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15th International Conference on Ecology
and Management of Alien Plant invasions



EMAPi 2019

Integrating research,
management and policy

Book of abstracts

Edited by P. Pyšek, J. Pergl & D. Moodley

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CONFERENCE PROGRAMME

MONDAY 9 September 2019

15.00 registration opens

18:00–19.00

(KEYNOTE 1) Marc Cadotte: Dissecting the success and impact of urban invasions

Welcome party & poster session

TUESDAY 10 September 2019

8.30 conference opening

(Chair: Cristina Maguás)

9.00–9.40 (KEYNOTE 2)

Jane Catford: Unravelling context dependency in invasion science

SECTION 1 – SPECIES INVASIVENESS: INTRODUCTION, NATURALIZATION SPREAD & MONITORING

- 9.40–10.00 John Wilson: Invasion frameworks: an assessment of usage and options for improvement
- 10.00–10.20 Yan Sun: When and how does “origin” matter: from macro-ecology back to experimental ecology to elucidate drivers of invasion success?
- 10.20–10.40 Thomas Carlin: Plant invasions in non-analogue climates reflect phenotypic plasticity rather than contemporary adaptation

coffee break 10.40–11.10

- 11.10–11.30 Marco Brendel: Does time heal wounds? Effects of climatic dissimilarity on population dynamics of invasive plants revealed by residence time
- 11.30–11.50 Heidi Hirsch: A global assessment of the introduction history and population genetic characteristics of the commercially important invasive tree *Acacia dealbata* Link.
- 11.50–12.10 Luís González: An Atlantic Odissey: the fate of invading propagules across the coastline of the Iberian Peninsula
- 12.10–12.30 (flash talks)
- Mauricio Mantoani: Surviving the cold: impacts of an extreme weather event on the growth and phenology of *Gunnera tinctoria*
- Andrei Costan: Reduced herbivory does not increase competitive ability or shift chemical defences in alien *Rumex*
- Francesco Guarino: Epigenetic aspects involved in plant invasiveness
- Sandra Savinen: Applications of bioinformatics to identify genotypic differentiation in alien plants

lunch 12.30–14.00

- 10.30–10.40 (flash talks)
 Sandra Skowronek: Who's next? How species distribution models can and should support the identification of new invasive plant species.
 Laura Jones: Driving up standards of invasive weed management through training and assessment: a United Kingdom success story

coffee break 10.40–11.10

SECTION 4 – IMPACT & MANAGEMENT

- 11.10–11.30 Pilar Castro-Diez: Impacts of four common non-native tree species on regulating ecosystem services
 11.30–11.50 Katharina Dehnen-Schmutz: Impacts of alien plants at regional levels
 11.50–12.10 **Joaquim Silva**: Fire hazard and plant invasions – the cases of *Hakea sericea* and *Acacia dealbata* in Portugal
 12.10–12.30 Tomos Jones: Ornamental plants: a threat to the environment due to climate change?
 12.30–12.40 (flash talks)
 Sjirk Geerts: The absence of keystone indigenous trees inhibits bird recovery up to a decade after invasive tree removal from riparian habitats
 Barbara Tokarska-Guzik: Evaluation of invasive plant species in Poland - methods adopted and results of their application as a basis for practical action

lunch 12.40–14.00

(Chair: Phil Hulme)

14.00–14.40 (KEYNOTE 6)

Melodie McGeoch: From data to decision for policy on biological invasions

- 14.40–15.00 Qiang Yang: Global homogenization of flowering plants by naturalized species
 15.00–15.20 Thomas Wohlgemuth: Comparative effects of non-native tree species on forest ecosystems in Europe
 15.20–15.40 Urs Schaffner: Integrating ecological and socio-economic impacts of *Prosopis*, a woody invasive alien species, to inform management
 15.40–16.00 (flash talks)
 Jacob Cowan: Invasive and native grasses exert negative plant-soil feedback effects on *Artemisia tridentata* whereas conspecific effects are neutral.
 Iris Stiers: Removal of alien plants: any effect on native macrophyte recovery and pollinator services?
 Ramya Ravi: Plural realities of plant invasions: *Prosopis juliflora* in the Banni grassland, India
 Bruce Osborne: Plant invasions and greenhouse gas emissions

