

East Arnhem Forest Product Market Assessment Technical Report

INDIGENOUS COMMERCIAL FORESTRY OPPORTUNITIES:

East Arnhem, northern Australia

February 2024

PROJECT NUMBER VNC506-1920 WARNING -

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East Arnhem Forest Product Market Assessment Report

University of the Sunshine Coast (UniSC) and Forest & Wood Products Australia (FWPA) Research for Development Project: VNC506-1920.

Indigenous Commercial Forestry Opportunities: East Arnhem, northern Australia.

Phase 1. Forest Product Development Pilot – Timber Market Assessment



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EXECUTIVE SUMMARY

This report provides a summary of timber product market research conducted as part of the '*Indigenous Commercial Forestry Opportunities: East Arnhem, northern Australia*' project. The market research focused on Darwin Stringybark (*Eucalyptus tetrodonta*) timber bollards developed as one component of the project's Phase 1 (Forest Product Development Pilot) activities.

Scientists from the QLD Department of Agriculture & Fisheries (QDAF) Timber Research Facility at Salisbury (Brisbane) developed the sapwood-free bollards (~1.3 m length and ~140 mm diameter) using state-of-the-art spindleless lathe technology. Preliminary technical investigation of product potential by the QDAF scientists suggests bollards and other short-length solid roundwood products (up to 3 m) are a best-bet commercial timber product opportunity for East Arnhem's native forests. This is consistent with the project team's on-ground experience in East Arnhem.

The market assessment was a preliminary analysis of the commercial viability of the stringybark bollards. Using a questionnaire and interviews, potential bollard purchasers were surveyed about their perceptions of and experiences with the product, including quality and suitability to end-user needs. A short review of Gumatj Corporation's current and planned future timber production, markets, and marketing strategies is also included in this report, given that the Gumatj-operated Nhulunbuy sawmill is a key regional timber processing facility with potential to support bollard and other commercial timber production opportunities for East Arnhem's remote Indigenous communities and Homelands.

Fourteen survey responses were received from targeted potential purchasers of the stringybark bollards. Respondents were primarily located in East Arnhem, Darwin and elsewhere in the Northern Territory. One interstate response was also received. Key survey results and discussion points include:

- Price per bollard Responses ranged from \$30-\$60/bollard to \$80-\$100/bollard (this latter range was most common). Many respondents were willing to pay a price premium based on the product being of an Indigenous provenance and one that would support/benefit a local Indigenous community. Higher prices (e.g., \$120/bollard) were suggested for bollards that were longer and larger in diameter than the developed product.
- Product fit for purpose The bollards were commonly considered to be superior to currently used products (including
 recycled plastic and steel), especially in terms of their aesthetic appeal and given their Indigenous provenance. Some
 respondents considered the bollards were not fit for purpose due to concerns about susceptibility to termite
 (Mastotermes darwiniensis) attack and degradation in tropical conditions.
- Comparison to bollards of other species There was significant interest in and preference for the bollards as an
 alternative to CCA-treated pine posts and bollards, particularly for culturally significant and/or ecologically sensitive
 areas. The bollards were considered superior to treated pine bollards due to being non-toxic and in terms of their
 aesthetic appeal, strength, and durability, although concerns about termite resilience were again expressed.
- Potential purchasers and quantities Nhulunbuy Corporation is a potential immediate and significant market for stringybark bollards. The Corporation is interested engaging in further discussions about purchases if/when production commences. The stringybark bollards have good potential application to Nhulunbuy town beautification works scheduled to commence in 2024, and to replace legacy CCA-treated timbers used for barriers around parks, roads, and gardens. Other key potential purchasers identified were the East Arnhem Regional Council, regional Indigenous Protected Area bodies and Traditional Owner Ranger groups, local schools, and the NT Parks & Wildlife Interpretation Department.
- Other products There was strong interest in different sized (lengths and diameters) roundwood for use as signposts, gateposts, post and rail fencing, and other infrastructure (including heritage building/hut restorations). Some respondents were interested in the 'shelter kit' product that the project has developed.

