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Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Field Release of *Heteropsylla spinulosa* (Homoptera: Psyllidae), a Non-indigenous Insect for Control of Giant Sensitive Plant, *Mimosa diplotricha* (Mimosaceae), in Guam and the Commonwealth of the Northern Mariana Islands

Environmental Assessment, March 24, 2008

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Environmental Assessment

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I. Introduction and Need for the Proposed Action

A. Introduction

The University of Guam proposes to release a non-indigenous insect, *Heteropsylla spinulosa* Muddiman, Hodkinson, and Hollis (Homoptera: Psyllidae), under permit from the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), for the biological control of giant sensitive plant, *Mimosa diplotricha* (Mimosaceae), in Guam and the Commonwealth of the Northern Mariana Islands (CNMI). Before a permit is issued for release of *H. spinulosa*, APHIS must analyze the potential impacts of the release of this agent into Guam and the CNMI.

This environmental assessment (EA) has been prepared, consistent with USDA, APHIS' National Environmental Policy Act (NEPA) implementing procedures (Title 7 of the Code of Federal Regulations (CFR), part 372). It examines the potential effects on the quality of the human environment that may be associated with the release of *H. spinulosa* to control infestations of *M. diplotricha* in Guam and the CNMI. This EA considers the potential effects of the proposed action and its alternatives, including no action.

B. Purpose and Need

The purpose for the proposed releases of *H. spinulosa* is to reduce the severity and extent of infestation of the non-indigenous weed *M. diplotricha* on Guam and the CNMI. *M. diplotricha* is a major pest of agriculture, pastures, wastelands, and roadsides. It scrambles over and smothers other plants. Thickets of the tangled stems can injure humans and trap animals. It is a serious tropical plantation weed in Southeast Asia and the Pacific Islands, infesting rubber, coconut, and sugarcane fields. When the plant dies and dries up it is a fire hazard.

M. diplotricha is native to Brazil but has been introduced to American Samoa, CNMI, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Vanuatu, Australia, Taiwan, Cambodia, Vietnam, Malaysia, Indonesia, Philippines, Christmas Island (Australia), Reunion (France), Nigeria, Sri Lanka, Thailand, India, Hawaii, and Mauritius. *M. diplotricha* has not attained weed status in the Americas, Western Asia, East Africa, or Europe (APFISN, 2007).

It has been estimated that over 350 acres in Saipan, 370 acres in Tinian, 4 acres in Guam, and 300 acres in Rota are now infested with *M. diplotricha* and infestations continue to spread (G.V.P. Reddy, pers. comm., Sept. 17, 2007).

II. Alternatives Including the Proposed Action

This section will explain the two alternatives available to APHIS; no action and to issue a permit for release of *H. spinulosa*. Although APHIS' alternatives are limited to a decision on whether to issue a permit for release of *H. spinulosa*, other methods available for control of *M. diplotricha* are also described. These control methods are not decisions to be made by APHIS and may continue whether or not a permit is issued for environmental release of *H. spinulosa*. These are methods presently being used to control *M. diplotricha* by public and private concerns.

A third alternative was considered, but will not be discussed further. Under this third alternative, APHIS would have issued a permit for the field release of *H. spinulosa* but the permit would contain special provisions or requirements concerning release procedures or mitigating measures. However, no issues have been raised that would indicate that special provisions or requirements are necessary.

A. No Action

Under the no action alternative, APHIS would not issue a permit for the field release of *H. spinulosa* for the control of *M. diplotricha.* The release of this biological control agent would not take place. The following methods are presently being used to control *M. diplotricha*. These control methods will continue under the "No Action" alternative and may continue even if a permit is issued for release of *H. spinulosa*.

1. Chemical control

In Australia, the herbicides glyphosate, paraquat, acetochlor plus atrazine, metalochlor plus atrazine, diuron, glufosinate, hexazinone, and fluoxypyr are used for control of *M. diplotricha* (QDNRW, 2006, APFISN, 2007). Herbicides may be used to control *M. diplotricha* on Tinian and Saipan (G.V.P. Reddy, pers. comm., email, Oct. 7, 2007). The use of any herbicide is limited to registered products that are labeled to include *M. diplotricha.*

2. Mechanical control

Uprooting and burning, grubbing, and slashing are the most common methods of mechanical control (APFISN, 2007). Uprooting should be done at least twice a year to achieve a satisfactory level of control. Slashing is not advisable since the weed can easily regenerate from the cut stumps.

