Environmental Protection Authority
Te Mana Rauhī Taiao

New Zealand Government

Staff Advice Report

31 August 2020

Application code:	APP204097
Application type and sub-type:	Statutory determination
Applicant:	Ministry for Primary Industries
Date application received:	26 August 2020
Purpose of the Application:	Information to support the consideration of the determination of *Alocasia clypeolata, Philodendron pedatum, Philodendron schottii, Philodendron squamiferum,* and *Pilea peperomioides*

Executive Summary

On 26 August 2020, the Environmental Protection Authority (EPA) formally received an application from the Ministry for Primary Industries (MPI) requesting a statutory determination for five plant species, *Alocasia clypeolata, Philodendron pedatum, Philodendron schottii, Philodendron squamiferum*, and *Pilea peperomioides*.

After reviewing the information provided by the applicant and found in scientific literature, EPA staff recommend the Hazardous Substances and New Organisms (HSNO) Decision-making Committee (the Committee) to determine that the five tropical plant species are new organisms for the purpose of the HSNO Act.

Should new evidence be found, a new determination could be sought.

Purpose of this document

1. This document has been prepared by the EPA staff to advise the Committee of our assessment of application APP204097 submitted under the HSNO Act (the Act). This document discusses information provided in the application and other sources.
2. The decision path for this application can be found in Appendix 2.

The application summary

3. MPI submitted an application under section 26 of the Act to determine whether *Alocasia clypeolata, Philodendron pedatum, P. schottii, P. squamiferum* and *Pilea peperomioides* are new organisms. This application was formally received by the EPA on 26 August 2020.
4. MPI believed that four of the species, *A. clypeolata, P. pedatum, P. schottii,* and *P. squamiferum*, are new organisms and provided information regarding the absence of records of the plant species in the New Zealand environment prior to 29 July 1998. The applicant believes these four exotic plants to be new organisms for the purpose of the HSNO Act.
5. MPI did not hold any view for the plant species *Pilea peperomioides*. MPI did not find any record of import or presence of this plant in New Zealand before the Act came into force. MPI noted that the plant is well distributed in the country. However, MPI received a testimony potentially placing one specimen in the country for around 30 years.

Organisms description

Pilea peperomioides

6. The genus *Pilea* has over 700 species distributed throughout the tropics, subtropics and temperate regions except for Australia and New Zealand (Chen et al. 2007).
7. The plant *P. peperomioides* has many common names including missionary plant, Chinese money plant, or pancake plant. This succulent, evergreen perennial plant is an Asiatic flowering plant in the nettle family Urticaceae (Table 1). It can reach up to 60 cm tall in cultivation (30 cm in the wild) and is characterised by single ligulate stipule with rounded leaves (4-7 cm in diameter). It produces inconspicuous clusters of yellowish-green flowers on branching inflorescences (Radcliffe-Smith 1984; Chen et al. 2007).

Table 1: Taxonomic description of *Pilea peperomioides*

Taxonomic Unit	Classification
Class	Magnoliopsida
Order	Rosales
Family	Urticaceae
Genus	*Pilea*
Species	*P. peperomioides,* Diels 1912

Alocasia clypeolata

8. The genus *Alocasia* has 79 species distributed across Asia and Eastern Australia (Table 2) in tropical and subtropical climates. Some *Alocasia* species contain calcium oxalate crystals toxic to human and domestic animals (Bryson 2020).

9. *Alocasia clypeolata* is commonly known as green shield, jewel Alocasia or elephant's ear. The small herb (about 30 cm tall) is native to the Philippines. It is characterised by large oval-shaped bright green leaves (17 cm long) with contrasting darker zones around the main veins, supported by narrow stems (GBIF 2020).

Table 2: Taxonomic description of *Alocasia clypeolata*

Taxonomic Unit	Classification
Class	Liliopsida
Order	Alismatales
Family	Araceae
Subfamily	Aroideae
Genus	*Alocasia*
Species	*A. clypeolata* A.Hay, 1999

Philodendron species

10. Plants in the genus *Philodendron* are flowering plants in the family Araceae (Table 3) mainly found in humid tropical forests below 2000 metres. They produce an inflorescence made of a semi-closed leave-like structure called a spathe and an enclosed tube-like structure called a spadix.

