Environmental Protection Authority
Te Mana Rauhī Taiao

PROPOSAL FORM

Proposal form to prescribe certain organisms as not new organisms

for the purposes of the Hazardous Substances and New Organisms (HSNO) Act

Send to the Environmental Protection Authority preferably by email neworganisms@epa.govt.nz or alternatively by post to: Private Bag 63002, Wellington 6140

Bioforce Limited

Name of person or organisation making the proposal

72 Sim Road, Karaka, RD 1 Papakura 2580, New Zealand

Postal Address

28/09/2016

Date

Important

If species were not present in New Zealand before 29 July 1998, they are classed as new organisms under the Hazardous Substances and New Organisms (HSNO) Act. As such, they will require HSNO Act approval for propagation or distribution of the organism to occur. Currently, if anyone was to conduct any of these activities without a HSNO Act approval they would be committing an offence under section 109(1) of the Act.

To change its “new organism” status (which means that an organism will not be regulated under the HSNO Act), an organism must be deregulated under section 140(1)(ba) of the HSNO Act, by an Order in Council given by the Governor General prescribing organisms that are not new organisms for the purposes of this Act.

As part of this process, the following form is to be filled in by the person or organisation making a proposal to prescribe certain new organisms as not new organisms.

The information provided in this form will be used in the decision-making process (which is likely to include a public consultation component). Any confidential information must be clearly labelled and included as a separate Appendix.

1. Details of the new organism(s) proposed to be prescribed as not new organism(s)

Please complete this section for each organism proposed to be prescribed as a not new organism.

Name of organism

Harmonia axyridis, a coccinellid beetle aka. harlequin ladybird

Why do you want to prescribe this organism as "not new"?

Including:

- Is there any information on the economic or environmental impacts of the organism?

While this organism has been deliberately released to control aphid pests in other countries, the economic impact of this beetle in New Zealand is unknown. A likely outcome is, as has been found in other countries, lower aphid pest pressure and a reduction in the need for pesticides in certain crops. Adverse effects in some crops are also possible especially soft fruits and grapes. In some countries this ladybird has been invasive and displaced other species.

- What is the benefit of making this organism "not new"?

Under current legislation it is difficult for any research to be carried out and reclassifying this organism will enable investigations into biology and behaviour in a new environment to be carried out. This new organism could be another new pest or a new biocontrol agent but whatever the outcome it will almost certainly need to be managed. Removing this ladybird off the 'new organism' list enables a wide range of research to be carried out without specialised containment e.g. Can the NZ strain of the coccinellid parasitoid *Dinocampus coccinellae* suppress population growth in *Harmonia axyridis?*

- Can these benefits be quantified?

Harmonia axyridis is a very successful aphid predator and many crops are attacked by aphid and damaged through virus vectored by this pest. Potato leaf roll virus and Potato Y virus are important diseases in potato that could be reduced with this ladybird. Other damaging pests such as the tomato/potato psyllid could potentially be controlled by a predator of this type. A new pest/predator association had been identified with another ladybird *Cleobora mellyi* in an attempt to manage TPP after its arrival in New Zealand.

- Can these benefits be achieved by alternative means?

Alternative means of achieving these benefits are theoretically possible through research and introduction of a range of new organisms but this can never happen under current New Organism legislation and the climate of competing interests' viz. fear of ecological damage versus sustainable management of important pests.

Describe the biology of the organism

Including:

- What are the biological characteristics of the organism?

Harmonia axyridis is a predatory ladybird with chewing mandibles, primarily feeding on aphids and scale insects. It

is a solitary species, although individuals often congregate over winter to hibernate in cold climates. It is a mobile predator, moving through its environment seeking its prey, which reside on plants. This species is mainly active during the day, and often flies from plant to plant to find prey species.
They may also eat *Thysanura* species and mites. Butterfly and moth eggs may be eaten, as well. When other food sources are scarce, Harmonia *axyridis* has been known to eat other various Coccinellidae species. Occasionally, it may feed on grapes and similar fruits. Studies have seen that in some cases, this species will eat other sources, such as moths and pollen, but these are isolated incidences. Both adults and larvae of *Harmonia axyridis* will cannibalize eggs and smaller larvae. To defend itself, *Harmonia axyridis* produces isopropyl methoxy pyrazine (IPMP), which it secretes from its tarsi when agitated. Many species of bird prey on *Harmonia axyridis*.

- Where is it found overseas?

Widespread in many regions including Asia, North and South America, Europe and South Africa.

- Does it cause a disease?

Not known to cause disease but may cause allergy to a few people.

- Does it have potentially beneficial characteristics?

This ladybird is a voracious predator of many important plant pests and could be useful in reducing use of plant protection chemicals.

- What adverse effects could making this organism “not new” have on people or the environment, if any? Can these be quantified?

This organism has been found on many sites now and if eradication is not considered possible there are no expected adverse effects of making it ‘not new’ as natural spread could be expected to increase 50km annually. Whether the benefits of this ladybird will outweigh any adverse effects in the New Zealand environment is uncertain.

Has the organism formed a self-sustaining population in New Zealand?

Including:

- Where has population(s) of the organism been found in New Zealand?

Harmonia axyridis has been detected in several locations around Greater Auckland area but also in Waikato and Bay of Plenty (Refer to NatureWatch webpage) and it is described as ‘spreading quite rapidly in its new home’ by Farm Forestry New Zealand. From available information about its biology and local observations, we can suppose that this organism has obviously formed a self-sustaining population in New Zealand. Without any formal studies, we have no idea about this species development within the country.

- How does this organism spread?

Very mobile walks and flies and could be transported on vegetation.

Is any person attempting to manage, control or eradicate the organism under any Act or is the organism the subject of an enforcement action or action under a civil penalty regime?

Including:

- If the organism has been part of an official incursion response or other MPI (MAF) response or management activity, describe what happened here including why the response was stood down.

MPI initially requested sightings but no control measures have been asked for.

Is there reason to believe that this organism was deliberately imported in contravention of an Act of Parliament? If so, please explain.

No deliberate importation of this organism has been suggested.

Any other information you wish to include?

2. References (if applicable)

NatureWatch website: http://naturewatch.org.nz/observations?place_id=6803&taxon_id=48484