A Stringybark bollard 'factsheet' was developed to accompany the survey, providing an overview of the product's characteristics. The factsheet has use in promoting the product to a wider audience of potential purchasers. Due to the frequent concerns raised about the durability of the bollards, an additional brochure was developed to promote the product's natural termite resistance.

Solid, naturally durable, sapwood-free roundwood products have high suitability for the East Arnhem and broader Northern Territory market, and potentially interstate markets. The market assessment found an enthusiastic appetite for the Indigenous provenance Stringybark bollards and other similarly processed solid roundwood products, including a wealth of ideas on the use case for these products in East Arnhem, and some positive demand signals from interstate wholesalers. The bollards are considered a highly suitable alternative to expensive and chemically treated imported products. Gumatj Corporation are now considering the purchase of infrastructure to produce the bollards and other roundwood products at significant scale. Production of these roundwood products could provide local Indigenous employment and a sense of pride for Traditional Owners, knowing that the products were produced by an Indigenous workforce for use on Indigenous lands.

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BACKGROUND

Phase 1 of the '*Indigenous Commercial Forestry Opportunities: East Arnhem, northern Australia*' project is a 'Forest Product Development Pilot' – a 'forest inventory, harvesting, product identification/manufacturing and market assessment pilot'.

The Phase 1 inventory and harvesting was conducted in the Indigenous community-owned native forest at Birany Birany in East Arnhem. The inventory in this forest and elsewhere throughout East Arnhem identified a dominance of small-medium sized (i.e., 10-30 cm DBH) trees, which are considered good size classes for solid roundwood products. With this opportunity identified, the Phase 1 Pilot then involved processing a sample of small-medium sized raw Darwin Stringybark (*Eucalyptus tetrodonta*) logs into potentially commercial timber products and the performance testing of these products. The logs were sourced from the forest at Birany Birany and sent to the QLD Department of Agriculture & Fisheries (QDAF) Timber Research Facility at Salisbury in Brisbane for processing. Using state-of-the-art spindleless lathe technology, the logs were processed into solid roundwood (targeting bollard production) and veneer products, and tested against commercial market standards.

The roundwood processing by QDAF produced a sapwood-free rounded bollard product (cover photo). The preliminary technical investigation of product potential by QDAF scientists suggests that bollards and other short-length posts (up to 3 m lengths) are a current best-bet commercial timber product opportunity for East Arnhem's native forests. This is consistent with the project team's on-ground experience in East Arnhem. Solid, sapwood-free roundwood products have high suitability for the local and regional market in the Northern Territory, and potentially interstate markets.

The bollards produced by QDAF were chosen as the timber product with commercial potential that would be the focus of the project's market assessment. A short review of Gumatj Corporation's current and planned future timber production, markets, and marketing strategies is also included in this report.

Market Assessment

The market assessment was a preliminary analysis of the commercial viability of timber bollards developed from Indigenous community-owned forest resources in East Arnhem. Potential bollard purchasers/end-users (hereafter 'potential purchasers') were surveyed about their perceptions of and experiences with the product, including quality and suitability to end-user needs. The initial focus was on local use needs and applications, radiating outwards to the regional, Darwin and Territory levels, with some interstate examples of potential purchasers also surveyed.

The market assessment identifies market expectations, informs refinements to bollard management and processing protocols to match market needs, and informs strategic marketing initiatives for East Arnhem timber products.

The market assessment objectives include:

- Identify potential markets of interest for East Arnhem timber/value-added forest products, focusing on local markets (i.e., local communities and Darwin, including through the Northern Territory government);
- Determine further information needs for understanding the viability of East Arnhem timber resources supplying the regional construction and import substitution market;
- Determine the price(s) the market is willing to pay for the unique provenance, and different types, of products that can be developed from East Arnhem forestry resources; and
- Better understand the potential and success criteria for viable forestry businesses in the East Arnhem region.

