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HAWAII INVASIVE SPECIES COUNCIL

1151 PUNCHBOWL ST, #325
HONOLULU, HAWAII 96813

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DEPARTMENT OF TRANSPORTATION

PUBLIC MEETING NOTICE

Hawaii Invasive Species Council

January 29, 2019, 10:00 a.m

Hawaii Department of Land and Natural Resources, Board Room (Rm 132)
1151 Punchbowl St, Honolulu, HI, 96813

AGENDA

1. Call to order
2. Introductions
3. Approval of minutes from August 14, 2018 meeting
4. Presentation: Summary of the January 2019 Hawaii Interagency Biosecurity Plan Progress Report
5. Discussion of legislative goals related to biosecurity in the 2019 legislative session
6. Presentation: Update on the federal Vessel Incidental Discharge Act and impacts to Hawaii's regulation of ballast water and biofouling
7. Presentation: Research and Technology Working Group position paper: "Understanding the Value of Glyphosate in Protecting Hawaii"
8. Submittal: Requesting a resolution supporting the use of best available science in regulation of herbicides and recognizing the utility of glyphosate as a tool for invasive species control
9. Submittal: Requesting a resolution supporting the keeping of pet cats indoors and the use of peer-reviewed science in pursuing humane mitigation of the impacts of feral cats on wildlife and people
10. Public Comments
11. Adjournment

The Council may go into Executive Session pursuant to Section 92-5(a) (4), Hawaii Revised Statutes, in order to consult with its attorney on questions and issues pertaining to the Council's powers, duties, privileges, immunities and liabilities.

Testimony may be provided in person or in writing, submitted electronically to Randal.T.Bartlett@hawaii.gov. To give Board members sufficient time to consider written testimony, please submit the testimony no later than 24 hours prior to the Board Meeting. Any late written testimony will be retained as a part of the record, but we cannot assure that Board members will receive it with sufficient time for review prior to decision-making.

Individuals requesting special accommodations (e.g., large print materials, sign-language interpreters) are asked to contact the staff below at least three days prior to the meeting.

For information, contact:

HISC Support staff: 1151 Punchbowl St, #325, Honolulu, HI 96813; Fax: 587-0160
Josh Atwood, Program Supervisor: 587-4154, [Joshua.P.Atwood \[at\] hawaii.gov](mailto:Joshua.P.Atwood@hawaii.gov)

Randy Bartlett, Interagency Coordinator: 870-6443, Randal.T.Bartlett [at] hawaii.gov
Leyla Kaufman, Mamalu Poepoe Project Coordinator: leyla [at] hawaii.edu
Elizabeth Speith, 643pest.org Report Facilitator: speith [at] hawaii.edu

Hawaii Invasive Species Council

August 14, 2018, 1:00 p.m

Hawaii Department of Land and Natural Resources, Board Room (Rm 132)

1151 Punchbowl St, Honolulu, HI, 96813

AGENDA

1. Call to order – Suzanne Case/Co-chair at 1:02p
2. Introductions – Suzanne Case/DLNR, Scott Enright/DOA, Leo Asuncion/DBEDT, Kelvin Sewake/UH, Grace Simmons/DOH, David Rodriguez/DOT, Josh Atwood/HISC, Randy Bartlett/HISC, Rob Hauff/DOFAW, Randy Bartlett/HISC, Cynthia King/DOFAW, Mark Fox/TNC, Lori Buchanan/MoMISC, Rachel Neville/OISC, Chelsea Arnott/CGAPS, Christy Martin/CGAPS, JC Watson/KMWP (1:05P),
3. Approval of minutes from January 18, 2018 meeting – Scott Enright/Motion to Approve, Leo Asuncion/2nd, Approved Unanimously.
4. Submittal: Requesting approval of a recommended budget for Fiscal Year 2019 – Josh Atwood for Justine Nihipali/Resources WG Chair. See <http://hisc.hawaii.gov> for final award amounts and project abstracts.
 1. Hawaii Early Detection Program, BISH
 2. Ballast Water & Hull Fouling, DAR
 3. Jellyfish Biosecurity, DAR
 - a. Scott Enright: What do you get for \$1907?
 - b. Josh Atwood: Supplies for DNA analysis.
 4. Landscape Scale Mosquito Birth Control, DOFAW
 5. Coconut Rhino Beetle, UH
 - a. Scott Enright: This is \$51,000 less than requested. Will they be coming to DOA for the balance?
 - b. Josh Atwood: Yes, possibly. The amount recommended here was arrived at after a discussion on available resources weighed against the needs of other proposed projects.
 6. New Ant Baiting Tools, UH
 7. Plant Informatics, UH
 8. Invasive Plant R&T Capacity, UH
 9. Sponge Detection & Monitoring, UH
 10. BIISC Outreach, UH
 11. BIISC ROD Response, UH
 12. BIISC Core Targets, UH
 13. CGAPS, UH
 14. Hawaii Ant Lab, UH
 15. KISC Core Targets, UH
 16. KISC Outreach, UH