3. Biological control

In Queensland, Australia, Cook Islands, Federated States of Micronesia, Fiji, Papua New Guinea, Samoa, and the Solomon Islands, *H. spinulosa* has been released with varied success in controlling *M. diplotricha* (Julien and Griffiths, 1998; Julien *et al.*, 2007); its impact can be reduced by extreme weather (flood or drought) (QDNRW, 2006). An isolated strain of an indigenous stem-spot disease (*Corynespora cassiicola*) causes defoliation and dieback in very hot humid conditions, and is now widespread in Queensland (QDNRW, 2006). If very hot and humid weather occurs late in the growing season, flowering and seed production can be reduced by the stem-spot disease (QDNRW, 2006). No biological control organisms against *M. diplotricha* are currently used on Guam or the CNMI.

B. Issue the Permit for Environmental Release of *H. spinulosa*

Under this alternative, APHIS would issue a permit for the field release of *H. spinulosa* for the control of *M. diplotricha* on Guam and the CNMI. This permit would contain no special provisions or requirements concerning release procedures or mitigating measures.

1. Biological control agent information

The insect genus *Heteropsylla* comprises a group of legume-feeding psyllids that has a natural distribution covering the southern United States, Central America, Caribbean, and South America north of the temperate zone (Hodkinson, 1989). Psyllids are small, jumping insects, sometimes referred to as plant-lice, that feed on plant juices. *Heteropsylla* species are usually restricted to a narrow range of mimosoid host plants (Muddiman *et al.*, 1992).

H. spinulosa is native to Brazil and was first collected during a survey of *M. diplotricha* in Brazil in 1982 (Willson and Garcia, 1992). The species is described by Muddiman *et al.* (1992).

The lifecycle of *H. spinulosa* is as follows (from Willson and Garcia, 1992): The

eggs are laid singly on the leaflets of *M. diplotricha* with a preference for young leaves with overlapping leaflets. The eggs are attached by a basal pedicel, a feature common to psyllid eggs and used for uptake of water. Eggs removed from the leaf quickly dessicate.

There are 5 nymphal instars (immature stages), with a total development time of 15-22 days. They usually feed on the leaflet on which they hatched. Adults are pale green and about 2.5 millimeters long. They congregate on young foliage to feed and they mate 1-2 days after adult emergence. Females begin to lay eggs a day after mating. Adult females lay between 14 to 77 eggs and live up to 10 days.

In Campinas, Brazil, the various lifestages can be found throughout the year, particularly from early September to mid-May when *M. diplotricha* reaches maturity and declines. There are up to 8 generations of *H. spinulosa* per year. High populations of *H. spinulosa* cause severe damage to *M. diplotricha.* Adult and nymphal feeding stunts and distorts the leaves and may prevent flowering. These growth abnormalities are attributable to a salivary injection that is toxic to *M. diplotricha.*

III. Affected Environment

Guam is located approximately 3,700 miles west-southwest of Honolulu, Hawaii. It belongs to a chain of islands located in the western Pacific Ocean called the Mariana Islands. The CNMI are a chain of islands that lie north of Guam but do not include the island of Guam. Rota (50 miles north of Guam), Tinian (140 miles north of Guam), and Saipan (150 miles north of Guam) are the three most populated islands in the Northern Marianas chain. In 1898, Guam was ceded to the United States, following the Spanish defeat in the Spanish-American War. The CNMI became part of the U.S. Trust Territory of the Pacific after World War II.

A. Areas Affected by *M. diplotricha*

M. diplotricha is a shrubby or sprawling annual, although behaving as a perennial vine in certain years. Its stems bunch, often scrambling over other plants. The plant has sharp, hooked prickles. Leaves are alternate, bright green, feathery and fern-like. Leaflets close up when disturbed, injured, or at nightfall. It grows best where fertility, soil and air humidity, and light are all high and dies away in prolonged dry seasons.

It is a major pest of forest ecosystems, agricultural land, roadsides, and pastures.

