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Bush Heritage News

BUSH HERITAGE AUSTRALIA

Spring 2009

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Investing in fire management

Ecologist **Murray Haseler**, Ecological Monitoring Coordinator **Dr Jim Radford** and Carnarvon Station Reserve's former Reserve Manager **Darren Larcombe** explain why actively managing fire is fundamental to managing most Australian ecosystems.

Burning in cool, still conditions soon after rain means lower mortality of shrubs and regenerating trees and fauna, and a patchy coverage that gives shelter or respite to a greater range of species. PHOTOS: DARREN LARCOMBE

Rarely have we experienced such a contrast of climatic conditions across the country as we have in recent times. Record rainfall has brought floods and lush growth across northern Australia yet the 'big dry' continues unabated in the south. For Bush Heritage, with reserves spread across the continent, such variation presents great challenges for managing fire on our reserves.

Australian ecosystems have evolved under the influence of fire to some degree, and it is neither desirable nor possible to totally exclude fire from Australian landscapes. As land managers we have a responsibility to actively manage fire on all our reserves to achieve three generic goals: (i) to protect human life and property infrastructure and assets; (ii) to reduce the risk of large, unplanned wildfires; and (iii) to enhance conservation and cultural values. Exactly how we manage fire to achieve these goals, however, will vary considerably from reserve to reserve, depending on previous fire history, soils, vegetation types (and associated drying rates and flammability) as well as climate, seasonal conditions and terrain.

Fire can be managed or fought – extinguishing unplanned and unwanted fire when it occurs, or conversely, deliberately lighting fires (planned burning) to achieve particular conservation outcomes (eg weed control, regeneration of native ecosystems) or to reduce the risk of unplanned fire. Striking a balance requires sound knowledge of the ecological values we are seeking to enhance on a given reserve as well as how those values respond to different fire regimes. An overview of fire management at Carnarvon Station Reserve is presented here to illustrate the complexities of managing fire on a large reserve. ■

Definitions

Fire regime: The frequency and pattern of occurrence over time, the intensity (how 'hot' at a particular location) and the time of year ('burn seasonality').

Fire age: Time since last fire.

Fire mosaic: The patchiness ('spatial heterogeneity') of fire across the broader extent of the burn. That is, the pattern of vegetation patches with different fire ages or different fire histories (as determined by the fire regime).

Case study: Carnarvon Station Reserve

Carnarvon Station Reserve spans 56 000 ha and is situated 600 km west of Bundaberg in Queensland. The reserve extends over a valley with a grassland floor (bluegrass downs) flanked by often rugged slopes with a variety of woodlands, acacia shrublands, vine-scrubs and open forests. All the grasslands and woodlands are flammable and many species are fire-dependent (or dependent on the structure resulting from particular regimes). The acacia shrublands (brigalow and lancewood) and vine-scrub are less flammable but will burn in extreme conditions, are fire sensitive and are nationally threatened communities.

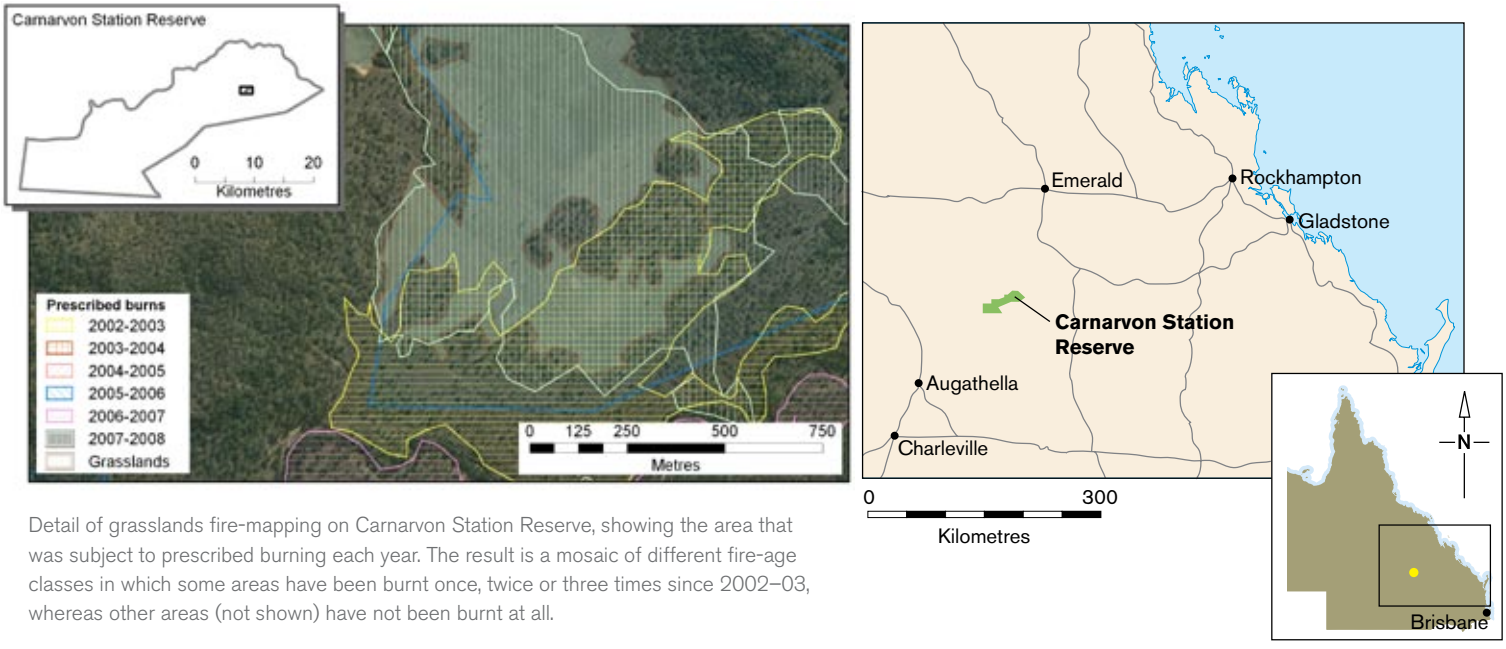
Until purchase in 2001, Carnarvon's long past as a cattle station shaped the kind of fires the property has experienced. One hundred and fifty years of livestock grazing had reduced fuel (grass) loads, limiting fires to late-season hot wildfires following summer rains. Typically, these unplanned and uncontrollable fires – the type that pose considerable threat to people, natural resources and infrastructure – would burn extensive areas of the property.

