Great Victoria Desert Biodiversity Trust

# Newsletter

2024

**An update from the Trust**

## Introduction

***Welcome to the 2024 edition of the Great Victoria Desert Biodiversity Trust (GVDBT) newsletter.***

*The Trust has continued with ongoing partnerships and projects to enhance the knowledge of the GVD, providing support and funding to Traditional Owner groups and other not-for-profit associations throughout 2024.*

*The Trust website has been upgraded to provide an up to date portal for all our information and projects. To access the website please go to gvdbiodiversitytrust.org.au and while you are browsing all of our publicly available information send the link to anyone you feel may benefit from being on the Trust mailing list*

*2024 has provided the two subregions of the Great Victoria Desert, the Shield and Central, the focus of the Trusts activities, with an unprecedented rainfall event that is being called a 1 in 1000 year event. Read about the Trust's field trips to the area and enjoy the photos of what some say is an historic event.*

*Field trips to the Trust's Landscape Conservation Initiative (LCI) research areas have yielded results, capturing Sandhill Dunnarts and a large assemblage of native and feral fauna species on the monitoring cameras. We are looking to restart the whole project with Curtin University into 2025 and beyond. Allowing for a project that encompasses not only fauna monitoring cameras but also pitfall trapping, eDNA analysis and Malleefowl mound mapping and monitoring.*

*Updates on the continuing projects with the Indigenous Desert Alliance (IDA) and the Pila Nguru Aboriginal Corporation (PNAC) will give you an insight into how these organisations are working with the Traditional Owners of the GVD to improve biodiversity throughout the region.*

*The Trust has signed an agreement with Landgate to supply high quality fire scar mapping data. This will add to the existing database held by the Trust allowing for fine scale mosaic burning through the GVD with Trust projects and Traditional Owners.*

*Updates on changes to our Management Panel and a profile of our latest member round out another challenging and incredible year for the Trust.*

*We hope you enjoy reading this edition of our newsletter. If you have any comments or questions on the articles or you would like further information about the Great Victoria Desert Biodiversity Trust please contact the Operations Manager, Ian Anderson at* ian.anderson@gvdbiodiversitytrust.org.au

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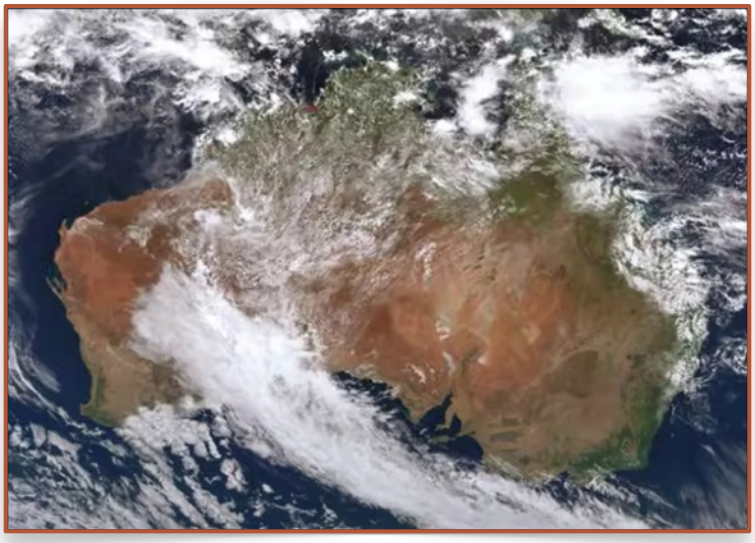
Sunset in the Great Victoria Desert. Photo: Ian Anderson