It causes heavy damage in crops such as sugar cane, coconut, rubber, cassava, tea, pineapple, and upland rice.

B. Plants Related to *M. diplotricha* and Their Distribution on Guam and the CNMI

There are several plants related to the target plant *M. diplotricha* on Guam and the CNMI, although most are not native plants. *Mimosa pudica* L. (Mimosaceae) is an introduced weed, common in lawns and vacant lots in Guam and CNMI. *Serianthes nelsonii* (Fabaceae) is a federally-listed endangered tree that is found in limestone forests on Rota and Guam. *Leucaena leucocephala* (Mimosaceae) is an introduced tree common in Guam and CNMI. This plant has considerable weed potential in ungrazed situations, but the foliage is used to feed for domestic animals and the stem is used as firewood. *Gliricidia sepium* (Mimosaceae) is an introduced tree used as an ornamental and a nitrogen fixing legume in Guam and CNMI. *Desmodium rensonii, Calliandra calothyrsus, Sesbania sesban*, and *Cajanus cajan* (Fabaceae) have all been introduced for use as nitrogen fixing plants. *Albizzia lebeck* (Mimosaceae) and *Samanea saman* (Mimosaceae) are naturalized trees and *S. saman* is considered an invasive species in the Pacific islands.

IV. Environmental Consequences

A. No Action

1. Impact of spread of *M. diplotricha*

M. diplotricha is a threat to forest ecosystems, agricultural land, roadsides, and pastures. It causes heavy damage in crops such as sugar cane, coconut, rubber, cassava, tea, pineapple, and upland rice. Thick growth of *M. diplotricha* prevents the regeneration, reproduction, and growth of indigenous plant species in all infested areas. (From APFISN, 2007)

The tangled and thorny growth of *M. diplotricha* hampers movement and access to food and other resources for wildlife in India. In Australia, the weed chokes out sugar cane and other crops and grassland, causing crop and pasture loss. Crops infested with *M. diplotricha* are difficult to harvest because of the thorns (Esguerra *et al.,* 1997). Increased cultivation costs and reduced land value are the main economic impacts of *M. diplotricha* (APFISN, 2007). When the plant dies and dries up it is a serious fire hazard. Mature spiny plants discourage animals from grazing them, although buffaloes are said to eat young shoots. All

parts of this plant can be toxic and should not be ingested. (From APFISN, 2007)

Seed pods of *M. diplotricha* float and are spread by water. Pods are also spread when attached to fur, clothing, and mud on vehicles. Many seeds have delayed germination. Very young seedlings a few weeks old can produce viable seeds and some will germinate immediately. Some seeds, however, remain in the soil for years before germinating.

In the past, the typical, spiny form of *M. diplotricha* was cultivated as a green manure, fallow crop, and cover crop. However, the spiny form (that apparently evolved from the spineless form) is now considered a noxious weed. The spineless form is still cultivated in the Asia-Pacific region. It is an excellent soil improver, cover crop, and soil binder against erosion in humid areas. (From APFISN, 2007)

2. Impact from use of other control methods

The use of chemical herbicides and mechanical controls on Guam and the CNMI would continue at current or potentially increased levels if the "no action" alternative is chosen. In the absence of successful control agents, *M. diplotricha* will continue to expand its range on Guam and the CNMI. Herbicidal control is expensive, temporary and often ineffective. Efficacy of herbicides is short-lived and applications may have to be done periodically, depending on the regrowth of the weed (APFISN, 2007). Herbicides also pose some environmental concerns, such as soil contamination, impacts on non-target species, and health hazards. Mechanical control is temporarily effective, but does not result in long-term suppression, particularly in non-crop areas. No biological control agents are currently used on Guam or the CNMI.

B. Issue Permit for Environmental Release

1. Impact of *H. spinulosa* on *M. diplotricha*

In Queensland, Australia, *H. spinulosa* is effective in controlling *M. diplotricha* in pasture and non-productive areas (Ablin, 1990). In Papua New Guinea, large stands of *M. diplotricha* were reduced significantly in pastures and other situations within 12 months of psyllid releases. In the Cook Islands and Pohnpei and Yap (Federated States of Micronesia), *H. spinulosa* is established and impacting the weed population (Esguerra *et al.,* 1997; Julien and Griffiths, 1998; Julien *et al.*, 2007). However, on Fiji, *H. spinulosa* is established but having no major impact on weed density and on Samoa, it is established with varying success (Julien and Griffiths, 1998).

