Environmental Protection Authority
Te Mana Rauhī Taiao

New Zealand Government

Staff Assessment Report

18 February 2020

Application code:	APP203982
Application type and sub-type:	Non-notified – non-GM import into containment
Applicant:	Auckland Zoo
Subject:	Information to support the consideration of application APP203982

Purpose

1. This memorandum provides information to support your consideration of Application APP203982 and provides you with guidance around the proposed controls. It is intended to be read in conjunction with the draft decision.

2. The decision pathway for this application can be found in Appendix 1.

The application

3. The applicant, Auckland Zoo, is seeking an approval to import three primate species: De Brazza's monkey (*Cercopithecus neglectus*), red ruffed lemur (*Varecia rubra*) and white-faced saki (*Pithecia pithecia*), into containment for public display, education and conservation purposes.

4. The application was formally received on 21 February 2020. It was decided by the Acting General Manager, Hazardous Substances and New Organisms that the application did not warrant public notification as it did not meet the threshold of 'significant' public interest.

Comments from external agencies

5. The Department of Conservation (DOC) and the Ministry for Primary Industries (MPI) were given the opportunity to comment on the application.

6. DOC had no objection to this proposal.

7. MPI considered that the applicant did not provide sufficient information to assess the proposed containment of the primate species. However, it noted that the risk of escaping from containment is likely to be negligible if the primate species are held within a containment facility approved in accordance with the requirements of EPA Standard: *Zoo containment facilities* (Appendix 3) and controls like those applying to APP201517 are applied (as set out in Appendix 1 of the draft decision).

The Draft Decision

8. We evaluated this application as being relatively low risk and straightforward, and therefore elected to prepare a draft decision and this memorandum to support your consideration, in place of a full Staff Assessment Report.

9. The draft decision is just that, a draft. Alterations, inclusions or deletions to the content may well be appropriate or necessary following your consideration of the application.

Organisms' description

De Brazza's monkey (Cercopithecus neglectus)

10. *Cercopithecus neglectus* is a primate species in the family Cercopithecidae (Table 1). The International Union for Conservation of Nature (IUCN) categorised De Brazza's monkey as a 'least concern' species. However, *C.* the species is protected from hunting or trapping in Ethiopia as animal trade (pet, bushmeat) and habitat destruction cause declines in parts of its traditional habitat (Oregon Zoo ND). The Association of Zoos and Aquariums (AZA), which manages captive populations under a species survival plan, sponsored the De Brazza's monkey to proactively protect the future of the species (Eng ND).

Taxonomic Unit	Classification
Order	Primates
Suborder	Haplorhini
Infraorder	Simiformes
Family	Cercopithecidae
Genus	*Cercopithecus*
Species	*C. neglectus* (Schlegel, 1876)
Common name	De Brazza's monkey

Table 1: Scientific classification of *Cercopithecus neglectus.*

11. De Brazza's monkey is the largest species in the guenon family, measuring between 40 and 63 cm (Eng ND; Oregon Zoo ND). A bright orange crescent on the forehead and a white muzzle and beard characterise the species. The long black tail is not prehensile[1]. Males are bigger in size (average weight 6-7 kg for male, 3-4 kg for female) with a distinctive blue scrotum (Richardson 2009; Hartley & Chapman 2018).

12. All members of the genus *Cercopithecus* are endemic to sub-Saharan Africa (Figure 1). De Brazza's monkey is a relatively widespread species across forested regions of central Africa including Angola, Cameroon, Central African Republic, Congo, the Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Gabon, Kenya, South Sudan, Nigeria and Uganda (King 2008).

[1] Prehensile: capable of grasping.

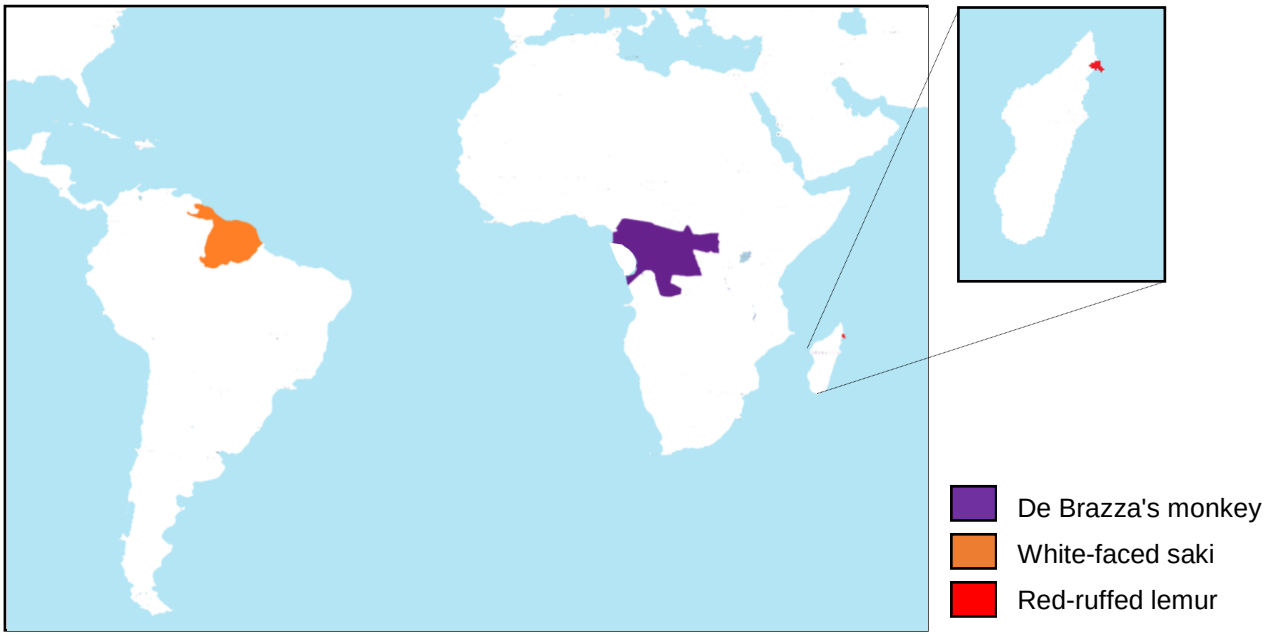

Figure 1: Distribution of De Brazza's monkey, the white-faced saki and the red-ruffed lemur population.