Bush Heritage has adopted a proactive approach to avoid these large-scale destructive fires. The generic approach is to maximise the diversity of fire regimes in an area – 'breaking the country up' to create a mosaic of different fire ages and fire histories – to maximise the reserve's contribution to overall biodiversity conservation and reduce the risk of extensive wildfires. This means lighting literally hundreds of fires in moist conditions to get a dozen or so successful and safe burns. Reserve managers work with natural fire boundaries, such as creeks, escarpments, recently burnt areas and non-flammable vegetation, to contain fires. By placing cool burns among natural boundaries, it is possible to create large, non-destructive fire breaks that are much more effective than a bulldozed line.

This kind of planned burning requires skills in judgement and practical application, as well as an intimate knowledge of the terrain, vegetation and local weather behaviour. It is not an exact science, especially following sequential wet years, and occasional hot fires will still be inevitable. However, given resources, expertise and support, it can be assured that the net negative impact of such wildfires will be less.

This year, all Bush Heritage's Queensland reserves experienced soaking conditions for the second year in a row, but even as they celebrate the abundance of life the rains have brought, none of the reserve managers need reminders that today's flood is tomorrow's inferno.

As the vegetation and soils dry out, there is a potentially narrow window of opportunity during the cooler months to light fires that will put themselves out as they hit changes in terrain, cool



Detail of grasslands fire-mapping on Carnarvon Station Reserve, showing the area that was subject to prescribed burning each year. The result is a mosaic of different fire-age classes in which some areas have been burnt once, twice or three times since 2002–03, whereas other areas (not shown) have not been burnt at all.

Top: Woodlands in the east of Carnarvon Station Reserve, six weeks post-burn. PHOTO: JIM RADFORD

Below: Lighting up with drip-torches rather than matches enables ignition in the moist and/or low-temperature conditions ideal for 'cool' burning. PHOTO: DARREN LARCOMBE

overnight temperatures or fire breaks. These cool-season fires will leave old growth trees intact and leave patches of bush unburnt (thereby providing habitat for surviving animals).

We can and do tweak this approach to assist with particular species or ecosystem requirements: for example, hot burns during springtime to facilitate germination of natural grasslands; cool burns around weed-infested areas to allow contained hot fires to kill weeds; cool burns in the woodlands that leave the shrubs to provide bird habitat, interspersed with some hot burns to provide future tree hollows for animals or to provide effective strategically located wildfire breaks.

Carnarvon's native grasslands are recovering well following the removal of stock, with a few species of grass providing a 'wick' right up the core of the property. These areas have been burnt frequently, with approximately a third of the total area burnt each year. This does not mean, however, that all areas are burnt every three years: the fires overlap, snaking around some bits not burnt the year before and burning some areas in successive years. The result is a fine-scale grassland mosaic with fire ages ranging from a month to one, two or five years or more, and patches that experienced cool and hot, and summer or winter burns.

Fire management does not end once the burns have been extinguished. Each year the burn areas are mapped from satellite images and the maps checked for accuracy on the ground. A retrospective look at the fire mapping illustrates the transformation from an unmanaged landscape to one with managed fire regimes. Our ecologists are monitoring small mammal populations, birds and the mix of native and introduced grasses to evaluate the ecological outcomes of our fire management.

Owning and protecting the bush is one thing, but a nature reserve is only as good as it is resilient. For a long-term conservation plan, the ultimate measure of a reserve's resilience is how well it recovers from the worst-case scenario, in this case a hot, extensive wildfire in what is likely to be a very bad fire season. Right now, thanks to a successful burning season, the worst-case scenario for Carnarvon Station Reserve doesn't look that bad. Moderating the impacts of fire on bushland with careful fire management is our investment in building the resilience of our properties in a changing world. ■

Left to right:

Heath, Charles Darwin Reserve, WA.
PHOTO: MATT APPLEBY

Red-stem mallee, Charles Darwin Reserve, WA.
PHOTO: MATT APPLEBY

A scientist digs into a snake burrow.
PHOTO: PAUL EVANS

A gecko (Byroe's gecko, *Heteronotia binoei*) is unearthed while trawling the 'rubbish dump' for species.
PHOTO: PAUL EVANS

Species discovery blitz at Charles Darwin Reserve

Gathering information about our reserves is an ongoing process. As our knowledge grows, we continue to fine-tune our management plans. An additional bonus is the occasional discovery of a rare species, or a species not previously known to exist on the reserve, or – most excitingly – a completely new species. Ecologist **Dr Matt Appleby** describes the recent 'blitz' at Charles Darwin Reserve.