Mature *M. diplotricha* plants severely damaged by *H. spinulosa* become deformed and brittle, resulting in reduced flowering and seed production. In wetter areas, after controlling heavy infestations of the weed, *H. spinulosa* populations can maintain *M. diplotricha* infestations at low levels (Kuniata, In press). In dry areas or seasons, *H. spinulosa* populations must be preserved and later released into areas where the weed occurs once the rainy season begins (Kuniata, In press). The use of nitrogen to assist in improving plant vigor increases psyllid numbers resulting in severe damage on the plants (Kuniata and Nagaraja, 1994).

2. Impact of *H. spinulosa* on non-target plants

Evidence indicates that *H. spinulosa* is highly host-specific and will not have direct or indirect negative impacts on native, federally-listed, or introduced plant species, including those closely related to *M. diplotricha* that occur on Guam and the CNMI, discussed previously in section III. B. of this document.

In studies conducted in Brazil using the cut foliage of 19 plant species, egg laying and nymphal development of *H. spinulosa* occurred only on *M. diplotricha* (Willsson and Garcia, 1992) (Appendix 1). In Australia, 96 plant species in 29 families were tested for host specificity (Appendix 1). Trials consisted of "no-choice" egg laying and nymphal/adult survival tests against the full list of plants in Appendix 1. In "no-choice" tests, 211 eggs were deposited on 18 plant plant species (Appendix 2) whereas 685 eggs were deposited on *M. diplotricha* (Willson and Garcia, 1992). Adults and nymphs survived only on *M. diplotricha* and no feeding damage was recorded on any other test plant (Willson and Garcia, 1992). "Multiple-choice" tests were then conducted using the 18 plants on which *H. spinulosa* had deposited eggs in "no-choice" tests. For "multiple-choice" tests, each test cage contained 8 or 10 test plants plus one *M. diplotricha* plant and 250 adult *H. spinulosa.* Eggs laid were counted and left to hatch. All nymphs on test plants died within 2 days of hatching whereas those on *M. diplotricha* survived normally (Willson and Garcia, 1992) (Appendix 2).

No impacts on non-target plants have been reported since *H. spinulosa* has been released in Australia, Samoa, or other locations.

The Guam Department of Agriculture and the Guam Invasive Species Committee have reviewed the species of plants tested in Brazil and Australia and did not recommend additional host specificity testing for Guam.

3. Uncertainties regarding the environmental release of *H. spinulosa*

Once a biological control agent such as *H. spinulosa* is released into the environment and becomes established, there is a slight possibility that it could move from the target plant (*M. diplotricha*) to attack nontarget plants. Host shifts by introduced weed biological control agents to unrelated plants are rare (Pemberton, 2000). Native species that are closely related to the target species are the most likely to be attacked (Louda *et al.*, 2003). If other plant species were to be attacked by *H. spinulosa*, the resulting effects could be environmental impacts that may not be easily reversed. Biological control agents such as *H. spinulosa* generally spread without intervention by man. In principle, therefore, release of this biological control agent at even one site must be considered equivalent to release over the entire area in which potential hosts occur and in which the climate is suitable for reproduction and survival.

In addition, these agents may not be successful in reducing *M. diplotricha* populations in Guam and the CNMI. Worldwide, biological weed control programs have had an overall success rate of 33 percent; success rates have been considerably higher for programs in individual countries (Culliney, 2005). *H. spinulosa* has been released in other countries with varied success in controlling *M. diplotricha* (Julien and Griffiths, 1998)

4. Cumulative impacts

"Cumulative impacts are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agencies or person undertakes such other actions" (40 CFR 1508.7).

Biological Control in the Pacific Islands

In the Pacific Islands (including Micronesia, Polynesia, and Melanesia), only four weeds are currently biological control targets (Julien *et al.,* 2007). No biological control agents are currently being released against *M. diplotricha.*

Management of *M. diplotricha* in Guam and the CNMI

Currently, little is done on Guam and the CNMI to combat *M. diplotricha*, although herbicides may have been used to control this weed on Tinian and Saipan (G.V.P. Reddy, pers. comm., email, Oct. 7, 2007).

