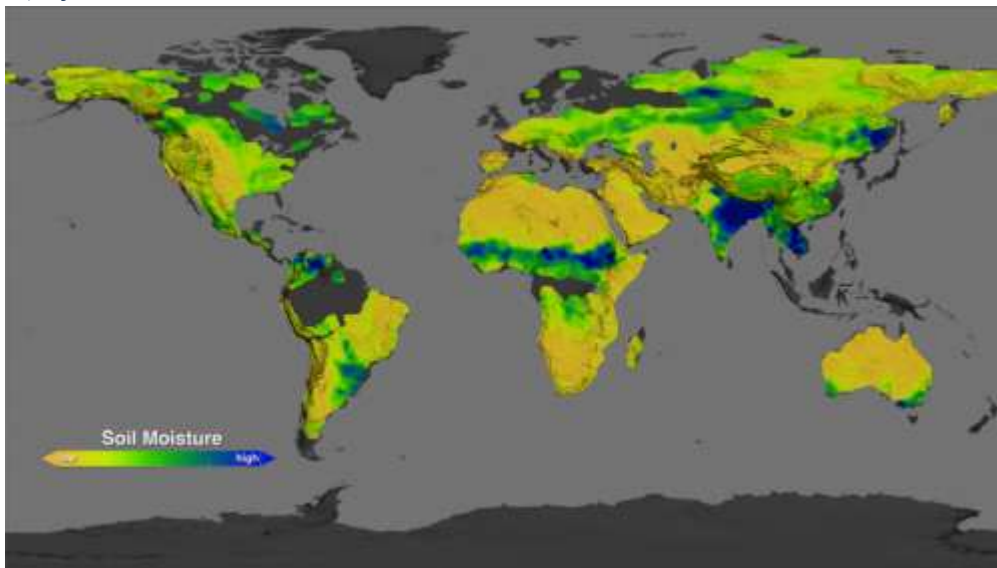




## NASA's Aquarius instrument returns global maps of soil moisture

8 July, 2014



This image shows what the soil moisture conditions around the planet were like in August 2013: dry areas are represented in the brown scale, while wetter areas are in blue and green. Credit: NASA Goddard's Science Visualization Studio/T. Schindler

Scientists working with data from NASA's Aquarius instrument have released worldwide maps of soil moisture, showing how the wetness of the land fluctuates with the seasons and weather phenomena.

Read more at: <http://phys.org/news/2014-07-nasa-aquarius-instrument-global-soil.html#jCp>



UNEP Year Book 2014 emerging issues update

Securing Soil Carbon Benefits



<http://www.unep.org/yearbook/2014/PDF/chapt9.pdf>

**Undergraduate researcher studies sunflowers' power to clean up soil**

10 July 2014 by Lauren Jones



Catie Kitrinis is studying how different types of sunflowers absorb heavy metals. Credit: Sanjay Suchak

(Phys.org) —Call it the wonder plant – a flower that can either absorb toxic metals and radiation out of the soil or prevent most of them from entering its system and be safe to consume, depending on the variety. <http://phys.org/news/2014-07-undergraduate-sunflowers-power-soil.html>

## **Special report: the legacy of Hunan's polluted soils**

**[He Guangwei](#)**

07.07.2014

Cadmium pollution in the soils of China's largest rice-growing province will take take many years to clean up



As well as growing rice, Hunan is also known for its polluting metal mines

This is the second of a special three-part series of investigations jointly run by chinadialogue and Yale Environment 360, with support from the Pulitzer Center on Crisis Reporting. You can also read part one from last week: [Special report: the victims of China's soil pollution crisis](#)

Cao Fushe spent much of 2013 worrying that he wouldn't earn enough money to support his family. Cao is in his early fifties and works a three-acre family rice farm in the village of Zhujiqiao, in Hunan province, central China. His income has been hit by something he had never previously heard of -- cadmium pollution.

<https://www.chinadialogue.net/article/show/single/en/7076-Special-report-the-legacy-of-Hunan-s-polluted-soils>

## **Reducing fertilizer use with a more accurate soil test**

Jul 11, 2014 by Dennis O'brien



ARS scientists have developed a testing process that accurately measures naturally occurring nitrogen and other nutrients in soil. Credit: Peggy Greb.

Farmers face a balancing act when deciding how much fertilizer to apply. Applying too much wastes money and adds to nutrient runoff problems. Applying too little reduces yields.

