

GUM TIPS

March 2020



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BREEDING PROGRAM**

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**BUSHFIRE
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News
**WILDLIFE DRINKING
STATIONS**

REPORT BY CLINICAL DIRECTOR, CHEYNE FLANAGAN



Where does one start? Australia has been in the grip of the worst drought in recorded history with rivers literally stopping flowing, dams drying out, eucalypts dying and so many species of wildlife dying of starvation and dehydration. And then along came the bushfires.

The only way to describe these bushfires is hell on earth. Armageddon. It has been horrific, terrifying and so heartbreaking. From October 2019 through to January 2020, it felt like the whole country was on fire with every news media outlet showing footage that was just unbelievable.

From a wildlife perspective and of course from a koala perspective, the impact on our unique and beautiful wildlife is still largely unknown. It is likely some species have been wiped out completely. We despair for so many millions of animals who have perished and

those who remain alive and are struggling to survive. We weep for them all.

For the wild koalas of New South Wales (NSW) the impact of bushfires and drought has had a major impact on the overall population. Well over 30% of identified koala habitat in NSW has been wiped out in bushfires so far. The overall loss is still to be estimated. Nonetheless it is likely that approximately 2,000 koalas may have died.

The drought affecting Australia and particularly NSW, which has been occurring for a number of years has certainly had a major impact on koala populations particularly on the tablelands and western plains regions of the state.

Koalas obtain the majority of their daily water needs from the eucalypt leaves themselves, and when severe drought occurs, even the eucalypts struggle to survive

and koalas consequently cannot get enough water. Koalas are then forced to go to ground seeking water which of course is often hard to find. This is why we often see footage of koalas chasing people on bicycles. They can smell the water in the drink bottles and the fear of humans is overridden by the need for water.

In recent times, one of the common causes of admission to care has been extremely dehydrated and starving koalas particularly into facilities in western NSW. The same problem is reflected in all other species such as kangaroos, flying foxes (bats) and even birds who are also suffering just the same.

So all our koalas and other wildlife were already struggling with drought – and the bushfires were just the last straw.

When the bushfires first hit our region, they were of such high intensity and so big they created

Front cover images show some of our bushfire victims.

Clockwise from top left: LINR Samantha and Joey, LINR Anwen, Ruins Way Baz, Nabiac Austin, LINR Paul. Anwen, Baz, Austin and Paul were all burnt in bushfires; at time of print they continue to recover at the Koala Hospital.

Samantha and Joey did not suffer burns but were left homeless by the bushfires. They are two of many koalas being cared for at the Hospital until their bushland homes regenerate enough to sustain them.

their own weather! The skies looked like an atomic bomb had hit, and the smoke was so thick it was almost dark in the middle of the day.

Our search and rescue teams started to prepare. All of our team are fully qualified with Rural Fire Service, have all the correct fire gear and are experienced in undertaking this gruelling, hot difficult job. Once the teams were allowed in, the search work began.

Burnt koalas began to be brought into the hospital for assessment and treatment. We were also treating kangaroos, possums, and turtles.

We had so many burnt patients coming in, we decided to set up a second examination table and anaesthetic machine and we had two teams of qualified/experienced burns staff treating koalas on both tables at the same time. It almost

seemed like there was a conveyor belt of koala patients coming through the doors!

Sadly not all the koala patients who came into the hospital survived their ordeal. It is likely their systems were so compromised from the drought, that suffering burns as well was just too much for some. We also had to make the decision to euthanase a few of them as their injuries were too severe. Everyone will remember the haunting footage of the koala running into the active fire and the kind lady who ripped off her shirt and captured him from the flames. That koala was Ellenborough Lewis and his burns injuries were such that even with the best burns treatment available for koalas he would have suffered a life of pain. The Koala Hospital is first and foremost an animal welfare organisation and we will never keep an animal alive if we feel the

future is one of permanent pain and suffering.

Every animal is precious to us in more ways than one.

We must also appreciate that we still had and still have all our normal patients being admitted during this time. Koalas were still coming in being hit by cars and suffering from diseases, etc.

We have also taken burns patients from other locations in NSW as well so the hospital is still at capacity. We have had to resort to building off site enclosures on private land to accommodate all the patients!

We will be keeping the burns patients here until at least next winter. Their injuries should have healed well by then, plus hopefully the vegetation on the firegrounds will have returned.

We have had some magnificent rain in NSW but not enough to break the drought.

CONTENTS

Report by Clinical Director, Cheyne Flanagan	2	Providing water to wildlife.....	12
Report by President, Sue Ashton	5	Impact of recent bushfires.....	14
The koala burns ward (bushfire victims)	6	Trees for life	16
Fires drive new era for Koala Hospital	8	Koala Smart.....	17
Wild koala breeding program.....	10	Young voices.....	18
Brand new Koala Hospital.....	11	Extraordinary generosity.....	19

Erratum: We apologise for an error in December 2019 Gum Tips. On page 8, the image captioned *Young Rose can be quite active!* should have been credited 'Image courtesy of Port News'.

