

Future Project Ideas - West

5. Mysia bushland reserve

Localised revegetation, pest plant and animal control and targeted expansion of the Mysia bushland reserve to increase habitat and connectivity for endangered species such as the Fat-Tailed Dunnart.

4. Wedderburn-Wychitella loop

Regional 'closing of the loop' for this area through local scale land protection, continued revegetation and remnant enhancement. This project will provide larger areas of habitat and connectivity for local fauna, including the endangered Mallee Fowl.

3. Restoration of Mt Buckrabanyule

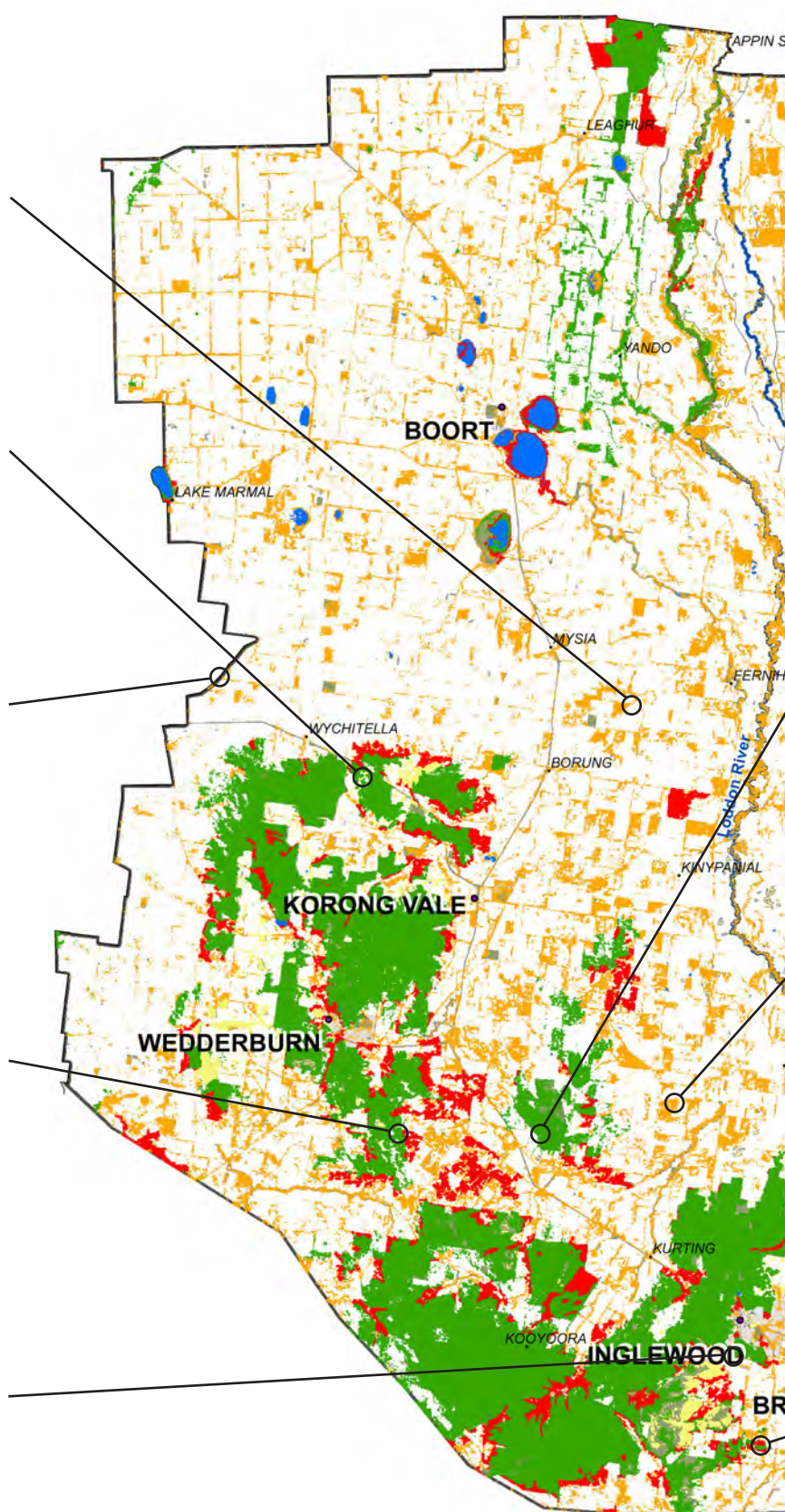
Wheel cactus eradication at Mt Buckrabanyule followed by linkage corridor establishment to increase habitat connectivity. Prioritise the cactus eradication to prevent spread by birds along corridors.

