

Environmental Management at The Australian National University



2015 Annual Report



Australian
National
University

ANU
green

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Snapshot 2015

Environmental Management at the ANU

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A Message from the Sustainability and Heritage Office

The Australian National University strives to be an international leader in campus sustainability and is committed to continual improvements for the environment. ANU achieved a number of sustainability outcomes in 2015 such as reductions in waste production, fleet carbon emissions and energy use per person. These are great achievements considering the increase in Gross Floor Area at the Acton campus, as well as providing accommodation to almost 5000 students who are characteristically high users of water and energy.

Staff and students are often attracted to the Acton campus at ANU due to the unique grounds it's situated on with over 10,000 trees, over 140 species of animals, and the critically endangered Old Canberra House Grassy Woodlands. Continuing to engage with staff, students and the wider ANU community will help us to continue to achieve our Environmental Management Plan targets and continue to protect our natural environment.

I look forward to working with the Sustainability and Heritage Office and the broader ANU community to further improve the environmental status of ANU in 2016.

John Sullivan
Sustainability Manager
The Australian National University

SNAPSHOT 2015



6% ↓

DECLINE IN ENERGY USE PER PERSON
since 2006

64%

OF
GREEN
COMMUTERS



36%

decrease in total water
consumption per person
since 2006

5

awards for the
significant contribution
of ANU Heritage to
the conservation and
management of its unique
heritage places



20%

cut in waste per person
since 2006



39% reduction in
fleet carbon
emissions
since 2006

58%
reduction

in
residual
risk

since 1998



41%

increase
in

GFA

since 2008



55%

RECYCLE RATE

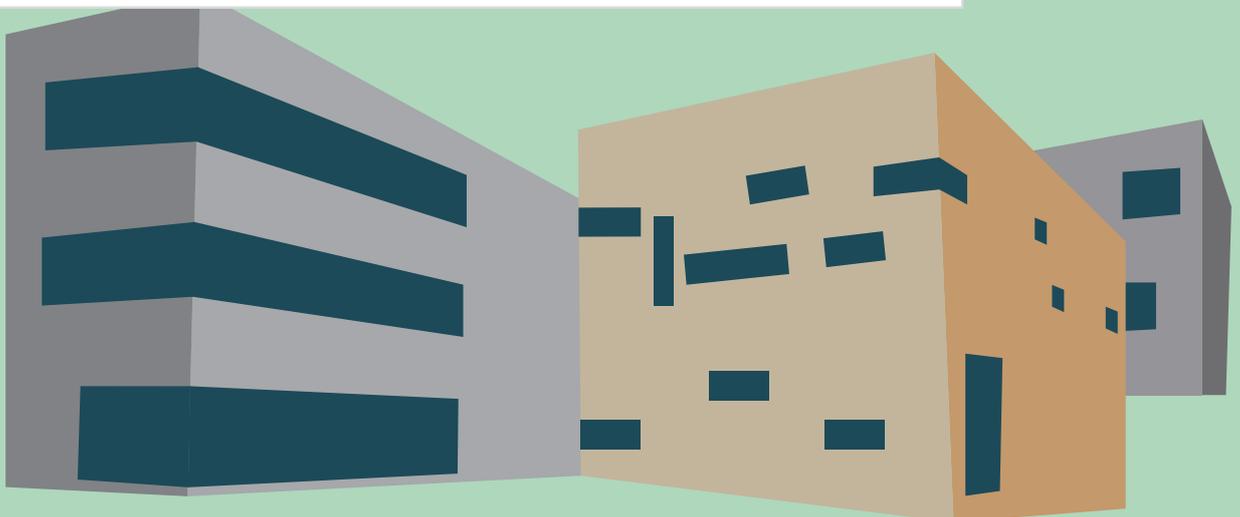
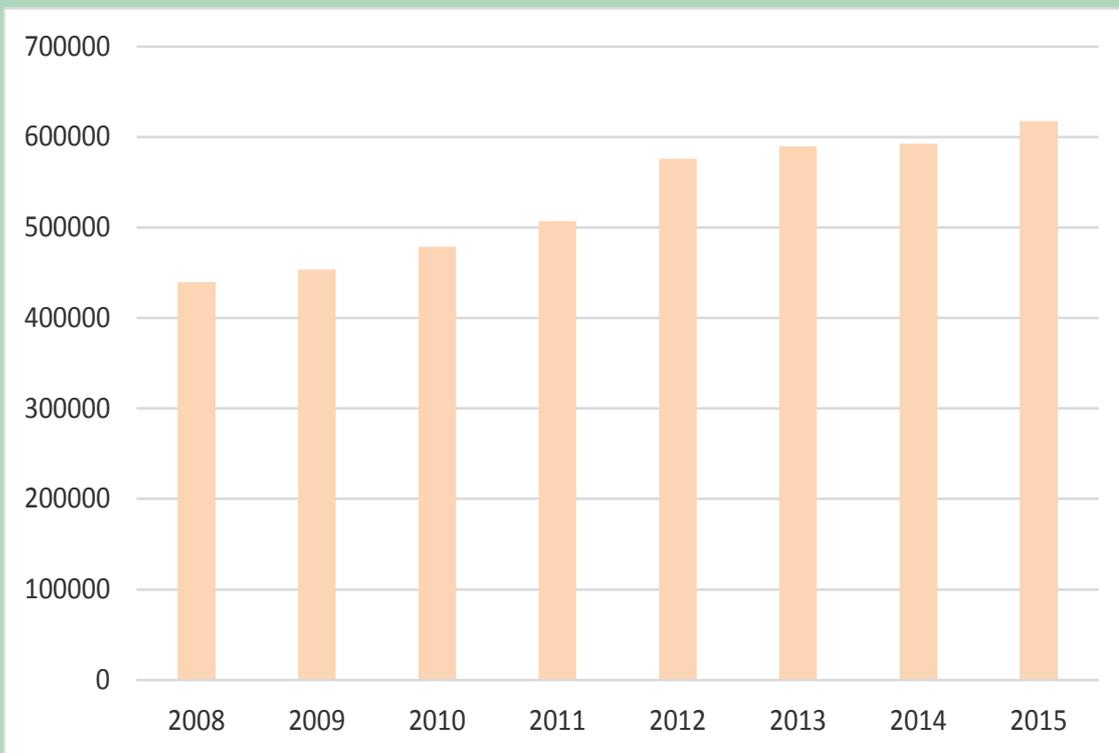
ENVIRONMENTAL MANAGEMENT AT THE ANU

