

PROCESSES & OPERATIONS

SUSTAINABILITY REPORT



FOR CY 2022

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EXECUTIVE SUMMARY

OUR VISION FOR SUSTAINABILITY

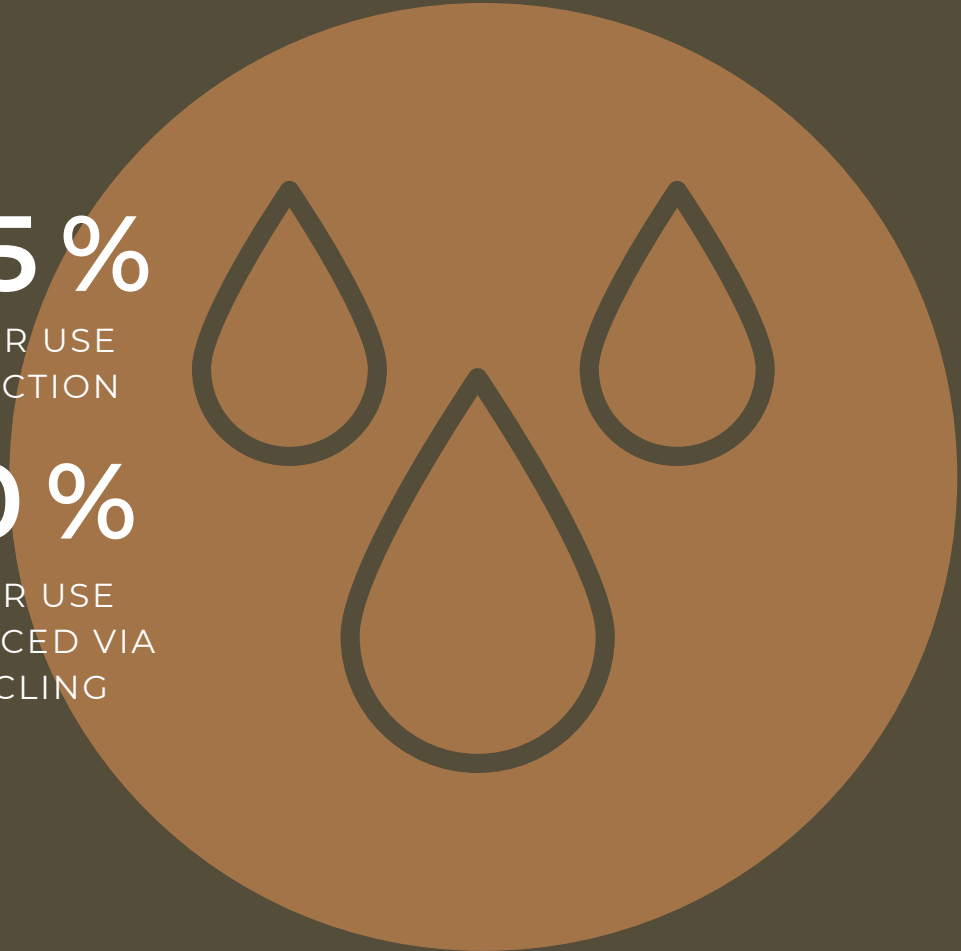
At Copperhead Sandalwood, we are committed to doing the best by our environment, our people, the communities we work in, the customers we work with, and the end consumers who will benefit from our products.