11. *Philodendron pedatum* is a vine that spends part of its life cycle as an epiphyte[1] or as an appressed climber on rocks. The plant is widespread from eastern South America to northwestern Colombia (Sakuragui 2012). The leaves are similar to *P. squamiferum* with three to five deep lobes. The large inflorescence is composed of a white spadix (13.5-15 cm long) and a large spathe (16-18 cm long) (Gibernau & Barabé 2000).

12. *Philodendron schottii* is also a vine that spends part of its life cycle as an epiphyte, climbing up to 10 meters, with long lance head-shaped leaves. The species is native to Central America and can be found from southern Mexico to northwestern Ecuador. It grows in lowland rainforests below 1200 metres (Grayum 1996).

13. *Philodendron squamiferum* is a climber native to French Guyana, Suriname and Brazil where it grows in rainforests high up into trees and can reach up to 3 metres high (Garden Tags ND). The species has large lobed leaves (up to 45 cm length) and produces bicolor inflorescences, red outside and white inside, to attract beetle pollinators (Gibernau & Barabé 2002). The species is characterised by its stems covered in red pubescence (Joy us garden 2020).

[1] An organism that grows on the surface of a plant and derives its moisture and nutrients from the air, rain, water (in marine environments) or from debris accumulating around it.

Table 3: Taxonomic description of three *Philodendron* species

Taxonomic Unit	Classification
Class	Liliopsida
Order	Alismatales
Family	Araceae
Genus	*Philodendron*
Species	*P. pedatum* Kunth, 1841 *P. schottii* K.Koch *P. squamiferum* Poepp. & Endl.

Summary of information

14. Our assessment includes information contained within the application and any other relevant information found in the scientific literature or elsewhere. We have evaluated this and other evidence against the legislative criteria for determining whether *A. clypeolata, Philodendron pedatum, P. schottii, P. squamiferum* and *Pilea peperomioides* are new organisms.

Evidence regarding the presence of the five plant species in New Zealand

15. MPI noted that none of the plant species in this application are listed on the Plants Biosecurity Index (PBI) or have Import Health Standards, therefore *A. clypeolata, Philodendron pedatum, P. schottii, P. squamiferum* and *Pilea peperomioides* cannot be legally imported into New Zealand.

16. We searched information on the presence of the tropical plant species in New Zealand through the various databases/collections including:
    - Manaaki Whenua Landcare Research through the Systematics Collections Data that '*provides access to specimen and culture data from the Allan Herbarium, the International Collection of Microorganisms from Plants, the National New Zealand Flax Collection, the New Zealand Arthropod Collection and the New Zealand Fungarium - Te Kohinga Hekaheka o Aotearoa'*;
    - New Zealand Organisms Register (NZOR) that compiles all organism names relevant to New Zealand (indigenous, endemic, exotic, not present but of national interest);
    - NZflora which list the latest scientific information about indigenous and naturalised plants found in New Zealand;
    - NatureWatch NZ, a community nature observation platform launched online in 2012 that is dedicated to building a living record of life in New Zealand.

17. None of the five plant species were found in the plant databases listed above until 2018, where one specimen of *P. peperomioides* was added to the Allan Herbarium following a compliance action, as stated in the application. However, we note that a large number of ornamental plants are not native or naturalised and therefore do not appear in New Zealand databases. Manaaki Whenua Landcare Research estimated that 25,000 to 40,000 cultivars and ornamental plants are present in the country but remain poorly documented (Dawson 2010).

18. Searches of all scholarly articles relating to the presence and distribution of these plant species show no evidence that they are or have ever been imported into, or established in, New Zealand.

19. To find out if the species were present in New Zealand, we searched commercial nurseries, hobbyist websites, and online auction websites that are more likely to list ornamental plants for

trade. We found that the five tropical plant species in this application are currently available, or were available after 29 July 1998, in the New Zealand market.

Alocasia clypeolata

20. *Alocasia clypeolata* was described for the first time by Dr Alistair Hay in 1999, which explains the few publications (only three on Google Scholar) mentioning this species, all dated after the Act came into force.
21. As evidence of the historical presence of the plant in New Zealand, the seller investigated by MPI provided a shipping invoice and a phytosanitary certificate originating from the Christchurch Botanical Garden (CBG), dated from 2012. However, we note that an order to destroy *A. clypeolata* was provided to the CBG and executed a week later. MPI confirmed in their application that this plant was not imported to the CBG.
22. According to MPI, the species is not widely distributed in New Zealand. They have found two hobbyists listing *A. clypeolata* for sale. Another specimen was found on sale on Trade Me in August 2020.

