



'Grass half full or grass half empty? Valuing native grassy landscapes'

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Friends of Grasslands Inc. (www.fog.org.au) supporting native grassy landscapes

Smartphone apps for invasive weed control

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This poster outlines the off-line Collector app and off-line Memory-Map app and how ACT Parks & Conservation Service (ACTPCS) Rangers use them for mapping weed infestations. The maps are stored on the Smartphones

and tablets (off-line) so that they can be used in remote areas. The Collector app syncs with ArcGIS On-line when a data signal becomes available. The Memory-Map app creates gpx files that can also be uploaded to ArcGIS On-line. The apps also store important data such as reserve boundaries and protected plant sites.

See also the demonstration Steve gave at the forum (this proceedings).

Steve is the Senior Weeds Officer for ACT Parks & Conservation Service (ACTPCS), and has worked as an ACTPCS Ranger. He started his career in land management as a Bush Regenerator in Sydney in the late 1980s.

New technology & weed control

Drones, 8WDs, Collector app & ArcGIS On-line

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Technological optimist?

Limited resources combined with ever-increasing invasive weed issues – how can we get ahead? Some of the new technology that is helping:

- Yamaha RMAX weed spraying Un-manned Aerial Vehicle (UAV)
- 8WD amphibious Argo All Terrain Vehicle (ATV)
- Off-line mapping apps, eg. Memory-Map & Collector
- ArcGIS On-line Web App Maps
- Weed id apps, eg. Environmental Weeds of Australia & NSW WeedWise (includes control information)

Yamaha RMAX

Access problems lead to higher weed control costs. One solution is the RMAX UAV or drone.



RMAX operated by Remote Aerial Services, spraying blackberry and St John's Wort in the Lower Cotter Catchment.



Low spray height and rotor down wash minimises off-target damage. Part of a virtual tour viewpoint below shows the RMAX achieved a good kill on the blackberry using triclopyr herbicide, without damaging the Cassinia shrubs.



The RMAX has allowed control work to go ahead that was previously impractical or too expensive. The ACT Parks and Conservation Service (ACTPCS) have put it to good use where:

- There are extensive thickets of blackberry
- The terrain is not suitable for a 4WD
- The non-target trees and shrubs are well spaced

8WD Argo Amphibious ATV

Another cost effective solution for difficult terrain is the 8WD amphibious Argo.

It is a valuable tool for:

- Weed control along waterways that requires spraying from the water back towards the land, and manoeuvring back and forth from the bank to the water
- Avoiding soil compaction and protecting sensitive sites
- Negotiating steep and rocky terrain
- Very sandy or water logged sites

Acknowledgments: Thank you to Ryan Lawrey ACTPCS and Alan Bendall ACTPCS for assistance with the Collector app.

The 8WD amphibious Argo operated by Core Enviro Solutions, on route to spray blackberry on a riverbank from the water.



Smartphone apps

The most useful apps have the following features:

- Designed to work off-line or on-device that is without mobile data or WiFi, eg. Collector and Memory-Map
- Mapping apps that sync with ArcGIS On-line, ie. Collector
- Mapping apps that allow person to person gpx file sharing, eg. Memory-Map
- Mapping apps with drop down lists in pop-ups, eg. Collector
- LUCID keys in weed id apps, eg. Environmental Weeds of Australia (EWA) app
- Weed id apps with control information, eg. NSW WeedWise

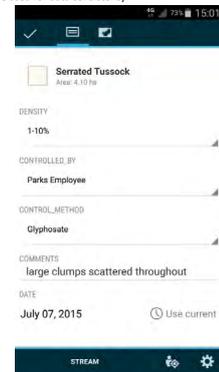
Below are the apps most often used by ACTPCS. Of the mapping apps, Collector is most commonly used.



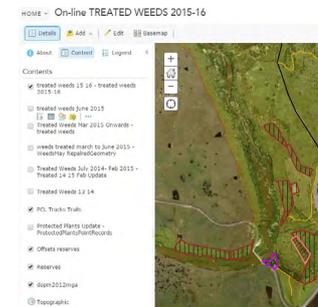
Screenshot of off-line Collector app, showing weed control along the Murrumbidgee River Corridor.



Collector app fields relating to the selected polygon. Drop down lists are used for data consistency.

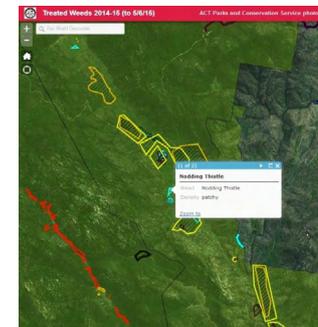


The Collector app mapping is synced to ArcGIS On-line, below:



Web App Maps

- ArcGIS on-line has the option to create web maps with an app builder
 - These are interactive maps that can be made publicly available
 - The map link can be embedded into existing web sites
- Web map below showing weed control in part of Namadgi National Park. A nodding thistle control area has been selected.



Web based on-line reporting

- Canberra Nature Map <http://canberranaturemap.org/>
- Community initiated mapping web site
- Automatic alerts to email can be set up for reports of new and emerging weed species

The Atlas of Living Australia <http://www.ala.org.au/> and Weed Spotter have a similar alert system.