## 1. A 1 in 1000 Year Rainfall Event in the Great Victoria Desert

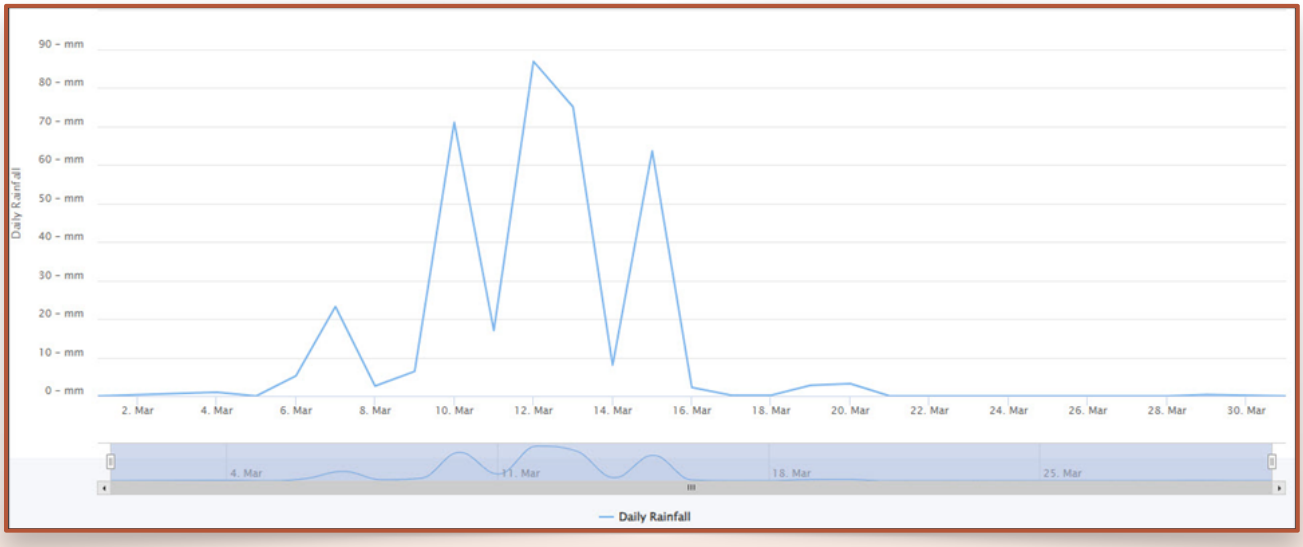
**In March this year a slow-moving trough combined with tropical moisture produced thunderstorms and moderate to heavy rainfall in central and south-eastern parts of the state between the 9th and 13th. A number of sites had their highest March daily rainfall on record.**

Eyre, in the far west Eucla district, recorded March rainfall of 352.4 mm, its highest monthly rainfall for any month on record. The daily rainfall of 141.2 mm on the 10th and 129.4 mm on the 12th were its highest and second-highest daily rainfall respectively for any month on record.



Satellite image of the slow moving trough over the GVD 10th March 2024

Where the Trust has their two weather stations within the Landscape Conservation Initiative (LCI) project areas within the Great Victoria Desert (GVD) rainfall began falling on the 6th March through to 16th March, with lesser falls continuing through to the 21st March. The total rainfall recorded for the project area was 367.2 mm for the management area and 368.8 mm for the reference area.




Rainfall data from the Landscape Conservation Initiative Management Area March 2024

Annual rainfall for the Great Victoria Desert is usually low and irregular with annual averages between 200 to 250 mm per year. Thunderstorms can be the main driver for rainfall in this arid environment with up to 15 -20 per year mainly throughout the summer months.

Flooding throughout the Management area within the GVD. Photos: Ian Anderson

This unprecedented rainfall event has been considered by western standards to be a 1 in 1000 year event with major flooding through the GVD washing out access tracks and secondary roads throughout the region. Access through to Tjuntjuntjara, other remote communities and mining tenements from the Trans Access Line were completely inaccessible providing challenging conditions for resupply and accessibility.

Large swathes of the country were inundated with water in the low-lying areas with an incredible array of water birds making their way into the GVD to opportunistically forage within the areas.

## Field Trip

A field trip to the Trust's LCI areas located below Plumridge Lakes Nature Reserve in April 2024 encountered large bodies of surface water in the low lying areas of the GVD making for hazardous conditions for travel through the area. Staff were confined to formed tracks while traversing throughout the area with sections of track up to 400m in length completely inundated.

Grey Teal recorded on the fauna monitoring cameras in the Management area April 2024

The potential for an increase in the breeding potential for fauna species throughout the GVD and a bumper wildflower season will be investigated and documented during the next field trip. Reports will be in the next newsletter.

Negotiating low lying areas on the Cable Haul Rd April 2024. Photo: Ian Anderson

Track erosion due to March rainfall in the GVD. Photo: Pila Nguru Aboriginal Corporation

