



**Australian Government**

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**Department of the Environment and Energy**

## **Department Risk Analysis**

**Application to add *Okapia johnstoni* (Okapi) to the Environment Protection and Biodiversity Conservation Act 1999 *List of Specimens taken to be Suitable for Live Import***

May 2018

# Introduction

## Purpose of the proposed import

Taronga Conservation Society Australia (Taronga) seeks to import a breeding pair of Okapi (*Okapia johnstoni*). The Okapi will be featured in zoo-based educational displays and will serve as ambassadors for the plight of central African fauna and the environmental challenges faced by wildlife in this region.

Although the current application relates to a single pair, Taronga has stated that if the opportunity arose they would be interested in establishing a breeding colony of the species facilitated through the Association of Zoos and Aquariums (USA) species survival plan. Importation of Okapi would allow Australia to participate in and contribute to the species survival plan (SSP), including breeding to support the ongoing conservation of this species in captivity for education, advocacy and genetic insurances for the remaining wild populations.

Zoo-based breeding programs in Australia generally target a population of 50 individuals (applicant).

## Background

Under s303EC of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the responsible Minister may amend the *List of Specimens taken to be suitable for live import* (Live Import List) by including a specimen on the List. There are two parts to the List:

- Part 1 comprises specimens that can be imported without a permit under the EPBC Act; and
- Part 2 comprises specimens that require a permit under the EPBC Act to be imported. Import restrictions generally apply to the species listed on Part 2, such as 'Eligible non-commercial purpose only, excluding household pets'. Additional conditions may also be applied when the permit for import is issued.

Before amending the Live Import List, the Minister must consult with appropriate Ministers and other persons, and consider a report assessing the potential environmental impacts of the proposed amendment. When submitting an application to the Department to amend the Live Import List, all applicants are required to provide an accompanying report that addresses specific terms of reference.

The Department undertakes a risk assessment using the information in the applicant's report and any other sources of relevant information. The Department also considers comments and information received through the public consultation process (including states and territories). The application and accompanying report for the proposed import of Okapi was released for public comment in October 2017.

Importation of Okapi would also be subject to an approval by the Commonwealth Department of Agriculture and Water Resources.

## **Biology and Ecology of *Okapia johnstoni***

The Okapi is a rainforest giraffid endemic to the tropical forests of central and north-eastern Democratic Republic of Congo (Nixon & Lusenge, 2008), is regionally extinct in Uganda (Mallon *et al.*, 2015), and is represented by a single species (*Okapia johnstoni*) (Kümpel *et al.*, 2015a). Its closest related species are the members of the Giraffe genera which split from the Okapi approximately 16 million years ago (Kümpel *et al.*, 2015b).

Okapi are a medium sized giraffid standing about 1.5 m at the shoulder and weighing between 200 and 300 kg with females being slightly larger than males. The coat is chestnut brown, made of short oily hair which acts as waterproofing in the damp rainforest environment and distinctive zebra type striping on the rump and forelegs (Kümpel *et al.*, 2015a). Okapi share a number of characteristics with giraffe, including bilobate canine teeth, an elongated prehensile tongue and skin covered horn-like head structures called ossicones in males (Nixon & Lusenge, 2008).

Okapis become sexually mature at about two years of age (Immens, 2017) but are not fully grown until about three years of age (Palkvac. 2000). The average gestation period is between 430 to 440 days, based on animals in captivity (Immens, 2017)). Weaning occurs at about 6 months, although young may continue to suckle for more than a year (Palkvac, 2000). Okapi cows are hidiers, placing calves in a nest while they graze. Calves may spend up to 80% of their first few months in these nests which are thought to be an antipredator strategy (Immens, 2017). The generational time is about eight years with a lifespan of about 30 years in captivity, data from wild populations is unavailable (Mallon *et al.*, 2015).

Okapi are adapted to their dense forest environment, possessing both excellent hearing and camouflage for protection and the ability to interact with their environment using a highly sensitive olfactory system and tongue. (Kümpel *et al.*, 2015a). The retinas of Okapi contain high levels of rods making them suited to low light conditions. In captivity it has been observed they avoid brightly lit areas with calves being intolerant to bright sunlight (Immens, 2017).