75%

WATER USE
REDUCTION

10%

WATER USE
REDUCED VIA
RECYCLING



0

ACCIDENTS



0

PESTICIDES
AND
HERBICIDES



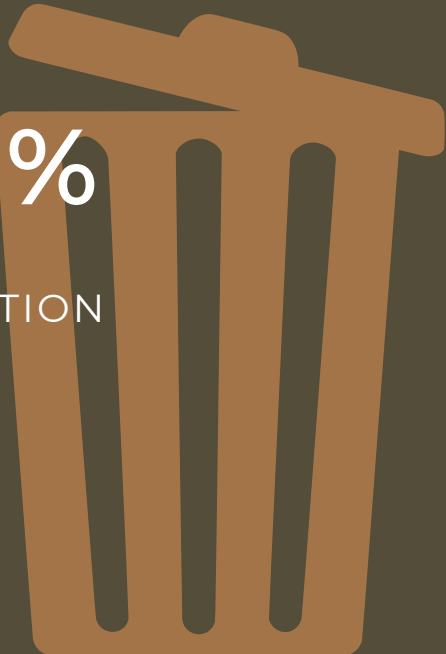
50%

BY-PRODUCTS
UPCYCLED



75%

WASTE
REDUCTION



1. OUR OPERATION

A proud family business, Copperhead supplies the world's highest grade sustainable 'Santalum album'. We grow Indian sandalwood sustainably in Australia's awe-inspiring East Kimberley region, and Northern Queensland, and also supply sandalwood to markets through our growers.

As native Indian sandalwood populations dwindle, the world has turned its attention to authentic alternative sources with traceable origins to satiate its craving for this sacred resource.

Under the tight quality control and the guidance from our experts, Copperhead grows, harvests, processes and distils pure origin Indian sandalwood to satisfy the finest end-market products in fragrance, skincare, traditional medicine, aromatherapy and worship.



2. PROVENANCE



The Indian sandalwood (*Santalum album*) species has remained on the ICUN Threatened Species red list since 1998, and despite conservation efforts, the native population has continued to decline according to the most recent Global Tree Assessment, conducted by Botanic Gardens Conservation International (September 2021). Whilst native populations have dwindled in India due to hundreds of years of over-harvesting, our plantations in the pristine far north of Australia are one of the world's only sustainable sources of this sacred tree.

TRACEABILITY

Reaching across each element of growing, harvesting and distilling Indian sandalwood, we are able to trace each step in the life of our trees and verify their authenticity for the benefit of our customers and end-market consumers. By running a vertically integrated farming operation, we are not only minimising our impact on the planet but providing transparency to our customers about where their products come from and how they are made.

3.

BIODIVERSITY



One of the environmental benefits of farming Indian sandalwood is that by virtue of its parasitic nature, it requires up to four host trees in order to flourish. The abundant biodiversity that comes with planting various species of trees within the plantation creates a rich ecosystem of wildlife and forest-health, which feed each other – a phenomenon not usually associated with plantation farming.

4 HARVESTING & PROCESSING

Our harvesting operations are managed in partnership with the local Indigenous community, providing stable employment opportunities to East Kimberley locals.

Once harvested, sapwood is removed by hand to ensure that no heartwood, the oil-bearing part of the tree, is overlooked. Very few commercial operators in the fragrant wood industry use artisans to process sandalwood in this way due to the cost of labour, preferring to use machinery to unearth the heartwood.

Removing the sapwood largely by hand eliminates wastage and has allowed us to reduce energy consumption by 75%.

5.

PEOPLE & CULTURE

OUR VALUES

WE STRIVE FOR THE BEST

- We deliver excellent quality
- We are action orientated

WE ARE TEAM PLAYERS

- We treat people with respect and empathy
- We are friendly and helpful
- We are trustworthy and down-to-earth
- We care about colleagues, customers, the community and the environment

WE THINK OF THE BIGGER PICTURE

- We make a positive contribution
- We get involved in our community
- We are forward-thinking

WE ARE HONEST AND OPEN

- We question the status quo
- We embrace and drive change
- We are consistent and fair
- We encourage all ideas and suggestions



PEOPLE & CULTURE

CONT.

We commit to operating in a manner consistent with international human rights and uphold and advance human rights in everything that we do. We acknowledge that our activities have the potential to impact human rights and we manage this through our core business practices.

TRAINING

It is essential to have a workforce that is appropriately trained in our principles and operations. Key staff have appropriate training accreditations. As our small workforce grows, we are progressively developing our management system including policies, procedures and training materials.

WORKPLACE CULTURE

We strive for an inclusive, collaborative and supportive culture where employees are engaged and supported by leaders and colleagues to achieve their potential.

We employ, develop and promote staff based on merit and we do not tolerate any form of unlawful discrimination.



PEOPLE & CULTURE

CONT.

EMPLOYMENT CONDITIONS

Employment conditions are consistent with Australian law including pay, various leave entitlements, superannuation and workers compensation.

100% of employees are, by law, guaranteed access to social benefits including unemployment benefits, health care, leave entitlements and workers compensation.