Read more at: <http://phys.org/news/2014-07-fertilizer-accurate-soil.html#jCp>

## Soil mapping technology a big step forward

[TIM CRONSHAW](#)

Last updated 05:00 05/07/2014



Supplied

**GETTING THE DIRT:** Smart Ag Solutions general manager Shaun Lovell shows the discs which pass electric currents to map soils. The machine was imported by Canterbury cropping farmers.

## Cropping

Four South Canterbury cropping farmers were so smitten with the precision of a soil sampling machine that they brought it back with them from the United States.

The Veris MSP3 3150 was imported by Colin Hurst and Hugh Wigley, who farm at Makikihi, in Waimate, and Michael Tayler and Nick Ward, from Winchester.  
<http://www.stuff.co.nz/business/farming/cropping/10230897/Soil-mapping-technology-a-big-step-forward>

## Payback time for soil carbon from pasture conversion to sugarcane production

3 July 2014

**Source:**

Fundação de Amparo à Pesquisa do Estado de São Paulo

**Summary:**

The reduction of soil carbon stock caused by the conversion of pasture areas into sugarcane plantations -- a very common change in Brazil in recent years -- may be offset within two or three years of cultivation.

The calculation appears in a study conducted by researchers at the Center for Nuclear Energy in Agriculture (CENA) of the University of São Paulo (USP) in collaboration with colleagues from the Luiz de Queiroz College of Agriculture (Esalq), also at USP. The study also included researchers from the Federal Institute of Alagoas (IFAL), the Brazilian Bioethanol Science and Technology Laboratory, the Institut de Recherche pour le Développement in France and Harvard University, Colorado State University and the Shell Technology Center Houston in the United States.

Findings from the project "Soil carbon stocks on land-use change process to sugarcane production in South-Central Brazil," carried out with funding from FAPESP, were described in an article published in the online version of the journal *Nature Climate Change*.

#### **Journal Reference:**

1. Carlos Clemente Cerri et al. **Payback time for soil carbon and sugar-cane ethanol.** *Nature Climate Change*, July 2014 DOI: [10.1038 /NCLIMATE2239](https://doi.org/10.1038/NCLIMATE2239)

<http://www.sciencedaily.com/releases/2014/07/140703162340.htm>

## **Increasing rice production on acidic soils in Malaysia**

Jun 20, 2014



MR 219 paddy variety which was used by the researchers to study the effectiveness of adding lime on acidic soils to boost rice production. Credit: Namanegara (Wikimedia Commons)

Adding lime is a cost-effective means of increasing rice production on marginal acidic soils, according to a study published in the *Pertanika Journal of Tropical Agricultural Science*. The study examined the effects of applying lime from various sources on an acid sulphate soil in Merbok, Malaysia.

Read more at: <http://phys.org/news/2014-06-rice-production-acidic-soils-malaysia.html#jCp>

