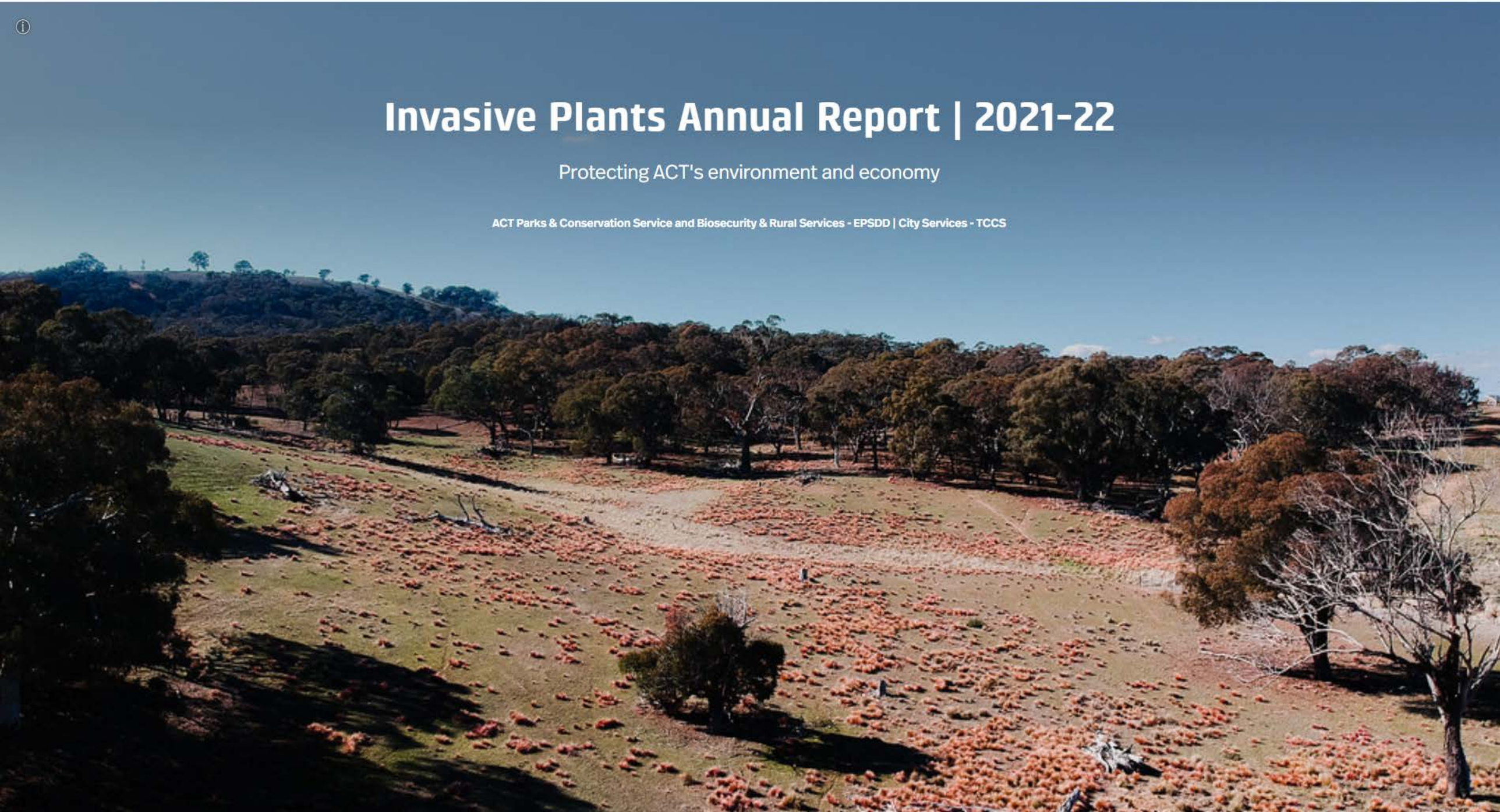
Invasive Plants Annual Report | 2021-22

Protecting ACT's environment and economy

ACT Parks & Conservation Service and Biosecurity & Rural Services - EPSDD | City Services - TCCS



> ***Alien species that become invasive are considered to be the main direct drivers of biodiversity loss across the globe. In addition, alien species have been estimated to cost our economies hundreds of billions of dollars each year.***

UN Convention on Biological Diversity

At a glance

8,252 ha of environmental weeds controlled.
9,824 hrs of control work by ACTGOV staff.
Boosted new incursion control capacity - 'rapid responders'.
4,536 hrs of control work by volunteers.
$2.1m of control work by 16 small businesses.