Release of *H. spinulosa* is not expected to have negative cumulative impacts on Guam or the CNMI because of its host specificity to *M. diplotricha*. Effective biological control of *M. diplotricha* may result in a long-term, non-damaging method to

control this invasive weed and prevent its spread into other areas potentially at risk from invasion.

5. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and ESA's implementing regulations require Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened endangered species or result in the destruction or adverse modification of critical habitat.

There are 3 federally listed endangered plants on the CNMI and one on Guam. *Serianthes nelsonii* (Hayun Iagu) (family Fabaceae) occurs on Guam and the CNMI (Rota). *Nesogenes rotensis* (family Verbencaeae) and *Osmoxylon mariannense* (family Araliaceae) occur on the CNMI. Based on host specificity of *H. spinulosa,* none of these plants would be expected to be attacked by *H. spinulosa.* Of the three listed plants, *Serianthes nelsonii*, belonging to the plant family Fabaceae, is the most closely related to the target plant. In host specificity testing, 20 plant species in the plant family Fabaceae were tested. In "no-choice" tests, a few eggs were laid on two test plants in the Fabaceae. In "multiple-choice" tests, no eggs were laid on these plants. No feeding occurred on these plants and no nymphs or eggs survived on these plants in any test. Therefore, APHIS has determined that there will be no effect on the endangered plants *Serianthes nelsonii, Nesogenes rotensis,* and *Osmoxylon mariannense* by the release of *H. spinulosa*.

Release of this insect for the biological control of *M. diplotricha* will also have no effect on other federally-listed threatened and endangered species in Guam and the CNMI, including the little Mariana fruit bat, Mariana fruit bat, Mariana crow, Guam Micronesian kingfisher, Mariana common moorhen, Guam rail, green sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, Mariana gray swiftlet, bridled-white-eye, Rota bridled white-eye, nightingale reed warbler, or the Micronesian megapode. There will be no effect on the critical habitat of the Mariana fruit bat, Mariana crow, Guam Micronesian kingfisher, Rota bridled white-eye, or the green, hawksbill, and leatherback sea turtles.

V. Other Issues

Consistent with Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations," APHIS considered the potential for disproportionately high and adverse human health or environmental effects on any minority populations and low-income

populations. There are no adverse environmental or human health effects from the field release of *H. spinulosa* and will not have disproportionate adverse effects to any minority or low-income populations.

Consistent with EO 13045, "Protection of Children From Environmental Health Risks and Safety Risks," APHIS considered the potential for disproportionately high and adverse environmental health and safety risks to children. No circumstances that would trigger the need for special environmental reviews is involved in implementing the preferred alternative. Therefore, it is expected that no disproportionate effects on children are anticipated as a consequence of the field release of *H. spinulosa*.

VI. Agencies, Organizations, and Individuals Consulted

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Appendix 1. Plants used in host specificity testing with *Heterospsylla spinulosa* in Brazil and Australia (Willson and Garcia, 1992).

Plant Family	**Species**
Anacardiaceae	*Mangifera indica* L.
Annonaceae	*Annona reticulata* L.
Apiaceae	*Daucus carota* L.
Araceae	*Colocasta esculenta* (L.) Schott
Asteraceae	*Carthamus tinctorius* L.
	Helianthus annuus L.
	Lactuca sativa L.
Brassicaceae	*Brassica rapa* L.
Caesalpiniaceae	*Cassia patellaria* DC
	Cassia rotundifolia Pers.
	Delonix regia Rafin.
	Lysiphyllum hookeri (F. v. Muell.) L. Pedley
Caricaceae	*Carica papaya* L.
Chenopodiaceae	*Beta vulgaris* L. ssp. *vulgaris*
Convolulaceae	*Cucurbita maxima* Duchesne
Fabaceae	*Arachis hypogaea* L.
	Cajanas cajan (L.) Millsp.
	Calopogonium muconoides A.N. Desvaux
	Centrosema pubescens Benth.
	Cyamopsis tetragonoloba (L.) Taub.
	Desmodium canum (Gmel.) Schinz & Thell.
	Glycine max (L.) E.D. Merrill
	Lablab purpureus (L.) R. Sweet
	Macroptilium atropurpureum (DC.) Urban
	Macrotyloma uniflorum (Lam.) Verdc.
	Medicago sativa L.
	Neonotonia wightii (Arn.) Lackey
	Phaseolus vulgaris L.

