

Significant Impact Criteria for Western Ringtail Possum

Significant Impact Criteria	Impact Outcome
<i>An action is likely to have a significant impact on an endangered species if there is a real chance or possibility that it will:</i>	
Lead to a long-term decrease in the size of a population	<p>Unlikely</p> <p>The Western Ringtail Possum (WRP) is a nocturnal species that roams through the vegetation canopy at night, feeding on leaves of eucalypt, marri and peppermint trees and other fruits and flowers. The ability of the WRP to persist in urban areas is thought to be dependent on the retention of substantial Peppermint trees and natural or artificial canopy connectivity (e.g. fence lines and rooftops). The WRP is known from the Busselton and Vasse area and was recorded in both field surveys (GHD 2017a, 2017b).</p> <p>These records consisted of dreys, dreys and scats and isolated scats on the margins of the development footprint in remnant vegetation. The total area of primary corridor and supportive habitat identified is 7.88 ha. Of this area, 0.01 ha is in Very Good to Good Condition, 0.28 ha is in Good to Degraded Condition and 7.59 ha is in Degraded of Completely Degraded condition (GHD 2017b).</p> <p>The highest density of WRP is found along the coastal strip on the southern Swan Coastal Plain near Busselton (DPaW 2015). Given the high density of WRP in the regional area it is unlikely the clearing associated with this Project will lead to a long term decrease in the size of the population. Clearing proposed for the project is located along the existing VDD easement, adjacent to the existing drain. Furthermore, adjacent to the development footprint, there is a significant amount of suitable habitat available for the WRP to utilise. Therefore, it is considered unlikely that clearing of up to 7.88 ha of primary corridor and supportive habitat along the length of the VDD corridor will result in a long term decrease in the size of a population of WRP.</p>
Reduce the area of occupancy of the species	<p>Unlikely</p> <p>The Project is unlikely to substantially reduce the area of occupancy for WRP. The Project may reduce the overall area of potentially suitable habitat for WRP as a result of direct habitat loss from clearing. Although it is recognised that clearing of vegetation within the development footprint (in particular Peppermint trees) will result in the localised loss of habitat for this species, it is not considered that the clearing represents a significant threat to the WRP species given the small area of clearing in the context of the broader region. Adjacent to the development footprint there is substantial areas of suitable habitat for WRP. Searches of the DPaW <i>Naturemap</i> database (DPaW 2007–) demonstrate WRP have previously been recorded adjacent to the development footprint within the aforementioned habitat. The removal of 7.88 ha of habitat within the development footprint may have an impact on the local population and increase pressure on adjacent habitat areas however the removal of this habitat is not considered to be significant for the WRP species.</p>
Fragment an existing population into two or more populations	<p>Unlikely</p> <p>The ability of Western Ringtail Possums to survive in urban areas is thought to be dependent on the retention of substantial Peppermint trees and natural or artificial canopy connectivity (e.g. rooftops or fence lines). Existing urban and semi-urban areas including Busselton are known to support viable populations of Western Ringtail Possums (Jones <i>et al.</i> 1994 in Green Iguana 2007). Impacts of urban developments within Western Ringtail Possum habitat are generally manageable through the retention of habitat and corridor linkages (Burbidge and de Tores 1998). The existing landscape within the development footprint is already highly fragmented with the existing VDD likely a barrier to the movement of WRP. The vegetated areas adjacent to the development footprint provide adequate linkages between patches of habitat for WRP. The clearing of 7.88 ha of primary corridor and supportive habitat within the development footprint is unlikely to fragment a population into two or more populations given the adjacent vegetation which provides adequate corridors between patches of habitat.</p>
Adversely affect habitat critical to the survival of a species	<p>Unlikely</p> <p>The Project is unlikely to affect habitat critical to the survival of WRP. Ideal habitat as defined by the species recovery plan (DPaW 2014) is comprised of long unburnt</p>