Philodendron pedatum

23. *Philodendron pedatum* appeared in many publications. However, a search combining the species name and New Zealand revealed only five articles in Google Scholar all dated after 2005. None of the articles showed the presence of the species in New Zealand. Furthermore, MPI did not find any evidence of the presence of *P. pedatum* (including any approved synonyms) in New Zealand before the HSNO Act came into force.
24. A hybrid of the species (*Philodendron Pedatum x Squamiferum* 'Florida') currently sold out, might have been available to New Zealanders through one plant enthusiast website (https://johnnyjungle.co.nz).

Philodendron schottii

25. *Philodendron schottii* appeared in eight papers in Google Scholar. However, none of them mention the presence of this species in New Zealand and only two of these papers were written before 1998 with both referring to the species in Jamaica.
26. The applicant mentioned that the species is or has been traded in the country through three websites currently under investigation. An internet search did not reveal any current sellers in New Zealand.

Philodendron squamiferum

27. *Philodendron squamiferum* is mentioned in many publications but a search combining the species name and New Zealand revealed only six papers, all written after 1998.
28. Despite the indication in MPI's application that hobbyist websites are or have been trading this plant species, we could not find any potential sellers in New Zealand through a broad internet search.

Pilea peperomioides

29. *Pilea peperomioides* appeared to have been available seasonally before 2017 at Palmers, a plant nursery chain in New Zealand. The species was sold under the range 'Baby Houseplants' (Palmers New Zealand 2017).
30. MPI has evidence that *P. peperomioides* is well distributed in the country and that it might have been present in New Zealand for a long time based on the written statement from a member of the

public. The statement revealed that a person inherited the plant from her mother 10 years ago, but recalled the presence of the plant on her mother's property for many years, possibly before the HSNO Act came into force. However, despite its large size, the evidence on when the species arrived in New Zealand remained vague and only based on a childhood memory.

31. Another plant owner, currently under investigation by MPI, referred a phytosanitary certificate delivered in 2012. However, the document is dated after the HSNO Act came into force and only listed *Pilea* spp.

Conclusion

32. While it is clear that *A. clypeolata, Philodendron pedatum, P. schottii, P. squamiferum* and *Pilea peperomioides* have been shown to be available since July 1998 at different times but not all currently, the absence of records prior to 29 July 1998 showed that these species have only arrived since that date.

Evaluation against legislative criteria

33. For an organism to be determined as "not new" under section 26 of the Act, the organism must be shown to lie outside the definition of a new organism as defined in section 2A(1) of the Act:

34. A new organism is-

    a. an organism belonging to a species that was not present in New Zealand immediately before 29 July 1998;

    b. an organism belonging to a species, subspecies, infrasubspecies, variety, strain, or cultivar prescribed as a risk species, where that organism was not present in New Zealand at the time of promulgation of the relevant regulation;

    c. an organism for which a containment approval has been given under this Act;

    d. an organism for which a conditional release has been given;

    e. a qualifying organism approved for release with controls;

    f. a genetically modified organism;

    g. an organism that belongs to a species, subspecies, infrasubspecies, variety, strain, or cultivar that has been eradicated from New Zealand.

35. Section 2A(1)(a) of the Act states that a new organism must belong to "*a species that was not present in New Zealand immediately before 29 July 1998*". We have evaluated the information regarding *A. clypeolata, Philodendron pedatum, P. schottii, P. squamiferum*, and *Pilea peperomioides* against this criterion.

36. Regarding other criteria listed in section 2A of the Act, the five tropical plant species :

    - have not been prescribed as risk species (section 2A(1)(b));
    - have not been approved to be held in containment or released with controls (sections 2A(1)(c), (ca) and (cb));
    - are not genetically modified organisms (section 2A(1)(d)); and
    - have not been eradicated from New Zealand (section 2A(1)(e)).

Comments from Agencies

37. In accordance with section 58(1) of the Act, and the Methodology, the Department of Conservation (DOC) was notified and provided with the opportunity to provide further information on the application.