coffee break 16.00–16.20

- 16.20–16.40 Florencia Yannelli: Soil legacy effects of Acacia invasions and their implications for restoration in South Africa's Cape Floristic Region
 16.40–17.00 Heinz Müller-Schärer: Predicting benefits and risks of biological control of the invasive common ragweed in Europe: from ecological to evolutionary studies
 17.00–17.20 Jael Palhas: Modelling the biocontrol of an invasive tree by a bud-galling wasp, *Trichilogaster acaciaelongifoliae*

Fire hazard and plant invasions: the cases of *Hakea sericea* and *Acacia dealbata* in Portugal

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Alien plant invasions may change fire regimes by increasing the fire hazard. This work presents results on fuel characteristics and fire behavior of plant communities dominated by two aggressive, fire-adapted Australian species that are rapidly expanding in Portugal and elsewhere: *Hakea sericea* and *Acacia dealbata*. This work, based on the ongoing Aliens & Flames project, aims at: (i) assessing the fuel characteristics of plant communities dominated by these two species, (ii) simulating the potential fire behavior of these fuel complexes, and (iii) comparing these results with potential fire behavior in native plant communities. Fuel samples were collected at nine different sampling sites (n=9) for each species, reasonably representative of intermediate-mature developmental stages. *Hakea sericea* stands were in general thick shrublands ranging between 1.5 and 4.5 m height, whereas *A. dealbata* stands generally had a clear separation between the canopy and the surface fuel layers, with trees up to 10 m in height. Fuel characterization followed standard methodology aimed at obtaining the fuel parameters necessary to run the Rothermel fire behavior model, using the BehavePlus 5.0.5 software. Some fuel parameters were obtained from the literature and from allometric relationships developed within the project. Fire simulations were performed using a very dry moisture scenario, with 5km/h wind speed and zero slope. Fuel characteristics and simulated fire behavior were averaged and compared with native plant communities (shrublands, broadleaves) characterized by Fernandes et al. (2009), using one-sample t-tests.

The two species presented remarkably distinct fuel characteristics. The *H. sericea* stands had a higher load of fine fuels than the native shrubland. The fuel complexes associated to *A. dealbata* stands showed complete absence of shrubs and herbaceous layer. The litter (L+F) layer was particularly compacted, with nearly 8 t ha⁻¹, concentrated in only 2 cm of fuel depth, because of the very fine leaves that accumulate on the forest floor. The results obtained with the fire simulations were consistent with the fuel characteristics. The fuel complex dominated by *H. sericea* presented the highest flammability followed by the shrubland model, whereas the native broadleaf model showed the lowest flammability and there was no fire propagation in the *A. dealbata* stand.

These preliminary results suggest that generalizations about the higher fire hazard of plant communities in areas invaded by alien woody species may not always hold true. While areas invaded by *H. sericea* seem to present a high fire hazard, because of the high loads of 1h fuels and the vertical continuity of these plant formations, on the contrary, mature *A. dealbata* stands showed a low fire hazard, mostly because of the absence of shrubs in the understory and the very compact fuel bed. Preliminary burn experiments in the same study plots, were consistent with the fuel data. While flame lengths in *H. sericea* plots reached 3 m, there was strong difficulty in burning the litter floor of *A. dealbata* stands, for similar environmental conditions. Our results for *H. sericea* are apparently contradictory to those of Van Wilgen and Richardson (1985) who obtained a higher fire hazard in native shrublands of South Africa. However, as these authors point out, the limitations of the Rothermel model must also be taken into account when interpreting these fire behavior results.

Van Wilgen B. W. & Richardson D. M. (1985) The effects of alien shrub invasions on vegetation structure and fire behaviour in South African fynbos shrublands: a simulation study. J. Appl. Ecol. 22: 955–966.

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