ANU aims to provide a research and study environment that meets the world's best sustainability practice. Seventeen years ago ANU created its first Environment Management Plan (EMP), a comprehensive program for improving campus sustainability. ANU is now working from its third Environmental Management Plan 2009 – 2015.

In 2015, ANU achieved some significant results towards improving campus sustainability. These results can be seen in all aspects of environmental management from fleet carbon emissions to water use per person. Improving campus sustainability has been a challenge due to the 41% Growth in Floor Area (m²) from 2008 to 2015.

The following pages outline each aspect of the University's Environmental Management Plan in greater detail. All reductions are calculated from a 2006 baseline.

Gross Floor Area (m²)



COMMUNITY ENGAGEMENT

“Increase awareness, foster engagement and celebrate environmental management successes.”

Targets

- Increase community engagement in campus sustainability initiatives.
- Increase events and information campaigns to raise public interest in sustainability.
- Increase sustainability-related professional training and development opportunities through internships, facilitated workshops, national and international alliances.

Student Outreach and Education Initiatives

ANU SUSTAINABILITY LEARNING COMMUNITY

The ANU Sustainability Learning Community is a network of staff and students that engage with, discuss and consider solutions to sustainability issues. It aims to provide students with the opportunity to get more actively involved in sustainability initiatives on campus and in the wider community.

SLC ORGANIC GARDEN

The ANU SLC Organic Garden is a student and community organic garden focussed on giving people the skills and experience for sustainable food practices. Workshops held included growing your own veggies, keeping chooks and worm farming.

GREAT GREEN DEBATE: WHAT IS YOUR SUSTAINABILITY VISION FOR UNION COURT?

The SLC hosted the Great Green Debate where students, faculty and staff gave their sustainability vision for Union Court. The debate was preceded by a formal dinner which gave students the opportunity to engage with professionals in the environmental field and other students and staff with similar interests.

