

Rehabilitation Program for Plants and Soils

The Process – Rehabilitation is a multi-level process which requires a detailed site assessment, establishment of short term, medium term and longer term plan for re-establishment of a healthy soil and plant community. In the past, many organisations have attempted to improve site health by considering one of the three key parameters in isolation of the other interlocking parameters.

In many situations, grazed ecosystems may be degraded by the ongoing unmanaged grazing of individual plants (continuous grazing) whereby plants are constantly exposed to livestock and/or native marsupials. In the continuous graze situation plants are constantly exposed to mouths that re-bite regenerating plants before they are ready and gradually degrade a plant community, one plant at a time. This system often causes spot or patch degradation leading to larger scale degradation of paddocks and catchments in following years.

Regeneration is often deemed necessary when plant and soil communities are seriously degraded or when a specific mining or industrial process has removed soil and plant communities and rendered the ecosystem inoperable. The following summary outlines the process required for successful rehabilitation.

1. Site Assessments

- Soils health
 - Mineral (available vs total nutrients, Base sats, CEC)
 - Biology (Fungi vs Bacteria, VAM, Saprophytes, Rhizobia etc)
 - Structural (physical issues compaction, organic matter)
 - Site issues (Ca: Mg ratio)

- Plant community
 - Ground cover
 - Species (native vs introduced)
 - Populations
 - Impediments

- Plant health

- SAP testing (blood test)
- Tissue Test (structural issues)

2. Rehabilitation methodology

- Assess key soil parameters (from site assessment)
 - Balancing soils minerals (from base saturations and micro-nutrients)
 - Replacing or feeding biology as necessary

- Assess key plant species (Community)
 - Pasture/ grass species,
 - Legumes – nitrogen production
 - Native understorey tree species.
 - Native top storey tree species

- Match nutritional and microbial inoculants and food sources to required sites
 - Solid fertilisers
 - Liquid fertilisers
 - Microbial inoculants
 - Microbial food sources

- Assess level of support
 - strategic – long term needs – what’s missing (macro-nutrients)
 - Nutrient replacement – annual basis (being used each year)
 - Short term requirements – immediate action needed to maximise growth

3. Primary phase - Implementation

- Ground Cover and primary nutrition
 - Organic Matter/ trash (carbon source) – foliar application of decomposing microbes.

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- Compost (balanced nutrition)
- Major nutritional balancing (ie calcium)
- Incorporation with mulching process (if necessary)

- Planting of key species (plants and required nutrition – one pass)
 - Grass, legume mix to be planted using Pasture Kropper technology
 - Liquid and starter solid nutrition injected with seed
 - Soil inoculants injected with seed (Rhyzobia/ VAM) as compost extracts

- Planting of top storey species
 - Strategic planting 12 months after establishment to improve micro-climatic effect

4. Management of established site

- Site should be fenced and watered to enable intensive rotational grazing to be established – this can be carried out while pasture establishing.
 - Minimum of 10 paddocks per mob of livestock
 - High quality watering system
 - Highly skilled grass managers

- Initial resting phase
 - A period of at least 3 – 4 months is required with no impact to allow the plants to establish root systems and photosynthetic area
 - Light , short duration 1 – 3 day graze periods are considered ideal

- Grazing Management Program
 - Rotational grazing is essential for success (long term)
 - Requires highly skilled managers
 - Requires a grazing plan

5. Site Monitoring / evaluation

- Soils health
 - Mineral
 - Biology
 - Structural (physical)
 - Site issues

- Plant community
 - Ground cover – (decomposition)
 - Species
 - Populations
 - Impediments

- Plant health
 - SAP testing (blood test)
 - Tissue Test (structural issues)

6. Secondary phase action/ implementation

- Livestock as a tool to manage each site
- Foliar applications of nutrients to improve nutrient cycling
- Broad casting solid nutrients if necessary.
- Ensuring consistently 80 – 90% ground cover
- Plants are healthy and increasing in basal diameter

This phase includes application of nutrients and microbial amendments as deemed necessary from sap sampling

7. **Monitoring/ evaluation** – testing program (2 – 3 yearly)

- Soils health
 - Mineral –
 - Biology –
 - Structural (physical)
 - Site issues

- Plant community
 - Ground cover – (decomposition)
 - Species
 - Populations
 - Impediments

- Plant health
 - SAP testing (blood test) (annually to correct short term deficiencies)
 - Tissue Test (structural issues)

This process is an ongoing model which will be re-assessed annually to top up key micro-nutrients and plan longer term nutrient management. SAP testing is the ideal process to assess ongoing needs.

For more information about this program contact

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