Some of the bollards developed at the QDAF facility in Brisbane were returned to East Arnhem (via Darwin) and supplied to identified potential purchasers. These bollards were installed in the ground at locations in East Arnhem and Darwin as demonstration sites. This was important to support the market assessment by promoting the product, ensuring as many survey respondents as possible could obtain 'hands-on' experience with the product, and to monitor and evaluate the product's in-ground performance.

The market assessment component of the Phase 1 Pilot was reviewed by the UniSC Office of Research (Human Research Ethics Committee - HREC) and granted ethics approval. Initial approval was granted on 16th July 2020. Following amendments to the survey process and questionnaire, an additional review was sought. Ethics approval was again granted on 6th July 2022 and is valid until 16th July 2023 (approval no. A201406). The ethics approval number was stated on all survey documents provided to survey respondents. Contact details for the project's UniSC Project Lead (Dr John Meadows) and the UniSC HREC were also provided on all survey documents. Respondents were encouraged to use these contacts if they had any concerns or complaints about the way the project was conducted.

Timber Bollards

Seventy-two (72) of the 108 raw logs sent to QDAF were processed into sapwood-free bollards of 1.3 m length with a mean diameter of 140 mm (mean volume 0.02 m³) (see Figure 1). The adopted processing method intentionally removed all sapwood (due to its low natural durability), leaving only the naturally durable heartwood. This was to ensure the bollards could be used in weather exposed applications without the need for preservative chemical treatment. The avoidance of chemical treatment in the bollard product is considered to provide a market access advantage, especially for application of the bollards for community infrastructure on Indigenous homelands throughout East Arnhem and other ecologically sensitive environments like Indigenous Protected Areas and National Parks throughout Arnhem Land and other parts of the Northern Territory and potentially interstate.



Figure 1. The raw logs sent to QDAF (top left), the logs after processing in the spindleless lathe (top right), and the finished bollard product (bottom).

The processed bollards were subjected to different drying and protective coating treatments as part of the project's *'Roundwood and Veneer Processing Investigation'* by QDAF scientists. The drying trials indicated that the bollards dried without severe splitting and checking, either by air-drying or accelerated solar kiln drying. Applying an emulsified wax end-sealer or applying the end-sealer in combination with a penetrative oil coating over the whole bollard showed some benefits in reducing the occurrence of end splitting, end checks and surface checking. Full details of the bollard treatments and their results are reported in McGavin et al. (2022).

Twenty-eight (28) of the processed bollards – with applied end-sealer and penetrative oil coating – were returned to East Arnhem (via Darwin) for in-ground installation. These bollards also had steel caps added to further protect the product and extend its in-ground durability. Figure 2 shows the bollards on arrival in East Arnhem and an example installation as a demonstration site at the Birany Birany community where the bollards were decoratively painted by community members and installed to demarcate and protect an important community monument.



Figure 2. The shipment of bollards returned to East Arnhem, and example installation at Birany Birany.

A brochure (Fact Sheet – Appendix 1) on the bollard product was prepared by the project team to provide a brief overview of the product characteristics and potential as a commercial product sourced from East Arnhem's Indigenous community-owned forests. The brochure was used to inform respondents to the market assessment prior to their completion of the survey. It is also being used to promote the product to a wider audience of potential purchasers.

Gumatj Sawmill

The Gumatj Corporation owns and operates a sawmill at Nhulunbuy in East Arnhem. The sawmill is an important employment and training initiative for local Indigenous people, producing sawn boards from logs sourced primarily from salvage harvesting on Rio Tinto's bauxite mining leases around Nhulunbuy. Production has focused on servicing customer orders, including for decking, roof trusses and other specialty timbers (Figure 3). Gumatj is seeking to identify and secure access to additional timber resources to supply the sawmill beyond the life of the local bauxite mining industry, which is set to expire in coming years. Gumatj is also currently reassessing the management and operations (including future product outputs) of the sawmill, to optimise its future viability. This includes consideration of how the sawmill could be a regional 'hub' for value-adding and marketing of logs and processed products sourced from the region's Indigenous community-owned forests. A short review of the Gumatj sawmill's current and planned future timber production, markets, and marketing strategies is therefore also included in this report.