The Okapi diet is solely composed of young leaves of over 100 species of understory foliage with the species moving between two and a half and four kilometres per day randomly foraging (Kümpel *et al.*, 2015a). Females have a nonexclusive home range of between four and seven km<sup>2</sup> with males ranges covering between 10 to 15 km<sup>2</sup>. Okapi are social but solitary animals with only small loose groups of females and unweaned young being observed in the wild (Kümpel *et al.*, 2015a; Stanton *et al.*, 2015b). In captivity Okapi are isolated from each other to prevent stress related conditions with males and females only being brought together for mating purposes (Troxell-Smith & Miller, 2016).

In captivity it has been reported that Okapi are not cold hardy and require a humid environment to prevent sinus related conditions. The species can only tolerate temperatures of 5–13°C for short periods of time if given free access to a heated space but should not be exposed to temperatures below 5°C (Immens, 2017).

Okapi are predominately diurnal with peak feeding occurring mid-morning and late afternoon with some nocturnal activities being observed (Nixon & Lusenge, 2008). Due to their secretive nature, cryptic markings, non-herding behaviour and dense rainfall habitat, scientific knowledge of the species in the wild is limited (Kümpel *et al.*, 2015a). This has limited research of the species in the

wild, with the first photo of a wild Okapi only being captured via a remote camera in 2008 (Nixon & Lusenge, 2008).

Ecological studies in both wild and captive animals suggest the species is sensitive to human noise and activities. Wild surveys suggest Okapi avoid human activity and will disappear in areas of active human settlement or disturbance (Kümpel *et al.*, 2015b). In captivity Okapi have been shown to avoid areas of high human activity or anthropogenic noise (Troxell-Smith & Miller, 2016).

Okapi populations are mostly found within four *Institut Congolais pour la Conservation de la Nature* (ICCN) protected areas across their known range: the Okapi Faunal Reserve; Maiko National Park; Virunga National Park; and the Rubi-Tele Reserve; with their presence in several other forests in the region being detected through scat (Nixon & Lusenge, 2008). In 2014, Okapi were located in the Nord Ubangi District in the north-eastern region of the Democratic Republic of Congo (Ngbolua *et al.*, 2014). This suggests that the species may exist in isolated areas outside its current known range.

It is estimated that the species population is between 10 000 and 35 000 (Mallon *et al.*, 2015) with the population declining by about 43% between 1995 and 2007 based on surveys in the Okapi Faunal Reserve. Population estimates derived from dung counts and camera trapping show variable population estimates (Stanton *et al.*, 2014a).

Despite the low density and abundance of Okapi in the wild it has been shown that the population still has high levels of genetic diversity (Stanton *et al.*, 2014b). The captive population contains significant genetic diversity but less than the wild population and there is variation between the North American and European breeding populations (Stanton *et al.*, 2015a). It is important to ensure that captive breeding programs, such as proposed by the applicants, are managed to ensure as much of the genetic diversity is maintained as possible.

## **Conservation status**

Okapi are listed on the International Union for Conservation of Nature and Natural Resources (IUCN) Red List as Endangered (A2abcd & 4abcd) due to the population decreasing by greater than 50% over three generations (24 years) (Mallon *et al.*, 2016). Okapi are under major on-going threats from habitat fragmentation, human encroachment, regional armed conflict and poaching (Ngbolua *et al.*, 2014). Okapi are also hunted for the bushmeat market (van Vliet *et al.*, 2012).

They are not listed under the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES).

The Okapi is a fully protected species under Congolese law and has been protected since 1933 (Mallon *et al.*, 2015). The main Okapi regions are either national reserves or national parks where hunting, logging and mining is banned. However, enforcement is virtually non-existent leading to increasing pressures on the species (Kümpel *et al.*, 2015a).

## **Risk assessment**

The Department used the Australian Bird and Mammal Risk Assessment Model developed by Mary Bomford (2008) to assess the risks posed by the importation of the Okapi (**Appendix A**). The results indicate that the species has:

- a low risk of establishing a wild population in the Australian environment if released;
- a low risk of becoming a pest if it were to establish;
- poses no danger to the public from either captive or released individuals; and
- a theoretical Environment and Invasives Committee (formerly Invasive Plants and Animals / Vertebrate Pest Committee) threat category of Low (using Table 2.3 in Bomford, 2008).