2. Sunday Morning Hills landscape connection

Provide a regional scale link between Glenalbyn-Brenanah and Wedderburn-Wychitella by revegetating along the ridge, slopes, gullies and foot-slopes of the Sunday Morning Hills. This will include habitat restoration for endangered fauna and constitutes the highest concentration of remnant vegetation of 'very high' conservation significance outside of public land in the network area. May allow movement by a range of fauna and is a climate refuge priority for a number of species. Will require incentive for landowners that could include new markets such as carbon farming.

1. Inglewood area

Increased roadside connectivity in the Inglewood area by enhancing roadside corridors with local weed control and tree planting. Enhancement of the Morning Star site in Inglewood Township, to improve the quality of this land and buffer the adjacent bushland area from weed invasion.



6. Burrabungle Park Bettong Reserve

A faunal reserve that increases native vegetation and provides a protected area for small endangered marsupials such as Bettongs. The reserve would boost the national population of endangered marsupial species and create a research study site for local ecological studies involving bettongs. The project would include fencing, planting of native vegetation, weed control and involve local indigenous and community management as well as input from connections in academic institutions.

7. Loddon Foothills – Loddon River connection

Connect the Loddon foothills (Mt Korong, Mt Kurting & Mt Kooyoora) to the Loddon River through vegetation linkages. This area contains many small fragments of Plains Woodland, which are of 'high' conservation significance. Fencing of remnants to promote regeneration, pest control and understorey revegetation could serve as starting points for Plains Woodland restoration.

8. Serpentine Weir/Serpentine Creek/Loddon River restoration

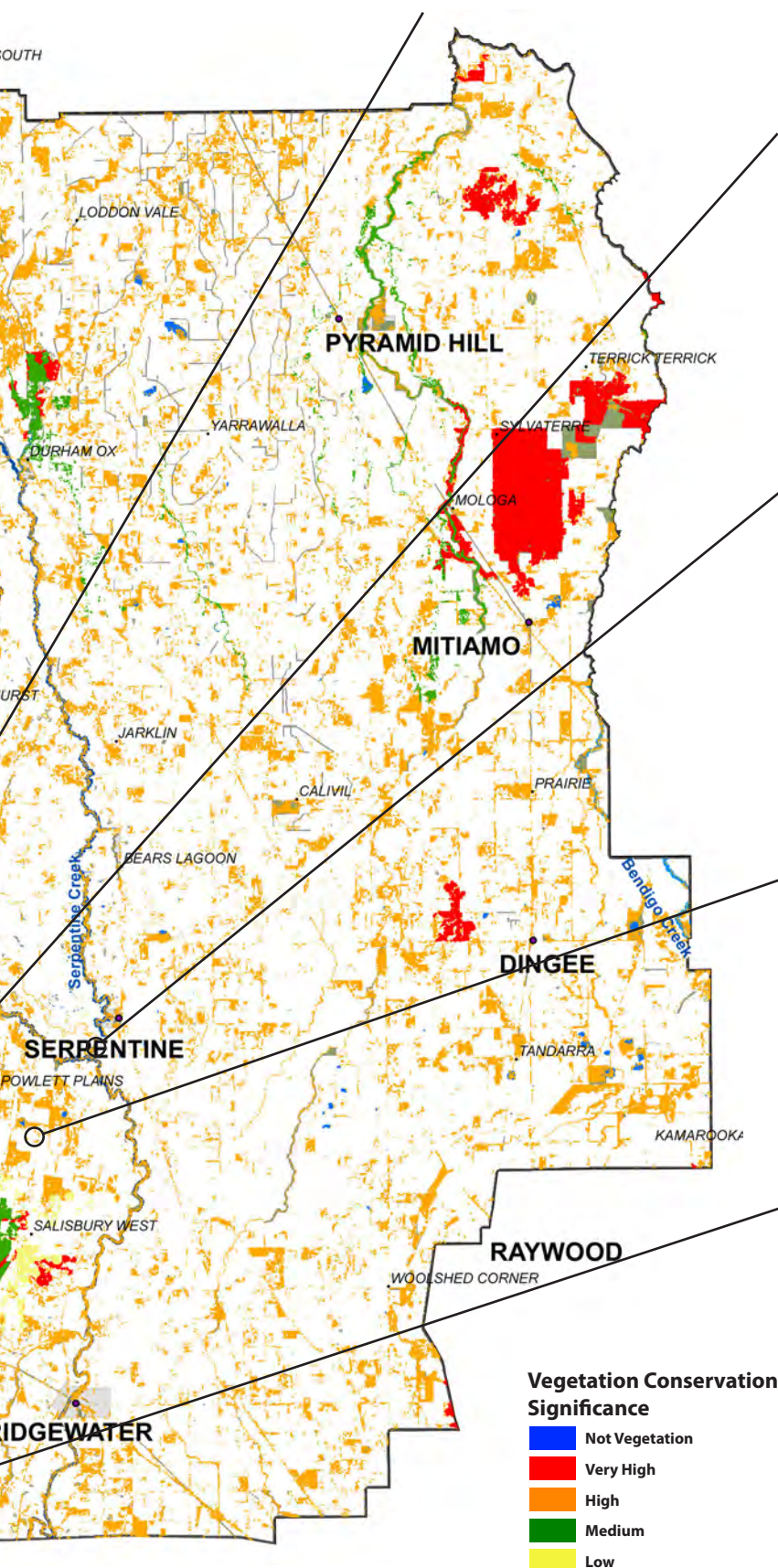
Install a regulating gate to control water flow to allow improvement to water quality, environmental flows and creek health. Obtain an environmental water allocation for the Loddon River to Bears Lagoon reach of Serpentine Creek and maintain Blackfish populations. Further revegetate along riparian areas to increase streamside corridors of vegetation and connectivity for riparian fauna.

