



NEW ACLAND COAL MINE

CONSERVATION ZONE MONITORING AND REHABILITATION MONTHLY REPORT

AUGUST 2023

**Prepared for
New Hope Group Pty Ltd**

**Biodiversity Assessment and Management Pty Ltd
PO Box 1376
CLEVELAND 4163
August 2023**

Specialised ecological knowledge that reduces your risk

7 September 2023

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Dear Marnie

RE: Conservation Zone Monitoring and Rehabilitation Monthly Report – August 2023

BAAM was commissioned by New Hope Group to monitor rehabilitation progress and undertake maintenance works in the Bottle Tree Hill and Lagoon Creek conservation zones at New Acland Coal Mine from June to December 2023. The following report describes the monitoring and rehabilitation activities undertaken during the August 2023 monitoring event, 30th-31st August.

Works during this period focused on the treatment of mature Prickly Pear within the Lagoon Creek conservation zone which was identified as a priority rehabilitation management action during the July monitoring event.

Please do not hesitate to contact BAAM if you require further information.

Yours sincerely,



Emma Green
Project Ecologist
Biodiversity Assessment and Management Pty Ltd



File No	Author	Reviewer
0412-005e		

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1.0 CONSERVATION ZONE MONITORING

All monitoring transects at Bottle Tree Hill and Lagoon Creek were surveyed during the June and July monitoring periods. No new planting has occurred at any of the 14 transect sites since this time and only a total of 2mm rainfall was recorded for the month of August 2023 (WillyWeather 2023). Given the short time since the previous surveys and minimal rainfall received it is considered there would be no observable change in site condition, including native recruitment or weed encroachment, at the transect locations and as such these sites were not surveyed during the August monitoring period. Instead, efforts were focused on undertaking rehabilitation maintenance works, specifically the treatment of large Prickly Pear in Lagoon Creek and identification of other maintenance requirements throughout the conservation zones.

Incidental observations of weed invasion and other maintenance issues were recorded whilst undertaking maintenance works in Lagoon Creek and are discussed in **Section 3.0**.

2.0 REHABILITATION AND MAINTENANCE WORKS UNDERTAKEN

2.1 WEED TREATMENT AT BOTTLE TREE HILL

Rehabilitation works have commenced at the proposed planting site at the demolished houseblock on the southern side of the Bottle Tree Hill conservation area with NAC undertaking a foliar spray treatment of African Boxthorn, Cape Honeysuckle, Tecoma and garden escapee weeds around the perimeter of the planting site (see **Photos 1 – 3**).

2.2 LAGOON CREEK PRICKLY PEAR TREATMENT

On the 30th and 31st of August BAAM commenced stem injection treatment of mature Prickly Pear along Lagoon Creek. The successful treatment method used at Bottle Tree Hill was replicated and involved drilling holes into the base of the plant stem and filling each hole with neat Glyphosate (450g/L). Areas treated included the northern stretch of Lagoon Creek from Peachey Maclagan Rd to Acland Silverleigh Road and the area surrounding and upstream of LC09 in the central portion of Lagoon Creek (**Figure 1**). Approximately 57 ha in total were covered and 97 plants were treated over the two days (**Figure 1, Photos 4 & 5**).



