

ARALUEN CREEK RESTORATION PROJECT 2021-2023



Top left: Penny Hayman, Secretary Upper Deau Catchment Landcare Group and Daniel Anderson and his team, Apical, teaching us weed management techniques.

Top right: Erosion works on Araluen Creek.

Bottom: Rootballs being delivered. Photo: Cath Harrison



Upper Deua
Catchment
Landcare



**Local Land
Services
South East**



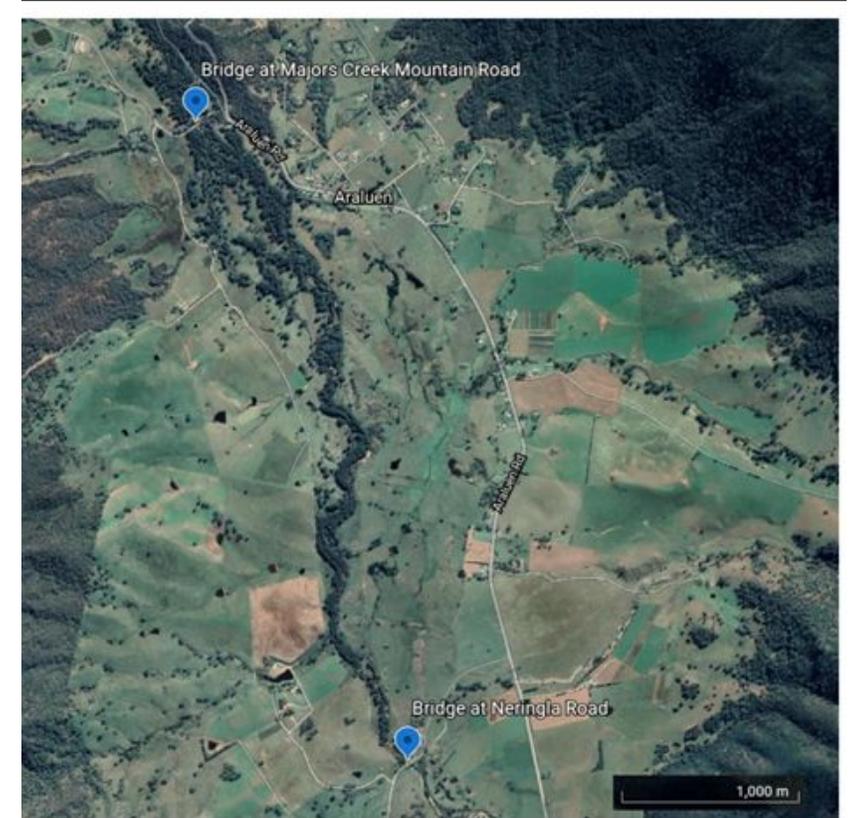
Australian Government



*is a Bushfire Community Recovery and Resilience Fund project through
Commonwealth/State Disaster Recovery Funding Arrangement*

Araluen Creek

- Araluen Creek is in the Southern Tablelands, NSW
- Flows south-east and drops 637 metres over 24 kilometres
- Tributaries: Major's Creek, Bell's Creek, Big Oakey Creek
- Feeds into Deua River
- Creek was a series of billabongs covered with water lilies which were destroyed by gold mining in the 19th and 20th centuries
- Name Araluen believed to come from Aboriginal word "Arr-al-yin" possibly meaning "place of lilies"



ce: Google Earth

Upper Deua Catchment Landcare Group – 27 years of active Landcare

- Formed 1996
- 27 years of active Landcare
- Aims to educate and encourage Araluen community and landholders to participate in projects that focus on improving the environment and biodiversity within Upper Deua Catchment
- Photo: 2004 Annual General Meeting



Why Araluen Creek needs stabilising

- Araluen Creek disturbed after gold discovered in the 1800s
- Creek bed was turned upside down via dredging
- Photo taken in November 2022 shows exposed roots and undercut banks