## **Time to Start Paying Attention to Fracking's Earthquakes**

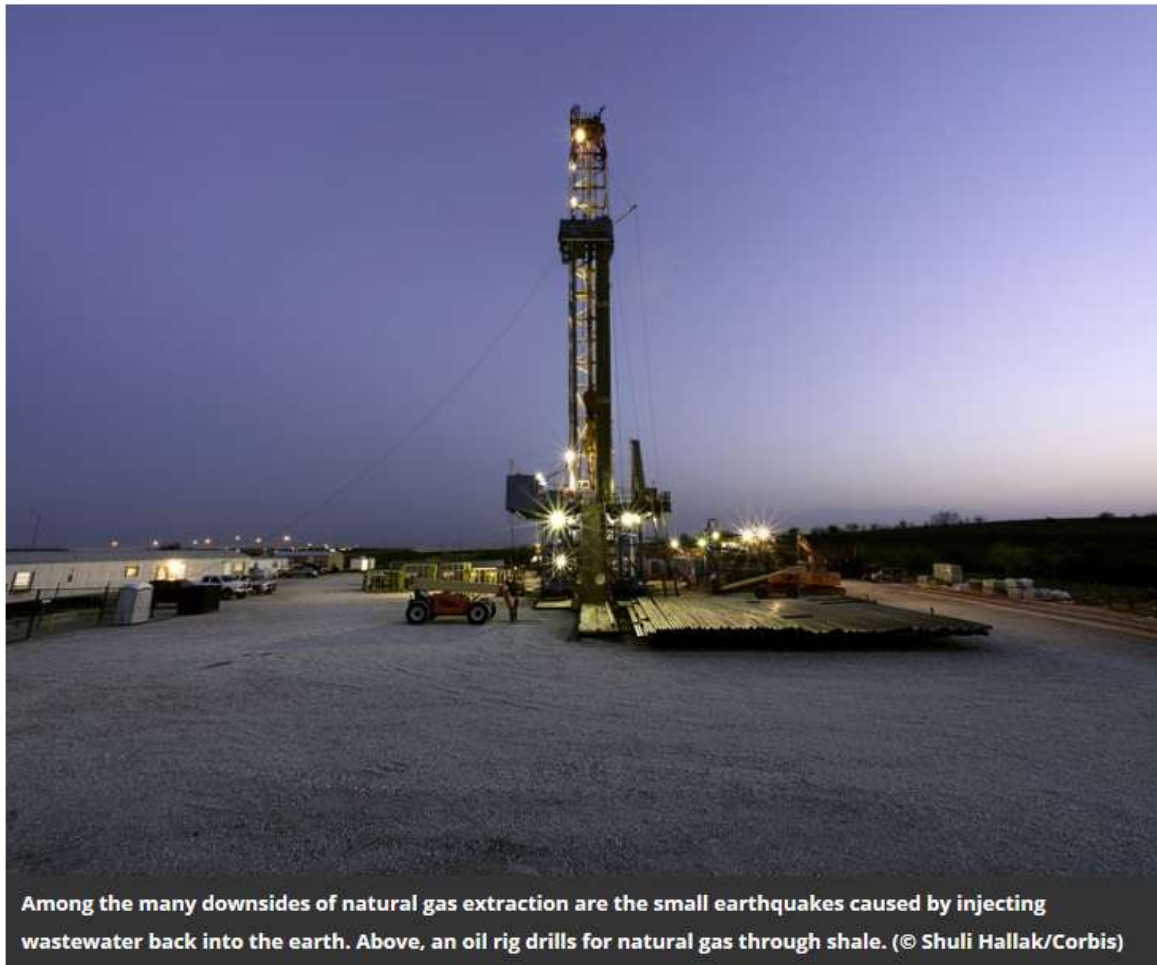
**With wastewater injection sparking swarms of small quakes, some states are taking notice of the danger**

By [Sarah Zielinski](#)

smithsonian.com

3 July, 2014





Among the many downsides of natural gas extraction are the small earthquakes caused by injecting wastewater back into the earth. Above, an oil rig drills for natural gas through shale. (© Shuli Hallak/Corbis)

Swarms of small earthquakes that have surged in Oklahoma since 2008 can be blamed on wastewater from fracking being injected into the earth, and they represent a potential hazard for the state capitol, Oklahoma City, according to a [study published today](#) in *Science*. This is not the first set of [earthquakes to be linked to fracking](#), but the study arrives at a time when some states are finally starting to pay attention to the danger.

Read more: <http://www.smithsonianmag.com/science-nature/fracking-earthquakes-Oklahoma-geology-180951953/#YoytAeUzSAGo5ydE.99>

Give the gift of Smithsonian magazine for only \$12! <http://bit.ly/1cGUiGv>

Follow us: @SmithsonianMag on Twitter

## Martian salts must touch ice to make liquid water, study shows

2 July 2014

**Source:**

University of Michigan

### Summary:

In chambers that mimic Mars' conditions, researchers have shown how small amounts of liquid water could form on the planet despite its below-freezing temperatures. Liquid water is an essential ingredient for life as we know it. Mars is one of the very few places in the solar system where scientists have seen promising signs of it -- in gullies down crater rims, in instrument readings, and in Phoenix spacecraft self portraits that appeared to show wet beads on the lander's leg several years ago.

A In chambers that mimic Mars' conditions, University of Michigan researchers have shown how small amounts of liquid water could form on the planet despite its below-freezing temperatures.

Liquid water is an essential ingredient for life as we know it. Mars is one of the very few places in the solar system where scientists have seen promising signs of it -- in gullies down crater rims, in instrument readings, and in Phoenix spacecraft self portraits that appeared to show wet beads on the lander's leg several years ago.

No one has directly detected liquid water beyond Earth, though. The U-M experiments are among the first to test theories about how it could exist in a climate as cold as Mars' climate.

### Journal Reference:

1. Erik Fischer, Germán M. Martínez, Harvey M. Elliott, Nilton O. Rennó. **Experimental evidence for the formation of liquid saline water on Mars.** *Geophysical Research Letters*, 2014; DOI: [10.1002/2014GL060302](https://doi.org/10.1002/2014GL060302)

<http://www.sciencedaily.com/releases/2014/07/140702131638.htm>

## can release soil carbon, accelerate global warming

1 July, 2014



Clemson research shows that invasive plants, such as Japanese knotweed, can accelerate the greenhouse effect by releasing carbon stored in soil into the atmosphere.

