Hannah is the final throes of her PhD, where she studied how catastrophic wildfires impact plants, animals and fungi. Hannah is passionate about cross-continental collaborative research, particularly in applied fire ecology and management, and is currently seeking postdoctoral employment (!).

Despite the increasing frequency of mega-fires, we have little understanding of how post-fire interactions between plants and fungi impact ecosystem regeneration. This is largely due to complexity: assessing hundreds of individual plant species, thousands of fungi taxa and how each interact is unmanageable. A simplified approach is to survey indicator species and/or indicator guilds that are broadly representative of how plant-fungal interactions may have been impacted. This approach requires identifying taxa that are both sensitive to a measurable factor of fire (e.g.; severity) and have close ecological interactions (e.g.; mycorrhizal symbiosis). We sought to determine if certain plant species and fungal guilds could be used as indicators of overall fire impacts on three dominant ecosystem types burnt in a mega-fire in southwest Australia. We undertook flora surveys and sampled soil at unburnt, low and high severity sites in each vegetation type and used ITS2-targeted PCR amplification and sequencing, and FUNGUILD to assign functional guilds. We used permutation tests to identify the plant species and the fungal guild that were contributing most to the differences in community structure at high severity sites for each vegetation type, then applied generalised linear models to determine if their response to fire severity were correlated. For all ecosystem types, EM diversity was most negatively impacted by high severity, and was highly correlated with one or two ectomycorrhizal plant species. We propose that these plant species and fungal guilds could be used as indicators of the broader ecological impacts of fire severity for these diverse ecosystems.

Towards sustainable cities: native plants on experimental rooftops promote higher insect abundance than exotics

Dr Maria Silvina Fenoglio[1], Dr Julia Tavella[2], Dr Hernán Beccacece[1], Dr María Laura Moreno[3], Dra Adriana Salvo[1], Biol Diego Fabian[1], Dra Elizabet Estallo[4], Dra Ana Calviño[1]
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POSTERS at ESA20, December 1, 2020, 18:00 - 19:30

Biography:
María Silvina Fenoglio is a scientific researcher at Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and National Geographic explorer, interested in urban and community ecology, with a focus on arthropod diversity patterns and ecological interactions in urban green spaces.

As urbanization continues growing, green roofs design emerges as a promising alternative to enhance plants and animals within cities. The scarce evidence available, nevertheless, gives no clear advantage of plants' origin on insect abundance. By using an experimental approach where the origin of the plant species (native-exotic) was manipulated across an urbanization gradient, we evaluated their efficiency as surrogate habitats for insects in Cordoba city, central Argentina. To do so we installed, in each of 30 houses, two blocks of a modular extensive green roof system (3m2 each), with either native or exotic plant species (6 species each). In March 2019 we used pan yellow traps to sample insects, whereas the level of urbanization of each house was estimated by using NDVI and surface temperature in a buffer of 400m. A total of 9024 insects from 10 taxonomic orders were registered, being Diptera (40%), Hymenoptera (21%), Hemiptera (21%) and

Thysanoptera (14%) the dominant groups. We found a significant effect ($\chi 2=11.58$; $p<0.0001$) of the origin of plant species on total insect abundance, but non-effect of urbanization degree. Native plants sustained significantly more insects (median= 165,5; q1-q4=78.25-419) than exotics (median=115; q1-q4=78,25-312). This suggests that native plants on green roofs promote a higher abundance of insects than exotics probably due to the first share a greater evolutionary history with local fauna. On the way to achieve more sustainable, greener cities, our results highlight that the origin of vegetation should be taken into account in green roof design to better achieve urban insect conservation.

Testing the impact of Phantom Alternatives on floral choice by Bumblebees, Bombus impatiens

Ms Caitlyn Forster[1], Dr Ros Gloag[1], Prof Dieter Hochuli[1], Dr Thomas White[1], Assoc Prof Tanya Latty[1]
[1]*The University of Sydney, Camperdown, Australia*

SYMPOSIUM: Behavioural response to ecological challenges (1) - Caitlyn Forster, December 1, 2020, 10:00 - 12:05

Biography:
Caitlyn is a PhD student at the University of Sydney studying using behavioural economics to understand foraging choice in insects

The presence of a highly desirable but unavailable option can impact consumer choice by influencing the consumer's preferences of the remaining options. These phantom alternatives can be used to nudge consumers into buying target products. Bumble bees foraging for flowers are faced with many choices and may make decisions in similar ways to people. It is possible they can be influenced by a phantom alternative with through flowers that are empty of nectar.
Here we investigate the effect of attractive phantom alternatives on the choice behaviour of groups of Bumblebees, Bombus impatiens. Bees were presented with either a binary choice set containing two feeder types ('the target' and 'the competitor'), or a trinary choice set containing the target, the competitor and one a phantom alternative. Individual bees showed a range of responses to phantom decoys, but no persistent shift in preference. We did not observe an effect at the group-level, rather, individual bees were more likely to visit flowers with other bees present. Our results suggest the importance of social behaviour when applying human consumer behaviour in ecologically relevant settings.

Hey neighbour! Kin-based social interactions in an asocial solitary marsupial, the northern quoll (Dasyurus hallucatus)

Ms Natalie J. Freeman[1], Dr Skye F. Cameron[2], Miss Jessica M. Latimer[1], Assoc Prof Anne W. Goldizen[1], Assoc Prof Diana O. Fisher[1], Professor Robbie S. Wilson[1]
[1]*University of Queensland, Brisbane, Australia,* [2]*Australian Wildlife Conservancy, Mornington Wildlife Sanctuary, Derby, Australia*

SYMPOSIUM: Behavioural response to ecological challenges (2) - Natalie Freeman, December 1, 2020, 14:00 - 15:30

Biography:
Natalie is a PhD candidate of the Wilson Performance Lab of University of Queensland studying the personality and performance of northern quoll on Groote Eylandt, NT.

While most carnivorous marsupials are solitary and display territorial behaviour, some species of Dasyurids exhibit limited social behaviour. Rough play between denning young has been recorded for several quoll species, but few interactions have been observed between adults. The current decline of small mammals in