Given the large size of some of our reserves, it is nice to know that there are people and organisations willing to help us uncover more information about them. During the first week in May, over 35 people came to help search and document the variety of life on the 68 000 ha Charles Darwin Reserve in Western Australia.

Expert biologists from a range of institutions came together with the support of a partnership between Earthwatch Australia and BHP Billiton Iron Ore. The aim was to conduct a species discovery blitz – essentially a biodiversity audit – on the range of habitats across Charles Darwin Reserve. It was an opportunity to discover species never recorded on the reserve and, if possible, find species that have never been described by scientists.

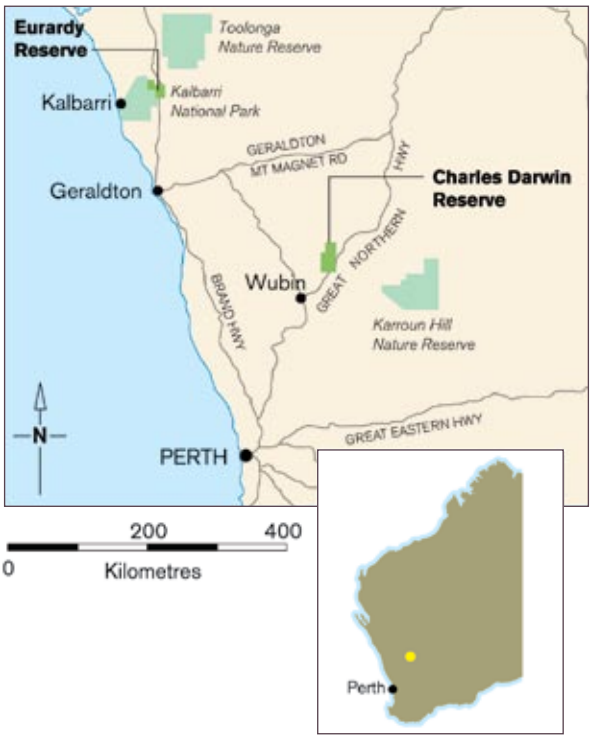
Such exercises may seem odd in this day and age in an area that has been continuously settled for just over a century. However, there are still plenty of gaps in our knowledge of local species, in particular, the invertebrates. The growth of Western Australia's wheat belt – and the clearing of land that came with it – was so rapid and extensive that the record of species held in the WA Museum and Herbarium is bound to be incomplete. Charles Darwin Reserve and other largely uncleared properties in the wheat belt offer a glimpse of what we have lost over vast areas of the state. A better understanding of these remnants will also enable Bush Heritage to better manage its reserves.

BHP Billiton staff, along with scientists from Earthwatch, provided volunteer assistance to the grateful experts. The dozens and dozens of extra hands (not to mention the extra ears and eyes…) were put to work netting insects and beating bushes for bugs, as well as a range of other techniques used to gather samples for further identification and analysis. Charles Darwin's great-great grandson, Chris Darwin – a Bush Heritage ambassador – was also an enthusiastic participant on the project.

Each day, five teams headed out into the field. The teams were divided into specialty areas, each led by an expert: Mark Harvey (arachnids) and Paul Doughty (reptiles), both from WA Museum; Terry MacFarlane (plants) from WA Herbarium at Manjimup; Celia Symmonds (plant bugs) from the School of Biological, Earth and Environmental Sciences at the University of New South Wales, and Dave Britton (moths and allies) from the Australian Museum.

The volunteers learnt a variety of new and novel skills over the week. To the passerby the scene could have looked slightly bizarre, not least in the plant bug group. Plants were given a (gentle) beating to dislodge the bugs from their home; the bugs were then sucked up into small vials ready for inspection and classifying. Light traps were erected at dusk to capture moths using a large bedsheet. Tent-like structures were set up to gather flying insects travelling along gaps in the heath.

The reptile group relied on a variety of methods too. The traditional 'dash and grab' method was effective on the large open granite outcrops. Pitfall traps were also set up, but finding a soft patch of



earth to dig a hole in proved elusive. A low fence is set up between the pits so that the reptiles walk up to and then along the fence and fall into a pit. The pits are checked regularly to remove any animals. Back in the makeshift lab at the homestead, the animals are identified using species keys (for the difficult ones) and are then released back where they were found.

The plant group kept a lookout for specific target species, particularly the elusive but stunning *Wurmbea* or early Nancy – a small herb related to the lily family. The diversity of plants on Charles Darwin Reserve is truly overwhelming on first contact – some common genera like *Eremophila* have over a dozen species just on this reserve. For the volunteers, searching for 'unusual' or rare species was difficult because the composition varied so much over short distances; however, the recently burnt heath outshone every other ecosystem for overall variety.

The hard work is now ahead of the biologists back in their labs. The species need to be classified and any species 'new' to science need to be fully described and the descriptions published in scientific journals. The number of undescribed species found on Charles Darwin Reserve and other more remote areas within Western Australia is quite staggering, and documenting these is a lengthy but essential part of the role of the Museum and Herbarium. A pseudo-scorpion found by Mark Harvey is bound to be one of many that is added to the list; and maybe even another species of the wonderfully named 'feather-legged assassin bug'.

