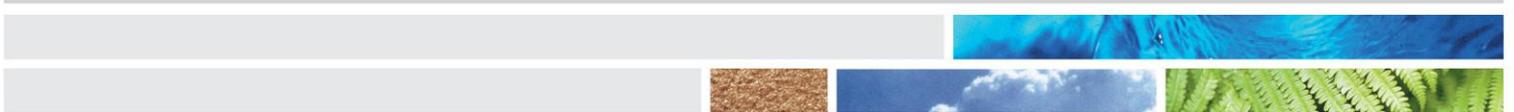




Environmental
Protection Authority
Te Mana Rauhi Taiao

EPA advice for Application APP201039

November 2011



ADVICE



Environmental
Protection Authority
Te Mana Rauhi Taiao

Executive Summary

Summary and recommendation

This application, from Waikato Regional Council, proposes to import and release the beetle *Colaspis argentinensis* for use as a biological control agent for *Araujia hortorum*. *Araujia hortorum*, commonly known as moth plant, is a serious environmental weed in New Zealand.

Waikato Regional Council considers moth plant to be a significant weed in their region, and believe successful biological control of this weed would be of significant benefit. They believe that the potential risk of releasing the beetle is very low, and is outweighed by the potential benefits.

Host range testing indicated that no native species are at risk from non-target feeding. However it is likely non-target feeding on a closely related ornamental species (*tweedia*) will occur. The impact of this would be small as the beetles could be treated with insecticide. Therefore the likelihood of non-target feeding is considered highly improbable.

Recommendation

The release of the beetle *Colaspis argentinensis* is going to result in negligible risk to human health, the environment, the economy, society and Māori culture. We consider that there are some non-negligible benefits to New Zealand from the release of the beetle.

Therefore, we recommended that the application to import and release *C. argentinensis* be approved without controls.

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1. The application process

Purpose of the application

- 1.1. The application proposes to import and release the beetle *Colaspis argentinensis*, to act as a biological control agent against the weed moth plant (*Araujia hortorum*).

The applicant

- 1.2. The application was made by Waikato Regional Council. This application is part of a long term weed management strategy.

Public notification

- 1.3. Application APP201039 was formally received for processing on 19 September 2011. It was publicly notified as required by section 53(1)(b) of the Hazardous Substances and New Organisms (HSNO) Act. The 30 working day notification period began on 22 September 2011, and closed on 3 November 2011.

Submissions

- 1.4. Seventeen submissions were received in response to the application (Appendix 1). Thirteen submissions were in support of the application, three submissions did not state a position and one submitter was opposed to the application being approved.

Consultation

- 1.5. The applicant conducted national consultation with Māori regarding the introduction of the beetle *C. argentinensis*, to act as a biological control agent against the weed moth plant.

2. The organism proposed for release

- 2.1. Adult *C. argentinensis* beetles have a shiny red back and black head (as pictured) and grow to approximately 8mm in length. They feed on the host plant (moth plant), laying eggs at the base of the stem. Once hatched the larvae burrow down to feed on the root zone of the plant. It is expected that the relatively long-lived beetle will be able to complete two generations each year in New Zealand, with development from egg to adult taking 30-40 days in the laboratory.



3. Why introduce a biological control for moth plant?

Moth plant is a serious weed in New Zealand

- 3.1. Moth plant is a significant environmental weed in New Zealand, also known as cruel plant, kapok vine and milk weed. It is a rampant evergreen vine that can grow up to 10m tall, with smelly milky sap, dark green leaves, and clusters of bell shaped white flowers from December to May, followed by distinctive thick choko-like pods (10 x 7cm) which split to release hundreds of parachute-like black seeds (Ministry of Agriculture and Forestry, 2010). The seeds are dispersed long distances by wind as well as on clothing and animals (Weedbusters, no date).
- 3.2. Moth plant is long-lived, fast growing and tolerant of shade, drought, damp, wind, salt and a range of soil types. While moth plant is frost tender, it is able to invade a wide range of habitats including intact or disturbed forests and margins, hedges, cliffs, coastal areas, mangroves, and wastelands. Once established moth plant smothers and kills plants in the canopy, strangles supporting plants, and prevents the establishment of native seedlings (Ministry of Agriculture and Forestry, 2010).