Photo 1 Foliar sprayed African Boxthorn



Photo 2 Foliar sprayed Tecoma and Cape Honeysuckle



Photo 3 Foliar sprayed Cape Honeysuckle

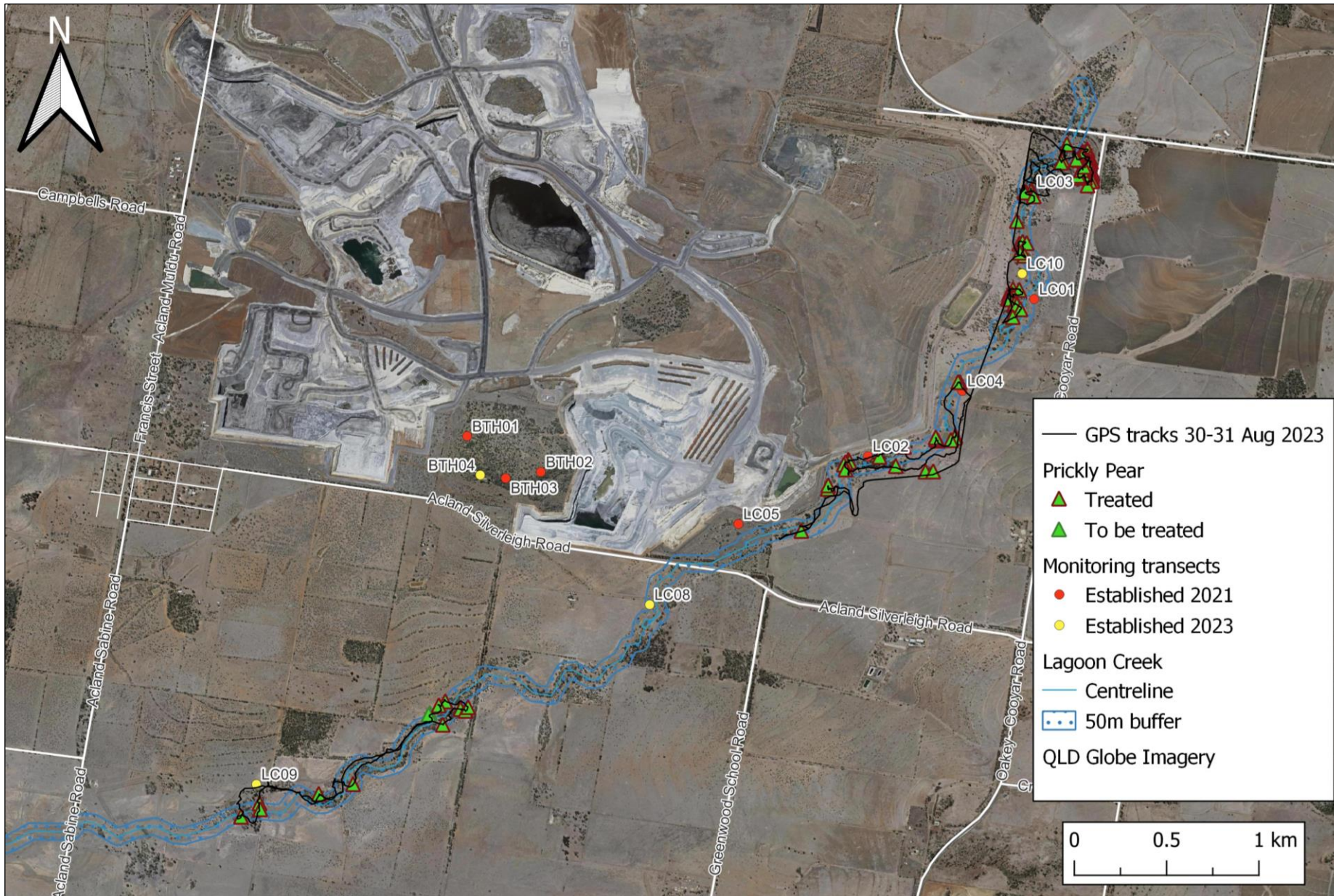


Figure 1. Prickly Pear treatment map August 2023



Photo 4 Large Prickly Pear in Lagoon Creek Conservation Zone



Photo 5 Stem injected Prickly Pear

2.3 CATTLE EXCLUSION FENCING

The upgrading of cattle exclusion fencing around the Lagoon Creek conservation zone is underway with NAC confirming engagement of a surveyor to demarcate the location of fencing to be installed. It is expected that fence installation works will commence in September 2023.

