

FACT SHEET

USING PLANTS OF LOCAL PROVENANCE IN THE HAWKESBURY-NEPEAN CATCHMENT



The Hawkesbury-Nepean Catchment Management Authority (HNCMA) recommends using native plants of local provenance in revegetation projects*.

To assist this aim, the HNCMA is working to ensure that a variety of local provenance trees, shrubs and groundcovers is available across the catchment.

WHAT DOES LOCAL PROVENANCE MEAN?

Local provenance plants are grown from seed that is collected from healthy plants growing near the planting site in similar environmental situations. Using plants of local provenance is important because local plants are genetically adapted to local conditions. Planting local plants increases the success of revegetation projects and decreases the risk of disrupting the local flora gene pool.

DETERMINING PROVENANCE RANGES.

Provenance ranges are often defined in terms of the distance between seed collection site and planting site. However, it is now agreed that it is more important to match environmental conditions at the seed collection site with those at the revegetation site. Matching soil type (texture and geology), slope position, aspect, altitude and rainfall gives new plants the best chance of survival. It also preserves local plant adaptations to specific environmental conditions at the site and allows plant populations to adapt to changing environments.

Considering a plant's pollination and seed dispersal methods helps determine how far you can go to collect seed from similar environments. For example, where seed is dropped close to the parent plant, provenance seed should be collected as close to the planting site as possible. If seed is spread by wind or water, provenance seed can be collected from vegetation remnants with matching environmental conditions that used to be connected to the planting site. If plants have fleshy fruits that are spread by birds and bats, seed could be collected further afield.



* On a limited number of sites with severe erosion or salinity, the HNCMA may need to use non-local provenance plants.



COLLECTING PROVENANCE SEED.

It is important to collect healthy native seed from sites with a high level of genetic diversity. If you cannot find large, healthy and viable natural populations close to your revegetation site, go further afield to collect native seed.

Seed collection requires skills and experience in plant identification, seed collection methods that don't affect the ecology of the collection site and knowledge about seed maturity / ripeness. It also needs to comply with licensing conditions set out in section 132C of the *National Parks and Wildlife Act 1974*. It is important to:

- 1 collect seed from large, healthy, genetically diverse, natural populations (more than 100–200 reproductive plants) or combine several collections from smaller populations;
- 2 identify target species for seed collection and collect mature seed;
- 3 collect seed from at least 20 widely spaced, healthy parent plants to maximise genetic diversity;
- 4 collect no more than 10% of the seed or 20% of the fruit on any individual plant;
- 5 ensure that seed is not over-collected from any site or population and that vegetation is not unnecessarily damaged or trampled.





ASSESSING REVEGETATION GOALS.

Identifying the aims of your revegetation project and the conservation values of your project site also helps determine how precise provenance ranges need to be. As a guide:

- 1 For sites where natural vegetation is intact with a representative range of species in the over-storey, mid-storey and ground stratum and a healthy soil seed bank, regeneration that assists natural processes to restore native vegetation communities is preferred (e.g. removing invasive weeds).
- 2 For sites where natural vegetation is relatively undisturbed, revegetation with local native species can assist natural restoration by reintroducing locally extinct species that would not naturally regenerate to conserve native animal habitat, creating buffer zones to protect the integrity of natural remnants or linking natural remnants with vegetation corridors. **Seed should be collected from a similar vegetation community, soil type and altitude within the surrounding sub-catchment.** Hawkesbury-Nepean sub-catchment maps can be found at <http://www.hn.cma.nsw.gov.au/yourcatchment/>
- 3 For sites where vegetation is degraded but still has reasonable natural species diversity, revegetation goals can include protecting stream banks from erosion and improving water quality along riparian corridors. **Seed should be collected from a similar vegetation community, soil type and altitude within the region** (see map - Northern Valleys, Western, Estuary, Western Sydney, Southern).
- 4 For isolated sites where natural vegetation has been extensively cleared, revegetation goals include soil conservation, erosion control and creating windbreaks and woodlots. **Seed should be collected from a similar vegetation community, soil type and altitude within the Hawkesbury-Nepean catchment.**

KEEPING RECORDS OF SEED COLLECTION LOCATION AND ENVIRONMENTAL CONTEXT IS ESSENTIAL.

The Hawkesbury-Nepean CMA seed collection form records seed collection location details and relevant environmental data. It is available from your local Hawkesbury-Nepean CMA office. Community seed banks and nurseries keep this information on seed bank databases to ensure that detailed provenance information is kept for every seed collection.

PLANNING REVEGETATION PROJECTS USING PROVENANCE PLANTS.

Many local native plant nurseries collect and propagate provenance seed and propagate local native plants. **It is important to plan revegetation projects well in advance** — nurseries need 6 to 8 months lead time to grow tubestock and will need longer (up to 18 months) if provenance seed is not available or if you wish to collect and supply your own.

Florabank offers comprehensive information about successfully collecting and propagating native plant seeds (see www.florabank.org.au).



IT IS IMPORTANT TO COLLECT HEALTHY NATIVE SEED FROM SITES WITH A HIGH LEVEL OF GENETIC DIVERSITY

PLANTING PROVENANCE PLANTS SUCCESSFULLY.

- 1 Site preparation** including weed control, soil ripping and sometimes fencing can begin at least 6 months **before planting**.
- 2 Local provenance species** should also be selected as early as possible to give nurseries time to collect seed and propagate plants. Plants should include a range of local trees, shrubs and groundcovers and be grown locally so that they acclimatise to local conditions.
- 3 Timing of seed collection** is determined by each species: when they seed, how often they produce seed and how much seed they produce. Timing of planting is best spread over autumn and spring to minimise losses in times of rainfall and temperature uncertainty.
- 4 Protecting young plants** with mulch will suppress weeds and retain soil moisture. Tree guards protect young plants from wind and browsing animals giving them the best chance of survival.
- 5 Ongoing weed control** is often required to foster the growth of healthy plants.

For more information about using local provenance plants, please contact your nearest Hawkesbury-Nepean CMA office.



LOCAL PROVENANCE PLANTS ARE GROWN FROM SEED THAT IS COLLECTED GROWING NEAR THE PLANTING SITE IN SIMILAR ENVIRONMENTAL SITUATIONS