13. The species lives in small groups of two to ten individuals and is found in the canopy of the forest near a river. Its habitat covers lowland and submontane tropical moist forests, swamp forests, semi-deciduous forests and Acacia forests (Oregon Zoo ND). De Brazza's monkeys' diet includes fruits, vegetables and insects. When foraging in open areas, the monkey uses its extensive cheek pouches to store food (Richardson 2009).

14. *Cercopithecus neglectus* is polygynous with a breeding season from February to March in its natural habitat. However, in captivity, breeding occurs all year round as food is always available (Stein 2002). The sexual maturity occurs around five years of age for females and six years of age for males. Despite some reports of monogamous behaviour, it is generally polygamous (Eng ND). The female gives birth to usually one young that immediately clings to its mother's belly.

15. De Brazza's monkey is generally shy and inconspicuous[2] (Richardson 2009). The species is territorial but does not show any aggression towards other groups of De Brazza's monkey that enter its area; whereas any other species of monkey are forcibly removed (Richardson 2009). When a predator approaches *C. neglectus* freezes to avoid being detected and can remain frozen for hours until the threat is removed (Richardson 2009).

White-faced saki (Pithecia pithecia)

16. *Pithecia pithecia* is a primate species in the family Pitheciidae (Table 2). The IUCN categorised the white-faced saki as a 'least concern' species (Marsh 2018).

17. White-faced saki is a medium-sized primate (32 -40 cm) with slightly heavier males (1.8 – 2.4 kg for males, 1.4 – 1.9 kg females). Its common name comes from the distinctive bright furry white face that males possess. Males also have a long black coat whereas females have a shorter brownish grey coat and an orange chest and abdomen. Both sexes have a long, thick, non-prehensile tail (Grubich 2013).

[2] Inconspicuous: not clearly visible or attracting attention.

Taxonomic Unit	Classification
Order	Primates
Suborder	Haplorhini
Infraorder	Simiformes
Family	Pitheciidae
Genus	*Pithecia*
Species	*P. pithecia* (Linnaeus, 1766)
Common names	white-faced saki, Guianan saki, or golden-faced saki

Table 2: Scientific classification of *Pithecia pithecia.*

18. *Pithecia pithecia* originates from South America (Figure 2). The species is found in Brazil, Venezuela, French Guiana, Guyana and Suriname (Grubich 2013). Its habitat covers a variety of forest types including upland and lowland rainforests where fruit trees and waterholes are abundant, but it can also be found in very wet or very dry forests (Dugmore 1986; Grubich 2013). This monkey mainly occupies the middle to lower parts of the forest (Veiga et al. 2013).

19. White-faced sakis live in small groups of usually two to four individuals, but groups with up to 12 individuals have been observed in Guiana (Veiga et al. 2013). Sakis are known to be monogamous in captivity; however, in the wild groups larger than three individuals can include more than one breeding male or female (Grubich 2013). Females bear one offspring per year, with young reaching sexual maturity around three years of age. White-faced saki lifespan is double in captivity with an average of 30 years of age for only 15 years in the wild (Grubich 2013).

20. Predominantly a leaping species, the white-faced saki also spends time on the ground walking on all fours. It can travel long distances to find food which includes fruits, seeds, leaves, honey, flowers, insects, and small mammals and birds (Toronto Zoo ND).

21. White-faced saki has loud territorial calls between the males and the females to maintain territorial boundaries as well as the social bond. When alarmed they alternate between fleeing rapidly and freezing to confuse predators (Toronto Zoo ND).

Red-ruffed lemur (Varecia rubra)

22. *Varecia rubra* is the largest member of the family Lemuridae (Table 3). The species is commonly known as the red-ruffed lemur due to its orange-red coat that contrasts with its black inner fur (tail, face, chest and inner arms and legs) (Lemur Conservation Foundation ND). Adults have a white patch on the back of their neck and may have some white markings on their hands and feet. Like all species of ruffed lemur, they have long furry “ruffs” of hair on the ears (Gron 2007). This primate species is classified as a ‘critically endangered’ species by IUCN. The population is declining due to illegal logging, hunting pressure, frequent cyclones and fires (Andriaholinirina 2014).

23. Red-ruffed lemur is a medium-size primate. It weighs 3.3 to 3.6 kg for a body length of 43 to 57 cm. The tail is longer than the body, with an average of 60 cm long. No sexual dimorphism is observed (Gron 2007).

24. This endangered species is endemic to Madagascar (Figure 1) and only found in a small area covering 4000 km^2 in the north-eastern part of the island. It lives in tropical moist lowland forests in the tree canopy (Gron 2007; Mittermeier et al. 2012).

25. Red-ruffed lemur is mainly frugivorous, with a diet composed of 74-90% of fruits, 4-21% of nectar and 3-6% of leaves, flowers and seeds. Each day, it can travel more than one kilometre to forage. The species is considered an important pollinator in the forest as it transfers pollen on its snout when feeding on nectar (Gron 2007; Lemur Conservation Foundation ND).

