



IMCG Bulletin: September 2013

Word from the Chair

Dear mire friends

Thanks for all the positive comments on our 1st bulletin. I thought the 1st bulletin might be a bit too long, but we have so much regional news that this 2nd issue is even longer. This is in part also due to an extensive list of recent scientific papers that we have included – we plan to include new papers on a monthly basis.

Many thanks to everyone who is contributing, especially Hans Joosten with the news from all over: From Malaysian tropical swamp forests to cheetah in Africa and the oldest bog-man (Ireland); controversy in Europe to conservation challenges in Central Asia. Enjoy all the news!!

Please send any contributions for the **IMCG Bulletin** by the 20th of each month.

2014 IMCG General Assembly and Field Symposium: Belarus July 2014

Block these dates: 14-26 July 2014!

The 2014 IMCG Field Symposium, Congress and General Assembly will be held in Belarus from 14-26 July 2014. The Field Symposium will visit the wide variety of pristine and degraded peatlands all over Belarus, look at the results of the recent large-scale rewetting projects and discuss the perspectives of the new management initiatives taken in connection to paludiculture.

The scientific congress and the IMCG General Assembly will be held directly subsequent to the Field Symposium. Costs for the total package will be around € 800. Block these dates; more information is to follow from Hans Joosten (joosten@uni-greifswald.de).

News from IMCG Regions

Africa

Who might visit your peatland?

We share mires with many species. Sometimes mires are visited by animals we might not expect – such as these two cheetahs to the right (Photo from Riaan Marais RiaanM@TSHWANE.GOV.ZA) from the Rietvlei Nature Reserve, South Africa where the IMCG visited some peatlands in 2004.

Have you any recent interesting visitors at a mire – please send us a photo: peatland@mweb.co?





Central Asia

Mongolian peatlands revisited after 10 years by Tatiana Minayeva (Tatiana.minaeva@wetlands.org)

At the end of August Mongolian and Russian scientists have again visited some Mongolian peatland sites that had been investigated in 2003. After 10 years of drought we have to report that the process of peatland degradation has continued rapidly. In the Orkhon valley the amount of cattle has significantly increased, which is the logical consequence of rapidly developing “sustainable” tourism supported by foreign development agencies. To assess factual changes, vegetation and soil were sampled. Wetlands International, in cooperation with the Mongolian Academy of Sciences and several other agencies, and with support of the Joint Russian Mongolian complex biological expedition are looking for possibilities to fund further work on peatlands in Mongolia to introduce wise use and conservation practices to day to day reality in this country.



Forms of peatland degradation in Mongolia: drying out and burning

Europe

EU-LIFE Bog restoration under attack by Jan Sliva (sliva@wzw.tu.de)

Herman Oosterkamp, a peatland expert from The Netherlands, who is closely associated with the peat industry, currently prepares an “enlightenment mission” to Brussels, DG Environment, Head of LIFE Unit Mr. Angelo Salsi. In November 2013 he plans to discuss in Brussels “restoration of the Store Mosse National Park in Sweden and peatland restoration programs in Europe more generally”. Apparently, in his opinion, the European Commission is wasting enormous budgets for useless and even counterproductive projects by LIFE-Nature funding of raised bog restoration projects that base on re-wetting. In his suitcase, this lobbyist carries the “lessons learnt” from Canada and Estonia, where the *Sphagnum*-transfer method has been successfully applied on large cut-over peatlands, and uses that as universally applicable alternative for rewetting. Mr. Oosterkamp bases his conviction that non- or low intervention is the right approach on the block cut Hädinge area in Store Mosse where, after peat extraction, indeed an impressive re-establishment of promising bog vegetation has taken place. He ignores, however, that the very positive starting conditions for regeneration of bog vegetation in Hädinge (and there are more examples in other countries) are *not at all* representative of the large areas of cut-over, drained and degraded bogs that are the target of many past and ongoing LIFE-projects.

Such lobbying towards the management of the LIFE Unit in Brussels may raise unjust doubt about the work of many successfully implemented raised bog restoration projects in Europe, as most likely all LIFE peatland restoration projects will be discredited without differentiation by Mr. Oosterkamp’s one-sided opinion. IMCG has thus offered Mr. A. Salsi its knowledge and capacity to help the European Commission to take unbiased decisions when selecting and evaluating the results of LIFE restoration projects.



