

**2006
Conference**

**25th – 29th
April
2006**

**Charles Sturt
University**

Wagga Wagga

^ A 31 year old New Zealander has achieved a world record in shearing.
^ In a nine hour period he had shorn 664 Merino lambs.

*Section 7
sponsored by:*



7

“SPECIAL FEATURE”

^ **Environmental Education Centres
& Agriculture**

- **Keith Collin
Riverina EEC**

^ **Camden Park
Environmental Education Centre**



Environmental Education Centres

Environmental Education Centres

Agriculture & Agriculture

^ The NSW Association of Agriculture teacher's wishes to thank:

Mr Keith Collin from the Riverina EEC.

.....for compiling this article for Agriculture teachers.

^ If you have enquiries on the contents of this article or would like to contact your nearest EEC, then please refer to the 'contact list' on page 7.6 of this article.

i. What are Environmental Education Centres?

^ EEC's are Department of Education and Training facilities which assist teachers and students (K-12 and TAFE) with environmental education and field work.

- Classes usually visit the centres on one day excursions to study topics such as soils. Some centres have accommodation for overnight stays.
- EEC staff, arrange visits to other locations such as farms.
- Staff can visit schools to discuss topics with teachers and students.

^ There are 25 centres around the state including the two located at Taronga and Western Plains zoos.

^ They all differ in the programs they offer which depends on their location, staff background and agreements with other government departments such as the NPWS.

^ See the list at the end of this article for the centres and their contact details.



Riverina Environmental Education Centre

ii. What Riverina Environmental Education Centre



Ag students receive a conservation farming lesson about the Riverina Environmental Education Centre.

^ The Riverina EEC is located on an ex Soil Conservation Research Centre in Wagga Wagga which was a demonstration farm on how to rehabilitate a degraded property with conservation farming methods.

^ It has been through a series of name changes:

- CaLM,
- DLWC and now
- DIPNR.

ii. Agriculture Related Programs at REEC.

Land Management:

This program was developed for senior students and includes the following activities:

- Discussion on property planning and land capability mapping.
- Overview of the research centre property plan (the research centre has 200 ha of land). There are 20, A4 size sets of the property plan which include a vertical air photo of the property and acetate overlays of infrastructure; land capability; future works; soils; tree management and land degradation issues.
- Students are given Conservation Farming Guidelines of the various possible management practices and works. The students are then taken into the paddocks which they assess for land capability and record the management practices they see.



Overview of the research centre property.

- Finally they are taken into an undeveloped small catchment (15 ha) which they assess for land capability and draw up a farm plan for management of the area.



Students assess the land capability of the research centres property.

Primary school students testing the soil in a soil profile pit.



Soils:

^ The centre has various soil profiles exposed in large pits up a hill.

^ Soils are tested for: depth; colour; texture; structure; slaking; pH and phosphorus; nitrate and potassium levels.



Senior Ag students observing the soil profile!

----- Soil Cores -----

^ These soil cores have been collected from around the Riverina & are on display at the EEC.