9. Hope/Powlett Creek - Powlett Swamp - Loddon River connection

Vegetation linkage of Powlett Swamp to the Loddon River in the East and Hope or Powlett Creek in the West through enhancement of existing linkages and connecting vegetation 'stepping-stones'. Include sustainable farm management to increase both biodiversity values and agricultural land values. The area also contains high cultural heritage values that could be included in project partnerships.

10. Bulabul Creek linkages

Revegetation of riparian areas along Bulabul creek and creation of linkage corridors to the Loddon River. Enhancement of linkages to Plains Woodland remnants. Local scale fencing, revegetation and weed control.



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Future Project Ideas - East



14. Loddon Shire remnants

Fence, expand and link EPBC listed Grey Box, Box Gum and Buloke remnants. Enhancement of connectivity will improve habitat values for these endangered communities and provide 'stepping-stones' for faunal movement. May allow expanded information sharing for land managers of fenced remnants including for best practise grazing regimes to maximise native vegetation regeneration and control pest plants and animals.

13. Native vegetation pasture trial

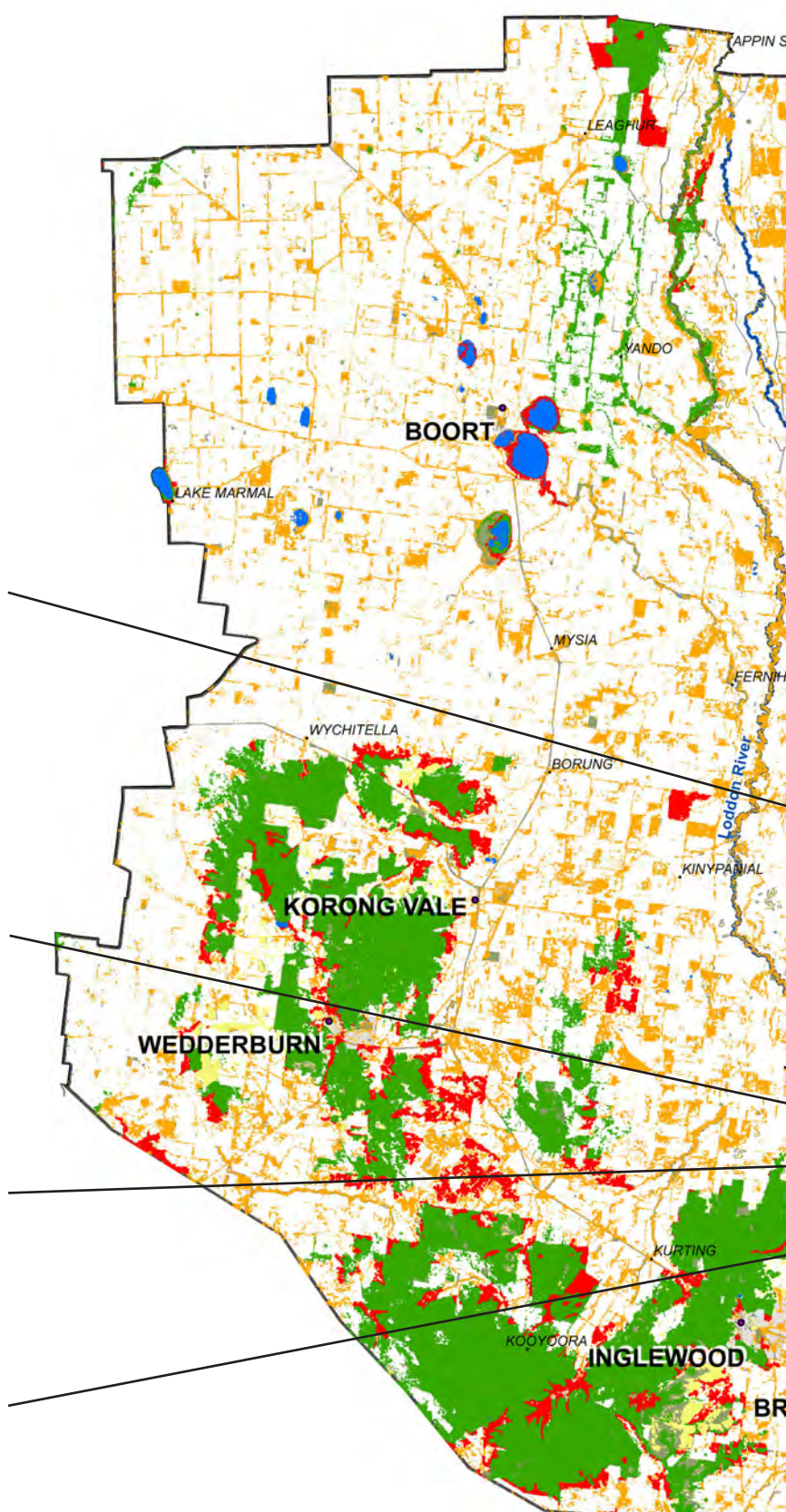
Trial and promotion of native vegetation (grasses, saltbushes, shrubs etc) as a component of traditional agricultural methods i.e. forage value, pasture cropping, undersowing lucerne to protect soil health, reduce fertiliser use and chemical inputs. Include resowing lost pasture around Tandarra and Raywood area.