17. KMWP Albizia Control, UH
 - a. Suzanne Case: Which watersheds would be worked in under this project?
 - b. JC Watson: Waiawa & Helemano.
18. MISC Core, UH
19. MISC Outreach, UH
20. MISC LFA Nahiku, UH
21. OISC Outreach, UH
22. OISC Plants, UH
23. OISC Pests, UH
24. Weed Risk Assessment, UH
25. Biocontrol of Himalayan Ginger, USDA
26. Biocontrol of High Priority Plants, USDA
27. Mongoose Toxicant, USDA

Not Recommended for Funding

1. MISC Coqui Community Empowerment (absorbed into overall MISC award)
 2. Rat & Cat Control for Kauai Forest Birds, DOFAW
 3. ROD Outreach, UH
 - a. Scott Enright: How is this being taken care of?
 - b. Rob Hauff: DOFAW will match 50% of award from UH.
 4. Spittle Bug Detection & Control, UH
 5. Biocontrol of Albizia, USDA
 6. Africanized Honey Bee Prevention, NCSU
 - a. SE: What was the proposal for?
 - b. JA: To do genetic analysis on older samples of bee swarms.
 7. Building Canine Detection Capacity, HISC
 8. Lobate Lac Scale Management, UH
 9. Rat Lungworm, USDA
 10. Snail Surveys for RLW, BISH
 11. KMWP Leptospermum polygalifolium, UH
 12. UH Trial Garden, UH
 13. Banana Fusarium Wilt, UH
 14. Toxoplasmosis Diversity & Hosts, Auburn U
 15. Kauai Parakeets, UH
 16. Biochar Production, UH
- a. Suzanne Case: Chair will entertain a motion to approve the FY19 budget as recommended by the Resources WG.
 - b. Scott Enright: Motion to Approve.
 - c. Kelvin Sewake: 2nd the motion.
 - d. Approved Unanimously.

5. Staff Presentation: Proposed work plan for HISC Support Staff in Fiscal Year 2019 – Josh Atwood
(see presentation at <http://hisc.hawaii.gov>)

6. Departmental Presentation: Update on efforts to develop landscape-scale mosquito control technology - Cynthia King, Department of Land and Natural Resources

- e. DLNR and USFWS continue to collaborate with American Bird Conservancy and other partners to explore the potential to develop lab-reared mosquitoes that contain a form of the naturally-occurring Wolbachia bacterium that is incompatible with wildtype mosquitoes, making any offspring of lab and wildtype mosquitoes inviable. Research and permitting are current foci.
 - i. Suzanne Case: Thanks for the presentation. Any comments or questions from members?
 - ii. Scott Enright: Let me know when you're ready to apply for registration with HDOA and the Department will support it through the process.
 - iii. Kelvin Sewake: How do you insert the Wolbachia into the mosquito?
 - iv. Cynthia King: With a micro-pipette.
 - v. Grace Simmons: DOH was approached last year by OxiTech regarding support for their GMO method of mosquito control. Cost was \$5 million.
 - 1. Cynthia King: Puerto Rico was able to get over \$40m for mosquito control from CDC.

