SB 776

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
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Testimony of
SUZANNE D. CASE
Chairperson

Before the Senate Committee on
AGRICULTURE AND ENVIRONMENT

Wednesday, February 1, 2017
1:15 PM
State Capitol, Conference Room 224

In consideration of
SENATE BILL 776
RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION

Senate Bill 776 proposes to restructure the Hawaii Invasive Species Council (HISC) as the Hawaii Invasive Species Authority (HISA), an agency attached administratively to the Hawaii Department of Agriculture (HDOA) with expanded board membership that would allow for participation from non-governmental stakeholders. **The Department of Land and Natural Resources (Department) supports this measure.**

The Department has acted as the administrative host of the interagency HISC since its creation in 2003 and serves as co-chair along with the HDOA. Chapter 194, Hawaii Revised Statutes (HRS), requires the HISC to perform a broad spectrum of policy and coordination duties associated with invasive species. The HISC also manages an annual interagency budget to support innovative interagency projects that fill gaps between agency mandates. Chapter 194, HRS, establishes the HISC as a board only, comprised of chairs or directors of state departments, and does not provide staff or funding for the operation of the HISC. As such, the Department has provided existing staff resources to effectuate the direction of the HISC.

This measure would add three non-ex-officio seats to the voting board, to be appointed by the Governor, to represent the interests of stakeholders outside of state government including agricultural and horticultural stakeholders, conservation stakeholders, and an individual with expertise in Native Hawaiian cultural practices. This measure would also authorize the HISA to hire staff necessary to effectuate the direction of the board, and provides an appropriation for this purpose. Rather than being administratively hosted within an existing agency, the HISA would function as a semi-autonomous entity administratively attached to an existing agency.

With regard to attachment to HDOA, the Department notes that HDOA has broad mandates regarding invasive species and biosecurity and would be an appropriate agency to which the HISA could be attached. As proposed, both the Department and HDOA would continue to act as co-chairs on the board of directors.

This measure also appropriates funds for an interagency budget to support gap-filling projects, similar to that currently operated by the HISC. The amount of funding requested for this appropriation matches the need identified by invasive species practitioners for interagency projects in Fiscal Year 18. Pre-proposals describing potential uses of appropriated funds were developed by researchers and project leads across various agencies, and can be found in detail on the HISC website.

In preparation of an attached agency concept for invasive species coordination, HISC staff conducted a stakeholder survey to gather input on desired components of an enhanced coordinating entity. Stakeholder input was broadly supportive of the HISA concept. Support for a stronger interagency coordinating body is also a key recommendation of the Hawaii Interagency Biosecurity Plan (2017-2027), which is part of the Governor's Sustainable Hawaii Initiative. The HISA would be the primary entity responsible for facilitating implementation of the Hawaii Interagency Biosecurity Plan and would be responsible for tracking progress toward implementation and providing reports to the legislature.

The Department appreciates the opportunity to provide these comments.

DAVID Y. IGE
Governor

SHAN S. TSUTSUI
Lt. Governor

SCOTT E. ENRIGHT
Chairperson, Board of Agriculture

PHYLLIS SHIMABUKURO-GEISER
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
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TESTIMONY OF SCOTT E. ENRIGHT
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE SENATE COMMITTEE ON AGRICULTURE & ENVIRONMENT

FEBRUARY 1, 2017
1:15 P.M.
CONFERENCE ROOM 224

SENATE BILL NO. 776
RELATING TO INVASIVE SPECIES ADMINISTRATION

Chairperson Gabbard and Members of the Committee:

Thank you for the opportunity to testify on Senate Bill No. 776. This bill will provide the vehicle for the restructuring of the Hawaii Invasive Species Council to the Hawaii Invasive Species Authority (HISA). The restructuring will attach the HISA to the Hawaii Department of Agriculture which will coordinate the implementation of the Hawaii Interagency Biosecurity Plan. HISA will become the vehicle to organize the State's Invasive Species prevention, early detection, rapid response, control, enforcement and outreach activities. The Department strongly supports this measure.