Clemson University scientists are shedding new light on how invasion by exotic plant species affects the ability of soil to store greenhouse gases. The research could have far-reaching implications for how we manage agricultural land and native ecosystems.

Read more at: <http://phys.org/news/2014-07-kudzu-soil-carbon-global.html#jCp>

## **U.S. college students win top awards at International Soils Judging Contest**

7 July 2014 4:16 pm

While many tuned in to watch the World Cup to see which team would become the globe's soccer champs, others watched a competition of a different kind: one that named the earth's best identifiers of slices of earth.

College students from the U.S. competed with teams from nine other countries to see who could best interpret soil. America took first and second in the inaugural International Soil Judging Contest. And American contestant Tyler Witkowski also won second place overall of 45 contestants.

"Soil and land judging at the high school and college level is a baseline entry for young people to study the land and learn to read the landscape so that they can better manage and protect it," said Maxine Levin, with the National Soil Survey Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

[http://www.agriview.com/news/youth/u-s-college-students-win-top-awards-at-international-soils/article\\_62bb078f-385c-5136-902f-7f6e568e60d9.html](http://www.agriview.com/news/youth/u-s-college-students-win-top-awards-at-international-soils/article_62bb078f-385c-5136-902f-7f6e568e60d9.html)

## **Improving the stability of clay for construction**

8 July, 2014 by Juhaizad Bin Ahmad



Credit: wikimedia

Researchers at the Universiti Teknologi MARA mixed clay with various waste materials to enhance its engineering quality.

Read more at: <http://phys.org/news/2014-07-stability-clay.html#jCp>

## The complex structure that brings soil to life and makes it an essential part of existence



[Rog Wood](#)

MONDAY 7 JULY 2014

**Not many people realise that soils are alive, but in fact there are more living organisms in a teaspoonful of soil than there are people on the planet.**

Rog Wood

As with all living things, soils can become unwell and even die if they are not cared for properly. All farmers should make pedology - the scientific study of soils - their particular care.

## Researchers receive \$482,500 grant to study nitrogen loss in soils

Tuesday, 1 July 2014

### Santos "a first class operator"

NSW Country Hour Tim Lamacraft, Emma Brown and David Claughton

Print Email Facebook Tweet More 10

Updated Fri 20 Jun 2014, 2:20pm AEST

**Santos is confident it has support for its coal seam gas project in the New South Wales Pilliga State Forest, despite 40 opponents addressing a Planning and Assessment Committee meeting at Narrabri in the state's central west yesterday.**

The committee is looking at expansion plans for the Biblewindi and Dewhurst Gas Exploration pilot projects.

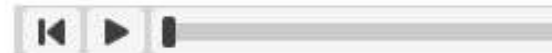
Left wing think tank, the Australia Institute, claimed Santos' own economic analysis showed the project would create only 30 long term jobs, but require 500 public service jobs to manage it.

Mark Ogge, from the Institute, says "a couple of years ago Santos commissioned....economic analysis from Allen Consulting Group, to demonstrate an economic benefit from the project for NSW and the local region.

"They got some economic modelling done and it had some bizarre results.



PHOTO: Protesters in Narrabri for a meeting of Planning Assessment Commission looking at expansion plans for the Biblewindi and Dewhurst Gas Exploration pilot projects (Tim Lamacraft)



AUDIO: Santos on jobs and water in Pilliga (ABC Rural)



AUDIO: Michael and Jane Judd oppose CSG (ABC Rural)

MAP: Narrabri 2390

## Microbe, Enzyme or Mineral? A Riddle in the Soil

by Maddie Stone



Figure 1. Soil is the most microbially diverse habitat on Earth, and contains twice as much carbon as living plants and the atmosphere combined.

When most people look at soil, they just see dirt. When I look at soil, I see billions of microorganisms crawling atop one another, consuming the dead in a feasting frenzy that stops for nothing save a deep freeze. I see microbes and their enzymes, the digestive juices that break down, transform and release all the energy tied up in our planet's terrestrial ecosystems.