The climate match (Climatch), comparing the native range of the species to Australian climates, indicates that the species has a low climate match to Australia (**Appendix B**). The highest Climatch classes of five and six correspond to coastal regions in eastern and southern Australia. In their native habitat, Okapi are confined to high canopy tropical rainforests between 450 and 1500 m above sea level and they have a low tolerance of anthropogenic activities. This means much of the potential habitat identified in the Climatch results would be unlikely to support Okapi.

The application states that Okapi are held in zoos worldwide and there have been no reports of the species establishing wild populations in any of these countries. In Central Africa, the species has historically maintained a limited range and does not seem to inhabit all regions where its environmental requirements are met.

## **Risk mitigation**

The risk assessment indicates that the species has a low potential for establishing in Australia if it were released, however, they should be contained in secure facilities to prevent escape. This listing would also recommend the species are kept in appropriate facilities as the literature suggests that even captive born Okapi can be negatively impacted by human activities and require specialised enclosures to prevent stress related problems and behaviours (Troxell-Smith & Miller, 2016, Troxell-Smith *et al.*, 2017, Immens, 2017).

The Department considers that any risks posed by this species would be adequately mitigated by listing the species under Part 2 with standard conditions relating to the import of live animals for zoo exhibitions.

## **Concerns raised and responses**

The Department undertook consultation with relevant ministers (or their delegates), government agencies and the public in November 2017. The Department received responses from the ACT and South Australian governments:

- The ACT was supportive of the application to allow import for zoo exhibition purposes.
- South Australia supported the listing but raised questions about risks from disease and pathogens to livestock. This will be assessed by the Department of Agriculture and Water Resources as part of their Biosecurity Import Risk Assessment under the *Biosecurity Act 2015*.

One non-government organisation (Perth Zoo) also responded, supporting the listing.

### GovDex consultation round

The Department undertook consultation on the draft Risk Analysis report with relevant government agencies in April 2018. Two agencies responded supporting listing of the species (the ACT and Queensland). Verbal responses supporting the listing were received from Victoria and South Australia. The Departments request for comments included a statement that if no comments are received by the due date the Department will assume support for the draft report and recommendations. No other responses were received.

## **Conclusion**

Having undertaken an analysis and reviewed the available information, the Department recommends listing *Okapia johnstoni* (Okapi) on Part 2 of the Live Import List with conditions:  
**Eligible non-commercial purpose only excluding household pets.**

Permits would be required for each import, the security of the facilities would be assessed and further conditions can be placed on individual imports as required.

## Appendix A: Australian Bird and Mammal Risk Assessment Model

### Species identification and sources

Common name	Okapi
Scientific name	<i>Okapia johnstoni</i>
Date assessed	9-Feb-18
Literature Search Type and Date:	IUCN, Immens, (2017), Literature