The array of species on Charles Darwin Reserve, whether they be plants, bugs or pseudo-scorpions, was stunning. Even looking at a single family of species, it was easy to be overwhelmed by the number (and the names) of species present. And we still need to survey the birds and mammals, and come back in spring when other species are more active or easier to identify…! Once the information is collated, we'll be looking closely at how we need to change the way we manage the reserve in order to better protect this 'island' in the wheat belt. ■

Definition

Pitfall trap: A trapping pit used by ecologists to monitor abundance of individuals of a species and number of species present. Animals are released after being recorded.

Dave Britton and a volunteer from BHP Billiton record and pin moths. PHOTO: PAUL EVANS

Freshwater pool and granite outcrop, Chereninup Creek Reserve.
PHOTO: CHINCH GRYNIEWICZ

News from Gondwana Link

Gondwana Link is a partnership project with participation from Bush Heritage, The Nature Conservancy, The Wilderness Society and Greening Australia (WA), in collaboration with local environment and community organisations, private landowners and traditional owners.

The aim of Gondwana Link is to conserve and restore a 1000 km swathe of forest, woodland, heath and mallee stretching from the forests of Western Australia's far south-west to the edge of the Nullarbor Plain. Recent monitoring of mammal populations has shown pleasing results, especially in relation to honey possums and black-gloved wallabies.

One way that we measure the results of our conservation work is through our Ecological Outcomes Monitoring (EOM) program. As part of this program, we conduct various annual fauna surveys on several reserves within Gondwana Link.

Because one aim of Gondwana Link is to reconnect fragmented habitat across a large area of landscape, conservation work on the Gondwana Link properties has consequences beyond the individual reserves. As the habitats are rejoined and species are able to move more freely through this landscape, we expect that many species will increase their 'area of occupancy' and that eventually we will see major improvements in the number of species recorded at any given site.

Monitoring in this area has only been underway for a few years, but already we have seen results. Pitfall traps were established in a range of habitats on Chereninup Creek Reserve in 2006. That year, a lone honey possum was recorded in tall heath with a mix of banksias and dryandras, a preferred habitat. In 2007, honey possums were recorded in mallee-scrub vegetation as well. In the 2008 surveys, honey possums were found in four vegetation types: heath, mallee-scrub, sheoak woodland and at a recently revegetated site, the latter record being particularly encouraging to managers. It appears that the revegetation on Chereninup Creek Reserve is re-creating usable habitat for honey possums and contributing to a local expansion of their range.

Meet the honey possum

Despite its name, this tiny marsupial is actually not closely related to possums – or to any other marsupial. Distinguished by their brush-tipped tongue, pointy snout and large male reproductive organs, *Tarsipes rostratus* is endemic to the heathlands in south-west Western Australia. They only eat nectar and pollen, and rely on different proteaceous species, such as banksias, for food throughout the year. They are important contributors to the biodiversity of their habitat, as they collect pollen on their fur and pollinate other plants as they feed. Honey possums can be found at Bush Heritage's Chereninup Creek Reserve in Western Australia.

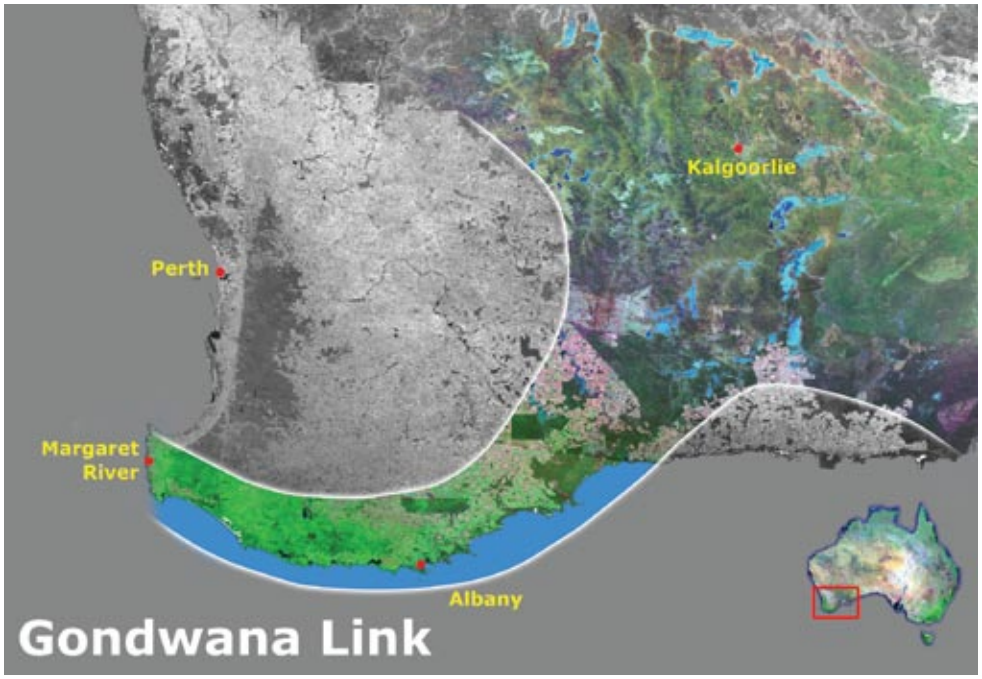
Honey possum.
PHOTO: JIRI LOCHMAN/LOCHMAN TRANSPARENCIES

Clockwise from top:

Stackhousia sp. flowering in front of billy button meadow at Chereninup Creek Reserve. PHOTO: CHINCH GRYNIEWICZ

Black-gloved wallaby. PHOTO: JIRI LOCHMAN/LOCHMAN TRANSPARENCIES

A tammar wallaby captured on motion-sensing camera at Monjebup Reserve, WA. PHOTO: BUSH HERITAGE



Also on Gondwana Link, a separate project is monitoring changes in the distribution and abundance of the tammar wallaby and the black-gloved wallaby. This project is also showing exciting results.

