FERAL ANIMAL ASSESSMENT

SCENIC RIM TRAIL, MAIN RANGE

Prepared for
Gainsdale Pty Ltd

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Managing Director

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SCENIC RIM TRAIL, MAIN RANGE

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Table of Abbreviations

BAAM	Biodiversity Assessment and Management Pty Ltd
DPEMP	Development Proposal and Environmental Management Plan
DoEE	Commonwealth Department of Environment and Energy
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
NC Act	Queensland Nature Conservation Act 1992
RE	Regional Ecosystem

1.0 INTRODUCTION

The Scenic Rim Trail – Thornton Trailhead to Spicers Peak Nature Refuge Development Proposal and Environmental Management Plan (DPEMP) committed Gainsdale Pty Ltd to undertaking surveys for feral animals as a component of other surveys conducted to inform the Project. This report provides the results of all feral animal detections during these surveys.

2.0 FERAL ANIMAL SURVEY METHODS

Surveys for feral animals involved four periods of survey, as follows:

- a preliminary survey conducted over a 5-day period 7-11 November 2016 that included deployment of three remote cameras over two consecutive nights in each of the northern portion of the project area between the Thornton Trailhead and Mt Mistake (7-9 November) and on the Amphitheatre track in the Goomburra section (9-11 November), spotlighting surveys conducted at night along vehicle tracks, and active searching during the day for signs of feral animals such as tracks, scats and the distinctive diggings of feral pigs;
- a targeted frog assessment survey conducted over three days and two nights 20-22 March 2017 in the Goomburra section that included spotlighting surveys conducted at night during and after rainfall along vehicle tracks, hiking trails and creeks, and active searching during the day for signs of feral animals such as tracks, scats and the distinctive diggings of feral pigs;
- a targeted fauna survey over two weeks that included deployment of two remote cameras over three consecutive nights in the northern portion of the project area between the Thornton Trailhead and Mt Mistake (15-18 May 2017) and three remote cameras over four consecutive nights in the Goomburra section (22-26 May 2017), and active searching during the day for signs of feral animals such as tracks, scats and the distinctive diggings of feral pigs; and
- a habitat assessment survey over two days in the Mt Mitchell portion of the proposed hiking trail (14-15 June 2017) that included active searching during the day for signs of feral animals such as tracks, scats and the distinctive diggings of feral pigs.

The remote cameras were tied to sturdy tree trucks at a height of approximately 1 m above ground and were positioned on obvious animal walking trails.

3.0 RESULTS AND DISCUSSION

Three feral animal species were detected during the various field surveys: feral pig (*Sus scrofa*), wild dog/dingo (*Canis lupus familiaris / C. l. dingo*) and Cane Toad (*Bufo marinus*). Findings are discussed in detail in the sections below.