7. Public Comments –

- f. Rachel Neville: Want to thank the HISC for support/approval of the budget and would like to share some of OISCs successes:
 - i. Pampas grass efforts
 - ii. Miconia – only 6 mature individuals found. Removed over 1,555 immature plants
 - iii. Expanded use of drones for surveys
 - iv. Supporting Mamalu Poepoe program at HNL.
- g. Christy Martin:
 - i. For mosquitoes, CGAPS will conduct focus group surveys to identify public areas of support or concern.
 - ii. CGAPS is premiering a Rapid Ohia Death documentary.
 - 1. Suzanne Case: Is the documentary available online yet?
 - 2. Christy Martin: Not yet, but soon after the premieres are done showing on the Big Island.
 - 3. Scott Enright: Saw it on TV the other night. Congratulations on a professional production.
- h. JC Watson:
 - i. Albizia Plan – Mahalo for supporting, look forward to working on this issue.
- i. Josh Atwood:
 - i. Hawaii Ant Lab received the Conservation Innovation Award at the 2018 Hawaii Conservation Conference for their work on little fire ants.

8. Adjournment –

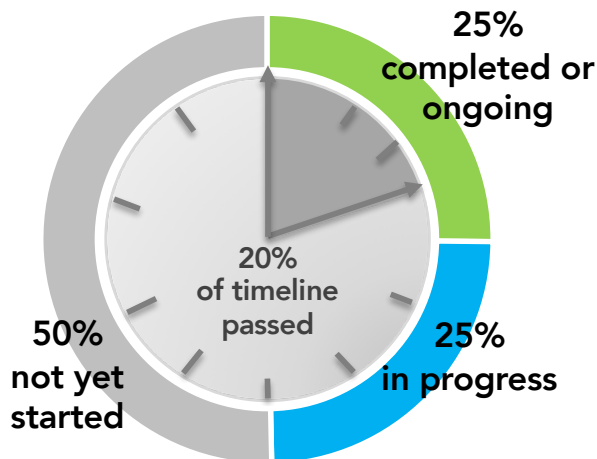
- j. Suzanne Case: Chair will entertain a motion to adjourn.
- k. Scott Enright: Motion to adjourn.

- l. Kelvin Sewake: 2nd the motion.
- m. Meeting adjourned at 1:17p.

Hawaii Interagency Biosecurity Plan January 2019 Snapshot



147 actions in the Hawaii Interagency Biosecurity Plan (HIBP) provide a roadmap to a safer, more sustainable Hawaii. Implementation is underway and ahead of schedule.



50% of HIBP actions have been initiated, are ongoing in perpetuity, or have been completed. This is an increase of 4% over the past year.



Completed

- Vector Control restored
- 10 new extension agents
- Detector dog program restored
- Phase I of E-manifest technology developed
- 643pest.org online pest reporting tool
- Airport biosecurity signs
- Funds for biocontrol facility planning



In Progress

- Restricted Plant List
- Rapid ohia death emergency response plans
- Vessel biofouling tools
- Aquaculture risk assessment tool
- Biocontrols for miconia, ginger, albizia
- New tools for ant & mosquito control



Needed

- DOFAW biosecurity techs for protected lands
- Specialist positions for import risk assessments
- Biosecurity emergency response fund
- Increased funds for HISC and watershed fencing
- Policy changes for ballast water & hull fouling regs
- Coqui barrier for Maliko Gulch, Maui



Hawaii Interagency Biosecurity Plan

An investment in Hawaii's Future

What is biosecurity?

Biosecurity is the full set of measures taken to manage the risk from invasive species. This includes risks to agriculture, environment, economy, and the health of Hawaii's people.

The Hawaii Interagency Biosecurity Plan (HIBP)

The HIBP looks for gaps in our biosecurity system, which consists of a network of State agencies and partners mitigating impacts of invasive species. The HIBP includes 147 actions to increase our capacity to protect Hawaii.

What Do We Spend?

\$57M/yr in current biosecurity expenditures across all agencies (0.4% of the state budget)

\$37.8M/yr additional if every action item in the HIBP were funded (0.3% of the budget)

State Budget
~ \$13B/yr

What Do We Save?

There are thousands of species that have invaded (and thousands more that could invade) Hawaii. Here are just a few.