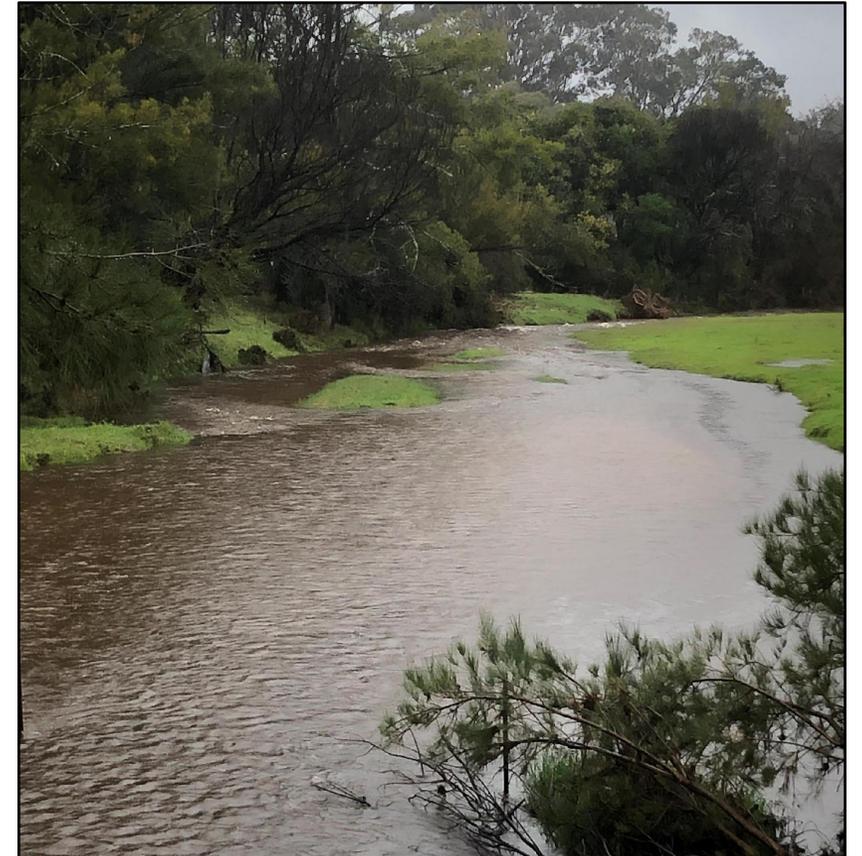


Protecting and stabilising Araluen Creek

Key measures:

- Large scale erosion control works
- Small scale erosion control works
- Fencing the creek from stock
- Alternative water sources for stock
- Weed management
- Revegetation (right plants in the right spot)
- Ongoing monitoring of waterway health
- On-going management

All are needed in balance – one measure by itself will not protect or stabilise the creek in the long-term.



Stabilising the creek with streambed controls

Upper Deua Catchment Landcare Group

Major Projects 1996 – current

- 1998-2004 – Araluen Creek Streambed Controls – Rivercare funding
- 2004-2010 – Araluen Creek Streambed Controls Extension – Site 16
- Commenced 2013 – Bridge to Bridge Weed Project
- 2021-2023 – Araluen Creek Restoration Project funded by Bushfire Community Recovery and Resilience Fund



Drought, fire then a flood and more floods

There have been ~14 flood events since February 2020



Araluen Creek Restoration Project 2021-2023

- Araluen Creek Restoration Project - initiative of Upper Deua Catchment Landcare Group (UDCLG)
- December 2020 - grant application to Bushfire Community Recovery and Resilience Fund funded through Commonwealth and NSW Governments.
- May 2021 - UDCLG advised grant application successful.
- Main focus - works to rehabilitate Araluen Creek from effects of drought, bushfires and flooding.
- Stabilisation of creek necessary to prevent further catastrophic outcomes for Araluen Valley and downstream water quality
- Climate change and associated extreme weather means remedial action now urgent and unavoidable to avoid future adverse catchment impacts compromising whole area's viability for years to come.