Figure 3. Darwin Stringybark processing and value-adding activities at the Gumatj Corporation's Nhulunbuy sawmill

METHOD

Targeting potential purchasers/end-users

Potential purchasers of the timber bollards were targeted to participate in the market assessment. Michael Brand and Dallas Anson (Northern Territory Government Department of Industry, Tourism & Trade – DITT) led the survey implementation by contacting potential purchasers (through phone calls, emails, and/or in-person meetings in Darwin and in the field at Birany Birany and Nhulunbuy) to discuss the forestry project, the bollard product, and to encourage participation in the survey. The targeting of respondents focused on management-level staff from government departments, protected area organisations, Indigenous community development decision-makers, and other businesses that support community development and infrastructure in East Arnhem, Darwin, and other parts of the Northern Territory.

Questionnaire

The questions used in the questionnaire are listed below. The full questionnaire document sent to respondents is provided as Appendix 2.

- What approximate price are you willing to pay for these bollards?
- Are these bollards fit for your purpose? Would you want different sizes/lengths?
- How do you compare the sample bollards to those of other timber species?
- What quantities of these bollards or other sized bollards are you willing to buy?
- Do you know of key clients who would be willing to purchase these bollards or other sized bollards?
- Are there any other products that you would be interested in purchasing from East Arnhem's Indigenous community owned forestry resources?
- Please provide any other comments/thoughts/opinions you have about the bollards and East Arnhem commercial forest product opportunities in general.

Data collection

Survey responses were collected via completed questionnaires being returned via email, and interview notes (taken by Michael Brand) in cases when in-person surveying was conducted and the questionnaire was used as an interview guide. In some cases, respondents who had returned questionnaires via email were also then contacted by phone for a follow-up discussion to clarify/elaborate on some responses. Three of the responses included feedback from more than one staff member from the targeted organisation.

Valuable insights and learnings were gathered via the in-depth conversations about the bollard product, as well as engagement and promotion around East Arnhem Indigenous commercial forestry opportunities generally.

Information about the current and future timber products, markets, and marketing strategies of the Gumatj Corporation's Nhulunbuy sawmill was provided by Gumatj Chief Operations Officer Liam Flanagan through Zoom discussions and email responses. This information was current as of the 5th of May 2023.

Data analysis

Survey respondent data was entered into a spreadsheet and survey responses were analysed using manual content analysis.

RESULTS & DISCUSSION

Fourteen (14) survey responses were received. The survey respondents were staff from a range of organisations and businesses located in East Arnhem, Darwin and elsewhere in the Northern Territory, with one interstate response also received. The respondents included staff from Local Councils, the Northern Territory Government, National Park and Indigenous Protected Area management organisations (Indigenous Rangers), regional Indigenous community development organisations, an Indigenous mining company, a regional art centre, a real estate agency, and a commercial timber supply company. Details of the survey respondents are provided in Table 1.

Position of respondent	Organisation	Response type
Assistant Park Manager	Parks Australia – Kakadu National Park	Returned questionnaire
Operations Manager	Laynhapuy Homelands Aboriginal Corporation	Interview notes (multiple interview participants)
Manager – Territory Engagement & Delivery	NT Gov. Dept. of Industry, Tourism & Trade	Returned questionnaire
Infrastructure Manager – Strategic/Public Works	East Arnhem Shire Council	Returned questionnaire (multiple respondents)
Manager/Owner	Gove Real Estate	Returned questionnaire
CEO	Nhulunbuy Corporation	Returned questionnaire
Art Coordinator	Yirrkala Art Centre	Interview notes
Environment Manager	Gulkula Mine	Returned questionnaire
Homelands Services Coordinator	Arnhem Land Progress Aboriginal Corporation	Returned questionnaire
Senior Coordinator – Parks & Reserves	Darwin City Council	Returned questionnaire (multiple respondents)
Executive Officer	Dhimurru Aboriginal Corporation	Interview notes
Deputy District Ranger	NT Parks & Wildlife Commission	Returned questionnaire
Infrastructure Manager	Parks Australia – Uluru National Park	Interview notes
Managing Director	OPS Forestry	Interview notes