By funding inspectors at HDOA, we save **\$2B every year in damages from brown treesnake**

By funding the UH Invasive Species Committees, we can reduce **the \$672M that we lose to miconia every year**



By funding the Hawaii Ant Lab, we reduce the **\$174M yearly damages from little fire ant** on Hawaii Island alone

Biosecurity protects our economy...



Ag production:
\$680M



Tourism revenue:
\$15B



Floriculture industry: \$69M

...and our way of life in the islands



Healthy keiki



Vibrant reefs



Healthy watersheds

Native species

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DAVID RODRIGUEZ
DEPARTMENT OF TRANSPORTATION

January 29, 2019

SUBMITTAL

TO: Co-chairs and Members
Hawaii Invasive Species Council
State of Hawaii

FROM: Joshua Atwood
Program Supervisor, Hawaii Invasive Species Council

SUBJECT: Requesting a resolution supporting the use of best available science in regulation of herbicides and recognizing the utility of glyphosate as a tool for invasive species control

Background

Glyphosate is the active ingredient in many herbicide formulations registered in the State of Hawaii to control non-native weed species in many different types of environments. Glyphosate-based herbicides are critical tools in the management of invasive plants in multiple contexts, including control of weeds in natural areas, to protect agricultural resources, and in the creation of firebreaks that limit the spread of wildfires.

In 2015, the International Agency for Research on Cancer (IARC) published an evaluation of glyphosate categorizing this chemical as “probably carcinogenic.” The IARC uses this classification when a positive association has been observed between exposure to the agent and cancer but other explanations for the observations, such as chance, could not be ruled out.

In 2017, the US Environmental Protection Agency (EPA) evaluated the cancer risk of glyphosate to humans in the *Draft Human Health Risk Assessment in Support of Registration Review*. The EPA determined that glyphosate was “not likely to be carcinogenic to humans” and supports continuation of current approved use patterns.

Glyphosate continues to be approved for use by the EPA and the Hawaii Department of Agriculture.

Discussion

The apparent contradiction between the findings of the IARC report and the EPA evaluation has caused much confusion in the discussion of glyphosate as a chemical tool. The Research and Technology Working Group, an informal group of practitioners that voluntarily meet to discuss invasive species research and technology issues in Hawaii, has produced a position paper that attempts to reconcile these two positions. In particular, the paper highlights that the IARC

assessment of “hazard” is made without regard to the context in which a compound is typically used. The EPA assessment of “risk” is made with respect to the context of use, e.g., the likelihood of negative impact to a user when appropriate dosage and protective equipment are used, as described on the product label.

The Research and Technology Working Group paper additionally recognizes that there have been previous attempts to legislative bans or restrictions on the use of glyphosate, in part relying on the IARC assessment. The working group has adopted a position that future policy discussions relating to glyphosate should be based on scientific evidence and include a careful consideration of hazard versus risk. Reliance on scientific evidence should include utilizing appropriate expertise at the Hawaii Department of Agriculture and the EPA. Such discussions may also benefit from a recognition of the value of this tool, when used appropriately, in the control of invasive plants.

Legal Authority

- HRS 194-2 (a): Establishes the HISC for the purpose of cabinet-level coordination and planning among state departments, federal agencies, and international and local initiatives
- HRS 194-2 (a)(2): Advise, consult, and coordinate invasive species-related efforts with and between the departments of agriculture, land and natural resources, health, and transportation, as well as state, federal, international, and privately organized programs and policies.

Recommendation:

1. That the HISC adopt a resolution, substantially similar to the attached draft resolution, in order to:
 - a. Recognize the utility of glyphosate, when used according to label requirements, as a tool for invasive plant control;
 - b. Support the use of best available science, including reliance on expertise at the Hawaii Department of Agriculture, as the basis for discussions regarding the regulation of herbicides and other chemical tools in Hawaii.