What is your view? Please contact Jan Sliva: sliva@wzw.tu.de to share your opinion.

France

Francis Muller (francis.muller@reseau-cen.org), Head of Pôle-relais Tourbières, have send in the following news from France:

International cooperation on a local scale for Pôle-relais Tourbières

Pôle-relais tourbières, the French Mire Resource Centre, works mostly on topics concerning French mires. But as so much relevant work is done beyond these ecosystems, and wanting to exchange regularly with our neighbours, each year we organize or participate in meetings or actions involving other countries.

This year, for example, we have several examples of cooperation on a local scale with other European countries. Several involve other members of IMCG and I believe that it is one of the ways that give much sense to our group:

- Swiss-French cooperation. We made a presentation at Université de Neuchâtel in January about gaps in knowledge that could handicap site managers in France. This October, after having seen that we ignored a part of what our neighbours were doing on Swiss mires (and vice-versa!), we organized a meeting for about 30 people, to exchange information about our programmes and projects on both sides of the Jura mountains, which could lead to collaborative programmes.. Next year, a return meeting is planned in Switzerland.
- Spanish-French cooperation. Our colleagues at Universidade de Santiago de Compostela (Galicia, Spain) María-Isabel Fraga-Vila, Eduardo Garcia-Rodeja and Xabier Pombal participated in the yearly field trip of Groupe d'Etude des Tourbières. This took place in July in French Basque Land and Les Landes, and enabled us to discuss the natural features and the management of mires in the Pyrenean Mountains and their piedmont. Our Galician friends also reported on the difficult situation of their mires, in a country and a province where peatlands are not adequately considered in the face of growing adversity and threats, and diminishing resources.
- German-Dutch-French cooperation. In June, we hosted a group of 12 foresters from Lower-Saxony (Germany), for a 6-day tour in the Vosges and Jura mountains (NE France), organized with Stichting Bargerveen (Netherlands). The aim was to understand the ecosystem patterns (firstly in mires) according to altitude and other factors.
- Norwegian-French cooperation: with Pr Hervé Cubizolle (Université de Lyon-St-Etienne) and my former colleague Jérémie Cholet, and with the appreciated help of Pr Asbjørn Moen, from University of Trondheim, we visited the mires of central Norway this summer. They were especially interested by the field investigation in Central France on anthropogenic (man-made) mires, dated from the Roman or Medieval periods. They imagined that such mires should also be present in Norway but that no research had been done until now about them. We finished our tour helping to rake hay on a nature reserve Asbjørn follows, west of Trondheim!

Other projects of Pôle-relais Tourbières include a 64-pages brochure entitled "Voyage au pays des tourbières" (Trip to the Country of Mires). This brochure (in French only) can be downloaded on <http://www.pole-tourbieres.org/IMG/UserFiles/Files/ebook-tourbieres.pdf>



New Zealand News by Bev Clarkson (ClarksonB@landcareresearch.co.nz)

Wetland restoration book: A wetland restoration book published in 2010 and now out of stock, has recently been reprinted. Individual chapters cover planning, technical and monitoring aspects are also available free of charge at <http://www.landcareresearch.co.nz/publications/books/wetlands-handbook>. The book brings together expertise from specialists and groups actively engaged in restoring wetlands and will assist in improving restoration approaches in all wetland types throughout the country.

Community monitoring tool: WETMAK, the Wetlands Monitoring and Assessment kit recently developed for community groups undertaking wetland restoration projects is available online <http://www.landcare.org.nz/wetmak>. By using the kit, community groups will be able to assess the performance of their restoration efforts, and take remedial action at an early stage, resulting in better biodiversity outcomes and less wastage of money and time. The user-friendly kit was adapted from an earlier-developed science-based national wetland monitoring approach:

http://www.landcareresearch.co.nz/publications/researchpubs/handbook_wetland_condition.pdf

Wetland restoration symposium: The next National Wetland Restoration Symposium is being held in Auckland 12-14 February 2014 with a theme of 'Wetlands and water – from droughts to storms'. The main topics are the links between wetlands and climate, coping with weather extremes, with a special focus on urban wetlands and constructed wetlands. Details are at: <http://www.wetlandtrust.org.nz/symposia.html>