Table 1. Details of the market assessment respondents

Q1. What approximate price are you willing to pay for these bollards?

Responses varied widely, from a low of \$30-\$60/bollard (and \$50/bollard including freight) to a high of \$120/bollard. From \$80-\$100/bollard was the most common response (6 responses), with a number of respondents noting they would be content to be paying this price given the product is of an Indigenous provenance and would be supporting/benefitting a local Indigenous community. One respondent (Parks Australia) noted the price would have to compete with the recycled plastic bollards (<u>https://www.replas.com.au/all-products/</u>) that this organisation now uses in preference over timber bollards, suggesting \$60-\$90/bollard was therefore a competitive price. Another respondent noted they would be willing to pay more than \$120/bollard for bollards that were larger in diameter than the developed product.

Q2. Are these bollards fit for your purpose? Would you want different sizes/lengths?

Most respondents felt the bollards were fit for purpose, that is, fit for their organisation's needs in terms applications such as for restricting vehicular access in recreational areas (picnic areas, campgrounds, parks), highway rest stops, or at the golf club, cemetery, and airport. There was a strong interest in the potential application of the bollards for a 'town beautification' program for Nhulunbuy. Several respondents considered there would be good application of the product in constructing children's playground equipment. Most respondents considered the bollards to be superior to the currently used products (including recycled plastic and steel), especially in terms of their aesthetic appeal and given their Indigenous provenance.

A few respondents considered the bollards were not fit for purpose due to concerns about their susceptibility to termite (*Mastotermes darwiniensis*) attack and degradation in tropical conditions. The organisations that these respondents worked for (e.g., Parks Australia) had shifted away from using timber bollards.

There was some interest in different sized bollards, with commentary that the product would have to be at least 1200 mm aboveground, and there was some expressed interest in longer rounds for signposts (or fenceposts and gateposts), or longer-length rounds generally. The potential for the product to be applied to post and rail type barriers was also discussed with one respondent.

Q3. How do you compare the sample bollards to those of other timber species?

Only a few direct comparisons were made, mainly comparing the stringybark bollards to Northern Cypress (*Callitris intratropica*) and CCA-treated pine. The bollards were considered superior to these products, specifically in terms of their aesthetic appeal, but also regarding their strength and durability. However, it was often noted that the product would have to be comparable to the durability of the other species mentioned. Concerns about the product's resilience to termite activity were commonly expressed. As a result of the evident high level of concern about the termite resilience and durability of the stringybark bollards, the project team (led by a QDAF termite research specialist) developed an additional brochure emphasising the product's natural termite resistance (see Appendix 3).

There was significant interest in Stringybark bollards as an alternative to CCA-treated pine bollards, of which there are hundreds in use throughout Nhulunbuy alone. The preference for the Darwin Stringybark bollards was especially relevant to culturally significant and/or ecologically sensitive areas due to their non-toxic nature.

One respondent noted the 'incredibly high' quality of the bollards.

Q4. What quantities of these bollards or other sized bollards are you willing to buy?

Responses were quite varied, with a number of respondents noting the question was not applicable given the organisation's move away from using timber bollards, while others were very interested in the product but could not indicate potential quantities that they could purchase at this stage mainly due to budget uncertainties. The Parks Australia respondents noted there was currently limited potential for purchases for the product's application in National Parks.