We are all so proud of our volunteers. Everyone has worked really hard, longer hours and more days. Many of our volunteers have been working in a number of different jobs and the workload is still very high. What a great team we have.

The response worldwide to Australia's catastrophic bushfires has been overwhelming. The outpouring of support both in donations, supplies and offers of help has and continues to be amazing.

We will be able to do incredible projects with the donations. We will be commencing a wild koala breeding programme and we will buy land for conservation purposes. We are determined that we will not lose this much loved icon of Australia. We will endeavour to protect and manage these conservation lands using knowledge that will come out of the current situation. The big bonus is all the other plants and animals that live in the same environment as koalas will be protected as well.

We thank all of you for your amazing support.



A new arrival, just rescued from a fireground, is assessed in the clinic at the Koala Hospital.

FREE KOALA FOOD TREES AVAILABLE!

Our annual free koala food tree distribution is scheduled to start again mid March. This is a great opportunity for local landholders, residents and organisations to help with renewal of vital habitat. Tube stock trees will be provided by Forestry Corporation of NSW and will be available for collection from the Port Macquarie Koala Hospital. Information is available about how to plant and manage the trees for success.

This year, we anticipate up to 35,000 trees will be made available for collection across these species:

Eucalyptus robusta (Swamp Mahogany)

Eucalyptus tereticornis (Forest Red Gum)

Eucalyptus punctata (Grey Gum)

Eucalyptus microcorys (Tallowwood)

To make a reservation for 40 or more trees, email habitat@koalahospital.org.au or call 02 6584 1522. For smaller plantings, simply call to check stock is available on the day you plan to arrive.

REPORT BY PRESIDENT, SUE ASHTON



In what will be remembered by most as the worst summer in Australia's recent history, the bush fires have brought about a huge volume of work for the Port Macquarie Koala Hospital which has seen many of our 150 volunteers working extra shifts, and doing extra jobs, just to keep the hospital going. My thanks to the many people who have volunteered time to help the Koala Hospital.

In addition to an increased 'in-house' workload, our volunteers have been busy helping others and being recognised for the outstanding job they all do.

January - Search and Rescue

– three of our volunteers, and honorary member, Pete the Port Tree Fella, spent 10 days searching for wildlife in fire ravaged areas in Cooma, southern NSW. The team also trained people from local and international wildlife organisations in capture and search techniques. We are very proud of this team and that the Port Macquarie Koala

Hospital could share its knowledge and experience in the search and rescue of wildlife.

Australia Day – the Premier of NSW recognised people and organisations that contributed during the bush fires that ravaged NSW from late 2019. A photo of three of our people was projected onto the sails of the Sydney Opera House on Australia Day night. The photo represented everyone at the Koala Hospital and the plantations and was well deserved recognition of our hard working volunteers and staff.

In February – a NSW Government Parliamentary Inquiry looking into koala populations and habitat in New South Wales, held a session in Port Macquarie. The Koala Hospital was invited to give evidence in December 2019 and again in February 2020.

An international artist, Russ Ronat, who paints endangered wildlife, painted pictures of some of the Port Macquarie Koala Hospital koalas. An exhibition of the art

works was launched in Port Macquarie in February, before moving to the Wentworth Gallery in Sydney.

In March – As part of the United Nations (UN) World Wildlife Day 2020, the Koala Hospital's Clinical Director, Cheyne Flanagan, is presenting at the UN Paley Center in New York, at the 'Wild Ideas 2020' a think-tank for nature and community. The theme for the event is 'Global Warning: Wildlife vs Wildfire'. Cheyne's presentation will cover the recent Australian wildlife emergency in which an estimated one billion animals have been killed by the bushfires. Dr Rebecca Montague-Drake, Koala Ecologist for the local Koala Recovery Program will also be presenting at the event, along with Nick Boyle from Taronga Zoo.

We have a lot happening at the Port Macquarie Koala Hospital and I look forward to updating you on more activities in the next issue of Gum Tips.

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THE KOALA BURNS WARD



A bushfire victim receives vital fluids on admission to the Koala Hospital.

In both the veterinary and the human medical world, there are many different opinions and treatment plans for treating burns. We are no different at the Koala Hospital. We prefer simple straightforward methods that work well and efficiently.

As firegrounds are still very dangerous places after the main fire has gone through, it is often days before it is safe for search teams to go in (burning trees and limbs can fall). Consequently, in most cases rescued koalas' burns have cooled by the time they are captured, so the initial attention must be focused on dealing with extremely dehydrated burnt animals that are also in pain.

During recent the fires, all of the admitted burns patients were only given fluids for the first 24 hours, plus pain relief and quality nutrition. Once they were well hydrated, often the following

day, they were then placed under a general anaesthetic and their burns injuries were treated and bandaged. As koalas (like most wildlife) don't cope well with lots of anaesthesia, we found it best to only do bandage changes every three days. Obviously every day would be the ideal but we were

not prepared to risk their health any further. This system worked really well. After two weeks, as their burns injuries improved we extended the bandage changing to every 4-5 days. It was a great day when we decided that they no longer required bandaging and therefore no anaesthesia or stressful handling.