Taxonomic Unit	Classification
Order	Primates
Suborder	Strepsirrhini
Family	Lemuridae
Genus	*Varecia*
Species	*V. rubra* (É. Geoffroy, 1812)
Common name	Red-ruffed lemur

Table 3: Scientific classification of *Varecia rubra.*

26. This diurnal species lives in matriarchal groups of five to 31 individuals. Their social structure is described as multi-male/multi-female fission-fusion social organisation meaning that red-ruffed lemurs will merge or split into bigger or smaller groups depending on habitat and food sources availability (Gron 2007) . Red-ruffed lemurs use their hands and feet to move through the forest and their tail to balance. The size of their territory depends on the size of the group (Mittermeier et al. 2012; Lemur Conservation Foundation ND).

27. Red-ruffed lemurs are polygamous, with males and females taking multiple partners during the breeding season (San Diego Zoo Global 2019). Females give birth to litters of two to up to six tiny offspring (100 g weight). Both males and females care for the young (Lemur Conservation Foundation ND). Adults do not carry their pups on their back; instead, they keep them in a nest 10 to 20 m off the ground. Accidental falls and predators are the main cause of the poor survival rates of offspring (35%) (Maryland Zoo ND).

28. The lifespan in the wild of this species is not known. However, in captivity life expectancy is 21 years for males and 18 years for females, with a record of 36 years obtained by a female (San Diego Zoo Global 2019).

29. Red-ruffed lemurs spend their day feeding and socialising, using their specialised dentition as a toothcomb for grooming each other (Maryland Zoo ND). Individuals communicate with loud booming calls and scent marking (The Zoo Review 2019). When threatened, they gesture with their bushy tails to send a visual signal (Downey 2018). In captivity, red-ruffed lemurs have been successfully housed with 12 other lemur species and over 30 different non-prosimian mammals and birds (Fenn ND).

Proposed controls

30. Section 45(2) of the Hazardous Substances and New Organisms Act 1996 (HSNO Act) specifies that an approval must include controls that provide for the matters specified in Schedule 3 of the Act, and may include controls that provide for any other matters that give effect to the purpose of the Act.

31. The proposed controls are primarily outcome-focused, specifying outcomes that must be achieved, rather than prescribing a set method by which the outcome must be achieved. This enables the approval user to update their containment measures (design, construction, and management of the facility) to reflect best practice and any new information about the biology of the organisms being contained.

32. Appendix 2 sets out the proposed controls against the matters specified in Part 2 of Schedule 3 of the HSNO Act (*Matters to be addressed by containment controls for new organisms excluding genetically modified organisms*).

33. In addition to those controls addressing the matters in Schedule 3 of the HSNO Act, it is proposed that **controls 3** and **4** be imposed. **Control 3** requires that the approval user document the technical and operational policies and procedures that they will implement to meet the controls and the quality control measures they will use to ensure those policies and procedures are effective in achieving the outcomes set out in the controls (i.e., containment of three new primate species). **Control 4** requires that the containment facility where *C. neglectus, P. pithecia*, and *V. rubra* are held be operated in compliance with the documentation specified in **control 3**.

Risks and benefits

34. In the decision document, the EPA assessed the risks, costs and benefits of the release of these three primate species in the context of the environment, market economy, people and communities, public health and on the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, valued flora and fauna, and other taonga.

35. We considered that the risks associated with having *C. neglectus*, *P. pithecia*, and *V. rubra* in containment are not significant. In addition, the benefits of having these three primate species in containment are likely to occur and are potentially significant.

Conclusion

36. There are no issues we would like to bring to the attention of the Committee.

37. We recommend that this application meets the requirements of section 45 of the HSNO Act, and therefore, can be approved, subject to the controls set out in Appendix 1 of the draft decision.

10 March 2020

Date

Advisor, New Organisms

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Appendix 1: Decision path for applications to import into containment any new organism (non GMO)

Context

This decision path describes the decision-making process for applications to import into containment any new organism that is not a GMO. These applications are made under section 40 of the HSNO Act, and determined under section 45 of the Act. Applications to import a new organism into containment require consideration of section 44 (section 37 and ability to escape: section 37 refers to the ability of the organism to form an undesirable self-sustaining population and ease of eradication).

Introduction

The purpose of the decision path is to provide the HSNO decision maker[3] with guidance so that all relevant matters in the HSNO Act and the Methodology have been addressed. It does not attempt to direct the weighting that the HSNO decision maker may decide to make on individual aspects of an application. In this document 'section' refers to sections of the HSNO Act, and 'clause' refers to clauses of the EPA Methodology.

The decision path has two parts:

- Flowchart (a logic diagram showing the process prescribed in the Methodology and the HSNO Act to be followed in making a decision), and
- Explanatory notes (discussion of each step of the process).

Of necessity the words in the boxes in the flowchart are brief, and key words are used to summarise the activity required. The explanatory notes provide a comprehensive description of each of the numbered items in the flowchart, and describe the processes that should be followed to achieve the described outcome.

For proper interpretation of the decision path it is important to work through the flowchart in conjunction with the explanatory notes.

[3] The HSNO decision maker refers to either the EPA Board or any committee or persons with delegated authority from the Board.