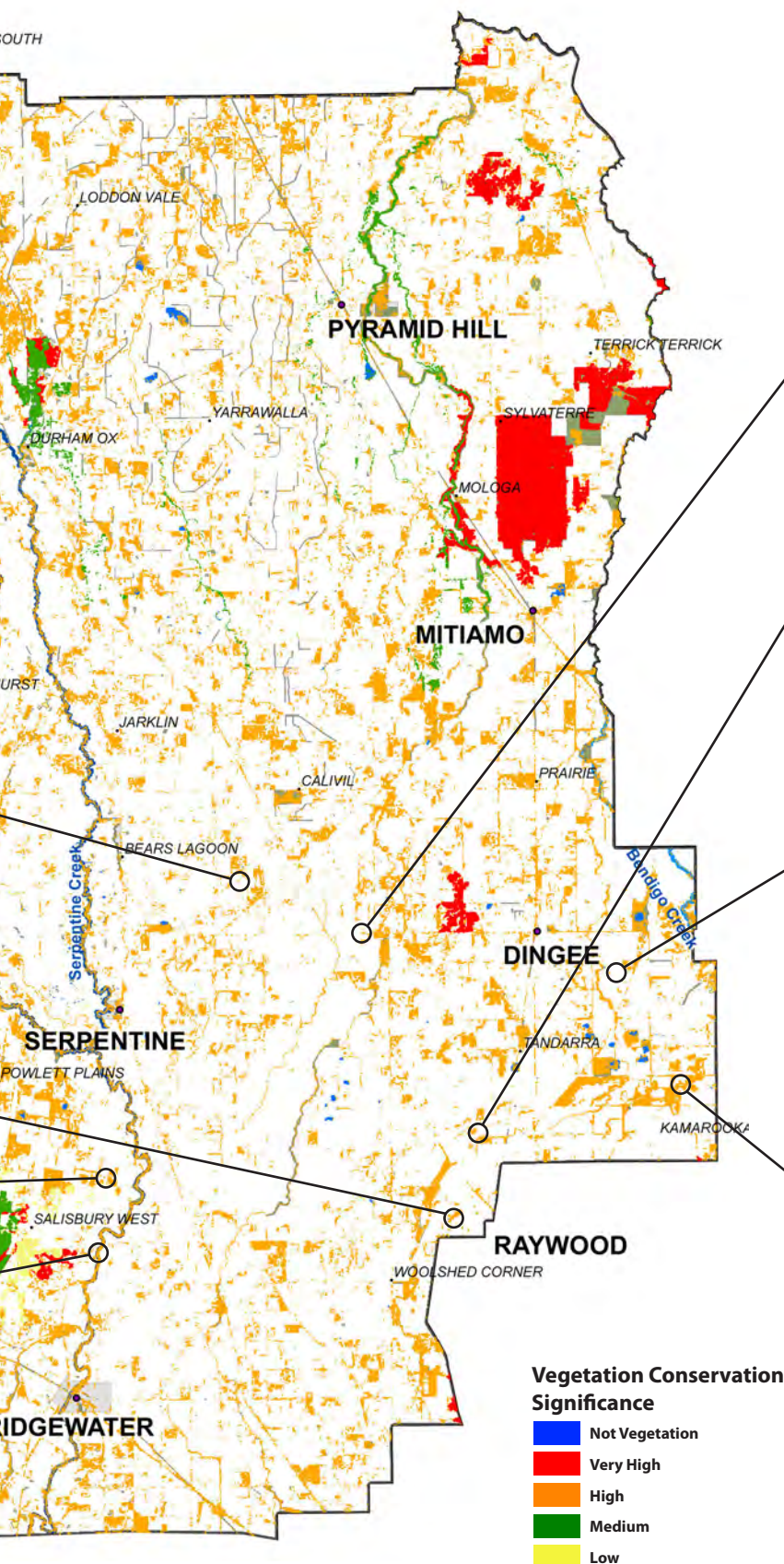
12. Salisbury West District watercourse links

Enhancement, vegetation buffering and fencing of watercourses and gullies that extend from the Loddon River, west into the Salisbury West District.