Attachments:

1. Draft HISC Resolution 19-1: Supporting the Use of Best Available Science in Regulation of Herbicides and Recognizing the Utility of Glyphosate as a Tool for Invasive Species Control
2. Research and Technology Working Group position paper: Understanding the Value of Glyphosate in Protecting Hawaii

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DEPARTMENT OF TRANSPORTATION

RESOLUTION 19-1

SUPPORTING THE USE OF BEST AVAILABLE SCIENCE IN REGULATION OF
HERBICIDES AND RECOGNIZING THE UTILITY OF GLYPHOSATE AS A TOOL FOR
INVASIVE SPECIES CONTROL

WHEREAS glyphosate is the active ingredient in herbicide formulations registered in the State of Hawaii; and

WHEREAS glyphosate is used to control invasive plant species that threaten native plant habitat, alter ecosystem function, decrease agricultural production, and increase risk of wildfire; and

WHEREAS the International Agency for Research on Cancer (IARC) of the World Health Organization in 2015 identified limited evidence in humans for the carcinogenicity of glyphosate in humans and classified glyphosate as "probably carcinogenic to humans;" and

WHEREAS the US Environmental Protection Agency found in the 2017 *Summary Review of Recent Analysis of Glyphosate Use and Cancer Incidence in the Agricultural Health Study* no statistically significant relationship between exposure to glyphosate and cancer incidence in humans; and

WHEREAS the US Environmental Protection Agency and the Hawaii Department of Agriculture are responsible for regulation of pesticides that are used in Hawaii; and

WHEREAS, Chapter 194, Hawaii Revised Statutes, authorizes the Hawaii Invasive Species Council to advise and coordinate invasive species-related efforts with and between state, federal, international, and private programs, and to coordinate the State's position with regard to invasive species; and

RECOGNIZING that there has been considerable public discourse, including policy discussions, over the use of chemical control tools; and

RECOGNIZING efforts to mitigate the impacts of invasive species in Hawaii are best served by having a broad array of pest management strategies that include appropriate mechanical, chemical, and biological control tools; now, therefore,

BE IT RESOLVED that the Hawaii Invasive Species Council recognizes the utility of glyphosate, when used according to label requirements, as a tool used to control invasive plants in Hawaii for the protection of native ecosystems, agricultural production, and wildfire mitigation; and

BE IT FURTHER RESOLVED that the Hawaii Invasive Species Council supports the use of

best available science, including reliance on expertise at the Hawaii Department of Agriculture, as the basis for discussions regarding the regulation of herbicides and other chemical tools in Hawaii; and

BE IT FURTHER RESOLVED that certified copies of this Resolution be transmitted to the Governor of Hawaii, the President of the State Senate, the Speaker of the State House of Representatives, and to the directors or chairpersons of each HISC agency.

Adopted by the Hawaii Invasive Species Council on the following date:

Suzanne D. Case, Department of Land & Natural Resources

Denise Albano, Department of Agriculture

Keith Kawaoka, D. Env., Department of Health

David Rodriguez, Department of Transportation

Leo Asuncion, Office of Planning, Department of Business, Economic Development, and Tourism

Nicholas Comerford, Ph.D., University of Hawaii

Understanding the Value of Glyphosate in Protecting Hawai‘i

A position presented by the Hawai‘i Invasive Species Council (HISC) Research and Technology Working Group

January 2019

The Position

Glyphosate is the active ingredient in many herbicide formulations registered in the State of Hawai‘i to control non-native weed species in many different types of environments. Glyphosate-based herbicides are critical weed management tools that help maintain profitability in local agriculture, turf and landscape industries, prevent degradation of our natural environments, mitigate wildfires through creation of firebreaks and control of fire-prone invasive grasses, and reduce disease vector habitats. With several decades of regulated use, this pesticide technology has proven to be one of the most cost-effective options in weed control with no historical reports of environmental or human health impacts in Hawai‘i. The new Hawai‘i Interagency Biosecurity Plan (HIBP) provides an ambitious mission to protect against new and existing biological threats to the local economy, environment and health of our island state. Pesticides, including glyphosate, are integral technology options for rapid, effective interventions against these threats. We recognize growing interest by some stakeholders to limit or in some cases ban the use of chemical control options. Efforts to restrict or ban these tools, however, could compromise the feasibility of participating agencies for implementing a well-developed plan to protect Hawai‘i. We recommend a careful consideration of risk and benefits in any future discussions about policies relating to glyphosate use, and endorse the expertise within our state and federal agencies responsible for pesticide regulation.