Our burns team are quick and efficient. Our system was to first quietly anaesthetise the koala, then whilst one staff member monitored the anaesthesia, four staff were given a limb/foot/section each to work on, the wounds were checked, photographed, bathed, debrided (dead tissue removed), burns cream thickly applied, then the burns were bandaged to allow movement of digits. All burns sites were also gently massaged with burns cream to reduce the effects of contracture which can be a major issue in burns



LINR Anwen in the early stages of her recovery.

patients. This whole procedure took approximately 15 minutes. The anaesthesia was turned off and the koala was given fresh oxygen for 10 minutes. Having a burns team to treat all the patients made it so much quicker and better for each individual koala. As we had so many patients, this system allowed two burns teams working on different koalas on different examination tables at the same time – hence the conveyor belt feel about the whole exercise!

We were given the loan of a laser whose job is to accelerate healing. We were quite impressed with this laser and have now bought one.

In the early days a number of the burns patients wouldn't move off the floor of the units, so they spent their days asleep on blankets with a canopy of fresh eucalypt branches sitting in a bucket beside them. What 5 star service – breakfast in bed!

Eventually they began to climb which indicated that progress was happening.

Even though burns do result from direct flame such as burns to the hands, feet and faces, the majority are from radiant burns which do not actually touch the skin, but the heat is so intense that burns occur (like opening a very hot oven door). Koalas can be admitted with singeing of the fur – which appears as brownish black shortened fur. These radiant burns can hide



The Koala Hospital burns team in action.

severe tissue damage that usually emerges weeks later and in rare cases months later and can be slow to heal.

Not all of our admitted bushfire koalas survived. Some were so compromised they died very early on, in spite of our best efforts. Some we made the decision to put to sleep as their injuries would have resulted in a life of permanent pain.

Some burnt koalas also arrived with the bacterial disease chlamydiosis (wet bottom or diseased eyes) so had to be treated for both burns and disease. Weeks after admission chlamydia emerged with some burns patients who had arrived clinically clear of the disease. It is likely in these cases, the koala had

got over a previous infection, prior to the fires, but the overwhelming demands on the body, caused a poor immune response and the disease re-emerged.

The future for these burns patients? It is likely that some of the koalas will be able to be returned to their point of capture once the vegetation has returned and they are fully healed. This could occur as early as mid June/ July. Others may take longer and some will remain with us permanently.

At time of print we are thankful that there has been heavy rain in parts of the country and the fire danger has receded to some extent. However, so far the inland drought has not been broken.

HORRIFIC FIRE SEASON DRIVES NEW ERA FOR KOALA HOSPITAL



Scat detection dog, Taylor, lays down indicating to her handler, Ryan Tate, that she has found a koala on the firegrounds.

The animals are always our first and foremost priority.

Since the local fire at Lake Innes Nature Reserve started in October 2019, the Port Macquarie Koala Hospital has experienced the busiest period in its history. Whilst we have in the past managed big increases in koala admissions from previous fire events, the extent of the fires locally, as well as nationally means we have moved into a different era.

Firstly, the local fires impacted huge areas including Lake

Innes Nature Reserve and Conservation Area, State Forests at Ballengarra and Bellangry, Kindee, Ellenborough, and Crowdy Bay and Werrikimbe National Parks. The devastation of our local genetically-diverse koala population was widely publicised by the media, and the public were quick to understand the potential impact for koalas in the whole country. The rescue and treatment of koalas burnt or affected by fire was of paramount importance, but at the same time media interest, donations and adoptions, Hospital visitor numbers, telephone calls and email activity all moved quickly to a new level and continued to accelerate.

Later in December and January, the horrific fires grew in size and intensity across huge areas of New South Wales, Victoria, Kangaroo Island in South Australia, and the Australian Capital Territory. Public desire to help precious wildlife in whatever way possible has resulted in even more generous giving by people not only in Australia but around the whole world. The fact that news is now delivered real-time and globally, means that people literally everywhere know about the catastrophic fires, the human impact, the incredible work of Australian volunteers especially the volunteer firefighters, and

the tragic consequences for our unique environment and wildlife, widely-loved around the world.

This is the busiest period in our history.

Our volunteers

In addition to the increased clinical activity and koala care, we are managing unprecedented levels of generosity from businesses and organisations as well as the public. The Hospital has never in its history experienced this concentration of interest from the public, and the media. The genuine care and generous actions of so many people from



Volunteer, Jackie Moody, has taken on many extra shifts over the bushfire period. Koala care in ICU is her speciality!



Volunteer, Margaret Richardson, has been working hard in the offices and administration area.

all over the world has been a huge encouragement to volunteers as we have all stepped up to take on so much more.

