

AdaptNSW



**Office of
Environment
& Heritage**

Welcome to the August 2017 AdaptNSW newsletter.

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A game of hide and seek: identifying climate refugia for NSW biodiversity



Suzanne Dunford (OEH) with project leader Linda Beaumont (centre) and postdoctoral research fellows John Baumgartner (second from left) and Manuel Esperon (right) of Macquarie University

Identifying species at risk of extinction across future landscapes is a complex challenge . Using habitat suitability models to forecast species' responses to climate change, Biodiversity Node researchers Dr Linda Beaumont, John Baumgartner and Manuel Esperon (Macquarie University) are building tools to help identify species at risk; potential

refugia; and guide priority measures in conservation and protection.

In April 2017, the researchers presented a preview of their refugia website (currently in development) to participants from the OEH, National Parks and Wildlife Service, Taronga Zoo and local government. The website will provide users with an interactive tool to access data on species range shifts and climate velocity for NSW regions. When finalised, users can access from the Biodiversity Node website: mq.edu.au/about/biodiversity-node under Biodiversity and Climate Change Online Tools.



Screenshot of the climate refugia website previewed at the seminar.

For more information on the Climate Refugia project, please contact victoria.graham@mq.edu.au

Climate-ready revegetation: workshop series

Workshops to introduce a new publication *Climate-ready revegetation. A guide for natural resource managers* are currently being rolled-out in Sydney and to regional centres in NSW. These workshops are being run by Dr Nola Hancock of Macquarie University under the NSW Adaptation Research Hub Biodiversity Node.

The workshops provide practical advice to natural resource managers on how to incorporate the uncertainties associated with climate change when planning revegetation activities. The sessions cover the theoretical content on sustainable revegetation under climate change. Then a series of guided-computer activities show how to incorporate local climate data into revegetation and restoration planning.

Workshops have been held in Armidale, Coffs Harbour, Nowra, Queanbeyan, Wollongong, Wagga and Albury, and later this year there will be workshops in Dubbo and Cooma. The Guide can be downloaded at: http://anpc.asn.au/resources/climate_ready_revegetation

For more information on these workshops, or to register your interest please contact victoria.graham@mq.edu.au



Images from the Climate-ready revegetation workshop held at Macquarie University for the western Sydney region, run by Nola Hancock.

Cool streets in Western Sydney

The recent '[Angry Summer](#)' experienced throughout Australia saw records tumble with mean temperatures 2.8°C above average in Sydney (Climate Council 2017 'The Angry Summer'). Western Sydney was no exception, experiencing 10 days that were over 5°C hotter than the Sydney CBD in January.

LGNSW and Blacktown City Council have released a case study of their Cool Streets project, a 2016 joint-winner of the LGNSW Excellence in the Environment Awards Climate Change Action Award.

The Cool Streets project aimed to mitigate the effect of rising urban heat in Western Sydney by increasing the number of street trees in consultation with the local community. An on-ground trial produced street tree planting designs which are easily transferable or altered for other treeless streets. Talking to the community enabled the project team to address local concerns around risk of branch-fall, leaf-litter and pipe disruption, and to communicate the benefits of street trees including shade, temperature reduction, lower home energy usage and increased property values. Within 10 years there is an expected significant shade and cooling benefit; within 20 years an expected household saving of approximately \$109 on energy bills; and a ~\$232 saving to household energy bills within 40 years.

Learn more at: <http://www.lgnsw.org.au/files/imce-uploads/90/Cool%20Streets.pdf>



Blacktown City Council Cool Streets project

Market-led adaptation

Several landmark announcements in recent months have set the bar for private companies in Australia to address climate change risks and adaptation:

- [APRA speech \(2017\)](#): the Australian Prudential Regulation Authority (APRA) Executive Board Member, Geoff Summerhayes delivered a landmark speech which called for action to be taken now on carbon risk disclosure. APRA is planning to examine the responses taken by banks, super funds and insurers to climate risks. Summerhayes said, “the days of viewing climate change within a purely ethical, environmental or long-term frame have passed...we’re now at the stage of the collective effort, calibration and creativity to turn ambition into reality”.