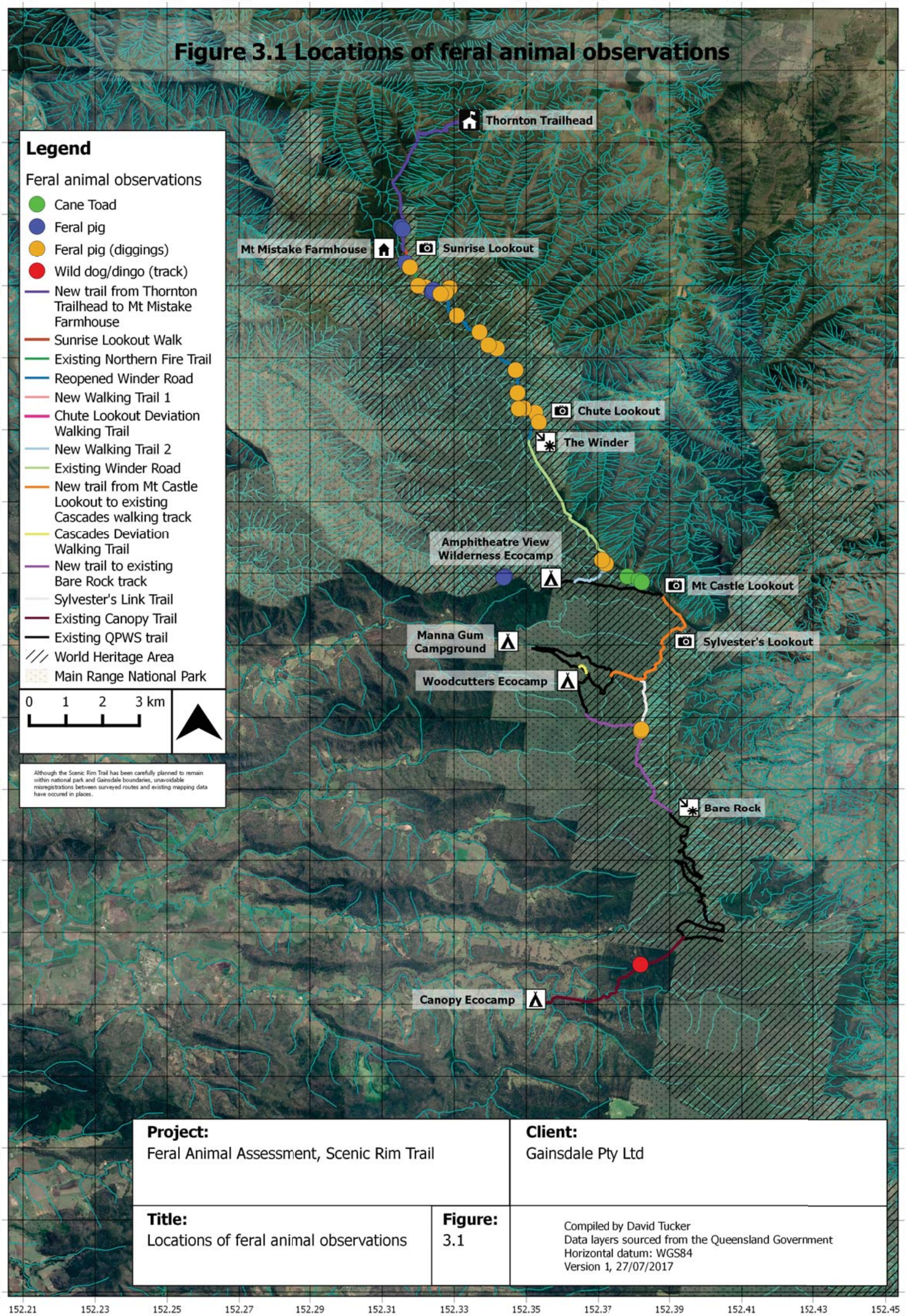
3.1 FERAL PIG

3.1.1 Survey results

Feral pigs and signs of feral pigs were widespread through the Mt Mistake portion of the proposed hiking trail between the Thornton Trailhead and the start of the proposed new hiking trail section in Main Range National Park at Mt Mistake (see **Figure 3.1**).

Feral pigs appeared to be relatively abundant in the Mt Mistake area (**Photo 3.1**), both in the national park and on the adjoining freehold properties where livestock dams provide water sources for feral pigs; feral pigs were observed during the day and night, were recorded on the remote cameras, and feral pig diggings were prolific throughout the area.

Figure 3.1 Locations of feral animal observations



Project: Feral Animal Assessment, Scenic Rim Trail	**Client:** Gainsdale Pty Ltd
Title: Locations of feral animal observations	**Figure:** 3.1

Compiled by David Tucker
Data layers sourced from the Queensland Government
Horizontal datum: WGS84
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On 12 July 2017, a group of eight feral pigs was observed approximately 1.5 km west of the proposed Amphitheatre ecocamp location, with extensive diggings apparent in the area (Tony Charters personal communication). This observation confirms that feral pigs have extended into western regions of Main Range National Park.

There were few signs of feral pigs in the Goomburra section of the study area. During the November 2016 survey, the only signs of feral pigs were diggings on the eastern escarpment edge between Cascades and Bare Rock. During the targeted frog survey in March 2017 there were fresh feral pig diggings along the Winder track above Blackfellow Creek (see **Figure 3.1**) and QPWS ranger staff had set up a pig trap nearby.

No signs of feral pigs were detected in the Mt Mitchell section of the study area, and the farm manager of Spicers Peak Station, the private property bordering the national park, reported observations of feral pig only on the national park boundary close to the escarpment edge at Spicer's Gap (Chris Iseppi, personal communication).

Photo 3.1. Feral pig photographed via remote camera using an animal trail in the Mt Mistake portion of Main Range National Park.

Photo 3.2. Fresh track of a wild dog or dingo on the western slopes of Mt Mitchell.