Flowchart: Decision path for applications to import into containment any NO (non GMO) (application made under section 40 of the Act and determined under section 45 of the Act)

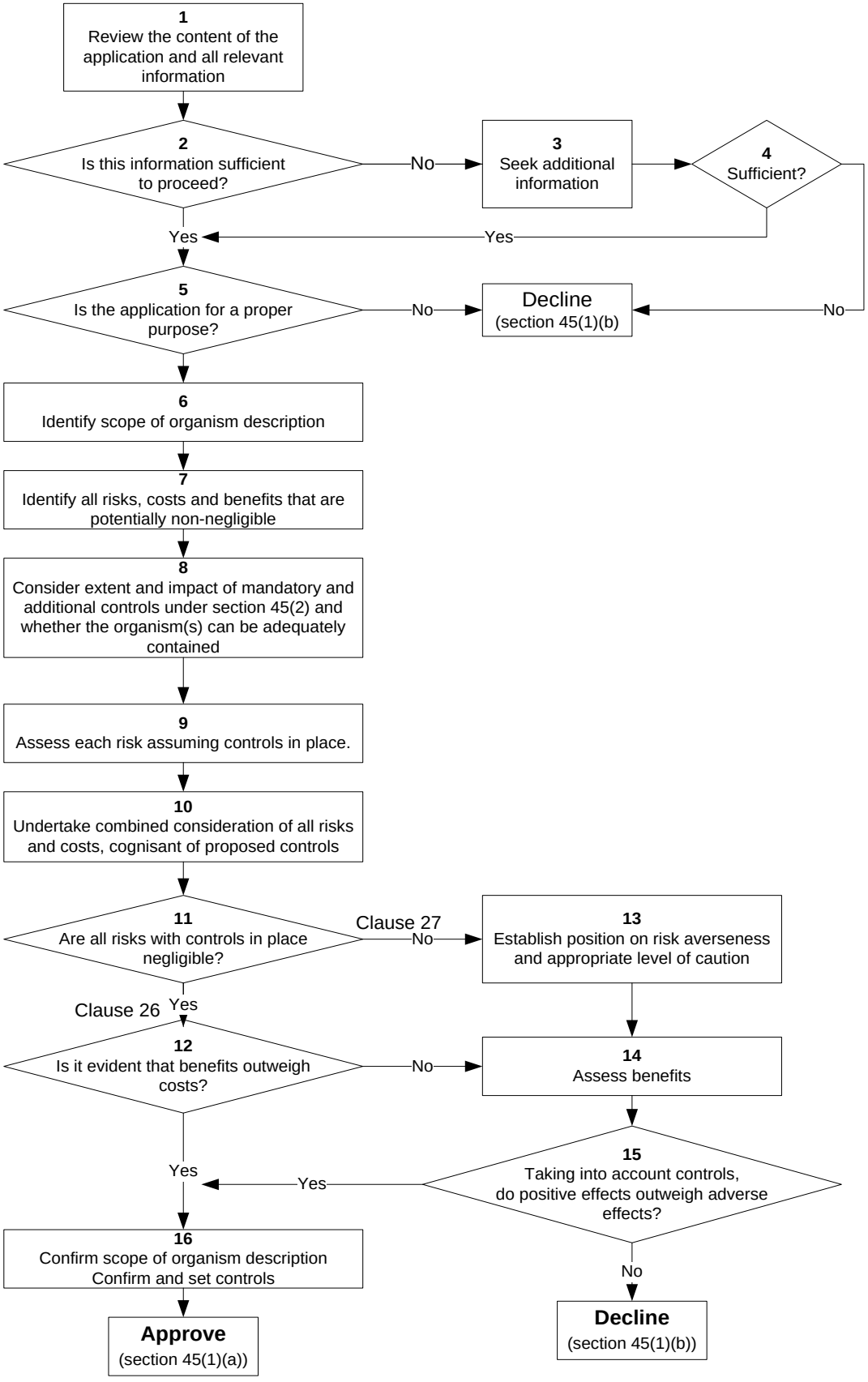


Figure 1: Explanatory Notes

An application may be for a single new organism, or for a variety or range of new organisms where the boundaries of the extent of modifications envisaged are well defined. In both of these cases organisms having similar risk profiles should be grouped into categories. Each category should be considered separately via the path below.

Item 1:	**Review the content of the application and all relevant information** Review the application, the E&R Report (or draft decision and EPA staff advice), and information received from experts and that provided in submissions (where relevant) in terms of section 40(2) of the Act and clauses 8, 15, 16 and 20 of the Methodology.
Item 2:	**Is this information sufficient to proceed?** Review the information and determine whether or not there is sufficient information available to make a decision. The Methodology (clause 8) states that the information used by the HSNO decision maker in evaluating applications shall be that which is appropriate and relevant to the application. While the HSNO decision maker will consider all relevant information, its principal interest is in information which is significant to the proper consideration of the application; ie information which is "necessary and sufficient" for decision-making.
Item 3:	**(if no) Seek additional information** If there is not sufficient information then additional information may need to be sought from the applicant, the EPA staff or other parties/experts under section 58 of the Act (clause 23 of the Methodology).
Item 4:	**Sufficient?** When additional information has been sought, has this been provided, and is there now sufficient information available to make a decision? If the HSNO decision maker is not satisfied that it has sufficient information for consideration, then the application must be declined under section 45(1)(b). Under section 40(4) of the Act the applicant may choose to withdraw the application at any time.
Item 5:	**(If 'yes' from item 2 or from item 4) Is the application for a proper purpose?** Section 39(1) of the Act specifies the purposes for which the HSNO decision maker may approve the importation of a new organism. If the application is not for one of the purposes listed under section 39(1) then it must be declined.
Item 6:	**Identify scope of organism description** Clearly identify the scope of the organism description. Particular attention should be paid to whether the application is for a single new organism or a variety of new organisms as referenced in the Introduction to these notes. Exclusions may be used to sets bounds on the scope of the organism description where a range or variety of new organisms is being considered.
Item 7:	**Identify all risks, costs and benefits that are potentially non-negligible[4]** Costs and benefits are defined in the Methodology as the value of particular effects (clause 2). However, in most cases these 'values' are not certain and have a likelihood attached to them. Thus costs and risks are generally linked and may be addressed together. If not, they will be addressed separately. Examples of costs that might not be obviously linked to risks are direct financial costs that cannot be considered as 'sunk' costs (see footnote 1). Where such costs arise and they have a market economic effect they will be assessed in the same way as risks, but their likelihood of occurrence will be more certain (see also item 12).