Twenty monitoring sites were set up across a part of the Corackerup Creek catchment within Gondwana Link, with two of the sites on Bush Heritage reserves. Sites were surveyed using spotlighting from a vehicle. Motion-sensing cameras were also set up at various sites to record animal visitors. During the 2008 survey period, the black-gloved wallaby was detected at six of the eighteen sites surveyed. Of the occupied sites, the species had been previously recorded within the last year on only two of these sites, and on one of these sites way back in 1980.

Although no tammar wallabies have been recorded at the monitoring sites, one was recently photographed on Monjebup Reserve, indicating that they are present in the area. Indications from the more widespread black-gloved wallaby are that they may not be as limited by fox predation as was previously thought. Observations of this species within revegetated areas suggest that habitat restoration work may well be making a difference to their ability to move through the landscape. ■

*Based on material from **Mal Graham**, former Contract Reserve Manager for Bush Heritage's reserves in south-west Western Australia, and **Sandra Gilfillan**, Wallaby Project Officer for the Gondwana Link/Greening Australia (WA) Wallaby Project.*

We would like to acknowledge The Nature Conservancy and The Nature Conservancy's David Thomas Challenge for their generous support of this work.

Thomas Foundation

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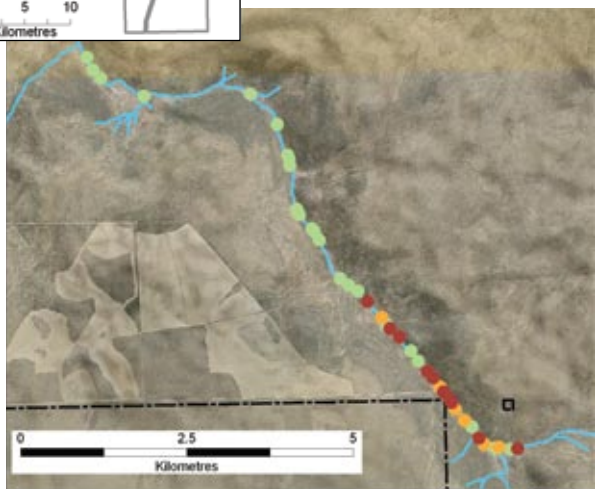

A 5 km section of Bungabandi Creek suffering from significant erosion has now been treated to create numerous control points. The points were carefully selected to cover all the critical areas, which should minimise any weaknesses during subsequent flood events. In the 2009 winter rains, the control points functioned well and only some minor repairs were necessary.


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Restoration work at Eurardy Reserve

Ecologist **Dr Hugh Pringle** and Eurardy Reserve's **Elizabeth Lescheid** describe the erosion problems in Bungabandi Creek at Eurardy Reserve.

The homestead complex at Eurardy Reserve (see map on p. 5) is situated in the gentle valley that forms the headwaters of Bungabandi Creek. Most of the Bungabandi Creek system is on conservation lands as it spans Eurardy Reserve and Kalbarri National Park. The 'creek' is essentially a narrow valley floor that occasionally widens and then constricts on its way westwards, eventually dropping down into the Murchison River below.

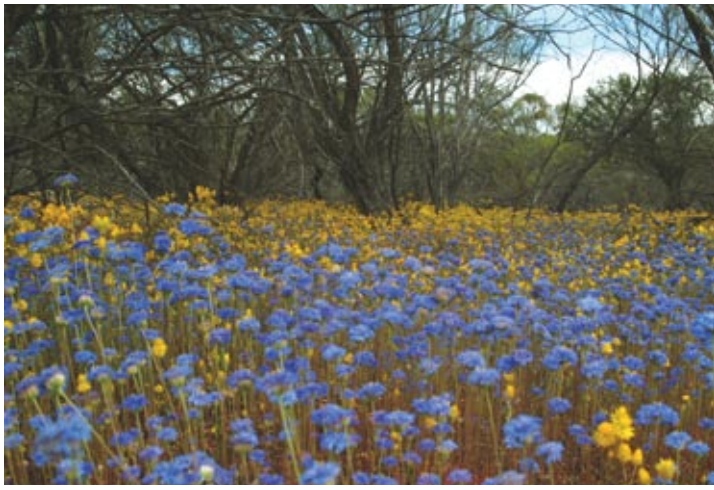
The valley floor has been the focus of recent restoration work as it has been put under enormous pressure from hard-hoofed animals (sheep, goats), feral animals (rabbits, deer) and use by vehicles.

Originally the Bungabandi system would have been a heavily vegetated narrow valley carrying sluggish flows after rain down to the Murchison River, but the impact of grazing and feral animal pressure has resulted in a destabilised soil surface. The result is something like a tiled roof with downpipes channelling rainwater rapidly through the system. Rain is mostly lost before it can penetrate and revitalise the soil.

