

Biosecurity Risk Assessment for the Proposed Tweed Section of the Northern Rivers Rail Trail

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The information contained in this publication is based on knowledge and understanding at the time of writing June 2019. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the

**More information** 

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## Executive Summary



North Coast Local Land Services (North Coast LLS) was engaged by Tweed Shire Council to prepare an independent biosecurity risk assessment for the railway corridor land between Crabbes Creek and Murwillumbah Railway Station, which is proposed for conversion to a shared pedestrian user path (Northern Rivers Rail Trail). Key stakeholders such as local landholders, state government and industry groups were involved in the process.

The risk assessment considered the unique climate, geography, environment, land use and demography of the Tweed, and identified and assessed 51 biosecurity risks and benefits to livestock, companion animals, wildlife, the environment and the people within and adjoining the proposed Rail Trail corridor. Potential risk treatment options (mitigation) were also identified and may be implemented as the basis for a Rail Trail biosecurity response, or as mitigation strategies within a Biosecurity Plan.

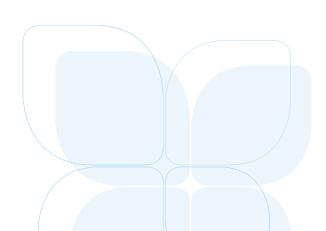
Biosecurity is important because the integrity (and ongoing growth) of Australia's domestic and export markets for animals and their products is highly dependent on consumer and market quality assurance. Both real and perceived risks to quality are important. Biosecurity therefore aims to both reduce identified risks and to demonstrate freedom of disease and chemical residues, to assure agricultural markets and to demonstrate to both markets and consumers that livestock are managed in a humane manner.

To be successful, biosecurity measures need to be implemented and practiced at all scales. The aim of border security at a national level is to reduce the risk of the introduction of diseases, parasites, pests and plants considered to be absent from Australia. This national barrier should never be considered absolute, and therefore biosecurity at state, regional and farm scales provide additional barriers to the risk of pests and diseases should they breach national border security and enter the country. People, footwear and clothing, timber and food are examples of possible vectors that breach national barriers, and present as biosecurity risks.

In New South Wales, biosecurity is addressed through the Biosecurity Act 2015. The objective of the Act is to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants. The Act is based on the principle that biosecurity is a shared responsibility between governments, industries and individuals, landholder, farmers and communities; in essence, everyone is responsible for ensuring that NSW remains biosecure.

It is important to note that all biosecurity risks identified during the assessment undertaken by North Coast LLS in consultation with industry and community exist already within the proposed Rail Trail corridor and across the greater North Coast region. While ten risks may be exacerbated with the implementation of the proposed Rail Trail (i.e. increased risk rating or increase in likelihood of occurrence even after potential treatment), 21 risks will be mitigated i.e. risk rating will either decrease, remain stable or likelihood of occurrence reduced with or without the adoption of potential treatment options compared to preexisting scores). Only two of 51 risks (L1 and L2) remain with a High risk rating after potential treatment options are implemented. A summary of the biosecurity risks and benefits are summarised in Table 2. Appendix 1 presents each risk in much greater detail.

Some risk mitigation measures will require adoption during construction while others will be ongoing. Compliance by Trail users with some treatments may present significant challenges, in particular those that involve human behavior. Passive surveillance and notification by fellow Trail users and adjoining landholders have the potential to play a significant role in biosecurity compliance.



## Introduction



In July 2018, Tweed Shire Council commissioned North Coast Local Land Services (North Coast LLS) to perform an independent biosecurity risk assessment of the proposed Northern Rivers Valley Rail Trail. Specifically, North Coast LLS was tasked to:

- identify and assess biosecurity risks and benefits to livestock, companion animals, wildlife, the environment and to the people within and adjoining the proposed Rail Trail corridor;
- analyse diseases, parasites, pests and invasive plant species that could impact on farm productivity, the environment and human health;
- identify and assess biosecurity risks of the local (the greater Tweed Local Government Area) and national significance (i.e. impact domestic and international trade for livestock and for farm products or pests, diseases and invasive plants that have the potential to spread more widely); and
- identify risk treatment options to mitigate each risk throughout all phases of the proposed Rail Trail (construction through to opening and ongoing use).

It should be noted that North Coast LLS does not have or offer a position as to the social, environmental or economic viability of the proposed Rail Trail. The service offered by North Coast LLS was based solely on delivering a risk based approach to mitigating biosecurity concerns raised by the Council, adjoining landholders and other stakeholders. The identification of other non-biosecurity risks such as accidents and safety or the possible impacts of the Trail on farm security, privacy, life style, land values or business, were therefore considered beyond the scope of this work and not assessed.

### **About Local Land Services (LLS)**

LLS is a delivery organisation within the NSW Department of Industry. It is established under the *Local Land Services Act 2013* to provide quality, customer-focused services to landholders and the community across NSW. Local Land Services works with land managers and the community to improve primary production within healthy landscapes and seascapes, assist rural and regional communities to be profitable and sustainable and safeguard agricultural market access.

The specific services that LLS provides are:

- a biosecure NSW
- emergency services (biosecurity and natural disaster related assistance to farmers)
- agricultural productivity
- natural asset protection

These services are delivered directly through 11 regional business units with around 950 staff working from more than 90 locations throughout NSW.

The organisation is governed by the Local Land Services Board which is responsible for its performance across NSW. The State Chair of Local Land Services is responsible for its strategy, governance and organisational oversight and reports directly to the NSW Minister for Primary Industries.

Each regional business unit is governed by a regional Board. Regional Boards set the local strategic direction and have final endorsement on all NSW government plans and strategies relating to the functions of LLS. Regional business units, including North Coast LLS, are led by a General Manager, who reports directly to the Chair of the Regional Board and to the Chief Executive Officer Local Land Services within the NSW Department of Industry.

LLS funding is sourced from a number of avenues, including rates, the Australian Government, NSW Treasury, and other commercial arrangements.

### Tweed Local Government Area

While the Tweed Local Government Area (LGA) shares biosecurity risks that are common to other councils along the eastern seaboard, it contains a number of unique features that have the potential to escalate biosecurity threats and impacts if not considered:

### **Climate**

Rainfall is high and predominately summer and autumn dominant. The Tweed Valley is at the interface of temperate and subtropical zones, therefore biosecurity risks need to consider both climatic zones.

### **Geography and biodiversity**

The Tweed Valley is the remnant of the greater Mount Warning shield volcano. Soils are volcanic in origin, extremely fertile and support fragmented, but nationally and internationally significant native flora and fauna species and ecological communities.

### Land use and demography

There are a diverse range of land uses and agricultural enterprises in the Tweed Valley. Between the 1960's and 1980's the area experienced above average rural population growth during a period when small concessional lots were subdivided off from larger rural holdings, creating the smaller lifestyle properties prevalent in the Tweed today. This has resulted in a large and rapid expansion of the urban-rural interface. The Tweed is situated between the large population centre of South East Queensland and Byron Bay, which is a global tourist destination. With significant international destinations to the north and south and with immediate access to the Gold Coast international airport (which is projected to accommodate about 16 million passengers a year by 2032) a large number of international and domestic tourists and visitors come into the region each year.

The following report considers the unique features of the Tweed identified above and outlines the biosecurity threats and mitigation options associated with the proposed Rail Trail.





## Why is Biosecurity Important?

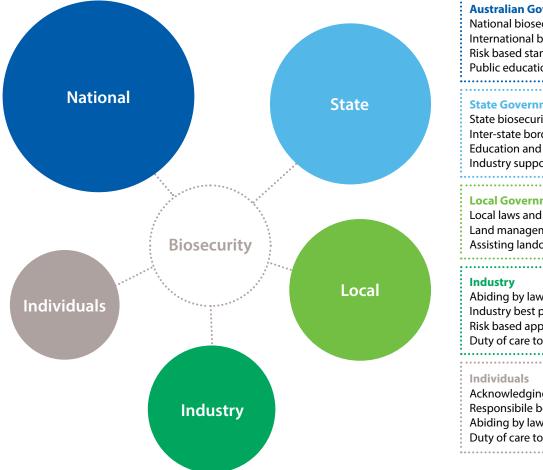


The integrity (and ongoing growth) of Australia's domestic and export markets for animals and their products is highly dependent on consumer and market quality assurance. Both real and perceived risks to quality are important. Biosecurity aims to both reduce the risk and to demonstrate freedom of disease and chemical residues and to assure markets that livestock are managed in a humane manner.

To be successful, biosecurity measures need to be implemented and practiced at all scales. The aim of border security at a national level is to reduce the risk of the introduction of diseases, parasites, pests and plants considered to be absent from Australia. The term used for these is "exotic". However, this national barrier should never be considered absolute. Biosecurity at state, regional and farm scales therefore provide additional barriers to the risk of exotics should they breach national border security and enter the country. People, footwear and clothing, timber and food are examples of possible vectors that breach national barriers. Examples of exotic diseases that are subject to national biosecurity measures include; foot and mouth disease, BSE ("mad cow disease"), swine fever and avian influenza.

Diseases, parasites, pests and plants present in one area of Australia and not others are known as "endemic". They may be present on some properties and not others in the local area. Regional and farm biosecurity measures aim to minimise the risk of their movement and introduction into new areas within Australia. Possible vectors include livestock, companion animals, wild animals and people. Examples of local endemic risks subject to regional and farm biosecurity measures include cattle tick, tick fevers, bovine Johnes disease (BJD) and tropical soda apple.

### A National Biosecurity Scheme – Shared Responsibility



### **Australian Government**

National biosecurity laws International border security Risk based standards and regulations Public education and awareness

### **State Government**

State biosecurity law Inter-state border security Education and advice Industry support and funding

### **Local Government**

Local laws and policies Land management practice Assisting landowners and industry

Abiding by laws and regulations Industry best practice and standards Risk based approach Duty of care to the environment

Acknowledging potential risks Responsibile behaviour & awareness Abiding by laws and being informed Duty of care to others

Multiple antimicrobial resistant bacteria pose an emerging risk to both human and animal health. Internationally Australia has a low risk of developing such strains due to our rational use of antimicrobials and high quality of food hygiene. However, people entering Australia from countries with higher risk factors for resistance may carry these strains. Border protection does not prevent entry of these organisms. Direct human contact with animals could result in these strains establishing in animal populations.

Assurance of livestock products being free of chemical residues is also an integral part of biosecurity. Australia has a clean green image for its products and justifiably so. National programs are in place to maintain the assurance to our domestic and export markets. These include freedom of organochlorines and other pesticides, heavy metals and antimicrobials.

Animal welfare is firmly embedded in all aspects of farm biosecurity. The social licence to farm comes with the responsibility to care for livestock. Public perception of what is acceptable welfare varies widely. For example, a high producing dairy cow does not carry the typical muscle mass of a beef cow and could be perceived by some as underweight. When the interface between livestock and the public increases, as it will with the Rail Trail, so will public scrutiny of what is perceived as acceptable.

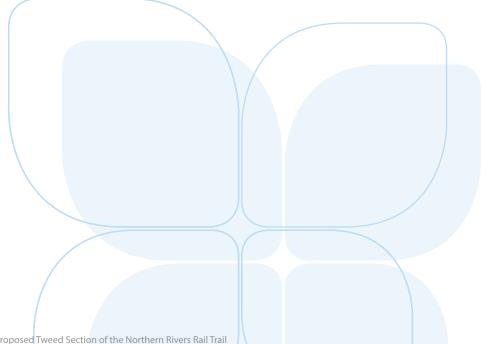
In 2017, a national program was rolled out to all states to increase farm biosecurity measures and practices. Locally this was driven by North Coast LLS. The adoption rate was high and the majority of north coast livestock producers now have farm biosecurity plans in place. This includes those within and adjoining the proposed Rail Trail.

### **Legislative Framework**

The NSW Biosecurity Act 2015 was introduced on 1st July 2017. The objective of the Act is to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants. The Act is based on the principle that biosecurity is a shared responsibility between governments, industries and individuals.

This responsibility is met by discharging a General Biosecurity Duty (GBD). This means that people are expected to have a basic level of knowledge about the biosecurity risks they might encounter in their normal work and recreational activities. All community members have a responsibility to consider how actions, or in some cases lack of action, could have a negative impact on another person, business enterprise, animal or the environment. All parties must then take all reasonable and practical measures to prevent, eliminate or minimise the potential impact.

Nationally from 1 October 2017 the Livestock Production Assurance (LPA) program required every LPA accredited producer (landholders who have a Property Identification Code; PIC) to develop a Farm Biosecurity Plan to fulfil their biosecurity requirements. Livestock Production Assurance (LPA) is the Australian livestock industry's on-farm assurance program covering food safety, animal welfare and biosecurity. To improve producer understanding of the plans, North Coast LLS conducted a series of information sessions and workshops in the second half of 2017. Likewise, other primary industries have quality assurance programs in place to ensure that producers meet biosecurity requirements.





## Risk Assessment Process



### **Consultation and engagement**

North Coast LLS developed and performed the biosecurity risk assessment in consultation with government, adjoining landholders and representative industry organisations.

North Coast LLS identified ~78 landholders adjoining the proposed Rail Trail corridor and contacted each landholder either in person or by telephone and either emailed or posted to them a copy of the draft Biosecurity Risk Assessment, along with a request for their comment or feedback. In addition, North Coast LLS liaised with the Council to determine significant local industry and/or community stakeholders who it considered would have an interest in biosecurity matters. Table 1 identifies the key stakeholder

groups engaged during the risk assessment process and their key areas of concern. A small number of landholders declined to engage with the North Coast LLS in relation to biosecurity matters, or elected to either not respond or comment on the draft biosecurity risk assessment.

All consultation was undertaken by a North Coast LLS District Veterinarian with support from a North Coast LLS Biosecurity Officer, both of whom have significant expertise and skills in animal health and welfare and related animal and plant biosecurity matters. Both officers are Authorised Control Officers under the New South Wales Biosecurity Act 2015.

Table 1 Key Stakeholders and their key areas of concern during the risk assessment

Organisation	Number of representatives consulted	Key areas of concern
Sugar industry	1	Had no significant biosecurity issues for plant disease
Tweed Shire Council	2	Livestock Animal Welfare Horses and dogs using the Trail Horticulture Wildlife and the environment Humans
Tweed Valley Wildlife Carers	1	Risk to wildlife of disturbance or harassment from people and dogs Wildlife risk from dog attack Wildlife risks to people, in particular venomous snakes or Australian Bat Lyssavirus Vegetation changes and impacts on wildlife Changes in fire risks from vegetation changes or people Impacts on wildlife release
NSW Farmers	1	Exotic disease incursion People and food borne risks Weed incursion and spread
Far North Coast Dairy Industry Group	1	Exotic disease incursion People and food borne risks Weed incursion and spread Animal welfare perceptions, harassment and disturbance
Tweed Landcare	1	Funding and priorities for more environmental sensitive areas than rail land Stakeholder Engagement Industry organisations
Tweed Trail Horse Riders	1	Biosecurity risks from humans greater than from animals Horse related biosecurity risks lower than other animal species
Private landholders within and adjoining Rail Trail	59	Livestock Animal Welfare Horses and dogs using the Trail Horticulture Wildlife and the Environment Humans For individual banana and orchard growers: soil borne diseases For individual hydroponics, nursery and small crop growers: soil borne diseases

### **Risk assessment**

The risk assessment was confined to risks associated with land uses immediately within and adjoining the Rail Trail corridor. These include commercial beef, dairy, sugar cane, bananas, citrus, avocadoes, vegetables and nursery production. Non-commercial properties, horse owners, lifestyle blocks with a wide range of animals, and holdings with a focus on environmental preservation and rehabilitation were also included. No risk assessment was made of other land uses and enterprises in the district that are not immediately adjacent, for example, aquaculture.

