

Project Plan SP 2018-046

Potential perverse outcomes and possible positive synergies among different fire and weed management combinations in urban biodiversity and fire risk management.

Kings Park Science

Project Core Team

Supervising Scientist	Ben Miller
Data Custodian	Ben Miller
Site Custodian	

Project status as of July 18, 2018, 12:49 p.m.

Update requested

Document endorsements and approvals as of July 18, 2018, 12:49 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted
Biometrician	granted
Herbarium Curator	not required
Animal Ethics Committee	not required

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Biodiversity and Conservation Science Program

Kings Park Science

Departmental Service

Service 5: Conserving Habitats, Species and Ecological Communities

Project Staff

Role	Person	Time allocation (FTE)
Supervising Scientist	Ben Miller	0.0
Research Scientist	Katinka Ruthrof	0.0

Related Science Projects

Proposed period of the project

Oct. 30, 2014 – Oct. 30, 2024

Relevance and Outcomes

Background

Urbanisation leads to many direct and indirect impacts in natural remnants, including eutrophication, frequent disturbance, loss of connectivity, loss of key faunal elements and their ecological functions, additional heat island stress, climate and groundwater change. In many urban and peri-urban bushland reserves, changed fire regime and weed invasion, compound these threats and each other, but are potentially the easiest to manage. Invasive grasses, in particular change fuel dynamics (accumulation, structure, connectivity, availability), and their spread and cover is enhanced by fire. Clearly the stakes are high here too, with their high exposure, both the fire risk to neighbors and visitors and the biodiversity and community values of these remnant reserves are acute. As invasive grasses are ubiquitous in urban bushlands, burning to manage fuels, without weed management, might lead to perverse outcomes for both biodiversity and fire hazard. This long-term study examines the impacts of different proposed or actual bushland management approaches on fire risk, biodiversity conservation and weed invasion.

In this study we compare the abundance and cover of native and non-native plant species, vegetation structure, and the distribution and abundance of fuels with both pre-treatment baselines, and across treatments and controls. The maximal design includes six treatments, with three burn treatments – fire exclusion, and ‘medium’ and ‘short’ rotations (~12-14 and 6-8 years) – each crossed by the presence and absence of standard weed management approaches. With the time component of these treatments, the study is inherently long-term, and likely site, burn treatment and year differences require increasing replication. The program commenced with pre-burn survey in spring 2014 for a burn implemented in autumn 2015 in Kings Park, follow-up monitoring of this site and similar work for sites burned in Bold Park, Jandakot Regional Park and Beeliar Regional Park (Yangebup) continuing. Preparations are underway for two other in 2018 or 2019.

Aims**Expected outcome****Knowledge transfer****Tasks and Milestones****References****Study design****Methodology****Biometrician's Endorsement**

granted

Data management**No. specimens****Herbarium Curator's Endorsement**

granted

Animal Ethics Committee's Endorsement

not required

Data management**Budget****Consolidated Funds**

Source	Year 1	Year 2	Year 3
FTE Scientist			
FTE Technical			
Equipment			
Vehicle			
Travel			
Other			
Total			

External Funds

Source	Year 1	Year 2	Year 3
Salaries, Wages, Overtime			
Overheads			
Equipment			
Vehicle			

Source	Year 1	Year 2	Year 3
Travel			
Other			
Total			