Apart from the valley floor, Bungabandi Creek is probably the healthiest tributary system to the Murchison River. It supports an amazing mosaic of different habitats, from thick scrub to open grasslands and saltbush shrublands. There are declared rare flora (orchids), and a Department of Conservation and Environment wildlife officer has identified signs of bilbies. The variety of habitats and food resources of the Bungabandi also supports an abundance of birds.

The restoration plan for the creek involves a technique known as 'brushing', where brush is placed in the water channels, as well as depositing gravel in the worst-affected areas. This 'plugs' the channels and slows the rapid flow of the water. If this works – and it may take time, including ongoing repairs – the valley floor will return to its former glory as a critical drought refuge and wildlife corridor at a landscape scale. This work is being undertaken by the reserve staff with vital help from volunteers.






Top row left to right:
Eurardy wildflowers. PHOTO: JULIAN FENNESSY
Thicket with acacia-casuarina alliance, Eurardy Reserve. PHOTO: MARIE LOCHMAN/LOCHMAN TRANSPARENCIES
Carpet of flowers including blue pincushion, Eurardy Reserve. PHOTO: JULIAN FENNESSY

Bottom row left to right:
1. Brush was collected from the creek itself. Volunteers Brian Crute and Herbie Titelus are shown at far left.
2. Brush was cut from the side of access tracks and piled on the trailer.
3. The Conservation Volunteers Australia team helped out with the first brushing work at strategic points.
4. The erosion area full of brush.
5. The first major gravel plug being laid.

PHOTOS: ELIZABETH LESCHEID

Elizabeth Lescheid, reserve staff at Eurardy Reserve, describes how the restoration plan for Bungabandi Creek is being put into play.

‘Brushing’ the creek: bring on the volunteers

In the height of summer, when the mercury was reaching the upper 40s on a regular basis, Matt Warnock, the reserve’s manager, began carting and tipping trailer loads of gravel close to trouble spots to begin ‘plugging’ Bungabandi Creek. Once the gravel mounds had been formed, it was time for the next stage. It was time to call in the volunteers!

Over late March and early April, a team from Conservation Volunteers Australia arrived to help out with the first brushing work. The brush is placed in the water channels to slow down the flow. Using the handy tip trailer we cut and collected brush from the edges of fire tracks that needed clearing and hauled it to the creek. Also where trees had grown too thickly through the creek itself, Matt cleared brush, with a chainsaw and we followed, picking up the brush then dragging and laying it in the problem areas or ‘plug points’.

This valuable start to the Bungabandi Restoration Project was continued during the recent working bee in May. Two hard-working and enthusiastic volunteers, Brian Crute and Herbie Titelus, made a return journey from Perth to Eurardy to help out for the duration. A local TAFE conservation land management class also joined in for a couple of days. Brush was collected and laid, some of the gravel mounds were touched up and many ‘plugs’ were put in to stop erosion.

It was wonderful to drive around at the end of the working bee, looking at all the ribbons of brush that so many people had helped to lay. In places, it looked as if the brush was flowing too. When the drought-breaking rains finally came in late May, Matt and I went down to see how the plugs were working.

The first mounds we came to had little puddles of water pooled behind them and the first brush piles had ripples of sand building up near some of the edges. Rounding the corner to one of the major strategic points, we spotted a huge puddle behind the mound. Further on, both brush and mound had stopped the flow too. Everything was working as intended. Loud calls from several different species of frogs added to the excitement. Emu and kangaroo tracks covered the muddy track where wheel ruts used to be. Bungabandi Creek restoration had definitely begun!

Turning to me, Matt said: ‘We’ve only just begun, you know!’ Then, grinning, he went on to reveal plans to continue the project throughout the following year. ■

From the CEO

'10 at 10' occurs every Monday morning at 10 am at Bush Heritage's Melbourne office. The telephone line is opened up and we are joined for a 10-minute update by staff across Australia's time zones and latitudes. It is a rich experience to hear of activity from distant places, including far north Queensland, central and south-west Australia, and Tasmania.

Not all our conservation staff can join every week as many are hard at work in the field. This is particularly so over these mid-year months. During this time there is heightened activity as it is easier to gain access to many of our remote reserves, and extensive ecological monitoring along with pest plant and animal control and fire management takes place. Invariably in our weekly calls we are buoyed with news of a new discovery or achievement on a reserve or within a partnership.

We bring you a selection of these stories each newsletter. For those able to access them online at www.bushheritage.org.au, there are also regular web updates, along with samples of some of the many media stories we are generating.

Some good news came from a recently completed biological blitz at Yourka Reserve in Queensland. An intensive week on the reserve involved a heavy contingent of Bush Heritage staff and science partners setting in place monitoring plots and scouring the property for information.

Yourka is a study in the patience required to establish a reserve before we can commence effective conservation management and, later, make it safe and accommodating for visitors. Although it has been a Bush Heritage reserve for a year, our managers have only recently completed construction of a base on the property from which to conduct their work more efficiently. They were hampered by the severe beating that the roads took from the extreme summer rainfall, which limited access across the property. The purchase of a major piece of plant to undertake regular maintenance after these seasonal events was made in June.

Despite those challenges, pest plant and animal control has been underway for some time, an interim fire plan and conservation management plan has been prepared, contact has been made to establish links with traditional owners of the country and we are fighting off a mining proposal on the property. All in day's work for our conservation team!

