of Victoria with increasing habitat fragmentation in modified landscapes. Expert advice should be sought to understand how bandicoot populations can be sustainable, to not risk the loss of local populations exemplified with recent extinction at The Pines Flora and Fauna Reserve, Frankston. Bandicoots are an important disturbance mechanism in a healthy environment where they occur presently or have done historically. In the absence of native animals like the bandicoot understory vegetation often closes over as seen with dominant species in the Dandenong Ranges foothills including *Gahnia radula* (thatch saw-sedge) and *Austrostipa muelleri* (Wiry spear-grass). These species can outcompete and form monocultures.

5. Impact of control burning

The control burning program in relation to the Dandenong Ranges has increased substantially. There is a distinct absence of scientific protocol when fuel reduction burning is applied in this landscape. We don't know how different vegetation types respond to burning, in a range of ways as monitoring is used sparingly and inconsistently for some variables and absent for others. Fuel reduction burning has a simple protocol of reducing the likelihood of bushfire through removing fuel. Fuel reduction burning is only considered effective for the period it takes for the vegetation

to revert to its original state. Unpublished information in some environments suggests this may be as little as every two years. There is not appropriate information or allocation of resources to determine whether fuel reduction burning is meeting the perceived benefit of fuel reduction. Fuel reduction burning needs to have a stronger emphasis on good biodiversity outcomes.

6. Aspiring for best practice ecological management

This submission identifies a range of considerations that need to be factored into program which acknowledges and implements best practice ecological management. Allocation of funds for Natural Resource Management must include a critical component commonly overlooked; planning to understand the site-specific context of the landscape and monitoring and evaluation. Before conservation work is undertaken a clear vision with objectives greatly improves the projects likelihood of success. Many projects fail due to the following reasons listed below.

6.1. Prioritising weed control

The quality of weed control works depends on the competency of the land manager. The incorporation of weed control prioritisation is a major consideration of on groundwork. Prominent and easily identifiable weeds are controlled leaving potentially less prominent but highly destructive weeds remaining in the landscape. For example, panic veldt grass (*Ehrharta erecta*) is regularly observed as a dominant feature of the understorey post-woody weed control of Sweet Pittosporum (*Pittosporum undulatum*). It is necessary to incorporate a wholistic weed control approach. A range of different weed species receive little to no attention despite their demonstrated impact on the natural environment. Each site needs to be treated for its own site-specific requirements A weed invasion in an environment may be a symptomatic of the abiotic and biotic factors present in that landscape. Often weed management aspires to control invasive populations without understanding or attempting to identify the cause and factors associated with the infestation to make informed management decisions.

6.2. Appropriate resourcing for conservation projects

Much environmental work is expected to be undertaken by cheap waged apprentices including green army and conservation volunteer styled programs. There is a widely held assumption that unskilled and low skilled workforce can achieve good environmental outcomes. This maybe the case on simple straight-forward projects requiring high inputs of labour to achieve simplistic environmental benefits. These projects however require good experienced leadership to be successful. Alternatively, an unskilled workforce cannot foresee challenges in working with the many environmental variables present within an ecosystem, without relevant experience.

Community groups in the Dandenong Ranges and elsewhere in Victoria have achieved a range of positive outcomes. Some of these groups have become the relevant authority of knowledge for managing their land parcel. A greater appreciation of the voluntary contribution is essential for long-term sustainability and lowering the likelihood of volunteer burnout.

There needs to be greater emphasis on conservation work recognised through increased budget resourcing. A site-specific minimum period of work will greatly assist to determine how long work needs to be undertaken to improve the site values to a point of resilience. A management plan is hugely valuable and requires a small initial investment but assists in the vision for a strategic approach to site work.

6.3. Lack of planning component

A well-planned conservation project has a greater likelihood of successful than an unplanned project. Community plantings are good opportunity for community engagement. However, they are destined to have a poor success rate if the following considerations are ignored,

- Planting locally indigenous plants in that part of the landscape
- Background observations and historical understanding of similar vegetation to predict what should grow where
- Having a reason for undertaking a planting. There are two main reasons for planting for species enrichment or infill planting which could include plantings with functional and structural outcomes

- Weed control preparation before and post planting

Without suitable allocation of funds or labour, revegetated areas are at risk of becoming weedy and in some cases weedier than prior to works. Management of sites is necessary until an area reaches a point of resilience or stability. Resilience is defined as improving in quality without human intervention.

