



<http://www.farmingfirst.org/Post2015>

Field Guide to Classify Biological Soil Crusts for Ecological Site Evaluation

A new technical guide has been posted to the National Soil Survey Centre web site. The *Field Guide to Classify Biological Soil Crusts for Ecological Site Evaluation*



Figures 1-2. 1) Physical crust showing distinct platy structure. 2) Chemical salt crust with close up showing salt crystals.

http://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1263524&ext=pdf



Did you know, that only around 5% of cultivated land in Africa is irrigated, compared with 41% in Asia, yet, irrigation alone could increase output by up to 50% in Africa? And did you know that only 16% of sub-Saharan Africa's roads are paved, yet, upgrading these road networks could boost yearly trade by US\$250 billion a year, while costing only US\$38 billion? Our latest infographic is an essential tool for policymakers, development practitioners and academics looking to understand the issues and opportunities which lie ahead for the

African agricultural sector. Each theme also hosts an individual resource library with multimedia content and case studies from 47 different organisations working in the African agricultural development sector.



Explore the full infographic and share it here: www.farmingfirst.org/africanag



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Blowholes and caves surprise on Nullarbor geological survey

12 Nov 2014 by Stan Wilson



"When the pilot spotted a blowhole, he marked the position with a GPS for the ground team to physically verify and accurately locate," Dr Burnett says. Image: spelio

Detailed systematic surveys of large areas of the Nullarbor Plain have revealed a concentration of thousands of blowholes, flank margin caves and connected horizontal passages.

Read more at: <http://phys.org/news/2014-11-blowholes-caves-nullarbor-geological-survey.html#jCp>

Climate change 'won't stop at the Pacific Islands', Angela Merkel tells Australia

Climate Change



[Peter Hannam](#)

Environment Editor, The Sydney Morning Herald



Chancellor Angela Merkel addresses the Lowy Institute in Sydney on Monday.

Speaking in Sydney, the German Chancellor also spoke of the US spying scandal saying the German political class doesn't need supervising.

German Chancellor Angela Merkel has added to international calls on Australia to reveal its plans for cutting greenhouse gas emissions, telling an audience in Sydney that climate change "won't stop at the Pacific Islands".

Read more: <http://www.smh.com.au/environment/climate-change/climate-change-wont-stop-at-the-pacific-islands-angela-merkel-tells-australia-20141117-11o17o.html#ixzz3JIGcMjUz>

Soil wind erosion is influenced by soil inherent properties

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Soil wind erosion is influenced by soil inherent properties, different wind characteristics and surface vegetation cover. For a better understanding of this process is necessary to explain the effect and consequences of wind erosion on the ground and especially in agricultural areas of southern, eastern and northern Europe. In fact, this process usually occurs very slowly and its impact on soil quality and productivity fails to be detected until several years later. In addition, conventional farming practices may mask long term wind erosion effects on productivity by the intense and deep soil tillage and increased use of fertilizers.



<http://gsoil.wordpress.com/2014/10/27/soil-wind-erosion-is-influenced-by-soil-inherent-properties/>

NSW national parks singled out for green gong



[Peter Hannam](#)



Crowd pleaser: Montague Island.

Two NSW conservation areas have been named on a list of world-class protected areas, the only state in Australia to earn the accolade from the International Union for Conservation of Nature.

The Cape Byron State Conservation Area / Arakwal National Park in the state's north-east and Montague Island Nature Reserve off the south coast were among 23 region selected for the union's inaugural Green List of Protected Areas.

Read more: <http://www.smh.com.au/environment/conservation/nsw-national-parks-singled-out-for-green-gong-20141114-11n073.html#ixzz3JIHTthwU>

Warmest oceans ever recorded

14 Nov 2014

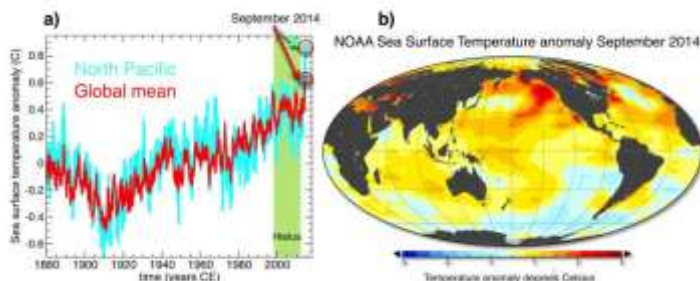


Figure 1: a) NOAA Sea Surface Temperature anomaly (with respect to period 1854-2013) averaged over global oceans (red) and over North Pacific (0-60oN, 110oE-100oW) (cyan). September 2014 temperatures broke the record for both global and North ...[more](#)

"This summer has seen the highest global mean sea surface temperatures ever recorded since their systematic measuring started. Temperatures even exceed those of the record-breaking 1998 El Niño year," says Axel Timmermann, climate scientist and professor, studying variability of the global climate system at the International Pacific Research Center, University of Hawaii at Manoa.