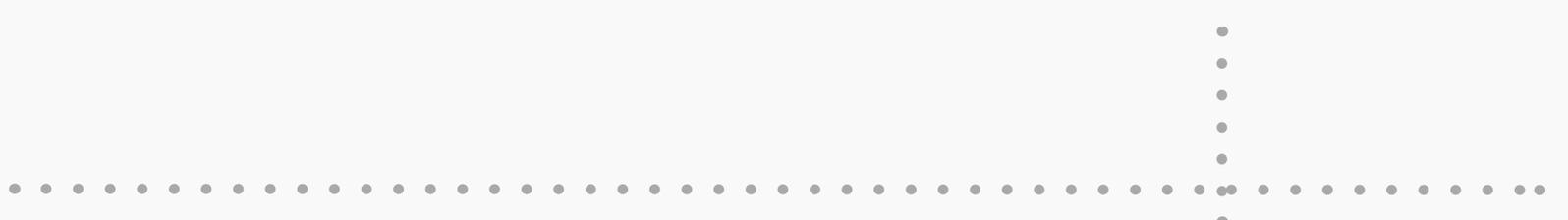
ANUGREEN INTERNSHIP PROGRAMS

- Two students from Tokyo and Singapore worked as interns in the ANUgreen Office on a range of initiatives such as the Green Labs Program (induction program to encourage more sustainable practices within laboratories) and the Green Events Guidelines (developed sustainability guidelines for events at ANU).
- Two students went overseas to the Oxford and Tokyo University on an IARU sustainability scholarship.
- The IARU fellowship sent six ANU students to Paris for the IARU Global University Climate Forum one day workshop during the UN Framework Convention on Climate Change negotiations (COP21).

Sustainability on Campus

ANUgreen works with staff, students and visitors to find innovative solutions to create a sustainable campus. Activities include:

- **organic gardening**
- **biodiversity monitoring**
- **bird watching**
- **habitat restoration**
- **international sustainability internships**
- **real life sustainability projects**



SUSTAINABILITY IN COURSEWORK

- Over 550 students were enrolled in courses with an element of sustainability such as Sustainable Marketing, Corporate Sustainability and Geography of Sustainability.
- Where practical, student projects as a result of these courses are being applied across the campus.

SUSTAINABILITY EVENTS

TWILIGHT FESTIVAL

ANUgreen hosted the Recycled Flower Garden community art project at the Twilight Festival. The purpose of the project was to encourage members of the community to reuse waste using sustainable materials. An electric bike display was also on show to educate people on alternative forms of transport.

BIODIVERSITY

A number of biodiversity events were run in 2015 including frogwatch, bird monitoring, and a range of events during biodiversity month.

GREEN REPRESENTATIVES

Each hall and college at ANU has a student Green Representative who is elected by fellow students. The Green representative manages the sustainability initiatives within their hall or college and works with ANUgreen on future sustainability initiatives and events.

CREW - Campaign to Reduce Energy and Water

The Campaign to Reduce Energy and Water was launched in 2013 to aid in the reduction of the University's energy and water consumption by up to 10 per cent per annum. The Energy Change Institute and the Facilities and Services Division work together to manage and implement programs to achieve this 10 per cent reduction each year. CREW achievements for 2015 can be found under the water and energy themes.

International Sustainability Partnerships

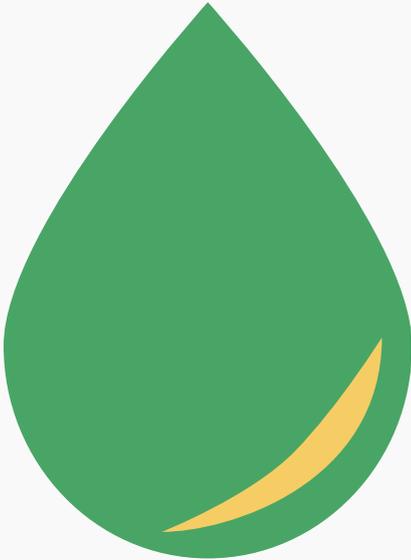
ANU is a member of the IARU, a group of 10 world class research universities in Asia, North America and Europe. The IARU has committed to demonstrating international leadership in local campus sustainability issues, as well as supporting various research programs focussed on global sustainability. University staff are taking lead roles in IARU activities such as collaborative research and the coordination of student exchange programs and sustainability internships.

WATER

“Achieve national leadership in sustainable water use. This includes removing all potable water from landscape irrigation and maximising the value of potable water through water savings and re-use.”