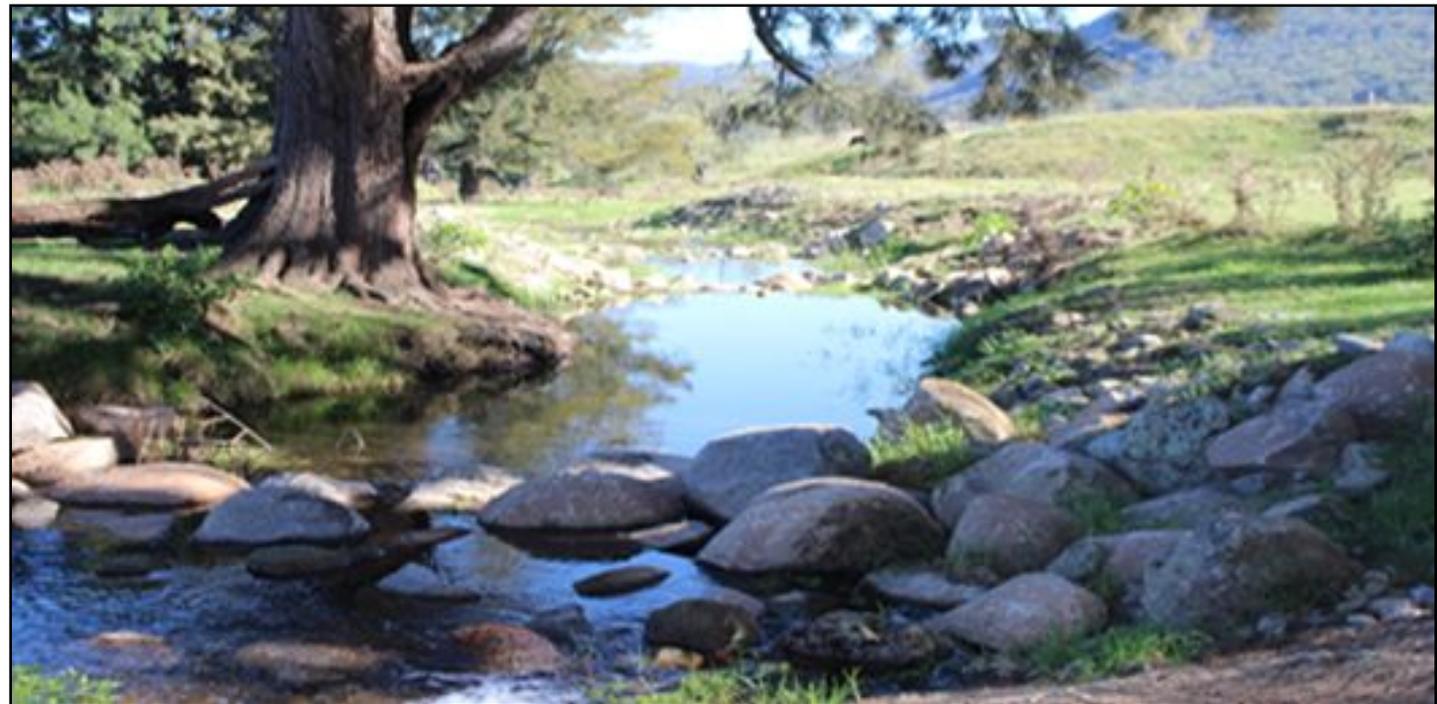
Partnerships and collaboration

-
- Upper Shoalhaven Landcare Council (USLC)
 - South-East Local Land Services (LLS)
 - Soil Conservation Services (SCS)
 - Landholders
 - Specialist advice from workshops
 - Weed management and revegetation
 - Species selection and propagation
 - Geology and soil
 - Scalable erosion control techniques
 - Riparian management and water monitoring
 - Working with each other



Soil erosion earthworks

- Works to be undertaken at 11 sites
- Community liaison with landholders essential
- Before and after photos at Long Flat Creek (where revegetation has since occurred with ~400 plants)



Community Engagement: Workshops / Events

NEW DATE

GEOLOGY & SOILS OF THE ARALUEN REGION

Presented by Leah Moore, Australian National University



Saturday 26th February
9:30am - 1.00pm
Araluen Hall
RSVP Required

Are you interested in learning about the origins of Araluen's agricultural soils and geology?