As a result of the blitz we have the satisfaction of knowing, among other things, that an additional 40-plus species have been identified on the property, and that a previously unclassified vegetation community may exist on Yourka. Stay tuned for more details.

I provide this snapshot of Yourka to reinforce the importance of your support to the maintenance of our existing reserves and the achievement of our conservation goals. These next 12 months will be a terrific period for some consolidation of our conservation management and demonstration of ecological outcomes on our reserves. You will see the fruits of your support as our reserve management matures and we are able to report on the conservation successes we are achieving over one, two, ten or fifteen years of management at individual reserves.

In the meantime, a huge thank you to all those who have supported Bush Heritage during the financial year just ended. Your volunteer and financial support has ensured another successful financial outcome for Bush Heritage and enables our conservation work to continue apace. Our full financial statement for the year will be released following the audit in August, along with our Annual Conservation Report.

What's new in fundraising?

Communications Team Leader, **Annette Ruzicka**, reports on the latest news from the Fundraising and Communications team.

As part of our end of financial year appeal, Bush Heritage produced our first ever 'viral' email video. Supporters received an email that included an interactive component that linked to a video tour through some of our reserves and the opportunity to receive a special Bush Heritage screensaver for donations of $10 or more. The email was designed to be passed on to family and friends, and aimed to introduce new people to Bush Heritage. We'd like to thank our donors for helping make this campaign a great success! In all, it raised over $6000.

A still from our email video.

In addition to our viral email campaign, we have been busy marking an important occasion. 2009 has marked some very special 'Darwinian' celebrations: 200 years since the birth of Charles Darwin and 150 years since the publication of *On the Origin of Species*.

Chris Darwin, Bush Heritage ambassador (and great-great grandson of Charles Darwin), has been celebrating the Darwin anniversaries with us throughout 2009.

In the spirit of these celebrations, Bush Heritage is pleased to announce an exciting new partnership with Peregrine Adventures. This partnership kicks off with a competition to win a trip for two to the Galapagos Islands! The ten-day trip will give the lucky competition winner and a friend the genuine Darwin experience with a tour of the islands, its wildlife and the Darwin Research Station. Stay tuned for more details!

Peregrine
The Spirit of Adventure

In memory

Dr Roslyn Brooks donated in memory of **Wendy Skinner**, Shirley Scott gave in memory of **Edwin Mealy**, and Tenniel Higgins honoured the life of **Stephen Higgins**.

Joy Giblin gave in memory of her son **Jamie Giblin**, Barbara Hicks gave in memory of **Paul** and **Gladys Hicks**, Margaret Allen gave in memory of her sister-in-law **Monica May Allen**, and Dr Graeme Unmack made a gift in memory of **John Harvey**.

Barbara Bruer was remembered by Dr Kerrie Davies, Natalie Smith gave in memory of **Peter Smith**, and Leah Duvack donated in memory of **Maggie**.

In celebration

David and Judy Kelly gave in honour of **Sybil** and **Robert Story**, Paul Ashton and Maree Burn made a donation as a gift to **Damian Jordan**, and Rhonda Howlett donated in honour of **Janet Booth**.

Dr Petra Heil gave in honour of **Julian Innis**, Dr Eleanor Rowley gave in honour of **Ian Rowley**, and Keith Lemon donated in honour of **Elisabeth Baulch**.

If you would like to make a gift to Bush Heritage in memory of a friend or to celebrate a special occasion, visit www.bushheritage.org.au or call 1300 628 873.




Left to right: Tasmanian common brown butterfly (*Heteronympha merope salazar*) at Liffey Valley reserves, Tas. PHOTO: WAYNE LAWLER/ECOPIX
Mini donkey orchid (*Diuris recurva*). PHOTO: MARIE LOCHMAN/LOCHMAN TRANSPARENCIES
Brown thornbill, Edgbaston Reserve, Qld. PHOTO: WAYNE LAWLER/ECOPIX
Flowering *Verticordia* sp., Kojonup Reserve, WA. PHOTO: SIMON NEVILL

Getting involved

Current opportunities for getting involved with Bush Heritage, either as a visitor or a volunteer, are listed below.

Guided tours

Throughout the year we offer a number of guided visits to some of our reserves. Bookings are essential and places are limited, so book early to avoid disappointment. To ensure your donations are used for conservation work on reserves, we charge an amount based on cost recovery. This fee enables us to maintain the visitor program. Fees for supporters and non-supporters are listed below. Keep an eye out in the Summer issue of *Bush Heritage News* for the first of next year's guided tours. This year's final trip is as follows.

October: Nardoo Hills, Vic. Saturday 17. A 4 km wander through bushland; medium level of fitness and ability to cope with uneven, hilly terrain are necessary. Nearest major town: Wedderburn, 15 km. Morning tea provided. BYO picnic lunch. Cost: $30 supporters/$40 non-supporters. Children under 15 are free.

Please refer to our website, www.bushheritage.org.au/getting_involved/getting_involved_visit, for a full list of visitation opportunities.

Volunteers Wayne Lewis and Kim Ely taking part in 'Operation Siam weed' at Yourka Reserve. PHOTO: WAYNE LEWIS

Self-guided camping

The 2009 camping season is now fully booked. We will resume taking bookings for camping at Carnarvon Station Reserve, Qld, and Charles Darwin Reserve, WA, in the new year. The 2010 camping season will run from April to September.