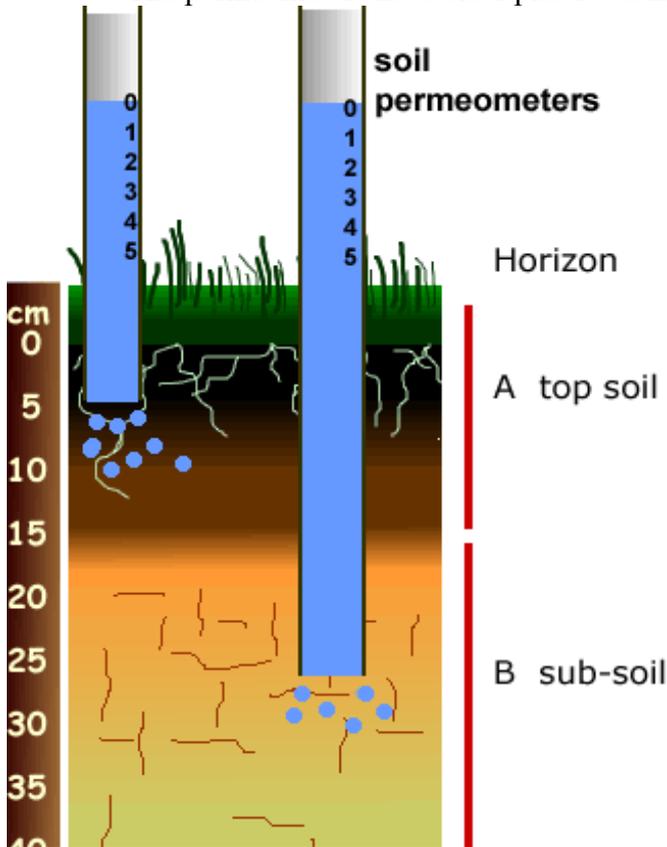


----- Permeometers -----

^ Have been installed into one of the profiles to compare infiltration rates in the top and subsoil.

^ Another will be installed in a groundwater recharge area to help explain dryland salinity which the property has a good example of (unfortunately).

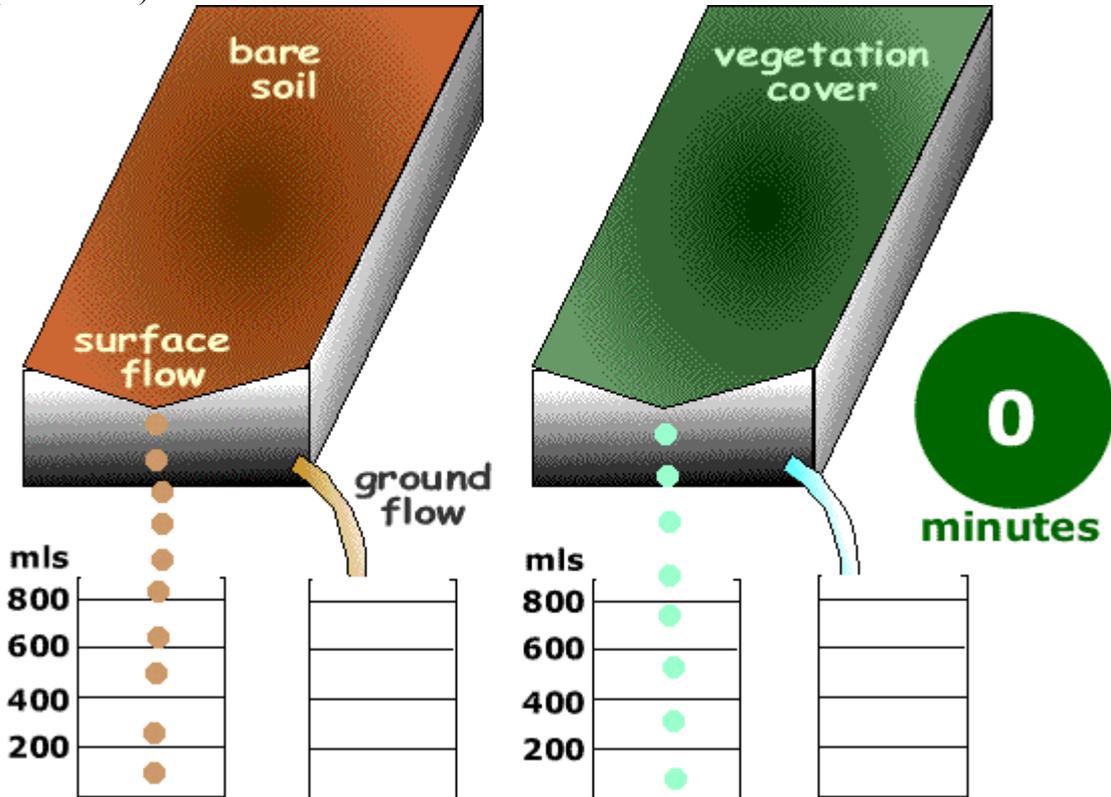
^ The permeometers have clear plastic tubing and students can measure the rate of infiltration.



Corowa & Tumut High Schools senior Ag students; along with many other Riverina schools; have been utilising the fabulous resources that the Riverina EEC (Wagga Wagga Field Study Centre) has to offer & the professional knowledge & skills of Keith & his staff for more than 17 years.
On behalf of all these schools,
a huge thanks...