News from all over

Call for international case studies of peatland restoration

The IUCN Commission on Ecosystem Management's Peatland Thematic Group is producing a booklet to highlight the important role of peatland restoration and management in helping meet biodiversity, climate change and water objectives. The aim of this booklet is to make policy makers and the business community aware of the valuable role of peatland restoration as a prime example of nature providing ecosystem services. It will also serve to showcase the expertise and skills around the world in helping secure sustainable management of our peatlands. We are ideally looking for examples covering deep peat areas (bog or fen > 50cm) and are interested in a broad range of restoration management examples including rewetting, reduced grazing/burning, plantation removal. Please contact Rea Cris, if you would like to contribute a case study of peatland restoration: Rea.cris@iucn.org.uk

For more information:

https://cmsdata.iucn.org/downloads/proposal_demonstrating_success_booklet2013.pdf

IUCN UK Peatland Programme August Newsletter

The August Newsletter (and older monthly Newsletters) of the IUCN UK Peatland Programme, full of information on peatland policy and management developments in the UK, is available under:

<http://www.iucn-uk-peatlandprogramme.org/resources>

Oldest 'Bog Body' Found with Skin Intact

Archaeologists have unearthed the remains of a 4000-year-old man preserved in an Irish peat bog, marking the oldest European bog body ever found with skin still intact. In 2011 a resident of central Ireland's County Laois had come across the well-preserved "Cashel Man" — named for the bog he was found in — while extracting peat [See images of peat bodies under <http://www.livescience.com/38989-best-preserved-bog->



[people.html](#)] "All that was visible to start with was a pair of legs below the knees, and a torso," Eamonn Kelly, an archaeologist at the National Museum and lead excavator of the project, wrote in the report. "The body appeared to be naked. Later, it was possible to work out that the torso had been damaged by the milling machine, which also removed the head, neck and left arm."

The body is roughly 4000 years old. Previously, the oldest bog body ever found in Ireland was 1300 years old. Computer tomography (CT) of the body showed that the young man's arm and spine had been broken multiple times, seemingly from sharp blows before his death. The researchers also found cuts along the man's back that looked like axe wounds. They uncovered axes capable of producing such wounds within the vicinity of the site. Given this evidence of brutality, the team concluded that the young man had been killed in a ritual sacrifice, a practice commonly known in later eras, but not well documented in the Early Bronze Age of 2000 B.C., about the time this bog body would've lived. More information under: <http://www.livescience.com/38983-irish-bog-body.html> and http://www.huffingtonpost.com/2013/08/13/irish-bog-body_n_3750343.html

Spent bogs and disused railways have huge eco-tourism potential

Ireland's largest landowners are Bord na Mona (The Peat Board) and Irish Rail. Between them they own hundreds of thousands of hectares – much of which has been lying idle and disused for years. However, an ambitious project to restore Ireland's boglands will transform large tracts of Ireland into a wetland savannah-like wonderland and attract hundreds of thousands of eco-tourists. Elsewhere, Irish Rail owns almost 1,500 km of disused tracks and railway embankments – which at one stage linked every town in the country – and is keen to transform the old lines into grass-covered cycle and rambler ways. Together, both eco-tourism initiatives will bring millions of euro to parts of the country where a tourist seldom sets foot.

Bord na Mona has concluded a successful trial run in Mayo, where it converted a dead, barren landscape into a Garden of Eden. Bord na Mona and the Environmental Protection Agency now plan to breathe new life into 60 000 ha of severely degraded cut-away boglands, which are totally devoid of any life. Bord na Mona manages 80 000 ha of bogland, three-quarters of which has become spent and lifeless due to the industrial extraction of peat. However, almost 40 000 ha of land may be available for rewetting and restoration over the coming years with more lands coming on stream as time goes on.

A pilot project on a rewetted industrial cutaway bog in Bellacorick, in northwest Co Mayo, has shown that over time, birds and plants and wildlife flourish if the bogs are rewetted and allowed to develop naturally. Dr David Wilson has seen first-hand what can be achieved by rewetting industrial scarred boglands. "It went from a desert with nothing growing on it to a wetland in a really short space of time." When the Sphagnum mosses appear the wetland plants start growing, then everything else starts to come in, from spiders and mites to butterflies. The important thing is to keep the water table as high as possible. Sphagnum mosses are the building blocks of the bog, they are like sponges and they hold up the water table. They also protect the bogs in dry periods by holding on to the water." More information: <http://www.independent.ie/business/irish/spent-bogs-and-disused-railways-have-huge-ecotourism-potential-29453761.html>