Self-guided day trips

You can visit some of our smaller and less remote reserves on a self-guided day trip.

Reserves include: Currumbin Valley Reserve, Qld; Liffey Valley reserves, Tas.; Friendly Beaches Reserve, Tas.; Chereninup Creek and Kojonup reserves, WA. Bookings required.

Please note that bookings are essential for all visits to our reserves. For more information or to book your place on any of the tours listed above, please contact us on 1300 NATURE (1300 628 873) or email visits@bushheritage.org.au.

Volunteering opportunities

Interested in volunteering, volunteer opportunities or learning more about the experiences of Bush Heritage's volunteers? Why not subscribe to V-News, our biannual volunteer newsletter? Phone us on **1300 NATURE (1300 628 873)** or email **info@bushheritage.org.au** to be added to our email list for V-News. Please note this newsletter is only available in an electronic version. Alternately, for the most up-to-date volunteering information, see our website **(www.bushheritage.org.au/getting_involved/getting_involved_volunteer/)**, or phone us on the number above.

SEPTEMBER

Where: Scottsdale Reserve, NSW
Project: Volunteer Ranger with trade skills sought to check wiring in two sheds and install some new sockets.
When: Dates negotiable, one day required as soon as possible.
Requirements: Essential: accreditation as an electrician.

Where: Cravens Peak Reserve, Qld
Who: 1–2 Volunteer Rangers with trade skills.
Project: Help fit out Robbie's Hut. Needed to fit hot water service, taps, basin and gas appliances in a demountable building.
When: Dates negotiable, approximately two weeks required as soon as possible.
Requirements: Preferred: current accreditation as plumber/gas fitter or alternatively a retired plumber/gas fitter.

Where: Cravens Peak Reserve, Qld
Who: 1–2 Volunteer Rangers with trade skills.
Project: Help fit out Robbie's Hut. Needed to wire up a new kitchen and living area, including light fittings and electrical appliances.
When: Dates negotiable, approximately two weeks required as soon as possible.
Requirements: Preferred: current accreditation as an electrician or alternatively a retired electrician.

Where: Carnarvon Station Reserve, Qld
Who: 2 Volunteer Rangers.
Project: Work on soil stabilisation and integrated feral animal control program. Volunteers will collect rocks, assemble and fill prefabricated wire baskets, secure geo-textile fabric strategically to stabilise erosion sites, assist tractor operator to fill soil and spread seed to cover disturbed areas, drive around the traps to check and rebait.
When: Dates negotiable, two weeks' commitment to be completed before 24 September.
Requirements: Essential: basic 4WD experience; good fitness for outdoor work including bending, lifting and carrying. Preferred: firearms license and willingness to demonstrate skills; feral animal control experience, and Senior First Aid.

OCTOBER

Where: Gondwana Link reserves, WA
Who: 1–3 Volunteer Rangers.
Project: Supporting Ecological Outcomes Monitoring program. An exciting role for volunteers with a keen interest in plants. Participate in vegetation surveying and data collection.
When: Two days' minimum commitment between 19 and 30 October.
Requirements: Essential: keen interest in plant identification; moderate fitness for bushwalking up to 8 km per day; enthusiasm and self-reliance in the field.

Where: Liffey Valley reserves, Tas
Who: 6–10 volunteers
Project: Help prevent weed invasion of the neighbouring World Heritage Area. Manually remove escaped garden plants from the buffer zone provided by the reserve and maintain tracks so that visitors may see and appreciate this special place.
When: 24–25 October.
Requirements: Essential: moderate fitness for outdoor activities and walking over uneven ground for up to 5 km per day; able to bend, dig and pull weeds for two full days. Preferred: practical conservation experience.

NOVEMBER

Where: Chingarrup partnership property, south-west WA
Who: 1– 3 Volunteer Rangers.
Project: Support the Ecological Outcomes Monitoring program. A rare opportunity to be involved in a mammal survey.
When: 23–27 November.
Requirements: Essential: happy to camp onsite; enthusiasm and self-reliance in the field; willing to start before dawn. Preferred: experience in small animal trapping or bird surveying.

DECEMBER

Where: Eurardy Reserve, WA
Who: 2 Volunteer Caretakers.
Project: Relieve staff; carry out basic maintenance of reserve infrastructure and handle communications and enquiries. A rare opportunity to experience remote living at a place of rugged beauty and high conservation value.
When: 2–4 weeks, dates to be confirmed.
Requirements: Essential: previous Bush Heritage volunteering or work experience (or a Bush Heritage referee); current driver's licence; tolerant of hot conditions; demonstrated ability to follow safety guidelines and operate with limited supervision. Preferred: Senior First Aid; 4WD experience.

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☑ **Yes, I want to help Bush Heritage to protect our threatened animals and ecosystems**

Title Name Date of birth / /

Address State Postcode

Email Phone Mobile

I want to join the Friends of the Bush and give $ _____ **each month by automatic deduction**

I will give via: ☐ the credit card below until further notice ☐ bank debit (Bush Heritage will send an authority form)

I would rather give a single gift of $ _____ I am paying by: ☐ Cheque/Money order ☐ Visa ☐ MasterCard

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Please return to: Bush Heritage Australia, Reply Paid 329, FLINDERS LANE VIC 8009 AUSTRALIA

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