Planning is an essential part to understand to what extent historical land use events have contributed to the present landscape. It needs to be acknowledged prior to commencing a restoration project to what extent the level of restoration aspires to.

6.4. Determining measures of success

Much work is undertaken without a clear description of what a successful outcome entail. Without identifying measures of success prior to commencing work, it is challenging and, in some cases, impossible to articulate the difference between success and failure and the many shades in-between. Key Performance Indicators (KPI) as a concept, is notionally good however the execution of KPI's and what they mean can be misleading.

6.4.1. Misleading measures of success

The success of a project is commonly demonstrated by misleading measures of success and obligatory 'successful outcomes.'

Example is reducing 'Catchment and Land Protection Act, 1994' noxious listed weed for example Blackberry cover to less than 1% percent. A more appropriate KPI measurement might be, has the control of blackberry assisted to increase indigenous plant species or species cover or facilitated natural regeneration. Weed control is site specific and blackberry may be acknowledged as reducing erosion or providing essential structural habitat corridors for small birds in the absence of suitable native species.

The second example is a successful outcome is measured by how plants were planted. This fails to identify was the plant species appropriate to the area, was there an allocation for site preparation and post planting maintenance, is strategic weed control encouraging natural recruitment more cost and time efficient and what is the survival rate of the planting?

Measures of success of many biodiversity projects often focus on quantity and not quality of work. Conservation work needs to be audited and evaluated as part of a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). There are many in-built assumptions surrounding NRM management including the perceived benefit of weed removal and planting, including 'see weed, kill weed approach' and the let's plant more trees approach. The frivolous notion that doing something is better than doing nothing, is commonly applied without understanding broader ramifications.

6.5. Monitoring and evaluating

Monitoring is an essential function regularly over-looked in conservation work. Programs need to make ongoing observations, including prior to, during and post work. Regular monitoring will greatly assist in understanding the dynamic nature of a site. Observations of seasonal changes should be encouraged to improve site management. The following considerations are examples of abiotic and biotic factors that change with seasonality, these include, hydrology, soil moisture, sun exposure, active or dormant weed growth, presence or absence of flora and fauna. All projects need an evaluating process to see what work successful and what needs improving.

6.6. NRM Industry skills and experience

The industry needs greater encouragement and incentive for workers to continue to develop and enhance their skills. Provision for more specific workshops is critical to improving knowledge and understanding ecosystem processes involved in conservation management and ecological restoration.

6.7. Scale of works undertaken

Conservation work is undertaken on a small scale relative to the surrounding landscape. A large amount conservation effort is focused on individual reserves and not at the landscape scale. When work is undertaken in a high-quality patch of remnant vegetation by the responsible land manager, allocation of resources should be

considered for adjacent stakeholders to deal with issues like weeds present on their land. Source populations of weeds are often present on surrounding properties. Further work needs to be undertaken to address these key infestations. Control of point source infestations early in the invasion process is far cheaper than ignoring the problem which may later become intractable.

6.8. Revegetation

Revegetation is the process of planting plants in any given landscape to re-instate the previous vegetation. In theory this sounds good in practice it can have a range of potential negative outcomes. Much revegetation is happening in the most degraded sections of an environment while the remnant indigenous vegetation is often disregarded as not requiring maintenance or looking after itself. Natural recruitment, letting remnant vegetation naturally re-colonise an area is widely accepted as a more cost-effective use of resources provided the site has the capacity to do so. Best practice management ensures sourcing locally genetic material to maintain and retain the local genes present. Identifying reference areas where relatively intact vegetation with similar conditions is critical to understand the landscape. It is likely we will in the future struggle to know what plants are considered natural as part of remnant vegetation and what are introduced. Documentation of species plantings is important for future reference.

6.9. Identification threats and values

Work is often undertaken without assessing what are the actual values of a site and what are the corresponding threats to those values. This is a basic protocol that needs to be applied in best practice management. Without identifying the site-specific threats and values we risk damaging, destroying, or compromising the integrity of the values.

6.10. Use of tree guards

Tree guards are extensively used as a visual statement to say look how many plants we planted. In many situations these are considered inappropriate. In some cases, they are appropriate and not limited to wind, frost and herbivore protection. There needs to be a justification as to why they are used in the first place. If tree guards are not needed money for their expense can be re-allocated into weed control or additional planting.