Breathing New LIFE into Anglesey and Lley'n's Wetlands

A conference is taking place from 9th October to 11th October 2013 to get this LIFE project going. Read more on this area at <http://angleseyandllynfens.com/> or direct inquiries to Cecile Roberts at Cecile.roberts@cyfoethnaturiolcymru.gov.uk



Pond Conservation continues as Freshwater Habitats Trust

The European Pond Conservation Network (established in 2004 after the model of IMCG) continues after nine years of existence as the Freshwater Habitats Trust. You can visit their new website: www.freshwaterhabitats.org.uk to find out more about plans, latest projects, news, and research. You can also stay in touch by signing up to their e-bulletin: [Ripples](#), or join in the conversation on [twitter](#) and [facebook](#).

Investigation into Sumatra peat fires continues

A Malaysian company (ADEI Plantation and Industry, API) is still under criminal investigation for being responsible for recent peatland and forest fires in Riau (Sumatra, Indonesia). According to the police, API was burning peatland in order to open a new plantation, but did not have the capability to prevent fires. In addition to API, seven other companies are being investigated. Environment Minister Balthasar Kambuaya previously said that 14 companies were believed to be responsible for forest and peatland fires in Riau, but then the investigation narrowed the list down to eight companies.

According to Riau Police chief Brig. Gen. Condro Kirono, the fires only occurred in Riau, not in South Sumatra or West Kalimantan, which also have large areas of forest and peatland. "It seems that certain companies operating in Riau repeatedly burn the forests and peatlands."

Peatland fires have become a serious issue for Indonesia because the smoke created a severe haze in Singapore and Malaysia, prompting President Susilo Bambang Yudhoyono to issue an apology to the neighbouring countries. (The Jakarta Post, September 18, 2013)

RSPB objections to Flow Country wind farm

RSPB Scotland is objecting to a proposal for a large-scale wind farm in the heart of the Flow Country in Sutherland (Scotland). The Flow Country, a wide expanse blanket bogs, is currently being considered as a potential World Heritage Site. Golden Eagle, Hen Harrier, Black-throated and Red-throated Divers, Greenshank, Dunlin, European Golden Plover and Merlin all breed in the habitat.

Energy company SSE has applied to build a 47-turbine scheme on a site completely encircled by globally important peatland habitats, protected under European and Scottish law. RSPB spokesman Kenny Graham said: "If agreed, we will see a large-scale wind farm being developed slap-bang in the heart of the flows, in an area surrounded by designated peatlands and populated by protected species. Thirty years ago, non-native conifer plantations were planted in the flows. This is now universally acknowledged to have been a terrible mistake. The proposal, which would replace a plantation with a wind farm, would show that the lessons of that unhappy episode have not been learnt. It would also pose a grave threat to the flows' candidacy for World Heritage status. We hope that The Highland Council and Scottish Ministers will reject this proposal and send a clear message: renewables are important but will not be developed at any cost to Scotland's peatlands". (<http://www.birdwatch.co.uk/channel/newsitem.asp?c=11&cate=14790>)

April accused of 'greenwashing' with Riau conservation project

Environmental groups accuse Indonesia's second-largest pulp and paper company Asia Pacific Resources International Ltd. (April) of using a \$17 million peatland restoration project in Riau's heavily degraded Kampar Peninsula to "greenwash" the continued cutting of old-growth forests. The pulp company partners with Fauna & Flora International (FFI) to restore more than 20 000 hectares of damaged peatland in the Kampar Peninsula. The peninsula, once home to rich tropical forests, has been heavily deforested by pulp and palm oil



companies. More than 4 million hectares of forested land, including many peatland, have vanished in Riau since 1982.

The Riau Ecosystem Restoration (RER) project will create a conservation area to restore peatland while cataloguing and preserving the existing flora and fauna, according to the company. The Forest Rescue Network Riau (Jikalahari) accused April of greenwashing efforts to continue the clearing of old-growth forest in Riau by subsidiary Riau Andalan Pulp and Paper (RAPP), including the cutting of forests in a disputed concession on the peatland rich Padang Island. April pulled out of the Forest Stewardship Council in June. "Before an NGO-initiated FSC complaint process even had an opportunity to begin to investigate April's deforestation practices, the company had effectively walked out on the FSC's certification scheme," according to Bustar Maitar, head of Indonesia Forest Campaign for Greenpeace Southeast Asia.