Read more at: <http://phys.org/news/2014-11-warmest-oceans.html#jCp>

Everlasting Swamp to be state's newest national park

November 11, 2014

☆ Read later



Peter Hannam

Environment Editor, The Sydney Morning Herald

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Most of NSW wetlands have been lost. Photo: Dean Osland

Everlasting Swamp should live up to its name with the Baird government announcing the vulnerable wetlands in the state's north will become the state's newest national park.

The government has purchased land near Grafton to expand an existing conservation area to create the Everlasting Swamp National Park and protect one of NSW's largest remaining coastal floodplain wetlands.

<http://www.smh.com.au/environment/conservation/everlasting-swamp-to-be-states-newest-national-park-20141111-11kklv.html>

Restoring wetlands can lessen soil sinkage, greenhouse gas emissions, study finds

Restoring wetlands can help reduce or reverse soil subsidence and reduce greenhouse gas emissions, according to research in California's Sacramento-San Joaquin River Delta. The study is one of the first to continually measure the fluctuations of both carbon and methane as they cycle through wetlands.

Restoring wetlands can help reduce or reverse soil subsidence and reduce greenhouse gas emissions, according to research in California's Sacramento-San Joaquin River Delta by Dartmouth College researchers and their colleagues.

The study, which is one of the first to continually measure the fluctuations of both carbon and methane as they cycle through wetlands, appears in the journal by *Global Change Biology*.

Journal References:

1. Jaclyn Hatala Matthes, Cove Sturtevant, Joseph Verfaillie, Sara Knox, Dennis Baldocchi. **Parsing the variability in CH₄ flux at a spatially heterogeneous wetland: Integrating multiple eddy covariance towers with high-resolution flux footprint analysis.** *Journal of Geophysical Research: Biogeosciences*, 2014; 119 (7): 1322 DOI: [10.1002/2014JG002642](https://doi.org/10.1002/2014JG002642)
2. Sara Helen Knox, Cove Sturtevant, Jaclyn Hatala Matthes, Laurie Koteen, Joseph Verfaillie, Dennis Baldocchi. **Agricultural peatland restoration: effects of land-use change on greenhouse gas (CO₂ and CH₄) fluxes in the Sacramento-San Joaquin Delta.** *Global Change Biology*, 2014; DOI: [10.1111/gcb.12745](https://doi.org/10.1111/gcb.12745)

<http://www.sciencedaily.com/releases/2014/10/141030133400.htm>

What happens to toxins in compost and soil?

28 October 2014 · by soilsmatter2011 · in Food, Gardening, Human health, Urban soils. ·

Question: What happens to toxins in soil? More specifically, when I compost my banana peel, I know there is a small amount of Thiabendazole, Imazalil, Azoxystrobin, Myclobutanil, and probably a half dozen other pesticide/fungicides on it. I have to imagine that these end up in the soil.



Photo by szczel (www.flickr.com)

Do these things break down? What breaks them down (microbes, worms, sunlight, and/or time... or maybe something else completely? Do they build up in soil?

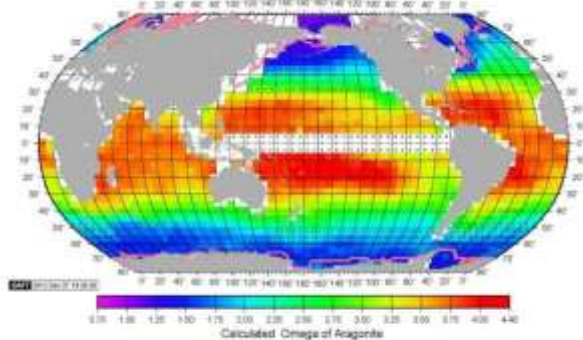
Have tests/studies been done to see if these toxins transfer to plants, or if they affect plants? Are there ways to test soil for a wide variety of toxins? Or, do you sort of have to know what you are looking for and test for that?