Media visits have become part of daily life, with film crews and reporters wanting to tell the world not only what we are doing here at the Port Macquarie Koala Hospital, but also the much wider story of the suffering and destruction of wildlife across huge areas of eastern and southern Australia.

Our search and rescue teams, all trained and accredited with New South Wales Rural Fire Service, covered around six thousand acres of firegrounds over the initial five-week period. Peter Berecny (Port Tree Fella) has been providing ongoing, invaluable support with his elevated work platform on crawler tracks, helping us to rescue

injured koalas high in the canopy. Ryan Tate with his enthusiastic and reliable scat detection dog, Taylor, accelerated the pace at which search and rescue teams could confidently check firegrounds. Ryan and Taylor were successful at locating many koalas within the firegrounds and enabling the teams to track where koalas had recently been. Our search teams also worked in the Taree/Manning/Forster region for several weeks just prior to Christmas. At the time of print, we have a search team working in the Snowy Mountains region near Cooma where active fires are still occurring.

Many koala care volunteers are doing extra shifts multiple days each week to cope with extra patient care. Some are stepping up to do shifts to answer the busy telephone lines, answer emails, and to process the increased donations and sales of merchandise. Wild Koala Adoptions are particularly popular and can be purchased online; processing and mailing out adoption packages has become a major part of backroom work at the Hospital.

And all the while, the regular work of the Hospital carries on, with usual numbers of koalas still coming into our care at this time of year for more common reasons such as sickness and traumatic encounters with cars and dogs.

Every koala has always been precious but this is even more

true now, in the face of such overwhelming recent events. The original mission of the Koala Hospital remains: to rescue sick and injured koalas, to rehabilitate and wherever possible, release them back to the wild. Koala Conservation Australia, which manages the Koala Hospital, has the wider mission to protect and conserve habitat, to increase knowledge and understanding of the species and to work collaboratively to ensure their survival into the future.



Volunteers, Peggy Eather and Elysia Marai, are important members of the Sunday morning koala care team.



Volunteer, Graham Harrington, distributes the Hospital donation boxes at the beginning of the day.

WILD KOALA BREEDING PROGRAM

Due to the overwhelming generosity of the public, we are delighted to say that our long-term goal of a breeding facility is now a reality for the near future.

The facility is currently in the early planning phase and we anticipate that part of it will be housed at the new Koala Hospital complex.

We are aiming at three separate breeding facilities, the main one housing a research laboratory and other infrastructure. The other two facilities will be lower key, located independently of the main complex and will house some of our resting breeding animals and koalas from other areas of the state. In light of the recent catastrophic fires, having three separate facilities is a good insurance policy.

The Hospital will be partnering with a number of key stakeholders including the University of Sydney, the

Australian Museum's Wildlife Genomics Centre, Taronga Zoo, Billabong Wildlife Park, and Save Our Species (SOS), a program of the NSW Department of Planning, Industry and Environment.

The breeding program will follow rigorous scientific methodology with koalas only being mated with animals of similar provenance eg: Port Macquarie koalas with Port Macquarie koalas, Moree with Moree. The offspring of these unions will be released back into selected pre surveyed sites, and with the ultimate goal of reversing the decline of the koala.

Of course this all must go hand in hand with major changes to how koala habitat and conservation of land is managed into the future.

We have a long journey ahead of us to get this off the ground, but it is an exciting one!



Wild koala, Port Macquarie. (Image courtesy of Colin Campbell)

BRAND NEW KOALA HOSPITAL TO BE BUILT

In early October 2019, Koala Conservation Australia (KCA) was awarded a five million dollar grant from the NSW State Government. This is a great honour and carries with it a lot of responsibility.

The grant is to be used exclusively to redevelop the Port Macquarie Koala Hospital. The project will provide a world class, nature-based tourism attraction in regional NSW. This attraction will be unique to the north coast area of NSW and Australia.

The main features of the Koala Hospital's redevelopment are:

- New rehabilitation and permanent resident koala yards
- Training, research and education spaces
- A retail shop
- Koala museum and theatrette
- Interpretive signage and ground level walkway

- Lifts to access an aerial walkway
- A walkway through the trees
- A new clinic
- A new administration area
- Indigenous story telling space including indigenous food garden
- Education nature walk

A small project management committee has finalised the many supporting documents and processes required for such a large project. Plans for procurement, asset management, risk management, governance, cash flow and a comprehensive timeline, have been finalised and form part of a funding deed, the contract the KCA has entered into with the government for delivery of the project.

Many of the new features, koala yards in the tree canopy and an aerial walkway, will enable visitors

to more closely experience the world from a koala's view – from the tree tops, looking down on the world.

An expanded museum, theatrette and education spaces will help make the many training sessions conducted at the Koala Hospital each year for school children, wildlife care organisations, TAFE and university students, a better experience with access to learning materials and real koalas, all at one location.

A special area in the redevelopment, an indigenous story telling space and food garden, has been put aside for the local people, the Birpai, to learn more about their history, customs and special relationship with the land and wildlife.

By September 2020, an architect and builder will have been appointed and work on the redevelopment will begin.