38. DOC agreed with the applicant who stated that *A. clypeolata, P. pedatum, P. schottii,* and *P. squamiferum* are new organisms. For *Pilea peperomioides*, DOC believed that a precautionary approach is desirable and the species should be considered a new organism (Appendix 1).

Effect on New Zealand's international obligations

39. EPA staff are not aware of any international obligations that may be affected by this determination.

Recommendation

40. A new organism is defined in section 2A of the Act, and includes: *(a) An organism belonging to a species that was not present in New Zealand immediately before 29 July 1998.*

41. Based on the available information, we conclude that *Alocasia clypeolata, Philodendron pedatum, Philodendron schottii, Philodendron squamiferum and Pilea peperomioides* were not present in New Zealand immediately before 29 July 1998. We, therefore, recommend that the five tropical plant species should be regarded as new organisms for the purposes of the Act.

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Appendix 1: DOC comments

Thank you for the opportunity to comment on APP204097 - Statutory Determination of 5 plant species.

We think the applicants clearly establish that four of the plants (*Alocasia clypeolata, Philodendron pedatum, Philodendron schottii, Philodendron squamiferum*) are new organisms which were not present in New Zealand prior to 29 July 1998.

For *Pilea peperomioides*, (as the applicants acknowledge) there is some ambiguity, based on a single unverified historical observation. The species is clearly now held by a number of plant enthusiasts in this country. However, discussion among DOC botanists has not revealed any additional evidence for presence here before 29 July 1998. Given the unverified nature of the single historical observation which would mean that this plant is not a new organism, DOC believes that a precautionary approach is desirable, and the species should be considered a new organism.

Regards

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Appendix 2: Revised s26 pathway

Figure 17: Decision pathway for applications under Section 26 for determination as to whether an organism is a new organism

Context

This decision pathway describes the decision-making process for applications under Section 26 for determination as to whether an organism is a new organism.

Introduction

The purpose of this decision pathway is to provide the HSNO decision maker[2] with guidance so that all relevant matters in the Hazardous Substances and New Organisms Act (1996) (the *Act*) and the Hazardous Substances and New Organisms (Organisms Not Genetically Modified) Regulations (1998) (the *Regulations*) 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.

