Investigating the impact of ecological restoration on wildfire behaviour metrics

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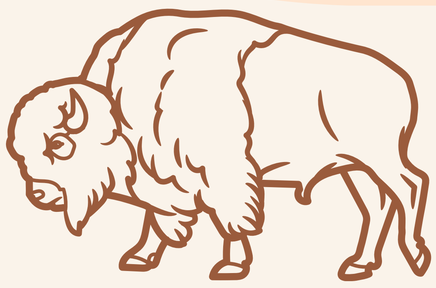
(1) Introduction

Ecological restoration (ER) projects are **growing in popularity** across many regions of the world.

We define ER as "*the process of assisting the recovery of a degraded, damaged, or destroyed ecosystem to reflect values regarded as inherent in the ecosystem and to provide goods and services that people value*" Martin, 2011.

There are few studies **incorporating wildfire risk** as a potential impact of ecological restoration.



(2) Aims

(1) quantify potential wildfire behaviour metrics in ER sites using current fuel loads.
(2) use collaborative, transdisciplinary research methods to project the impact of ER activities on future fuel loads
(3) measure the impact of ER activities on future potential wildfire behaviour metrics.

(3) Methods

- Four case study sites selected from Europe (England, Spain) and North America (Maine, Colorado)
- WildfireAnalyst used to run **wildfire behaviour simulations** for each site.
- Four scenarios utilised - two **fuel loading scenarios** (present day and future) and two **weather scenarios** (moderate and extreme).
- To create the **future vision** of the site, the site managers were directly involved in creating a fuel load scenario reflecting their ER goals.

(4) Results (Preliminary)

This research is currently being completed as part of a wider PhD project on Fire Resilient Landscapes, funded by the EU.

- Preliminary results show that changing **only fuel loads** from present to future scenarios **does not** have a significant impact on fire behaviour metrics.
- However, **altering weather scenarios** from moderate weather to extreme weather, combined with altered fuel loads, **increased** almost all fire behaviour metrics across all case study sites.

(5) Conclusions

- Wildfire modelling using WA offers **opportunities and challenges** across diverse case studies
- Working directly with site managers offers potential for collaborative research in this field
- Ecological restoration may increase wildfire behaviour metrics under **extreme weather conditions**

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