For the purposes of the risk assessment, livestock included beef cattle, dairy cattle, sheep, goats, pigs and poultry. Ruminants refers specifically to cattle, sheep and goats. Companion animals includes horses and dogs, both working dogs and pet dogs. The risk rating for each specific risk were determined using the universal risk matrix (Figures 1, 2, 3 and 4). Potential risk treatment options were then identified for all phases of the proposed Rail Trail. A residual risk rating after the adoption of potential risk treatment options was then determined. All biosecurity risk assessments, ratings and treatment options were undertaken by a North Coast LLS District Veterinarian.

Figure 1 Key Steps for Using / Applying Risk Assessment

Step 1	Step 2	Step 3	Step 4	Step 5
ldentify Risk	ldentify Likelihood	Identify Consequence	Apply Treatment	Evaluate Risk
What is the event or incident?  e.g. Risks to glow worms in the rail tunnel	What is the chance or frequency of the risk occuring?	What is the severity or impact of the risk if it did occur?	Are there mitigation treatments that could prevent or reduce the frequency or impact of a risk?	What is the risk after treatment?
Medium (without treatment)	Likely	Minor	Unlikely	Low (with treatment)

		D 41
Conseq	IIIANCA	Ratino

	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
A Almost Certain	Medium	Medium	High	Extreme	Extreme
B Likely	Low	Medium	Medium	High	Extreme
C Possible	Low	Low	Medium	High	High
D Unlikely	Negligible	Low	Medium	Medium	High
E Rare	Negligible	Negligible	Low	Medium	High

Figure 3 Definitions for Likelihood Ratings

Likelihood Rating	Frequency
A Almost Certain	May occur several times over a short period or continuously
B Likely	May occur monthly to several times a year
C Possible	Might occur once in a period of one to three years
<b>D</b> Unlikely	Could occur over time (e.g. every five to ten years)
E Rare	May occur only in exceptional circumstances (e.g. every 10-20 years)

Figure 4 Consequence Ratings and Areas of Impact Definitions

### **Areas of Impact**

Rating	Consequence	Animal health and production	Plant health and production	Human health, safety & well being	Economic
1	Insignificant	No loss	No loss	No injuries	No economic loss
2	Minor	Limited illness/ injuries &/or deaths on single enterprise	Limited damage/ loss on single enterprise	Minor injuries; no public health risk; short term wellbeing impact	Few businesses locally affected or single/few properties
3	Moderate	Some illness/ injuries/deaths on multiple properties across a locality	Some damage/ loss on single property – multiple paddocks	Limited public health risk &/or injuries requiring medical & mental health treatment	Widespread industry impact; multiple industries / properties per district
4	Major	Considerable illness/injuries/ deaths on multiple properties across a region	Considerable damage/loss on multiple properties across a region	Major public health risk &/or major injuries/wellbeing impact	High economic / trade risk to region &/or state
5	Catastrophic	Significant illness/ injuries/deaths on multiple regions	Considerable damage/loss across multiple regions	Significant public health risk &/or human deaths/ long lasting wellbeing issues	Major national economic implications

### **Areas of Impact**

Commercial	Environmental	Organisational capability	Political (govt & business sector)	Reputation and image
No financial loss	No environmental impact	Organisational capability intact, negligible impact on objectives	No political/ organisational impact	No damage to reputation/image
Low financial loss; single/few properties affected	Minor,/recoverable short-term isolated/localised environmental impact	Local capability affected, minor impact on objectives, easily remedied	Local political / organisational impact	Recoverable / short term local damage to reputation/image
Medium financial loss; multiple properties per district	Moderate, medium term, medium spread environmental impact	Regional capability affected, some objectives affected	Regional political / organisational impact	Medium term / regional damage to reputation/image
High financial loss	Serious, long term, widespread environmental impact	State capability affected, important objectives not achieved	State political / organisational impact	Long term/ state damage to agency reputation/image
 Major national financial loss	Irreversible environmental impact	National capability affected, most objectives not achieved	National political / organisational impact	Long term / (inter) national damage to reputation / image irreversibly impacted

## Risk Assessment Results



### Overview of risks and benefits

The risk assessment analysed both the risks and benefits to biosecurity in connection with the proposed Rail Trail. After 15 years of disuse there are existing biosecurity risks associated with the railway corridor land in its present condition and not currently being open for public use it receives minimal active management. The construction of a shared-user trail offers an opportunity to reduce some of these existing risks.

To keep the assessment of biosecurity risk in this document in context, it is worth noting that many of the Rail Trail biosecurity risks identified are similar or the same as those that currently exist in the north coast region, particularly on the peri-urban fringe where people, livestock and wildlife interface multiple times daily. Examples of this include:

- the corridors created by existing pathways, trails and roads that are used by people, dogs and horses
- recreational areas used by people, dogs and horses such as swimming holes, picnic areas and road side stops
- farm stays and on-farm markets or food hubs
- rural industries such as retail plant nursery or farm-gate produce stalls
- petting parks and wildlife sanctuaries.

Other features of the Trail pose quite unique biosecurity risks:

- The long-term predicted high volume of pedestrian traffic, which may be reached after a few years of establishment
- The close proximity of the proposed Trail alignment to adjoining properties carrying on intensive industries, including dairy, piggery and horticulture and in some instances the immediate proximity to those that are lawfully operating within the railway corridor land.
- The rail tunnel, which is home to a glow worm and microbat colony, is in near proximity to tourism and special event sites, such as North Byron Parklands, which attract a high number of visitors to the area and which would therefore likely lead to higher usage of the Rail Trail at peak times.

Rail car (trains) ceased operation in April 2004 and since then there has been minimal maintenance or active management of the railway corridor land. The degradation of the land and infrastructure and associated trespass has created several significant biosecurity risks. Fences have deteriorated and vegetation regrowth has been significant, particularly of woody weeds, and timber bridges have deteriorated with some bridges burnt by vandals and subsequently demolished. There has been significant unauthorised use of the railway corridor and

this is most evident by people trespassing to gain access to the Burringbar railway tunnel, as well as regular trespass for recreational activities such as accessing swimming, picnicking and fishing areas that are located on adjoining private land.

Examples of existing biosecurity risks therefore include:

- Risk of cattle straying: the lack of fence maintenance and loss of fences due to flood events and other occurrences has created opportunities for cattle to stray, increasing the associated biosecurity risks of disease and parasite transmission
- The existing condition of the railway corridor land acting as harbour for vertebrate pest species, including rabbits, wild dogs, foxes and feral cats
- Ideal conditions for harbouring invasive plants: in particular, camphor laurel, privet and giant devils fig
- Trespass: uncontrolled and unlawful use or occupation of the railway corridor land by the general public.

A summary of the identified biosecurity risks is provided in the next section and in Table 2. Appendix 1 explores each individual risk assessment in more depth.

The establishment of the Rail Trail creates an opportunity for the railway corridor to be utilised, managed and monitored more closely, therefore potentially reducing some of the biosecurity risks that are currently present.

While this Biosecurity Risk Assessment has sought to capture the key related biosecurity risks it is by no means an exclusive list and additional risks may present to the Council throughout the detailed design and construction phase, which will need to be recorded and evaluated. Similarly, while mitigation (treatment) measures have been recommended this is by no means a comprehensive list of the possible range or most effective treatments that could potentially be applied to a given risk or groups of risks. Other treatment measures might be identified and assessed during the design and construction phase.

This document establishes a workable baseline for the assessment of those risks and treatments presenting at that time of it being prepared.

### **Rail Trail Biosecurity Risks and Benefits**

Fifty-one biosecurity risks and benefits were identified and assessed during the risk assessment. These have been divided into seven categories:

- 1 Livestock (L)
- 2 Animal Welfare (AW)
- 3 Horses using the Trail (H)
- 4 Dogs using the Trail (D)
- 5 Horticulture (HORT)
- 6 Wildlife and the Environment (W&E)
- 7 Humans (HU).

Ten risks may be exacerbated with the proposed Rail Trail i.e. even after potential treatment options have been applied, as their risk rating or likelihood of occurrence will increase from their pre-existing rating or likelihood. Four of these relate to the category Wildlife and the Environment (W&E1, W&E2, W&E5, W&E12), two to Animal Welfare (AW2, AW3), two to Human (HU4, HU8), one Livestock (L3) and one Horses using the Trail (H1).

Twenty-one risks will be mitigated, or benefited, from the implementation of the Rail Trail, i.e. their risk rating will either decrease, remain stable or their likelihood of occurrence reduced with or without the adoption of appropriate treatment options compared to their pre-existing ratings and likelihood. Seven of these relate to the category Wildlife and the Environment (W&E3, W&E4, W&E10, W&E11, W&E13, W&E15, W&E16), seven to Livestock (L4 [subject to compliance by Trail users], L5-8, L11, L12), three to Dogs using the Trail (D1, D2, D4, providing wild dog control programs are implemented), three to Human (HU1-3), and one Horticulture (HORT1).

Despite an initial increase in likelihood of occurrence with the proposed Rail Trail, 20 risks will return to their pre-existing risk rating or likelihood of occurrence IF appropriate treatment options are applied. Seven relate to the Livestock category (L1, L2, L9, L10, L13-15), five Wildlife and Environment (W&E6-9, W&E14), three to Human (HU5-7), two to Animal Welfare (AW1, AW4), two to Horticulture (HORT2, HORT3) and one to Dogs using the Trail (D3).

Only two of 51 biosecurity risks (L1 and L2) remain with a High risk rating after treatment options are implemented. Note that this is due to their consequence, as explained below.

Table 2 (page 22) summarises:

- each biosecurity risk and benefit;
- their existing likelihood, consequence, and risk rating;
- the likelihood and risk rating if the Rail Trail goes ahead without any mitigation (treatment) actions;
- the likelihood and risk rating if the Rail Trail goes ahead with recommended mitigation (treatment) actions or with suitable alternative treatments that have the same or higher treatment value.

Note that with all three options, only the likelihood of the risk can change. The consequence stays the same irrespective i.e. the *consequence* of a Foot and Mouth Disease outbreak on the North Coast is catastrophic; this is already the case and will remain so independent of the Rail Trail and any mitigation action. However, the *likelihood* of an outbreak can be significantly reduced by treatment actions. More comprehensive descriptions of each biosecurity risk and associated treatment options are provided in Appendix 1.



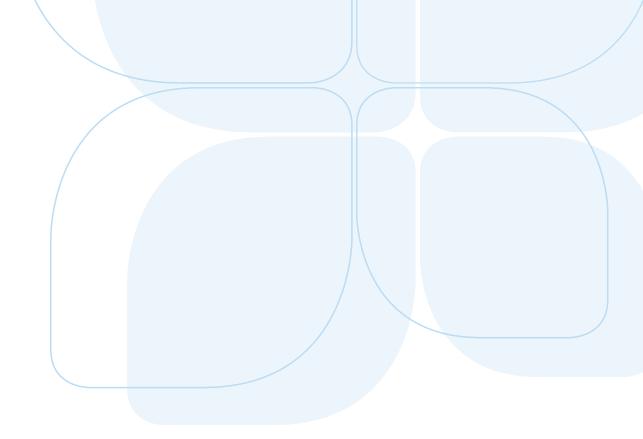




Table 2 Summary of Biosecurity risks and benefits of the proposed Rail Trail

Ris	K	Existing Consequence	Existing Likelihood	Existing Risk Rating	Rail Trail developed: Likelihood without mitigation
Live	estock				
Dis	eases				
L1	Exotic animal diseases introduced by footwear	Catastrophic	Rare	High	Unlikely
L2	Exotic animal diseases introduced by foodstuffs	Catastrophic	Rare	High	Unlikely
L3	Contamination of the environment by human faeces	Minor	Rare	Negligible	Possible
L4	Contamination of the environment by dog or fox faeces	Minor	Unlikely	Low	Possible
L5	Contamination of the environment by cattle faeces	Minor	Likely	Medium	Possible
L6	Endemic diseases of cattle by stray cattle	Minor	Likely	Medium	Possible
L7	Cattle tick and tick fever by stray cattle	Moderate	Likely	Medium	Possible
L8	Cattle tick and tick fever by horses	Moderate	Rare	Low	Possible
L9	Cattle tick and tick fever by clothing or blankets	Moderate	Rare	Low	Unlikely
L10	Exotic animal diseases by wild birds	Major	Rare	Medium	Unlikely
L11	Endemic animal diseases by wild birds	Minor	Rare	Negligible	Unlikely
L12	Poisoning of livestock by plants	Minor	Likely	Medium	Possible
L13	Poisoning of livestock by chemicals	Minor	Rare	Negligible	Unlikely
L14	Chemical residues in livestock	Minor	Rare	Negligible	Unlikely
L15	Introduction of multiple antimicrobial resistant bacteria	Major	Rare	Medium	Possible

Rail Trail		Rail Trail	Rail Trail developed:
developed:		developed:	Risk Rating
Risk Rating		Likelihood with	<b>AFTER potential</b>
without mitigation	Potential Risk Mitigation Treatments	mitigation actions	mitigation actions