The decision pathway has two parts –

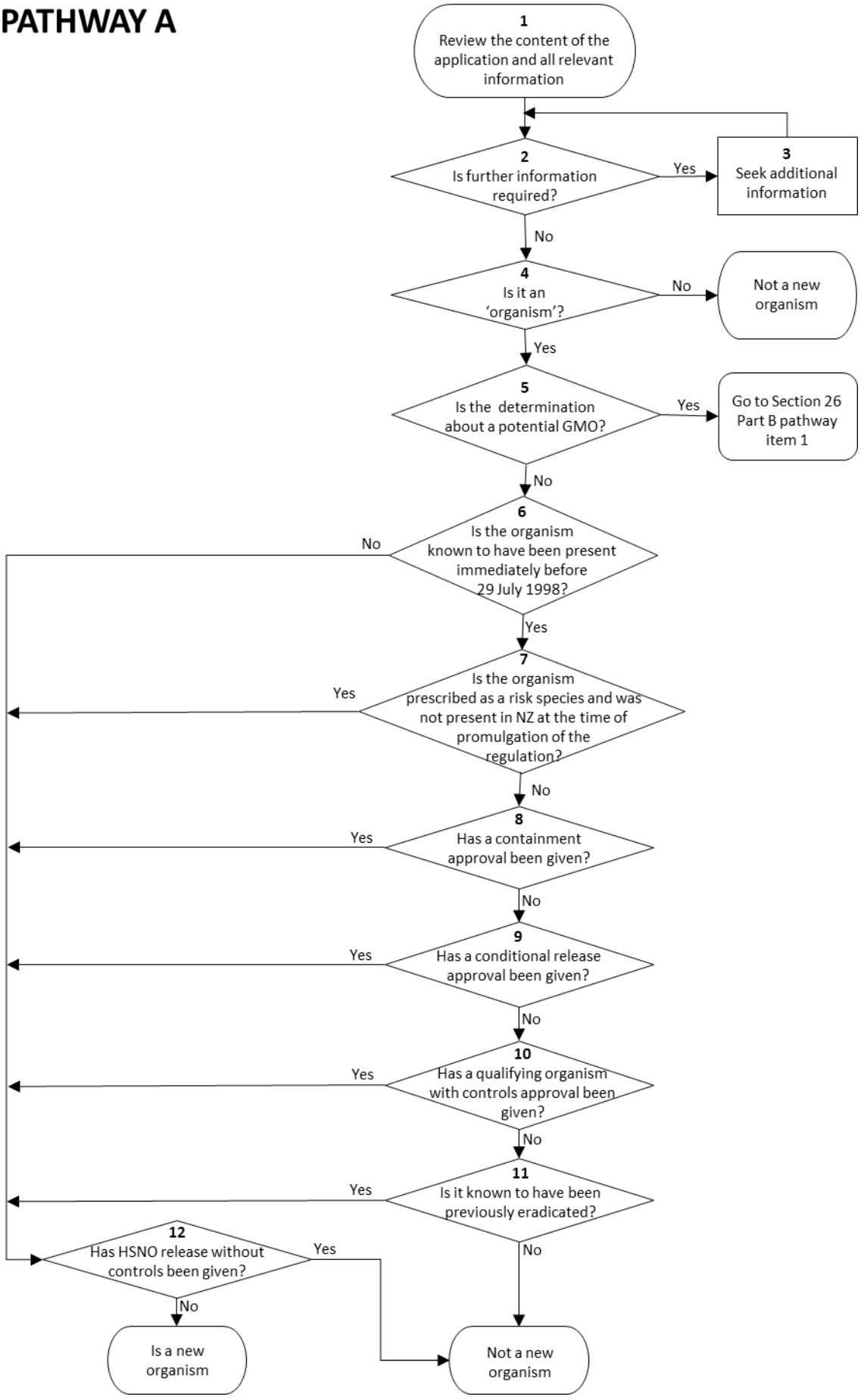
- Flowchart (a logic diagram showing the process prescribed in the HSNO Act and the Methodology to be followed in making a decision), and
- Explanatory notes (a discussion of each step of the process).

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 description of each of the numbered items in the flowchart, and describe the processes that should be followed.

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

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

PATHWAY A


1
Review the content of the application and all relevant information
2
Is further information required?
Yes
3
Seek additional information
No
4
Is it an 'organism'?
No
Not a new organism
Yes
5
Is the determination about a potential GMO?
Yes
Go to Section 26 Part B pathway item 1
No
6
Is the organism known to have been present immediately before 29 July 1998?
No
Yes
7
Is the organism prescribed as a risk species and was not present in NZ at the time of promulgation of the regulation?
Yes
No
8
Has a containment approval been given?
Yes
No
9
Has a conditional release approval been given?
Yes
No
10
Has a qualifying organism with controls approval been given?
Yes
No
11
Is it known to have been previously eradicated?
Yes
No
12
Has HSNO release without controls been given?
Yes
No
Is a new organism
Not a new organism