## 2. Landscape Conservation Initiative Updates

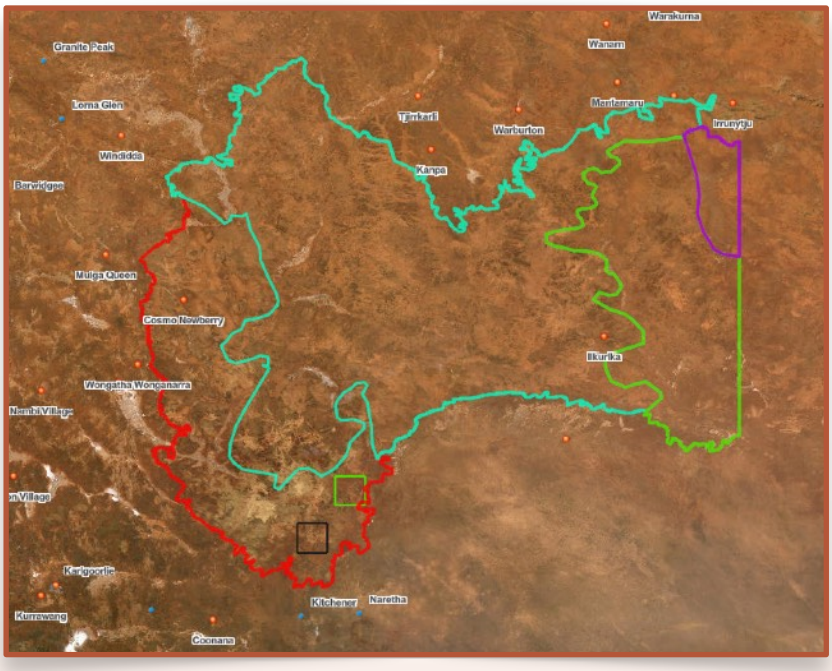
**The Trust is continuing with the Landscape Conservation Initiative (LCI) within the southwestern area of the Great Victoria Desert (GVD) after the program was put on hold in 2022.**

To put the program in perspective here's an excerpt from the executive summary from Burrows. N. 2020. Fire and Introduced Predator Plan for the GVD Fauna Management Area. The report is available on the Trust website.

*"Altered fire regimes and predation by introduced predators (feral cats and foxes) have been implicated in the post-European settlement decline of Australia's arid zone fauna, including in the Great Victoria Desert (GVD). Medium-size mammals and some bird and reptile species have been most severely affected. While predation by introduced predators is likely the primary cause of declines, this has been exacerbated by highly altered fire regimes. Today, intense spring and summer bushfires in the Great Victoria Desert kill countless numbers of animals and remove vegetation over very large areas, destroying habit and exposing surviving fauna to predation.*

*Two 'project areas', each ~100,000 ha, have been selected, in accordance with a set of criteria, in the southwest GVD; one area will be an unmanaged reference area, the other, a managed area. Consistent with adaptive management, western science and Aboriginal knowledge was used to develop current best practice fire management and introduced predator control plans for the management area. The fire management plan aims to mitigate adverse impacts of bushfire by significantly reducing their size and intensity, and to create a fine-scale mosaic of seral stages fuel ages ranging from recently burnt to long unburnt.*

*This will be achieved by an annual program of aerial patch-burning under cool weather*




Project areas shown as the black and green squares in the south west of the GVD. Black square represents the Management Area, green square represents the Reference Area

*conditions in autumn - winter, supported by on-ground (hand) burning of roadside buffers. Suppression is usually not feasible in these remote landscapes so is not part of the fire management plan. The annual burning program – what areas and how much to burn – is guided by the current areal proportion of seral stages / fuel ages with the aim being to maintain about 44% of the area as nonflammable early seral stage (≤6 years old), 42% as intermediate seral stage (>6≤18 years old) and 14% as late seral stage >18 years old). Influenced by lighting pattern and 'natural' and burnt firebreaks, the distribution of seral stages will be scattered rather than clumped.*

*Of the 100,000-ha management area, this will provide about 25,000 ha of sandhill dunnart habitat and about 14,000 ha of Malleefowl habitat. Increasing the area of older (flammable) vegetation by decreasing the area of younger (non-flammable) vegetation will significantly increase the risk of large, damaging bushfires.*

*Introduced predators (feral cats, foxes and wild dogs) are widespread throughout the arid zone. Feral cats are the most abundant and most difficult to control so represent the greatest threat to arid zone fauna, including Malleefowl and Sandhill Dunnarts. Annual broad-scale aerial baiting in winter with Eradicat® and in accordance with Western Shield protocols and procedures, is the recommended primary control strategy."*