Goals of invasive plant control

Environmental biosecurity is the protection of the environment and social amenity from the negative effects associated with invasive species; including weeds, pests and diseases. It occurs across the entire biosecurity continuum: pre-border preparedness, border protection and post-border management and control.
Australian Government, Department of Agriculture, Water & the Environment

1. reduce the impact of widespread invasive plants (post-border management & control)
2. reduce the threat from new incursions (border protection, post-border management & control)
3. increase capacity to manage threats

The invasive plant control team

- ACT Parks & Conservation Service, and Biosecurity & Rural Services, and City Services
- 16 small businesses that control invasive plants
- Parkcare, Landcare, Catchment Groups, National Parks Association, and Friends of Grassland
- ACT Natural Resource Management, Suburban Land Agency, National Capital Authority, Defence, Icon Water, Canberra Airport, Stromlo Forest Park, National Arboretum, Birrigai

Investment: 2021-22 control work

Ninety percent of invasive plant management is the control of widespread environmental weeds. The 2021-22 resources for these control projects:

- $2.1m for environmental weed control contracts
- 9,824 hrs of control work by ACTGOV staff
- 4,536 hrs of control work by volunteers

These resources, allowed a coordinated control program to be delivered across ACT public land:

- 8,252 ha of environmental weed control - Goal 1 & 2
- 25 new & emerging invasive plant species contained - Goal 2
- Innovations: XAG drones and the Esri Field Maps app mapping system - Goal 3

While expenditure and ha controlled in the previous financial year were greater, the average size of infestations has fallen, due to on-going resourcing of control work. Large dense infestations are being broken up into smaller infestations, which shows control work is succeeding.

Dashboard - desktop

Operations Dashboard showing locations of invasive plant and other weed control on ACT public land in 2021-22.

Dashboard - mobile

Operations Dashboard (mobile device view) showing locations of invasive plant and other weed control on ACT public land in 2021-22.

https://actgov.maps.arcgis.com

Our implementation plan

The 2020-25 Invasive Plants Control Plan outlines the principles for effective invasive plant management. It lists the invasive plant control priorities.

Invasive Plants Plan 2020-25

Implementation plan for the control of invasive plants on ACT public land.

https://actgov.maps.arcgis.com

What is the ACT's main environmental Biosecurity risk?

The ACT is unique, being dominated by natural and semi-natural habitats:

- 73% is natural habitat
- 11% is urban forest and urban area
- 10% is rural lease and government agistment
- 6% is other government land

The main environmental biosecurity risk in the ACT is from invasive species impacting natural and semi-natural habitats. Most of this impact is from established or widespread invasive species.

Weeds or invasive plants? What are environmental weeds and transformers?

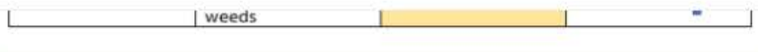
Weeds are plants growing where they are not wanted. In contrast, *invasive plants* are *non-native plants* whose introduction and/or spread threatens biological diversity (Convention on Biological Diversity). Invasive plants also impact socio-economic activity. Those that impact native vegetation are also termed *environmental weeds*.

Transformers are invasive plants that cause substantial ecosystem impacts. They are the highest priority for control. Examples include: blackberry, serrated tussock, alligator weed, African lovegrass, Chilean needle grass, English broom, Cape broom, Japanese honeysuckle, bridal creeper and crack willow.

Building on the results from the conservation effectiveness monitoring program

The Conservation Effectiveness Monitoring Program (CEMP) uses vegetation and wildlife survey data, including mapping, to analyse land management effectiveness. It allows evidence based strategic budget allocation to the many and varied land management programs.

CEMP report	Biosecurity risk	Condition	Status
Lowland grasslands	New incursion environmental weeds	Good with concerns	Improving ↑
	Widespread environmental weeds	Moderate	Improving ↑
Upland grasslands	New incursion environmental weeds	Good	Stable ↔
	Widespread environmental weeds	Moderate	Improving ↑



The CEMP looks at the two distinct types of control work: new incursions, and widespread environmental weeds. Past CEMP reports show improving outcomes from control work. The reduction in the average size of infestations in 2021-22, and the 'rapid responders' initiative, builds upon this work.

