Monitoring postfire survivorship and recolonisation of quokkas (*Setonix brachyurus*) in southwest Australian forests

Karlene Bain[1], Merril Halley[2], Bradley Barton[3], Adrian Wayne[3], Janine Liddlelow[3], Ian Wilson[3], Julia Wayne[3]

1. Python Ecological Services, Wembley, Western Australia, Australia

2. WWF-Australia, Wembley, Western Australia, Australia

3. Warren Region, Department of Parks and Wildlife, Manjimup, Western Australia, Australia

The effect of large scale and homogenising wildfires on threatened species is of increasing concern in southern Australia, given predictions for an increase in the frequency and severity of such fires. We assessed the effect of a fire, 98,000ha in size, on occupancy patterns for the quokka (*Setonix brachyurus*), a threatened macropod endemic to south-western Australia. The fire resulted in the loss of 77 % of known sub-populations. All post-fire activity by quokka was restricted to the edge of the fire or to a small number of isolated internal sites. Internal refuge sites were smaller than 0.5 ha, were surrounded by intensely burnt vegetation, and contained low densities of individuals. Occupancy of the post-fire environment was strongly influenced by retained vegetation structure (3-7 layers), presence of sedges in the understorey, low areas of pig damage (< 10 m^2) and proximity to unburnt canopy (0-189 m). A large proportion of the fire-affected area was unoccupied, with large distances (up to 36 km) separating occupied areas. Cumulative threats that reduce survivorship or increase the distance between suitable habitat patches could reduce the ability of the species to recolonise core areas of the fire. This could in turn affect metapopulation function in this area. To avoid this, it is important that internal refuge patches are protected, habitat connectivity is re-established, and cumulative threats such as prescribed burning, introduced predators and feral pigs are managed.

12th International Mammalogical Congress Perth, Western Australia 9th -14th July 2017

ABSTRACT BOOK