KOALA HOSPITAL PORT MACQUARIE

ARRIVAL
A|+C

KOALA HOSPITAL PORT MACQUARIE

SECTION
A|+C

Design concepts for the new Port Macquarie Koala Hospital, by Allen Jack + Cottier, Architects

PROVIDING WATER TO WILDLIFE

In November 2019 the Koala Hospital set up a GoFundMe® page on Facebook with a goal to raise \$25,000 to provide wildlife drinking stations in the Mid North Coast areas affected by recent bushfires. People responded quickly and generously, knowing that our local koalas and their habitat were being decimated. Now, owing to the relentless and catastrophic fire season which took hold across the country throughout December and into January, donations have continued to rise higher and higher.

The wildlife drinking stations are deployed to areas ravaged by fire and drought.



Volunteers, Jeremy Bear and Nic Snell, complete an installation in Crowdy Bay National Park, NSW.

With so much public support and in the face of the environmental crisis, Hospital volunteers have been working hard to build as many stations as we can, as quickly

as we can. Once built, the wildlife drinking stations are deployed to areas ravaged by fire and drought.

Wildlife drinking stations have been of interest to the Koala Hospital for a while, and different designs from across the country had already been assessed by the Hospital last year. Our favourite design was one which enabled different species to access water at different levels, minimising risk from predators. It had been designed by Greg Buck who works with Gwydir Landcare. The Hospital's volunteer Habitat Coordinator, Steve Withnall, made contact and we are very grateful to Greg for agreeing to the Koala Hospital using his design to make the drinking stations here on the Mid North Coast. Using a sample model from Greg, Steve set to work to simplify and modify the station, and sought local professional guidance. Advice from Mid Coast Irrigation in Wauchope and MR Welding in Port Macquarie enabled us to develop a model which could be made at moderate cost, deployed quickly and which would be comparatively easy to monitor and maintain.

In order to move quickly on this ambitious project, many businesses and individuals have provided equipment, advice and services freely or at reduced cost. These include:

Philmac, Matt Reichert Mobile Welding (Port Macquarie), Midcoast



Wildlife drinking station installed in dead and blackened bush, Blue Mountains, NSW, January 2020. Note the elevated water reservoir platform for use by birds and arboreal animals such as koalas, and the low level water bowl for use by ground dwellers. Image courtesy of KDVideo for Science for Wildlife.

4WD Centre (Port Macquarie), Midcoast Irrigation (Wauchope), Bunnings (Port Macquarie), Midcoast Trailers (Taree), Miedecke Ford (Port Macquarie), Horsley Warehouse (Goulburn) and Tracy Dignum.

We also thank volunteers who are working on the building and deployment of the drinking stations including Jeremy Bear, Nic Snell, Darryl Clift, Dave Baker, Teresa Cochrane, Chris Clay and our Habitat Coordinator, Steve Withnall.

Koala Hospital is providing drinking stations to other areas and sharing our knowledge and experience.

At present up to 10 stations are being built each week. More than thirty have already been deployed in various locations - with agreements in place with landowners and land managers to monitor water levels, any damage and to maintain and repair them.

These areas include:

- Lake Innes Nature Reserve
- Bellangry
- Rosewood
- Crowdy Bay National Park
- Harrington
- Lismore
- Blue Mountains
- Inverell
- Bingara/Moree

Many more drinking stations are due to be installed in the Mid North Coast, northern NSW, and the Blue Mountains. Wildlife cameras are an exciting addition enabling the collection of information about their use by animals and birds.

We have received many calls from wildlife organisations and land management groups across the country, interested in learning more about our drinking stations and how they could be provided in their areas. We aim to host workshops in the future where our knowledge and experience can be shared. Dr Kellie Leigh of Science for Wildlife recently wrote, 'We are delighted to receive emergency support from Port Macquarie Koala Hospital, for our Blue Mountains Koala Project. The supplied water stations are being used as a model and scaled out in the hope of helping survivors from at least 3 koala populations in the region'.



Wildlife camera captures a koala exploring one of the new drinking stations near Inverell, New South Wales.



Truck and trailer loaded up with drinking stations ready for deployment.

IMPACT OF RECENT FIRES

..on koalas and their habitat in the Port Macquarie-Hastings Local Government Area

A snapshot by Rebecca Montague-Drake, Koala Ecologist for the Hastings-Macleay Koala Recovery Partnership

The recent bushfires in Australia are estimated to have impacted around 1 billion animals and around 25% of all koala habitat in New South Wales. Sobering statistics indeed. In the Hastings-Macleay region, the figures are equally grim.

The Koala Recovery Partnership undertook an analysis of losses of koala habitat in the Port Macquarie-Hastings Local Government Area (LGA). The analysis revealed that a (conservative) estimate of 50,000 hectares of koala habitat has been burnt. While the figure alone sounds dire, the reality of what this represents is even more sobering. For instance, this figure equates to 35% of all the koala habitat in the Port Macquarie-Hastings LGA having been affected. Perhaps even worse, it has impacted 41% of the 'best' koala habitat ("Primary" or "Secondary A" habitat). This habitat has a higher carrying capacity for koalas (hence were areas of higher populations).