[4] Relevant effects are **marginal effects**, or the changes that will occur as a result of the organism(s) being available. Financial costs associated with preparing and submitting an application are not marginal effects and are not effects of the organism(s) and are therefore not taken into account in weighing up adverse and positive effects. These latter types of costs are sometimes called 'sunk' costs since they are incurred whether or not the application is successful.

	Identification is a two-step process that scopes the range of possible effects (risks, costs and benefits).	
	Step 1:	Identify all risks and costs (adverse effects) and benefits (beneficial effects) associated with the approval of the organism(s), and based on the range of areas of impact described in clauses 9 and 10 of the Methodology and sections 5 and 6 of the Act[5]. Relevant costs and benefits are those that relate to New Zealand and those that would arise as a consequence of approving the application (clause 14). Consider short term and long term effects. Identify situations where risks and costs occur in one area of impact or affect one sector and benefits accrue to another area or sector; that is, situations where risks and costs do not have corresponding benefits.
	Step 2:	Document those risks, costs and benefits that can be readily concluded to be negligible[6], having regard to the characteristics of the organism and the circumstances of the application, and eliminate them from further consideration. Note that where there are costs that are not associated with risks some of them may be eliminated at this scoping stage on the basis that the financial cost represented is very small and there is no overall effect on the market economy.
Item 8:	**Consider extent and impact of mandatory and additional controls under sections 45(2) and whether the organism(s) can be adequately contained** Section 45(2) requires the application of controls for all applicable matters specified in the 3rd Schedule (Part II). The HSNO decision maker may consider other controls to give effect to the purpose of the Act. The impact of these controls also needs to be considered. Section 45(1)(a)(iii) requires the HSNO decision maker to be satisfied that the organism can be "adequately contained". The concept of adequate containment includes the satisfactory biological and/or physical containment of the organism and also the ability of the applicant to apply and maintain all the controls satisfactorily.	
Item 9:	**Assess each risk assuming controls in place** The assessment of potentially non-negligible risks and costs should be carried out in accordance with clauses 12, 13, 15, 22, 24, 25, and 29 to 32 of the Methodology. Most of these risks and costs will relate to matters in sections 5 and 6 of the Act. In undertaking this assessment the HSNO decision maker must take into account the principles of the Treaty of Waitangi (section 8, and clause 9(c)(iv)). The assessment is carried out with the controls in place. It should consider the following three matters that have particular relevance for this type of application. **1. The ability of the organism to escape from containment (section 44)** Although strictly speaking, this requirement applies only to field test applications and not to development applications (see section 45(1)(a)(ii)), it is prudent and good practice to consider it anyway. This element must be considered in an integrated way in the assessment process because the ability to escape depends on the containment controls set. **2. Self-sustaining population (section 37).** Section 37 of the Act requires the consideration to have regard to the ability of the organism to establish an undesirable self sustaining population and the ease of eradication if it were to establish such a population. Undesirable means (in effect) able to create significant risks.	

[5] Effects on the natural environment, effects on human health and safety, effects on Māori culture and traditions, effects on society and community, effects on the market economy.

[6] Negligible effects are defined in the Annotated Methodology as "Risks which are of such little significance in terms of their likelihood and effect that they do not require active management and/or after the application of risk management can be justified by very small levels of benefits".

3. Additional matters

Other matters to be considered in the assessment are:

- the extent to which the risk will be mitigated by the setting of containment and other controls, including the mandatory controls in the Act; and
- the extent to which the risk will be mitigated by the ability to eradicate the organism if it becomes established.

Assess each potentially non-negligible risk and cost estimating the magnitude of the effect if it should occur and the likelihood of it occurring considering also the level of risk if containment or other controls fail, as well as the probability of such a failure. In estimating the magnitude of the adverse effect take into account the extent to which the risk might be mitigated by how or whether it might be possible to eradicate the organism if a significant adverse effect eventuated (section 37). When estimating the likelihood of the effect occurring, consider the full pathway, that is, all the possible steps that must occur before the final identified effect is realised. Estimating the likelihood requires combining (multiplying) all of the individual likelihoods for each link in the chain of events.

Where there are non-negligible financial costs that are not associated with risks then the probability of occurrence (likelihood) may be close to 1. Relevant information provided in submissions should be taken into account.

The distribution of risks and costs should be considered, including geographical distribution and distribution over groups in the community, as well as distribution over time. This information should be retained with the assessed level of risk/cost.

Approach to risk and approach to uncertainty

Consider the HSNO decision maker's approach to risk (clause 33 of the Methodology) or how risk averse the HSNO decision maker should be in giving weight to the residual risk, where residual risk is the risk remaining after the imposition of controls.

The risk characteristics set out in clause 33 are:

Exposure to the risk is involuntary:

(a) The risk will persist over time:

(b) The risk is subject to uncontrollable spread and is likely to extend its effects beyond the immediate location of incidence:

(c) The potential adverse effects are irreversible:

(d) The risk is not known or understood by the general public and there is little experience or understanding of possible measures for managing the potential adverse effects.