7. Climate Change

Climate change in the Dandenong Ranges will influence contractions and expansions of depending on a range of factors. In a broad sense species with generalised habitat niches are considered more likely to expand, with specific niche species more likely to contract. Dieback happening in association with extreme weather events such as the January-February 2018 dry period is becoming increasingly common phenomenon.

The Dandenong Ranges has seen what appears to be climatic related suffering and dieback. The north and west facing slopes with direct full sun aspect appear to be most impacted by dieback. Further investigation is required to understand the nature of the relationship between dieback and controlled burning in the Dandenong Ranges National Park and Lysterfield Lake Park. The following species have been observed suffering in extreme hot and dry spells in the Dandenong Ranges- *Acacia mearnsii* (black wattle) *Cyathea australis* (rough tree-fern), *Cyathea cunninghamii* (slender tree-fern), *Dicksonia antarctica* (soft tree-fern) *Eucalyptus goniocalyx* (long-leaved box), *Eucalyptus macrorhyncha* (red stringybark), *Eucalyptus radiata* (narrow-leaved peppermint), *Pimelea axiflora ssp. axiflora* (bootlace bush), *Pimelea flava ssp. flava* (yellow riceflower) and *Prostanthera lasionthos var. lasionthos* (Victorian Christmas-Bush).

There are two identified assumptions that need extensive consideration before applying the ecological triage approach where assisted migration principle is incorporated into future revegetation projects.

1. The assumption plant species that have suffered or died due to climate change and therefore need genetic material from warmer and drier climates to withstand a changing climate.
2. Indigenous plants that have suffered or died because of changing climate are no longer appropriate in plantings and considered a lost cause.

We do not have enough research or data from long-term monitoring plots to understand how species will respond to climate change.

8. Fragmentation

Over time people have gained greater access to machinery and have therefor increased native vegetation removal. Narrow corridors of vegetation on roadsides and nature strips now contend with technological advancements of slashing machinery and the tidy up, reduce fire hazard approach. Native vegetation at many locations is in decline from neighbouring residents encroaching and taking perceived custodianship of crown land by removing vegetation for aesthetic or fuel reduction related purposes. In many areas the roadside is the last bastion for protected vegetation.

9. Deer Impact

The pressure and impact of Sambar and Fallow deer has notably increased in the Dandenong Ranges in recent times. More research into the impact of these species and targeted control programs is necessary to alleviate their impact where possible on the environment. The next generation of highly palatable indigenous plant species recruiting are at risk of being absent in the landscape from deer antler rubbing and over-browsing. Examples of species at risk from deer predation include *Acacia dealbata* (silver wattle), *Atherosperma moschatum* ssp. *moschatum* (sassafras) *Dicksonia antarctica* (soft tree-fern), *Eucalypt viminalis* ssp. *viminalis* (manna gum), *Exocarpos cupressiformis* (Cherry Ballart), *Hedycarya angustifolia* (austral mulberry), *Pomaderris aspera* (hazel pomaderris) and *Prostanthera lasianthos* var. *lasianthos* (Victorian Christmas Bush).

10. On-ground management decisions inconsistent with protecting and maintaining environmental values

Land managers may assume works are undertaken for either for the benefit of the community and/or the environment.

Recommendations

Topic	Action	Outcome
1. Education	<ul style="list-style-type: none"> Incorporation of native biodiversity, flora and fauna into school curriculum 	<ul style="list-style-type: none"> A new generation of socially and ecologically conscious citizens
2. Status of weeds under the 'Catchment and Land Protection Act, 1988'	<ul style="list-style-type: none"> Victorian Government to host a weed species conference in collaboration with a range of people from private companies and public agencies with experience in weed invasion monitoring and management to collectively determine what aspects of the CALP Act need reviewing and updating 	<ul style="list-style-type: none"> Improved practices around sale and distribution of weeds
3. Storm-water run-off	<ul style="list-style-type: none"> Identify high conservation value areas for future Water Sensitive Urban Design (including stormwater run-off into creeks within Dandenong Ranges National Park) 	<ul style="list-style-type: none"> Improved water quality with positive biodiversity benefits
4. Fauna	<ul style="list-style-type: none"> Fauna surveys of high-conservation value areas to determine the presence/absence of rare and threatened species 	<ul style="list-style-type: none"> Identifying where rare or threatened species still exist, with that information assisting in contribution towards a targeted recovery program
5. Control Burning	<ul style="list-style-type: none"> Implement long term monitoring program -to understand site-specific relationship with flora and fauna monitor fuel load for change over time 	<ul style="list-style-type: none"> Influence informed control burn management which acknowledges biodiversity values
6. Aspiring for Best Practice Ecological Management	<ul style="list-style-type: none"> Promote the need for site-specific management actions 	<ul style="list-style-type: none"> More cost-effective weed management
6.1 Prioritising weed control	<ul style="list-style-type: none"> Improved education through tertiary institutions-each tafe providing Catchment and Land Management course become custodians of a local conservation reserve for education and management purposes 	<ul style="list-style-type: none"> A more in-depth knowledge ecosystem functions and processes