Spot spraying with selective herbicide is an important environmental weed control technique. Removal of environmental weeds makes space for native plants to regenerate.

Spot spraying Oregon grape using metsulfuron methyl in Namadgi National Park

Drones controlling and monitoring invasive plants

Drones are becoming an important new tool for mapping and control work. They have been used for the control of blackberry and serrated tussock in difficult terrain, and for searching remote areas of Namadgi National Park for Chilean needle grass.

Multiple XAG drones (a swarm) can be used to treat larger areas in a shorter period of time.

The XAG drones use computer controlled calibration of herbicide delivery and cm level of accuracy. This results in less herbicide being used per ha than would otherwise be the case.

The importance of photo-points

The Conservation Effectiveness Monitoring Program (CEMP) assesses overall performance of land management and allows strategic budget allocation to land management programs. At a site level vegetation and wildlife surveys record changes. But not all sites can be surveyed in detail, so photo-points can be used as a simple way of monitoring the effectiveness of invasive plant control over time. Mapping using the Field Maps app - ArcGIS Online system and photo-points are the minimum level of monitoring required for adaptive management.

Blackberry control using spot spraying of metsulfuron methyl herbicide at Moonlight Hollow in Namadgi National Park. The infestation at top left was discovered in late 2009, starting to smother the soft tree-ferns (*Dicksonia antarctica*). The photos span 10 years from initial control in 2010 at top right, to the most recent photo at the bottom taken in late 2020. A diverse range of native plants have regenerated in the space left by the dead blackberry.

Serrated tussock control using spot spraying of glyphosate, ecological burning, soil nutrient management, and reduced grazing pressure (ie. integrated control) at Jerrabomberra Grasslands Nature Reserve. The photos span 15 years, commencing with the initial spot spraying of the serrated tussock (top photo) in 2005. It took 6 years of integrated management to bring the serrated tussock under control, allowing the native grasses to regenerate. Bottom left photo is in late winter 2020, showing native grasses (mainly tall speargrass and red grass) dominating the grassland. And at bottom right in Spring 2020, the native grassland in seed.

Bottom left photo is in late winter 2020, showing native grasses (mainly tall speargrass and red grass) dominating the grassland. And at bottom right in Spring 2020, the native grassland in seed.

Nodding thistle control in Namadgi National Park using integrated management. Top left photo shows nodding thistle rosettes invading the burnt river tussock native grassland. Top right shows the dense growth of mature nodding thistle plants, suppressing native plant regeneration. Selective herbicide (clopyralid) was used during 2018-20 to control the nodding thistle. Other control methods used included: grazing exclusion to allow native grasses to recover, leaky weirs to encourage native colonisers, and direct seeding of the native river tussocks. The photos at the bottom are taken in Spring 2020 (bottom left) and late Autumn 2021 (bottom right), showing successful restoration of the native grassland.

Nodding thistle control in Namadgi National Park using integrated management. Top left photo shows nodding thistle rosettes invading the burnt river tussock native grassland. Top right shows the dense growth of mature nodding thistle plants, suppressing native plant regeneration. Selective herbicide (clopyralid) was used during 2018-20 to control the nodding thistle. Other control methods used included: grazing exclusion to allow native grasses to recover, leaky weirs to encourage native colonisers, and direct seeding of the native river tussocks. The photos at the bottom are taken in Spring 2020 (bottom left) and late Autumn 2021 (bottom right), showing successful restoration of the native grassland.

Credits

ACT Parks & Conservation Service (ACT PCS) and Biosecurity & Rural Services (BRS) - EPSDD | City Services | TCCS

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EPSDD - Environment, Planning and Sustainable Development Directorate
TCCS - Transport Canberra and City Services

Photos	ACT PCS, BRS, and Friends of Mt Majura
Mapping - Field Maps app - ArcGIS Online	Copyright Esri Australia