Potential for biological control against moth plant

- 3.3. The proposed import of *C. argentinensis* as a biological control agent for moth plant will form part of an ongoing programme of introductions to control this weed. The combined benefits of releasing biological control agents can be significant.

4. What will happen if the biological control agent is successful?

Context

- 4.1. Biological control agents such as *C. argentinensis* can take many years to establish widely and have an impact on the target species. There is uncertainty about whether *C. argentinensis* will establish and disperse successfully, and how long this will take. If *C. argentinensis* does not establish, it can be assumed that there will be no significant effects (adverse or beneficial) as a result of its importation and release. Conversely, if it were to successfully establish it can be assumed that the potential risks and benefits will be at the highest level. Therefore, the assessment of the risks and benefits of releasing *C. argentinensis* is based on the scenario where it is established widely.

Benefits of successful biological control of moth plant

- 4.2. Moth plant was assessed as a highly competitive potential weed in Auckland and Northland (Waipara et al., 2006). Early intervention in the control of this invasive weed has the potential to save money and time resources; and to aid in reducing the spread of the weed.
- 4.3. Given the nature of the weed it is targeting and that this beetle is part of an ongoing biological control programme, we assess the benefit of the release of *C. argentinensis* to be non-negligible.

What about non-target impacts?

- 4.4. When introducing a new organism into the environment, the major concern is what damage that organism could do. In this case, the intention of the introduction is for a beetle to damage moth plant (the target weed), reducing the impacts of this weed on the environment. However there is also potential for the beetle to cause damage to other species through non-target feeding.

Non-target feeding

- 4.5. When looking at non-target feeding (feeding on and damaging plant species other than the target, moth plant), the applicant has supplied host range testing data and observations in the field to give an indication of the likelihood of risks associated with the release of *C. argentinensis* (Gourlay and Hill, 2011).
- 4.6. There are three native species within the same family as moth plant, commonly known as New Zealand jasmine. Two of these are within a similar natural range to moth plant. Of these, *Parsonia heterophylla* was used as a representative, and no feeding was observed on this plant. Therefore the applicant considers that the likelihood of this beetle feeding on native species to be highly improbable.
- 4.7. Host range testing showed that, apart from moth plant, the beetle fed on tweedia (*Oxypetalum caeruleum*) – an uncommon introduced garden ornamental that has also been recorded in the wild in Ashburton (Webb, Sykes, and Garnock-Jones, 1988). Tweedia is therefore itself a potential 'weed in waiting'. This non-target feeding is minor and is not considered significant because the beetles can be treated using common pesticides.
- 4.8. Given the narrow host specificity of this beetle we have not identified any significant effects, on human health, the environment, economy, society, or Māori culture, from the introduction of this beetle into New Zealand (Appendix 2 has a report prepared by Kaupapa Kura Taiao).
- 4.9. Section 37 requires the decision-maker to consider the ability of the organism to establish an undesirable self-sustaining population and the ease with which the organism could be eradicated if such a population established.

- 4.10. We note that the purpose of releasing *C. argentinensis* is to establish a self-sustaining population. However, it is highly improbable that this beetle will become undesirable. If this beetle were to become undesirable then such a population could not be easily eradicated.
- 4.11. We note that moth plant foliage is used as an emergency food source in the hand-rearing of caterpillars of monarch butterflies. However, introduction of this beetle will not eliminate the moth plant entirely and this proposal will not pose a significant risk.

5. Minimum Standards

- 5.1. Any organism being assessed for release must pass the five minimum standards as stated in the HSNO Act. *Colaspis argentinensis* was assessed against those standards.

Displacement of any native species within its natural habitat

- 5.2. Based on its host specificity, *C. argentinensis* does not have the ability to cause significant displacement of any native species within its native habitat.

Deterioration of natural habitats

- 5.3. Based on its host specificity, *C. argentinensis* does not feed on native or valued plant species and will not cause significant deterioration of natural habitats.