Some respondents suggested specific quantities – between 4 and 20 bollards per campsite (and for an IPA with 20 campsites meaning an immediate demand for 80 bollards), up to 100 bollards for a Council park, and 50 could be used immediately for mining camp infrastructure. Nhulunbuy Corporation, responsible for the upkeep of the town in concert with Rio Tinto, commented that they would happily replace every legacy CCA-treated pine bollard, numbering hundreds, and would preference the Stringybark bollards, despite the termite risk, due mainly to their local Indigenous provenance and aesthetic appeal.

One respondent anticipated there would be a good market for the bollards, and that it is a market that would selfperpetuate alongside increased public exposure and awareness of the product.

Q5. Do you know of key clients who would be willing to purchase these bollards or other sized bollards?

A range of potential clients were suggested by survey respondents – the East Arnhem Regional Council, the Nhulunbuy Corporation (known to be highly interested in the product), the regional Indigenous Protected Area bodies (i.e., Laynhapuy & Dmimurrhu Aboriginal Corporations) and Traditional Owner Ranger groups, local schools and other educational institutions, fencing contractors, builders, makers of picnic tables and other furniture for the region's campgrounds, the NT Parks & Wildlife Interpretation Department (for interpretative signage and other indoor applications), the resort at Uluru, and other existing customers (i.e., Councils and architects) of an already successfully operating timber supply company.

Q6. Are there any other products that you would be interested in purchasing from East Arnhem's Indigenous community owned forestry resources?

Three respondents expressed strong interests in the 'shelter kits' to construct small multi-purpose shelters (like the 2 example shelters that the project has constructed at Birany Birany – see Figure 4) in the region's remote communities. A suggested use for these shelters was creating an outside art space for people to work in during the dry seasons.



Figure 4. A 'community shelter' constructed in Birany Birany by the project team in 2021 using Darwin Stringybark harvested from the Birany Birany community forest (the Sustainable Native Forestry Demonstration Site).

Some respondents were interested in different sized (lengths and diameters) roundwood processed in the same way as the bollards for use as signposts and/or gateposts, for post and rail fencing, and other infrastructure (e.g., stockyards and fences including those associated with heritage building/hut restorations).

There was some expressed interest in sawn (including rough-sawn) timbers for constructing large tables (for campgrounds, picnic areas, and office outdoor areas), walkways and platforms in some National Parks, and to assist with the above-noted heritage building restorations. The issue of termite resistance was again noted, and suggestions were made that any outdoor furniture should have steel footings for durability.

Other species of interest identified through the surveys were Ironwood (*Erythrophleum chlorostachys*), Cypress Pine (*Callitris intratropica*), Lancewood (*Acacia shirleyi*), and the exotic/weedy species Athel Pine (*Tamarix aphylla*) which was being sought for a large project in the Middle East.

There were also some mentions of the potential for use of all timber processing (rounds and sawn) offcuts/residues, and their potential application for art and craft manufacturing. The harvesting and processing undertaken at Birany Birany as part of the Phase 1 Pilot has demonstrated this application for processing residues and highlighted the local Traditional Owners' interest and enthusiasm to attain maximum utilisation from all harvested trees.

The salvaging of burls from harvested trees was also noted and their potential for value-adding into creating feature bowls and platters. Mulch was also noted as a potential forestry by-product, with it currently being especially hard to source in remote areas, particularly at any substantial or commercial scale.

Q7. Other comments/thoughts/opinions you have about the bollards and East Arnhem commercial forest product opportunities in general?

Multiple respondents commented on the value of the 'Indigenous provenance' of the timber bollard product, and how they felt this could give the bollards a market advantage. For example, one respondent commented that he would rather use a local product that provides employment and opportunities for locals and have to replace them more often, than import products (like recycled plastic or steel) that might last longer. Another commented it was 'great to see indigenous-led employment offering quality products from East Arnhem', and another stated '...great idea and a fantastic training opportunity'. There was some expressed interest in other local species beyond the Stringybark products.