3.0 FUTURE REHABILITATION AND MAINTENANCE WORKS

3.1 BOTTLE TREE HILL REVEGETATION

Planning and preparation for the Bottle Tree Hill planting is on-going and currently on-track for planting to occur in late October. During the August monitoring period BAAM discussed site preparation requirements with NAC staff including the light cultivation of soil, removal of large rocks and installation of barley straw over the planting area. Additional weed management requirements were also discussed including removal of non-native Thuja pines and Peppercorn trees. Foliar sprayed shrubby weeds will be mulched and re-treated via cut stump herbicide application if the foliar treatment is unsuccessful in achieving 100% knockdown and non-native grasses surrounding the perimeter of the planting area will also be cut down to ground level and allowed to reshoot prior to foliar spray treatment. It is anticipated that these works will be carried out in during September and prior to BAAM's next visit in late September when remaining follow-up treatment will be undertaken.

3.2 ON-GOING WEED MAINTENANCE

3.2.1 Prickly Pear Stem Injection

Treatment of mature Prickly Pear during the August field visit focused on areas of known infestations observed during previous monitoring events. Additional infestations were discovered whilst traversing the conservation zone when pushing out of the known infestation areas. Specifically, the stretch of creek upstream from LC09 around Willeroo Mine Road was found to have large Prickly Pear which could not be treated during the August visit due to time constraints. This area and the stretch of creek up to LC08 will be targeted for treatment next month to close the gap between the two current treatment areas (see **Figure 1**) before progressing further south along Lagoon Creek.

3.2.2 African Boxthorn Treatment

African Boxthorn was found throughout the Prickly Pear treatment areas with particularly high occurrence observed around dams. Locations of Boxthorn found in the northern Prickly Pear treatment area were recorded via hand-held GPS for future reference. It is recommended that following primary treatment of Prickly Pear along Lagoon Creek, African Boxthorn is targeted for treatment to prevent further fruiting and spread. NAC has reported successful control of Boxthorn using foliar spray treatment with Grazon Extra®. It is recommended that all Boxthorn along the length of the Lagoon Creek conservation zone are treated using this method when bushes have good leaf cover and are actively growing to ensure maximum herbicide uptake. The Queensland Department of Agriculture and Fisheries DAF (2023) recommend February – May as the optimum time for spraying; however, good rainfall in the coming months may allow for successful treatment prior to this period. On-going monitoring will aim to determine an appropriate time for commencement of foliar spray treatment by assessing environmental conditions and plant growth in the coming months.

3.2.3 Prickly Pear Foliar Spray

Young Prickly Pear plants too small to inject were observed at varying densities throughout the stem injection treatment areas. It is recommended that these are treated using an appropriate foliar spray application within the next six months to avoid further growth and the requirement for future stem injection. Foliar spray treatment may be undertaken concurrently with the treatment of African Boxthorn during periods of active growth. Follow-up treatments will be required to account for any plants missed during the initial spray run and to ensure emergent infestations are effectively controlled.

3.3 EROSION CONTROL

Additional areas of erosion and cattle damage were recorded whilst undertaking Prickly Pear treatment in the central portion of Lagoon Creek (**Photos 6 & 7**). As noted in the July monitoring report, gully head and bed erosion controls should be implemented in this area. BAAM will continue to liaise with NAC regarding appropriate erosion control and mitigation strategies in the coming months to ensure adequate controls are implemented.



Photo 6 Erosion with cattle tracks in creek bed



Photo 7 Significant creek bank erosion

4.0 REFERENCES

Department of Agriculture and Fisheries (2023). *African boxthorn* *Lycium ferocissimum*. Available from https://www.daf.qld.gov.au/_data/assets/pdf_file/0016/64042/african-boxthorn.pdf. Accessed 5 September 2023.

WillyWeather (2023). *Oakey Airport*. Available from <https://www.willyweather.com.au/climate/weather-stations/qld/darling-downs/oakey-airport.html?superGraph=plots:temperature,rainfall,accumulative-rainfall,grain:monthly,startDate:2023-08-01,endDate:2023-09-01&climateRecords=period:all-time&longTermGraph=plots:temperature,period:all-time,month:all&windRose=period:1-year,month:all-months>. Accessed 5 September 2023.