High	Stock exclusion; Signage; Passive surveillance.	Rare	High
High	Stock exclusion; Signage; Provision of bins or user waste removal system; Passive surveillance.	Rare	High
Low	Stock exclusion; Provision of toilet and/or hand wash facilities; Passive surveillance.	Unlikely	Low
Low	Leash dogs; Dog owners bag and remove faeces; Signage; Passive surveillance.	Rare	Negligible
Low	Stock exclusion; Passive surveillance.	Unlikely	Low
Low	Stock exclusion; Passive surveillance.	Unlikely	Low
Medium	Stock exclusion; Passive surveillance.	Unlikely	Medium
Medium	Enforce existing regulatory requirement – Treat horses for cattle tick PRIOR to Rail Trail use.	Rare	Low
Medium	Discourage use or abandonment of blankets and clothing while using Trail; Signage.	Rare	Low
Medium	Provision of bins or user waste removal system; Signage.	Rare	Medium
Low	Provision of bins or user waste removal system; Signage.	Rare	Negligible
Low	Stock exclusion; Scrutinise / select non-poisonous landscaping plants; Ongoing poisonous plant detection and control; Passive surveillance; Signage.	Unlikely	Low
Low	Stock exclusion; Remove timber; Burning of timber on site is unsuitable; Removal of contaminated soil (if identified) in accordance with NSW guidelines for appropriate treatment of same	Rare	Negligible
Low	Obtain track treatment history from State Rail Authority; Test soil upon disturbance. Excavate, bury or remove residues; Stock exclusion.	Rare	Negligible
High	Stock exclusion; Provision of toilet and/or hand wash facilities; Passive surveillance.	Rare	Medium
	High Low Low Low Medium Medium Medium Low Low Low	High Stock exclusion; Signage; Provision of bins or user waste removal system; Passive surveillance.  Low Stock exclusion; Provision of toilet and/or hand wash facilities; Passive surveillance.  Low Leash dogs; Dog owners bag and remove faeces; Signage; Passive surveillance.  Low Stock exclusion; Passive surveillance.  Low Stock exclusion; Passive surveillance.  Medium Stock exclusion; Passive surveillance.  Medium Enforce existing regulatory requirement – Treat horses for cattle tick PRIOR to Rail Trail use.  Medium Discourage use or abandonment of blankets and clothing while using Trail; Signage.  Medium Provision of bins or user waste removal system; Signage.  Low Provision of bins or user waste removal system; Signage.  Low Stock exclusion; Scrutinise / select non-poisonous landscaping plants; Ongoing poisonous plant detection and control; Passive surveillance; Signage.  Low Stock exclusion; Remove timber; Burning of timber on site is unsuitable; Removal of contaminated soil (if identified) in accordance with NSW guidelines for appropriate treatment of same  Low Obtain track treatment history from State Rail Authority; Test soil upon disturbance. Excavate, bury or remove residues; Stock exclusion.	High Stock exclusion; Signage; Provision of bins or user waste removal system; Passive surveillance.  Low Stock exclusion; Provision of toilet and/or hand wash facilities; Passive surveillance.  Low Leash dogs; Dog owners bag and remove faeces; Signage; Passive surveillance.  Low Stock exclusion; Passive surveillance.  Unlikely  Low Stock exclusion; Passive surveillance.  Unlikely  Medium Stock exclusion; Passive surveillance.  Unlikely  Medium Enforce existing regulatory requirement – Treat horses for cattle tick PRIOR to Rail Trail use.  Medium Discourage use or abandonment of blankets and clothing while using Trail; Signage.  Medium Provision of bins or user waste removal system; Signage.  Low Provision of bins or user waste removal system; Signage.  Low Stock exclusion; Scrutinise / select non-poisonous plant detection and control; Passive surveillance; Signage.  Low Stock exclusion; Remove timber; Burning of timber on site is unsuitable; Removal of contaminated soil (if identified) in accordance with NSW guidelines for appropriate treatment of same  Low Obtain track treatment history from State Rail Authority; Test soil upon disturbance. Excavate, bury or remove residues; Stock exclusion.  High Stock exclusion; Provision of toilet and/or hand Rare

Table 2 Summary of Biosecurity risks and benefits of the proposed Rail Trail continued

Risk	Existing Consequence	Existing Likelihood	Existing Risk Rating	Rail Trail developed: Likelihood without mitigation
Animal Welfare				
AW1 Livestock impacted from domestic dogs, wild dogs or foxes	Moderate	Rare	Low	Likely
AW2 Impacts of Rail Trail on wild dog, fox and rabbit control programs	Moderate	Unlikely	Medium	Likely
AW3 Impacts of Rail Trail on livestock management practices	Moderate	Unlikely	Medium	Likely
AW4 Stress, injury or death of livestock from people	Moderate	Unlikely	Medium	Possible
Horses Using the Trail				
H1 Hendra virus infection to horses	Minor	Rare	Negligible	Unlikely
Dogs Using the Trail				
D1 Risks to domestic dog health from paralysis ticks	Minor	Almost Certain	Medium	Likely
D2 Risks to domestic dog health from venomous snakes	Minor	Likely	Medium	Possible
D3 Risks to domestic dogs from wild dog, fox or rabbit control programs	Moderate	Rare	Low	Likely
D4 Risks to domestic dogs from wild dogs	Minor	Possible	Low	Unlikely
Wildlife and to the Environment				
W&E1 Risks to wildlife from Trail users (people)	Minor	Unlikely	Low	Likely
W&E2 Risks to wildlife from domestic dogs	Minor	Unlikely	Low	Almost Certain
W&E3 Risks to aquatic environment and wildlife	Minor	Likely	Medium	Likely

Rail Trail developed: Risk Rating without mitigation	Potential Risk Mitigation Treatments	Rail Trail developed: Likelihood with mitigation actions	Rail Trail developed: Risk Rating AFTER potential mitigation actions
Medium	Leash dogs; Signage; Provision of bins or user waste removal system; Passive surveillance; Wild dog and fox control as required.	Rare	Low
Medium	Education of users; Signage; Closure of sections of Trail during control programs on or adjacent to the Trail.	Possible	Medium
Medium	Encourage adjoining landholders to practice sound animal welfare; Adjoining landholders improve security at high risk sites such as dairies and piggeries; Signage; Passive surveillance.	Possible	Medium
Medium	Adjoining landholders improve security at high risk sites such as dairies and piggeries; Signage; Passive surveillance.	Unlikely	Medium
Low	Provision of Hendra virus information to horse owners;	Unlikely	Low
Medium	Leash dogs; Signage; Passive surveillance.	Unlikely	Low
Low	Leash dogs; Signage; Passive surveillance.	Unlikely	Low
Medium	Leash dogs; Signage; Passive surveillance.	Rare	Low
 Low	Implement wild dog control measures when required; Leash dogs; Signage; Passive surveillance.	Rare	Negligible
Medium	Adopt wildlife-friendly Trail designs that maintain or improve wildlife habitat on or adjacent to the Trail; Signage; Passive surveillance.	Possible	Low
 Medium	Adopt wildlife-friendly Trail designs that maintain or improve wildlife habitat on or adjacent to Trail; Leash dogs; Signage; Passive surveillance.	Possible	Low
Medium	Signage displaying values of environment/wildlife; Leash dogs; Passive surveillance.	Unlikely	Low

Table 2 Summary of Biosecurity risks and benefits of the proposed Rail Trail continued

Risk		Existing Consequence	Existing Likelihood	Existing Risk Rating	Rail Trail developed: Likelihood without mitigation
Wildlife	e and to the Environment <i>cont</i>	inued			
W&E4	Risks to amphibians on and near the Trail	Moderate	Likely	Medium	Likely
W&E5	Risk to microbats in the Rail tunnel	Minor	Unlikely	Low	Likely
W&E6	Risk to glow worms in the Rail tunnel	Minor	Unlikely	Low	Likely
W&E7	Risks to wild bird health from increased people	Minor	Unlikely	Low	Likely
W&E8	Risks to wildlife from food waste	Minor	Unlikely	Low	Likely
W&E9	Risks to wildlife from fencing	Minor	Unlikely	Low	Likely
W&E10	Risks for rabbit harbour	Minor	Likely	Medium	Possible
W&E11	Risks for weeds and invasive plant species	Minor	Likely	Medium	Possible
W&E12	2 Trail impacts on weed control programs	Moderate	Unlikely	Medium	Likely
W&E13	3 Trail risks to native flora	Minor	Almost Certain	Medium	Possible
W&E14	Introduction and spread of Phytophthora	Minor	Unlikely	Low	Possible
W&E15	Introduction and spread Yellow Crazy Ants and Red Imported Fire Ant	Major	Unlikely	Medium	Possible
W&E16	5 Fire risks	Major	Likely	High	Possible
					<b>.</b>

Rail Trail developed: Risk Rating without mitigation	Potential Risk Mitigation Treatments	Rail Trail developed: Likelihood with mitigation actions	developed: Risk Rating AFTER potential mitigation actions
Medium	Signage displaying values of environment/ wildlife; Leash dogs; Passive surveillance; Practice ChemCert best practice; Adhere to chemical label requirements.	Unlikely	Medium
Medium	Construct barriers to exclude users or user interface or provide alternative roost sites; Signage; Passive surveillance.	Possible	Low
Medium	Signage regarding impacts of torch light, physical touching and the use of insect repellents and insecticides; Passive surveillance.	Unlikely	Low
 Medium	Signage; Provision of bins or user waste removal system; Passive surveillance.	Unlikely	Low
 Medium	Signage; Provision of bins or user waste removal system; Passive surveillance.	Unlikely	Low
 Medium	Consider wildlife pathways in Trail design and construction; Passive surveillance.	Unlikely	Low
 Low	Consider rabbit harbour in Trail design and construction; Passive surveillance.	Unlikely	Low
 Low	Select non-invasive landscaping species. Ongoing maintenance and control; Passive surveillance.	Unlikely	Low
 Medium	Practice ChemCert best practice; Adhere to chemical label requirements; Apply chemical during low Trail use periods or scheduled periods of Trail closure; Signage.	Possible	Medium
Low	Select endemic local native where possible for landscaping; Identify opportunities for rehabilitation, regeneration or habitat creation on Trail land and adjoining holdings; Passive surveillance.	Unlikely	Low
Low	Adopt hygienic practices; Select local native nursery stock.	Unlikely	Low
High	Scrutinise sources of soil and landscaping plants; Signage; Passive surveillance.	Rare	Medium
High	Consider fire risks and fire management needs in Trail design, landscaping and ongoing management;	Unlikely	Medium

**Rail Trail** 

Table 2 Summary of Biosecurity risks and benefits of the proposed Rail Trail continued

Risk		Existing Consequence	Existing Likelihood	Existing Risk Rating	Rail Trail developed: Likelihood without mitigation
Hum	an				
HU1	Human health risks from paralysis ticks	Moderate	Almost Certain	High	Likely
HU2	Human and animal health risks from venomous snakes	Moderate	Possible	Medium	Unlikely
HU3	Risk to human health from wild dogs	Moderate	Possible	Medium	Unlikely
HU4	Risk to human health from wild mammals and birds	Moderate	Rare	Low	Possible
HU5	Risk to human health from Australian Bat Lyssavirus from microbats in the Rail tunnel	Moderate	Rare	Low	Unlikely
HU6	Risk to human health from bat faeces in Rail tunnel	Moderate	Rare	Low	Unlikely
HU7	Human health risks from domestic dogs using the Trail	Moderate	Rare	Low	Unlikely
HU8	Risk to human health from hendra virus from horses	Moderate	Rare	Low	Unlikely



Rail Trail developed: Risk Rating without mitigation	Potential Risk Mitigation Treatments	Rail Trail developed: Likelihood with mitigation actions	Rail Trail developed: Risk Rating AFTER potential mitigation actions
Medium	Signage.	Possible	Medium
Medium	Signage; Passive surveillance.	Rare	Low
 Medium	Signage; Implement wild dog control measures when required; Passive surveillance.	Rare	Low
Medium	Signage; Provision of bins or user waste removal system; Passive surveillance.	Unlikely	Medium
Medium	Construction of barriers or alternative roost sites; Signage; Passive surveillance.	Rare	Low
Medium	Construction of barriers or alternative roost sites.	Rare	Low
 Medium	Leash dogs; Signage; Passive surveillance.	Rare	Low
Medium	Provision of Hendra virus information to horse owners	Unlikely	Medium



## Appendix

### Detailed Rail Trail Biosecurity Risk Assessment Notes





### **Biosecurity and Livestock**

### **Diseases**

### L1 Specific risk: Exotic animal diseases introduced by footwear

**Risk of Rail Trail compared with existing risk:** Risk higher with Trail. Trail will bring larger numbers of public into closer proximity to dairy calf sheds, dairies, pasture cattle and a piggery.

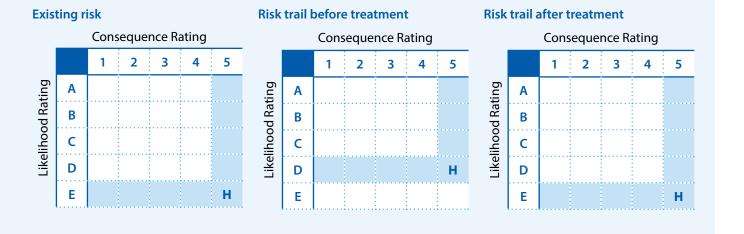
Rationale: Visitors from overseas, or Australians returned from overseas may have been in rural areas in countries that have foot and mouth disease virus. The virus has a long survival time on footwear. Said footwear may not have been disinfected or declared at border. Direct contact to ruminants or pigs from such footwear, from animals sniffing, licking or consuming poses the greatest risk. Risk is higher in those areas where users have higher probability of direct contact, such as trespass into calf rearing sheds, dairies or pig pens. Transmission by indirect means; for example, cattle walking over land on which contaminated footwear has passed, poses a very low risk of virus transmission.

National cost of a small scale 3-month outbreak estimated at \$7.1 billion while a 12-month duration large scale outbreak estimated at \$16 billion.

**Consequences:** Catastrophic. Animal health, production and trade consequences. Significant animal illness. Animal deaths from eradication programs. Short and long term impacts on international trade and on producer financial viability.

### Risk treatment options and activities to reduce risk:

- Reduce risk of livestock contact with footwear or clothing; stock proof the Trail.
- Appropriate signage to warn Trail users of the risks and penalties associated with trespassing.
- Encourage passive surveillance and notification by other Trail users.
- Active surveillance using cameras.
- Environmental fencing barriers / buffers where practicable.





### L2 Specific risk: Exotic animal diseases introduced by foodstuffs

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail. Trail users foodstuffs may have close proximity to dairy calf sheds, dairies, pasture cattle and a piggery.

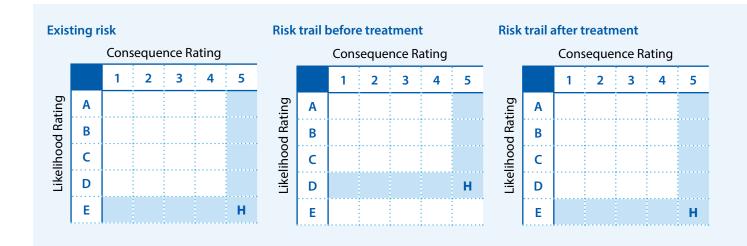
**Rationale:** Human foodstuffs that have not been declared or detected at the border and which are from a country that has exotic diseases may be taken onto the Trail by users. These pose a biosecurity threat should such foodstuff be eaten by or fed to livestock. For these reasons feed bans are in place nationally. Food waste left by Trail users poses a risk. There may be the temptation for Trail users to feed livestock.

Exotic diseases that pose a risk include; foot and mouth disease to ruminants and pigs, "mad cow disease" to cattle and African swine fever to pigs. African swine fever would cause serious production losses to the \$1.277 billion Australian pork industry. A single case of mad cow disease has the potential to close Australia's beef exports.