PATHWAY B

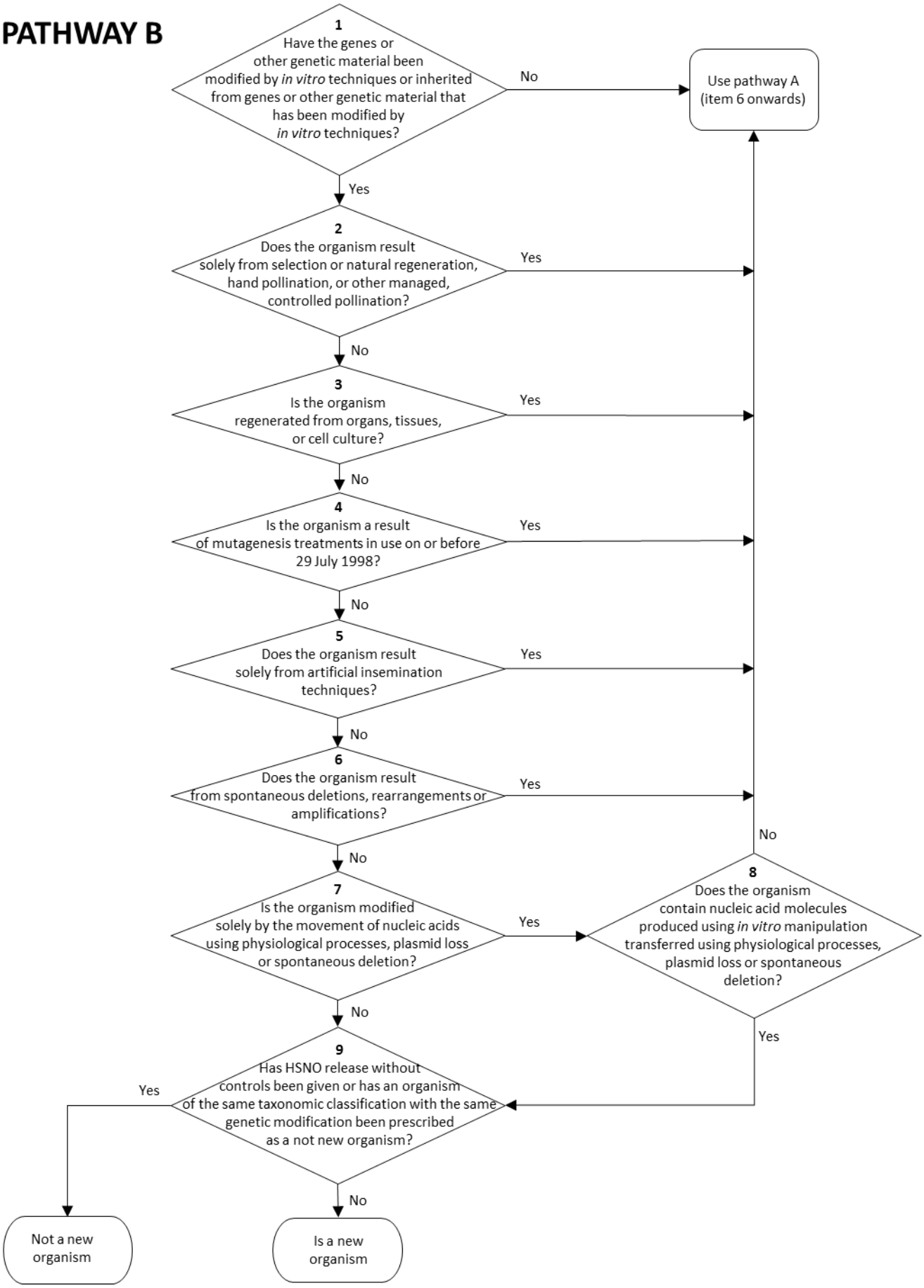

1
Have the genes or other genetic material been modified by *in vitro* techniques or inherited from genes or other genetic material that has been modified by *in vitro* techniques?
No
Use pathway A (item 6 onwards)
Yes
2
Does the organism result solely from selection or natural regeneration, hand pollination, or other managed, controlled pollination?
Yes
No
3
Is the organism regenerated from organs, tissues, or cell culture?
Yes
No
4
Is the organism a result of mutagenesis treatments in use on or before 29 July 1998?
Yes
No
5
Does the organism result solely from artificial insemination techniques?
Yes
No
6
Does the organism result from spontaneous deletions, rearrangements or amplifications?
Yes
No
No
7
Is the organism modified solely by the movement of nucleic acids using physiological processes, plasmid loss or spontaneous deletion?
Yes
8
Does the organism contain nucleic acid molecules produced using *in vitro* manipulation transferred using physiological processes, plasmid loss or spontaneous deletion?
No
Yes
9
Has HSNO release without controls been given or has an organism of the same taxonomic classification with the same genetic modification been prescribed as a not new organism?
Yes
No
Not a new organism
Is a new organism