<http://schaechter.asmblog.org/schaechter/2014/06/microbe-enzyme-or-mineral-a-riddle-in-the-soil.html>

## Soil erosion and agriculture sustainability

□ As Southeastern Colorado enters the third consecutive year of drought, the threat of soil erosion caused by wind is increased. Drought affects soil moisture, plant growth and the amount of crop residue left after harvesting. Although farmers and ranchers have adopted soil conservation practices over the years, wind erosion re...

• **By Wilma Trujillo**

Posted 30 June. 2014 @ 6:00 am

As Southeastern Colorado enters the third consecutive year of drought, the threat of soil erosion caused by wind is increased. Drought affects soil moisture, plant growth and the amount of crop residue left after harvesting. Although farmers and ranchers have adopted soil conservation practices over the years, wind erosion remains one of the most serious problems impacting agricultural productivity and sustainability in this area.

Read more:

<http://www.bcdemocratonline.com/article/20140630/News/140629923#ixzz37Q8Z2r2K>

## How to Save and Build Soil



Gil Gullickson 06/24/2014 @ 9:16am Crops Technology Editor for Successful Farming magazine/Agriculture.com

There's a saying farmland sellers use to entice buyers: "They aren't making any more of it."

Well, there's a little more to it than that.

Centuries ago in the Amazon Basin of South America, natives used a mix of charcoal, bone, and manure to build a soil called terra preta. This soil -- still productive -- makes soil scientists salivate more than puppies in a pile of pork chops. [http://www.agriculture.com/farm-management/conservation/how-to-save-build-soil\\_556-ar43932](http://www.agriculture.com/farm-management/conservation/how-to-save-build-soil_556-ar43932)

## Scientist makes dire warning about soil quality

---

Tuesday, 1 July, 2014 - 11:07

An international soil scientist is calling on the government to focus attention on the most important issue facing the world, soil quality.

Dr John Baker says, while the issues of global warming and water and air quality are frequently debated, soil quality is ignored.

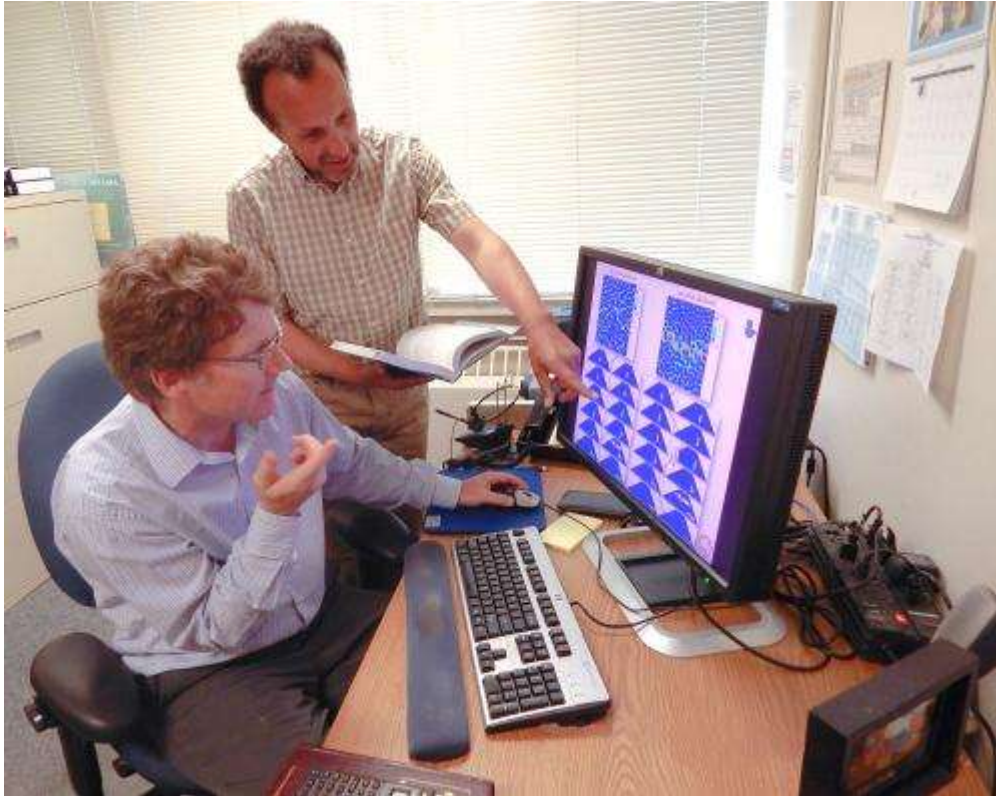
He says 90 percent of our food comes from annually-sown crops growing in soil and, in the next 20-30 years, nations have to find a way of producing more food from the same amount of soil.