Adverse effects on human health and safety

- 5.4. There is no information to indicate that *C. argentinensis* will cause significant adverse effects on human health.

Adverse effect to New Zealand's inherent genetic diversity

- 5.5. Based on the information provided in this application, *C. argentinensis* could not interbreed with any native species; therefore it could not cause significant adverse effects on New Zealand's inherent genetic diversity.

Cause disease, be parasitic, or become a vector for human, animal, or plant disease

- 5.6. There is no information to indicate that *C. argentinensis* will cause disease, be parasitic or become a vector for human, animal or plant disease.

Conclusion on minimum standards

- 5.7. We consider that *C. argentinensis* meets the minimum standards as stated in the HSNO Act.

6. International obligations

6.1. We are not aware of any international obligations that may be impacted by the approval of this application.

7. References

Gourlay, H, Hill, R 2011. The host range of *Colaspis argentinensis*, a biological control agent for moth plant, *Araujia hortorum*. Landcare Research Unpublished report.

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Waipara, NW, Winks, CJ, Gianotti, AF, Villamil, CB, Villamil, SC, Delhey, R, Kiehr, M, Traversa, MG, and Carpintero, DL 2006. Surveys for potential biocontrol agents for moth plant in New Zealand and Argentina. *New Zealand Plant Protection* 59: 1-6.

Webb, CJ, Sykes, WR, Garnock-Jones, PJ 1988. *Flora of New Zealand. Volume IV. Naturalised Pteridophytes, Gymnosperms, Dicotyledons*. Christchurch, Department of Scientific and Industrial Research.

Weedbusters. No date. *Araujia sericifera*. Matangi, New Zealand.
http://www.weedbusters.co.nz/weed_info/detail.asp?WeedID=95. Retrieved 15 November 2011.

Appendix 1: Submissions

Submissions table:

Submission	Submitter/ organisation	Support/ Oppose	Submitter comments
102480	Dr Margaret Stanley	Support	<p>Moth plant is a high impact invasive weed that ranks high in terms of weed impact and suitability for biocontrol. Its ability to disperse, invade and smother forest put it on par with Old Man's beard.</p> <p>Biological control is warranted, costs of control are high and it will reduce the need for chemicals if successful.</p> <p>Host range testing appears rigorous. Non-target impact on tweedia not ideal but minor compared to the benefits of controlling moth plant. Tweedia has naturalised in New Zealand and may pose a weed risk. In a localised garden context damage should be able to be controlled with insecticides.</p> <p>Adverse trophic web interactions (e.g. on native parasitoids) also not ideal but benefits greater than potential adverse effects on the ecosystem.</p>
102481	Whakatane District Council	Support	<p>Moth plant is a serious weed of coastal reserves, herbicide control of the plant results in damage to surrounding vegetation and is not cost effective. Damage to the exotic ornamental plants of the <i>Tweedia</i> genus is a reasonable trade-off to allow for biological control of moth plant.</p>
102482	Ben and Jo Barr, Limestone Island	Support	<p>As rangers on Limestone Island have observed a rapid increase in density and geographical spread of moth plant. Managing the moth plant is damaging to native vegetation, expensive and time consuming.</p>
102483	Marlborough District Council	Support	<p>232 known sites of moth plant in Blenheim and Picton the management of which is an indirect cost to ratepayers. Moth plant poses a significant threat to the ecology of Marlborough. Regions with moth plant will benefit from the introduction of <i>Colaspis argentinensis</i> by reducing herbicide use, reducing the vigour and spread of the moth plant and ongoing costs of managing the plant.</p>
102484	Victor Holloway, Te Runanga-a-Iwi-o Ngati Kahu	Not stated	<p>Does not oppose the application but urges caution when introducing foreign organisms. Aware that rigorous testing is undertaken for these applications that the agent itself has the potential to become a pest itself.</p>
102485	Rangi Mahutu, Huakina Development Trust	Not stated	<p>Recognises that the moth plant is invasive and can cause extensive issues in terms of sustainability and natural resources but apprehensive about any proposals to introduce new organisms. Concern that the proposed biological control agent could itself become a pest.</p>
102489	Northland Regional Council	Support	<p>Moth plant a major weed in inland and eastern coastal forests in Northland and one that is steadily expanding its range. Moth plant impacts upon a wide range of habitats including wetlands, production forests, urban gardens, industrial sites, protected areas, coastal reserves, private and crown administered offshore islands and surrounding coastal land.</p> <p>Difficult to target with herbicides. Milky latex of the vine is a skin and eye irritant making hand removal difficult and posing a problem to schools and day care facilities caring for young children.</p>