Figure 17 Explanatory Notes

Section 26 pathway A

Item 1	**Review the content of the application and all relevant information** Review the application, staff advice and any relevant information held by other Agencies, and advice from experts.
Item 2	**Is further information required?** Review the information and determine whether or not there is sufficient information available to make a decision.
Item 3	**Seek additional information (Section 52 and Section 58)** If the HSNO decision maker considers that further information is required, then this may be sought either from the applicant (if there is an external applicant) or from other sources. If the HSNO decision maker considers that the information may not be complete but that no additional information is currently available, then the HSNO decision maker may proceed to make a determination. If the application is not approved on the basis of lack of information (or if the organism is considered new) and further information becomes available at a later time, then the HSNO decision maker may choose to revisit this determination.
Item 4	**Is it an organism (i.e. fits the "organism" definition in Section 2)?** An organism (a) does not include a human being: (ab) includes a human cell: (b) includes a micro-organism: (c) includes a genetic structure, other than a human cell, that is capable of replicating itself, whether that structure comprises all or only part of an entity, and whether it comprises all or only part of the total genetic structure of an entity: (d) includes an entity (other than a human being) declared to be an organism for the purposes of the Biosecurity Act 1993: (e) includes a reproductive cell or developmental stage of an organism If yes, go to item 5. If no, as this is not an organism, it is not regulated under the new organism provisions of the HSNO Act.
Item 5	**Is the determination about a potential GMO (Section 2A(1)(d))?** If the determination relates to whether an organism is a potential GMO, go to pathway B. If the organism is not a GMO, go to item 6.
Item 6	**Does the organism belong to a species that was known to be present in NZ immediately before 29 July 1998 (Section 2A(1)(a))?** Determine on the basis of the available information whether on balance of probabilities the organism is known to belong to a species that was present in New Zealand immediately prior to 29 July 1998. For the purposes of making a Section 26 determination an organism is considered to be present in New Zealand if it can be established that the organism was in New Zealand: (b) immediately before 29 July 1998; and (c) not in contravention of the Animals Act 1967 or the Plants Act 1970 (excluding rabbit haemorrhagic disease virus, or rabbit calicivirus). If yes, go to item 7 to test the organism against the next criterion. If no, go to item 12.
Item 7	**Is the organism prescribed as a risk species and was not present in New Zealand at the time of promulgation of the relevant regulation (Section 2A(1)(b))?** Determine whether the organism belongs to a species, subspecies, infrasubspecies, variety, strain, or cultivar that has been prescribed as a risk species by regulation established under Section 140(1)(h) of the Act. If the organism is prescribed as a risk species, determine whether it was present in New Zealand when it was prescribed. The organism is a new organism if it was not present in New Zealand at the time of the promulgation of the relevant regulation.

	Note: at this point it may become apparent that the organism is an unwanted organism under the Biosecurity Act. If this is the case, then MPI and DOC may be advised (they may already have been consulted under items 1, 2 and 3). If yes, go 12. If no, go to item 8 to test the organism against the next criterion.
Item 8	**Has a containment approval been given for the organism under the Act (Section 2A(1)(c))?** For the purposes of making a Section 26 determination, this will also include the following organisms which are "deemed" to be new organisms with containment approvals under the HSNO Act: (a) animals lawfully imported under the Animals Act 1967 before 29 July 1998 pursuant to Section 254 of the HSNO Act; (b) animals lawfully present in New Zealand in a place that was registered as a zoo or circus under the Zoological Garden Regulations 1977 pursuant to Section 255 of the HSNO Act (except where other organisms of the same taxonomic classification were lawfully present outside of a zoo or circus –see section 2A(2)(c)); (c) hamsters lawfully imported under the Hamster Importation and Control Regulations 1972 pursuant to Section 256 of the HSNO Act; or (d) plants lawfully imported under the Plants Act 1970 before 29 July 1998 pursuant to Section 258 of the HSNO Act. If yes, go to item 12. If no, go to item 9 to test the organism against the next criterion.
Item 9	**Has a conditional release approval been given for the organism (Section 2A(1)(ca))?** If yes, go to item 12. If no, go to item 10 to test the organism against the next criterion.
Item 10	**Has a qualifying organism with controls approval been given for the organism (Section 2A(1)(cb))?** A "qualifying organism" is an organism that is or is contained in a "qualifying medicine" or "qualifying veterinary medicine". These terms are defined in Section 2 of the HSNO Act. If yes, go to item 12. If no, go to item 11 to test the organism against the next criterion.
Item 11	**Is the organism known to have been previously eradicated (Section 2A(1)(e))?** Determine whether the organism belongs to a species, subspecies, infrasubspecies, variety, strain, or cultivar that is known to have been previously eradicated. Eradication does not include extinction by natural means but is considered to be the result of a deliberate act. If yes, go to item 12. **If no, then the organism is not a new organism.**
Item 12	**Has HSNO release approval without controls been given for an organism of the same taxonomic classification under Sections 35, 38 or 38I of the Act or has an organism of the same taxonomic classification been prescribed as a not new organism (Section 2A(2)(a))?** If a release approval has been given for an organism of the same taxonomic classification under Section 35 or 38 of the Act then the organism is not a new organism. If a release approval has been given for an organism of the same taxonomic classification under Section 38I of the Act **without controls** then the organism is not a new organism, however, if this approval has been given **with controls** then it is a new organism. If an organism of the same taxonomic classification has been prescribed by regulations as not a new organism[3] then it is not a new organism. **If yes, the organism is not a new organism.If no, the organism is a new organism.**