3.1.2 Extent and nature of current threats to ecological values

Damage from feral pigs was first detected in Main Range National Park in 2001, at both Cunningham's Gap and Mt Mistake (Hines and the South-east Queensland Threatened Frogs Recovery Team 2002). The relatively high frequency of feral pig observations along the length of the eastern escarpment edge, and the scarcity of feral pig signs in the western portions of Main Range National Park suggests that feral pigs are moving into the national park from the east, from the eastern foothills of the Great Dividing Range. However, the observation of eight feral pits on the western fire trail west of the proposed Amphitheatre ecocamp location suggests that feral pigs have become established in the north-western regions of the national park.

'Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)' was listed as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2001. Threats to ecological values from feral pigs include altered plant species composition and succession, altered nutrient, water quality and water cycles, increased invasion or introduction of weeds or pathogens, and predation. Impacts can be direct, such as through predation and digging, or indirect, such as through long-term changes in species composition (Commonwealth of Australia 2017a).

Pigs degrade habitat through surface soil destruction due to their foraging techniques. They up-root plants, facilitating erosion that contributes to siltation of creeks and water quality degradation. Most damage occurs in areas where the soil is soft such as around wetlands, swamps, lagoons,

creeklines and associated watercourses or in low-lying areas after rain. This reduces regenerating forest plants and facilitates the invasion of weed species (Alexiou 1983; Statham & Middleton 1987; Hone 1995). Pigs are largely omnivorous, favouring succulent vegetation, fruit, grain and animals including invertebrates, reptiles, eggs of ground-nesting birds or reptiles, small or young mammals and some carrion (Choquenot *et al.* 1993; Heise-Pavlov 2008). While feral pigs are probably not significant predators of most fauna except local populations of earthworms (Choquenot *et al.* 1996), there is certainly potential for them to become a significant predator of the Mount Mistake Spiny Crayfish (*Euastacus jagara*). This crayfish species, which is listed as critically endangered on the IUCN Red List and occupies a highly restricted distribution within several highland creeks in the rainforests of Main Range National Park (Coughran and Furse 2010), inhabits burrows dug in relatively soft soil usually within 2 m of the banks of perennial creeks, making them susceptible to pig predation.

Feral pigs also have considerable potential to impact on threatened frog species in Main Range National Park, including Fleay's Barred Frog (*Mixophyes fleayi*) and Mountain Frog (*Philoria kundagungan*); although there is potential for direct predation of frogs by Pigs, the greatest impact is likely to be from decreased water quality and increased silt in mountain streams that may impact developing frog embryos and tadpoles (Hines and the South-east Queensland Threatened Frogs Recovery Team 2002). While there are no recent recorded occurrences of rootrot fungus (*Phytophthora cinnamomi*) in the study area, responsible for dieback disease in native vegetation, feral pigs can contribute to the spread of rootrot fungus (Choquenot *et al.* 1996).

Feral pigs occupy relatively large home ranges and home range size increases with body size and decreases with increasing pig density across Australia (Saunders *et al.* 1999). Average home range sizes in habitats as diverse as montane woodlands and shrublands of temperate south-eastern Australia, semi-arid woodlands in NSW and both highland and lowland rainforest and ecotones with croplands and coastal woodlands in tropical northern Queensland were typically within the range of 4.2 km^2 to 11.6 km^2, with males occupying larger home ranges than females, (McIlroy *et al.*1989; Saunders and Kay 1991; Dexter 1999; Mitchell *et al.* 2009). However, substantially larger average home range sizes have been recorded in subalpine habitats of Kosciuszko National Park (35 km^2 for males and 11 km^2 for females: Saunders and Kay 1996) and tropical riverine habitats of the Northern Territory (33.5 km^2 for males and 24.1 km^2 for females: Caley 1997). Feral pigs are generally sedentary within their home ranges (Caley 1997; Mitchell *et al.* 2009) but they may move between high elevations in summer and lower elevations in winter in montane areas of south-eastern Australia (Pech and McIlroy 1990; Saunders and Kay 1991). An expanding population of feral pigs spread through Namadgi National Park in the Australian Capital Territory at an average rate of 4 km/year (Hone 2002). The relatively large home range sizes and high mobility of feral pigs means that they have potential to rapidly cause widespread impacts.

3.2 WILD DOG/DINGO

3.2.1 Survey results

The only evidence of wild dog/dingo detected during the various surveys was a fresh track of a wild dog/dingo (**Photo 3.2**) on the western slopes of Mt Mitchell on an existing vehicle track on the proposed hiking trail (see **Figure 3.1** for location). Wild dogs/dingoes occasionally attack livestock on grazing lands immediately west of Mt Mitchell, and are controlled through irregular baiting in response to livestock attacks (Chris Iseppi, personal communication). Wild dogs/dingoes are likely to occur throughout the southern Main Range at a relatively low density.