Submission	Submitter/ organisation	Support/ Oppose	Submitter comments
102490	John Hawley, Marunui Conservation Ltd	Support	Marunui Conservation Ltd owns and manages 423ha of regenerating bush in the Brynderwyn Hills near Mangawhai in Kaipara. Moth plant is present on the site and has been controlled by spraying resulting in the killing of other nearby plants. Handling and removing moth plant resulted in an unpleasant skin rash. "... <i>biological control, such as proposed by Waikato Regional Council, is realistically our only hope of controlling this invasive weed pest</i> ".
102492	Davor Bejakovich, Greater Wellington Regional Council	Support	Moth plant control is labour intensive and a problematic task with each site searched, seedlings manually removed and adult plants cut and stump-treated with herbicide gel. Handling exposes staff to the poisonous sap which can burn exposed skin and penetrate light clothing. Spraying often causes damage to non-target host vegetation. A successful biocontrol agent would reduce the need for manual removal and herbicides and reduce the spread of the plant. " <i>With finite resources to control an ever-growing number of problem species, and growing resistance to traditional chemical control techniques, biocontrol is a cost effective and publically acceptable technique</i> ".
102494	Raewyn Bennett, Auckland Conservation Board	Support	Poor prospects for control of moth plant unless biological control agents are introduced. Would have preferred if all three native plants in the Apocynaceae family had been tested for host specificity. Notes that <i>Parsonsia praeurptis</i> is a threatened species. <i>Parsonsia heterophylla</i> only NZ native tested from the family – application states: "The beetle only fed significantly and developed on the target weed and on closely-related tweedia". There is no way to assess from the application how much feeding is deemed significant and that for a threatened species any level of damage may be a problem. Damage to tweedia considered a reasonable trade-off. Risk that the biological control agent will cause damage to non-target species, as occurred with the gorse pod moth. Agrees that the relative risk compared to the benefits warrant introduction of the biological control agent. Also note unusual uncertainty about the New Zealand biodiversity of the insect group to which the proposed biocontrol agent belongs. Chrysomelidae family in NZ in need of revision as there is at least one new genus to describe and possibly many undescribed species.
102495	Todd Hamilton, Whangarei Heads Landcare Forum Inc	Support	Moth plant has become a problem over the last 10 years and rapidly spreading in the region without control could devastate native forests at Whangarei Heads. The introduction of the beetle could greatly aid control efforts and save money spent on moth plant control.
102496	Kataraina Maki, Bay of Plenty Regional Council	Support	Moth plant is widespread in the Bay of Plenty and is prone to infesting kiwifruit orchard shelterbelts, estuary margins, road and rail reserves, coastal back-dune areas and urban areas. Difficult to control with herbicides, handling can cause a dermatitis skin reaction and wind-borne seed dispersal is difficult to contain. Council considers <i>Colaspis argentinensis</i> to be a suitable candidate for biological control of the moth plant that could aid landowners to manage infestations on their land.
102497	Gloria Bruni	Support	" <i>Moth plant is a "social disease" with wind-spread seeds its presence in an area impacts all landowners. Efforts to eradicate it on one property are of minimal long</i>