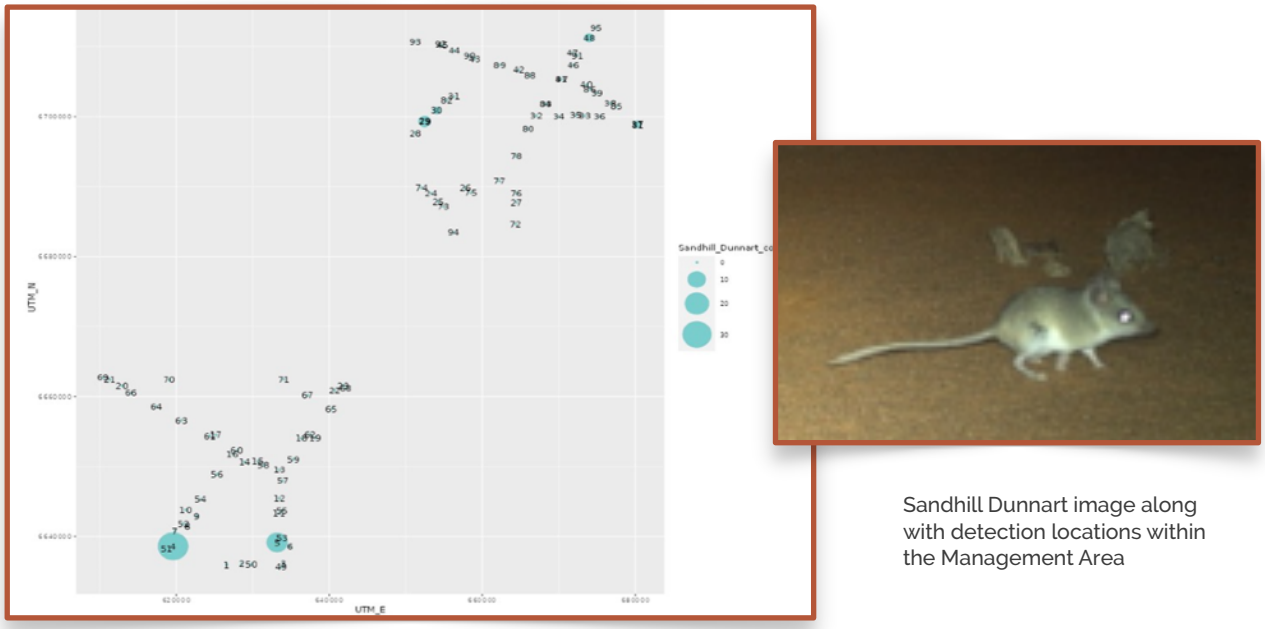
The program was formulated in 2020 with 96 fauna monitoring cameras deployed throughout the two project areas in 2022. Curtin University were contracted to extend the field work including pitfall trapping, camera service and replacement, eDNA sampling and Malleefowl mound monitoring.

At the request of the lawyers representing the native title claimants, the Upurli Upurli Nguratja (UUN), the program was postponed until further notice.

The UUN have now had their native title claim determined and the Trust has negotiated a Memorandum of Understanding (MoU) with the UUN Aboriginal Board (UUNAC) to access the project areas. This allows for The Trust and the UUNAC to co-design the LCI project and increase the knowledge of biodiversity within the GVD using both Traditional Ecological Knowledge (TEK) and western science.

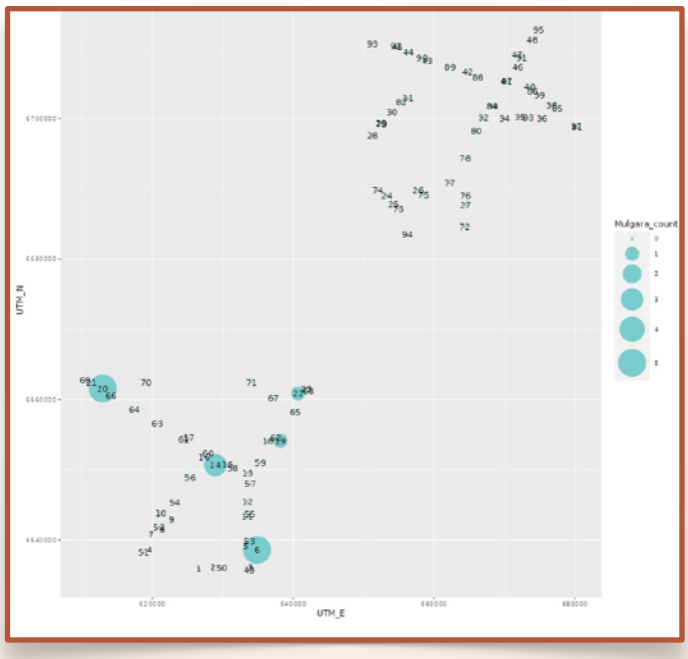
In August 2023 and April and November 2024, the Trust's Operations Manager and staff from the Department of Biodiversity Conservation and Attractions (DBCA) Goldfields region were granted access to the project areas by the UUNAC to service the fauna monitoring cameras

and the two weather stations that have been recording continuous weather data since 2021.This has resulted in baseline data on fauna assemblages including the recording of Sandhill Dunnarts (*Sminthopsis psammophila*) and Mulgara (*Dasycercus sp.*) with the data analysis carried out by Curtin University.




