The quokka is a threatened critical weight range mammal that is endemic to south-west Australia. On the mainland it is restricted to dense riparian vegetation, or ecotypes with complex vegetation structure. It also occurs on Bald Island off the south coast, and in abundance on Rottnest Island but with poor genetic diversity. The quokka has declined significantly since European settlement, with less than 50% of its former range currently occupied. It is listed as Vulnerable by the EPBC Act 1999.

Populations in the northern jarrah forest are small, highly fragmented, and threatened by a number of processes including introduced predators, feral pigs, climate change (particularly decreased rainfall), and fire (Dundas et al., 2017). Wildfire is known to devastate quokka populations, and therefore prescribed burning is an important tool to manage habitat and minimise the potential impact of wildfire (Hayward et al., 2005). However, the considerations around prescribed burning in and around quokka habitats is becoming more complex with a drying climate, the vulnerability of fragmented populations, and the uncertainties around quokka movements when fire is present.

A recent studies in the southern forests region have identified the retention of vertical vegetation structure and multiple unburnt patches across >20% of the total area, as the most important variables for recolonization of burnt areas by quokkas (Bain et al. 2016). These outcomes were associated with high surface moisture, low soil dryness and slow fire rates of spread (Bain et al, 2016). Quokka presence post-burn was assessed using faecal pellet counts in the Bain et al. (2016) study. Whilst informative, pellet counts do not determine the fate of individual quokkas, or their use of the landscape post-burn, in the short to medium term.

A number of large-scale, strategic burns are planned over the next 5 years in the northern jarrah forest that will impact the critical habitat of key quokka populations. This presents a unique opportunity to assess the interactions between quokkas and fire, and to explore the threatening processes that may alter in response to fire, such as predation pressure and pig activity.

The purpose of this project is to inform fire management practices to effectively preserve quokka populations in the northern jarrah forest. Specifically, the aims of the project are to:

- determine the survival of quokkas in the short to medium term following a prescribed burn or bushfire,
- assess the effectiveness of exclusion areas within burns,
- explore quokkas use of the landscape in the medium-term, post-fire
- consider the threats minimizing the recovery of quokkas post-fire, and
- analyse habitat attributes to improve our understanding of the factors driving quokka presence in the northern jarrah forest

**Project partners:** Department of Biodiversity, Conservation and Attractions (DBCA), ALCOA, WWF, Python Ecological Services

**Collaboration:** This project will have collaborative opportunities with the southern forests quokka recovery project and students [http://www.wwf.org.au/what-we-do/species/quokka#gs.nU3tsdc](http://www.wwf.org.au/what-we-do/species/quokka#gs.nU3tsdc)
**Funding:** Operational funding provided by DBCA & ALCOA. Student will need to apply for a postgraduate scholarship through preferred university, and may apply to DBCA for a top-up

**Contact:** Dr Nicole Willers, Ecologist, Department of Biodiversity, Conservation and Attraction. Ph: 0418 992 557; email nicole.willers@dbca.wa.gov.au

Photographs: a) quokka in northern jarrah forest b) remote camera in quokka habitat. Parks and Wildlife Service – DBCA

**References:**