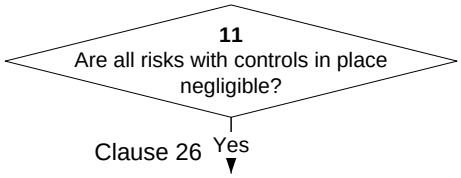
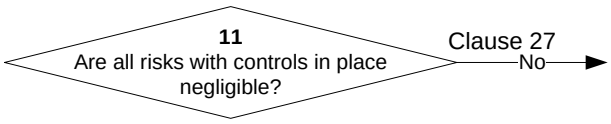
Consider each non-negligible risk in terms of the factors listed and decide whether to be risk averse by giving additional weight to that risk. This may be done as part of estimating the magnitude of the effect or where this is not relevant, it may be done separately.

Where the HSNO decision maker chooses to be risk averse, and there is uncertainty as well, the approach to risk may be consolidated with the approach to uncertainty by adopting a conservative approach such as the worst feasible case scenario.

The assessment includes consideration of how cautious the HSNO decision maker will be in the face of uncertainty (section 7 and clauses 29-32). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the adverse effect as a means of identifying the range of uncertainty (clause 32). It is also important to bear in mind the materiality of the uncertainty and how significant the uncertainty is for the decision (clause 29(a)).

For each component (magnitude and likelihood) consider the degree of uncertainty associated with the estimation of each component. In some cases it may be clear that the uncertainty could be reduced by gathering further information (undertaking more scientific tests, or extending the literature search). Before requesting or seeking further information it is important to consider how important the uncertainty is in terms of the decision (clause 29(a) – materiality), and to essentially consider the cost-effectiveness of gathering further information.

Another approach to addressing uncertainty is to look at a range of scenarios and consider a best feasible-worst feasible scenario range. However, where there is a large degree of uncertainty, this may not be particularly

	meaningful for calculating the level of risk. In other cases, calculating the level of risk for each end of the range may result in a fairly similar level of risk. Where this does not occur, rather than presenting a wide range in the level of risk it may be better to concentrate on analysing why the uncertainty occurs and whether or not there is any obvious way of resolving it.
	Additional controls Controls additional to those mandated in section 45(2) of the Act (see item 8) may need to be considered in order to mitigate risks to whatever level is considered to be appropriate, and to provide adequate containment.
Item 10:	**Undertake combined consideration of all risks and costs, cognisant of proposed controls** Once the risks and costs have been assessed individually, if appropriate consider all risks and costs together as a 'basket' of risks/costs. This may involve combining groups of risks and costs as indicated in clause 34(a) of the Methodology where this is feasible and appropriate, or using other techniques as indicated in clause 34(b). The purpose of this step is to consider the interactions between different effects and determine whether these may change the level of individual risks.
Item 11:	**Are all risks with controls in place negligible?** At this point the decision path branches. Looking at individual risks in the context of the 'basket' of risks, consider whether all of the residual risks are negligible. Consider also the cumulative effect of the assessed risks. Where all risks are negligible, and the cumulative effect of the risks is considered to be negligible then take the clause 26 option and move to item 12. If one or more of the risks is considered to be non-negligible, or the cumulative sum of the risks is non-negligible, then take the clause 27 option and move to item 13.
Item 12:	 **(from item 11 - if 'yes') Is it evident that benefits outweigh costs?** Risks have already been determined to be negligible (item 11), therefore the decision must be made under clause 26 of the Methodology. In the unusual circumstance where there are non-negligible costs that are not associated with risks they have been assessed in item 9. Costs are made up of two components: internal costs or those that accrue to the applicant, and external costs or those that accrue to the wider community. Consider whether there are any non-negligible external costs that are not associated with risks. If there are no external non-negligible costs then external benefits outweigh external costs. The fact that the application has been submitted is deemed to demonstrate existence of internal or private net benefit, and therefore total benefits outweigh total costs. As indicated above, where risks are deemed to be negligible, and the only identifiable costs resulting from approving an application are shown to accrue to the applicant, then a cost-benefit analysis will not be required. The act of an application being lodged will be deemed by the HSNO decision maker to indicate that the applicant believes the benefits to be greater than the costs. However, if this is not the case and there are external non-negligible costs then all benefits need to be assessed (via item 14).
Item 13:	 **(from item 11 - if 'no') Establish position on risk averseness and appropriate level of caution**