3.2.2 Extent and nature of current threats to ecological values

Wild dogs/dingoes prey mostly on medium- to large-sized mammals, particularly macropods (Corbett 1995, Allen *et al.* 2016); therefore they can potentially pose a threat to populations of threatened macropods such as Brush-tailed Rock-wallaby (*Petrogale penicillata*) and Long-nosed Potoroo (*Potorous tridactylus tridactylus*). Wild dogs are particularly significant predators of Koalas (*Phascolarctos cinereus*) in fragmented landscapes (Lunney *et al*. 2007, Allen *et al.* 2016,

Endeavour Veterinary Ecology 2016). However, wild dogs/dingoes also hunt and kill feral Cat (*Felis catus*) and Red Fox (*Vulpes vulpes*) and suppress their hunting activities and numbers (Marsack and Campbell 1990, Johnson and VanDerWal 2009, Brawata and Neeman 2011, Kennedy *et al.* 2012, Wang and Fisher 2012). Since cats and foxes are frequently more significant predators of native fauna than dingoes, the presence of dingoes can benefit native fauna populations, particularly small mammals in habitats also occupied by cats and/or foxes (Johnson *et al.* 2007, Colman *et al.* 2014). Furthermore, wild dogs/dingoes are considered to be less important predators of Brush-tailed Rock-wallaby and Long-nosed Potoroo than cats and foxes (Commonwealth of Australia 2017b). Consequently, wild dods/dingoes are unlikely to currently pose a significant threat to the ecological values of Main Range National Park; indeed they may provide a degree of protection to populations of animals, particularly birds and small mammals that are preyed on by feral cats and foxes (c.f. Ritchie *et al.* 2012).

3.3 CANE TOAD

3.3.1 Survey results

The only evidence of Cane Toad detected during the various surveys was a total of four large, adult individuals that were observed during a nocturnal spotlighting survey on the Winder fire management track at the eastern escarpment edge (see **Figure 3.1** for locations). These toads were present in ecotone habitat between recently burned eucalypt woodland and rainforest.

3.3.2 Extent and nature of current threats to ecological values

Cane Toad has not been identified as a significant threat to the ecological values of Main Range National Park (Hines and the South-east Queensland Threatened Frogs Recovery Team 2002, DNPRSR 2013). This is likely due to cold winter temperatures limiting larval survival, since survival of the larval stage requires water temperatures greater than 16-19°C, which translates to ambient air temperatures of 12-15°C (Sutherst *et al.* 1995). Mean minimum temperatures at nearby Warwick are below 12°C between April and October. The coldest location where persistent breeding populations of cane toads have been observed is at Mt. Tamborine, at an elevation of 530 m relatively close to the coast (Sutherst *et al.* 1995). Consequently, Cane Toads are unlikely to be able to breed successfully in Main Range National Park. Since the portions of the proposed Scenic Rim hiking trail in Main Range National Park occur at elevations greater than 800 m, the proposal is unlikely to exacerbate any impacts of Cane Toads on the ecological values of Main Range National Park.

3.4 OTHER FERAL ANIMALS

Other feral animal species that were not detected during the field surveys but that are likely to be present and may pose a significant threat to certain ecological values of Main Range National Park include feral Cat and Red Fox.

3.5 FERAL MANAGEMENT RECOMMENDATIONS

A Level 2 pest management strategy has been developed for Main Range National Park and Spicers Gap Conservation Park by QPWS and is being progressively implemented (DNPRSR 2013). Any feral management that is to be undertaken in Main Range National Park must be undertaken in consultation with QPWS and in accordance with the pest management strategy.

Gainsdale Pty Ltd has committed to preparing a Fauna Management Plan for the operational phase of the project, which will incorporate preparation and implementation of a Feral Animal Management Plan. This will include monitoring and control actions to reduce numbers of feral animals in and around the Scenic Rim Trail and associated infrastructure as deemed necessary in accordance with the pest management strategy. The Feral Animal Management Plan will include a requirement to consult and cooperate with QPWS, local governments and surrounding landholders to ensure that relevant monitoring information is passed on and received and that

control measures are coordinated. Ecoguides will be continuously present along the Scenic Rim Trail and will be trained to recognise the signs and effects of feral animal presence, and will report all instances (including species and GPS location) as monitoring records, and for management action where necessary.

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