Other noteworthy comments were:

- Repeated concerns about the product's susceptibility to termites. Due to an organisational procurement policy, Parks Australia would currently require a treated product. There was also some concern about the product's susceptibility to fire, although in this regard, the Stringybark bollards were seen as superior to CCA-treated products as they have a higher fire tolerance than the treated products, and will not leach the heavy metals if they do burn.
- '...could consider engraved or burnt patterns into the bollards to create a bespoke product for higher-end applications' (The 'pattern' design could also highlight the Indigenous provenance. Note that the Birany Birany community applied traditional artwork to some of the bollards installed in the community see Figure 2).
- The Nhulunbuy Corporation is interested in the bollard product and engaging in further discussions about purchases if/when production commences. This interest could equate to a significant demand for bollards and other rounds for an upcoming town beautification program scheduled to commence in 2024. Beyond this, there is also some interest by Nhulunbuy Corporation to replace legacy CCA-treated timbers used for barriers around parks, roads, and gardens.
- There was one expressed concern about the sustainability of the bollard product, and a thought that the 44% recovery from the raw log was a little low (But note that the processing/product development research by QDAF highlighted that the 44% recovery rate is an acceptable recovery rate, being better than would be achieved through sawing of the logs).
- It was explained that woodchip is lacking in Nhulunbuy due to transport costs so there would be a market for the waste product.
- Regarding the 'shelter kits', one respondent made the point that if there is good forest inventory data and communities are ready to harvest large orders, these could be cut as needed (i.e., leave the rounds as live and growing trees until there is a large order). This respondent also acknowledged that some supply would need to be on hand to fill smaller orders and that there are seasonal constraints to harvesting operations.
- There was discussion on the scope for 'men's shed' type operations to produce commercial timber products (ALPA currently runs a program similar to this).
- 'There has been interest in native seeds and bushfoods of East Arnhem provenance. A market test for these (particularly green plum Buchanania obovata) might be worth conducting.'

Gumatj Sawmill Operations

Current status of the Nhulunbuy sawmill

Gumatj Corporation's forestry, sawmill, and timber manufacturing departments have recently been successfully transferred from Gumatj to Delta Reef Gumatj (DRG). All existing Gumatj sawmill staff have been transferred and integrated into the DRG organisation and now have the support of a larger and more technically proficient management structure.

DRG are soon to commence recruitment of a forestry/timber specialist to be permanently based in Nhulunbuy. The new staff member will take on the management of the forestry, sawmill, and timber manufacturing business units.

DRG have temporarily closed the Nhulunbuy sawmill whilst undertaking a comprehensive audit of the condition and safety of all existing plant and equipment at the sawmill. DRG are also currently facilitating a broad uplift in Workplace Health & Safety as they implement their existing policies and procedures within the new forestry, sawmill, and timber manufacturing business units.

Current and future timber products

Once DRG recommences the milling operations at the Nhulunbuy sawmill, the organisation considers that it will not be able to fill any new external orders until July 2023. This is due to a large backlog of existing customer orders for sawn timbers to be filled as a priority.

To make the Nhulunbuy sawmill operation sustainable and viable, DRG are considering rationalising its future products to achieve maximum recovery from the logs that they obtain. The future timber product outputs currently being considered are:

- 87 mm x 35 mm Dressed All Round
- 87 mm x 18 mm Decking (readed)
- 42 mm x 18 mm Screening
- Various size flitches (slabs)
- Bollards and other sized roundwood products.

Future operations and markets

DRG and Gumatj have been jointly working through the process to finalise occupancy licences to be able to selectively harvest native hardwood logs from a large footprint within Rio Tinto's bauxite mining lease in the Nhulunbuy region.