HEALTH AND SAFETY

We provide a safe and healthy workplace compliant with WA Work Health and Safety legislation. We are a small company and have a record of zero accidents.

Employees must have appropriate safety training and accreditation relevant to their role e.g. forklift licence.

Employees also receive induction training which addresses health and safety aspects. Further training is conducted on-the-job under supervision of the relevant manager.

Safety aspects are built into existing operation procedures and training. We are doing further work to enhance our management system to maintain this level of performance.



PEOPLE & CULTURE

CONT.

INDIGENOUS PEOPLES

We recognise the traditional rights of Indigenous peoples and acknowledge their right to maintain their culture, identity, traditions and customs. We exercise cultural sensitivity and recognise and respect sites, places, structures and objects that are culturally or traditionally significant.

In relation to plantation operations or other projects that are located on lands traditionally owned by, or under customary use of, Indigenous peoples, we comply with all local laws and consult with the Indigenous leaders relevant to that land.

We are partnering with local grass-roots charities in the communities of Kununurra and Perth. Most recently we have supported the Piriwa Enterprise Hub, located in Balgo (Wirrimanu), which is a community driven organisation that focuses on activating female entrepreneurship.

PEOPLE WHO WORK WITH US

We expect our suppliers, partners and contractors to similarly observe the same human rights obligations as we do. When setting up agreements and contracts we ensure that the people who work with us understand and accept the same principles and standards.



RACHEL SIMS, ANTONETTE NJAMME AND KATHRYN NJAMME SHOT BY SARAH LANDRO, CAMERA STORY

6. WATER USE

Working towards a Climate Active Certification, via Cool Planet, Copperhead Sandalwood is making improvements across our supply chain and across all activities in the business to reduce water consumption.