Sandhill Dunnart image along with detection locations within the Management Area

Mulgara image along with detection locations in the Management Area



The November 2024 trip was cancelled at short notice due to an unseasonal weather event dropping up to 70 mm of rainfall in Kalgoorlie with heavy falls extending into the eastern Goldfields and the GVD. The resulting road closures and flooding made the LCI areas inaccessible for the time frames that Trust had allocated to the trip. The Trust is looking to dates in May 2025 to access the LCI research areas in conjunction with the UUNAC and DBCA.

With the approval of the UUNAC the Trust is confident that Curtin University will be engaged to continue with the LCI project and co design On Country projects with the UUN beginning in 2025.

Thanks to Mark Cowan from Curtin University for the data analysis reports and the Upurli Upurli Nguratja Aboriginal Board for their ongoing support.

## 3. Updates from the Indigenous Desert Alliance Indigenous Fire Project

**The Trust has continued the partnership with the Indigenous Desert Alliance (IDA), signing a further three year contract for their GVD Indigenous Fire Project. The IDA represents Indigenous Land Management Organisations (ILMO's) to assist with specialised operational support.**

·May 2024, IDA supported desert rangers to come together on Ngaanyatjarra lands to undertake training in aerial burning practices. In June, rangers and Traditional Owners from Warburton, Blackstone and Jameson (some of whom participated in the training) participated in a cultural mapping and fire trip which resulted in them implementing aerial burns on a portion of the GVD which they manage. This was the first time trained Ngaanyatjarra rangers have directly implemented this type of fire management.

IDA also supported Spinifex Land Management in undertaking another cultural mapping and fire planning trip, based out of Ilkurlka in July. This trip resulted in Traditional Owners and rangers utilising a helicopter to undertake aerial assisted ground burning to

Campbell Watson conducting a burn to protect Wanari (mulga stands), potential Nganamara (Malleefowl) habitat, on the Anangu Tjutaku (Spinifex-Pilki-Untiri Pulka) IPA in July this year. Photo: Indigenous Desert Alliance

protect potential threatened species habitat in remote locations that were inaccessible from the road.

The IDA has highly skilled field staff who spend a significant amount of time working on Country with Indigenous ranger teams utilising traditional cultural fire management integrated with modern equipment. The use of aerial and on ground burning techniques and up to date fire scar mapping is critical to successful cultural fire management. The use of "right way fire" within the desert environment ensures that biodiversity and culturally acceptable burn activities are used throughout the GVD.

The Trust would like to thank Ed Muir and Dan Johannson from the IDA for their ongoing support and partnership with the GVD Biodiversity Trust.

## 4. Pila Nguru Aboriginal Corporation Spinifex Biodiversity Project Update

**The Spinifex Biodiversity Project seeks to deepen understanding of biodiversity in the Great Victoria Desert by integrating Anangu knowledge with scientific survey methods.**

Launched in May 2023, the project aims to conduct surveys for threatened fauna, such as Malleefowl (Ngananamara) and Sandhill Dunnarts. By collecting new data, integrating previous data collected by Spinifex Land Management, and applying Anangu knowledge the project increases our understanding of the region's biodiversity and informs conservation efforts.

The Milestone 4 report has just been released with a focus on field ecology work. Field ecology activities in the last six months included the following:

- Aerial survey for Ngananamara, their habitat, and nests via helicopter;
- Aerial survey for Ngananamara and nests via drone;
- Ground surveys for Ngananamara on foot;
- Training of Spinifex Rangers in motion sensor camera deployment;
- Deployment of motion sensor cameras around Ngananamara nests;
- Deployment of motion sensor cameras in Sandhill Dunnart habitat; and
- Ground feral animal control (camels).

Twelve Nganamara nests were found, inspected and recorded. Several of these showed strong signs of recent activity, including fresh tracks, diggings and shell fragments. One Spinifex Ranger even spotted one Nganamara and the feathers of another close to a nest.

A second visit to the area was conducted in August 2024. This involved re-visiting the previously identified Nganamara nests and collecting cameras deployed at nests and surrounding areas.

Other activities were conducted in the six-month period, including:

- Collecting cameras in remote areas of Spinifex country, which had been deployed in Recording of Nganamara tracks found at another location (away from previously identified mounds);
- Review of motion camera footage by Spinifex Rangers; and
- Feral animal control (camels, rabbits)

A third visit to the area was conducted in October 2024. This visit included:

- Visiting previously recorded mounds and inspecting for evidence of recent activity; and
- Collection and deployment of motion sensor cameras;


Echidna and Fat Tailed Antechinus captured on the motion sensor cameras. Photos courtesy of Pila Nguru.