Submission	Submitter/organisation	Support/ Oppose	Submitter comments
			<i>term benefit when it thrives on neighbouring land. This beetle will help reduce the residue of infection by ignoring property boundaries”.</i>
102498	Phil Bell, Department of Conservation	Support	<i>Colaspis argentinensis</i> poses a negligible risk to the native flora of New Zealand. There are no native plant species in the same tribe (<i>Asclepiadaceae</i>) or sub family (<i>Asclepiadoideae</i>) as the target species, moth plant. New Zealand jasmine (<i>Parsonia heterophylla</i>) was included in the host range testing and there was no semblance of feeding or complete development of larvae on <i>P. heterophylla</i> . Moth plant is a significant weed on conservation land and with increasing financial pressures it is becoming harder to control. Biological control can be a cost effective control method that could expand the toolkit available to DOC to manage the weed.
102499	Mark Ross, Federated Farmers	Support	<i>“Federated Farmers has assessed the application and concludes that there are no risks to our members provided all EPA risk mitigation protocols are followed. Based on this we provided our support for the application”.</i>
102500	Tim Manukau, Waikato Raupatu River Trust (Inc)	Not stated	<i>“Waikato-Tainui seeks to ensure that any control methods for weed moth plant including Colaspis argentinensis should minimise any adverse impacts it has on the wider environment whilst at the same time improving biodiversity and ecological values by targeting only the weed moth plant”.</i> Concern over the manner in which decisions are made about tools used in pest/weed control operations. Stresses that engagement with iwi on matters such as this and particularly when occurring on tribal lands must occur as early as possible i.e. before a method has been decided upon.
102501	Cliff Mason	Oppose	<ul style="list-style-type: none"> • The introduction of any alien species to New Zealand is detrimental to ecological integrity. • Concept of biological control is based on questionable assumptions • Host testing regime inadequate • There is no baseline measurement of the environmental and economic effects of moth plant • Impact on native habitat is unknown • Ignorance regarding the proposed agent

Submissions in support of the application

Thirteen submitters are in support of the application and consider moth plant to be undesirable and support the introduction of *C. argentinensis* (refer to submissions table above).

Submissions in opposition to the application

One submitter is opposed to the approval of the application. The opposition was based on the following concerns:

- the introduction of alien species is detrimental to the ecological integrity of New Zealand;
- the concept of biological control is questionable;

- the host range testing of the agent is inadequate;
- there is no baseline measurement of the environmental and economic effect of the weed;
- the impact of *C. argentinensis* on the weed *A. hortorum* in the native habitat is unknown; and
- the applicant has no knowledge regarding *C. argentinensis* and the transmission of plant diseases and inseparable organisms.

EPA response to the submission in opposition

Colaspis argentinensis cannot interbreed with New Zealand species and will assist in the management of a weed species.

It is generally accepted worldwide that targeted biological control is an effective means of contributing to weed management. The applicant has used an internationally accepted method of host range testing to ensure that there will not be any detrimental impacts on New Zealand biota.

Although there are no national baselines for the measurement of the environmental and economic effects of moth plant, regional councils have specific programmes for the eradication of this recognised environmental weed. Regional councils consider that biological control agents such as *C. argentinensis* are important tools in the control of invasive weeds. This is reflected in their ongoing investment in biological control agents.

Vectoring plant disease or inseparable organisms from outside New Zealand will be managed under the Biosecurity Act. Within New Zealand, any transmission of disease among moth plants can only be viewed as a benefit, and the likelihood of transmission to other plant communities is highly improbable given the host specificity of *C. argentinensis*.

Other issues raised in submissions

Several submitters were neither opposed nor in support of the application, but raised issues that they wanted to bring to the attention of the decision-makers and end users if granted. Those issues are as follows:

- Any biological control agents should be used within a framework of improved and ongoing land management practices targeted at pest control and education for land managers and the public.
- Any control methods for the weed moth plant, including *C. argentinensis* should minimise any adverse impacts it has on the wider environment whilst at the same time improving biodiversity and ecological values by targeting only the weed moth plant.
- Engagement with iwi, particularly when control methods are to be used on tribal lands, must occur at the earliest possible stage – before a method has been decided upon by a pest management agency.

We acknowledge the comments above, and encourage and support early engagement with all stakeholders.

Appendix 2: Kura Kaupapa Taiao Report

Moth Plant Application

Potential impacts to Māori culture

Impacts on Taonga

One of the outcomes of importance to Māori is the productive and life sustaining quantity and quality of a range of taonga or valued resources. Of particular relevance to this application is the potential for adverse effects to native and/or valued species (taonga koiora and/or taonga tuku iho) and to the integrity and availability of taonga.

