



Corangamite Seed Supply & Revegetation Network – Lifting the stakes on revegetation and seed supply

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Pipe dreams

'The seed was plump and clean. Fortunately Joanne had stockpiled it over the last three years from the large woodland reserve down the road. She had been selective. It wasn't everything Bill needed but he knew he would supplement in later years with seedlings carefully tended at Coral's nursery. Andy had helped form an extensive plant list – some to direct seed now, others to be planted later. Some species did better once a canopy was established. Plants had been chosen through historic references, database records, locals' fuzzy memories and even old paintings. The ground was perfect now- good weed control and moist soil. Bill would be on the tractor most of the day. He took some photos and smiled confidently. Some light rain was forecast. He would take some photos in a couple of months as he checked the new seedlings with Andy. Bill leaned on the post. It was just chocolate plough lines now but with concentration, he could faintly see the skeleton of a woodland about to be seeded.'

It's what we aim for – enthusiastic landholders, a reliable supply of appropriately sourced seed and plants, supported by skilled coordinators and extension staff, backed up by the latest research- and all through the process a committed and vibrant network achieving long term biodiversity gains and best practise in on-ground works. Here is our story....

The region

Corangamite is a geographically diverse part of Victoria covering over 13 000 square kilometres. It includes spectacular coastal areas such as Apollo Bay and Lorne, the farming country of Lismore and Colac on the volcanic plains, and the lifestylers and hobby farmers around the thriving cities of Ballarat and Geelong. There are pockets of beautiful remnant vegetation, large internationally significant wetlands and heritage listed gorges all of which provide habitat for rare, iconic plant and animal species. Almost all of the region has undergone significant change since European settlement with less than twenty-five percent of the original plant communities remaining; most in very degraded states and largely still under threat.

Corangamite is one of the Commonwealth Government's NAP (National Action Plan) priority areas and receives substantial funding each year to meet salinity, water quality and native vegetation targets (fifteen million dollars from Australian Govt 2004-5).

Background to the project

The Seed Supply Framework is a regional project funded through NHT (Natural Heritage Trust) and NAP – borne out of a need to improve the biodiversity outcomes of major revegetation projects and ensure that the region will be able to meet future seed requirements for restoring plant communities. The project is a result of a document prepared by Greening Australia Victoria for the Corangamite Catchment Management Authority to deal with the need to 'scale up' seed collection.

The Seed Supply Framework began in 2003 with the appointment of two key roles –

- a *regional seed supply coordinator* responsible for the regional coordination of seed collection activities, technical support and training of collectors, ongoing seed storage and supply and quality assurance measures.
- a *regional revegetation coordinator* responsible for developing regional standards for on-ground works, ensuring that biodiversity is included to meet native vegetation plan targets, technical support to revegetation practitioners and trialing of techniques and products in-field to improve on-ground activities.

Following from this a ***Regional Seed Supply and Revegetation Network*** was formed to:

- Develop better communication between suppliers, practitioners and researchers,
- Provide guidance in regional requirements and standards for seed collection and revegetation,
- Identify issues and training needed for better on-ground project outcomes,
- Focus planning to incorporate priority vegetation communities,
- Provide up-to-date and relevant technical information and support for skill development and
- Improve forward planning of revegetation projects.

The Network includes all of the Landcare coordinators and their networks in the region, field staff from Greening Australia Victoria, Dept Sustainability & Environment, Dept Primary Industries, Trust For Nature, Conservation Volunteers Australia, shire officers, seed collectors, indigenous plant nurseries, contractors and active landholders. This amounts to around 200 key seed industry and revegetation practitioners, all with the capacity to influence others and make significant improvements to revegetation efforts.

Biodiversity and seed supply

Achieving native vegetation plan revegetation targets for the most threatened plant communities will require more seed collection and on-ground projects. However, this 'scaling-up' is both susceptible to short supply and puts pressure on already depleted plant communities. Our aim is to develop ways of reducing the impact by creating more efficient field germination methods and accessing alternative seed sources such as seed production areas, farm forestry plantings and revegetation stands.

A regional shortfall in indigenous seed supply is a long-term issue. Community training days encourage local participation in seed collection activities and motivate landowners to understand their own properties and supply needs. As a result, small-scale collection and home nurseries have sprung up to help supplement on-ground revegetation activities. The community engagement, enthusiasm and confidence are valuable outcomes of such training and have facilitated some model revegetation practices.

Two years ago, an accredited seed collection course was developed to assist with the development of larger-scale supply. The five-day course is spread across several months to cover the ripening of different species. The calibre of the speakers, including farmers, nurseries, seed collectors and academics ensures strong interest. While field data sheets, guidelines and training help to improve seed collection practices across the region there are still considerable shortfalls in supply. A tender process was trialed last year with several commercial operators supplying some requirements but there was still a short-fall in some species. A crew may be trialed this year to supplement labour intensive species not collected by commercial operators.

A Seed Production Area is a reasonably new concept in Corangamite. Landcare networks have been assisted with the planning, seed collection and site organisation to develop two new seed production sites to help supplement local seed requirements. Still at early stages, these sites will be monitored. Regional guidelines are in preparation to support other areas with the development of such sites.

Seed quality

The Seedbank undertakes germination testing of indigenous seed to ensure the quality of seed being dispatched to the region. It will also enhance germination knowledge of particular species and will be especially useful for direct seeding projects as well as nurseries. The database allows us to check the number of plants and population size that seed has been collected from to determine if enough genetic material has been gathered.