<p>6.2 Appropriate resourcing for conservation projects</p>	<ul style="list-style-type: none"> • Provision for longer-term timeframe budgets for conservation work • More emphasis on skilled ecological work, through increased provision of accreditation schemes, better educational opportunities • Recognise the importance of skilled paid labour in comparison with voluntary unskilled labour • Better resourcing, more support from government organisations to complete mandatory paperwork • A reward system that encourages conservation volunteer work to continue and be appropriately recognise the dedication 	<ul style="list-style-type: none"> • Long term vision and outcomes, good quality consistent work • Conservation workers have a sense of pride and ownership • Improved standards for ecological related work • Clearer communication between paid work and voluntary work about roles and responsibilities, goodwill of volunteer groups is not taken for granted. For example, managing weeds after community plantings • Ensure longer term sustainability of volunteer driven projects
<p>6.3 Lack of planning component</p>	<ul style="list-style-type: none"> • Set clear aim with goals and objectives as to what is the desirable outcome 	<ul style="list-style-type: none"> • Everyone involved has a clear understanding of what the project seeks to achieve
<p>6.4 Determining measures of success</p>	<ul style="list-style-type: none"> • Determine measure of success prior to commencing project 	<ul style="list-style-type: none"> • Assists to understand the reason of the works and broader context of what is being undertaken • A strategic project, has a higher likelihood of success • Quantifies what the desired result of a project should look like
<p>6.5 Monitoring and Evaluation</p>	<ul style="list-style-type: none"> • Establish a monitoring and evaluation process 	<ul style="list-style-type: none"> • Ensures learn from mistakes and replicate success
<p>6.6 NRM Skills and experience</p>	<ul style="list-style-type: none"> • Improve diversity of work for natural resource managers 	<ul style="list-style-type: none"> • Assists to maintain interest in conservation work • Higher retention of staff and their industry knowledge
<p>6.7 Scale of works undertaken</p>	<ul style="list-style-type: none"> • Closer partnerships between stakeholders working on adjacent properties 	<ul style="list-style-type: none"> • Improved communication between stakeholders • Successful complimentary management
<p>6.8 Revegetation</p>	<ul style="list-style-type: none"> • Revegetation works undertaken with a background research component of what features of the landscape are missing and what can be realistically returned 	<ul style="list-style-type: none"> • A higher success rate of revegetation projects

6.9 Identification of threats and values	<ul style="list-style-type: none"> • Advocate workshops on threats and values within existing Catchment and Land Management courses 	<ul style="list-style-type: none"> • More competent conservation workers
6.10 Use of tree-guards	<ul style="list-style-type: none"> • Only use tree-guards where justifiable 	<ul style="list-style-type: none"> • Reduces the additional expense where they are not necessary
7. Climate Change	<ul style="list-style-type: none"> • Establish long-term monitoring plots 	<ul style="list-style-type: none"> • Better understanding of ecological changes over time
8. Fragmentation	<ul style="list-style-type: none"> • Encourage protection and management of existing remnant vegetation with incentives 	<ul style="list-style-type: none"> • Improved conservation management
9. Deer	<ul style="list-style-type: none"> • Set-up long-term vegetation monitoring plots to better understand how deer are interacting with the environment 	<ul style="list-style-type: none"> • Improved knowledge of deer impact in each vegetation type • Information on how the presence or absence modifies the landscape longer term
10. On ground management decisions inconsistent with maintaining environmental values	<ul style="list-style-type: none"> • Improved communication lead by relevant land manager as to what the purpose and intention of land is 	<ul style="list-style-type: none"> • Better understanding between stakeholders