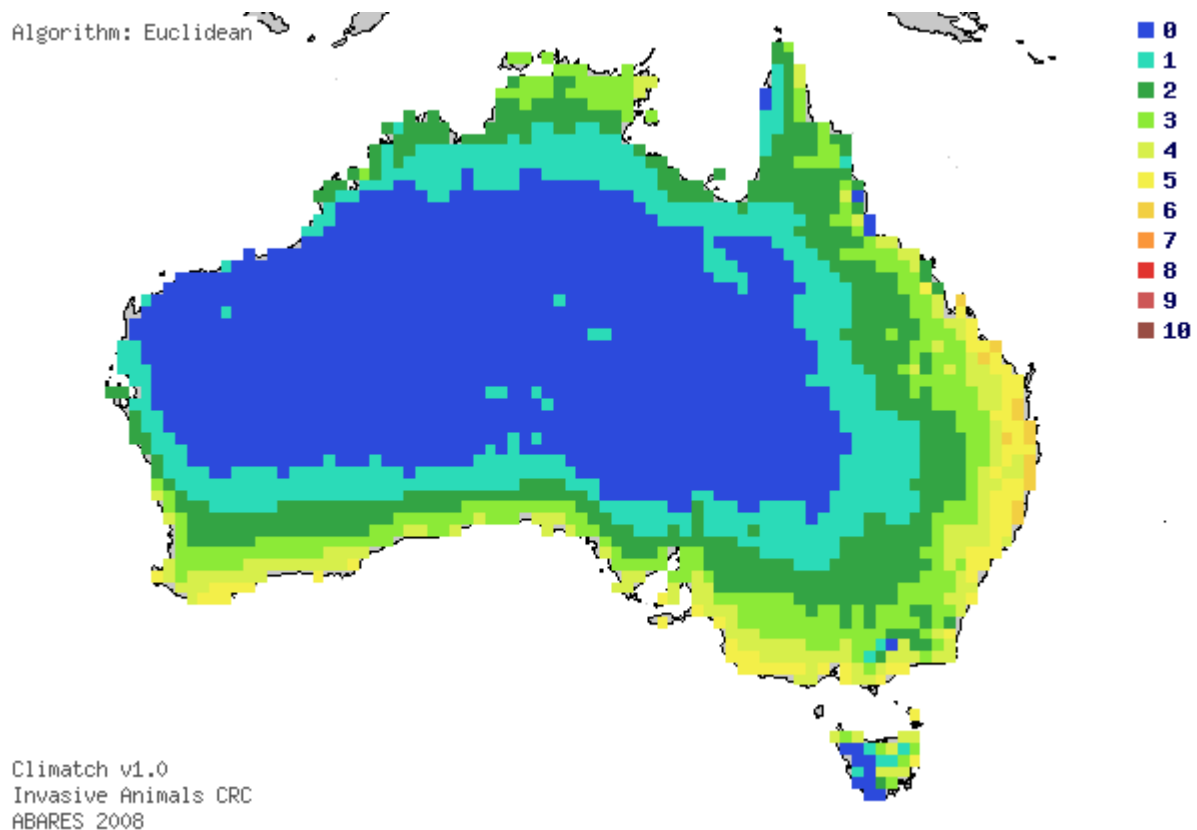
Risks posed by captive or released individuals	Value	Comment
A1. Risk to people from individual escapees (0–2)	0	species unlikely to make unproved attacks on people
A2. Risk to public safety from individual captive animals (0–2)	0	Zoo animal so interactions with public very unlikely.
A. Risk posed by captive or released individuals (= Sum of A 1 to 2).	<b>0</b>	<b>not dangerous</b>

Risk of establishment	Value	Comment
B1. Climate Match Score (1–6)	1	climatch match score = 86
B2. Exotic Population Established Overseas Score (0–4)	0	no exotic populations established anywhere in the world
B3. Overseas Range Size Score (0–2)	0	141 000 km2 (IUCN)
B4. Taxonomic Class Score (0–1)	1	mammal
B5. Diet Score (0–1)	1	specialist browser of understory foliage but known to consume over 100 species of plants
B6. Habitat Score (0–1)	0	only lives in undisturbed habitat
B7. Migratory Score (0–1)	1	non migratory
Model	2	
B. Risk of Establishment (Model 1 = Sum of B1 to B4; Model 2 = Sum of B1 to B7).	<b>4</b>	<b>low establishment risk</b>

Risk of becoming a pest	Value	Comment
C1. Taxonomic group (0–4)	2	Artiodactyla
C2. Overseas range size including current and past 1000 years, natural and introduced range (0–2)	0	probably less than 0.5 million km2
C3. Diet and feeding (0–3)	3	browsing mammal
C4. Competition with native fauna for tree hollows (0–2)	0	does not use 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)	1	species has no grid squares in highest four climate match classes
C7. Overseas primary production pest status (0–3)	0	no reports of damage to crops or to primary production in any country or region
C8. Climate match to susceptible primary production (0–5) <b>Hint: Use the "commodity" sheet created when a CLIMATCH grid is opened.</b>	1	potentially may have impacts to a commodity but no evidence that it has caused any damage in any country.
C9. Spread disease (1–2)	1	mammal
C10. Harm to property (0–3)	0	no reports of any harm to property
C11. Harm to people (0–5)	0	nil risk
C. Pest Risk Score (= Sum of C 1 to 11).	<b>8</b>	<b>low pest risk</b>

Summary	Value	
A. Risk to public safety posed by captive or released individuals	<b>0</b>	<b>not dangerous</b>
B. Risk of establishing a wild population	<b>4</b>	<b>low establishment risk</b>
C. Risk of becoming a pest following establishment	<b>8</b>	<b>low pest risk</b>

## Appendix B: Climatch predicted range.



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