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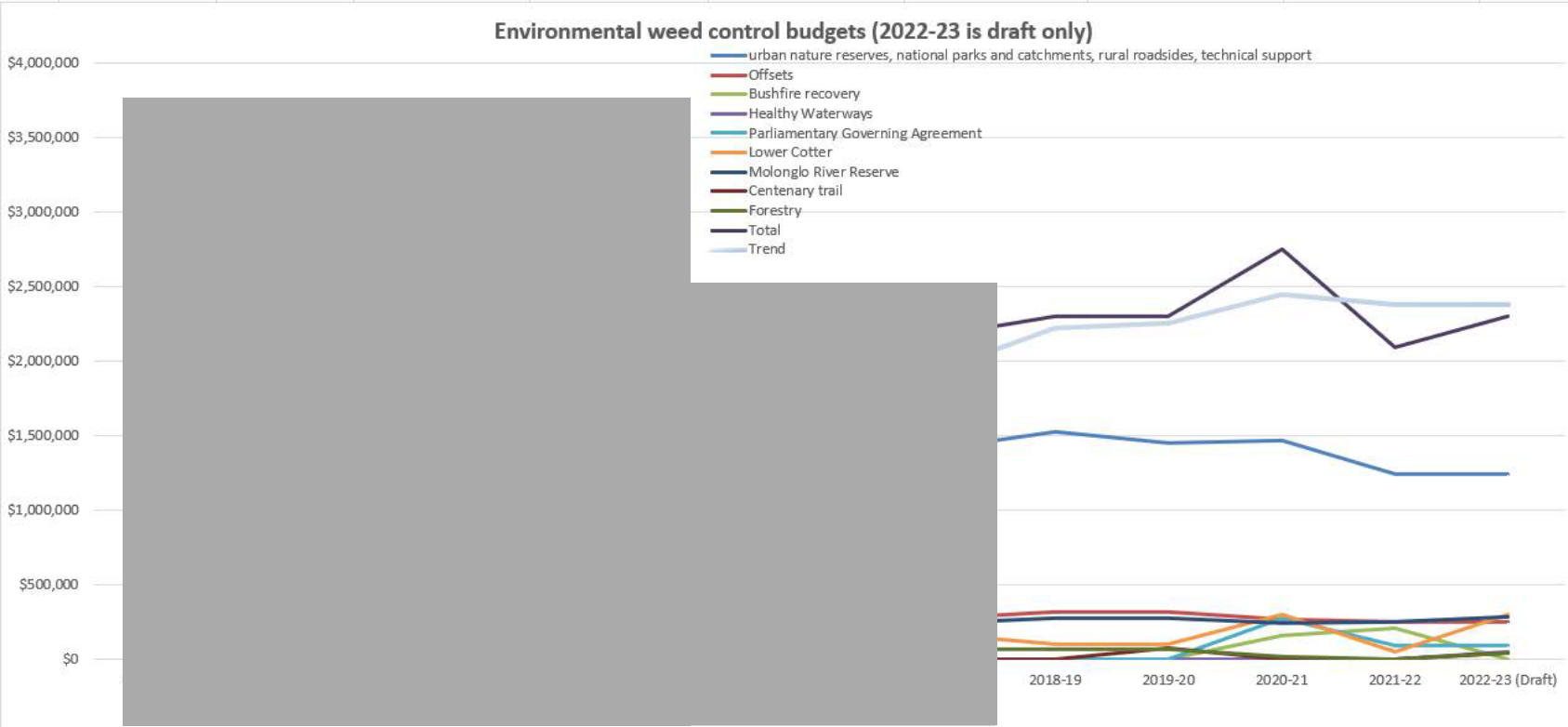
Budgets fluctuate from year to year, and while expenditure and ha controlled in the previous financial year were greater, what matters is the trend in expenditure. Over the last 5 years the trend has been increasing to stable. This has allowed follow-up control work to reduce the average size of infestations. Large dense infestations are being broken up into smaller infestations, which shows control work is succeeding.


Environmental weed control budgets (2022-23 is draft only)
urban nature reserves, national parks and catchments, rural roadsides, technical support
Offsets
Bushfire recovery
Healthy Waterways
Parliamentary Governing Agreement
Lower Cotter
Molonglo River Reserve
Centenary trail
Forestry
Total
Trend
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
2018-19
2019-20
2020-21
2021-22
2022-23 (Draft)