Answer:

<https://soilsmatter.wordpress.com/2014/10/28/what-happens-to-toxins-in-compost-and-soil/>

New global maps detail human-caused ocean acidification

10 Nov 2014



The saturation state of the mineral aragonite, essential to shell-builders, tends to fall as waters become more acidic. The South Pacific Ocean is heavily oversaturated with respect to aragonite (in red) while the polar oceans (in blue) are ...[more](#)

A team of scientists has published the most comprehensive picture yet of how acidity levels vary across the world's oceans, providing a benchmark for years to come as enormous amounts of human-caused carbon emissions continue to wind up at sea

Read more at: <http://phys.org/news/2014-11-global-human-caused-ocean-acidification.html#iCp>

Mallee birds extinct in 20 years: government policy to blame

EnvironmentVictoria



The Mallee Emu Wren. *Photo: Rob Drummond*

The Victorian Government stands accused of all but guaranteeing the extinction of threatened Mallee birds as a consequence of its bushfire prevention policy. The Mallee emu-wren, in particular, is just one fire away from being wiped from the planet.

Read more: <http://www.smh.com.au/environment/mallee-birds-extinct-in-20-years-government-policy-to-blame-20141115-11nfpp.html#ixzz3JIHGB9cD>

Shooters' native vegetation law reforms blocked by government

November 11, 2014

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Jeff Angel, executive director of the Total Environment Centre, welcomed the defeat of the bill. *Photo: Tamara Dean*

The state government has blocked a controversial proposal to water down penalties for farmers clearing native vegetation and obstructing officials enforcing the law, a move likely to draw the government into conflict with the farming lobby.

<http://www.smh.com.au/nsw/shooters-native-vegetation-law-reforms-blocked-by-government-20141112-11ki0f.html>

Early warning system for dikes passes field test

14 Nov 2014



Sensors and intelligent systems for analyzing sensor data can detect damage to dikes at an early stage, and thus protect longer dike segments as well. Technology developed by Siemens for this has now passed its field test, which was conducted ...[more](#)

Sensors and intelligent systems for analyzing sensor data can detect damage to dikes at an early stage, and thus protect longer dike segments as well. Technology developed by Siemens for this has now passed its field test, which was conducted on a chain of sensors spread out along a length of five kilometers of a dike in Amsterdam. The sensor system permanently records and transmits data on the dike's condition. Experts believe such automated dike monitoring can reduce maintenance costs by ten to maximally 20 percent.

Read more at: <http://phys.org/news/2014-11-early-dikes-field.html#jCp>

Groundwater patches play important role in forest health, water quality

Patches of soaked soil act as hot spots for microbes removing nitrogen from groundwater and returning it to the atmosphere. The discovery provides insight into forest health and water quality.

Even during summer dry spells, some isolated patches of soil in forested watersheds remain waterlogged.

These patches act as hot spots of microbial activity that remove nitrogen from groundwater and return it to the atmosphere, researchers from several institutions, including Virginia Tech, report in a leading scientific journal.

The discovery provides insight into the health of a forest. Nitrogen is an important nutrient for plant growth and productivity, but in streams, it can be a pollutant.

"The importance of these fragmented patches of saturated soil and their role in the fate of nitrogen in forested watersheds has been underappreciated until recently," said Kevin McGuire, an associate director of the Virginia Water Resources Research Center based in Virginia Tech's College of Natural Resources and Environment, co-author of the article to be published in the *Proceedings of the National Academy of Sciences*.

Journal Reference:

1. Sarah K. Wexler, Christine L. Goodale, Kevin J. McGuire, Scott W. Bailey, and Peter M. Groffman. **Isotopic signals of summer denitrification in a northern hardwood forested catchment.** *PNAS*, November 3, 2014 DOI: [10.1073/pnas.1404321111](https://doi.org/10.1073/pnas.1404321111)

<http://www.sciencedaily.com/releases/2014/11/141103161948.htm>

Plants have little wiggle room to survive drought, scientists report

13 Nov 2014



Researchers measured leaves' drought tolerance at the "turgor loss point" -- the level of dehydration that causes them to wilt. Credit: Lawren Sack

Plants all over the world are more sensitive to drought than many experts realized, according to a new study by scientists at UCLA and China's Xishuangbanna Tropical Botanical Garden. The research will improve predictions of which plant species will survive the increasingly intense droughts associated with global climate change.

Read more at: <http://phys.org/news/2014-11-wiggle-room-survive-drought-scientists.html#jCp>

Why Iceland formed so differently from the gentle early Earth

7 Nov 2014 by Elizabeth Howell, Astrobio.net



Calvin Miller (Vanderbilt University) at the Hverir geothermal area in Northern Iceland, looking at a subglacially erupted table mountain in the distance [note: I can verify the name of the table mountain tomorrow when I'm back in the office]. Credit: Tamara Carley.

How do you take the temperature of the Earth billions of years ago? The answer lies in the rocks.