One such area of high-carrying capacity affected by the fires was the Lake Innes Nature Reserve and State Conservation Area. With the exception of the lake itself,

and a small riparian corridor at the northern end of the park, the vast majority of this NPWS estate was impacted- see Fig. 1. This area has previously been described by BioLink (2012) as the 'engine room' of the Port Macquarie koala population and has been described as 'being of national significance'. The rich red krazozem soils of this area, coupled with good soil moisture levels and an abundance of koala food trees facilitated a high carrying-capacity for koalas.

Similarly, the Ellenborough area, which was also burnt, was another high carrying capacity area for koalas. Areas around Crowdy Bay National Park were also severely burnt. This region supports the genetically unique Dunbogan population, which is already a relatively small population. Extremely large areas in the Kempsey and Port Macquarie hinterland were also severely burnt. Koalas occurred at low-moderate densities in many of these hinterland areas and hence across the entirety of the burnt area, countless koalas were impacted. Together these various populations were important components of the genetic diversity and resilience of koalas in the Hastings-Macleay.

The Koala Recovery Partnership is now working with the Department of Planning, Industry and Environment's Saving Our Species program to undertake a detailed monitoring program of koalas in relation to the fire, with a key

focus on some of the high carrying capacity areas affected, such as Lake Innes. This will provide knowledge about koala persistence at the site and landscape levels and how this relates to fire severity (flame height and the amount of canopy scorch). The study will also investigate 'mesic refuge areas'. Such areas are typically along permanent or ephemeral creek lines, in gullies or on south-facing slopes and typically support more rainforest species (which are typically less flammable than those found in dry eucalypt forests). While these cooler, wetter sites may not be considered 'typical' koala habitat, the importance of such refuge areas for koalas during hot days, droughts or fires is gaining recognition among scientists. This study will examine which local vegetation types may act as mesic refuge sites and whether, during a major fire event, they facilitated koala survival. The study will work alongside a much larger long-term monitoring program for koalas which is being conducted through the Hastings-Macleay.

The Koala Recovery Partnership is also working on other initiatives to support post-fire recovery, including the preparation of a detailed Koala Habitat Map to guide species' selection for people wishing to replant koala habitat. They have also been sharing their knowledge about the fire impacts on koalas and the relevant actions needed with various government representatives.

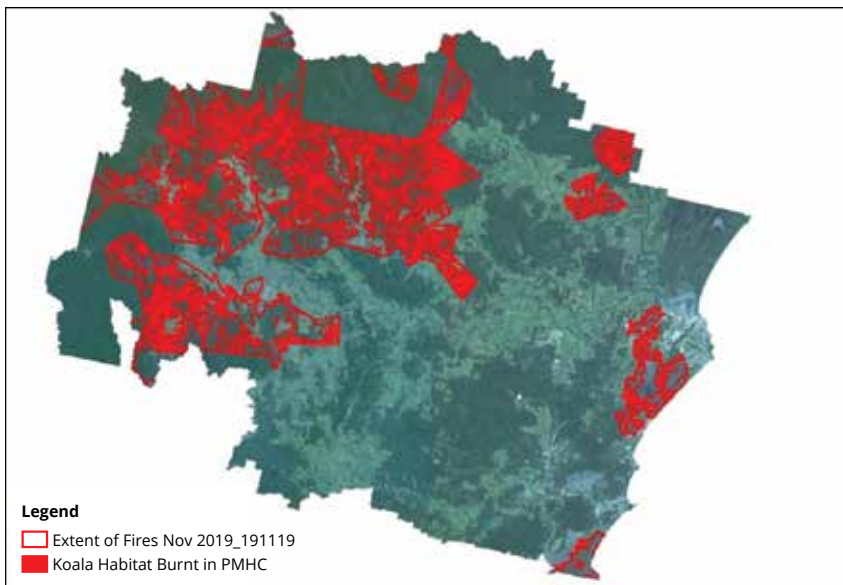


Fig.1: The approximate extent of the fire in the Port Macquarie-Hastings LGA (as one example of a Council region impacted by fires) and the extent of koala habitat burnt.

The koala is a 'flagship' and 'umbrella' species. Why is this important?

Australia's koala has certainly become something of an international fixture in the media since Australia's fires, with mixed measures of heart-breaking and heart-warming stories appearing in newsfeeds on a daily basis.

However we all know that the koala was just one of countless animal and plant species impacted by the fires. Indeed some of the species impacted may have now become extinct, and some may never have even been known to science.

In conservation biology, a flagship species is a species chosen to raise support for biodiversity conservation in a given place or social context. They tend to be widely recognised and charismatic species. The koala was recognised as one of the world's top five recognisable species by the World Wildlife Fund and hence it is perhaps no surprise that it has become an inadvertent 'flagship

species' during the recent bushfire crisis.