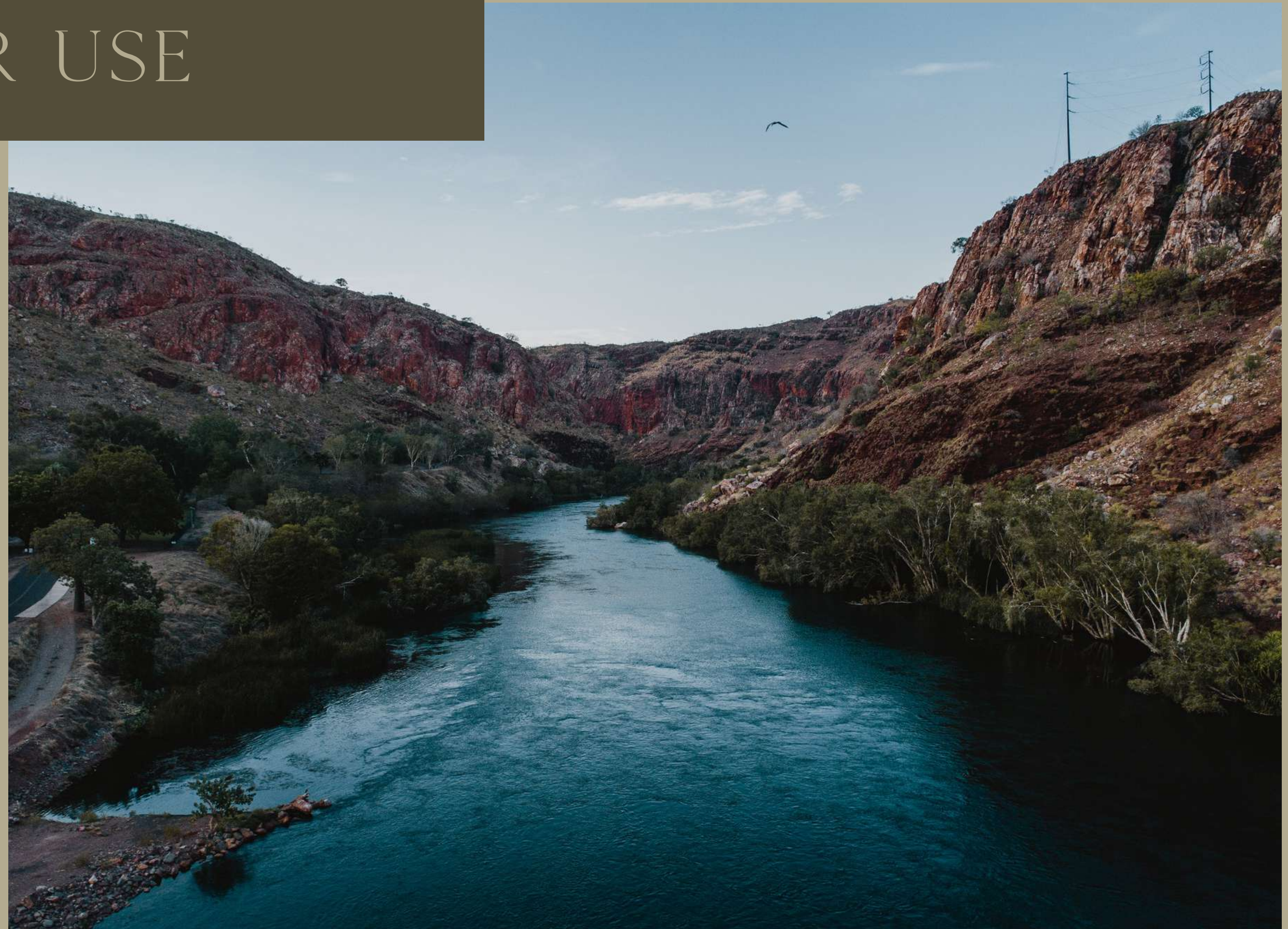
REDUCING DOWNSTREAM REFINING

A typical oil refining process takes around 5 washes in neutral water until the pH level is acceptable and safe for market distribution.

As we often distil from the heartwood only, we can eliminate the need to water wash after distillation.

By reducing the amount of sapwood in the distillation process we are able to reduce the amount of water and time used by approximately 75%.

We are continuing to develop our sustainability practices around waste and water management.



WATER USE CONT.

DISTILLATION

Steam distillation is our selected method of extracting sandalwood oil from the heartwood of our trees. The tree preparation method is a simple process of chipping the part of the tree being processed and then grinding/granulating the chip into a fine grain to powder consistency. This oil is then distilled from the granulated wood using steam. The condensate, known as hydrosol, is then separated from the oil.

Only oil recovered through steam distillation can be sold as Essential Oil. We do not use solvents or CO2 to recover oil as it produces a less desirable product below our quality standards.