Join Upper Shoalhaven and Upper Deua Landcare to discover how the region's soils were formed and the geological events that preceded them. Morning tea and a light lunch will be provided.

Places are limited so please RSVP by Monday 21st February to: Clare Henderson 0412 425 665 OR email upper.shoalhaven@gmail.com

This workshop is part of Upper Deua Landcare's Araluen Creek Restoration project and will be one of a series held over the coming months.



NEW DATE

EROSION CONTROL WORKSHOP

SAVE THE DATE

SATURDAY 28TH MAY 9:30-12:30PM
856 MAJORS CREEK MOUNTAIN RD
(DIRECTIONS GIVEN UPON RSVP)

Register your interest to Clare Henderson 0412 425 665 OR upper.shoalhaven@gmail.com

This workshop will provide landholders with hands-on skills and information on how to treat and prevent erosion after fire.

Presenter Andrew Taylor will cover erosion processes and control techniques, as well as help you identify what methods are best suited to your catchment size and soil type.

The workshop also examines low cost soil erosion techniques and more technical erosion structures.

Come along to Araluen. Some give aways of coir logs and jute mesh will be available on the day.

This workshop is part of Upper Deua Landcare's Araluen Creek Restoration project.



WEED MANAGEMENT WORKSHOP

SATURDAY 25TH JUNE 9:30-2:30PM
ARALUEN CREEK, ARALUEN
(DIRECTIONS GIVEN UPON RSVP)

Register your interest to Clare Henderson 0412 425 665 OR upper.shoalhaven@gmail.com

At this workshop weed management experts, Apical, will outline restoration, remediation and weed eradication processes and principles.

They will also provide practical demonstrations of weed removal and bush regeneration on site along the Araluen Creek.

The focus will be on - African Boxthorn, Broad-leaved Privet, Small-leaved Privet and blackberry.

Techniques will address management and control measures for different stages of growth - seedling through to mature plants.

Morning tea and lunch provided.

This workshop is part of Upper Deua Landcare's Araluen Creek Restoration project.



Workshop
Upper Shoalhaven Landcare Council with Upper Deua Landcare Catchment Group

PRESENTS

LOOKING AFTER CREEKS

SATURDAY 27 AUGUST 9.30am to 1.00pm
Araluen (address after RSVP)

FEATURING
Lori Gould of Rivers of Carbon
www.riversofcarbon.org.au

The workshop will cover:

- riparian management options
- creating healthy riparian areas
- monitoring waterways (waterwatch)
- riparian habitat and indicators.

RSVP
Register your interest to Clare Henderson 0412 425 665 OR upper.shoalhaven@gmail.com

This workshop is part of the Araluen Creek Restoration project.




UPPER DEUA LANDCARE INVITE YOU TO OUR native seed collection and propagation workshop

presented by Lyn Ellis
SATURDAY 3 SEPTEMBER 9.30AM - 1.00PM
ARALUEN

RSVP TO CLARE@DACELO.COM.AU OR 0412 425 665

Suitable for beginners or those with familiarity with native plant seed collection and propagation. It will cover:

- benefits and importance of local seed
- tools and materials to collect seed
- different seed/fruit types and timing of collection
- techniques to collect seed
- seed processing, storage and record-keeping
- methods of seed propagation and equipment
- making your own propagation mix
- care for your native seedlings

PARTICIPANTS GET A TRAY OF PLANTED SEEDS TO TAKE HOME

This workshop is funded by the Landcare Leaf Beetle Recovery Grants Project and supported by the Australian Government Bushfire Recovery Program for Wildlife and their Habitat




WEED MANAGEMENT WORKSHOP

SATURDAY 25 FEBRUARY 8:30AM-2:30PM
ARALUEN CREEK, ARALUEN
(DIRECTIONS GIVEN UPON RSVP)

Register your interest to Clare Henderson 0412 425 665 OR upper.shoalhaven@gmail.com

At this workshop weed management experts, Apical, will outline restoration, remediation and weed eradication processes and principles.