"Soil feeds us. It's as simple as that," Dr Baker says. "Yet we are pre-occupied with climate change while people are going hungry and we haven't addressed the urgent need to feed another 50 percent of our population by 2050."

<http://www.voxy.co.nz/business/scientist-makes-dire-warning-about-soil-quality/5/194951>

## Study shows dam design effective for earthquakes

Jul 09, 2014 by Stephen P Wampler



Lee Glascoe, a mechanical engineer at Lawrence Livermore National Laboratory, and his colleague, geotechnical engineer Souheil Ezzedin, examine a simulation bridging grain-scale erosion patterns to possible large-scale dam failure. Credit: Julie Russell/LLNL

There has long been a concern among civil engineers that dams could fail days or weeks after an earthquake, even if no immediate evidence of a problem surfaced.

Read more at: <http://phys.org/news/2014-07-effective-earthquakes.html#jCp>

## Where has all the soil gone? Focusing on soil loss important to researchers

18 June 2014

### **Source:**

American Society of Agronomy (ASA), Crop Science Society of America (CSSA)

### **Summary:**

During these times of high drought and potential dust storms (or torrential rain and flash flooding), focusing on soil loss is important. Soil erosion is expensive. It costs the United States about \$44 billion per year. Preventing erosion means taking care of the soil. That means protecting it with mulch and plants, not plowing on steep slopes, and maximizing the amount of water that enters the soil while minimizing the water that runs over the soil



You may hear the phrase: "We are losing our soil." Sounds serious...but how do we lose soil? Nick Comerford, a member of the Soil Science Society of America (SSSA) and professor at the University of Florida, provides the answer.

<http://www.sciencedaily.com/releases/2014/06/140618163922.htm>

## Contributing factors to groundwater table declines identified

**Date:**

July 11, 2014

**Source:**

Texas A&M AgriLife

**Summary:**

It's no secret groundwater levels have declined across the state of Texas over the past eight decades, and that the primary reason was the onset of irrigation in agriculture and population growth. But a recent study has identified other factors having an impact.

It's no secret groundwater levels have declined across the state over the past eight decades, and that the primary reason was the onset of irrigation in agriculture and population growth. But a recent Texas A&M AgriLife Research study has identified other factors having an impact.

The groundwater declines have been most severe in the past four decades, but the news isn't all bad, according to Dr. Srinivasulu Ale, AgriLife Research geospatial hydrology assistant professor in Vernon, Texas.

"Long-term (1930-2010) trends in groundwater levels in Texas: Influences of soils, land cover and water use," authored by Dr. Sriroop Chaudhuri, former post-doctoral research associate at Vernon, and Ale, was published in the *Science of the Total Environment* journal recently.

**Journal Reference:**

1. Sriroop Chaudhuri, Srinivasulu Ale. **Long-term (1930–2010) trends in groundwater levels in Texas: Influences of soils, landcover and water use.** *Science of The Total Environment*, 2014; 490: 379 DOI: [10.1016/j.scitotenv.2014.05.013](https://doi.org/10.1016/j.scitotenv.2014.05.013)

<http://www.sciencedaily.com/releases/2014/07/140711153121.htm>

## Soils Scientist - Intermediate

Job ID

2014-19168

# of Openings Remaining

2

Location

CA-AB-Edmonton

Experience (Years)

3

Posted Date

7/3/2014

Discipline

Environmental Services

More information about this job:

Overview:

2,500 Environmental Services staff. 20 technical specialties. 900 professional associations. An international team with local expertise. You could say we know a little something about the environment. Our passion for it drives our work. Grounded by safety, quality, and ethics, we come up with solutions that perfectly fit the site. We know what it takes to balance competing project interests with creativity and efficiency. We know what to look for. And, we know how to get the job done-the right way. Join a team that has the environment down to a science.

Responsibilities:

Key responsibilities include but are not limited to the following:

- Soil survey for Pre-Disturbance and Environmental Impact Assessments
- Air Photo Interpretation
- Interpreting soil chemical and physical analyses
- Interpreting soil survey data
- Interacting and communicating effectively within multi-disciplinary teams
- Interacting with and developing excellent relations with clients, regulators and stakeholders
- Ensuring QA/QC requirements and procedures are adhered to

Qualifications:

The successful candidate will possess the following qualifications:

- B.Sc. in Soil Science or related field
- Technical knowledge of soil classification (Canadian System of Soil Classification)
- Knowledge of soil mapping and soil distribution in various landforms would be an asset
- Understanding of environmental issues affecting soils in agricultural and forest systems
- Knowledge of GIS is considered an asset
- Eligibility for registration as a Professional Agrologist with the Alberta Institute of Agrologists

Qualified candidates who are highly motivated and eager to commit to Stantec's strategic initiative to become a Top 10 global design firm should submit their resume and cover letter, online at [www.stantec.com/careers](http://www.stantec.com/careers).