ENVIRONMENTAL WEED CONTROL BUDGETS - PARKS & CONSERVATION SERVICE, BIOSECURITY & RURAL SERVICES, ACT NRM

Type	Budget name	2018-19 Budget	2019-20 Budget	2020-21 Budget	2021-22 Budget	Draft 2022-23 Budget	Comments
Ongoing Recurrent	General programs	$333,000	$333,000	$333,000	$181,682	$181,682	BRS budget - includes weed swap and bush friendly gardens
Ongoing Recurrent	Agistment	$70,000	$70,000	$70,000	$52,500	$52,500	BRS budget - agistment
Ongoing Recurrent	Roadside furniture	$60,000	$60,000	$60,000	$45,000	$45,000	BRS budget - roadside furniture
Ongoing Recurrent	Forestry	$70,000	$70,000	$20,000	$0	$40,000	PCS budget - Forestry
Recurrent Initiative (ongoing)	Lower Cotter Catchment	$100,000	$100,000	$300,000	$49,700	$300,000	PCS budget - LCC
Ongoing Recurrent	Molonglo River Park Stage 1	$50,000	$50,000	$50,000	$0	$0	
Ongoing Initiative	Molonglo NES Plan Stage 2	$130,000	$130,000	$130,000	$0	$0	
Ongoing Initiative	Molonglo River Reserve Stage 3	$50,000	$50,000	$50,000	$250,000	$285,000	PCS budget - Molonglo
Capital funding (years 1-4). Recurrent from year 5	Biodiversity Offsets	$5,000	$5,000	$5,000	$250,000	$250,000	PCS budget - Offsets
Capital funding (years 1-3). Recurrent from year 4	Biodiversity Offsets	$10,000	$10,000	$10,000	$0	$0	extension to Gungaderra and Mulangarri nature reserves
Capital funding (years 1-3). Recurrent from year 4	Biodiversity Offsets	$93,000	$93,000	$93,000	$0	$0	Gunaghlin Strategic Assessment (GSA) - stage 1, Pinnacle, Watson Woodlands and Isaacs
Capital funding (years 1-3). Recurrent from year 4 - recurrent figure not represented here	Biodiversity Offsets (16/17 initiative)	$90,000	$90,000	$90,000	$0	$0	GSA - stage 2 and Eastern broadacre - stage 1
Recurrent Initiative	Protecting services in your community - protecting our native species and environment (weed control)	$782,000	$705,000	$723,812	$678,272	$678,272	BRS budget - protecting our native species
Recurrent Initiative (ongoing)	Bushfire Managment Capacity (14/15)	$283,818	$283,818	$283,818	$283,818	$283,818	BRS budget - fire insurance replacement
SUB TOTAL Ongoing Base		**$2,126,818**	**$2,049,818**	**$2,218,630**	**$1,790,972**	**$2,116,272**	
Fire Insurance Funding	Fire Insurance Funded	$0	$0	$0	$0	$0	
Capital Works Project	Restoration of waterways & surrounds	$0	$0	$0	$0	$0	
Recurrent Initiative (one-off)	Restoration of waterways & surrounds	$0	$0	$0	$0	$0	
Capital Works Project	Kings Hwy Offsets	$0	$0	$0	$0	$0	
Capital Works Project	Molonglo River Park Stage 2	$0	$0	$0	$0	$0	Weed control including willow throughout the Molonglo River Reserve. Funding complete 2015-16
Capital Works Project	Molonglo River Park + other tied initiatives in 15/16	$0	$0	$0	$0	$0	Mainly focused on willows and blackberries in Molonglo River PArk.
Capital Works Project	Molonglo NES Plan	$0	$0	$0	$0	$0	
Capital Works Project	Molonglo River Reserve Stage 3	$50,000	$50,000	$15,000	$0	$0	Weed control to establish Molonglo River Reserve. Willow removal for establishment of riparian environment.
Capital Works Project	Weeds of National Significance (WONS)	$0	$0	$0	$0	$0	Weeds of National Significance (WONS) Jerrabomberra Creek, Lake Burley Griffin, Molonglo, Lowland grasslands
Capital Works Project	Jerrabomberra Wetlands	$0	$0	$0	$0	$0	Jerrabomberra Wetlands
Capital Works Project	City Services Willow	$0	$0	$0	$0	$0	Molonglo River and Lake Burley Griffin
Capital Works Project	ACT Roads Bathurst Burr Cooleman Ridge Budget	$0	$0	$0	$0	$0	One off allocation to address Bathurst Burr introduction at Cooleman Ridge (only).
Recurrent Initiative (short term)	Biodiversity Offsets	$113,000	$113,000	$65,000	$0	$0	One off budget allocated to offsets - general (not site specific)
Funding transferred from LDA.	Biodiversity Offsets	$9,000	$9,000	$9,000	$0	$0	Bonner - Ngunnawal 2C - LDA money not budget funded. One of transfer. Funding to be discharged over time as expenditure has incurred. No specific timeframe in which funding needs to be expended.
Recurrent Initiative (fixed four year term)	Pest Plant Management	$0	$0	$0	$0	$0	High risk weeds in high consrvation areas.
Recurrent Initiative (fixed four year term)	Woodland Restoration	$0	$0	$0	$0	$0	Weed control prior to tree planting.
Recurrent Initiative ending 2017/18	Weathering the Change One Million Trees Initiative	$0	$0	$0	$0	$0	Last year of Million Trees funding is 2017-18
Recurrent Initiative ending 2011/12	Lower Cotter Catchment	$0	$0	$0	$0	$0	
Centenary Trail		$0	$80,000	$0	$0	$40,000	Centenary Trail
Recurrent Initiative (two one-year initiatives)	Enhanced Biodiversity Stewardship Initiative	$0	$0	$0	$0	$0	Enhanced Biodiversity Stewardship Initiative
Australian Alps (specific contributions)	Australian Alps	$0	$0	$0	$0	$0	Australian Alps
Weed and Vermin Control (16/17 initiative)	Weed and Vermin Control (16/17 initiative)	$0	$0	$0	$0	$0	one off allocation in 16/17 budget for pest management on public land
Parliamentary Agreement	52277 Species (animals, plants diseases) manageemernt	$0	$0	$280,000	$93,000	$93,000	BRS budget - PAGA -does not include cost of TO2s
Bushfire wildlife and habitat recovery grants 1	52270 - bushfire wildlife and habitat recovery	$0	$0	$112,000	$0	$0	wildlife recovery
Healthy Waterways		$0	$0	$0	$0	$50,000	Healthy Waterways
Bushfire wildlife and habitat recovery grants 2	52293 - Commonwealth - Australina Alps Bushfire Funding	$0	$0	$50,000	$209,020	$0	BRS budget - NRM fire grant
SUB TOTAL Project/Short Term Funding		**$172,000**	**$252,000**	**$531,000**	**$302,020**	**$183,000**	
TOTAL		**$2,298,818**	**$2,301,818**	**$2,749,630**	**$2,092,992**	**$2,299,272**	

