

A man wearing a light blue t-shirt, dark pants, and a wide-brimmed hat stands on a dirt path in a dense forest of tall, thin trees. He has his left hand on his hip and his right arm extended, touching a tree trunk. The forest floor is covered in shadows and some sparse vegetation.

A short story

# Old Greg Found a Burrunan



Bug Blitz Trust  
EBOOK

## DEDICATION

*“I will argue that every scrap of biological diversity is priceless, to be learned and cherished, and never to be surrendered without a struggle.”*

Emeritus Professor Edward O. Wilson -Biologist

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# OLD GREG WALKS TO KEEP FIT

## Gippsland Lakes Coastal Park

Old Greg is a friend of mine and he likes to go walking along trails at the Gippsland Lakes Coastal Park, around Loch Sport. He walks to keep fit and he gets a sense of wonder from being in nature. This country is Gunaikurnai land so we paid our respects to elders before proceeding.

It's always a good idea to be prepared if you're going on a long walk. Let someone know when and where you are going, before leaving. Pack a charged mobile phone, a filled water bottle, hat, sunscreen and mosquito repellent. All plants and animals are protected in the park so taking pets is not allowed. Dogs, cats and hunting are prohibited in national parks.





## Enjoying Nature Walks

One of the reasons Old Greg walks is he enjoys seeing different birds, plants and animals as he strolls along. We spotted a Wattle Bird, a Little Raven and a Grey Fantail moving amongst the paperbarks and I heard Fairy Wrens calling alarms from the undergrowth as we walked. Also, the coastal and lake views along the trail are truly magnificent.



## Tracks in the Sand

This coastal woodland has sandy loam soils that support ancient Banksia trees, old Swamp Paperbarks, Manna Gums and Wild Cherry trees. Wattles are abundant and indigenous ground covers and sedge grasses line the trails in places. We noticed Tea Tree beginning to flower.

The old-timers say "When the Tea Tree flowers, the Snapper begin to bite."

We also noticed tracks in the sand. There were a large number and variety of tracks on the sandy trail. Humans had walked with dogs, birds had crossed the trail and I noticed the tracks of a small hoofed animal. You can see them in the photo below.



Hog Deer are an introduced species. They eat native plants and make trails through the coastal scrub.

Further along the track Greg and I noticed a curved, sweeping track in the sand, heading in the same direction as we were going. A Tree Goanna or Lace Monitor had slid around a bush and onto the track. These scavengers constantly flick their forked tongues into the air to pick-up scents in the environment. They eat carrion and can be a formidable ambush predator to an unsuspecting small mammal. They actively hunt baby birds and eggs in nests as well.



Shortly after seeing the monitor tracks, a Jacky Lizard darted across the trail and disappeared instantly into a cover of leaf litter. This sandy country is great for reptiles like lizards and snakes. Jacky Lizards are in the dragon family and they sometimes eat spiders. I've seen one devour a large Social Huntsmen. This park is a biodiversity hotspot!



Matt from Melbourne, Australia / CC BY  
(<https://creativecommons.org/licenses/by/2.0>)

# AGAINST THE CURRENT

## Greg Finds a Burrunan

We strolled further on the sandy track and found ourselves walking along the shoreline. It was there Greg saw a Burrunan Dolphin lying dead at the edge. That's probably where the Lace Monitor tracks were heading too.

Greg and I believe all dolphins are precious and we were sad to find such a beautiful and majestic creature lifeless. We wondered: How could it have died? What could we do?



## Ring the Marine Mammal Foundation

I suggested Greg ring the Marine Mammal Foundation to report the tragic find. With our mobile phones packed, we called and Dr Kate Robb, the very scientist who discovered this unique species of dolphin, answered.

Dr Robb was sad to hear about the loss and she asked us to take photos for her to examine. Kate hoped she could identify the individual dolphin and gain some clues about how it may have died.



## Taking Photos for Dr Kate

Mobile phones enabled Greg and I to talk with Dr Robb as we circled and photographed the dolphin's body. We described the size and any obvious wounds. Kate asked us to photograph its dorsal fin and its teeth close-up.

She explained how marine biologists can use notches and marks on fins to help identify individuals from a small population of animals like the Burrunan Dolphins of the Gippsland Lakes. Greg and I were surprised when we found out Kate estimated there to be 65 Burrunan Dolphins in the Gippsland Lakes population.



Greg circled the Burrunan taking a series of photos. The dorsal fin was damaged at its tip and it had a small notch cut out along the back edge. You can see this old wound in the picture.

Dr Robb asked us to photograph the dolphin's teeth, as this may help her to estimate the age of the animal. Wear and tear on teeth can be used by scientists for this purpose.

The dolphin also had a sizeable wound in the genital area.

# How Did the Burrunan Die?

You will remember bushfires burnt through a lot of forest in south-eastern Australia in 2019/2020. Huge amounts of smoke rose into the air and the burnt forest floors were covered in ash.