The Controversy

In 2015, the International Agency for Research on Cancer (IARC) published an evaluation of glyphosate categorizing this chemical as “probably carcinogenic.” The IARC uses this classification when a positive association has been observed between exposure to the agent and cancer but other explanations for the observations, such as chance,

could not be ruled out. A chart listing other substances that are probably carcinogenic to humans, such as very hot beverages and wood fires, is below.

In 2017, the US Environmental Protection Agency evaluated the cancer risk of glyphosate to humans in the *Draft Human Health Risk Assessment in Support of Registration Review*. The EPA determined that glyphosate was “not likely to be carcinogenic to humans” and supports continuation of current approved use patterns. So, how could we have apparently conflicting positions from respected scientific agencies?

IARC Evaluations of Selected Products and Chemicals	
Processed red meat (consumption) Alcoholic beverages Tobacco	<i>Carcinogenic to humans</i>
Very hot beverages Red meat (consumption) Glyphosate Biomass fuel (wood fire)	<i>Probably carcinogenic to humans</i>
Aloe vera whole leaf extract Ginkgo biloba Goldenseal root powder Kava extract Radio frequency Electromagnetic fields	<i>Possibly carcinogenic to humans</i>

Hazard vs. Risk

Hazard is defined as a potential source of harm or adverse health effect on a person, while risk is the likelihood of harm or adverse health effects due to exposure of the hazard. The IARC Monographs Program evaluates cancer **hazards** distinct from actual **risk**. This means that the IARC classified glyphosate as a hazard even though it may be unlikely to cause cancer with current known uses and exposure rates. The EPA conducts risk assessment of hazard exposures under normal or adverse use patterns. Therefore, the IARC determination of hazard and EPA determination of risk may not be conflicting.

Risk Management

Risk management is the process of identification, evaluation, and prioritization of risks, along with the adoption of corresponding measures to minimize the potential impact due to hazard exposure. Pesticide

risk in Hawai‘i is managed through the registration and regulation processes administered by the US EPA in coordination with the Pesticide Branch of the Hawai‘i Department of Agriculture. Each registered pesticide product has a set of vetted guidelines explicitly stating how, when and where a pesticide can be applied, as well as how much and by whom. The product label also describes any protective equipment or training required for the applicator. These specified conditions are determined by established scientific protocols that aim to minimize the risk factors to people and the environment. In addition, the College of Tropical Agriculture and Human Resources (CTAHR) offers the "Pesticide Risk Reduction Education" short course for educating and training professional applicators on proper pesticide stewardship. Any use of a registered pesticide that is inconsistent with the label instructions is illegal and punishable by law.

Alternate positions that support the prohibition of glyphosate potentially undermine the authority and regulatory protocols established by these federal and state agencies. A ban on glyphosate would also remove currently irreplaceable tools for combatting invasive species, creating extreme challenges for local, state and federal agencies charged with protecting the unique, fragile ecosystems of Hawai‘i. Prohibiting effective tools could potentially result in the irreversible debilitation of our food, water, residential landscapes, and rare native plants and animals, all of which are heavily impacted by invasive species. Prohibition of this tool could also result in increased costs for physical control of invasive plants in forests and urban environments.

Pesticides, including herbicides, are technologies that have greatly benefitted from public and scientific scrutiny over the decades since their introduction. Today’s pesticide safety standards and use guidelines are a direct result of this scrutiny and help ensure that the risks associated with exposure are minimized. When used according to label instructions, in concert with established integrated pest management practices, herbicides such as glyphosate are an invaluable tool in managing invasive plants.