Whakapapa (the shared genealogy of Māori with native flora and fauna species) is core to the importance and significance of taonga. Whakapapa is the mātauranga Māori (Māori knowledge) framework by which the nature of relationships between people and the environment is explained. Any disruption to this framework of relationships poses potentially significant risk to Māori due to the highly interdependent nature of its components.

Māori continue to raise concerns that the introduction of an exotic species might disrupt the delicate nature of these relationships and have previously requested assurances that the release of biological control agents poses no threat to taonga species and ecosystems.

Specific to this application, Māori noted concerns about the likelihood of success of the new species and the risk of *Colaspis argentinensis* becoming a pest. They queried the use of introduced species as a biological control agent rather than using native species. We consider these concerns were adequately responded to in section 4b(iii) of the application. Māori are generally not happy with the introduction of non-native species, however, many prefer successful biological control over the application of herbicides.

Impacts on Kaitiakitanga responsibilities

This application poses potential adverse effects to kaitiakitanga through unanticipated impacts on the mauri of native and valued species, ecosystems and the traditional values and practices of Māori in relation to taonga.

Mauri is a key element of kaitiakitanga. Within a Māori world view, it is the responsibility of iwi/Māori to exercise kaitiakitanga to protect the mauri of significant resources to ensure their sustainability and availability for generations to come.

Māori continue to note concern that the release of the organisms could adversely affect mauri. This is often expressed as a concern for the ability of iwi to maintain rongoa stocks (traditional medicines), mahinga kai (traditional practices associated with food gathering), ngā tini ō Papatūānuku me ngā rerenga koiora (biodiversity), and waahi tapu.

Māori have consistently requested that applicants be rigorous in their pre-application research to provide the greatest degree of certainty regarding the potential adverse effects to the mauri of the taonga over which

they have kaitiakitanga responsibilities. In addition they continue to encourage expert Māori peer review and involvement at all levels of the research and decision making.

The applicant accepts that the successful introduction of a new species is a permanent change to the environment and states that in the end it comes down to whether it is acceptable to introduce a new species to an ecosystem to try to overcome the uncontrolled effects of the weed on the mauri of that ecosystem.

The applicant notes that the successful biological control of moth plant would increase the survival and diversity of native and other desirable plants and that there is no known risk of *Colaspis argentinensis* establishing populations on any native species as it has a very narrow host range. They also note that initial release of *Colaspis argentinensis* will be undertaken in collaboration with tangata whenua. A monitoring process will be put in place and further developed once establishment of the control agent is confirmed.

It is considered therefore that the chance for disruption to whakapapa and mauri to be low. Given this assessment we anticipate a minimal effect on taonga species to be highly improbable. The level of effect is therefore deemed to be negligible (Level A).

Using the results of scientific testing and feedback obtained from Māori during consultation, the applicant has identified and assessed a range of relevant risks arising from the proposed release of *Colaspis argentinensis*.

The EPA considers the host specificity testing undertaken by the applicant to have been sufficient to provide useful information for assessment. Given this information we consider a minimal effect on the kaitiakitanga responsibility of Māori to be highly improbable. Therefore the level of effect is considered negligible (Level A).

Treaty of Waitangi

In accordance with the requirements of section 8 of the HSNO Act 1996 the EPA has considered any potential impact posed to the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) and has considered the principle of active protection identified by the Court of Appeal decision in *New Zealand Māori Council v Attorney General 1987* to be relevant.

Active protection has been defined as “not merely passive but extends to active protection of Māori people in the use of their lands and waters to the fullest extent practicable” (Cooke, 1987).

The assessments provided in this section and in other parts of the report, indicate a negligible adverse biophysical effect to lands, native species and ecosystems.

Consequently we consider that the application provides sufficient information to take into account the principle of “active protection”, therefore this application is considered to be consistent with the principles of the Treaty of Waitangi.

Given this assessment we anticipate a minimal effect on the principles of the Treaty of Waitangi to be highly improbable. The level of effect is therefore deemed to be negligible (Level A).



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