**Consequences:** Catastrophic. Animal health, production and trade consequences. Significant animal illness. Animal deaths from eradication programs. Short and long term impacts on primary producer financial viability. Short and long term impacts on international trade.

### Risk treatment options and activities to reduce risk:

- Reduce risk of livestock contact with foodstuffs; Stock proof the Trail.
- Signage the risks of feeding livestock.
- Reduce risk of food waste left by Trail users. Provision of bins where practicable or alternatively require Trail users to take waste with them. Signage for littering.
- Passive surveillance and notification by other Trail users.



### L3 Specific risk: Contamination of the environment by human faeces

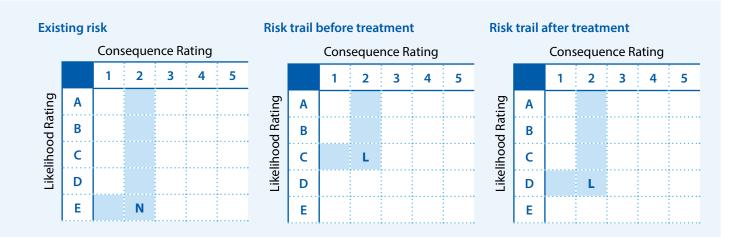
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increased numbers of people.

**Rationale:** Contamination of the environment by Trail users' faeces carries the risk of coliform bacteria, salmonella or beef measles (Cysticercus bovis). Coliforms and salmonella carry the risk of pollution of water, infection in calves and mastitis in dairy cattle. Contamination of pasture with eggs of beef measles can result in condemnation of beef at abattoirs and subsequent medium term trade restrictions for cattle owners.

**Consequences:** Minor. Limited animal illness or death on a single enterprise.

### Risk treatment options and activities to reduce risk:

- Reduce risk of livestock contact with human faeces;
   Stock proof Trail.
- Where practicable provide toilet and hand-wash facilities.
- Appropriate signage to warn Trail users of the risks and penalties associated with trespassing.
- Passive surveillance and notification by other Trail users.



#### L4 Specific risk: Contamination of the environment by dog or fox faeces

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail for domestic dogs, similarly with other public recreation areas or roadways, as the Trail will lead to a greater number of domestic dogs being brought into the area. Risks of Trail are comparable to domestic dog and livestock interface elsewhere on the north coast. Risks posed by wild dogs and foxes are likely to be lower, as there are likely to be fewer wild dogs and foxes with the trail.

**Rationale:** Contamination of the environment by dog or fox faeces carries the risk of coliform bacteria, hydatid tapeworm (Echinococcus granulosus) or Neospora. Coliforms pollute water and can cause infection of calves and mastitis in dairy cattle. Hydatids are a common cause of cattle offal condemnation at abattoirs and a significant economic loss to the industry. Neospora shed in the faeces

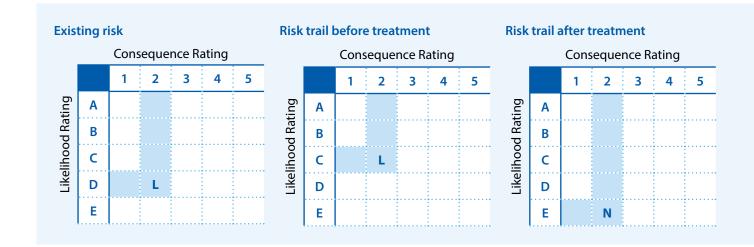
of young dogs is a common cause cattle abortion and stillbirths. Domestic dogs may use the Trail or stray onto adjoining grazing land to defecate. Wild dogs and foxes numbers likely to be lower with Trail. However, wild dogs or foxes may be attracted to Trail from food waste.

**Consequences:** Minor. Limited animal illness or death on a single enterprise.

# Risk treatment options and activities to reduce risk:

- Reduce risk of domestic dog faeces. Require dog owners to remove faeces, signage.
- Reduce straying of domestic dogs. Require dog owners to leash dogs, signage.
- Passive surveillance and notification by other Trail users.

# For domestic dogs:



#### L5 Specific risk: Contamination of the environment by cattle faeces

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail. Sections of the rail are currently leased for cattle grazing. The Trail will result in a lower risk of cattle using the rail land.

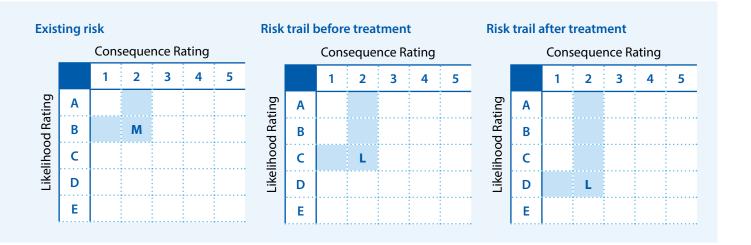
**Rationale:** The faeces of straying cattle are a risk of spreading Bovine Johne's disease (BJD), internal parasites and Tropical Soda Apple. Cattle infected with BJD may shed the organism without showing clinical signs. Internal parasites such as worms, including strains resistant to

drenches, are also be spread by cattle faeces. Seeds of the weed Tropical Soda Apple can be spread in cattle faeces.

**Consequences:** Minor. Limited to a single enterprise.

# Risk treatment options and activities to reduce risk:

- Reduce risk of cattle straying onto Trail. Stock proof Trail.
- Passive surveillance and notification by Trail users.



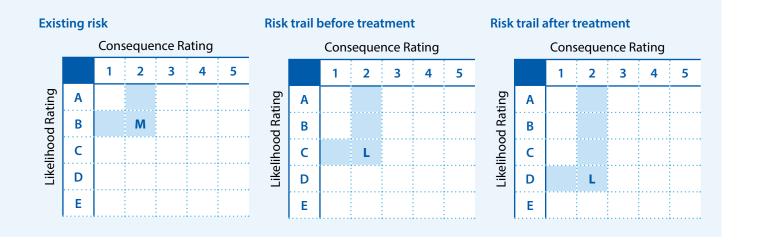
# L6 Specific risk: Endemic diseases of cattle by stray cattle

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail. Sections of the rail are currently leased for cattle grazing. The Trail will result in a lower risk of cattle using the rail land.

**Rationale:** Direct cattle to cattle contact has the potential to spread diseases such as Vibriosis or Pestivirus. Vibriosis is a common cause of infertility and is spread by venereal contact. Pestivirus is a common disease in cattle which causes reduced fertility and production loss.

**Consequences:** Minor. Limited animal illness or death to single enterprise.

- Reduce risk of cattle straying onto Trail. Stock proof Trail.
- Passive surveillance and notification by Trail users.



#### L7 Specific risk: Cattle tick and tick fever by stray cattle

**Risk of Rail Trail compared with existing risk:** Risk is decreased with the Trail. Sections of the railway corridor are currently leased for cattle grazing. The Trail will result in a lower risk of cattle using the rail land.

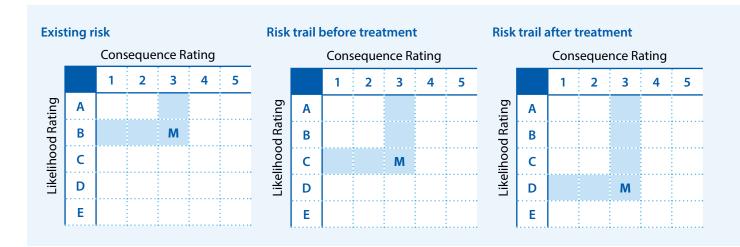
**Rationale:** Cattle tick and the three tick fevers pose one of the greatest biosecurity threats to the beef and dairy industries in the region. Cattle tick and the tick fevers are all notifiable and have legal implications for both the affected land and adjoining holdings. Cattle and deer are the primary hosts for cattle tick. The 3 strains of tick fever

require cattle tick for transmission. Cattle straying onto the Trail could pose a cattle tick and tick fever risk to cattle on land adjoining the Trail.

**Consequences:** Moderate. Cattle illness or death on multiple enterprises.

# Risk treatment options and activities to reduce risk:

- Reduce risk of cattle straying onto Trail. Stock proof Trail.
- Passive surveillance and notification by Trail users.



#### L8 Specific risk: Cattle tick and tick fever by horses

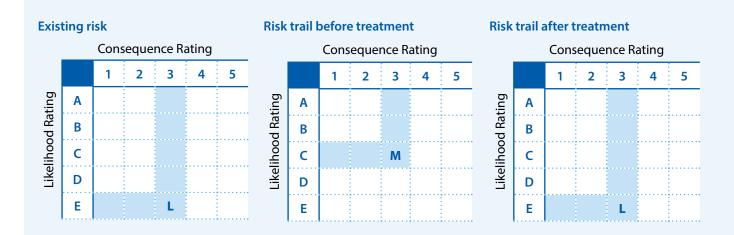
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to horse movements on Trail. Risk is comparable with other horse movements on the north coast, for example along a rural road.

**Rationale:** Horses are a secondary host for cattle tick; they are not the preferred host but have the potential to carry low numbers of cattle tick. Horses moving from affected properties or from infected areas in Queensland pose the highest risk and for this reason regulatory compliance measures currently exist.

**Consequences:** Moderate. Cattle illness or death on multiple enterprises.

#### Risk treatment options and activities to reduce risk:

 Reduce cattle tick risk of horses on Trail. Should horses intended for the Trail be from properties or areas that are infected with cattle tick or have a neighbouring property with infection, they must be treated for cattle tick prior to movement onto the trial. This is an existing regulatory requirement.







# L9 Specific risk: Cattle tick and tick fever by clothing or blankets

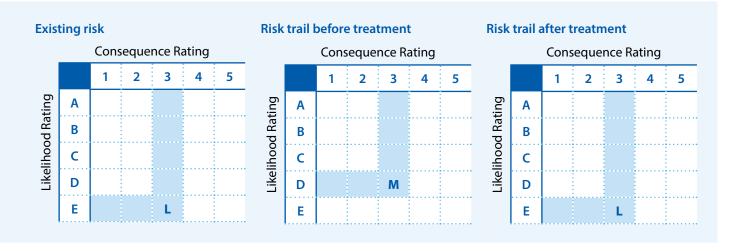
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, but likelihood is considered unlikely. Risk comparable with similar use on or near cattle properties elsewhere on north coast.

**Rationale:** Inanimate objects that have been in contact with the ground on land infected with cattle tick may be a vector for tick transmission.

**Consequences:** Moderate. Cattle illness or death on multiple enterprises.

# Risk treatment options and activities to reduce risk:

 Reduce risk of blankets or clothing from a cattle tick infected area. Signage to advise Trail users.



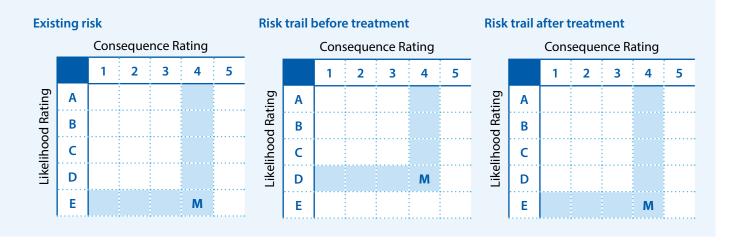
#### L10 Specific risk: Exotic animal diseases by wild birds

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, as wild birds may be more attracted to the Trail. Risk of Trail is comparable with any properties that have poultry.

**Rationale:** Some exotic diseases of livestock have wild bird vectors. Avian Influenza is a risk from migratory seabirds and wild ducks. Newcastle disease is a risk from Psittacines (parrots). Both diseases are notifiable. Food waste from Trail users will be an attractant to scavenger species. Trail users may feed wild birds. Free ranging chickens which adjoin the Trail are most at risk.

**Consequences:** Major. Considerable animal illness or death on multiple properties. High economic and trade risk.

- Reduce risk of wild birds attracted to food waste left by Trail users. Provision of bins. Alternatively require Trail users to take waste with them. Signage for littering.
- Signage to inform Trail users of the problems associated with feeding wild birds.



#### L11 Specific risk: Endemic animal diseases by wild birds

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, as wild birds may be more attracted to the Trail. Risk of Trail is comparable with any properties that have poultry.

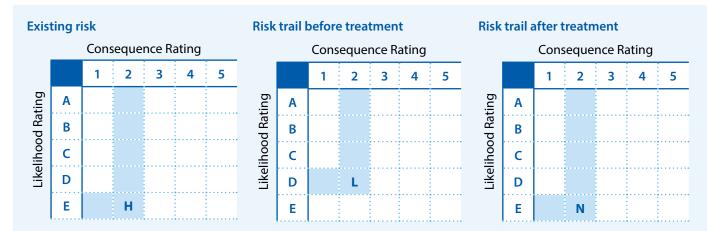
**Rationale:** Some endemic diseases of livestock have wild bird vectors. Human food waste from Trail users will be an attractant to scavenger species. Trail users may feed wild birds, particularly when picnicking. Ibis, ducks, seagulls and sparrows are examples of waste scavengers and are potential sources of Salmonella in livestock. Cases of

Salmonella in cattle, suspected to be from spill-over from wild birds, have been recorded on the north coast.

**Consequences:** Minor. Limited animal illness or deaths on a single enterprise.

#### Risk treatment options and activities to reduce risk:

 Reduce risk by reducing numbers of wild birds attracted to Trail. Provide bins to reduce waste which may attract scavenger species. Signage to inform Trail users of the problems associated with feeding wild birds.



#### L12 Specific risk: Poisoning of livestock by plants

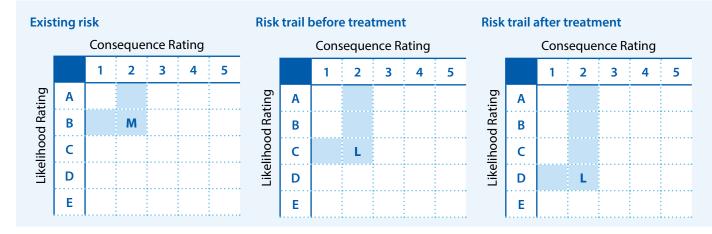
**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail, with improvements in vegetation management.

**Rationale:** The climate and soils of the far north coast have the potential for the growth of a very wide variety of vegetation, including those poisonous to livestock. Poisoning events are usually the result of livestock access to a plant which is novel to them. Grazing behaviour is learnt, so poisoning events often involve multiple casualties. Soil disturbance during the construction of the Trail may encourage the germination of Trema tomentosa (Poison Peach), a rainforest pioneer. Plants introduced for landscaping of the Trail may be poisonous; e.g. Oleander and Mother of Millions. Some toxic plants are bird spread;

e.g. Cestrum nocturnum (Night-scented Jasmine) and Cestrum parqui (Green Cestrum).