----- **Soil Erosion** -----

- ^ Soil erosion experiments are carried out by students using erosion trays.
- ^ There are five sets of trays. In each set, one tray has a grass cover, the other tray has bare soil.
- ^ Students water each tray (paddock) with 2 litres of water from a water can (rain shower) then collect the groundwater and surface runoff from each and compare the volume and turbidity (muddiness).



----- **Dryland Salinity** -----

- ^ Dryland Salinity is a major problem in the Riverina and the centre incorporates a study of this into many of its programs.
- ^ There is good access to salinity demonstration sites which have piezometers (bores) to access the groundwater for testing. These sites also show salinity management methods on farms.



The Yarragundry Salinity Project; 5 kilometres west of Wagga Wagga next to the Sturt Highway is an ideal site for Ag students to measure & observe groundwater levels & salinity while incorporating the effectiveness of landuse management techniques to control rising groundwater levels.
A nest of 3 piezometers were established in a joint Landcare, RTA, CSU, Ag Dept, DLAWC research program in 1990.

Plenty of group activities for students in



measuring groundwater levels & salinity



----- Geographic Information Systems ----- GIS

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^ In 2004 the centre produced a computer program for Geography teachers on Geographic Information Systems (GIS) which may be useful to Agriculture; since farmers are using GIS products in farm plans.

^ The resource was just meant as a basic starter on GIS which can be complicated and uses expensive software. The CD ROM uses MapInfo's freeware program ProViewer with a data set on urban dryland salinity in Wagga Wagga.

^ ProViewer is not a fully featured GIS program, it allows the viewing of existing maps; it does not allow the making of new ones. It allows the measurement of distance, use a label tool to find road names and land height etc. The info tool allows you to click on a bore and obtain details of it's salinity and depth to the water table.

^ Data on approximately 40 bores in Wagga Wagga is given and the maps are a good tool for teaching about catchments and salinity recharge and discharge areas. The disk is available for \$10, just send a school order to the REEC.

----- Web Site -----

^ The REEC web site has a few things of interest to Ag. There is a student study on soils which goes through basic soil profile description, formation, field tests and conservation farming.

^ There is another topic on water which includes a dryland salinity investigation in a rural/urban catchments using real data.

^ There is also an image of a piezometer showing changes in water table height and salinity over time using real data for that bore. Unfortunately I did not have agriculture students in mind when I did the study guides. Have a look at them; if you think you can use them I can include them on the GIS disk.

www.reec.nsw.edu.au go to **Students Yr 2-6; Soils** and also **Water; Investigation: salinity** on pg 10.

^ The high school Geography part of the web site has student study guides on Natural Disasters by Satellite Imagery. This includes the Sydney bushfires, a dust storm and the current locust plagues eating crop/pasture in the Riverina.

----- Other EECs -----

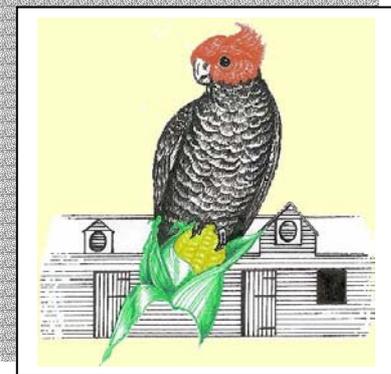
- Camden Park EEC is located in a Department of Primary Industries research farm in Camden and has many agriculture related programs.
- Brewongle EEC in western Sydney (Wiseman's Ferry area) take students to six farms in the area.
- Rumbalara EEC in Gosford has a program which visits four properties and includes:
 - best practice grazing
 - a stone fruit orchard
 - a wholesale nursery
 - a DPI agriculture research station

More Info.

^ Most EEC's do soil tests, some have farm visits. It is well worth contacting your local EEC to see what they have.