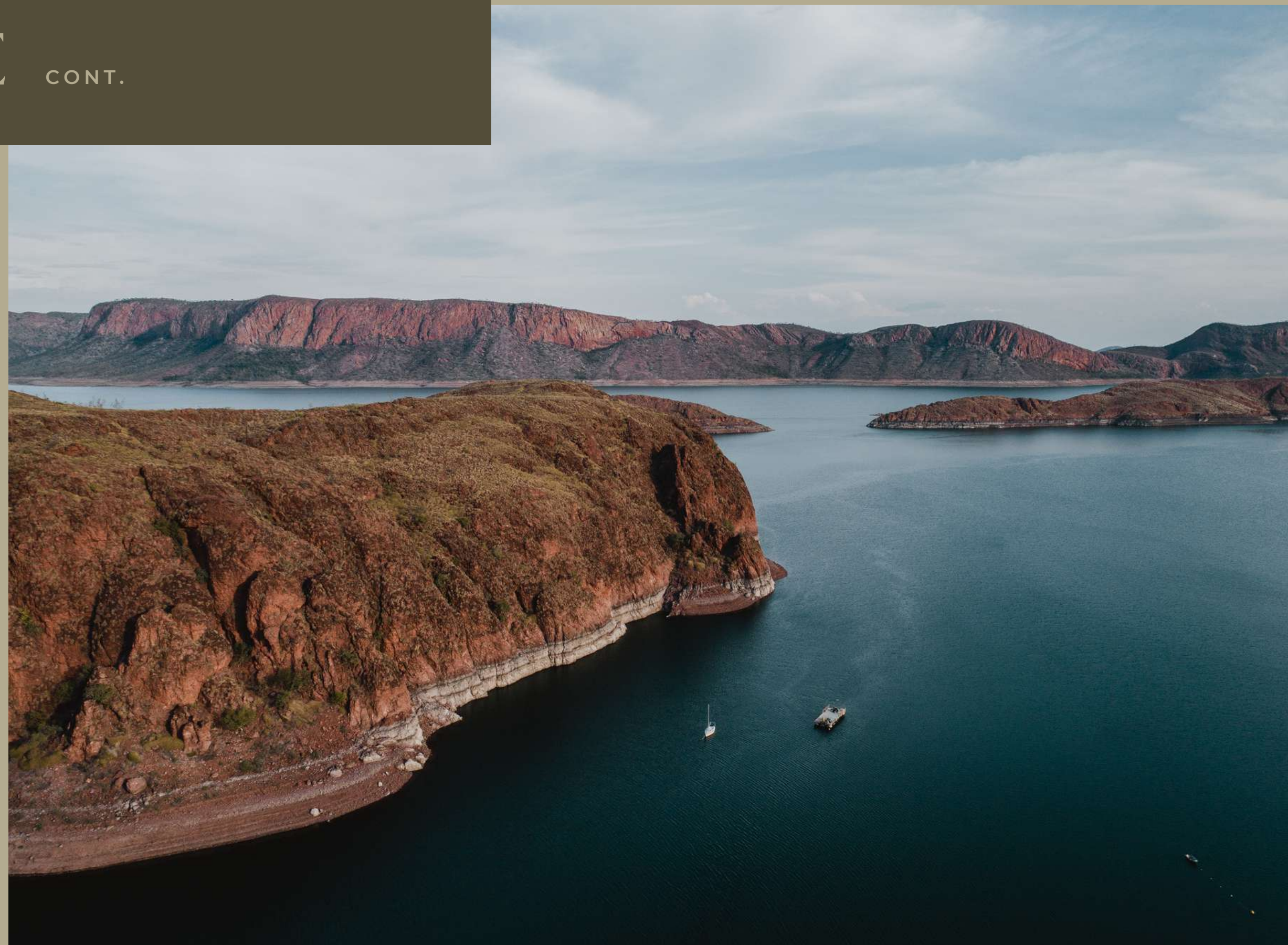


WATER USE CONT.

IRRIGATION

Our sandalwood plantations in Kununurra are irrigated with the water supplied to the Ord River region by the mighty Lake Argyle. Our farms in North Queensland have been strategically positioned to tap into one of Australia's most abundant water sources, rather than depleting scarce resources or extracting from subterranean wells.

During the Kununurra wet season, enough fresh water to supply Perth for 10 years is captured by the Lake Argyle system. Between October and February, the gates to Lake Argyle open, allowing roughly 2,500 gigalitres of water a day to pass through, whilst limiting flooding of adjacent land. During the dry season the gates close to allow for water storage and diversion to the irrigation channels, ensuring a year-round supply of water.



ENERGY



Working towards our Climate Active Certification, via Cool Planet, Copperhead Sandalwood is making improvements across our supply chain and across all activities in the business to reduce energy consumption.



Such improvements include:

- Consolidating shipping and haulage to one partner
- Consolidating distillation operation to one central location
- Making improvements to our steam distillation operations via desapping by hand
- Reducing stationery consumption and printing by implementing digital programs at our office in East Perth
- Consolidating office operations to one office

ENERGY CONT.



DESAPPING BY HAND

To improve the current distillation systems, and make them more sustainable, we have met the following objectives by desapping the sandalwood largely by hand, prior to distillation.

- Reducing energy demand/cost
- Reducing water usage
- Reducing/eliminating waste product
- Reducing downstream refining
- Keeping our oil within the ISO specifications



The heartwood is in the centre of the Indian sandalwood tree and is the most valued part of the tree used for distillation. The lighter coloured wood surrounding the heartwood is called sapwood, and is removed by hand, as opposed to machinery, to reduce energy usage. Desapping is not commonly used in Australia due to the expense of manual labour as opposed to machinery.

The amount of energy that can be saved depends on how much sapwood can be removed prior to processing and distillation.

By ensuring that the sapwood is removed and only the heartwood is distilled, we have saved 70-80% of energy. The less sapwood that is used, the more energy is saved.

8. CARBON

Through our partnerships with Cool Planet and Climate Active, we are striving to become carbon neutral by end 2023.