Read more at: <http://phys.org/news/2014-11-iceland-differently-gentle-early-earth.html#iCp>

Obama pushes for world climate pact after China deal

15 Nov 2014 by Neil Sands



US President Barack Obama speaks at the University of Queensland on the sidelines of the G20 Summit in Brisbane on November 15, 2014

A Sino-US breakthrough on reducing carbon emissions proves a global deal on climate change is achievable, US President Barack Obama said Saturday, as campaigners hailed new momentum in long-stalled talks.

Read more at: <http://phys.org/news/2014-11-obama-world-climate-pact-china.html#iCp>

Coal seam gas projects in Sydney's water catchments could get the go-ahead

November 13, 2014

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Nicole Hasham

State Politics reporter

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CSG projects in water catchments could get the go-ahead under the state government's plans for the industry.
Photo: Robert Pearce

Coal seam gas projects in Sydney's sensitive water catchments could be allowed and existing operations will escape tough new rules under the state government's plan for the controversial industry.

<http://www.smh.com.au/nsw/coal-seam-gas-projects-in-sydneys-water-catchments-could-get-the-go-ahead-20141113-11ln6h.html>

Is there organic matter on Mars? Chloromethane not due to contamination from Earth, research suggests

Organic matter recently detected by NASA's robotic rover Curiosity is probably not due to contamination brought from Earth as researchers originally thought. A team of German and British scientists now suggests that the gaseous chlorinated organic compound -- chloromethane -- recently found on the Red Planet most likely comes from the soil of Mars, with its carbon and hydrogen probably deriving from meteorites that fell on the planet's surface.



Organic matter recently detected by NASA's robotic rover Curiosity is probably not due to contamination brought from Earth as researchers originally thought. A team of German and British scientists led by geoscientist Prof. Dr. Frank Keppler from Heidelberg University now suggests that the gaseous chlorinated organic compound -- chloromethane -- recently found on the Red Planet most likely comes from the soil of Mars, with its carbon and hydrogen probably deriving from meteorites that fell on the planet's surface. This assumption is supported by isotope measurements made by the scientists in which they replicated some of the Mars lander experiments. In these investigations, samples from a 4.6 billion old meteorite that fell in Australia in 1969 were used.

Journal Reference:

1. F. Keppler, D.B. Harper, M. Greule, U. Ott, T. Sattler, G.F. Schöler & J.T.G. Hamilton. **Chloromethane release from carbonaceous meteorite affords new insight into Mars lander findings.** *Scientific Reports*, 2014 DOI: [10.1038/srep07010](https://doi.org/10.1038/srep07010)

<http://www.sciencedaily.com/releases/2014/11/141113110018.htm>

A thousand years of environmental change in Polynesia

14 Nov 2014 by Shelby Roller



Archaeologist Jennifer Kahn examines the skull of a dog extracted from a dig on a Polynesian island as student researchers clean other artifacts in Kahn's Millington Hall lab. Credit: Joseph McClain

Environmental change is nothing new in Polynesia. For centuries, the inhabitants of the volcanic, sea-battered islands have been employing a variety of strategies to adapt to their changing landscapes.

Read more at: <http://phys.org/news/2014-11-thousand-years-environmental-polynesia.html#jCp>

Plant library takes on the global weeds menace

11 Nov 2014

At-risk native plants worldwide have gained a new ally in their losing battle against aggressive and insidious feral weeds.

International scientists have developed a database with in-depth information on over 600 plant species, including the black pine, prickly cactus, thyme, milkweed, wild garlic and baby root orchid. Called the "[COMPADRE Plant Matrix Database](#)", it is currently the world's largest open-access source of endangered, native and feral plant demographics.

Read more at: <http://phys.org/news/2014-11-library-global-weeds-menace.html#jCp>

Dying to be clean: The new technique for controlling feral cats

November 7, 2014

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Nicky Phillips

Science Editor

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Dr Katherine Moseby holds a dead feral cat. Her husband, John Read, has invented a new cat-control device.
Photo: Peter Rae

- Can accelerated evolution save native animals?

Cleanliness may be next to godliness unless you're a feral cat, in which case, cleanliness may get you a place next to god. In kitty heaven.

Concerned by the serious harm feral cats are having on native wildlife, a cunning ecologist has invented a device that, when triggered by a passing cat, sprays a shot of poison onto their fur.

<http://www.smh.com.au/technology/sci-tech/dying-to-be-clean-the-new-technique-for-controlling-feral-cats-20141107-11iehz.html>

“The creation and the population of a geographically referenced soil database generated at a given resolution by using field and laboratory observation methods coupled with environmental data through quantitative relationships.” - The International Working Group on Digital Soil Mapping (WG-DSM), Definition of Digital Soil Mapping