Targets

- Reduce total water use by 30 per cent by 2015 and 50 per cent by 2020
- Remove all potable water use from the landscape by 2015

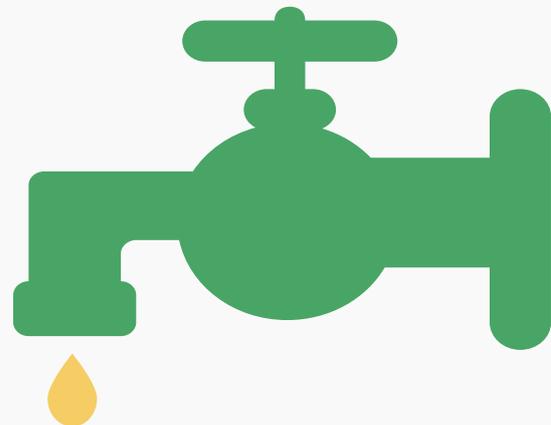


14 RAINWATER TANKS

SAVE 1.6 million litres of water annually

Initiatives

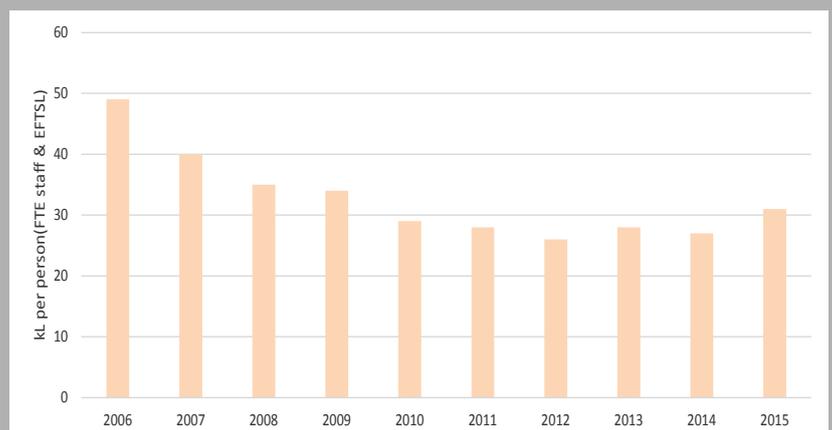
- An investigation was conducted to find a suitable data logging system able to connect to over 180 ICON water meters to enable the daily monitoring of water consumption within buildings and the landscape. This technology will enable the timely detection of leaks or faults and identify buildings with high overnight water use.
- The Central Water Treatment Plant reused on average 17,800 Kilolitres of water in 2015 which was used to flush toilets in adjacent buildings.



Highlight

Total potable water use has decreased by 13 per cent across the campus since 2006 baseline levels which is a great achievement as there has been a 41 per cent increase in Gross Floor Area. Water initiatives undertaken in 2015 have reduced total water use by 36 per cent per person.

Water use per person (kL)



ENERGY

"Significantly reduce energy use and greenhouse gas emissions consistent with world's best practice."

Target

Reduce energy use and greenhouse gas emissions by 20 per cent by 2015 and 35 per cent by 2020.



Initiatives

- Smart meters were installed in 220 buildings resulting in ninety per cent of buildings on campus now having smart meters, with just over half of the smart meters being connected to the Building Management System. Smart meters are important for recording real time electricity use and understanding electricity consumption.
- Four pilot lighting projects are underway at Toad Hall, Ursula Hall and the Research School of Physics and Engineering. The aim of the pilot projects are to identify a consistent framework for installing energy efficient lighting technology in 38 buildings across campus.
- Works have commenced on improving the efficiency of 44 heating and cooling systems. An additional 31 buildings will have their heating and cooling systems replaced. The main heating and cooling system for the science precinct (Central Plant Building 135) is being recommissioned to optimise efficiency which has already resulted in a significant reduction in gas and electricity consumption.
- Smart gas data loggers were trialled in 30 buildings. The loggers use the 3G mobile phone network to upload the gas meter data directly to a web portal. This data can also be fed into the Building Management System to allow building managers to carry out advanced data analysis and set sophisticated automatic alarms.
- The School of Music reduced electricity use by 32 per cent by fine tuning operating hours of the heating and cooling system and disconnecting some of the humidifiers.