11. Loddon River revegetation

Continued fencing and revegetation of riparian areas along the Loddon River including widening the riparian zones to increase buffering from agricultural use and lessen erosion.





15. Loddon Shire seedbank

Establish a seedbank with community groups/schools in the shire as a source of revegetation seed of provenance, involving young people, particularly secondary school.

16. Myers Creek linkages

Revegetation of riparian areas along Myers creek and expansion of linkages to Plains Grassland and Plains Woodland remnants on floodplain. Local scale fencing, revegetation and weed control for protection of high quality remnants.

17. Kamarooka State Park – Tang Tang Swamp linkage project

Working on private property to fence out waterways/watercourses and enhance riparian corridors by increasing revegetated zones and vegetation buffer widths.

18. Kamarooka Wetlands complex

Buffering of wetlands through vegetation plantings and restoration around the complex; this will reduce the impact of agricultural runoff and improve biodiversity. Enhancement of habitat for Brolgas and surveys of other flora and fauna will establish a picture of the importance of the complex.

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Future Project Ideas - North

22. Canary Island Woodlands and Lignum Wetlands

Restoration of the Black Box dominated riverine grassy woodlands/forests and lignum wetlands between the Loddon River and the Lower reaches of Serpentine Creek in the vicinity of the Canary Island area. Fencing of Black Box remnants of high conservation value, particularly for large old trees and controlled grazing to allow regeneration of the grassy understorey. Plant appropriate understorey shrubs, and increase linear corridors to increase habitat for fauna such as the endangered Grey-crowned Babbler.

21. Calivil Creek Black Box regeneration

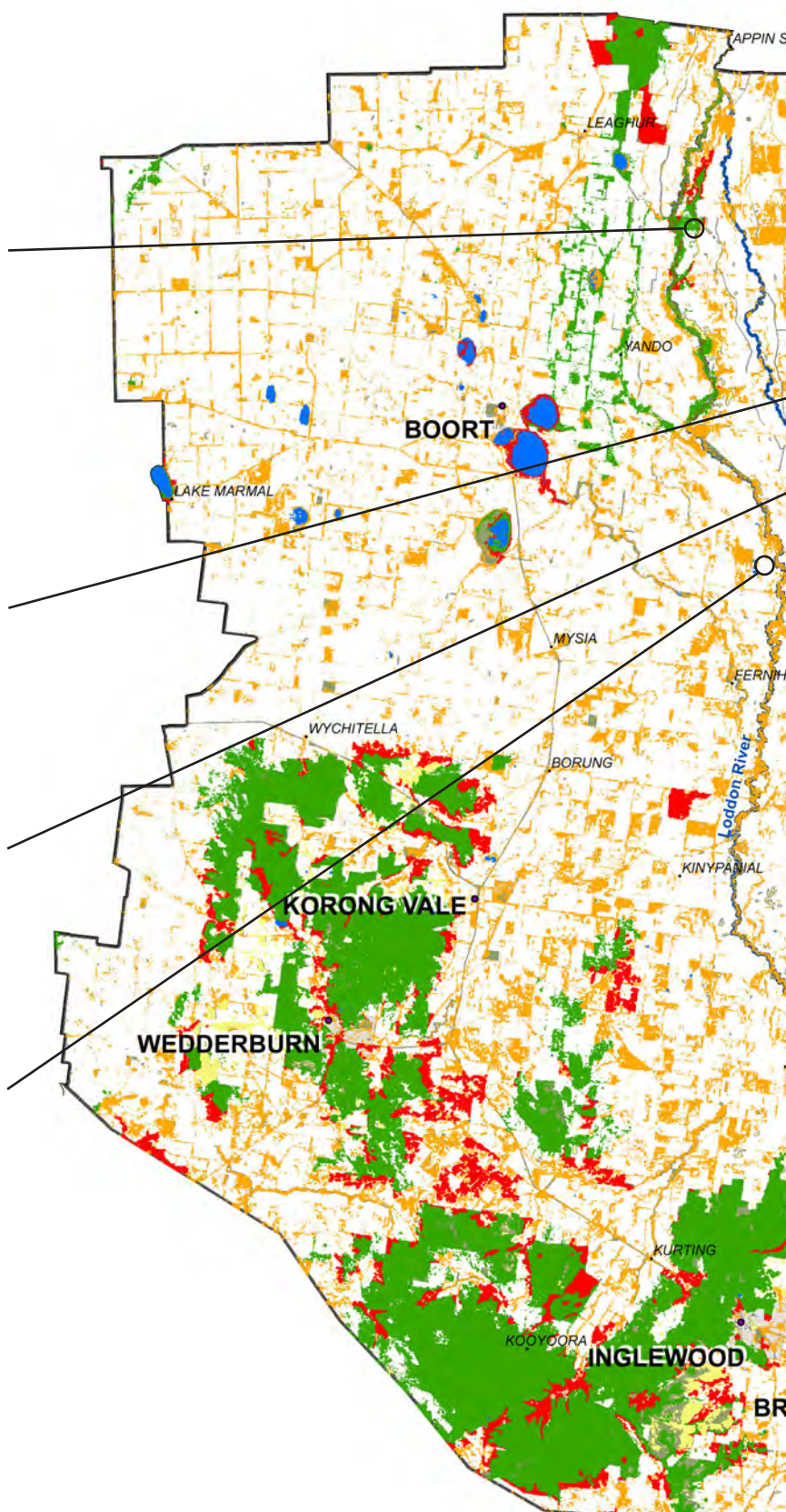
Regeneration of Black Box at the western depression of the Calivil creek starting with fencing off and clump planting around dead black box stands. Planting will provide food for fauna, enhancing habitat for birds around the dead trees.