**A range of fauna species were recorded on motion sensor cameras from June to September, these included:**

| Common Name | Species Name |
|---|---|
| Fox | *Vulpes vulpes* |
| Spinifex Hopping Mouse | *Notomys alexis* |
| Sandy Inland Mouse | *Pseudomys hermannsburgensis* |
| Dingo | *Canis familiaris* |
| Western Grey Kangaroo (Kulpit) | *Macropus fuliginosus* |
| Fat-tailed False Antechinus | *Pseudantechinus macdonnellensis* |
| Crow | *Corbus sp.* |
| Cat | *Felis catus* |
| Ningaui | *Ningaui sp.* |
| Crested Bellbird | *Oreoica gutturalis* |
| Unidentified Small Dunnart | *Sminthopsis sp.* |
| Grey Shrike-thrush | *Colluricincla harmonica* |
| Skink - Liopholis sp. | *Liopholis sp.* |
| Unidentified Marsupial Mouse (Mingkiri) | *Rodent sp.* |
| Camel | *Camelus dromedarius* |
| Chestnut Quail-thrush | *Cinclosoma castanotum* |
| Sand Goanna | *Varanus gouldii* |
| Skink - Ctenotus sp. | *Ctenotus sp.* |
| Euro (Kanyala) | *Macropus robustus* |
| Thorny Devil - Moloch | *Moloch horridus* |
| Knob-tailed Gecko | *Nephrurus sp.* |
| Bearded Dragon | *Pogona minor* |
| Willie Wagtail | *Rhipidura leucophrys* |
| Hairy-footed Dunnart | *Sminthopsis hirtipes* |
| Echidna | *Tachyglossidae sp.* |

| | |
|---|---|
| Perentie | *Varanus giganteus* |
| Australian Owletnightjar | *Aegotheles cristatus* |
| Military Dragon | *Ctenophorus isolepis* |
| Spinifex Slender Blue-tongue | *Cyclodomorphus melanops* |
| Splendid Fairy Wren | *Malurus splendens* |
| Yellow-throated Miner | *Manorina flavigula* |
| Rabbit | *Oryctolagus cuniculus* |
| Common Bronzewing | *Phaps chalcoptera* |

The project is now in its second year and is providing a greater understanding of faunal assemblages within the Spinifex determination area of the Great Victoria Desert.

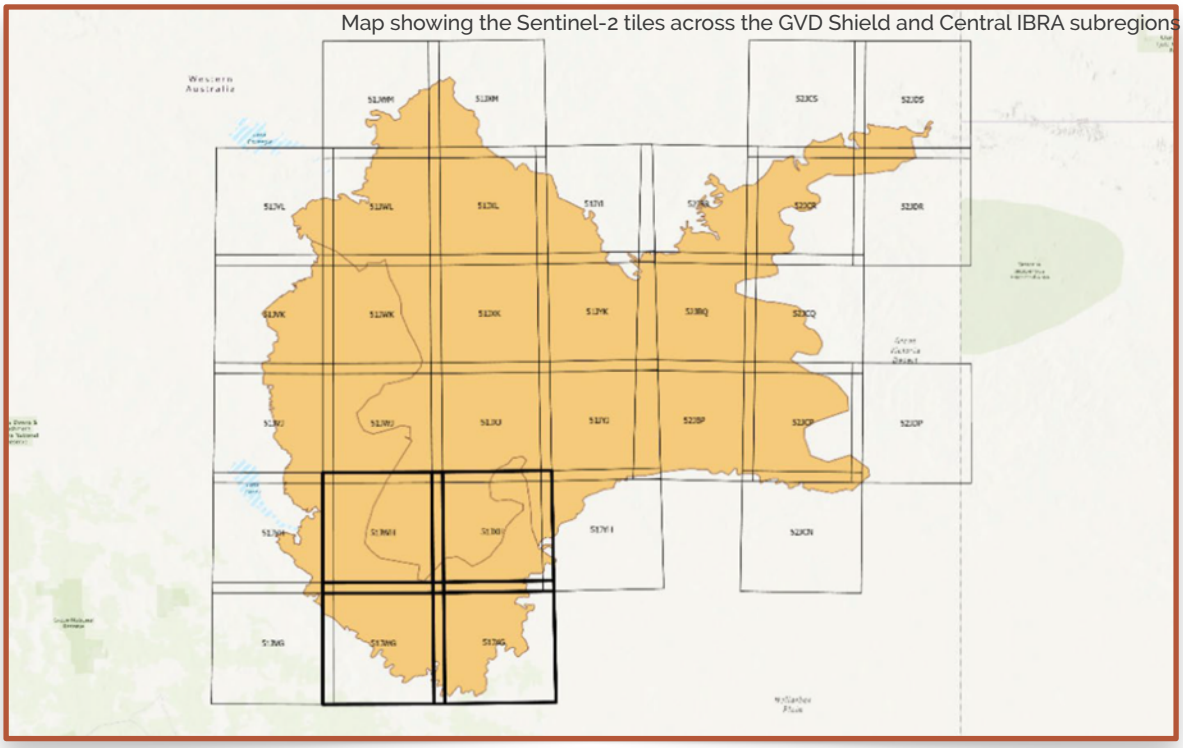
Thanks to the staff at Pila Nguru Aboriginal Corporation RNTBC for providing an update on this unique and important project.