**Consequences:** Minor. Limited animal illness or deaths on a single enterprise.

- Reduce the risk livestock contact with toxic plants.
   Scrutiny of all species used in landscaping for poisoning potential.
- Ongoing vegetation maintenance to identify and control plants with potential for poisoning.
- Promote passive surveillance and notification by other Trail users; e.g. signage to inform Trail users.



#### L13 Specific risk: Poisoning of livestock by chemicals

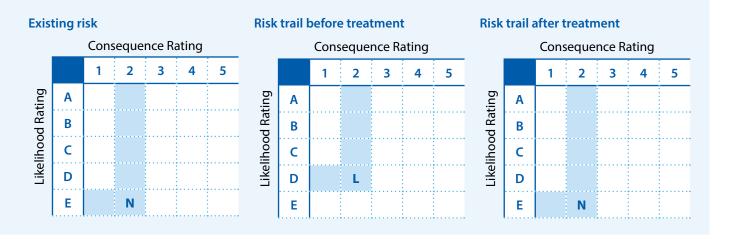
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, through risks associated with construction. However, likelihood is unlikely.

**Rationale:** Ash from burnt Arsenic treated timber is a source of Arsenic poisoning. Cases of poisoning of livestock from burnt railway sleepers and bridge timbers have been documented on the north coast. Arsenic poisoning has also been recorded in cattle on the north coast from access to dip sites and old banana chemical storage sheds.

**Consequences:** Minor. Limited animal deaths on single enterprise.

### Risk treatment options and activities to reduce risk:

 Reduce the risk livestock contact with Arsenic; timber removal and not burnt on site. Remediation for any sites identified as having potential for soil contamination with Arsenic.



# **Residues and Antimicrobial Resistance**

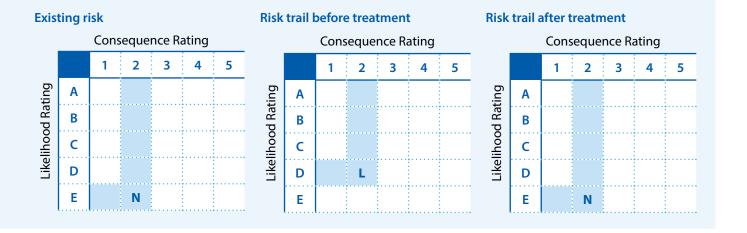
#### L14 Specific risk: Chemical residues in livestock

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, through risk associated with construction. However likelihood is unlikely.

**Rationale:** Soil contaminated with persistent chemicals such as OC's (organochlorines) may be unearthed during construction and potentially pose a risk of residue contamination in livestock. OC residues caused disruption of trade for a significant number of cattle holdings on the north coast in the late 1980's and early 1990's.

**Consequences:** Minor. Few or single businesses affected economically.

- Reduce risk of cattle access to possible soil residues.
- · Obtain track treatment history from state Rail.
- Design Trail to minimise soil disturbance.
- Soil excavated or exposed during construction is tested and is removed or treated to make safe.



#### L15 Specific risk: Introduction of multiple antimicrobial resistant bacteria

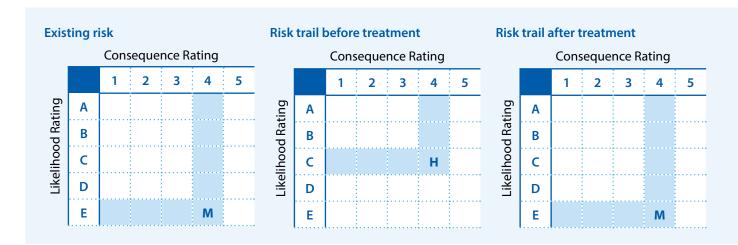
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increased numbers of people.

**Rationale:** Australia has much lower levels of antimicrobial resistance (AMR) bacteria than many overseas countries, so people from overseas are a risk of AMR to both people and livestock. AMR are carried on skin, footwear or in the gastrointestinal tract; human faeces is the highest risk. All livestock are at risk, but free range chickens are at higher risk given their propensity to stray and their scavenging habits. Free ranging chickens adjoin the Trail. Livestock access to imported foodstuffs is of much lower risk.

AMR is one of the biggest threats to both human and animal health today. It can lead to antibiotics being ineffective resulting in higher medical costs, longer hospital stays.

Consequences: Major. Major public health risk.

- Reduce risk of livestock contact with human faeces.
- Provide toilet and hand-wash facilities where practicable.
- Stock proof the Trail.
- Passive surveillance and notification by other Trail users.







# **Animal Welfare**

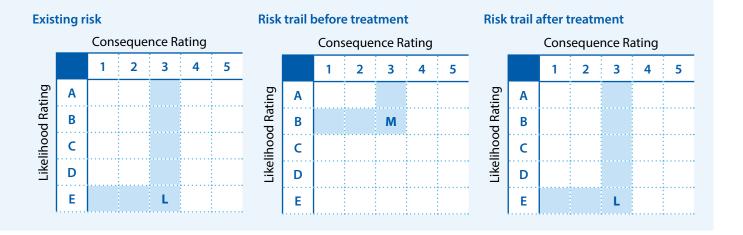
#### AW1 Specific risk: Livestock impacted from domestic dogs, wild dogs or foxes

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail for domestic dogs, as the Trail will result in greater interface between domestic dogs and livestock. However, risks from wild dogs or foxes are likely to be lower with the Trail.

**Rationale:** Domestic and wild dogs and foxes impact domestic dogs, livestock and wildlife welfare by chasing and harassing, by attacking causing injury or death, or by diseases such as Hydatids and Neospora. Domestic dogs that are not leashed have the greatest risk of impacting livestock. Wild dog and fox numbers on or near Trail likely to be reduced, due reduction in harbour and deterrent effect of increased numbers of people. Wild dogs and foxes may be attracted to the Trail by food waste.

**Consequences:** Moderate. Some animal injury or death on multiple properties.

- Reduce risk of domestic dogs straying. Require dog owners to leash dogs, signage.
- Reduce risk of food waste left by Trail users. Provision of bins where practicable. Alternatively require Trail users to take waste with them. Signage for littering.
- Passive surveillance and notification by other Trail users.
- Wild dog and fox control as required.





#### AW2 Specific risk: Impacts of Rail Trail on wild dog, fox and rabbit control programs

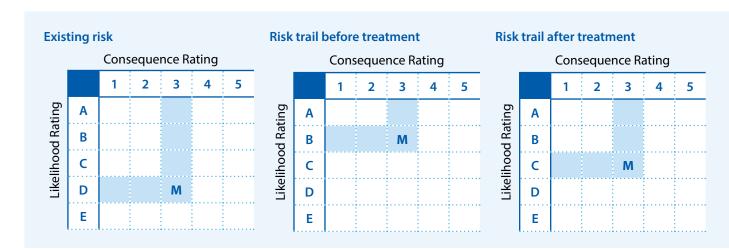
Risk of Rail Trail compared with existing risk: Trail will reduce wild dog and fox populations. However, control programs on adjoining holdings are at risk of being impacted as a result of the Trail due to some Trail users' perceptions of control programs.

Rationale: Wild dog and fox numbers on or near Trail likely to be reduced, due reduction in harbour and deterrent effect of increased numbers of people.

Rail lines are a harbour for rabbits and control programs are likely to be required. Landholders who adjoin the Trail may also conduct control programs for wild dog, foxes and rabbits as part of their ongoing management of vertebrate pests. Perception of risk of some Trail users' could impact on the use of baits in a control program, including distance restrictions for baiting. Shooting is also used to control pest species. Distance requirements and Trail users' perceptions could impact significantly on landholders' ability to control by this method.

**Consequences:** Moderate. Multiple properties affected.

- Reduce risk of adverse public perception by education of users; signage.
- Closure of sections of Trail during periods of control programs on or adjacent to the Trail. Not the preferred option.



#### AW3 Specific risk: Impacts of Rail Trail on livestock management practices

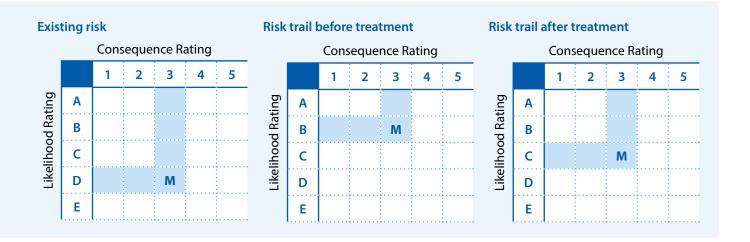
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to high volume of people traffic and some Trail users' perceptions of animal welfare.

**Rationale:** There exists a broad diversity of public perceptions of what is acceptable humane treatment of livestock and of body condition. Routine management activities such as mustering, yarding, handling, milking and animal health treatments are perceived as unacceptable by some people. The keeping of pigs and calves in pens or farm dogs in pens or on chains is also viewed as cruelty by some. Body condition of livestock is driven by seasonal conditions, stage of lactation and breed. Dairy cattle are bred to partition fat to milk rather than to body fat and may be perceived as poor condition. Some individual beef cows will lose significant body weight and condition when feeding a calf. Some breeds, such as Jersey and Dexter have small calves which could be interpreted as runts. Certain

extremist groups actively seek opportunities to discredit or disrupt the keeping of animals and may trespass to achieve these goals. The Trail will cause increased numbers of people interfacing at close quarters with livestock and is therefore likely to increase these risks.

**Consequences:** Moderate. Some impact on multiple properties. May have ramifications for industry as a whole.

- Reduce risk of perception. Adjoining landholders to practice sound animal welfare.
- Adjoining landholders may choose to improve security at high risk sites such as dairies and piggeries; e.g. remove from public eye, locks, and surveillance cameras.
- Signage to warn Trail users of biosecurity and trespassing.
- Passive surveillance by fellow Trail users.





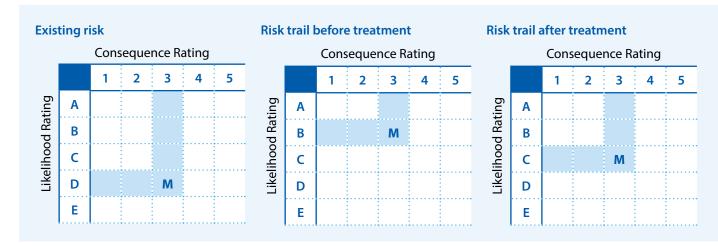
# AW4 Specific risk: Stress, injury or death of livestock from people

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to the higher number of people using the area for recreation.

**Rationale:** A small minority of people can be intentionally cruel to animals. Increased numbers of people interfacing with livestock at close quarters as a result of the Trail increases the probability of such individuals committing acts of cruelty.

**Consequences:** Moderate. Some impact on multiple properties. May have industry implications.

- Adjoining landholders may choose to improve security at high risk sites such as dairies and piggeries; e.g. remove from public eye, locks, and surveillance cameras.
- Signage to warn Trail users of biosecurity and trespassing.
- Passive surveillance by fellow Trail users.



# **Horses Using the Trail**

# H1 Specific risk: Hendra virus infection to horses

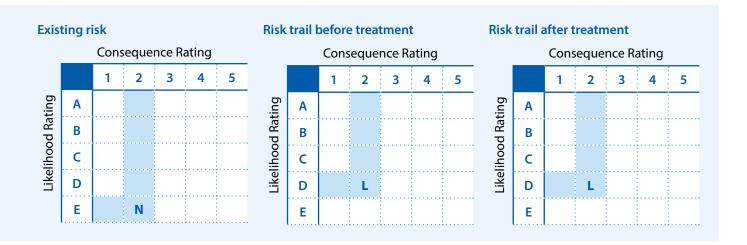
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increase in numbers of horses using the Trail. However likelihood is unlikely. Trail risk is comparable to any situation on the north coast in which more than one horse is kept.

**Rationale:** Horses can be infected from Hendra virus from direct contact with flying fox urine (highly improbable with Trail) or from close contact with an infected horse (unlikely on Trail). Hendra virus infection is an uncommon (average 2 cases per year on the north coast). Horses shed the virus for up to 3 days prior to developing clinical signs of Hendra virus infection. Hendra infection in horses is prevented by vaccination. For the majority of public horse events (e.g. racing and many shows) there is no requirement for horses to be vaccinated.

**Consequences:** Minor. Limited animal illness or death.

- Managed risk to reduce risk of horse to horse spread; allow horses onto Trail, without requirement for vaccination.
- Information to horse owners concerning Hendra virus spread.







# **Dogs Using the Trail**

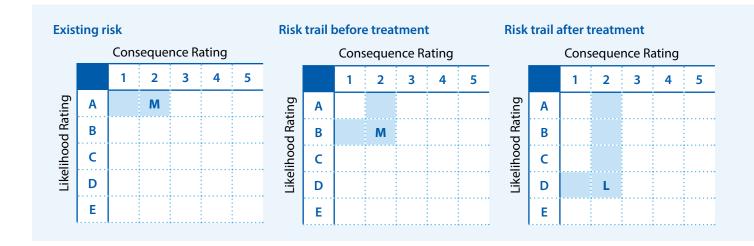
# D1 Specific risk: Risks to domestic dog health from paralysis ticks

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail, due to improved vegetation management with Trail. Trail risk is comparable to any area on the north coast that has vegetation and tick potential.

**Rationale:** Paralysis tick (Ixodes holocyclus) envenomation is a major cause of sickness and death in dogs on the north coast. Native mammals; e.g. bandicoots are a carriers of paralysis ticks. The Trail has extensive areas of vegetation and tick numbers will be higher in those areas. Tick numbers are likely to decrease on the Trail due vegetation control.

**Consequences:** Minor. Limited animal illness or death. Paralysis tick prevention and treatment for dogs are available.

- Reduce risk of contact of dogs with ticks. Require dog owners to leash dogs, signage.
- Passive surveillance and notification by fellow Trail users.



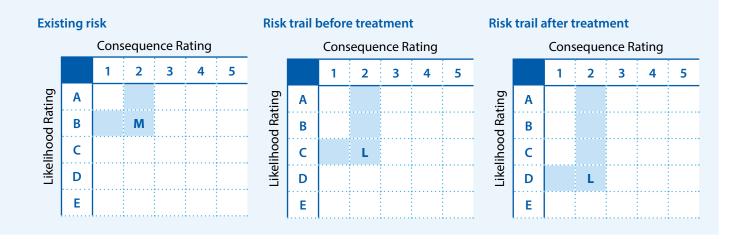
#### D2 Specific risk: Risks to domestic dog health from venomous snakes

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail; built environment changes of the trail provide an area with less suitable environment, particular when combined with increased level of human traffic. Trail risks are comparable with other walking areas near vegetation throughout the north coast.

**Rationale:** Vegetation on or adjacent to the rail land and the rail substrate are a harbour for snakes. Vegetation management with the Trail development is likely to reduce this harbour. Increased levels of human activity with the Trail is likely to be a deterrent for snakes. Dogs actively seek out and attack snakes and are therefore of higher risk than other animals. Unleashed dogs are more at risk.