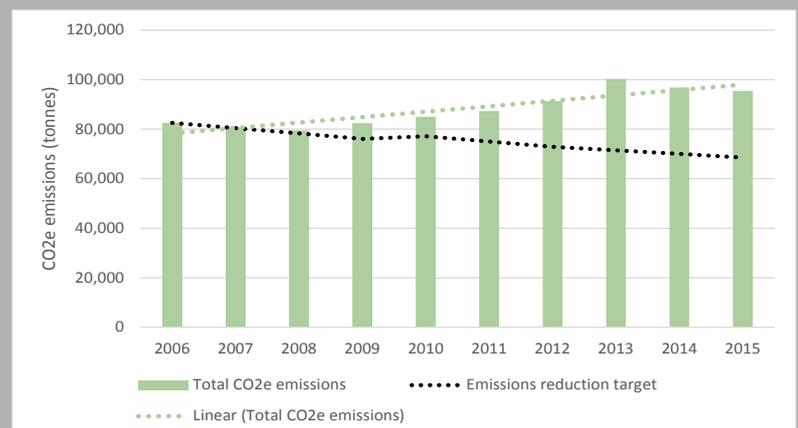
Consideration

- Gas makes up 42 per cent of the energy used on campus which is mainly used to heat student accommodation.

Highlight

Due to a 41 per cent growth in Gross Floor Area, campus energy carbon emissions increased by 28 per cent since 2006 levels. However, due to the energy initiatives implemented in 2015, energy use has decreased by 6 per cent per person.

Campus energy CO₂e emissions



TRANSPORT

“Minimise the environmental impact of university-related travel.”

Targets

- Reduce fleet emissions by 20 per cent by 2015
- Offset 100 per cent of fleet emissions from University-related travel
- Increase green commuting to 80 per cent by 2015
- Minimise single occupant vehicles
- Increase the number of secure bicycle parking spaces
- Offset 100 per cent of carbon emissions from air travel



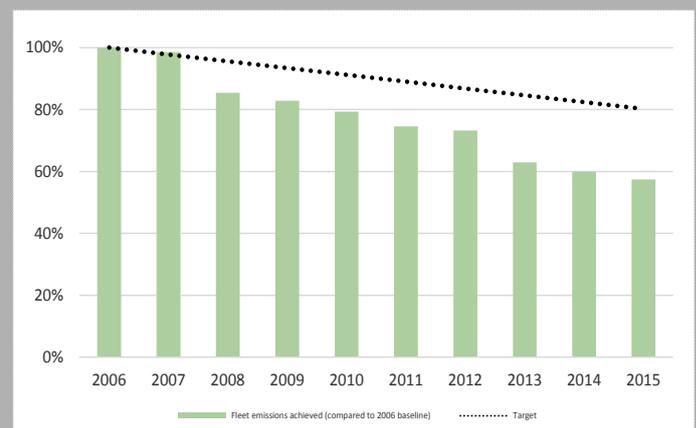
Initiatives

- The University offset 100 per cent of vehicle fleet emissions with Australian and International Gold Standard Offset projects.
- The campus bike storage capacity was increased, with more than 100 additional bike storage spaces installed in 2015.
- Planning for the introduction of a campus carshare scheme in 2016 was completed and a supplier was engaged. The scheme aims to halve the number of ANU-owned fleet vehicles and promote more efficient car use. Staff and students will have the option of using a carshare vehicle for daytime errands as an alternative to bringing their own car to campus.
- The Pedestrian & Cyclist Movement Strategy was completed in early 2015. The strategy aims to improve the safety, experience and connectivity for staff and students to traverse the campus on bike or foot. Recommendations include establishing a formal path hierarchy of primary, secondary and local routes, upgrading primary paths and reducing the speed of vehicles on campus.
- The Timely Treadly bike fleet consisting of over 100 bicycles is contributing to the reduction of vehicle fleet emissions as staff and students are choosing cycling to get around the campus instead of driving.
- Commuter audits were undertaken to monitor transport flows through campus and track changes in mode choice over time. This helps prioritise sustainable transport infrastructure and programs.

Highlight

In 2015, vehicle fleet emissions were reduced by 43 per cent from 2006 levels. Australian and International Gold Standard Offsets were purchased for 508 tonnes of carbon emissions.

Total fleet vehicles CO₂e emissions



WASTE

“Achieve national leadership in waste minimisation, by maximising resource values and applying the waste hierarchy across all resource streams. That is placing an emphasis on waste avoidance, reduction, re-use, recycling and disposal, in that order.”