They will also provide practical demonstrations of weed removal and bush regeneration on site along Araluen Creek.

The focus will be on - creepers and native grasses, in particular, Madeira Winter Cherry Vine, an emerging threat in the region and weed grasses such as Serotinal Tussock and African Lovegrass.

Techniques will address management and control measures for different stages of growth - seedling through to mature plants.

Morning tea and lunch provided.

This workshop is part of Upper Deua Catchment Landcare's Araluen Creek Restoration project.



UPPER DEUA CATCHMENT LANDCARE GROUP AND UPPER SHOALHAVEN LANDCARE COUNCIL INVITE YOU TO OUR COMMUNITY PLANTING DAY AND CELEBRATION LUNCH FOR THIS STAGE OF THE ARALUEN CREEK RESTORATION PROJECT

APRIL SATURDAY 1 10 AM 2023

RECREATION GROUND 5969 ARALUEN RD, ARALUEN

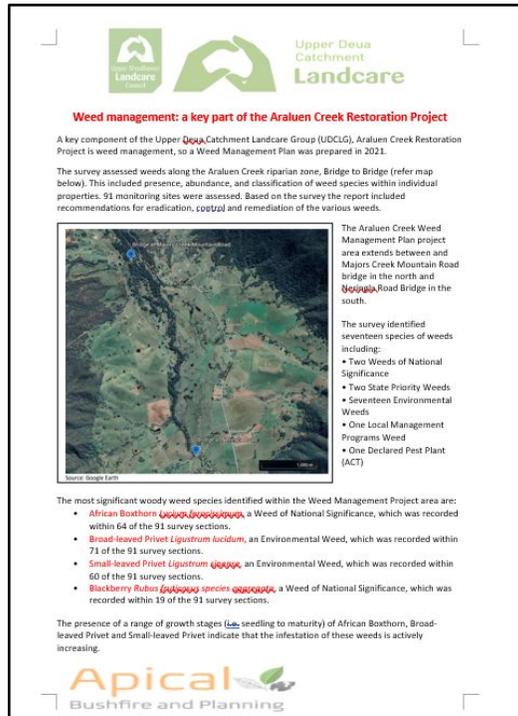
LUNCH 12.30PM
PLEASE RSVP TO: UPPERDEUALANDCARE@GMAIL.COM



- 8 workshops / events July 2021 to April 2023
- Average 20 participants per event

Community Engagement: Information Sheets

- 10 information sheets provided to workshop participants
- A website link will hold all these information resources



Weed management: a key part of the Araluen Creek Restoration Project

A key component of the Upper Deua Catchment Landcare Group (UDCLG), Araluen Creek Restoration Project is weed management, so a Weed Management Plan was prepared in 2021.

The survey assessed weeds along the Araluen Creek riparian zone, Bridge to Bridge (refer map below). This included presence, abundance, and classification of weed species within individual properties. 91 monitoring sites were assessed. Based on the survey the report included recommendations for eradication, control and remediation of the various weeds.

The Araluen Creek Weed Management Plan project area extends between and Majors Creek Mountain Road bridge in the north and [unclear] Road Bridge in the south.

The survey identified seventeen species of weeds including:

- Two Weeds of National Significance
- Two State Priority Weeds
- Seventeen Environmental Weeds
- One Local Management Programs Weed
- One Declared Pest Plant (ACT)

The presence of a range of growth stages (seedling to maturity) of African Boxthorn, Broad-leaved Privet and Small-leaved Privet indicate that the infestation of these weeds is actively increasing.

Apical Bushfire and Planning



PLANTING LIST

The Upper Shoalhaven Landcare Council is assisting the Araluen Creek Restoration Project with the Upper Deua Catchment Landcare Group. The chunky part of the project is the actual large scale works along the creek.