20. Northern Wetland enhancement

Protection of key wetlands and swamps for birdlife and critical habitat protection for Brolgas along Calivil Creek near Durham Ox. Localised fencing and regeneration on private property.

19. Loddon Floodplain enhancement

Removal of the Loddon Plains flood bank from Fernihurst to Durham Ox, to restore the floodplain and natural ecosystem services. Localised weed eradication, and revegetation with native species, targeting remnant patches.



23. Boort-Pyramid Hill roadside plantation

Increase the value of roadside vegetation along the Boort-Pyramid Hill road by completing further segments of planting, fencing and seeding of vegetation.

24. Plains Area enhancement

Fencing of remnants and control of pests to enhance connectivity and habitat value of plains area around Yarrowalla, Durham Ox, Mincha and Pyramid Hill. Focus on endangered Plains Woodland and Plains Grassland remnants.

25. Bullock Creek restoration

Fencing and revegetation of grassy woodland riparian corridors and remnants with the provision of off-stream watering points for stock, to improve the stream condition and riparian habitat quality. Localised weed and pest control to help enhance the conservation value of the creek.

26. Terrick Terrick National Park – Kow Swamp (Gunbower Forest) linkage project

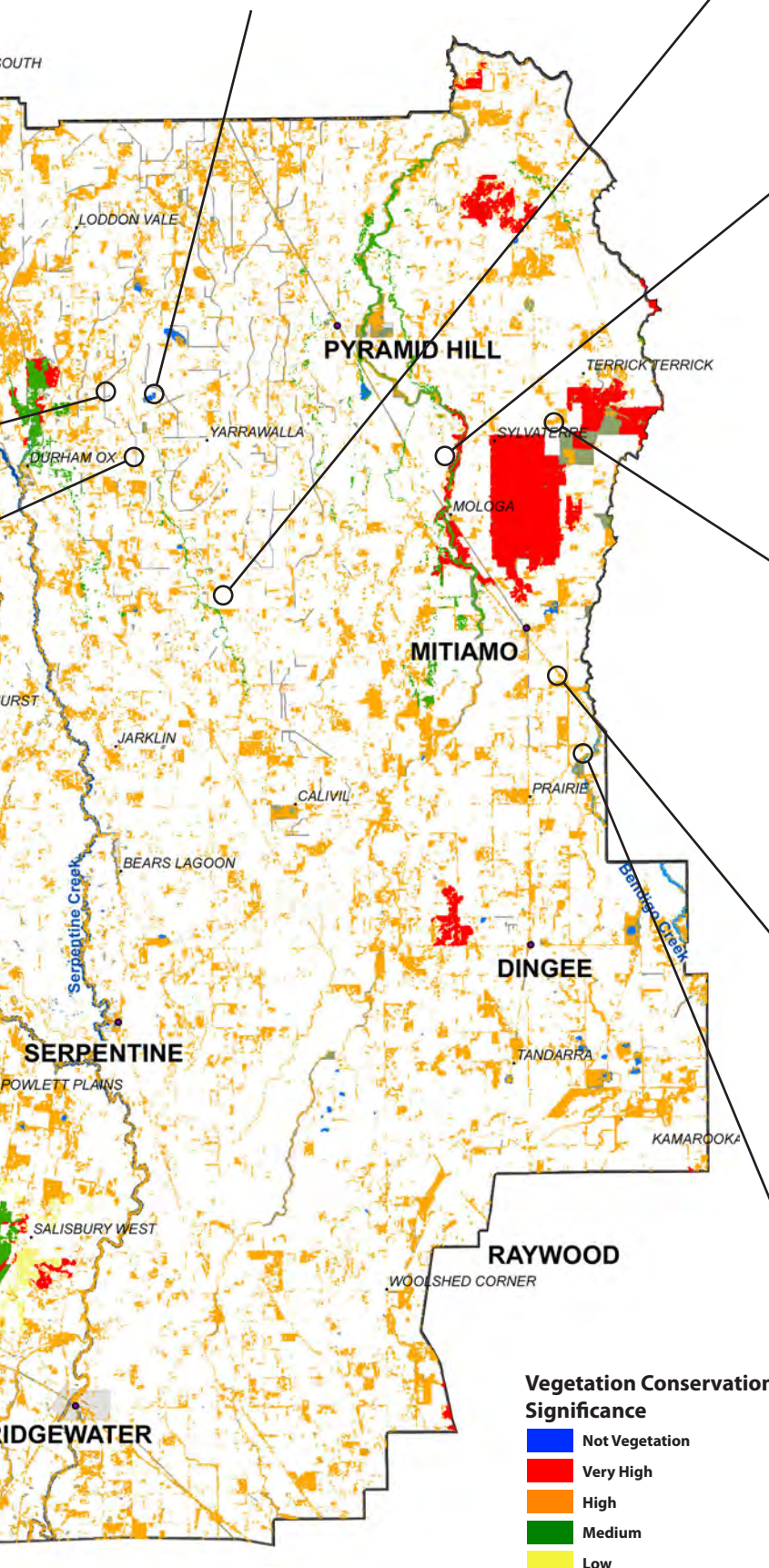
Regional scale project to restore, revegetate and create linkage corridors for faunal movement and increased habitat area between Terrick Terrick National Park and Kow Swamp (and Gunbower forest outside the LPLN area). Includes areas for potential restoration of Plains Grassland and Grassy Woodland and multiple areas of 'very high' conservation significance. Habitat for the endangered Plains Wanderer is a high priority for this project. Localised weed control of Pyramid Hill and the Pyramid Reserve.

27. Roadside restoration

Double the width of roadside vegetation by encouraging corridors on adjoining private land, particularly for where roadsides are areas of 'high' roadside conservation significance. This will provide a buffer against weeds and increase Goanna habitat.

28. Piccaninny (Bendigo) Creek restoration

Finish fencing and revegetate banks of Piccaninny Creek targeting landholders with unfenced frontage to increase the riparian buffer and filtering services for agricultural runoff. This project targets water quality and habitat quantity along the creek.



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References

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Appendix I.

Guidelines for Consideration of Projects