To learn about the differences between hazards and risks of glyphosate go to:

International Agency for Research on Cancer, 2017. Some organophosphate insecticides and herbicides: tetrachlorvinphos, parathion, malathion, diazinon and glyphosate. IARC Working Group. Lyon: IARC Monogr Eval Carcinog Risk Chem Hum, 112, pp.9-31.
<https://monographs.iarc.fr/wp-content/uploads/2018/07/mono112.pdf>

US Environmental Protection Agency. 2017. Draft Human Health and Ecological Risk Assessments for Glyphosate.
<https://www.epa.gov/ingredients-used-pesticide-products/draft-human-health-and-ecological-risk-assessments-glyphosate>

To learn about the Hawai‘i Interagency Biosecurity Plan 2017-2027 go to:

Hawai‘i Department of Agriculture:
<http://hdoa.hawaii.gov/blog/main/nr17-02biosecurityplan/>

Hawai‘i Invasive Species Council:
<http://dlnr.hawaii.gov/hisc/plans/hibp/>

This position paper was prepared by the staff and stakeholders participating in the HISC Research and Technology Working Group and does not in and of itself reflect a position of the Council.

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DEPARTMENT OF TRANSPORTATION

January 29, 2019

SUBMITTAL

TO: Co-chairs and Members
Hawaii Invasive Species Council
State of Hawaii

FROM: Joshua Atwood
Program Supervisor, Hawaii Invasive Species Council

SUBJECT: Requesting a resolution supporting the keeping of pet cats indoors and the use of peer-reviewed science in pursuing humane mitigation of the impacts of feral cats on wildlife and people

Background

Feral and free roaming cats are documented predators of wildlife. This predation is a particularly problematic issue in Hawaii, where a large proportion of native bird species are federally listed as threatened and endangered. Because Hawaii's native birds evolved in a habitat free from mammalian predators, some have evolved to be ground-nesting birds. This behavior makes them especially susceptible to mammalian predation.

Cats are the sole reproductive host of the parasite *Toxoplasma gondii*, commonly referred to as toxoplasmosis. Toxoplasmosis has been documented as the cause of death in both terrestrial and aquatic wildlife in Hawaii, including but not limited to the spinner dolphin, the endangered Hawaiian monk seal, the endangered alala, the endangered nene, and the red-footed booby.

Toxoplasmosis also presents a health risk to humans, particularly immunocompromised individuals and pregnant women. Toxoplasmosis is associated with birth defects and miscarriage.

Discussion

Pet cats live longer, healthier lives when kept indoors or contained within a given area. By keeping cats indoors or using outdoor mitigation strategies like fencing, leashes, or cat patios, negative interactions between pet cats and native wildlife in Hawaii can be minimized.

Policy discussions regarding feral cats in Hawaii often revolve around a system referred to as "Trap-Neuter-Return," or TNR. A variant of this system is "Trap-Neuter-Return-Manage," or TNRM. In either case, feral cats are trapped by interested individuals, neutered, and then re-released onto the landscape, often on public property or on property not owned by the individual providing care for the released cats. The system further encourages the maintenance of "cat colonies" in the wild by a caregiver often providing food for cats. In theory, TNR is a tool for

reduction in the number of feral cats on the landscape, since the cats are neutered and eventually die in the wild of disease, injury, or other causes.

TNR as a system has been researched in a number of scientific, peer-reviewed studies, summarized in a meta-analysis titled “Critical Assessment of Claims Regarding Management of Feral Cats by Trap-Neuter-Return” by Longcore et al (2009) in the journal *Conservation Biology*. This analysis has shown TNR to be ineffective at its primary goal of reducing the number of cats on the landscape. TNR also does not mitigate the primary impacts of feral cats on native wildlife or humans: neutered, re-released cats can continue to prey on native wildlife and continue to spread disease that is harmful to wildlife and humans.

Legal Authority

- HRS 194-2 (a): Establishes the HISC for the purpose of cabinet-level coordination and planning among state departments, federal agencies, and international and local initiatives
- HRS 194-2 (a)(2): Advise, consult, and coordinate invasive species-related efforts with and between the departments of agriculture, land and natural resources, health, and transportation, as well as state, federal, international, and privately organized programs and policies.

Recommendation:

1. That the HISC adopt a resolution, substantially similar to the attached draft resolution, in order to:
 - a. recognize that feral and free roaming cats can have a variety of impacts in Hawaii, including predation of native species and the proliferation and transmission of disease to wildlife and humans
 - b. support the keeping of pet cats indoors or otherwise contained to a pet owner’s property through use of cat patios, fencing, or other tools to minimize impacts such cats may have on the surrounding environment
 - c. recommend that proposed methods for mitigating the impacts of feral cats on native wildlife and/or humans should be both humane and supported by peer-reviewed, scientific evidence demonstrating the efficacy of such methods
 - d. discourage the use of “Trap-Neuter-Return” or other efforts that support the feeding or re-release of feral cats into the wild or into public spaces.

