Biography

Katinka is a research scientist at the Botanic Gardens and Parks Authority in Perth, Western Australia. Her fields of interest include climate change impacts on forest and woodland communities, fire ecology and restoration of degraded systems

Global Change

Wednesday, November 29, 2017

4:00 PM - 6:00 PM

Cypress #2

Oral presentation

EcoTAS abstract

Heat waves have profoundly impacted biota globally over the past decade, especially where their ecological impacts are rapid, diverse, and broad-scale. Currently unfolding ecological events of widespread tree die-off and coral bleaching are among the most dramatic examples of climate change, providing clear warnings about ecological vulnerabilities to warming in general, and to heat waves in particular. Although usually considered in isolation for either terrestrial or marine ecosystems, heat waves can straddle ecosystems of both types at subcontinental scales, potentially impacting much larger areas and taxonomic breadth than previously envisioned. Using climatic and multi-species demographic data, we show that a massive heat wave event triggered abrupt, synchronous, and multi-trophic ecological disruptions, including mortality, demographic shifts and altered species distributions. Tree die-off and coral bleaching occurred concurrently in response to the heat wave, and were accompanied by terrestrial plant mortality, kelp dieback, population crash of an endangered terrestrial bird species, plummeting breeding success in marine penguins, and outbreaks of terrestrial wood-boring insects and marine invasive mussels. These multiple taxa and trophic-level impacts spanned >300,000 km2, encompassing one terrestrial Global Biodiversity Hotspot and two marine World Heritage Areas. The rapid, broad-scale shifts that we document from a single heat wave are alarming given projected increases in heat wave frequency and extent. The subcontinental multi-taxa context documented here reveals that terrestrial and marine biotic responses to heat waves do not occur in isolation, implying that the full extent of ecological vulnerability to projected increases in heat waves is grossly underestimated.

Ruthrof K [1,2] , Breshears D [3] , Fontaine J [2] , Froend R [4] , Matusick G [5] , Kala J [2] , Miller B [1] , Mitchell P [7] , Wilson S [8] , van Keulen M [2] , Enright N [2] , Law D [3] , Wernberg T [6] , Hardy G [2]

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Tree die-off meets coral bleaching in massive terrestrial-marine multi-taxa heat wave jolt

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EcoTAS17 Presenters

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Kiri (Reihana) Spraggs

EcoTAS abstract

The widespread degradation of water quality and quantity and its state of mauri, is a significant issue for Māori. This issue is represented by widespread degradation of

Open session (1)

Monday, November 27, 2017

3:45 PM - 5:45 PM

Sugarloaf Room

Oral presentation