In recent years land restoration works on rural land have become part of the Victorian landscape. The way these works are implemented is continually improving with increased learning about our natural environment. This has happened through observation, hard work and trial and error. From this, programs and people have developed some sound ideas and principles to plan landscape restoration projects.

Principles for Restoring Landscape Resilience

1. Increase the extent of native vegetation with an appropriate species mix and enough structural complexity to provide habitat for a range of flora and fauna.
2. Repair the ecosystem- for example, nutrient cycling, retention of water, pollination, gene flow, animal movement-- by revegetation (natural regeneration, direct seeding, tubestock); management actions (such as strategic grazing, fire management, soil manipulation, landscape engineering, control of aggressive or invasive species); and maintaining keystone habitat features (e.g. paddock trees, fallen logs, deep pools in streams).
3. Protect – Improve – Enhance – Reconstruct
 - maintain native vegetation by fencing or sympathetic management.
 - Improve quality of existing native vegetation by removing or controlling threats (e.g., weeds, feral animals, firewood collection, inappropriate fire regimes).
 - Enhance: supplement and enlarge patches of native vegetation by revegetating habitat gaps or buffers (especially around sensitive areas like riparian zones).
 - Reconstruct: create new patches of native vegetation through replanting or by promoting natural regeneration. Priority should be given to reconstructing large patches of under-represented vegetation classes.
4. Build landscape diversity – look for variety in patch types, patch shape and size (but larger patches are preferred), patch boundaries and landscape position.
5. Revegetation - try to simulate natural processes by representing original Ecological Vegetation Classes and functional vegetation types (e.g. nectar, seed and fruit producing plants).
6. Promote continuity of vegetation along environmental gradients (e.g. rainfall, geographic, altitudinal, topographic). Connectivity at this scale is important to allow movement in response to changes in resource availability over time, natural catastrophes and climate change.
7. Strategies to counter habitat fragmentation:
 - i. Expand area of existing remnants.
 - ii. Increase number of patches through reconstruction, particularly between existing patches of native vegetation.
 - iii. Create landscape linkages, including corridors (linear strips) and stepping stones (small patches) between existing native vegetation.
 - iv. Amalgamate nearby patches to form a single larger patch.