[3] http://www.legislation.govt.nz/regulation/public/2009/0143/latest/whole.html#DLM2011201

Section 26 pathway B

Item 1	**Have the genes or other genetic material been modified by *in vitro* techniques or inherited from genes or other genetic material that has been modified by *in vitro* techniques?** If yes, go to item 2. If no, the organism is not a genetically modified organism. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards.
Item 2	**Does the organism result solely from selection or natural regeneration, hand pollination, or other managed, controlled pollination (Regulation 3(1)(a) of the Regulations)?** Is the organisms solely the result of selection or natural regeneration, hand pollination, or other managed, controlled pollination? If yes, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards. If no, go to item 3.
Item 3	**Is the organism regenerated from organs, tissues, or cell culture (Regulation 3(1)(b) of the Regulations)?** Is the organism regenerated from organs, tissues, or cell culture, using any of the following techniques: selection and propagation of somaclonal variants, embryo rescue, and cell fusion (including protoplast fusion)? If yes, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards. If no, go to item 4.
Item 4	**Is the organism a result of mutagenesis treatments in use on or before 29 July 1998 (Regulation 3(1)(ba) of the Regulations)?** Is the organisms the result of mutagenesis that uses a chemical or radiation treatment that was in use on or before 29 July 1998? If yes, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards. If no, go to item 5.
Item 5	**Does the organism result solely from artificial insemination techniques (Regulation 3(1)(c) of the Regulations)?** Is the organism solely the result of artificial insemination, superovulation, embryo transfer, or embryo splitting? If yes, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards. If no, go to item 6.
Item 6	**Does the organism result from spontaneous deletions, rearrangements or amplifications (Regulation 3(1)(e) of the Regulations)?** Is the organism a result of spontaneous deletions, rearrangements, and amplifications within a single genome, including its extrachromosomal elements? If yes, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards. If no, go to item 7.
Item 7	**Is the organism modified solely by the movement of nucleic acids using physiological processes, plasmid loss or spontaneous deletion (Regulation 3(1)(d) of the Regulations)?** Is the organism modified solely by the movement of nucleic acids using physiological processes, including conjugation, transduction, and transformation, or by plasmid loss or spontaneous deletion? If yes, go to item 8.

	If no, go to item 9.
Item 8	**Does the organism contain nucleic acid molecules produced using in vitro manipulation transferred using physiological processes, plasmid loss or spontaneous deletion (Regulation 3(2) of the Regulations)?** Are nucleic acid molecules produced using in vitro manipulation transferred using any of the techniques referred to in item 7? If yes, go to item 9. If no, the organism is not a GMO. However, you must check whether it meets the other new organism criteria so go to Pathway A item 6 onwards.
Item 9	**Has HSNO release approval without controls been given or has an organism of the same taxonomic classification with the same genetic modification been prescribed as a not new organism (Section 2A(2)(b))?** If a release approval has been given for an organism of the same taxonomic classification with the same genetic modification under Section 38 of the HSNO Act then the organism is not a new organism. If a release approval has been given for an organism of the same taxonomic classification with the same genetic modification under section 38I of the HSNO Act **without controls** then the organism is not a new organism, however, if this approval has been given **with controls** then it is a new organism. If an organism of the same taxonomic classification with the same genetic modification has been prescribed by regulations as not a new organism[4] then it is not a new organism. **If yes, the organism is not a new organism.** **If no, the organism is a new organism.**

[4] http://www.legislation.govt.nz/regulation/public/2009/0143/latest/whole.html#DLM2011201