**Consequences:** Minor. Limited animal health risk requiring medical treatment.

- Reduce risk of dog interface with snakes.
- Require dog owners to leash dogs, signage.
- Passive surveillance and notification by other Trail users.





#### D3 Specific risk: Risks to domestic dogs from wild dog, fox or rabbit control programs

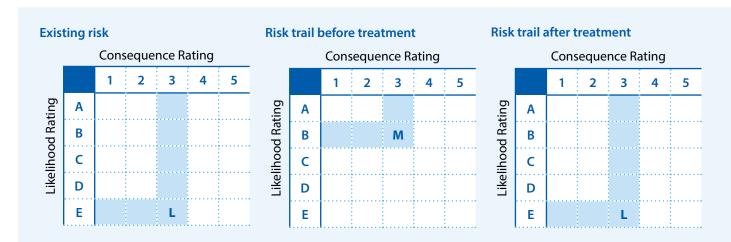
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increase in domestic dog numbers using the Trail.

**Rationale:** Baiting may be conducted on the Trail to control wild dogs, foxes or rabbits. Landholders who adjoin the Trail may also conduct baiting programs as part of their ongoing management of vertebrate pests. Domestic dogs that use the Trail may pick up a bait; this risk increases significantly if the dogs are not leashed. Dogs that are not leashed have the potential to stray a considerable distance from the Trail and access bait.

**Consequences:** Moderate. Risk of some dog illness or deaths on multiple properties.

# Risk treatment options and activities to reduce risk:

- Reduce risk of domestic dogs' access to bait.
- Require dog owners to leash dogs, signage.
- Passive surveillance and notification by other Trail users.



# D4 Specific risk: Risks to domestic dogs from wild dogs

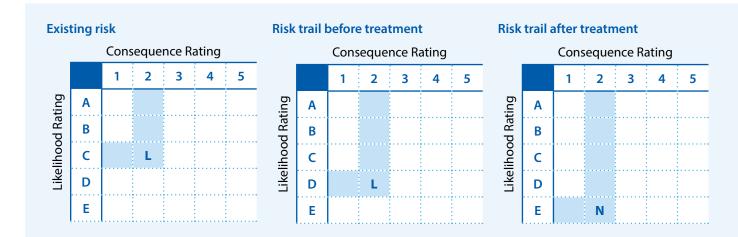
**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail. There will be an increase in domestic dog numbers using the Trail, however wild dog numbers on or near Trail likely to be reduced, due reduction in harbour and deterrent effect of increased numbers of people.

**Rationale:** Wild dogs actively seek out and attack domestic dogs. Wild dogs also carry disease and parasites transmissible to domestic dogs. These risks increase significantly for domestic dogs that are not leashed.

Existing vegetation on or adjacent to the Trail provides harbour for wild dogs. This harbour will be significantly reduced with the Trail.

**Consequences:** Minor. Limited dog illness or death.

- Reduce risk of domestic dogs' contact with wild dogs.
   Require dog owners to leash dogs, signage.
- Wild dog control measures when required.
- Passive surveillance and notification by other Trail users.





# Horticulture

#### HORT1 Specific risk: Risks to horticulture from spray drift of chemicals

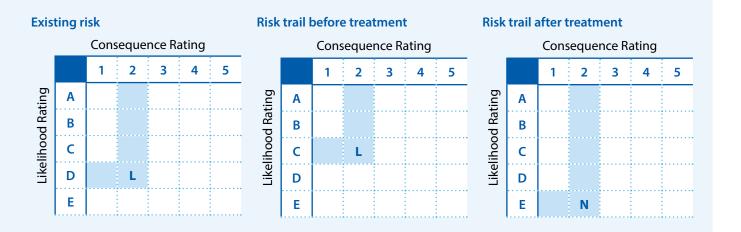
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail. Trail risk is comparable to chemical use on roadsides or adjoining holdings.

**Rationale:** Potential for spray drift or run off from chemicals such as herbicides used during construction or maintenance of the Trail. Horticultural and nursery enterprises adjoin the Trail could have plants affected. Organic farms have quality assurance requirements to maintain their status which could be affected.

**Consequences:** Minor. Few businesses at risk of economic or commercial loss.

#### Risk treatment options and activities to reduce risk:

 Reduce risk of chemical spray drift or run off. Consultation with adjoining landholders before chemical use. Observe label requirements.



#### HORT2 Specific risk: Risks to horticulture from soil borne pathogens

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail. Trail risk comparable with soil movement for other reasons.

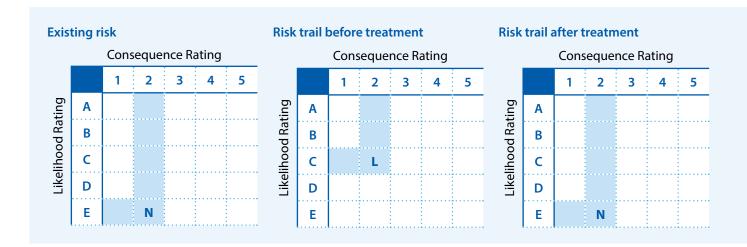
**Rationale:** Horticultural and nursery enterprises that adjoin the Trail could be potentially be impacted by soil borne plant pathogens introduced due to the Trail. This could be during Trail construction or maintenance. Of much lower risk is pathogen introduction through Trail users, dogs or horses. Examples include Phytophora in

avocados, Panama Disease in bananas, Fusarium in nursery or hydroponics.

**Consequences:** Minor. Few businesses at risk of economic or commercial loss.

#### Risk treatment options and activities to reduce risk:

 Reduce risk of introduction of plant pathogens; scrutiny of soil and nursery stock used in Trail construction and maintenance.



#### HORT3 Specific risk: Risks to horticulture from plants used in Trail landscaping

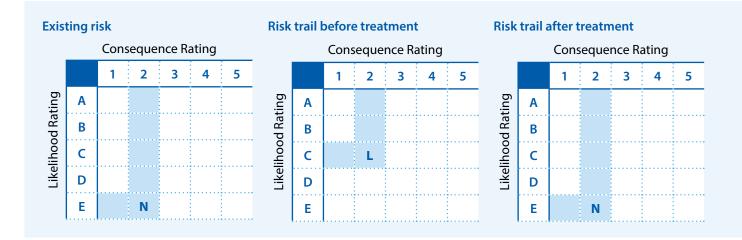
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to landscaping with Trail construction. However, any risks due to existing vegetation will decrease with vegetation changes in Trail construction.

**Rationale:** Horticultural and nursery enterprises that adjoin the Trail could potentially be impacted by plants used in landscaping that could be vectors for horticultural pests and diseases. E.g. native, ornamental or fruiting trees that are a source of fruit fly, scale or aphids.

**Consequences:** Minor. Few businesses at risk of economic or commercial loss.

# Risk treatment options and activities to reduce risk:

 Reduce risk of introduction of plant which have vector potential; scrutiny of species used in Trail construction and maintenance.





# Wildlife and the Environment

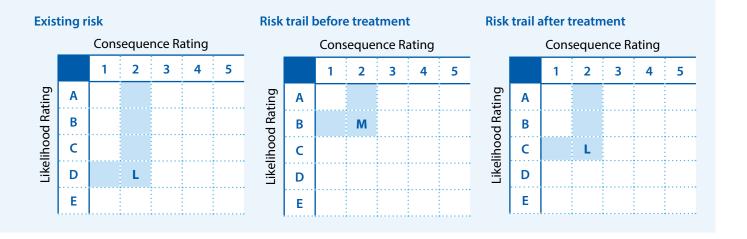
#### W&E1 Specific risk: Risks to wildlife from Trail users (people)

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to forecast high volume of people traffic over time.

**Rationale:** The Trail has the potential to impact a diverse range of wildlife. This may through be through deterrence; e.g. vibration of the pavement, sound and movement of pushbikes, walkers, dogs or horses. The risk is present for nocturnal wildlife due to noise and torchlights. Shy species are more likely to be impacted; e.g. Swamp Wallabies and Pademelons. A proportion of Trail users may actively harass or kill wildlife, particularly reptiles. Of lower risk is disease introduction to wildlife.

**Consequences:** Minor. Localised environmental impact. May have ramifications for local populations of some species.

- Reduce risk of interface of wildlife with Trail use.
- Trail design to maintain or improve wildlife habitat on or adjacent to the Trail; e.g. vegetation buffers. Signage to encourage respect for wildlife.
- Passive surveillance and notification by other Trail users.





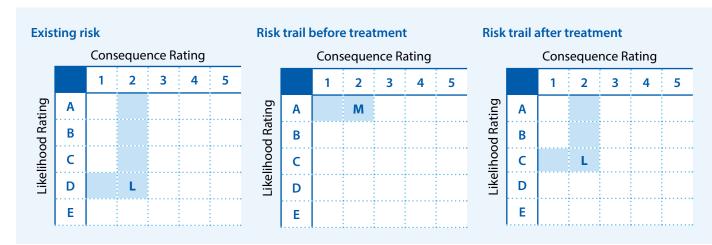
#### W&E2 Specific risk: Risks to wildlife from domestic dogs

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to Trail users introducing dogs to the area.

**Rationale:** The presence of domestic dogs on the Trail has the potential to impact a diverse range of wildlife, including birds, mammals and reptiles. This may be through be deterrence from their smell, barking or harassment. Dogs not leashed may give chase or attack wildlife. Simply chasing macropods can cause myopathy; a fatal condition. Use of the Trail at night by domestic dogs is likely to impact nocturnal wildlife. Of lower risk is disease introduction to wildlife; e.g. mange from dogs to marsupials.

**Consequences:** Minor. Localised environmental impact. May have ramifications for local populations of some species.

- Reduce risk of interface of wildlife with domestic dogs.
- Trail design to maintain or improve wildlife habitat on or adjacent to the Trail; e.g. vegetation buffers.
- Reduce risk of domestic dogs straying. Require dog owners to leash dogs, signage.
- Passive surveillance and notification by other Trail users.



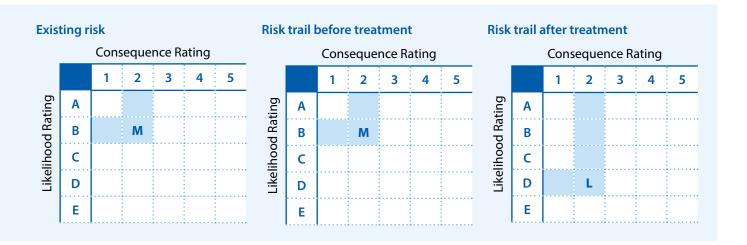
#### W&E3 Specific risk: Risks to aquatic environment and wildlife

**Risk of Rail Trail compared with existing risk:** Trail risk is lower than existing risk, as some waterways near Trail are currently being used illegally by public. Trail risk comparable to waterways elsewhere in the district.

**Rationale:** The use of waterways adjoining or close to the Trail for recreational purposes will not be a permitted activity and considered trespass. Activities by Trail users such as swimming, canoeing, picnicking, fishing or use of waterways by domestic dogs have the potential to impact a range of aquatic wildlife. These include platypus, tortoises, fish, waterfowl or amphibians. Risks include disturbance, loss of habitat, reduced water quality and deliberate taking of life (fishing). There is the potential for the introduction of invasive species; e.g. Tilapia, aquatic weeds. Disease introduction and spread is also risk. e.g. Bellingen River Snapping Turtle virus of 2015.

**Consequences:** Minor. Localised environmental impact. May have ramifications for local populations of some species.

- Reduce risk of illegitimate use of waterways. Signage concerning trespass.
- Reduce risk of domestic dogs straying. Require dog owners to leash dogs, signage.
- Passive surveillance and notification by other Trail users.





#### W&E4 Specific risk: Risks to amphibians on and near the Trail

**Risk of Rail Trail compared with existing risk:** Trail risk is lower than existing risk, as some waterways near Trail are currently being used illegally by public. Trail risk comparable to waterways elsewhere in the district.

Rationale: The use of waterways adjoining or close to the Trail for recreational purposes will not be an encouraged activity and in many cases will likely be trespass to private property. Several endangered species of frog are found on the far north coast, including Great Barred frog (Mixophyes fasciolatus). Illegitimate use of waterways may increase the risk to frogs and other amphibians to diseases. Severe Perkinsea infection (SPI) of tadpoles is exotic to Australia and found in North America, where it has caused many mass mortalities. Chytridiomycosis (Amphibian chytrid fungus disease) is endemic to Australia and is still spreading. There is the potential for exposure

of amphibians to the harmful effects of sunscreen and insect repellents. Some frog species and their tadpoles may be intentionally killed if mistaken for Cane Toads. Use of herbicides near to waterways for Trail construction and maintenance could also impact on amphibians.

**Consequences:** Moderate. Medium environmental impact. May have ramifications for local populations of some species in the event of disease introduction.

#### Risk treatment options and activities to reduce risk:

- Reduce risk of unlawful access or of use of waterways.
   Signage concerning trespass.
- Passive surveillance and notification by other Trail users.
- Reduce risk of herbicide use near waterways. Compliance with label requirements.

#### **Existing risk** Risk trail before treatment Risk trail after treatment Consequence Rating Consequence Rating **Consequence Rating** 2 3 5 3 5 2 5 3 Likelihood Rating Likelihood Rating Likelihood Rating Α Α Α В В В M C C C D D D Ε Ε E





#### W&E5 Specific risk: Risk to microbats in the Rail tunnel

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increase in human movement.

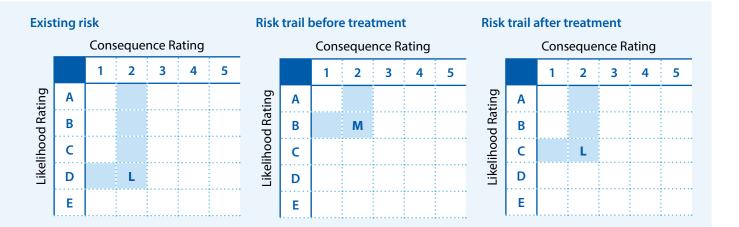
**Rationale:** the 524 metre long tunnel has had no significant use since rail closure in 2004 and is currently an opportunist roosting site to two species of microbat; the Eastern Horseshoe Bat and Large-footed Myotis. The potential introduction of the exotic fungal disease of microbats; white-nose syndrome has been considered. However, the risk of establishment of the fungus is negligible and not included in the risk assessment; temperatures in the tunnel do not favour the fungus, nor do microbats have a significant winter torpor on the north coast to succumb to the disease. Trail users of the tunnel could cause significant disturbance to the microbats,

particularly if intentional. Note, the Council, in connection with its extensive monitoring programme, is due to trail a microbat refuge within the tunnel, which if successful would provide a positive treatment option.

**Consequences:** Minor. Localised environmental impact. Insectivorous bats are a valuable asset to agriculture from their feeding on pest insects.