In addition to substantial erosion control works on the actual creek, there are other necessary elements to look after Araluen Creek, such as riparian health, waterwatch monitoring, re-vegetation, weed control and measures to keep stock out of the creek line by fencing and providing alternative water sources. We have also looked at small scale erosion control measures. The final component of the project is re-vegetating near the site works after fences are in place. This is another key way of stabilizing and protecting the creek.

On Sunday 2 April we are hoping to plant about 400 plants at one of the sites where erosion control works are complete, along with fences and alternative water supply to keep stock out of the creek.

What are we planting? Here's the list!
The focus is on trees as once they grow they provide all important canopy cover for understorey plants.

Trees approx. 190

- 104 - Casuarina cunninghamiana, River Sheoak
- 35 - Eucalyptus tereticornis, Forest Red Gum
- 25 - Eucalyptus (unspecified)
- 20 - Eucalyptus melliodora, Yellow-Box Gum
- 6 - Eucalyptus Elata, River Peppermint
- 6 - Acacia coveyana, Blue Brush
- 5 - Tasmania lanceolata, Mountain Pepper
- 4 - Eucalyptus sideroxyon, Red Ironbark
- 4 - Qandong

Shrubs approx. 135

- 80 - Lomandra longifolia, Matt Rush
- 40 - Cassinia longifolia, Shiny (Long Leaf) Cassinia
- 15 - Bursaria spinosa

Grasses / sedges approx. 65

- 15 - Carex appressa
- 50 - Ficinia nodosa

Ground cover

- 3 - Kunzia bugganensis, Badga Carpet



LYN ELLIS SOIL MIX RECIPE
FOR GROWING NATIVE PLANTS

We mixed our own potting mix in the following ratio:

- 4 x composted pine fines or peat moss
- 2 x course river sand
- An Osmacote slow release fertilizer pellet for natives. You can get it lasting 6 – 9 months or 12 – 14 months. It's major minerals normally referred to as NPK were Nitrogen 17; Phosphorus 1.6; Potassium 9.0 plus Magnesium 0.6.

We also added a small amount of a loamy bush soil taken from a healthy native forest area. We believe this acted as an inoculant of the many soil microbes and fungi that have associations with native plants and are likely to be missing in long cleared pasture lands.

This information is from an Upper Deua Catchment Landcare Workshop led by Lyn Ellis on Weeds and Soil Collection and Preparation on Saturday 3 November 2020. Lyn and her partner ran a local native plant nursery in the Bushwood region for about twenty years. The workshop was kindly funded by the Upper Shoalhaven Landcare Council under their Landcare and Bushfire Recovery Grants Project. The Project has been generously supported by the Australian Government Bushfire Recovery Program for 2018/19 and their match.



Apical Bushfire and Planning

TIPS FOR MANAGING PRIVET

Mature plants:
Use a chainsaw to cut lower branches to expose trunk to a workable height say approx. 1 metre. Create wells (cuts into trunk) immediately apply a dyed (coloured) 90% glyphosate-10% water mix. Also apply to any branch trunks that have been cut. Leave tree standing; it will die and eventually fall over, meanwhile it provides a canopy for shade and a dripline for moisture for replanting desired species. Focus on plants that are in seed or about to seed, this is usually autumn or early winter.

Seedlings:
Mechanically remove, hand pull, however replant with other native vegetation to discourage new weed incursions.

Bio-mass cuttings:
Burn. Or leave on-site.

Follow-up:
Keep an eye on treated sites. Seed remains viable or up to two years. So monitor seedling growth at sites that have been treated.

Best time and methods for weed control:
All seasons hand pull or dig. Plus in spring cut and paint.

Upper Shoalhaven Landcare Council

Community Engagement: Video

- Video footage of the project
- Clare Young, a Braidwood local is our videographer
- The video will be released in July 2023
- Photo here is Clare Young filming local landholder, Les Mundy at the February 2022 workshop on the geology of Araluen Creek.



Challenges and key lessons

- It's a big job for a small community of volunteers
- Government agencies have a special approach
- Different landholders need different approaches
- Funding bodies need to be massaged
- Project ends but more work needed