After the fires were controlled, heavy rain fell in Gippsland catchments causing: sediment, organic matter, metal contaminants, nutrients and ash from the forest floor to wash into the streams, rivers and lakes. The fire debris and ash clouded the water, changing the turbidity and chemistry. Freshwater poured down the rivers and flooded into the lakes, suddenly decreasing water salinity.

In the lakes, a layer of ash settled, coating the Seagrass and making conditions more challenging for filter feeders like Mussels and Seahorses. Nutrient increases can cause toxic algae blooms, further impacting water quality and marine life.

Did all of the ash and other bushfire debris in the lakes cause the Burrunan dolphin to struggle for life? If the water quality was effected, why didn't the Burrunan swim into ocean waters?

It's hard to imagine how fires in the mountains could affect animals in the sea, but this is a possibility. Bushfire debris and ash entered the water cycle over entire water catchments - with run-off flowing from the mountains into the sea.

Figure 2: An illustrative example of a water catchment



Source: Adapted from the North and South Rivers Watershed Association (NSRWAA)

The following morning I sent the photos we took to Dr Robb at the Marine Mammal Foundation. Kate sent an email reply the next day.

*Hi John,*

*Thank you so much to you and Greg for going to collect the photos, they are so very useful. We have been able to identify the Burrunan as one of our resident females (who has calved in the past). We are now going back through the records to see when the last time we saw her was. We did see her subadult calf last week and didn't see her, but thought it may have been due to the fact that the calf is now more independent.*

*One thing we are considering is if this had something to do with calving, given the state of that region. They generally calve every 3 years, but we need to do some more work looking through her sightings history. I will keep you posted.*

*With your permission, I'll forward some images to Department of Environment (DELWP) and the Catchment Management Authority. I have also attached a pic of where we believe the location is based on the images. Thanks again, this information is so valuable and we appreciate your help.*

*Best, Kate*



I have one final memory of our walk. We were just about to leave when I heard Greg yell "Hey, check this out! I'm in quicksand!" It was a sad day but we still really enjoyed the walk. Greg and I felt good about reporting the find to Dr Kate. We became citizen scientists by taking this action.



Did the Burrunan die whilst giving birth? She did have a sizeable injury in the genital area.

Did she die of old age? She was an adult dolphin but her exact age is still a mystery.

Could stormwater run-off after fires have contributed to her death? It is known that excessive stormwater run-off after fires can have impacts on water quality in rivers and lakes.

Can you think of any other possible reasons the dolphin may have died?

**How can you help? Report an injured or dead dolphin  
DELWP Whale and Dolphin Hotline 1300 136 017**

## Four months later

It is now about four and a half months since Greg and I reported the dolphin's death. Sadly, another five Burrunan dolphins have been found deceased in the Gippsland Lakes since then. Dr Robb partnered with a group of scientists and they began searching for answers.

I read about some of the scientific findings to date, in a media report by Jedda Costa from ABC Gippsland.

<https://www.abc.net.au/news/2020-12-22/gippsland-lakes-burrunan-dolphins-and-skin-disease>

## Fresh Water Skin Disease

The Burrunan Dolphins' had died of a disease named Fresh Water Skin Disease (FWSD). Veterinary pathologists completed an autopsy on a recently deceased dolphin. They found serious skin lesions on the body which had become infected, weakening the dolphin's immune system. Dr Robb and her colleagues believe this is caused by sudden and large increases of freshwater into what are normally saltwater or saline ecosystems, like the Gippsland Lakes.

After the fires, there was no plant and tree cover left to slow down and filter the water as it flooded off the mountains into the rivers and lakes. The floods flushed the saltwater out of the lakes with a huge burst of freshwater. For a period of time, the water was desalinated. It is in these conditions FWSD appears. Dr Robb and her colleagues are continuing to investigate the role of contaminants.

They also suggest climate change is playing a role. We are experiencing more severe and extreme weather events as our planet warms. For example, drought and very hot temperatures resulting in large fires, quickly followed by intense flooding events.

# Help to Protect Burrunan Dolphins

Visit the Marine Mammal Foundation to find out more about the amazing Burrunan dolphins of the Gippsland Lakes and Port Phillip Bay.

<https://marinemammal.org.au/about/>

Report an injured or dead dolphin @  
DELWP Whale and Dolphin Hotline 1300 136 017

Check out the marine litter project to find ways you can help to conserve dolphins and other marine life.

<https://marinemammal.org.au/marine-litter-project/>



*Watch the video below and learn  
how dolphins are identified*



# About the Author

Dr John Caldw has a PhD in environmental education. He specialises in outdoor field education, focussing on biodiversity conservation in wetland habitats. Being the Program Director for Bug Blitz Trust since its beginning, John has devoted the last 15 years to learning about invertebrates "The little things that run the world". Of them, spiders have become his favourite group to study. John has lived on a 40acre bush property in Gippsland's alpine foothills for 25years, which he has reserved for nature.



Bug Blitz Trust

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Technology, Maths and  
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## Contact

Dr John Caldw - Program Director  
[jmcaldow@activ8.net.au](mailto:jmcaldow@activ8.net.au)  
Erin Nowak - Program Facilitator  
[erinbugblitz@outlook.com](mailto:erinbugblitz@outlook.com)