- Climate risk disclosure inquiry report [‘Carbon risk: a burning issue’ \(2017\)](#): the final report by the Australian Senate Economics References Committee inquiry into climate risk disclosure outlines six key recommendations, including that ASIC review its guidance to directors in relation to climate risk; that the ASX provide guidance in relation to entities’ climate risk exposure; and that the Corporations Act 2001 be reviewed.

- The [Hutley Opinion \(2016\)](#): this important legal opinion outlines the extent that Australian company directors are required to respond to climate change risks, and finds that these risks may represent potential harm to the interests of Australian companies that could be considered currently foreseeable. Consequently, it can be concluded that company directors who fail to consider and disclose climate change risks now, could be found liable for breaching their duty of care and diligence in the future under the Corporations Act.

And in case you’ve had your head under a rock...

- [The Paris Climate Agreement \(2016\)](#): ratified by 131 countries, representing 80% of global emissions, this Agreement establishes a binding global commitment to limit warming to between 1.5-2°C, clearly signaling future policy directions and necessary adjustments to economies, markets and companies.

For a more in-depth review of these developments, see **de Wit, E. and Vilagosh, V. (2017) ‘Australia: Climate change risk must now be on the Board agenda’**

http://www.mondaq.com/article.asp?articleid=587176&email_access=on&chk=1279546&q=692370

Meanwhile, overseas...

Ever heard of the AODP Global Climate 500 Index?

It rates the world's 500 biggest asset owners – pension funds, insurers, sovereign wealth funds, foundations and endowments – on their success at managing climate risk within their portfolios, based on direct disclosures and publicly available information.



[The fifth AODP Global Climate 500 Index](#) has been released and shows a significant majority of asset owners scaling up action to protect their portfolios from climate risk, 299 institutions with funds worth \$27 trillion representing 60% of asset owners and 70% of Index AUM. Oceania and Europe are identified as the most progressive regions, with ten of the best performing countries. In eight of these – including Australia – every fund is taking some action on climate risk. The AODP says “long-term climate risk management cannot be unlearned... consideration of the financial implications of climate change is on an upward long term trajectory, transcending short-term political cycles.”

Landmark ruling on NSW coast

The NSW Land and Environment Court case *Pridel Investments Pty Ltd v Coffs Harbour City Council 2017 (NSWLEC 1042)* ruled in February against development at Emerald Beach on several grounds, including coastal processes and flooding hazards likely to be increased by climate change risks.

The Court ruling states climate change will accelerate coastal processes and make it much more likely that the site will be inundated from the sea, within the presumed 100-year life of the development.

Commissioner Susan Dixon did not accept that the development met the principles of ESD within the Coastal Policy and stated, “ESD is not about preventing development on the basis that it may experience a hazard sometime in the distant future. Nor is ESD about

curtailing development, as this would have negated impacts on social equity principles that underpin ESD. ESD, specifically the precautionary principle, requires more where there is a risk of serious harm or damage to the environment, life and property.

<https://www.caselaw.nsw.gov.au/decision/5897f721e4b0e71e17f56b92>

NCCARF adapts

In the May 2017 budget, the Commonwealth announced that NCCARF will receive \$300 000 to support it to join with the Department of the Environment and Energy and CSIRO to form an Adaptation Partnership that will support people making decisions about the risks of a changing climate.

The partnership will work to ensure the sustainability of CoastAdapt, and seek opportunities to partner with government, organisations and businesses to develop additional tools and resources to support adaptation in Australia and overseas. Discussions continue about the format of the partnership.

Please visit <https://www.nccarf.edu.au/> for more information or to access their myriad of resources.

8 Ways Cities Are Building Climate Resilience



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The International Institute for Sustainable Development (IISD) has undertaken a research series titled 'Building a Climate-Resilient City', which provides eight inspiring (albiet Northern Hemisphere) examples to increase resilience, including:

1. Supporting vertical farms in Chicago.
2. Using downscaled climate change data to benefit transport infrastructure in Iowa.
3. Saving residents money through smart grids in Texas.

4. Low-impact development standards for cleaner drinking water and less flooding in Ontario, Canada.
5. Eco-asset accounting of the aquifers, waterways, foreshores in Gibson, Canada.
6. Restoring natural wetlands in a dis-used mall in the city of St Paul USA has improved stormwater retention, prevented sewer overflow, increased local biodiversity and become a key part of the cultural life of the community.
7. Making room for rivers in 30 locations across the Netherlands has restored landscapes along riverways by removing silt, creating diversions to redirect excess water and restoring marshy riverine landscapes.
8. Using multiple bottom lines to specifically require consideration of climate change adaptation in cities planning and budgeting processes in Canada.