	<p>mature remnants of peppermint (<i>Agonis flexuosa</i>) woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels); other habitats comprises of jarrah (<i>Eucalyptus marginata</i>)/marri (<i>Corymbia calophylla</i>) forests and woodlands with adequate hollows, coastal heath, myrtaceous heaths and shrublands, Bullich (<i>Eucalyptus megacarpa</i>) dominated riparian zones and karri forests.</p> <p>Habitat critical to the survival of a species refers to areas of habitat utilised for foraging, breeding, roosting or dispersal, areas necessary for the long-term maintenance of a species, areas necessary to maintain genetic diversity or for the reintroduction of populations or recovery of the species (DotE 2013).</p> <p>During the field surveys, WRP individuals (GHD 2010), scats and dreys (GHD 2017a, 2017b) were recorded indicating that the habitat is used for foraging, dispersal and breeding. Up to 7.88 ha of primary corridor and supportive habitat would be cleared for the Project, adjacent to the VDD. Of this area, 0.01 ha is in Very Good to Good Condition, 0.28 ha is in Good to Degraded Condition and 7.59 ha is in Degraded of Completely Degraded condition.</p> <p>Suitable Western Ringtail Possum habitat within the development area is not considered to be critical to the survival of the species.</p>
Disrupt the breeding cycle of a population	<p>Unlikely</p> <p>Western Ringtail Possums in some coastal populations have been found to breed year round with breeding peaks in April to July and September to November (DPaW 2014). If construction is undertaken outside of these months there is unlikely to be a significant impact to the breeding cycle of a population. Construction associated with the Project is planned to be undertaken during the dry season, between November and May and is therefore outside of peak breeding times for Western Ringtail Possums.</p>
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	<p>Unlikely</p> <p>The works associated with the Project, may modify and destroy a proportion of WRP habitat but not to the point that the species would decline. Although the Project will decrease the availability of habitat within the development footprint there is sufficient suitable habitat adjacent to the development footprint and within the regional area. Western Ringtail Possums currently utilising the habitat within the development footprint will likely move to these adjacent suitable habitats.</p>
Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat	<p>Unlikely</p> <p>The European fox (<i>Vulpes vulpes</i>) and cats (<i>Felis catus</i>) are known to be major predators of the WRP. Susceptibility to predation is increased in WRP when the species needs to come to the ground (DPaW 2014). The Project may exacerbate fragmentation locally leading to increased time on the ground therefore increasing their vulnerability to predation. It is likely however that these invasive species are already established within the development footprint, therefore the Project is unlikely to have a significant impact in this regard.</p>
Introduce disease that may cause the species to decline	<p>Unlikely</p> <p>WRP habitat within the site is associated with coastal Peppermint woodlands. Peppermint (<i>Agonis flexuosa</i>) is resistant to <i>Phyophthora cinnamomi</i> (Dieback), hence WRP habitat is not considered to be at risk from Dieback. The Project is unlikely to introduce disease that may have an adverse impact on the WRP.</p>
Interfere with the recovery of the species.	<p>Unlikely</p> <p>The Project is unlikely to interfere substantially with the recovery of WRP as it is unlikely to interfere with the recovery objectives outlined in the recovery plan for the species (DPaW 2014). The recovery objectives include:</p> <ul style="list-style-type: none"> • To maintain viable populations of WRP by protecting and effectively managing habitat critical for survival • To mitigate threatening processes constraining the recovery of WRP • To achieve an evidence-based management approach for WRP • To manage displaced, orphaned, injured and rehabilitated WRP for the best conservation outcome for the species • To raise awareness of the status of WRP and gain support and behaviour change to improve mitigation of threatening processes.

Legend - For the purpose of this assessment:

‘population of a species’ is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to an endangered species, occurrences include but are not limited to:

- a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion

‘invasive species’ is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

‘Habitat critical to the survival of a species or ecological community’ refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act (DotE 2013).

References

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Department of the Environment (DotE) 2013, *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*, Canberra.

GHD 2017a, *Vasse Diversion Drain Upgrade Flora and Fauna Study*. Prepared for Water Corporation, April 2017.

GHD 2017b, *Vasse Diversion Drain Fauna and Vegetation Assessment - Additional Survey Area*. Prepared for Water Corporation, April 2017.

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