Fabaceae (cont.)	*Pisum sativum* L.
	Pueraria phaseoloides (Roxb.) Benth.
	Rhynchosia minima (L.) DC.
	Stylosanthes humilis Kunth.
	Trifolium repens L.
	Vicia faba L.
	Vigna radiata (L.) Wilczek
Lauraceae	*Persea americana* P. Miller
Malvaceae	*Gossypium hirsutum* L.
Mimosaceae	*Acacia augustissima* (Jacq.) H. Wendl.
	Acacia bidwillii Benth.
	Acacia crassicarpa Benth.
	Acacia leptocarpa Benth.
	Acacia longifolia (Andr.) Willd.
	Acacia mangium Willd.
	Acacia mearnsii De Wild
	Acacia melanoxylon Aiton
	Acacia podalyriifolia G. Don
	Acacia spectabilis Benth.
	Adenanthera pavonina L.
	Albizia lebbeck Benth.
	Albizia sp. (Mt. Tozer)
	Archidendron hendersonii (F.v. Muell.)
	Calliandra selloi Macbride
	Calliandra surinamensis Benth.
	Calliandra tweedei Benth.
	Desmanthus virgatus (L.) K.L. Willdenow
	Dichrostachys cinerea (L.) Wight & Arn.
	Entada phaseoloides (L.) Merrill
	Enterolobium contortisiliquum Morong

Mimosaceae (cont.)	*Gliricidia sepium* H.B. & K.
	Leucaena collinsii Britton & Rose
	Leucaena diversifolia Benth.
	Leucaena lanceolata S. Wats
	Leucaena leucocephala (L.) de Wit
	Leucaena leucocephala (L.) de Wit var.85176
	Leucaena leucocephala (L.) de Wit var. K8
	Leucaena macrophylla Benth.
	Leucaena pallida Britton & Rose
	Leucaena pulverulenta Benth.
	Leucaena shannoni Britton & Rose
	Mimosa diplotricha
	Mimosa pigra L.
	Mimosa pudica L.
	Mimosa scabrella Benth.
	Mimosa somnians Willd.
	Neptunia gracilis Benth.
	Pararchidendron pruinosum (Benth.) Neilsen
	Prosopis glandulosa Torrey
	Prosopis juliflora DC.
Musaceae	*Musa sapientum* L.
Myrtaceae	*Eucalyptus curtisii* Blakely & C. White
Palmae	*Cocus nucifera* L.
Passifloraceae	*Passiflora edulis* Sims
Piperaceae	*Piper methysticum* Forst.
Poaceae	*Brachyaria decumbens* Stapf
	Oryza sativa L.
	Saccharum officinarum L.
	Sorghum vulgare Pers.
	Triticum aestivum L.

Poaceae (cont.)	*Zea mays* L.
Proteaceae	*Macadamia tetraphylla* L. Johnson
Rosaceae	*Fragaria ananassa* A.N. Duchesne
	Pyrus communis L.
Rubiaceae	*Coffea arabica* L.
Rutaceae	*Citrus sinensis* (L.) A. Osborn
Solanaceae	*Lycopersicon esculentum* P. Miller
	Nicotiana tabacum L.
	Solanum tuberosum L.
Sterculiaceae	*Theobroma cacao* L.
Theaceae	*Camellia sinensis* O. Kuntz
Vitaceae	*Vitis vinifera* L.
Zingiberaceae	*Zingiber officinale* Roscoe

Appendix 2. "Multiple-choice" and "no-choice" host specificity testing of *Heteropsylla spinulosa* for egg laying and adult and nymphal survival (Willson and Garcia, 1992).