^ **For more information regarding Riverina EEC,**
please contact Keith Collin at email:
keith.collin @det.nsw.edu.au

Environmental Education Centre	Address	Phone	Fax
Awabakal	Boundary St Dudley 2290	5944 7203	4942 6097
Botany Bay	Botany Bay National Park Kurnell 2231	9668 8431	9668 8523
Bournda	Bournda National Park via Kalaru 2550	6494 5009	6494 5011
Brewongle	Sackville Rd Sackville North 2756	4579 1136	4579 1072
Camden Park	PO Box 684 Camden 2570	4636 6313	4636 6342
Cascade	PO Box 206 Dorrigo 2453	6657 4188	6657 4117
Dorroughby	Mullumbimby Rd Lismore 2480	6689 5286	6689 5042
Field of Mars	PO Box B82 Boronia Park 2111	9816 1298	9816 3279
Georges River	Chipping Norton Public School Central Ave Chipping Norton 2170	9755 3189	9755 3190
Gibberagong	PO Box 3276 Asquith 2077	9457 8245	9457 8182
Longneck Lagoon	Whitmore Rd Riverstone 2765	4573 6323	4573 6534
Mount Kembla	PO Box A124 Shellharbour 2529	4276 3519	4276 3048
Observatory Hill	PO Box 43 Millers Point 2000	9247 7321	9247 4787
Penrith Lakes	Castlereagh Rd Cranebrook 2750	4730 3630	4730 3662
Red Hill	PO Box 185 Gulgong 2852	6374 2558	6374 2560
Riverina	PO Box 5336 Wagga Wagga 2650	6931 5039	6931 5084
Royal National Park	PO Box 44 Sutherland 2232	9542 1951	9545 4830
Rumbalara	Donnison Rd Gosford 2250	4324 7200	4323 7451
Taronga Zoo Education Centre	PO Box 20 Mosman 2088	9969 2455	9978 4508
Thalgarrah	Rockvale Rd Armidale 2350	6775 1736	6775 1681
Wambangalang	Obley Rd Dubbo 2830	6887 7209	6887 7237
Warrumbungle National Park	PO Box 280 Coonabarabran 2357	6825 4302	6825 4304
Western Plains Zoo Education Centre	PO Box 831 Dubbo 2830	6882 5888	6884 4530
Wetlands	Sandgate Rd, Shortland 2307 PO Box 292, Wallsend 2287	4955 8673	4950 0497
Wooglemai	PO Box 78 Oakdale 2570	4680 9483	4680 9486



Camden Park Environmental Education Centre

NSW Department of Education and Training
PO Box 684 Camden NSW 2570
Telephone 02 4636 6313 Fax 02 4636 6342
email: camdenpk-e.school@det.nsw.edu.au

- **Who are we?**

Camden Park Environmental Education Centre is part of the NSW Department of Education and Training's network of twenty five Environmental Education Centres spread across the state.

- **What are we?**

Camden Park Environmental Education Centre is situated on a 1600ha grazing property on the outskirts of Sydney. This publicly owned property is the most historically important in Australia, and includes the original residence and farm buildings of John and Elizabeth Macarthur, as well as the Macarthur family cemetery and many other important heritage sites. Nowadays the property is used as NSW Agriculture's main research institute and is managed as a typical NSW grazing property. Eight different ecosystems have been identified and include a number of natural communities, such as a 40ha wildlife conservation zone and Nepean riverine bushland. Visiting groups also have access to the many agri-ecosystems, farming infrastructure (such as an operating dairy) and the 5,000 sheep, cattle and other resident livestock. An experienced teacher is on duty full time and is responsible for program development and implementation, including teaching on the day. Emphasis in programs is always "hands-on" and the expertise of resident NSW Agriculture personnel is utilised to provide specialist activities such as draught horse, sheep dog and shearing demonstrations.

- **Where are we?**

The Centre is situated on the Elizabeth Macarthur Agricultural Institute, Camden, 15km from Campbelltown, 70km from the Sydney CBD.

- **Cost**

Most programs cost \$5 (excl. GST) per student, which includes exclusive use of on-site teaching staff, a workbook for each student, preparatory material before the visit and often support material after.

- **Sustainability**

Visiting students are encouraged to bring an environmentally sustainable lunch. Food items which generate excess litter or waste such as chips, poppers and plastic shopping bags are prohibited at Belgenny Farm and the Centre.

- **Bookings**

Phone: 02 4636 6313

Fax: 02 4636 6342

- **Public Access**

With the exception of Belgenny Farm there is generally no public access (apart from schools) to the Centre or the property. Even when utilizing Belgenny Farm visiting schools are generally the only people besides NSW Agriculture personnel on site.