	Although 'risk averseness' (approach to risk, clause 33) is considered as a part of the assessment of individual risks, it is good practice to consolidate the view on this if several risks are non-negligible. This consolidation also applies to the consideration of the approach to uncertainty (section 7).
Item 14:	**Assess benefits** Assess benefits or positive effects in terms of clause 13 of the Methodology. Since benefits are not certain, they are assessed in the same way as risks. Thus the assessment involves estimating the magnitude of the effect if it should occur and the likelihood of it occurring. This assessment also includes consideration of the HSNO decision maker's approach to uncertainty or how cautious the HSNO decision maker will be in the face of uncertainty (section 7). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the positive effect. An understanding of the distributional implications of a proposal is an important part of any consideration of costs and benefits, and the distribution of benefits should be considered in the same way as for the distribution of risks and costs. The HSNO decision maker will in particular look to identify those situations where the beneficiaries of an application are different from those who bear the costs[7]. This is important not only for reasons related to fairness but also in forming a view of just how robust any claim of an overall net benefit might be. It is much more difficult to sustain a claim of an overall net benefit if those who enjoy the benefits are different to those who will bear the costs. Thus where benefits accrue to one area or sector and risks and costs are borne by another area or sector then the HSNO decision maker may choose to be more risk averse and to place a higher weight on the risks and costs. As for risks and costs, the assessment is carried out with the default controls in place.
Item 15:	**Taking into account controls, do positive effects outweigh adverse effects?** In weighing up positive and adverse effects, consider clause 34 of the Methodology. Where possible combine groups of risks, costs and benefits or use other techniques such as dominant risks and ranking of risks. The weighing up process takes into account controls proposed in items 8 and 9. Where this item is taken in sequence from items 13 and 14 (i.e. risks are not negligible) it constitutes a decision made under clause 27 of the Methodology. Where this item is taken in sequence from items 12 and 14 (i.e. risks are negligible, and there are external non-negligible costs) it constitutes a decision made under clause 26 of the Methodology.
Item 16:	**Confirm scope of organism description** **Confirm and set controls** At this step the scope of the organism description for generic applications should be reviewed. If changes are made to the organism description, items 7-15 above should be repeated for the revised organism description. Then the weighing up process in this item for the revised organism description should also be repeated. The scope of the organism description has been identified in item 6. This step in the decision-making process confirms the scope of the organism description in such a way that the risk boundaries are defined. Controls have been considered at the earlier stages of the process (items 8, 9 and 15). The final step in the decision-making process brings together all the proposed controls, and reviews them for overlaps, gaps and inconsistencies. Once these have been resolved the controls are confirmed.

[7] Clause 13 of the Methodology

Appendix 2: Proposed controls that address the matters specified in Part 2 of Schedule 3 (HSNO Act)

Schedule 3 (Part 2) Matters to be addressed by containment controls for new organisms (excluding GMOs)		Addressed by control:	
1	To limit the likelihood of any accidental release of any organism or any viable genetic material, the controls imposed by an approval shall specify—		
1(a)	Requirements for treatment and decontamination to prevent escape by way of expelled air, discharge of water or liquid waste, removal of solid waste, or breaches in facility boundary:	7	The containment area(s) must be designed, constructed, managed, and maintained to prevent the approved organism from escaping, taking into account the physical, health and behavioural needs of the approved organism(s).
		8	Persons entering and exiting the containment facility and/or any containment areas must do so in a way that does not adversely affect containment of the approved organism(s).
		15	Unauthorised persons must be excluded from the containment facility.
		18	Any waste (including biological material) that may harbour the approved organism(s), or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to discarding.
		19	Any equipment, that may harbour the approved organism(s) or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to the equipment being used for another purpose or being removed from the containment area/facility.
1(b)	Equipment and requirements for facility construction to enable the requirements for treatment and decontamination to be readily met:	7	The containment area(s) must be designed, constructed, managed, and maintained to prevent the approved organism from escaping, taking into account the physical, health and behavioural needs of the approved organism(s).
		18	Any waste (including biological material) that may harbour the approved organism(s), or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to discarding.
		.19	Any equipment, that may harbour the approved organism(s) or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to the equipment being used for another purpose or being removed from the containment area/facility.
1(c)	Requirements to be complied with for the access of persons to the facility:	8	Persons entering and exiting the containment facility and/or any containment areas must do so in a way that does not adversely affect containment of the approved organism(s).
		15	Unauthorised persons must be excluded from the containment facility.
		21	Any person (including contractors, staff, students, visitors, and volunteers) entering the containment facility and/or containment areas must have received sufficient instruction on the containment regime to enable the person to meet their responsibilities in relation to containment.

Schedule 3 (Part 2) Matters to be addressed by containment controls for new organisms (excluding GMOs)		Addressed by control:	
1(d)	Procedures and requirements for transport, identification, and packaging for all biological material to and from the facility and within the facility:	6	The containment facility and all containment area(s) where the approved organisms may be held must be clearly defined, described, and documented, including their location and boundaries.
		9	The approved organism(s) must be identifiable as a new organism and able to be linked to the relevant HSNO Act approval.
		10	Notification must be given to MPI of any intended movement of approved organisms outside of the facility, or any proposed modification to the containment regime which may affect the integrity of containment of the approved organism(s), before the actions are undertaken
		11	The EPA and MPI must be notified in writing before this HSNO Act approval is used for the first time.
		13	The approved organism(s) must be contained during movement within or to the containment facility.
		14	When being moved outside of a containment facility, within New Zealand, the approved organism must be accompanied by documentation stating the: a) identity of the approved organism(s) b) containment requirements c) details of the sender d) details of the receiving facility.
1(e)	Requirements for the disposal of any biological material:	18	Any waste (including biological material) that may harbour the approved organism(s), or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to discarding.
		19	Any equipment, that may harbour the approved organism(s) or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to the equipment being used for another purpose or being removed from the containment area/facility.
1(f)	Requirements for facility construction:	1	The approved organism(s) must be contained.
		7	The containment area(s) must be designed, constructed, managed, and maintained to prevent the approved organism from escaping, taking into account the physical, health and behavioural needs of the approved organism(s).
		10	Notification must be given to MPI of any intended movement of approved organisms outside of the facility, or any proposed modification to the containment regime which may affect the integrity of containment of the approved organism(s), before the actions are undertaken.
		26	Any remedial requirements identified under control 25, or by any other means, must be actioned as soon as possible.
1(g)	Requirements to secure the facility and openings, including securing against failure in the event of foreseeable hazards.	7	The containment area(s) must be designed, constructed, managed, and maintained to prevent the approved organism from escaping, taking into account the physical, health and behavioural needs of the approved organism(s).