Attachments:

1. Draft HISC Resolution 19-2: Supporting the Keeping of Pet Cats Indoors and the Use of Peer-Reviewed Science in Pursuing Humane Mitigation of the Impacts of Feral Cats on Wildlife and People

DAVID Y. IGE
GOVERNOR OF HAWAII

JOSH GREEN
LIEUTENANT GOVERNOR



HAWAII INVASIVE SPECIES COUNCIL

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DRAFT RESOLUTION 19-2

SUPPORTING THE KEEPING OF PET CATS INDOORS AND THE USE OF PEER-REVIEWED SCIENCE IN PURSUING HUMANE MITIGATION OF THE IMPACTS OF FERAL CATS ON WILDLIFE AND PEOPLE

WHEREAS feral and free-roaming cats have been documented as predators of wildlife native to Hawaii, including endangered bird species; and

WHEREAS the toxoplasmosis parasite (*Toxoplasma gondii*) reproduces only in the feline digestive system; and

WHEREAS toxoplasmosis has been documented as the cause of death in both terrestrial and aquatic wildlife in Hawaii, including but not limited to the spinner dolphin, the endangered Hawaiian monk seal, the endangered alala, the endangered nene, and the red-footed booby; and

WHEREAS in humans toxoplasmosis can present health risks to pregnant women and/or immunocompromised persons if they handle cat feces or eat raw or undercooked meat; and

RECOGNIZING that previous public policy discussions in Hawaii have included consideration of funding or exempting from other laws practitioners of a system referred to as "Trap-Neuter-Return" that includes the re-release of neutered feral cats into the wild; and

RECOGNIZING that indoor cats have greater life expectancy than free roaming or feral cats; and

RECOGNIZING that numerous scientific studies, summarized in a meta-analysis titled "Critical Assessment of Claims Regarding Management of Feral Cats by Trap-Neuter-Return" by Longcore et al (2009) in the journal *Conservation Biology*, have shown that "Trap-Neuter-Return" is not an effective strategy to reduce the number of feral cats in a given area or the predation and disease impacts of feral cats; and

WHEREAS, Chapter 194, Hawaii Revised Statutes, authorizes the Hawaii Invasive Species Council to advise and coordinate invasive species-related efforts with and between state, federal, international, and private programs, and to coordinate the State's position with regard to invasive species; now, therefore,

BE IT RESOLVED that the Hawaii Invasive Species Council recognizes that feral and free roaming cats can have a variety of impacts in Hawaii, including predation of native species and the proliferation and transmission of disease to wildlife and humans; and

BE IT FURTHER RESOLVED that the Hawaii Invasive Species Council supports the keeping

of pet cats indoors or otherwise contained to a pet owner's property through use of cat patios, fencing, or other tools to minimize impacts such cats may have on the surrounding environment; and

BE IT FURTHER RESOLVED that the Hawaii Invasive Species Council recommends that proposed methods for mitigating the impacts of feral cats on native wildlife and/or humans should be both humane and supported by peer-reviewed, scientific evidence demonstrating the efficacy of such methods; and

BE IT FURTHER RESOLVED that the Hawaii Invasive Species Council does not recommend the use of "Trap-Neuter-Return" or other efforts that support the feeding or re-release of feral cats into the wild or into public spaces; and

BE IT FURTHER RESOLVED that certified copies of this Resolution be transmitted to the Governor of Hawaii, the President of the State Senate, the Speaker of the State House of Representatives, and to the directors or chairpersons of each HISC agency.

Adopted by the Hawaii Invasive Species Council on the following date:

Suzanne D. Case, Department of Land & Natural Resources

Denise Albano, Department of Agriculture

Keith Kawaoka, D. Env., Department of Health

David Rodriguez, Department of Transportation

Leo Asuncion, Office of Planning, Department of Business, Economic Development, and Tourism

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