## 5. Landgate Automated Fire Scar Mapping Completion

**In 2023, Landgate delivered a pilot project for the Department of Biodiversity, Conservation and Attractions (DBCA) delivering a service to automate the recognition of fire burnt areas (FBAs). The objective of the pilot was to determine the feasibility of replacing the manual service currently provided by the DBCA to the GVDBT. Feasibility was determined to be an 80% accuracy rate against the DBCA's previously manually digitised fire scars.**

The pilot program applied a bespoke algorithm created by Landgate and validated by DBCA against data from the Sentinel-2 satellites across that part of the Great Victoria Desert which comprises the four Sentinel-2 tiles (51JWG, 51JWH, 51JXG, 51JXH) outlined in thick black on the diagram below (Area One).

Following successful delivery over Area One, DBCA and the GVDBT upscaled the project to cover that part of the Great Victoria Desert which comprises the 28 Sentinel-2 tiles outlined in thin black on the diagram below (Area Two).

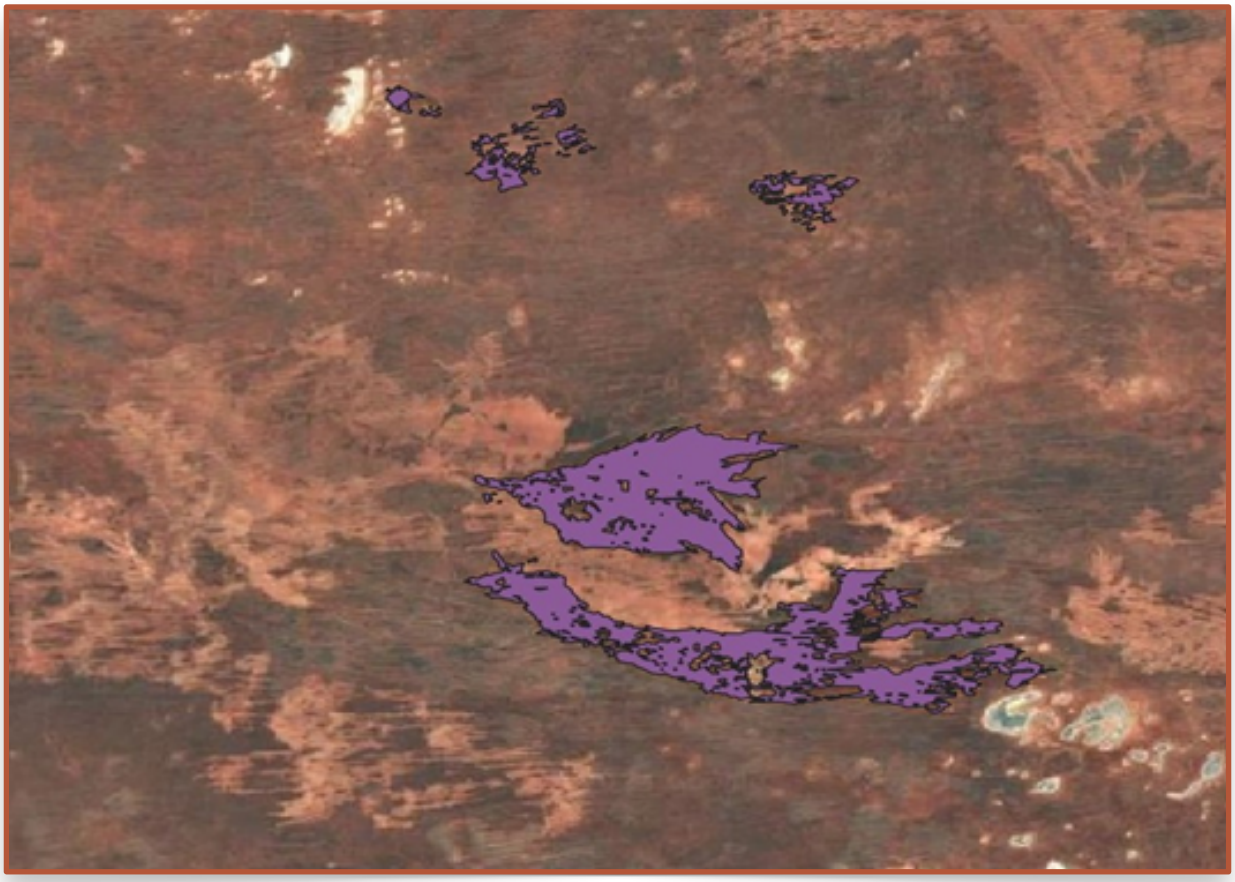



Map showing the Sentinel-2 tiles across the GVD Shield and Central IBRA subregions.

To ensure GVDBT has consistent datasets of FBAs for the 2021-2023 period, Landgate reprocessed the 2021-2023 Area One datasets created during the pilot program and delivered their processed datasets to GVDBT under the terms of the Agreement.

The main objective is to replace the reliance on a manual process currently undertaken by DBCA on behalf of the GVDBT with an automated system that detects FBAs over large areas at a 30 m or better resolution with 80% accuracy. The outputs will be used to support right-way fire management by First Nations people within the Trust Area and allow for fine scale prescribed burning within the Landscape Conservation Initiative.

The Trust would like to thank all the staff involved from both DBCA and Landgate to bring this project to fruition. The data will be available by request from the Operations Manager through our website [gvdbiodiversitytrust.org.au](gvdbiodiversitytrust.org.au)



An example of Sentinel 2 fire mapping data from 2021

## 6. Management Panel Update:

**Ben Miller our latest panel member and Nigel heads to Perth.**

Dr Ben Miller is a plant ecologist and Principal Research Scientist in DBCA's Biodiversity and Conservation Science where he leads the Fire Science Program team. Ben is a member of the