Targets

- Reduce waste to landfill by 40 per cent by 2015
- Continually reduce resource waste by applying the waste hierarchy
- Reduce unstable procurement and increase re-use and recycling

Initiatives

- A new waste contract was negotiated with SUEZ which will commence in January 2016. SUEZ will service most major waste streams across the University including general waste, co-mingled recycling, paper and cardboard, and e-waste. With the technology and systems that the dedicated waste vehicles utilise, ANU will be able to obtain a superior level of reporting. Bins will be tracked by GPS and weights of bins emptied recorded enabling efficiency and accuracy in actual costs. This method reflects the true cost of waste disposals and encourages the schools and colleges to generate less waste and divert waste from landfill.

Achievements

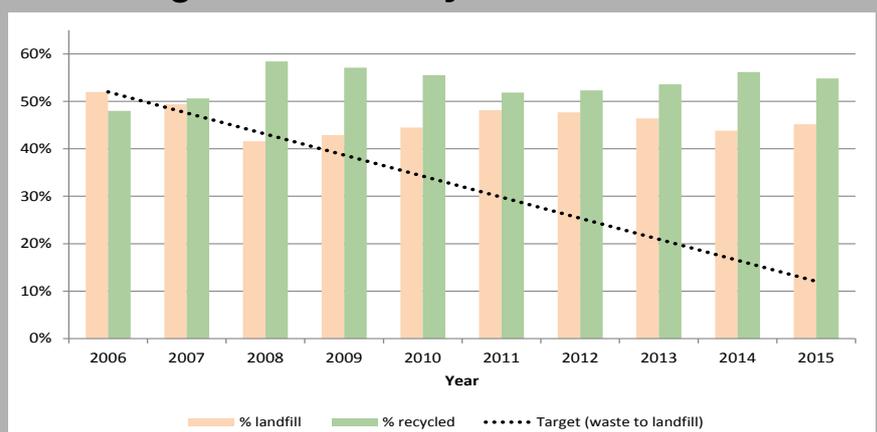
- Total waste to landfill increased by 9 per cent compared to 2006 baseline levels (1,208 tonnes to 1,313 tonnes), however waste to landfill per person reduced by 20 per cent (82.13 kg to 65.92 kg). The target of a 40 per cent reduction in total waste to landfill was unrealistic given the expanding campus environment. However, the reduction in waste to landfill per person indicates that progress has been made.
- Over 200 office chairs recycled and repurposed for use in student accommodation.
- A total of 19 tonnes of e-waste was diverted from landfill in 2015.



Highlight

Over the last year, the recycling rate has increased to 55 per cent. Total recycling increased by 43 per cent compared to 2006 baseline levels (1,116 tonnes to 1,594 tonnes), while recycling per person increased by 5% (76 kg to 80 kg).

Percentage of waste recycled and sent to landfill



BIODIVERSITY

“Design and manage the university so that all physical spaces are utilised in the achievement of environmental outcomes. Enhance ecological function and maintain species diversity through sustainable resource use and innovative landscape management and design.”

Targets

- Balance vegetation losses with new assets through new protection zones and plantings
- Adopt sustainable landscape strategies that protect landscape values and reduce dependence on potable water

Initiatives

- The draft Biodiversity Management Plan 2016-20 is currently under review. The plan provides a framework for managing the University’s biodiversity values under the Environment Protection and Biodiversity Conservation Act 1999 and incorporates feedback from the Commonwealth Department of Environment and wider community.
- Biodiversity monitoring continued including monthly water quality sampling of Sullivans Creek as part of the wider ACT Waterwatch program, and an annual Frogwatch survey which is conducted with the help of student volunteers.
- Spring and Autumn outreach events were held to promote biodiversity and conservation awareness such as Birdwatching for Beginners, Endangered Grasslands Tours, and Sullivans Creek Cleanup Days.
- Ongoing academic collaboration with the Fenner School on coursework topics and tutorials on conservation management.



10 000 trees

Some 300 years old

1 **endangered** grassy woodland



Highlight

Almost 100 attendees participated in the seasonal outreach events, logging 100 contact hours.

