Frequency, geographical distribution and potential risk factors associated with a papillomatosis and carcinomatosis syndrome in the endangered western barred bandicoot (*Perameles bougainville*)

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Once widespread across western and southern Australia, wild populations of the western barred bandicoot (*Perameles bougainville*) are currently only found on Bernier and Dorre Islands, Shark Bay, Western Australia. A debilitating skin disease is hindering conservation efforts to prevent the extinction of this endangered Australian marsupial. Affected animals develop multicentric proliferative lesions involving cutaneous and muco-cutaneous epithelia, which progress to form large masses that demonstrate malignant transformation into carcinomas. A novel virus, tentatively designated the *Perameles bougainville* papillomavirus type 1 (PbPV1), has recently been detected in association with these skin lesions. *P. bougainville* expressing skin lesions associated with PbPV1 have been detected on Bernier Island and in captive breeding facilities comprising all or a proportion of founder animals from Bernier Island. No evidence of skin disease or PbPV1 has been found in *P. bougainville* on Dorre Island nor captive breeding facilities involving founder animals purely from Dorre Island. The development of malignancy involves complex interactions between multiple factors both exogenous and endogenous to the host. In this study, frequency of the PbPV1 associated papillomatosis and carcinomatosis syndrome in geographically isolated wild and captive *P. bougainville* populations are examined to aid in determination of the origin of this disease. In addition, potential risk factors are explored in order to investigate a multifactorial aetiology. Some discussion is dedicated to methods for the screening of disease during selection of captive breeding colony founder animals, as well as to the control and prevention of this virally associated debilitating syndrome. Results and conclusions from this study will provide guidance for the future management and conservation of *P. bougainville*. 