News from the Nodes...

Biodiversity Node

Bio Node partners Taronga Zoo, will be hosting a **Wildlife Disease Surveillance Workshop** on **Thursday 21 September, 9am-12pm**.

Outbreaks of wildlife diseases, particularly those transmitted by insect vectors, are frequently associated with climate patterns such as El Nino events. research led by Taronga Zoo is using long-term datasets contained in the Australian Registry of Wildlife Health to examine the relationship between climate variables and disease in free-ranging wildlife, to identify likely areas of disease emergence (hotspots) and assess subsequent risk to wildlife.

Dr Hannah Bender & Dr Karrie Rose are seeking scientists and biodiversity managers working in wildlife disease management to be involved in the development of best-practice protocols for disease surveillance and conservation management in NSW. The workshop will be interactive and attendees will have the opportunity to share their knowledge and experience in wildlife planning and disease management.

More details to come, but save the date! Please contact victoria.graham@mq.edu.au for further information.

Adaptive Communities Node

Prof. Mohamed Esham (recipient of a 2015 Endeavour Fellowship) has recently published a [paper](#) based on the link between food security and climate change in the journal *Environment, Development and Sustainability*.

Prof. Esham's Fellowship saw him involved with the Node's Western Enabling Regional Adaptation work. This has resulted in an ongoing collaboration with his University in Sri Lanka and the establishment of the phosphorus and climate smart agriculture ([PACSA](#)) project which is investigating the capacity of farmers, policy-makers and the agro-chemical industry in Sri Lanka to adapt to phosphorus scarcity and climate change via the development and testing of a novel rapid integrated

vulnerability assessment framework.

Coastal Processes and Responses Node

Node partner, **Risk Frontiers** has 'spun out' from Macquarie University and become an independent R&D company following a partnership of 23 years. See their media release [here](#).

Risk Frontiers will continue to be involved in the important work of the Coastal Node, undertaking work investigating risk, uncertainty and visualisation of coastal risks.

AdaptNSW annual event - Friday 10 November 2017

Please note in your calendars, the annual AdaptNSW event will be held on Friday 10 November 2017 at the Aerial Function Centre, UTS, Sydney. Further details to come.

NSW Adaptation Hub - recent journal articles

Bishop MJ, Mayer-Pinto M, Airoidi L, Firth LB, Morris RL, Loke LH, Hawkins SJ, Naylor LA, Coleman RA, Chee SY, Dafforn KA. Effects of ocean sprawl on ecological connectivity: impacts and solutions. *Journal of Experimental Marine Biology and Ecology*. 2017 Feb 13.

<http://www.sciencedirect.com/science/article/pii/S0022098117300618>

Bush A, Hoskins A J 2017 Does dispersal capacity matter for freshwater biodiversity under climate change? *Freshwater Biology* **62** 382-396

<http://dx.doi.org/10.1111/fwb.12874>

Cordell et al (2017) *Transforming cities: securing food and clean waterways through a transdisciplinary phosphorus approach in* (Fam et al. Eds) *Transdisciplinary research and practice for Sustainability Outcomes*. Routledge.

Cvitanovich, Cunningham, Dowd, Howden, van Putten (2017) Using Social Network Analysis to Monitor and Assess the Effectiveness of Knowledge Brokers at Connecting Scientists and Decision-Makers: An Australian case study.

Environmental Policy and Governance

Gough, Cunningham and Mander (2017) Societal Responses to CO₂ storage in the UK: media, stakeholder and public perspectives *Energy Procedia* in press.