- v. Help movement of native fauna by 'softening' boundaries between landscape elements; maintaining habitat elements (e.g., paddock trees, fallen logs, rocks); strategically arranging different land-use types; reducing intensity of land-use across the landscape (e.g., increasing the area of native pastures); and incorporating refuge areas in high intensity land-use zones.

Guidelines for Landscape Linkages

1. Clearly define the purpose of linkage in terms of species, distance, time and function. A function might be: influencing opportunities for restoration of gene flow or for the dispersal of young.
2. Consider design, dimensions, vegetation type and management required to meet the stated purpose.
3. Linkages should be designed with existing local agricultural activity in mind.
4. Retain or strengthen existing natural links where possible rather than create new habitat.
5. Connectivity is much more than 'wildlife corridors'. Stepping stones, alternative land-uses and ephemeral links may also work.
6. Ensure that linkages offer good and diverse habitat quality. Wildlife will not enter linkages if quality is poor, even if destination is pristine.
7. Structural priorities for landscape linkages
 - i. If you are doing corridors, the wider the better – the ultimate test is the maintenance of connectivity.
 - ii. Where appropriate, fill in gaps in existing linkages.
8. Location priorities for landscape linkages: i. Follow natural movement pathways if known – e.g. migratory routes, daily foraging patterns. ii. Follow natural environmental features – rivers, creeklines, drainage lines, ridges, and gullies but attempt to incorporate all habitat types (multiple paths) in one or several links. These are often irregular rather than straight lines between two patches. iii. Include existing natural vegetation. iv. Unique or irreplaceable linkages should be afforded highest priority. v. Locate away from sources of human disturbance, including freeways or roads.
9. Design linkages that encourage wildlife recolonisation from existing source habitats and populations to new or improved ones. The habitat quality in a recipient patch must also be adequate to support populations of species.
10. Re-consider the success of previous works or linkages against their original objectives. Ask whether their effectiveness could be increased as they become part of the landscape, through adaptive management such as provision of nest boxes, habitat manipulation, or increased width.



Guidelines for Managing Works

1. Use locally indigenous species, wherever possible and collect native seed from nearby area if you have expertise in this area. An understanding of the EVCs is needed here.
2. Set a goal for the future plantscape: use Victoria's Native Vegetation: A Management Framework and the bioregional Ecological Vegetation Community benchmark.
 - Be prepared to assess your site comprehensively and over time.
 - A Flora and Fauna Survey can be a planning component. This would entail the collection of baseline information about the site's conservation value and would also determine what is actually at the site.
3. Compare your goal to the EVC benchmark – What's missing? – What threats are operating?
 - Build a plan to restore missing elements.
 - Determine actions to protect what you've already got (e.g. deal with threats), then start restoring/rebuilding habitat values.
 - Look at timescales involved – this may influence priorities (e.g. it takes hundreds of years to regrow an old growth tree).
 - Design the equivalent of a biodiversity benefits index, e.g. what can you do to maximise improvements in habitat values for the minimum investment.
4. Make a clear assessment of the country you are working with. In particular, works should be undertaken with the following in mind:
 - Weeds/invasive plants are a severe threat (almost) everywhere
 - Most lower country is over fertile which leads to excessive weed competition and little or no natural regeneration
 - Excessive grazing pressure is almost ubiquitous – wallabies, kangaroos, rabbits and hares as well as sheep and cattle livestock. Over grazing, especially during spring and summer when flowering and seed set/drop is active, is having a severe impact on many herbaceous and shrubby species.



Monitoring and Evaluation

Environmental assessment and monitoring is a critical component of any landscape restoration project. Through monitoring, communities can gain a better understanding of environmental and conservation issues, thereby increasing their knowledge and skills to help protect and enhance local habitat and biodiversity. Monitoring is the process of undertaking periodical assessments or surveys, recording results, and comparing and evaluating them to determine the effectiveness of actions or the progress of the projects.

How frequently this is done, and in what form, will vary according to what is being measured and the purpose of the monitoring. Monitoring is important for two main reasons: it provides feedback on the effectiveness of management actions and hence whether these actions need to be modified, and it enables the determination of whether natural resources are stable, improving or declining.

Monitoring can help to:

- Record change over time
- Relate these changes to climate/ environment/management events
- Document the effect of management actions
- Document the extent and severity of (and then recovery after) extreme events eg flood, fire, frost or hailstorm.
- Develop a benchmark against which future performance can be measured
- Use the information gained to determine management actions
- Show up a problem when it is still small
- Support funding applications – and then demonstrate how the grants are being used (Hussey & Nicholls, 2002) (Park, Williams, & Radford, 2006).





LODDON PLAINS LANDCARE NETWORK

Web: www.lpln.org