While it may seem narrow-minded to seemingly focus on one 'flagship' species, when so many have been impacted, it does help people to focus and think about the root cause of issues and the flow-on impacts. It can engender social pressures to initiate change and of course, stimulate flows in investment into species conservation. When such investment is used wisely, and when social pressures result in meaningful policy changes or changes in negative-consumerism behaviour, this not only protects the 'flagship species' but can result in meaningful changes for other species too. This is particularly the case where the 'flagship' species is also an 'umbrella species'. An umbrella species has been defined as "a wide-ranging species whose requirements include those of many other species". In some environments, koalas can have home ranges in excess of 100 hectares. They occupy the same habitats as numerous other highly-threatened species, such as the endangered swift parrot or the

endangered giant dragonfly. Given that invertebrates often tend to not be the recipients of the general public's conservation attention, it is clear that helping protect koala habitat can not only protect large areas, but also those of some lesser-known or appreciated species.

Having adequate knowledge about species' biology and ecology can really help to ensure that the greatest gain can be made of attention or investment given to 'flagship' species, to not only protect these precious and much-loved animals, but also to ensure the best conservation outcomes for all those other lesser-known animals.

The Hastings-Macleay Koala Recovery Partnership is proudly funded by the NSW Government's Saving Our Species Program, the Port Macquarie Koala Hospital and hosted by the Mid North Coast Joint Organisation.



TREES FOR LIFE

The Koala Hospital continues to work on habitat conservation and renewal, even more vital following the catastrophic bushfire season. We now operate two major plantations of koala food trees which are already starting to take pressure off wild koala habitat, and we continue to work with local organisations, landholders and residents on planting and renewal of habitat.

Our plantations

Maria River Road Plantation is situated on the north shore of Port Macquarie. Originally established in 2015, it now comprises 5,000 young trees, with Swamp Mahogany trees already providing leaf regularly for Koala Hospital patients. Forest Red Gum and Tallowwood are becoming more established and will soon become regular items on the menu at the Hospital. Hard-working volunteers at the plantation are regularly rewarded by visits from native animals. Latest sightings include echidnas, a family of ospreys, goannas drinking from the dam.



Paul Goss, manager of Moripo Research Plantation.

Last year (2019), work began at the **Moripo Research Plantation**, located to the west of Wauchope. The first 500 new trees are responding well to the planting and nurturing system, with our aim being to create low canopy food trees for ease of management and harvesting by the Hospital. Moripo is a demonstration site and research station for koala nutrition and tree management.

Further major plantings are planned for late March at both Maria River and Moripo. The Koala Hospital is delighted to say that Matt Kilby, from ACT-based company, Global Land Repair, has agreed once more to provide valuable on-site assistance at this time. We are grateful to Matt for his continued advice and services.

Correctional Centre to create bush corridor

Inmates at the Mid North Coast Correctional Centre near Kempsey have recently begun a project to plant thousands of eucalyptus trees over 14 hectares of the centre's land. Over the next 6 years it is anticipated that at least 6,000 seedling trees will be planted and nurtured, creating a bush corridor for koalas, sugar gliders and native birds. Once established, the trees may also be harvested to provide food to koala sanctuaries in the area. Inmates will have the opportunity to learn about horticulture and the environment, assisting them to find work when they leave the centre.

The NSW Department of Communities and Justice and the Port Macquarie Koala Hospital have collaborated on the project, sharing knowledge about how trees can be planted and managed to minimise water consumption and increase survival rates. Trees have been donated by Forestry Corporation of NSW, Landcare, Kempsey Shire Council and Billabong Zoo.



Entrance to the developing bush corridor. Image courtesy of Mid North Coast Correctional Centre, Kempsey.

The Koala Hospital's free koala food tree distribution is starting in March. This is a great opportunity for local landholders, residents and organisations to help with renewal of vital habitat. See page 4 for more information.

KOALA SMART

The inspirational Koala Smart program is gaining momentum. Introduced in 2019, Koala Smart is a Lions project which motivates primary and secondary children (government and non-government schools) to engage with the problem of koala decline and develop initiatives that can be applied in the real world, in their local communities.

Students develop real-world initiatives to help drive change.

Koala Smart recognises the creativity of youth and the power of young people to make change happen. Koala Smart project work nurtures collaboration, critical thinking and problem-solving skills.

Koala Smart 2019 was introduced by Tacking Point Lions Club and attracted 25 schools in the Port Macquarie Hastings and Kempsey Shire Council areas. Projects included creative expressions, community education programs,

practical modifications for homes and technological applications. The Koala Smart website explains, 'Some will be further assessed by conservation and planning experts for practical application with assistance from the Lions Club.' The standard of submissions was so high that additional prizes, such as a 'Behind the scenes at the Koala Hospital' experience were included by the judges.

