HORNSBY QUARRY BUSHLAND

Location: Hornsby Quarry Bushland, Hornsby LGA

Date: 2020-2024 Ongoing

Client: Hornsby Shire Council

Site Description:

The site works area encompasses ~ 45 Ha of Wet Sclerophyll Forest consistent with Blackbutt Gully Forest (BBGF) and the critically endangered Blue Gum Diatreme Forest (BGDF) of varying condition classes. A history of clearing, farming, fragmentation, urbanisation and mining has seen the areas surrounding Hornsby Quarry subject to a number of press and pulse disturbances including, light to heavy weed infestation, inverted soil profiles, extensive mountain bike tracks and vegetation clearing.

The site holds important habitat values, providing significant roosting, nesting, sheltering and foraging sites for arboreal herpetofauna, mammals, microbats, birds and threatened species. Importantly, the riparian corridors and hollow bearing trees held within the site provide rare and favourable habitat to the successful breeding and recruitment of the keystone threatened species of Powerful Owl (*Ninox strenua*).

11 management zones (MZ) are stratified over the work area dependent on the vegetation community, its condition and level of weed ingress or disturbance. Due to the large size and diversity of management issues within the site, each MZ is subject to its own objectives and management actions comparable to a typical bush regeneration / restoration site.

Blue Gum High Forest | Hornsby Shire Council (nsw.gov.au)

Powerful Owl - BirdLife Australia

Project Objectives

- Strategically plan a staged approach to the timing, location and extent of weed removal through best practice bush regeneration throughout the site
- Revegetate with species of local provenance to mimic natural succession within the Impact Area and where required with the Site
- Identify future threats to the natural environment and mitigate effects
- Protect the native vegetation onsite including the Blue Gum Diatreme Forest and surrounding natural areas
- Protect existing fauna known and predicted to occupy the Impact Area and the Site prior, during and post the proposed earthworks
- Restore and conserve connectivity of native vegetation and habitat corridors in-perpetuity
- Sustainably establish native vegetation and associated ecological functions and processes to a condition representative of the surrounding Plant Community Types (PCTs) in areas of major disturbance including areas requiring stabilisation works
- Establish mechanism to provide succinct flora and fauna baseline data for future reference
- Set up a monitoring and evaluation program for adaptive management of flora and fauna
- Improve integration of habitat with appropriate recreation provision

Description of Works

- Collaboration with Hornsby Council to produce a Vegetation Management Plan (VMP) and Habitat Creation and Enhancement Plan (HCEP) for the site
- Conducting bush regeneration, ecological restoration and revegetation works in an ecologically sensitive and sustainable manner to enhance native vegetation condition and fauna habitat values in keeping with the VMP/HCEP
- Development of habitat / Hollow abundance benchmarks through a Hollow Bearing Tree (HBT) survey informing and creating a Nest Box Management Plan (NBMP) using the latest science to mitigate and offset habitat loss from the quarry Impact Area clearing, earth and stabilisation works
- Develop, implement and reporting of ongoing flora monitoring survey across the site using 20 floristic quadrats and 50 rapid assessment data points (RADP) each with 360-degree photo monitoring points
- Seasonal Fauna monitoring survey using Anabat, Hairtubes, Songmeter, Call play back and spotlighting techniques

Outcomes Achieved

- Working with council to source and propagate local provenance stock of the reference vegetation communities, we have revegetated approximately 2 Ha of critical riparian corridor habitat surrounding the quarry, creating and enhancing structural connectivity, linking fragmented remnants and restoring the extant native vegetation communities. Our team has enthusiastically planted nearly 8000 plants (1100 Trees, 3700 small trees/shrubs and 3000 groundcovers) installed wallaby-proof fencing and independent water sources with great success
- We intrinsically understand the needs of the site by having a consistent and intensive on-ground presence. All MZs have had regeneration works of varying degrees applied. From broad sweeps eliminating any weeds across 95% of good condition bushland to intensive but sustainable removal of very heavy understorey Privet. Working in a mosaic fashion with natural resilience to facilitate excellent assisted regeneration outcomes across much of the site. Areas worked have typically seen 70-90% of heavy weed infestations removed with excellent native vegetation responses. Areas where natural resilience has lacked we have revegetated
- Set up and conducting systematic and ongoing flora and fauna surveys has provided valuable real time monitoring data comparable to an established baseline allowing for efficient and effective adaptive on-ground management responses
- Planning and strategic works have facilitated year on year successful breeding and fledging of the local threatened species population of Powerful Owl (*Ninox strenua*).