Gumatj are also interested in investing in plantation hardwood (Darwin Stringybark) development on bauxite mine rehabilitation sites in the Nhulunbuy region. To this end, Gumatj are actively exploring suitable sites with Rio Tinto, with the aim of soon commencing work on a 40 ha Darwin Stringybark plantation trial. Negotiations are ongoing in terms of a Rio Tinto contribution to irrigation and other infrastructure to support the plantation trial. Dependent on these negotiations, Gumatj will look to commence engagement with the appropriate Commonwealth ministers in the second half of 2023 and investigate suitable grants to help fund the plantation trial and investments in processing equipment suited to a plantation hardwood resource.

In terms of existing markets supplied with Gumatj's existing timber products, the DRG team are interested in both the current market demand for Gumatj timber products as well as understanding what additional value could be realised for timber products sourced from East Arnhem's Indigenous community-owned forests if an improved marketing strategy was adopted that targeted purchasers willing to pay a premium for this product provenance. A priority within this analysis of future markets is to understand whether rationalisation of product lines (as described above) will be a limiting factor in attracting those purchasers, and whether there needs to be a pivot to more premium and bespoke product offerings rather than a standardised wholesale production model as currently conceived.

A medium-term plan for expansion of the Nhulunbuy sawmilling operation is for the facility to have the appropriate capacity to act as a processing and manufacturing (value-adding) 'hub' for a regional Indigenous commercial forestry industry. There is strong support at Gumatj Corporation for a regional Indigenous commercial forestry model in which other interested Traditional Owner and Homeland parties throughout East Arnhem undertake their own harvesting and preparation of the logs for subsequent purchase and further value-adding and marketing by Gumatj.

REFERENCES

McGavin, R., Davies, T., & Field, D. 2022. *Indigenous commercial forestry opportunities – East Arnhem: Roundwood and veneer processing investigations*. A report prepared for the University of the Sunshine Coast by the Forest Product Innovation Team (Salisbury Research Facility) of the QLD Department of Agriculture & Fisheries, Brisbane.

APPENDICES

Appendix 1. The Darwin Stringybark Bollard Fact Sheet (see separate document)

Appendix 2. The Market Assessment Questionnaire document (see below)

Appendix 3. The Darwin Stringybark Natural Termite Resistance Brochure (see separate document)

Timber Market Opinion Survey

Indigenous Commercial Forestry Opportunities: East Arnhem, northern Australia

Forest Product Development Pilot

Ethics Approval Number: A201406

Research Team Contact Details

The research team consists of Chief Investigator – Dr John Meadows (University of the Sunshine Coast) and Partner Investigator Mr Mark Annandale (University of the Sunshine Coast). Please direct questions to the Chief Investigator:

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Opinion Survey

The following questions are related to the roundwood product samples (bollards). This survey will ask questions that relate to the quality/suitability of this product to enter the forestry timber market.

Your participation in this survey will help to provide an initial market assessment of the viability of commercial forestry products from identified forest resources in East Arnhem.

This survey is entirely voluntary and if at any time you wish to withdraw from answering survey questions, you may do so.

Instructions

Please consider the following questions and provide brief responses below each question. You may include your contact details, or remain anonymous.

Please provide the completed questionnaire to a member of the research project team.

Alternatively, you can scan and email it to the Chief Investigator (details provided at the top of this page).

- What approximate price are you willing to pay for these bollards?
- Are these bollards fit for your purpose? Would you want different sizes/lengths?
- How do you compare the sample bollards to those of other timber species?
- What quantities of these bollards or other sized bollards are you willing to buy?
- Do you know of key clients who would be willing to purchase these bollards or other sized bollards?
- Are there any other products that you would be interested in purchasing from East Arnhem's Indigenous community owned forestry resources?
- Please provide any other comments/thoughts/opinions you have about the bollards and Est Arnhem commercial forest product opportunities in general.

Concerns or Complaints

If you have any concerns or complaints about the way this research project is being conducted you can raise them with the Chief Investigator (listed above). If you prefer an independent person, contact the Chairperson of the USC Human Research Ethics Committee: (c/- Office of Research, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5430 2823; email humanethics@usc.edu.au).

Thank you for consideration of this study.