In order to evaluate our carbon footprint, we have engaged Cool Planet to gather the metrics around every aspect of our business from business travel, to refrigerants, staff vehicles, stationery and printing, energy consumption, water and air conditioning.

As well as working to become Climate Active Certified and to offset our carbon footprint, we have implemented various processes within our office and wood processing operations in order to reduce our daily energy consumption across travel, printing, transport and water.





9.

DIESEL FUEL USAGE

As a part of the forestry industry we understand that growing trees, including sandalwood and respective host trees, reduces the amount of carbon in the atmosphere, and using large quantities of fossil fuels to produce our product would be counterproductive.

Therefore, we have engaged leading industry experts Gaia Natural Capital to help prepare a 5-year plan to phase out all diesel usage and other fossil fuels.

HEARTWOOD DISTILLATION

Our reductions in downstream refining means that our overall diesel fuel usage throughout the distillation process has been reduced along side our water usage.

This way of distilling has dramatically reduced the amount of diesel used in our distillation by around 75% (5000L), compared to if the sapwood were to be distilled too.

10.

HERBICIDES, PESTICIDES & CHEMICALS



PESTICIDES AND HERBICIDES

We do not use any pesticides or herbicides in the growing and harvesting of our trees over the course of their lifespan.

CHEMICALS

Chemical use is strictly used for treating cooling water only. Procedures are in place for the correct labelling, and safe storage and handling of chemicals.

REDUCING POLLUTANTS DISCHARGED INTO THE WATER SYSTEM

We carefully monitor the wastewater from the steam distillation process which contains some natural tannins from the sandalwood. All wastewater is kept within safety and health regulations before re-entry into the storm water system.

11.

PRODUCT UPCYCLING

Every part of the tree is used during the product processes, ensuring our overall wastage is minimised. Any leftover by-products from these processes are upcycled to further reduce our waste. The by-products are:

01

HYDROSOL

At the end of each distillation process, we are left with around 20L of hydrosol (Indian sandalwood infused water). We then sell the hydrosol to cosmetic and skincare companies to be used as an ingredient in cosmetics. It can be used across serums, toners, and moisturisers.

03

SPENT CHARGE

The spent charge is, on occasion, sold as mulch to act as fuel for bio boilers. Our research work is progressing to find other applications.

02

HYDROSOL RECYCLING

Trials have been conducted to evaluate the effectiveness and safety of using hydrosol to replace evaporated water to top up the distillation cooling towers. Initial conclusions were positive.

04

SAPWOOD

We have trialled mixing a combination of sapwood waste and spent charge as an incense product.



SETTING GOALS FOR THE FUTURE

OUR PLAN TO ACHIEVE OUR SUSTAINABILITY GOALS

SUSTAINABILITY ASPECT	OUR OBJECTIVES	ACHIEVEMENTS TO DATE
CARBON CONTRIBUTION	Carbon neutral by end 2023 (Climate Active Certification).	On track to reduce carbon footprint and offset our carbon contribution by 100%.
UPCYCLING BY-PRODUCTS	Use 100% of the Indian sandalwood by-products resulting from our processing and manufacturing.	50% by-product upcycling to date.
ENERGY USAGE	10% reduction in energy consumption year on year based on current staff numbers.	75% reduction in energy consumption since changing our distillation process in Jan 2022 to only distil Heartwood.
WATER USAGE	10% reduction in water usage through water recycling year on year, based on current distillation volume.	75% reduction in water usage via water recycling technique adopted in Jan 2022.
CHEMICAL USAGE	Continue to operate using no pesticides or herbicides.	Nil pesticide or herbicide use.
ACCIDENTS	Maintain our track record of zero injuries. Continue to develop training and management system procedures.	Zero injuries.
COMMUNITIES	Partnering with local grass-roots charities in the communities of Kununurra and Perth, and supporting job opportunities for local Kununurra indigenous people.	We hire local indigenous workforces wherever possible for onsite logistics in Kununurra, and harvesting operations in Kunnunurra. Our target is to continue to support Indigenous communities by hiring at least 50% indigenous locals for our harvesting and logistics operation. To date, we have exceeded this target, by hiring 100% local indigenous staff for our logistics and harvesting operations in 2022.