Heery E C, Bishop M, Critchley L, Bugnot A B, Airoidi L, Mayer-Pinto M, Sheehan E V, Coleman R A, Loke L H L, Johnston E L, Komyakova V, Morris, R L, Strain E M A, Naylor L A and Dafforn K A (2017) Identifying the consequences of ocean sprawl for sedimentary habitats *Journal of Experimental Marine Biology and Ecology* [[pdf](#)]

Mander, Cunningham, Level, Gough (2017) Comparing online and offline knowledge networks of carbon capture and storage. *Energy Procedia in press*

Mortlock TR, Goodwin ID, McAneney JK and Roche K (2017) The June 2016 Australian East Coast low: Importance of Wave Direction for Coastal Erosion

Mukheibir, Boronyak-Vasco, Alofa (2017) Dynamic Adaptive Management Pathways for Drinking Water Security in Kiribati in W. Leal Filho (ed.), *Climate Change Adaptation in Pacific Countries*, *Climate Change Management*, DOI 10.1007/978-3-319-50094-2_17

Jobs | Awards | Nominations | Conferences

Jobs

The Office of Environment and Heritage Climate Change Adaptation team will be recruiting over the coming weeks. Please observe the [Work for NSW](#) website for further details.

Awards - nominations

2017 NSW Green Globes Climate Change Leadership Award recognises exceptional work and/or leadership in the field of climate change mitigation and adaptation in NSW. This may include, but is not limited to, initiatives that reduce greenhouse gas emissions; manage climate-change risks; empower communities and businesses to adapt to the impacts of climate change; lead the emerging low-carbon economy; or influence policies, practices and attitudes. Entries close 27 June 2017 www.environment.nsw.gov.au/funding-and-support/awards-and-recognition/green-globe-awards/awards-for-impact/climate-change-leadership-award

Awards – events

LGNSW Excellence in the Environment Awards – 11 October 2017, UTS Aerial Function Centre, Ultimo <https://www.lgnsw.org.au/events-training/excellence-environment-awards>

Upcoming conferences

4 August 2017 NELA National Conference ‘Addressing Past Harm, Managing Future Risks’ including discussion topics on climate disclosure obligations, and national and international climate change litigation activities http://www.nela.org.au/NELA/eflash/170330_Conference_Announcement.html

15-18 October 2017 Clean Air Society of Australia and New Zealand conference, ‘The Critical Atmosphere’ will examine the effects of climate change on human health and wellbeing and our capacity to effectively control and regulate air pollution <https://www.casanz.org.au/2017Conference/Default.aspx>

27-29 September 2017 Australian Association for Environmental Education ‘Make the change’ conference, will support sustainability education and engagement providers from all sectors- government, community and formal - to shape effective action into the future. <http://www.nswconference.org.au/>

29 October – 1 November 2017 EIANZ Annual Conference ‘Fronting up with wicked solutions’, confronts wicked problems by focusing on wicked solutions
<https://www.eianz.org/conference-information/conference/eianz-annual-conference>

8-10 November 2017 NSW Coastal Conference ‘The Next Wave’ will cover all aspects of coastal, estuarine and marine management, science and research, and education, planning, policy and law with representation from government, the private sector and community groups and the interested public
<http://www.coastalconference.com/>

10 November 2017 annual AdaptNSW event - please hold the date for our annual AdaptNSW event - further details to come!

28-30 November 2017 State of Australian Cities conference is the primary focus of the Australian Cities Research Network (ACRN) and meets every two years at an alternating city around Australia. The SOAC Conference is an opportunity to reconnect with academic colleagues and hear about the latest developments
<http://soac2017.com.au/>

3-8 December 2017 International Congress on Modelling and Simulation ‘Managing cumulative risks through model-based processes’. Conference themes include pragmatic policy evaluation, scenario modelling of uncertain futures under climate change, resource constraints, colliding 'catastrophes' and limited budgets

Nominations

Intergovernmental Panel on Climate Change is seeking nominations for AR6 author roles - nominations for author roles for the Sixth Assessment Report will be sought in September 2017. Information relevant to this nomination process will be detailed on the IPCC website <http://www.environment.gov.au/climate-change/climate-science/ipcc>

NSW Adaptation Hub outputs

for outputs of each of the nodes please visit the following sites:

Biodiversity Node, led by Macquarie University

<http://biodiversity.science.mq.edu.au/>

Adaptive Communities Node, led by the Institute for Sustainable futures, UTS

<https://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/climate-change/nsw>

Coastal Processes and Responses Node, led by the Sydney

Institute for Marine Science

<http://sims.org.au/research/long-term-projects/oeh-coastal-processes-node/>