The cutting of Indonesia's rain forests will likely continue despite international condemnation. The Forestry Ministry announced plans last year to significantly expand the nation's pulp capacity in the next decade. The expansion would include the construction of seven new pulp mills and the awarding of concessions in previously untouched forests in eastern Indonesia, according to the Center for International Forestry Research (CIFOR). (Jakarta Globe, September 17, 2013).

Recent scientific publications

Every month a wealth of scientific papers are published, many of which have relevance for peatland management and mire conservation. In this new column we want to present the title and the URL of a selection of these papers. The selection does not aim at completeness and will inevitably be biased by the (wide...) interest of the compiler (Hans Joosten). If you want to share papers that you fear otherwise would be missed, please send title and URL to joosten@uni-greifswald.de

Warming effects on greenhouse gas fluxes in peatlands are modulated by vegetation composition:

<http://onlinelibrary.wiley.com/doi/10.1111/ele.12167/abstract>

Regional variation in peatland carbon stock assessments, northern Ontario, Canada:

<http://www.sciencedirect.com/science/article/pii/S0016706113002218>

Stable isotopes in Sphagnum fuscum peat as late-Holocene climate proxies in north eastern European Russia:

<http://hol.sagepub.com/content/23/10/1381.abstract>

The atmosphere as a global commons – Challenges for international cooperation and governance:

http://belfercenter.ksg.harvard.edu/files/hpcadp58_edenhofer-flachsland-jakob-lessmann.pdf

Ericaceae stabilize peat and foster Sphagnum majus establishment at pool margins in restored peatlands:

<http://www.sciencedirect.com/science/article/pii/S0304377013001149>

A water-table dependent reservoir model to investigate the effect of drought and vascular plant invasion on peatland hydrology: <http://www.sciencedirect.com/science/article/pii/S0022169413004782>

Boreal feather mosses secrete chemical signals to gain nitrogen:

<http://onlinelibrary.wiley.com/doi/10.1111/nph.12403/abstract>

Landscape-scale carbon storage associated with beaver dams:

<http://onlinelibrary.wiley.com/doi/10.1002/grl.50710/abstract>

Latitudinal shifts in species interactions interfere with resistance of southern but not of northern bog plant-communities to experimental climate change: <http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.12158/abstract>

Tundra ecosystems observed to be CO₂ sources due to differential amplification of the carbon cycle:

<http://onlinelibrary.wiley.com/doi/10.1111/ele.12164/abstract>



A Holocene paleoclimate reconstruction for eastern Canada based on $\delta^{18}\text{O}$ cellulose of *Sphagnum* mosses from MerBleue Bog: <http://hol.sagepub.com/content/23/9/1260.abstract?etoc>

Forests on thawing permafrost: fragmentation, edge effects, and net forest loss: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12349/abstract>

Spatial variation in landscape-level CO_2 and CH_4 fluxes from arctic coastal tundra: influence from vegetation, wetness, and the thaw lake cycle: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12247/abstract>

Wetlands serve as natural sources for improvement of stream ecosystem health in regions affected by acid deposition: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12265/abstract>

Increased invasive potential of nonnative *Phragmites australis*: elevated CO_2 and temperature alleviate salinity effects on photosynthesis and growth: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12346/abstract>

Long-term and contemporary environmental conditions as determinants of the species composition of bog organisms: <http://onlinelibrary.wiley.com/doi/10.1111/fwb.12201/abstract>

Surface vegetation patterning controls carbon accumulation in peatlands: <http://onlinelibrary.wiley.com/doi/10.1002/grl.50744/abstract>

Dispersal pathways across the Pacific: the historical biogeography of *Astelias.l.* (Asteliaceae, Asparagales): <http://onlinelibrary.wiley.com/doi/10.1111/jbi.12169/abstract>

Vegetation feedbacks of nutrient addition lead to a weaker carbon sink in an ombrotrophic bog: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12328/abstract>

Modelling CO_2 and CH_4 flux changes in pristine peatlands of Finland under changing climate conditions: <http://www.sciencedirect.com/science/article/pii/S0304380013002330>

CO_2 exchange of a temperate fen during the conversion from moderately rewetting to flooding: <http://onlinelibrary.wiley.com/doi/10.1002/jgrg.20069/abstract>

The ability of contrasting ericaceous ecosystems to buffer nitrogen leaching: http://mires-and-peat.net/map11/map_11_05.htm