WA Threatened Ecological Community Scientific Advisory Committee, and adjunct Associate Professor with UWA's School of Biological Science. Growing up in Victoria's Yarra Valley with a fondness for maps, he completed his undergraduate degree and PhD at the University of Melbourne. For his PhD, Ben lived in Mexico City for 15 months, while undertaking field work in tropical rainforests in Veracruz and Chiapas, studying the population ecology of understory palms. Ben came to applied ecology after a half day of travel via motorised dugout upriver from

the Chajul field station in Chiapas, itself reached only by light plane, and on foot through forests inhabited by howler monkeys, toucans, jaguars, peccaries, and tayra to find a site where his study species – which preferred a rocky slope – could be found, and then discovering that that site, which was covered with palms, was a rocky slope only because it was a ruined Mayan city.

Subsequently working on a wide range of projects at Melbourne University, Kings Park and Botanic Gardens (BGPA; from 2007) and DBCA (since 2018) – with projects investigating the population and seed ecology of threatened plants across WA and Victoria (and of New Caledonian trees); mapping vegetation communities in a Pakistani desert national park; conservation and restoration strategy in Saudi Arabia; studying ecological restoration in mine sites across WA; grassy weed (and fire) management in urban banksia woodlands and remote tropical savannahs; and fire ecology in many WA ecosystems – Ben's research concentrates on spaces where developing, or using plant ecology knowledge aids in management for biodiversity conservation, fire risk and ecological restoration. His fondness for maps continues

**Ben** working with Bunuba rangers in Miluwindi Conservation Park in the Kimberley

through vigorous encouragement of other people modelling species distributions and using remote sensing to map fire regimes.

The Trust welcomes Ben as the latest member of the Management Panel and look forward to his valuable input and guidance and utilising his extensive experience in conservation and biodiversity science

Nigel Wessels has moved from the Regional Manager's position with DBCA Goldfields and has taken a position in the head office of DCBA as Senior Project Officer  Sandalwood and  has resigned his position with the Management Panel. We wish Nigel all the best with the new position and thank him for invaluable input and insights into biodiversity outcomes in the Great Victoria Desert.

Rebecca Ong has replaced Nigel as the representative for DBCA on the Trust's  Management Panel. Rebecca is the Regional Leader for Nature Conservation within the Goldfields Region and brings a wealth of experience within desert environments to the Management Panel. We welcome Rebecca to the GVD biodiversity Trust.

gvdbiodiversitytrust.org.au