		2018-19	2019-20	2020-21	2021-22	2022-23 (Draft)	
BRS administered	urban nature reserves, national parks and catchments, rural roadsides, technical support	$1,528,818	$1,451,818	$1,470,630	$1,241,272	$1,241,272	urban nature reserves, city services native grasslands (approx. $82,000), national parks and catchments, rural roadsides, technical support
PCS administered	Offsets	$320,000	$320,000	$272,000	$250,000	$250,000	Offsets
ACT NRM administered	Bushfire recovery	$0	$0	$162,000	$209,020	$0	Bushfire recovery
PCS administered	Healthy Waterways	$0	$0	$0	$0	$50,000	Healthy waterways
BRS administered	Parliamentary Governing Agreement	$0	$0	$280,000	$93,000	$93,000	Parliamentary Governing Agreement
PCS administered	Lower Cotter	$100,000	$100,000	$300,000	$49,700	$300,000	Lower Cotter
PCS administered	Molonglo River Reserve	$280,000	$280,000	$245,000	$250,000	$285,000	Molonglo River Reserve
PCS administered	Centenary trail	$0	$80,000	$0	$0	$40,000	Centenary trail
PCS administered	Forestry	$70,000	$70,000	$20,000	$0	$40,000	Forestry
	Total	$2,298,818	$2,301,818	$2,749,630	$2,092,992	$2,299,272	Total
Moving average	Trend	$2,220,965	$2,259,818	$2,450,089	$2,381,480	$2,380,331	Trend

Type	Budget name	2010-11 Estimated	2011-12 Spend	2012-13 Spend	2013-14 Spend	2014-15 Spend	2015-16 Spend	2016-17 Spend	2017-18 Budget	2018-19 Budget	2019-20 Budget	2020-21 Budget	2021-22 Budget	Draft 2022-23 Budget	Comments