*Committed to the principles of Employment Equity, we thank all candidates; however, only those selected for an interview will be contacted.* <http://www.workopolis.com/jobsearch/job/15186484?uc=E12>

# Colorado's alkaline soils mean some trees need help

Susan Roseveare 2 p.m. MDT 4 July 2014



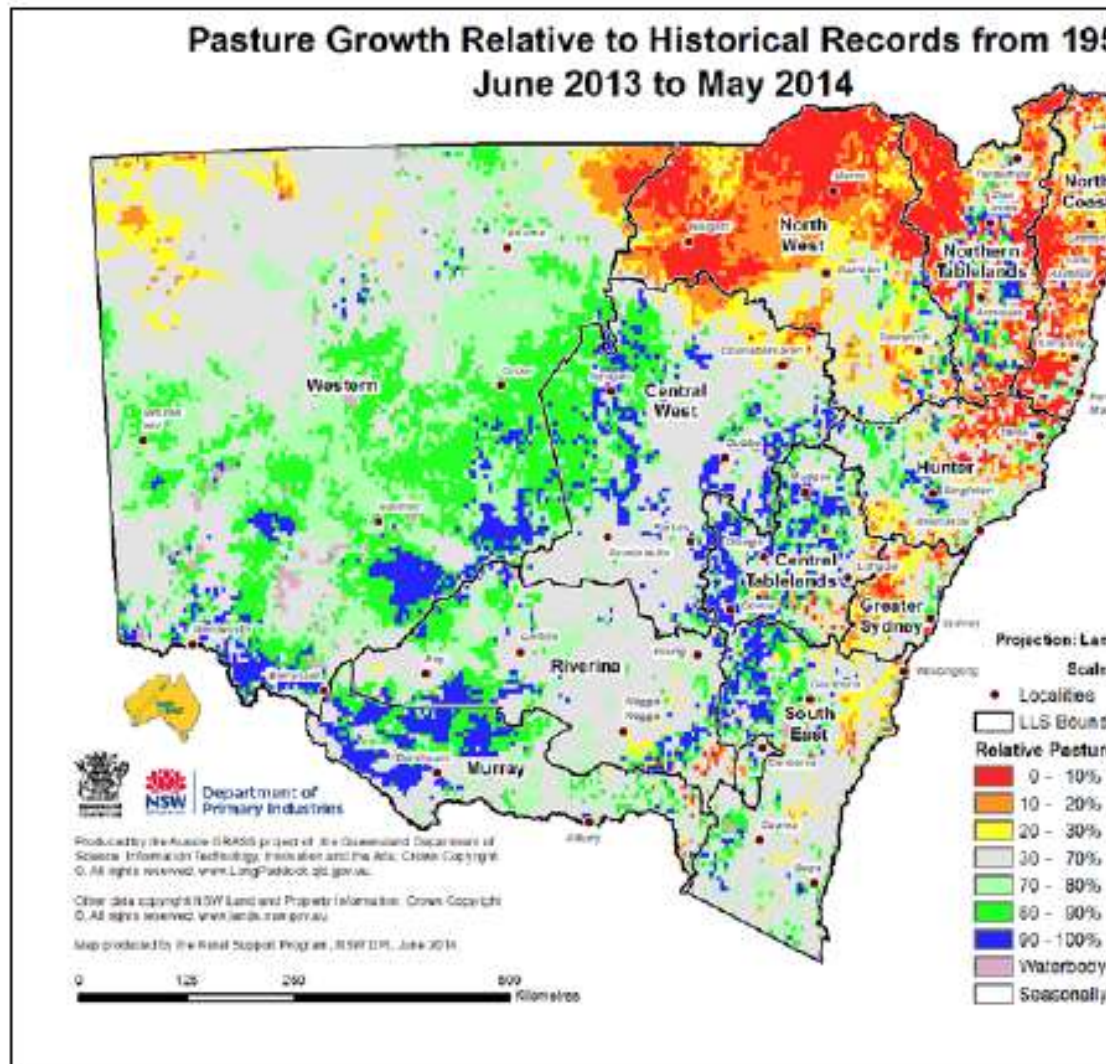
(Photo: Courtesy of Alison O'Connor )

I CONNECTTWEETLINKEDINCOMMENTEMAILMORE

Ah, Colorado! Magnificent mountain ranges and clear blue sky dotted with cotton-candy white clouds. We also have alkaline soils — none of that deep, dark loamy soil of the Midwest here in Colorado. No siree! In urban areas, the soil tends to be compacted clay. Because of this, the plants and crops you can grow (or not grow) depend on the soil properties, including nutrient availability.

