

# Risk Assessment Template for Importing Reptiles and Amphibians into Tasmania

The following risk assessment determines the risk of *Litoria caerulea* to Tasmania using the Bomford model (2008) and proposes assigned threat categories and import classifications for the species.

Species:		
Date of Assessment:	25 July 2024	
Literature search type and date:	Internet NRE Library literature search	
Factor	Score	Notes
A1. Risk posed from individual escapees (0-2)	0	
A2. Risk to public safety from individual captive animals (0-2)	0	
<b>Stage A. Risk posed by individual animals (risk that a captive or escape animal would harm people)</b>	<b>Public Safety Risk Score</b> = A1 + A2 = 0	<b>Public Safety Risk Ranking</b> = Not Dangerous
B1. Family Random Effect Value	-0.82	Hylidae
B2. Prop.species Value	0.0	<i>Litoria caerulea</i>
B3. S(Climate 6 value)	-0.09132	
<b>Stage B. Likelihood of establishment (risk that a particular species will establish a wild population in Tasmania)</b>	<b>Establishment Risk Score</b> = $1/(1+\exp(0.8-2.9*(B2)-B3-B1))$ = $1/(1+\exp(0.8-2.9*(0)+0.91+0.82))$ = 0.074	<b>Establishment Risk Ranking</b> Extreme ≥ 0.86 High 0.40 – 0.85 Moderate 0.17 – 0.39 Low ≤ 0.16  = LOW
C1. Taxonomic group (0-4)	0	'Other group
C2. Overseas range size (0-2)	0	Range is less than 10,000km <sup>2</sup>
C3. Diet and feeding (0-3)	0	Not a mammal
C4. Competition for native fauna for tree hollows (0-2)	2	Can nest or shelter in tree hollows

C5. Overseas environmental pest status (0-3)	0	Never reported as an environmental pest in any country or region
C6. Climate match to areas with susceptible native species or communities (0-5)	5	Very high overlap (100%) of distribution of 3 potentially susceptible native species listed as threatened ( <i>Litoria raniformis</i> , <i>Pasmaditta jungermanniae</i> , and Charopidae species), and 50% overlap with <i>Oreixenica ptunarra</i> . See appendix for details.
C7. Overseas primary production (0-3)	0	No reports of damage to crops or other primary production in any country or region.
C8. Climate match to susceptible primary production (0-5)	0	The species does not have attributes to make it capable of damaging this commodity
C9. Spread disease (1-2)	1	All amphibians and reptiles
C10. Harm to property (0-3)	0	<\$100,000
C11. Harm to people (0-5)	2	Annoyance likely to be minor and few people exposed.
<b>Stage C. Consequence of Establishment (risk that an established population would cause harm)</b>	<b>Consequence Risk Score</b> = sum of C1 to C11 <b>= 10</b>	<b>Consequence Risk Ranking</b> C > 19, Extreme C = 15-19, High C = 9-14, Moderate C < 9, Low <b>= MODERATE</b>
<b>C-2. Qualitative assessment of the consequence of establishment: reptiles and amphibians</b>		
Adverse impacts elsewhere	No	There is no evidence of the species having adverse impacts elsewhere.
Close relatives with similar behavioural and ecological strategies that have had adverse impacts elsewhere	Yes	Presence of the invasive Puerto Rican coqui frog ( <i>Eleutherodactylus coqui</i> ) is associated with a significant changes in invertebrate species composition of the leaf litter assemblage (Choi and Beard, 2012) <i>Litoria dentata</i> , established on Lord Howe Island, is feared to have a high risk of impact on diverse invertebrate community, and causes annoyance to human residents through their croaking (Plenderleith et al., 2015). Similarly, noise levels by invasive frogs in Hawaii have been associated with economic impacts of reduced property value (Beard



		and Pitt, 2005 in Plenderleith et al., 2015).
Dietary generalists	Yes	<i>Litoria caerulea</i> is a generalist, opportunistic feeder. It generally ambushes insects that come past, though it will also actively search for food when hungry. It has a strong preference for invertebrates, e.g. moths, beetles, but may prey on small frogs and skinks. The species would likely be able to source food in the warmer months in Tasmania.
Stir up sediments to increase turbidity in aquatic habitats	No	<i>Litoria caerulea</i> inhabits aquatic environments but is unlikely to increase turbidity.
Occur in high densities in their native or introduced range	Yes	<i>Litoria caerulea</i> is common in its native range, and they can occur in high densities in areas of ideal environmental conditions during the breeding season.
Have the potential to cause poisoning and/or physical injury	No	This species has limited potential to cause poisoning or physical injury. They are a common and favourable pet, with no recorded evidence of causing harm.
Harbour or transmit diseases or parasites that are present in Australia	Yes	This species is an Australian endemic and harbours diseases and parasites which are present in the country. Likely prone to some internal and external parasites. May carry the fungal pathogen <i>Batrachochytrium dendrobatidis</i> (Bd) that causes the infectious amphibian disease chytridiomycosis
Have close relatives among Tasmania's endemic reptiles and amphibians	Yes	There are three native <i>Litoria</i> species found in Tasmania: <i>Litoria burrowsae</i> (Tasmanian tree frog) is endemic to Tasmania. <i>Litoria raniformis</i> (green and gold frog, listed as threatened in Tasmania) endemic to Australia. <i>Litoria ewingii</i> (brown tree frog)
Are known to have spread rapidly following their release into new environments	No	Despite multiple records of escaped/introduced individuals in New Zealand, Florida, South Africa and Norfolk Island, there is no