2019 First Prizes went to North Haven Public School and Kempsey Adventist Secondary School. North Haven's 'Thinking outside the box' included the creation of a 'hero koala' around whom a new television show would be designed to educate children about koalas and the environment in general. Kempsey Adventist School's project was an app which would alert the Koala Hospital in real time to koalas in distress. Whilst a similar app was already being explored by the NSW government, the new ideas and features proposed by the Kempsey students may now be integrated.

This year Koala Smart 2020 will be aligned more closely to New South

Wales current curriculum, and it is anticipated that schools from across the state will participate. Teachers will be able to use new resources including video and slide presentations, current environmental facts and statistics as well as direct links to other online tools and information. Once their planning has commenced, teachers will be able to access NSW Saving Our Species officers for advice on project content and direction. Projects will be evaluated by environment and education professionals with the goal of applying practical ideas in the real world.

More information is available at www.koalasmart.org.au, or email tplckoalasmart@gmail.com.

Schools are invited to submit their expressions of interest for Koala Smart 2020 as soon as possible. Closing date for sign up this year is 9 April.

Koala Smart is a joint initiative with Port Macquarie Koala Hospital, NSW Department of Planning, Industry and Environment (Saving Our Species) and the Hastings-Macleay Koala Recovery Partnership.



Volunteers, Mick Feeney and Anne Walsh help Port Macquarie Public School students enjoy their prize, 'Behind the scenes at the Koala Hospital'. Image courtesy of Port Macquarie Public School.



Creativity in poetry and visual art, St Joseph's Primary School, Laurieton



Traffic-calming project, Kendall Public School

YOUNG VOICES SPEAK UP FOR WILDLIFE

In Gum Tips we often highlight how much children and young people are stepping up to show they care about our environment and wildlife. For many years their generous and decisive actions to help the Port Macquarie Koala Hospital have illustrated their deep concerns.

Recently, with drought and bushfires taking such a ghastly toll on our precious animals and birds, young people from all over Australia and the world have responded quickly to let us know

how much they want to help. Their emotion is raw and their support is palpable.

Space doesn't permit us to individually list here the thousands of messages and actions by young people: they include cards, artwork, poems, stories, donations, adoptions, visits, creative fundraising events, thoughtful gifts in kind.

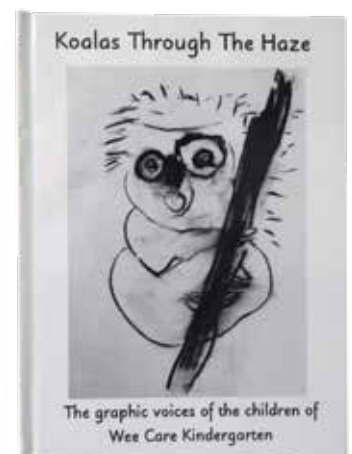
The images below illustrate just a tiny fraction of the amazing support we have received from the young.



Children from Crazy Maze OOSHC present the funds they raised to Cheyenne Flanagan.



Donated artwork brightens the walls of the clinic at the Koala Hospital.



EXTRAORDINARY GENEROSITY, EXTRAORDINARY TIMES

An elderly lady phones to fund 'one of those wonderful wildlife drinking stations', a seven year old fills the donation box at the Hospital with the pocket money he's been saving for months, a pensioner contacts us every two weeks to donate what he can, koala adoption packages and merchandise are posted to purchasers across the world including Asia, Europe, Africa, North and South America.

The devastating bushfire season since November last year has brought an intense media and social media focus to Australia like never before, and across the country and the world people are showing they care deeply about Australian wildlife.

The Koala Hospital in Port Macquarie has been overwhelmed by support. Donations, adoptions and merchandise sales have 'gone through the roof' but support has also arrived in kind: medical and therapeutic supplies for koalas, new volunteers offering their time, businesses and organisations offering help, and thousands of messages of encouragement and support. Food and thoughtful treats are brought regularly to

the Hospital to keep koala carers, search and rescue teams, hard-working backroom volunteers well-nourished and cared for.

The phones are red hot, emails and online orders pour in, media and television crews are a regular sight at the Hospital. In its 45-year history the Koala Hospital has never experienced this unprecedented level of generosity and interest.

The Hospital values and thanks every single person or organisation who is helping us. Thank you for each and every one of these acts of generosity and kindness. They prove just how many people of all ages, from all countries and walks of life really, really care.

You can read in this edition of Gum Tips, how the money so generously given is being used by the Koala Hospital to help koalas now and into the future. To all those who have given in many different ways, be assured that your care, compassion and action is helping the Koala Hospital as we work through this difficult time, and will continue to help us as we plan and work for the survival of the species.



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Koala Emergency Rescue Line - Phone (02) 6584 1522

If you sight a koala in distress - call our
Rescue Line 24 hours a day / 7 days a week

E: info@koalahospital.org.au  [koalahospital](https://www.facebook.com/koalahospital)

General Enquiries: 02 6584 1522

www.koalahospital.org.au

Thank You

...to everyone who is supporting our work
through donations, adoptions, gifts,
sponsorship, your visits and your good wishes.



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