Two new trailers have also been made available across the region to help collectors improve collection and cleaning practises.

Strategic planning

While not always easy, integrating priority vegetation community targets with other project targets (such as salinity recharge control) is a high priority. Landscape planning which incorporates biodiversity and ecological function is also encouraged. For example, it is no longer enough to simply return the structure of indigenous vegetation but to also have some understanding of the reproductive biology of the stand and whether it is likely to naturally regenerate. We want long term outcomes for revegetation that will ensure the survival of remnant plant communities.

Each year we also evaluate the network's progress with seed supply and on-ground works, and identify stakeholder issues (as well as our frustrations). We plan our actions to address these concerns. The process is typically the same as for most regions – completing and modifying a Bennett's Hierarchy for developing objectives and an evaluation strategy to reflect new directions and issues, questioning measures of

success and defining best management practices. The planning process is essential to help us focus our efforts in tackling problems through targeted activities.

Scoping projects

Some years ago we thought we were doing well if we had at least a rough indigenous plant list. Now species lists incorporate bioregion and historic data, survey records and floristic composition information as we try to move closer to recreating plant community structures rather than indigenous shelterbelts. This also includes selecting appropriately sourced seed and checking the parentage to ensure appropriate genetic diversity.

The expectation also is that projects adopt regional best practice standards in project delivery. Broad standards have been drafted and supplied as a revegetation guidelines folder. Supporting materials such as maps, targets of vegetation communities, research reports and technical manuals have been supplied also. These references complement the ongoing training and support of practitioners.

Nurseries

Revegetation practitioners are encouraged to give at least twelve months notice of species and provenance requirements so that nurseries are able to collect sufficient stock and do not substitute plants with inappropriate species. Project coordinators are expected to keep nursery records, check these against plants going into projects and follow-up any anomalies.

Nurseries are sometimes reluctant to share information because they view it as a 'commercial secret'. However some of the nurseries have been enthusiastic about sharing germination information for difficult-to-grow species, and are involved in technical training days, recognising that this helps achieve industry best practice. This year some nurseries will be engaged in provenance trials to help address gaps in species information. Through this process, we are hoping that they will gain and share skills as well as develop a better understanding of seed collection and revegetation goals.

Improving on-ground revegetation efforts

Emphasis is being placed on quality of revegetation, selection of species, ground preparation techniques and trialing of new market products (such as Wattle Grow seed inoculant, Regen 2000 Smoke germinator) to improve germination and biodiversity aspects of projects.

Short funding cycles have often prevented the adoption of good planning practises. Pushing for longer time frames will allow practitioners to focus on the quality of revegetation work and give them greater flexibility to respond to difficulties with seasonal conditions and supply.

In the past, there has been little incentive or opportunity to monitor and evaluate projects beyond their first year. Some monitoring takes place but results are only available anecdotally. New coordinators express frustration at being unable to track information from previous coordinators. The statewide database Catchment Activity Management System (CAMS) is now being used regionally to report on major projects. While this is nothing new for most of Victoria, additional information such as species lists, detailed monitoring records and photo-points are also being captured to give complete pictures of projects. The information is also a valuable reference for future seed supply. Large

revegetation projects will provide useful future collection sites if the original seed sourced for such sites has been properly tracked.

Monitoring of projects is essential and has been supported with regional guidelines, streamlining of survey techniques, training of university students and funding of contractors to support more thorough assessments of success. Feedback is provided to both the revegetation practitioner and the landowner. It is also slowly being accepted as standard practise to record monitoring data. The Corangamite Catchment Management Authority and several organisations involved in the network have been strong advocates for this change such that best practise standards are often included in work plans.

Research

Provenance has emerged as a significant issue impacting on the development of seed production areas and the supply of seed. It is often assumed that collecting seed from a specific area (provenance) will maintain local gene pools and increase the survival rate of revegetation owing to local adaptation. Seed is often supplied from very small populations to maintain provenance. This cautionary approach which is an adherence to matching a localised seed supply increases labour costs and increases pressure on limited plant resources. Generally this approach has not been based on science but more a concern about making a poor decision.

We are fortunate to have strong associations with various institutes that provide technical support to the seed supply and revegetation network. Technical forums are events to explore such issues with scientists and are an opportunity to direct research so that it can be applied for better decision-making. This year, research proposals with CSIRO, universities and the network will include in-depth genetic studies of two iconic species (*Allocasuarina verticillata* and *Eucalyptus leucoxylon*). Both species are important grassy woodland plants for revegetation. The result of this research will be clearer guidelines for seed collection activities, more strategic revegetation and a better understanding of the genetic requirements for longer-term population survival.

Additional funding from Knowledge Exchange (through Greening Australia Limited) has also allowed more extensive literature searches to access population and provenance information that has not been consolidated or readily available. The result is a series of information notes providing seed collection range and propagation guidelines for commonly used revegetation species. These processes can be easily modelled so that faster gains can be made with the sharing of information.

Meeting the Challenge

We recognise that there are still issues with processes and very large gaps in our understanding of indigenous vegetation. However effort made to increase our knowledge and apply it practically while using resources more efficiently will lead to real biodiversity benefits. The end result will be a landscape that is much healthier and more functional than it is now. Pipe dreams can become reality.