		evidence of established populations in any of those countries/locations (Kraus, 2009).
<b>Stage C-2. Qualitative Consequence Assessment</b>	<b>Consequence Risk Ranking</b> Yes = 5/9 No = 4/9  Given the potential for high densities, and the unknown/ little understood impact on invertebrate communities, and, mostly, their potential to spread disease to already vulnerable and at-risk taxa: <b>HIGH</b>	
<b>Stage C. Consequence of Establishment (risk that an established population would cause harm)</b>	Quantitative Consequence: Moderate Qualitative Consequence: High Highest Consequence Assessment: <b>HIGH</b>	
<b>ASSIGNED THREAT CATEGORY:</b>	<b>SERIOUS</b>	
<b>PROPOSED IMPORT CLASSIFICATION:</b>	<b>IMPORT RESTRICTED TO THOSE LICENCE HOLDERS APPROVED FOR KEEPING SERIOUS THREAT SPECIES</b>	



## CALCULATING TOTAL COMMODITY DAMAGE SCORE

Industry	Commodity Value Index (CVI)	Potential Commodity Impact Score (PCIS, 0-3)	Climate Match to Commodity Score (CMCS, 0-5)	Commodity Damage Score (CDS columns 2 x 3 x 4)
Cattle (includes dairy and beef)	11			
Timber (includes native and plantation forests)	10			
Aquaculture	6			
Sheep (includes wool and meat)	5			
Vegetables	5			
Fruit (includes wine grapes)	5			
Poultry (including eggs)	1.5			
Cereal grain (includes wheat, barley, sorghum etc)	1			
Other crops and horticulture (includes nuts and flowers)	1			
Pigs	1			
Bees (includes honey, beeswax, and pollination)	0.5			
Oilseeds (includes canola, sunflower etc)	0.5			
Grain legumes (includes soybeans)	0.3			
Other livestock (includes goats and deer)	0.3			
<b>Total Commodity Damage Score (TCDS)</b>				0



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### Appendix A: Assigning species to threat categories

A: DANGER POSED BY INDIVIDUAL ANIMALS (RISK A CAPTIVE OR ESCAPED INDIVIDUAL WOULD HARM PEOPLE)	B: LIKELIHOOD OF ESTABLISHMENT (RISK THAT A PARTICULAR SPECIES WILL ESTABLISH A WILD POPULATION IN TASMANIA)	C: CONSEQUENCE OF ESTABLISHMENT (RISK THAT AN ESTABLISHED POPULATION WOULD CAUSE HARM)	THREAT CATEGORY	IMPLICATIONS FOR ANY PROPOSED IMPORT INTO TASMANIA
Highly, Moderately or Not Dangerous	Extreme	Extreme	Extreme	Prohibited
Highly, Moderately or Not Dangerous	Extreme	High		
Highly, Moderately or Not Dangerous	Extreme	Moderate		
Highly, Moderately or Not Dangerous	Extreme	Low		
Highly, Moderately or Not Dangerous	High	Extreme		
Highly, Moderately or Not Dangerous	High	High		
Highly, Moderately or Not Dangerous	Moderate	Extreme		
Highly, Moderately or Not Dangerous	High	Moderate	Serious	Import restricted to those licence holders approved for keeping serious threat species
Highly, Moderately or Not Dangerous	High	Low		
Highly, Moderately or Not Dangerous	Moderate	High		
Highly Dangerous	Moderate	Moderate		
Highly Dangerous	Moderate	Low		
Highly, Moderately or Not Dangerous	Low	Extreme		
Highly, Moderately or Not Dangerous	Low	High		
Highly Dangerous	Low	Moderate		
Highly Dangerous	Low	Low		
Moderately or Not Dangerous	Moderate	Moderate	Moderate	Import restricted to those licence holders approved for keeping moderate threat species
Moderately or Not Dangerous	Moderate	Low		
Moderately or Not Dangerous	Low	Moderate		
Moderately Dangerous	Low	Low		
Not Dangerous	Low	Low	Low	Import permitted

<b>A: DANGER POSED BY INDIVIDUAL ANIMALS (RISK A CAPTIVE OR ESCAPED INDIVIDUAL WOULD HARM PEOPLE)</b>	<b>B: LIKELIHOOD OF ESTABLISHMENT (RISK THAT A PARTICULAR SPECIES WILL ESTABLISH A WILD POPULATION IN TASMANIA)</b>	<b>C: CONSEQUENCE OF ESTABLISHMENT (RISK THAT AN ESTABLISHED POPULATION WOULD CAUSE HARM)</b>	<b>THREAT CATEGORY</b>	<b>IMPLICATIONS FOR ANY PROPOSED IMPORT INTO TASMANIA</b>
Unknown	Any value	Any value	Extreme until proven otherwise	Prohibited
Any Value	Unknown	Any value		
Any Value	Any value	Unknown		
Unassessed	Unassessed	Unassessed		

## CONTACT

For further information about this risk assessment methodology, or any supporting documents, contact Wildlife Management, the Department of Natural Resources and Environment Tasmania:

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