Schedule 3 (Part 2) Matters to be addressed by containment controls for new organisms (excluding GMOs)		Addressed by control:	
		15	Unauthorised persons must be excluded from the containment facility.
		20	The containment facility must be secured and monitored to ensure the exclusion of undesirable organisms that might compromise the containment of the approved organism(s).
		25	To ensure containment is being achieved, containment measures must be: a) inspected, monitored and reviewed as appropriate b) inspected as soon as possible after any event that could compromise the containment regime such as an Act of God (such as flood, earthquake) or any unauthorised attempt to enter the containment facility.
2	To exclude unauthorised people from the facility, the controls imposed by an approval shall specify—		
2(a)	Means of identification of all entrances to the facility:	6	The containment facility and all containment area(s) where the approved organisms may be held must be clearly defined, described, and documented, including their location and boundaries.
		16	All containment facility entrances must be clearly identified including specifying who has the right of access
		17	The number and location of entrances to the containment facility where the approved organism(s) are held must be identified and documented.
2(b)	The numbers of entrances and access to the facility:	6	The containment facility and all containment area(s) where the approved organisms may be held must be clearly defined, described, and documented, including their location and boundaries.
		16	All containment facility entrances must be clearly identified including specifying who has the right of access.
		17	The number and location of entrances to the containment facility where the approved organism(s) are held must be identified and documented.
2(c)	Security requirements for the entrances and the facility.	15	Unauthorised persons must be excluded from the containment facility.
		16	All containment facility entrances must be clearly identified including specifying who has the right of access.
		17	The number and location of entrances to the containment facility where the approved organism(s) are held must be identified and documented.
3	To control the effects of any accidental release or escape of an organism—		
3(a)	Controls imposed by an approval shall specify an eradication plan for escaped organisms:	23	There must be a documented contingency plan for each approved organism held in that containment facility.
3(b)	Controls imposed by an approval may specify requirements to limit the likelihood of an escaped organism spreading, surviving,	12	MPI must be notified as soon as possible, and within 24 hours, of any escape and/or breach of containment and the actions taken in response to that incident
		23	There must be a documented contingency plan for each approved organism held in that containment facility.

Schedule 3 (Part 2) Matters to be addressed by containment controls for new organisms (excluding GMOs)		Addressed by control:	
	and breeding, including, but not limited to,— (i) Exclusion zones (spatial or temporal): (ii) Location of the facility outside the usual habitat range of the organism.	24	The contingency plan must be implemented immediately if there is any reason to believe that an approved organism has escaped or been released from a containment area or the containment facility, or any other breach of containment has occurred.
4	Controls imposed by an approval shall specify inspection and monitoring requirements for containment facilities.	20	The containment facility must be secured and monitored to ensure the exclusion of undesirable organisms that might compromise the containment of the approved organism(s).
		25	To ensure containment is being achieved, containment measures must be: a) inspected, monitored and reviewed as appropriate b) inspected as soon as possible after any event that could compromise the containment regime such as an Act of God (such as flood, earthquake) or any unauthorised attempt to enter the containment facility.
5	Controls imposed by an approval may specify the qualifications required of the person responsible for implementing those controls.	2	The organisation, entity or person(s) responsible for the ownership, control and management of the containment facility where the approved organisms are held (including Board members and/or directors) must ensure compliance with the controls of this approval.
		21	Any person (including contractors, staff, students, visitors, and volunteers) entering the containment facility and/or containment areas must have received sufficient instruction on the containment regime to enable the person to meet their responsibilities in relation to containment.

Appendix 3: MPI comments

General

While MPI considers that the applicant has not provided sufficient information to assess the containment of the primate species, the risk of escaping from containment is likely to be negligible if held within a containment facility approved in accordance with the requirements of EPA Standard: *Zoo containment facilities* and complying with controls similar to those in APP201517.

Application scope

The applicants are applying to import *Cercopithecus neglectus* (De Brazza's monkey), *Pithecia pithecia* (Whitefaced saki monkey) and *Varecia rubra* (Red-ruffed lemur) into containment. The purpose of importation is for captive breeding, display, education and to contribute to conservation.

Application comments

1. **S4.2, Pg 10** – The applicant has provided very little information relating to the proposed containment of the primate species or information relating to their ability to escape. This makes it very difficult to provide comment on the adequacy of proposed containment measures. While MPI accepts that the main control relating to containment is likely to be holding the primates within a containment facility approved in accordance with the requirements of EPA Standard: Zoo containment facilities, more information should be provided on the physical and operational containment measures, taking into account the abilities of the primates to escape - as required by s4.2 of the application document. For example, MPI notes the following:

   The applicant is proposing to replicate current containment recommendations within *Appendix 2: Zoo enclosure guidelines for containment area design* used for squirrel monkeys (*Saimiri* spp.) for containment of White-faced saki. Noting that both species are largely arboreal, the horizontal leaping distance of squirrel monkeys rarely exceeds 2m[8], while that of White-faced saki can exceed 9m[9]. This raises the question of whether a 4m moat would prevent escape.

2. MPI suggests that if the application is approved, the controls applying to the decision on APP201517 should be considered as sufficient to ensure the approved organisms are contained.

3. **S6, Pg 13** – The applicant refers to the 'International Health Standard: Zoo Primates published 12/12/19. This should be the MPI Import Health Standard: Zoo Primates (PRIMATES.SPE).

[2] http://pin.primate.wisc.edu/factsheets/entry/squirrel_monkey

[9] https://www.stlzoo.org/animals/abouttheanimals/mammals/lemursmonkeysapes/whitefacedsaki