	No-choice tests		Multiple-choice tests	
Plant Species	No. eggs	No. nymphs/adults alive after 4 days	No. eggs	No. nymphs alive 2 days after eclosion
Delonix regia	4	0	0	0
Neonotonia wightii	5	0	0	0
Trifolium repens	1	0	0	0
Acacia angustissima	27	0	19	0
Acacia melanoxylon	6	0	0	0
Albizia sp. (Mt. Tozer)	5	0	0	0
Desmanthus virgatus	20	0	0	0
Dichrostachys cinerea	10	0	0	0
Leucaena collinsii	4	0	0	0
Leucaena diversifolia	15	0	0	0
Leucaena lanceolata	3	0	0	0
Leucaena leucocephala (var. K8)	4	0	0	0
Leucaena macrophylla	4	0	0	0
Leucaena pallida	27	0	0	0
Leucaena pulverulenta	17	0	0	0
Mimosa diplotricha	685	15 adults, 28 nymphs	>4,000	>4,000
Mimosa pigra	26	0	0	0
Mimosa pudica	13	0	0	0
Neptunia gracilis	20	0	0	0

Decision and Finding of No Significant Impact
for
Field Release *Heteropsylla spinulosa* (Homoptera: Psyllidae), a Non-indigenous Insect for Control of Giant Sensitive Plant, *Mimosa diplotricha* (Mimosaceae), in Guam and the Commonwealth of the Northern Mariana Islands
March 2008

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), is proposing to issue permits for release of a nonindigenous insect, *Heteropsylla spinulosa* (Homoptera: Psyllidae) in Guam and the Commonwealth of the Northern Mariana Islands. The agent would be used by the applicant for the biological control of giant sensitive plant, *Mimosa diplotricha* (Mimosaceae). APHIS has prepared an environmental assessment (EA) that analyzes the potential environmental consequences of this action. The EA is available from:

U.S. Department of Agriculture
Animal and Plant Health inspection Service
Plant Protection and Quarantine
Permits, Registrations, Imports and Manuals
4700 River Road, Unit 133
Riverdale, MD 20737
http://www.aphis.usda.gov/plant_health/ea/biocontrol_weeds.shtml

The EA analyzed the following two alternatives in response to the request for a permit to release *H. spinulosa*: (1) no action, and (2) issue permits for the release of *H. spinulosa* for biological control of *M. diplotricha*. A third alternative, to issue the permit with special provisions or requirements concerning release procedures or mitigating measures, was considered. However, this alternative was dismissed because no issues were raised that indicated that special provisions or requirements were necessary. The No Action alternative, as described in the EA, would likely result in the continued use at the current level of chemical and mechanical control methods for the management of *M. diplotricha*. These control methods described are not alternatives for decisions to be made by APHIS, but are presently being used to control *M. diplotricha* in Guam and the Commonwealth of the Northern Mariana Islands and may continue regardless of permit issuance for field release of *H. spinulosa*. The EA was made available for public comment in the Mariana Variety, Pacific Daily News, and Saipan Tribune on January 4, 5, 7, and/or 8, 2008 for a 30-day comment period ending February 8, 2008. No comments were received on the EA.

I have decided to authorize the PPQ permit unit to issue permits for the environmental release of *H. spinulosa*. The reasons for my decision are:

- This biological control agent is sufficiently host specific and poses little, if any, threat to the biological resources of Guam and the Commonwealth of the Northern Mariana Islands.

- The release will have no effect on federally listed threatened and endangered species or their habitats in Guam and the Commonwealth of the Northern Mariana Islands

- *H. spinulosa* poses no threat to the health of humans or wild or domestic animals.

- No negative cumulative impacts are expcted from release of *H. spinulosa.*

- There are no disproportionate adverse effects to minorities, low-income populations, or children in accordance with Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations" and Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks."

- While there is not total assurance that the release of *H. spinulosa* into the environment will be reversible, there is no evidence that this organism will cause any adverse environmental effects.

An environmental impact statement (EIS) must be prepared if implementation of the proposed action may significantly affect the quality of the human environment. I have determined that there would be no significant impact to the human environment from the implementation of any of the action alternatives and, therefore, no EIS needs to be prepared.

M. J. Firko

Dr. Michael J. Firko
Director
Permits, Registrations, Imports and Manuals
APHIS Plant Health Programs
Plant Protection and Quarantine

3/31/08

Date