#### Risk treatment options and activities to reduce risk:

- Reduce risk of interface between microbats and Trail users.
- Construction of barriers or alternative roost sites.
- Passive surveillance and notification by other Trail users.
   Signage.



#### W&E6 Specific risk: Risk to glow worms in the Rail tunnel

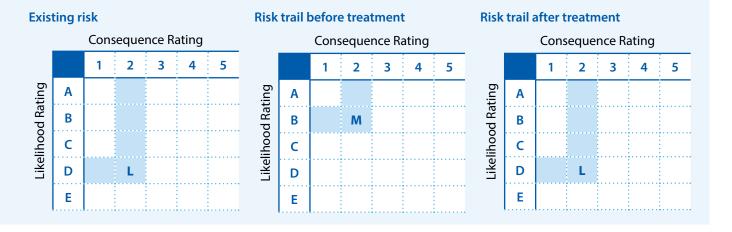
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to increase in human movement.

**Rationale:** glow worms occur only in Australia and New Zealand and are a significant tourist attraction where they are found. The use of long term use of glow worm sites for tourism and measures to reduce environmental impacts are well established. e.g. for the Lithgow rail tunnel and Natural Bridge at Springbrook National Park. Potential risks for glow worm decline are direct torch light, physical

touching and the use of insect repellents and insecticides.

**Consequences:** Minor. Localised environmental impact, loss of tourism.

- Reduce risk factors from Trail users; signage regarding torch light, physical touching and the use of insect repellents and insecticides.
- Passive surveillance and notification by other Trail users.





W&E7 Specific risk: Risks to wild bird health from increased people

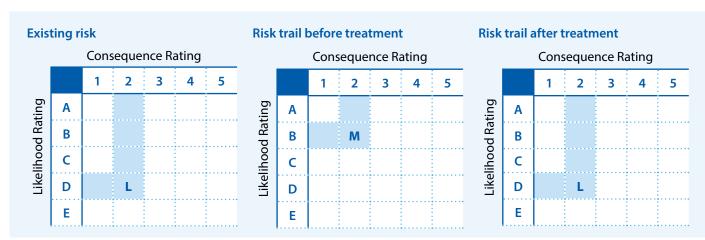
**Risk of Rail Trail compared with existing risk:** Risk increased with Trail, due to increased numbers of people and changes in vegetation on the Trail. Trail risks are comparable to many recreational areas and urban environments.

Rationale: Food waste from Trail users will be an attractant to scavenger species. Trail users may feed wild birds. The change in vegetation type with Trail construction may change the number of wild birds and the species mix of birdlife. When wild birds congregate in numbers greater than they would normally in the environment there is the potential for spread of disease. E.g. Psittacine beak and feather disease in the parrot family. Salmonellosis, internal and external parasites in many species. Pigeon Paramyxovirus spread from feral pigeons to local native

doves and pigeons. Trichomoniasis spread from feral pigeons to many other species of birds at feeding sites. Human foods and less reliance on natural food sources cause dietary imbalances, metabolic disorders and food dependency. Access to human food creates a change in the wild bird species mix to more dominant species.

**Consequences:** Minor, Localised environmental impact.

- Reduce risk of food waste left by Trail users. Provision of bins. Alternatively require Trail users to take waste with them. Signage for littering.
- Signage regarding feeding wild birds.
- Passive surveillance and notification by other Trail users.



#### W&E8 Specific risk: Risks to wildlife from food waste

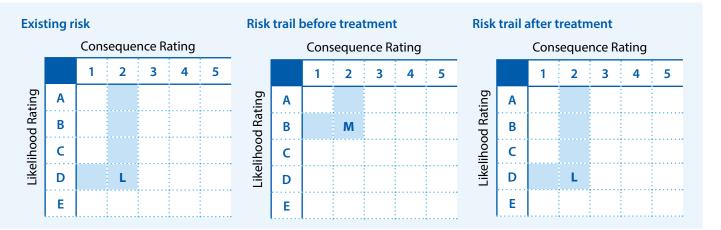
**Risk of Rail Trail compared with existing risk:** Risk increased with Trail, due to increased numbers of people. Trail risks are comparable to many recreational areas and urban environments.

**Rationale:** Wildlife which scavenge human food waste from Trail users are at risk of disease. These include bird to bird diseases listed above. Native mammals that scavenge are at risk of Trichinellosis and Salmonellosis. Human food waste from Trail users will be an attractant to rats and mice. Rodents carry diseases that can infect wildlife. These include Angiostrongylus (rat lungworm), Salmonellosis, Leptospirosis, Borrelia and Encephalomyocaditis virus (EMC).

**Consequences:** Minor. Localised environmental impact.

#### Risk treatment options and activities to reduce risk:

- Reduce risk of food waste left by Trail users. Provision of bins. Alternatively require Trail users to take waste with them. Signage for littering.
- Signage regarding feeding wild birds.
- Passive surveillance and notification by other Trail users.



#### W&E9 Specific risk: Risks to wildlife from fencing

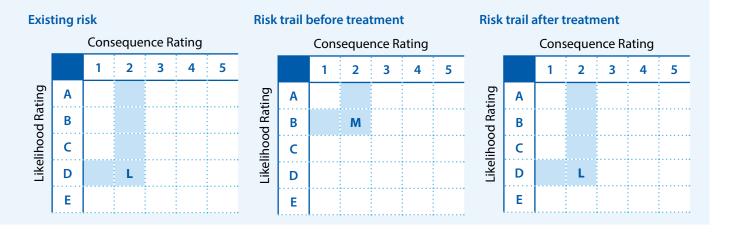
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to fencing as part of Trail construction. Trail risks are comparable to most rural and urban environments. Much of the railway corridor land is already fenced as this was needed to maintain safe operation of the railway and prevent stock from straying from adjoining private properties.

**Rationale:** A wide variety of species of wildlife have been documented entangled in barb wire fences. Flying nocturnal species, such as bats and owls are considered more at risk than diurnal species. There are human health risks for untrained people handling wildlife, any rescues

should be undertaken by those who are trained. Wildlife proof fencing such as mesh fencing can change the normal movement of terrestrial species such as macropods and lead to bottlenecks to movement.

**Consequences:** Minor. Localised environmental impact.

- Reduce risk of wildlife entanglement and changes to movement flows. Consider in Trail design and construction.
- Passive surveillance and notification by other Trail users.



#### W&E10 Specific risk: Risks for rabbit harbour

**Risk of Rail Trail compared with existing risk:** Risk is reduced with Trail. As vegetation is more managed and harbour reduced.

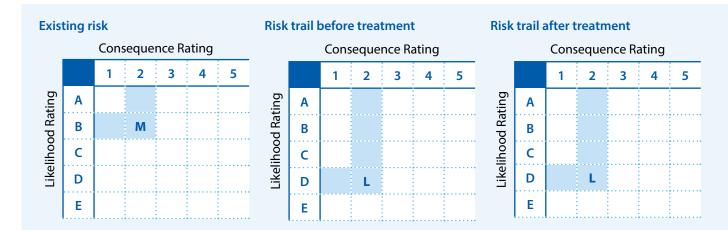
**Rationale:** Several features of rail lines generally make them favourable for rabbit harbour. Rabbits prefer a site that is flood free. They will burrow extensively under a paved surface. There may be unmanaged vegetation on land adjacent to rail lines. Grass on adjoining grazing land,

small holdings and urban yards is a nearby food source to rabbit harbour.

**Consequences:** Minor. Localised environmental and agricultural impacts.

#### Risk treatment options and activities to reduce risk:

- Reduce risk of rabbit harbour. Consider in Trail design and construction.
- Passive surveillance and notification by other Trail users.



#### W&E11 Specific risk: Risks for weeds and invasive plant species

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail, as vegetation will be more managed.

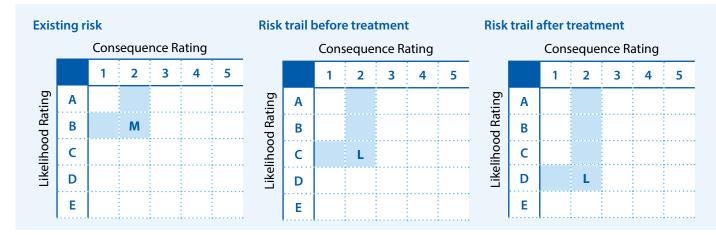
**Rationale:** Much of the rail land had not had significant weed control since rail closure. The Trail offers an opportunity to significantly reduce the existing weed infestations.

The climate and soils of the far north coast have the potential for the growth of a very wide variety of vegetation, including invasive plant species. These species may be environmental threat to land or waterways, invasive to pastures and crops or toxic to livestock. Endemic species, which are in Australia, but not yet established near the Trail pose the greatest risk. Exotic invasive species may be

introduced with landscaping of the Trail. E.g. Singapore Daisy. Faeces from horses or from straying cattle on the Trail have the potential to carry new plant species. E.g. Tropical Soda Apple in cattle faeces. Of much lower risk are weed seeds introduced in footwear or clothing of Trail users or the coats of horses and dogs.

**Consequences:** Minor. Localised environmental and agricultural impacts.

- Reduce risk of introduction of invasive plant species.
   Consider in Trail landscaping. Ongoing maintenance to control plants with weed potential.
- Passive surveillance and notification by other Trail users



#### **W&E12 Specific risk: Trail impacts on weed control programs**

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail due to high volume of people traffic and perceptions of some Trail users.

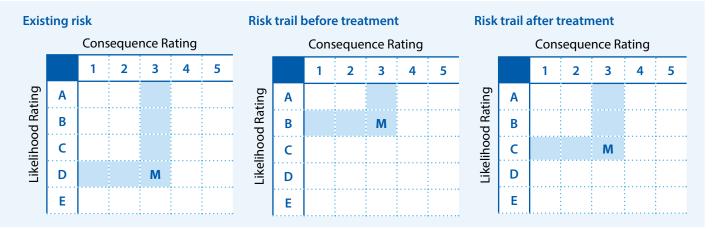
**Rationale:** Routine use of herbicides and pesticides are required by landholders to control vegetation and for the protection of the environment, crops and pastures. Examples in the Tweed include herbicides for woody weeds such as Groundsel, Camphor Laurel and Privet and for pasture weeds such as Giant Parramatta Grass. Also chemical use for crop protection on sugar cane, horticulture and tree crops. There exists a broad diversity of public perceptions of risk and of what is acceptable agricultural practice. There is the potential for pressure from some Trail users on landholders adjoining the Trail to limit or cease

chemical use. This could impact on environmental and agricultural protection. A similar situation may arise in the course of maintenance of the Trail.

**Consequences:** Moderate. Likely to impact on multiple properties. May have ramifications for industry as a whole.

#### Risk treatment options and activities to reduce risk:

- Reduce risk of perception; adjoining landholders to use chemicals as per label. Adjoining landholders may choose to use chemical during periods of lower public use of Trail.
- Eliminate public interface with chemical use. Scheduled periods of Trail closure to enable chemical use on the Trail and adjoining landholdings. This is not the preferred option.



#### W&E13 Specific risk: Trail risks to native flora

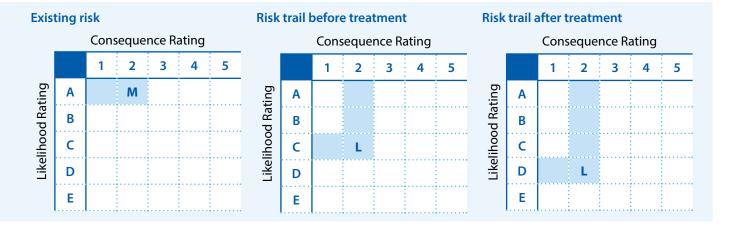
**Risk of Rail Trail compared with existing risk:** Risk is reduced with Trail, as vegetation will be more managed and under closer observation by public.

**Rationale:** Many sections of the rail land are currently not frequented by the public and prone to removal of plants, flowers or seed. E.g. Staghorn ferns and vulnerable rainforest species. There are some sections of the land on and adjacent to the rail that contain a diverse range of native flora. Trail offers the opportunity for rehabilitation, regeneration or habitat creation through plantings. A small

proportion of Trail users may vandalise plants; recently planted trees may be of higher risk.

**Consequences:** Minor. Localised environmental impacts.

- Species selection for clearing and planting to be considered in Trail landscaping design. Identify opportunities for rehabilitation, regeneration or habitat creation on Trail land and adjoining holdings.
- Passive surveillance and notification by other Trail users.



#### W&E14 Specific risk: Introduction and spread of Phytophthora

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to soil movement and landscaping as part of Trail construction. Trail risks are comparable to many other developments which involve soil movement or landscaping.

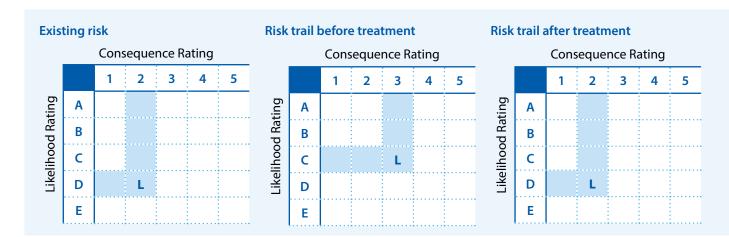
**Rationale:** Phytophthora cinnamomi is an introduced soil borne organism that causes disease and death of a diverse range of native plants (known as "die back"). Native birds and mammals that are dependent on these species for food or shelter are therefore also impacted. The disease also affects some ornamental, horticultural and forestry species, so adjoining landholdings could be at risk. Soil, nursery stock or machinery used during the construction

of the Trail have the potential to introduce and spread the disease. Of significantly lower likelihood is soil movement on footwear, horses, prams and bikes etc. on Trail.

**Consequences:** Minor. Localised environmental impacts.

# Risk treatment options and activities to reduce risk:

 Reduce risk of introduction. Consider in Trail design and landscaping.







#### W&E15 Specific risk: Introduction and spread of Yellow Crazy Ants and Red Imported Fire Ant

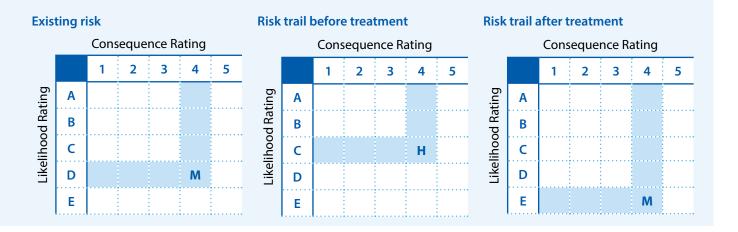
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to movement of soil, mulch and landscaping plants as part of Trail construction. Trail risks are comparable to many other developments which involve soil or mulch movement or landscaping. Improved surveillance with Trail due to increased opportunity for detection by Trail users.