Do you notice the aspen leaves or the leaves on Autumn Blaze maple? Are they deep green, or do they have a yellow cast to them? Do the veins in the leaves stand out green while the rest of the leaves seem to take on a yellow color reminiscent of fall? <http://www.coloradoan.com/story/life/2014/07/04/colorados-alkaline-soils-mean-trees-need-help/12123849/>

Figure 33: Relative pasture growth – yearly



[http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0010/519535/nsw-seasonal-conditions-report-june-2014.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0010/519535/nsw-seasonal-conditions-report-june-2014.pdf)

## SSS division for the EGU 2015

information about the current skeleton program from the SSS division for the EGU 2015

The open call will be ready soon

If you wish to be convener you can contact me or/and upload your session.

Your ideas are very welcome

[\[Provisional Programme\]](#) [\[PC Overview\]](#)

SSSO	General Soil Science and Short Courses
------	--

	Programme Group Scientific Officer: Artemi Cerdà
SSS	<b>Milestones in Soil Science: Senior and junior soil scientists share their perspectives on the leading problems of soil science today</b> Convener: Artemi Cerdà Co-Conveners: Teodoro Miano, Jerzy Weber <a href="#">Session Details</a>
SSS	<b>Urgent communications –(PICO)</b> Convener: Evgenia Blagodatskaya <a href="#">Session Details</a>

...

Professor Artemi Cerdà

President of the Soil System Sciences Division of the European Geosciences Union

Departament de Geografia. Universitat de València. Blasco Ibàñez, 28, 46010-Valencia. Spain

[sss@egu.eu](mailto:sss@egu.eu)

[artemio.cerda@uv.es](mailto:artemio.cerda@uv.es) / <http://www.uv.es/~acerda/> [www.soilerosion.eu](http://www.soilerosion.eu)

<http://www.soilerosion.eu/miembros/artemi-cerda>

Visit the SSS Division webpage. <http://www.egu.eu/inside-egu/divisions-and-present-officers/division-soil-system-sciences/home.html>

Visit the EGU webpage [www.egu2015.eu](http://www.egu2015.eu)

Visit our newsletter <http://www.egu.eu/inside-egu/divisions-and-present-officers/division-soil-system-sciences/newsletter.html>

Visit our blog <http://gsoil.wordpress.com> OR <http://blogs.egu.eu/gsoil/>

Visit the flyer contest <http://www.egu.eu/inside-egu/divisions-and-present-officers/division-soil-system-sciences/best-flyer-competition-2013.html>

# Soil System Sciences

Division



For anyone interested.. this is the discussion paper on Landcare that Tom made reference too this morning.

[https://www.linkedin.com/today/post/article/20140630225136-169199424-25-years-of-landcare-a-discussion-paper?\\_mSplash=1](https://www.linkedin.com/today/post/article/20140630225136-169199424-25-years-of-landcare-a-discussion-paper?_mSplash=1)

The author of this paper, Andrew Campell was Australia's first National Landcare facilitator and has written some interesting pieces, his other articles and papers are available at these two web sites:

<http://www.landcarevic.net.au/resources/publications/articles-and-papers-by-andrew-campbell>

and

<http://www.triplehelix.com.au/publications.html>

The following is from his paper titled '**Knowledge for Managing Australian Landscapes**'

... This paper attempts to map and analyse the natural resource management (NRM) knowledge system in Australia. It starts with a broad question about how well the NRM knowledge system is serving the policy and program goals of Australian Governments, and the knowledge needs of resource managers. The intent of the paper is to explore that question discursively, not necessarily to provide a definitive answer. This entails a brief theoretical discussion of knowledge and knowledge systems, followed by an attempt to describe and analyse the Australian natural resource management knowledge system.

**The fall of the past civilizations was due in large part to bad management of the landscape.**

Vernon Carter and Tom Dale (1973)