ENVIRONMENTAL RISK

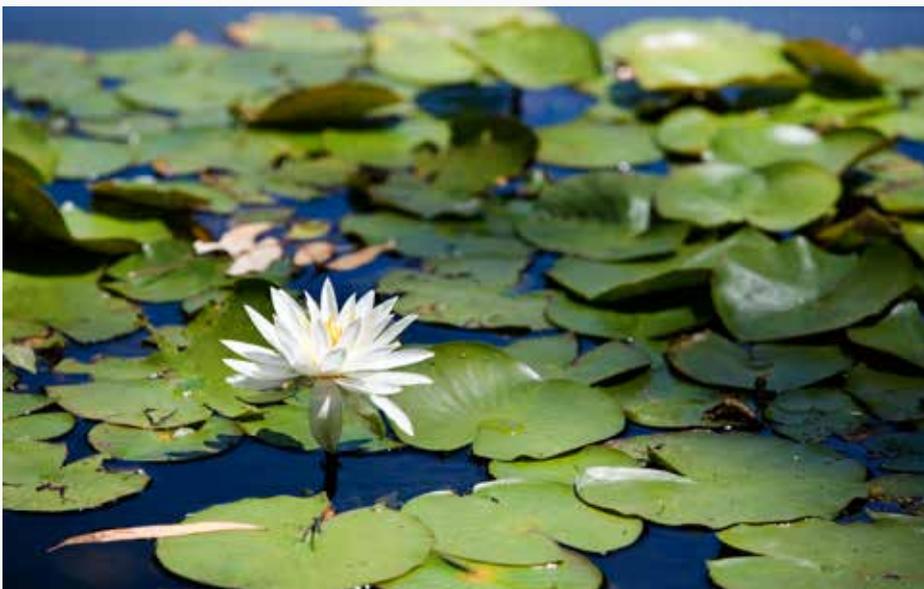
“Minimise the likelihood and consequences of all potential emissions from ANU.”

Target

- Achieve a 20 per cent residual environmental risk by 2015
- Reduce stocks and flows of hazardous materials on campus
- Reduce exposure to environmental hazards

Initiatives

A campus wide assessment of the risk of University activities polluting the environment was undertaken. From this assessment, the 2015 Environment Risk report was developed as a demonstration of the University’s due diligence towards preventing environmental harm and pollution, as is required under the ACT Environment Protection Act 1997. The Environmental Risk report gives an overview of the environmental risk management efforts in 2015 and summarises results from annual risk assessments across campus. The report discusses risk reduction targets and achievements, infrastructure improvements and minor pollution incidents.



Achievement

All major environmental risk scores have decreased by a significant margin when compared to the 2006 EMP baseline year. For example, over 40 per cent reduction in total inherent risk (level of risk with no pollution preventative measures in place) and nearly 60 per cent reduction in residual risk (level of risk with pollution preventative measures in place).

Highlight

Per cent residual risk was at 27% in the latest 2015 assessment. Although the 20% target has not yet been achieved, there have been huge reductions from 58% since 1998, which is a strong indication of the achievements the University has made towards minimising pollution and potential harm to the environment.

Percentage residual environmental risk



HERITAGE

“ANU is committed to the conservation, management and interpretation of its heritage places and their values.”

ANU has developed a Heritage Strategy which is the primary document driving heritage management at ANU. The principal objective of the Strategy is to outline a strategic approach for the effective management of places that the University owns or controls.

Achievements

- The stabilised Mt Stromlo Director’s Residence, with site interpretation, was officially opened in January 2015. The project gained significant media coverage and community participation.
- ANU Heritage ran five events for the ACT and Region Heritage Festival with over 120 participants across the events which included guided tours of the Acton Campus and Mt Stromlo Observatory.
- ANU won two ACT Heritage Grants to develop an Aboriginal Heritage Trail for the Acton Campus and to restore the Lindsay Pryor Walk. ANU Heritage was also heavily involved in the redevelopment of the Siding Spring Visitor Centre which opened in October 2015.
- Several National Trust of Australia heritage awards were won, including one for an outstanding project (Mt Stromlo Director’s Residence) and two for significant contribution to heritage conservation (ANU Florey Building, Mount Stromlo Heritage Trail).
- More than fifteen tours of the campus with over 100 participants from internal and external community groups highlighting the history and heritage of ANU.
- Three major refurbishment/adaptive reuse projects on significant buildings at ANU.
- Heritage advice provided to more than 20 minor and major development projects.
- Five major interpretation/communication projects developed.

Highlight

Over 200 pieces of historic furniture restored and repurposed for use around the University.





ANU Walks app

The ANU Walks app was first launched in 2013 and later updated in 2015. The app showcases the outdoor sculptures, heritage and natural environment of the campus, including the endangered Grassy Woodlands picture above.



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