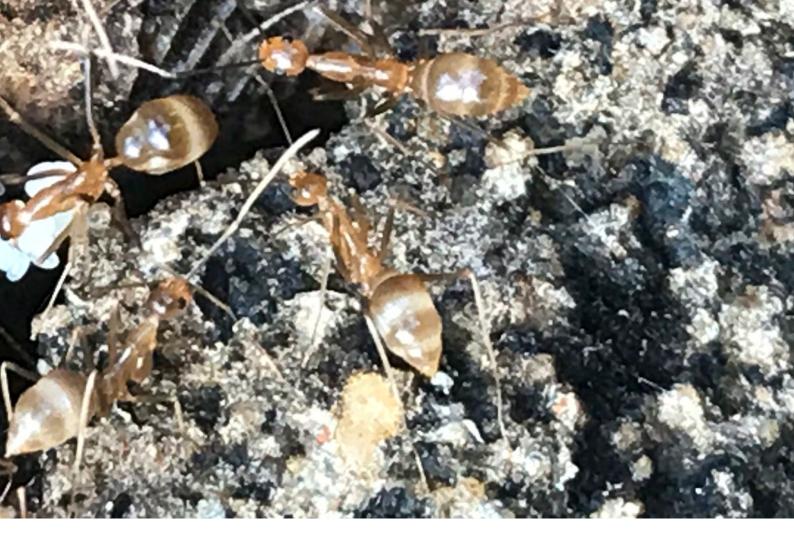
**Rationale:** Yellow Crazy Ants (YCA, Anoplolepis gracilipes) and Red Imported Fire Ant (RIFA, Solenopsis invicta) infestations are present in parts of Brisbane. Yellow Crazy Ants are present in Lismore. Soil, mulch, nursery stock or machinery used during the construction of the Trail have the potential to

introduce the ants. Both ant species are serious invasive pests affecting people, animals and the environment. Both species are time consuming and expensive to control and eradicate. Both are subject to regulation.

**Consequences:** Major. Potential for serious environmental impacts.

- Reduce risk of introduction. Consider in Trail design and landscaping. Scrutiny of sources of soil and landscaping plants.
- Passive surveillance and notification by other Trail users.
   Signage.





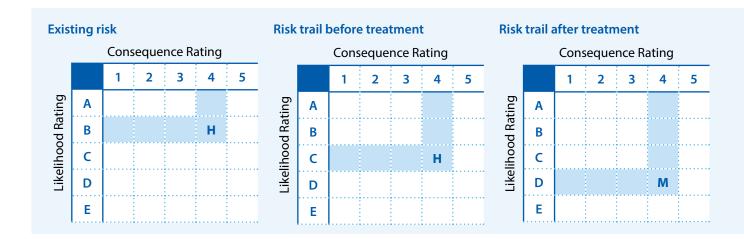
#### **W&E16 Specific risk: Fire risks**

**Risk of Rail Trail compared with existing risk:** Risk is reduced with Trail, as vegetation will be more managed. Improved surveillance with Trail due to increased opportunity for detection by Trail users.

**Rationale:** Existing rail land is largely not managed for fire risk. There are several points on the Trail that are of higher fire risk due to vegetation type, aspect and topography. Appropriate design of landscaping and species selection is an opportunity to reduce fire hazards. Increased human presence from Trail use gives opportunity for earlier fire detection. However, inappropriate human activity may increase risk increase with Trail.

**Consequences:** Major. Serious impacts on the environment, human and livestock safety. Considerable damage or loss to multiple properties.

- Reduce risk of fire hazards. Consider in Trail design, landscaping and ongoing management. Lighting of fires to be illegal on Trail, or alternatively subject to seasonal restrictions and declarations.
- Passive surveillance and notification by other Trail users.





# **Humans**

#### HU1 Specific risk: Human health risks from paralysis ticks

**Risk of Rail Trail compared with existing risk:** Risk reduced with Trail, due to improved vegetation management with Trail. Trail risks comparable with other walking areas near vegetation throughout the north coast.

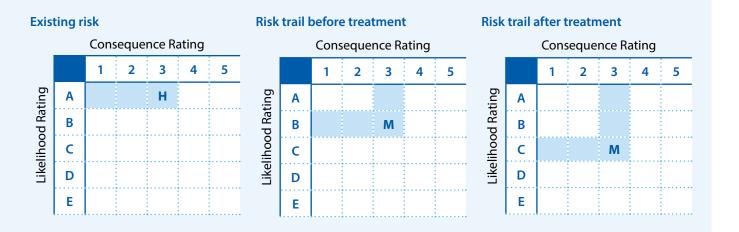
**Rationale:** Paralysis ticks are important to human health when they attach and feed; from their toxin which can cause an acute life threatening anaphylactic reaction, local reaction, paralysis, the immune disorder mammalian meat allergy and as vectors of the disease caused by Borrelia. Native mammals e.g. Bandicoots are a carrier of paralysis

ticks. Paralysis ticks (Ixodes holocyclus) may attach to people on the Trail. Use of repellents reduces risk of tick attachment.

**Consequences:** Moderate. Limited public health risk requiring medical treatment.

#### Risk treatment options and activities to reduce risk:

 Reduce risk of human interface with ticks; signage concerning risk and prevention.



#### HU2 Specific risk: Human and animal health risks from venomous snakes

**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail, due to reduction in harbour and increased level of human traffic. Trail risks comparable with other walking areas near vegetation throughout the north coast.

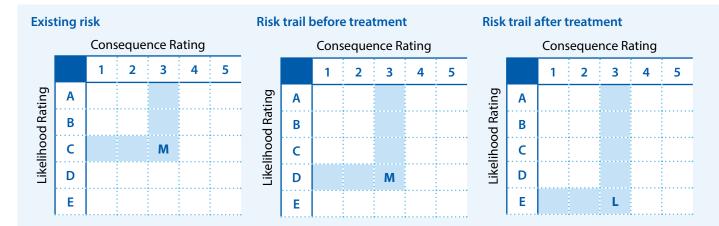
**Rationale:** Vegetation on or adjacent to the rail land and the rail substrate are a harbour for snakes. Vegetation management with the Trail development is likely to reduce this harbour. Increased levels of human activity with the Trail is likely to be a deterrent for snakes. Snakes of any

species can cause horses to shy and could therefore place people at risk.

**Consequences:** Moderate. Limited public health risk requiring medical treatment.

# Risk treatment options and activities to reduce risk:

- Reduce risk of human interface with snakes. Signage concerning risk.
- Passive surveillance and notification by other Trail users.



#### HU3 Specific risk: Risk to human health from wild dogs

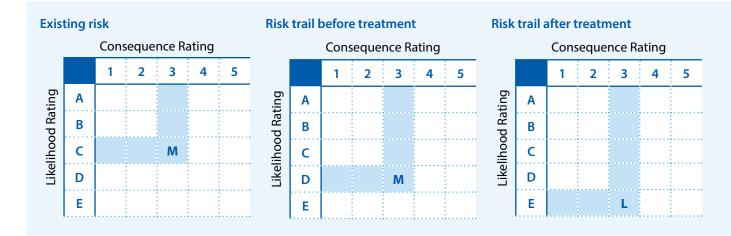
**Risk of Rail Trail compared with existing risk:** Risk is decreased with Trail, due to reduction in harbour and increased level of human traffic. Trail risks comparable with other walking areas near vegetation throughout the north coast.

**Rationale:** In some sections there is considerable vegetation on or adjacent to the rail land, which can be harbour for wild dogs. Vegetation management with the Trail development is likely to reduce this harbour. Generally, increased levels of human activity are a deterrent to wild dogs. However, in recent years wild dogs have stalked and attacked people on the north coast close to urban areas.

The risk increases if wild dogs lose their instinctive fear of humans, in particular from access to food or from being fed. The risk increases if people are accompanied by their dogs, as wild dogs actively seek out domestic dogs. The risk of attack increases in the early morning and after dark.

**Consequences**: Moderate. Limited public health risk requiring medical treatment.

- Reduce risk of human interface with wild dogs. Signage concerning risk and prevention. Wild dog control measures when required.
- Passive surveillance and notification by other Trail users.



#### HU4 Specific risk: Risk to human health from wild mammals and birds

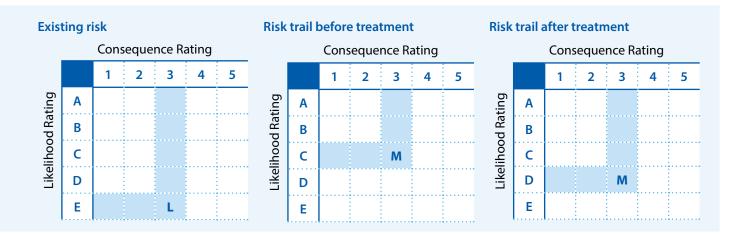
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to level of human traffic and possible increase human interface with wildlife. Trail risks are comparable to many recreational areas and urban environments.

**Rationale:** Some human diseases have wildlife vectors. Any food waste from Trail users will be an attractant to scavenger bird species. Trail users may feed wild birds, particularly when picnicking. Wild birds are a source of lice. Ibis, ducks, seagulls and sparrows are waste scavengers and are potential sources of Salmonella. Wild birds, particularly the parrot group can transmit Psittacosis. The faeces of feral pigeons are a source of Histoplasmosis and Cryptococcal infection.

Food waste is also an attractant to rats and mice. Rodents carry diseases that can infect people. These include Angiostrongylus (rat lungworm), Salmonellosis, Leptospirosis, Borrelia and Encephalomyocaditis virus (EMC).

**Consequences:** Moderate. Limited public health risk requiring medical treatment.

- Reduce risk of active or passive access to human food; provide bins to reduce waste. Signage regarding feeding wild birds and use of bins.
- Passive surveillance and notification by other Trail users.





# HU5 Specific risk: Risk to human health from Australian Bat Lyssavirus from microbats in the Rail tunnel

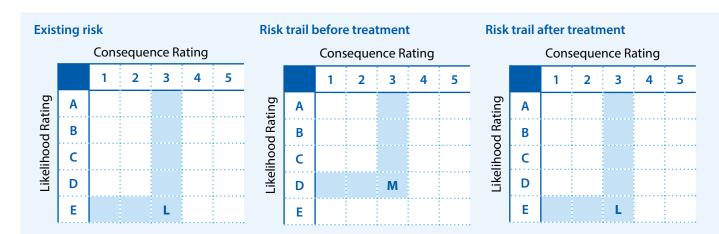
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due higher numbers of people entering the tunnel.

**Rationale:** the 524 metre long tunnel has had no significant use since rail closure in 2004 and is currently an opportunist roosting site to two species of microbat. Australian Bat Lyssavirus (ABLV) has been found in some species of microbat in Australia and all species are considered potential vectors of the virus. Human exposure to ABLV is from bat bites or scratches. ABLV is also found in flying foxes, however the risk of transmission from flying fox to Trail users is considered remote. Compared with rabies in other continents the risk of ABLV to wildlife, domestic animals and humans is extremely low. Public health recommend that only vaccinated people should handle bats.

Note, the Council, in connection with its extensive monitoring programme, is due to trial a microbat refuge within the tunnel, which if successful would provide a positive treatment option.

**Consequences:** Moderate. Limited human health risk requiring medical treatment when exposed. However, unless treated post exposure, it is a fatal disease.

- Reduce risk of interface between microbats and Trail users. Construction of barriers or alternative roost sites.
   Signage to warn risk of risks.
- Passive surveillance and notification by other Trail users.





#### HU6 Specific risk: Risk to human health from bat faeces in Rail tunnel

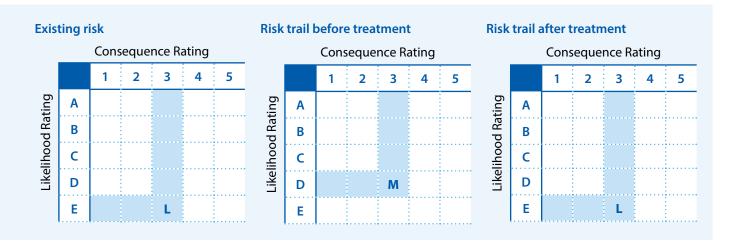
**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to higher numbers of people entering the tunnel. However likelihood of infection from Trail is unlikely.

**Rationale:** The faeces of microbats are a potential source of Histoplasmosis and Cryptococcal infection in humans. These diseases can occur in people who frequent caves, particularly those that are poorly ventilated. The tunnel has natural flow through ventilation, so the risk of these diseases from the tunnel is lower than caves.

**Consequences:** Moderate. Limited human health risk requiring medical treatment when exposed.

# Risk treatment options and activities to reduce risk:

 Reduce risk of interface between microbat faeces and Trail users. Construction of barriers or alternative roost sites.



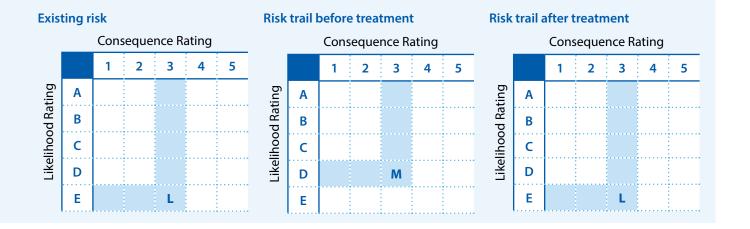
# HU7 Specific risk: Human health risks from domestic dogs using the Trail

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to domestic dogs using the Trail. However the likelihood of human infection on the Trail is unlikely. Risk is comparable to any situation on the north coast in which people have contact with dogs.

**Rationale:** Handling young dogs can result in dermatomycosis (ringworm) or roundworm infection. Handling dogs infected with hydatids, then eating without washing hands first can result hydatid infection.

**Consequences:** Moderate. Limited human health risk requiring medical treatment.

- Reduce risk of unwanted dog to human contact. Require dog owners to leash dogs. Signage.
- Passive surveillance and notification by other Trail users.



# HU8 Specific risk: Risk to human health from hendra virus from horses

**Risk of Rail Trail compared with existing risk:** Risk is increased with Trail, due to horses using the Trail. However likelihood of infection on Trail is rare. Trail risk is comparable to any situation on the north coast in which people have contact with horses.

**Rationale:** Hendra virus infection in horses is uncommon (average 2 cases per year on the north coast). Cases in humans are rare, with only 7 reported cases in Australia. Horses shed the virus for up to 3 days prior to developing clinical signs of Hendra virus infection. Transmission from horses to humans requires close contact (e.g. broken skin) with blood or body fluids of an infected horse. Such

contact is highly unlikely on the Trail, particularly for the non-horse users of the Trail. Post exposure treatment for humans is available. For the majority of public horse events (e.g. racing and many shows) there is no requirement for horses to be vaccinated.

**Consequences:** Moderate. Limited human health risk requiring medical treatment.

#### Risk treatment options and activities to reduce risk:

 Manage risk; allow horses onto Trail, without requirement for vaccination. Information to horse owners concerning Hendra virus spread.