Long-term and contemporary environmental conditions as determinants of the species composition of bog organisms: <http://onlinelibrary.wiley.com/doi/10.1111/fwb.12201/abstract>

Hydrology-driven ecosystem respiration determines the carbon balance of a boreal peatland: <http://www.sciencedirect.com/science/article/pii/S0048969713007298>

Effects of highland land-use over lowlands of the Brazilian Pantanal: <http://www.sciencedirect.com/science/article/pii/S0048969713006888>

The impacts of climate change and human activities on biogeochemical cycles on the Qinghai-Tibetan Plateau: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12277/abstract>

Modelling soil organic carbon distribution in blanket peatlands at a landscape scale: <http://www.sciencedirect.com/science/article/pii/S0016706113002395>

Changes in peat chemical properties during post-fire succession on blanket bog moorland: <http://www.sciencedirect.com/science/article/pii/S0016706113002486>

Harmonisation of the soil map of Africa at the continental scale: <http://www.sciencedirect.com/science/article/pii/S0016706113002401>

The Vikings were not the first colonizers of the Faroe Islands: <http://www.sciencedirect.com/science/article/pii/S0277379113002230>

Factors affecting the re-vegetation of abandoned extracted peatlands in Estonia: a synthesis from field and greenhouse studies: http://www.kirj.ee/public/Ecology/2013/issue_3/ecol-2013-3-192-211.pdf

Vegetation controls on northern high latitude snow-albedo feedback: observations and CMIP5 model predictions: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12391/abstract>

Modelling edge effects of mature forest plantations on peatland waders informs landscape-scale conservation: <http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12173/abstract>



El Nino, the 2006 Indonesian Peat Fires, and the distribution of atmospheric methane: <http://onlinelibrary.wiley.com/doi/10.1002/grl.50937/abstract>

Permafrost degradation and methane: low risk of biogeochemical climate-warming feedback: <http://iopscience.iop.org/1748-9326/8/3/035014/article>

Identification of unrecognized tundra fire events on the North Slope of Alaska: <http://onlinelibrary.wiley.com/doi/10.1002/jgrg.20113/abstract>

Peat consumption and carbon loss due to smouldering wildfire in a temperate peatland: <http://www.sciencedirect.com/science/article/pii/S0378112713005094>

Can restoration of afforested peatland regulate pests and disease?: <http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12141/abstract>

Greenhouse gas emission factors for land use and land-use change in Southeast Asian peatlands: <http://link.springer.com/article/10.1007/s11027-013-9511-x>

Soil carbon losses from land-use change and the global agricultural greenhouse gas budget: <http://www.sciencedirect.com/science/article/pii/S0048969713003434>

Soil carbon stocks in Sarawak, Malaysia: <http://www.sciencedirect.com/science/article/pii/S0048969713003173>

Biomarkers as paleoclimate proxies in peatlands in coastal high plains in Asturias, N Spain: <http://www.sciencedirect.com/science/article/pii/S0166516213001134>

Living with sand: A record of landscape change and storminess during the Bronze and Iron Ages Orkney, Scotland: <http://www.sciencedirect.com/science/article/pii/S1040618213002632>

Vegetation changes during the past 40 000 years in Central China from a long fossil record: <http://www.sciencedirect.com/science/article/pii/S1040618212000183>

Evaluation of vegetation dynamics and climatic oscillations in the Sacramento-san Joaquin delta of California during the Holocene: <http://www.sciencedirect.com/science/article/pii/S1040618213004722>

A 9700-year multi-proxy reconstruction of hydrologic and vegetation history from a low-elevation spring-fed meadow, east central Nevada: <http://www.sciencedirect.com/science/article/pii/S1040618213004990>

Quantification of upland thermokarst features with high resolution remote sensing: <http://iopscience.iop.org/1748-9326/8/3/035016/article>

Influence of sea-level rise on freshwater lenses of different atoll island sizes and lens resilience to storm-induced salinization: <http://www.sciencedirect.com/science/article/pii/S002216941300591X#>

Change in propagule banks during prescribed burning: A tale of two contrasting moorlands: <http://www.sciencedirect.com/science/article/pii/S0006320713001730>

Development and persistence of an African mire: how the oldest South African fen has survived in a marginal climate: <http://dx.doi.org/10.1016/j.catena.2013.06.004>

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