At the Department of Agriculture, we are keenly aware of the economic impact that invasive pest species has on our farmers. Additionally, new pest species affect the outdoor environment that we live, work, and play in. The establishment of the Hawaii Invasive Species Authority places the efforts of controlling and managing invasive pests under one regulatory authority with dedicated staff and resources. HISA will also have a board comprised of vested stakeholders, including a member from the agricultural industry, natural resource conservation, and the Native Hawaii cultural community.

Thank you for the opportunity to testify on this measure.

DAVID Y. IGE
GOVERNOR

Testimony by:

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

February 1, 2017
1:15 p.m.
State Capitol, Room 224

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S.B. 776
RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION.

Senate Committee on Agriculture and Environment

The Department of Transportation (DOT) **supports** the intent of this bill as long as it does not replace priorities requested in the Executive Budget.

This bill expands the authority of the existing Hawaii Invasive Species Council and the DOT finds its membership on this council useful in providing policy level direction, coordination, and planning for the control and eradication of harmful invasive species infestations throughout the State and for preventing the introduction of other invasive species that may be potentially harmful.

Thank you for the opportunity to provide testimony.

UNIVERSITY OF HAWAIʻI SYSTEM
Legislative Testimony

Testimony Presented Before the
Senate Committee on Agriculture and Environment
Wednesday, February 1, 2017 at 1:15 pm
By
Rachel Novotny, Interim Dean
And
J. Kenneth Grace, Associate Dean
College of Tropical Agriculture and Human Resources
University of Hawaiʻi at Mānoa

SB 776 – RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION

Chair Gabbard, Vice Chair Riviere, and members of the Senate Committee on Agriculture and Environment:

Thank you for the opportunity to testify in **support** of SB 776 which restructures the Hawaiʻi Invasive Species Council as the Hawaiʻi Invasive Species Authority, administratively attached to the department of agriculture, to coordinate implementation of the Hawaiʻi interagency biosecurity plan and to improve coordination of the State's invasive species prevention, early detection, rapid response, control, enforcement, and outreach programs; and appropriates funds to implement the authority and relevant interagency invasive species projects.

The University of Hawaiʻi is a member of the interagency Hawaiʻi Invasive Species Council, and will remain a member under the restructuring proposed in SB 776. We support this restructuring and attachment to the Department of Agriculture, and believe that it will strengthen efforts to prevent and control invasive pests, plants, and plant diseases in Hawaiʻi.

Thank you for the effort to testify in support of SB 776.

TIM VANDEVEER
Chair,
MARIE STRAZAR
Vice Chair

MARGARET WILLE
SEAN SMITH
Legislative Committee Co-Chairs

January 30, 2017

Senator Mike Gabbard, Chair
Senator Gil Riviere, Vice Chair
Senate Committee on Agriculture and Environment
SB 776
RELATED TO INVASIVE SPECIES PROGRAM ADMINISTRATION
Wednesday, February 1st, 2017 1:15 pm State Capitol, Conference Room 224

Submitted on Behalf of the Democratic Party of Hawaii

The Democratic Party of Hawaii strongly supports SB 776 "Related to Invasive Species Program Administration." This bill restructures the Hawaii Invasive Species Council to become the Hawaii Invasive Species Authority. The Authority, housed in the Department of Agriculture, will be given more resources such funding, staff, and board members in order to fulfill the goals of the Hawaii Interagency Biosecurity Plan. **Passage of SB776 is one of DPH's Legislative Priorities for this 2017 Legislative Session.**

At the Democratic Party of Hawaii State Convention of 2016 the DPH passed Resolution ENV 2016-03 Invasive Species Prevention. The resolution states, "the Democratic Party of Hawai'i urges the State Legislature to significantly increase the appropriation for invasive species control to the Hawai'i Department of Agriculture and the Department of Land and Natural Resources, including funding the Hawai'i Department of Agriculture's Biosecurity Plan." Additionally "the Democratic Party of Hawai'i calls on the State Legislature to draft, sponsor, and pass legislation regarding invasive species prevention and eradication, including but not limited to quarantine procedures, regulations to stop intra- and inter-island spread of invasive species, and punitive consequences for businesses selling infested products".

The Democratic Party of Hawaii supports the Hawaii Interagency Biosecurity Plan and all legislative priorities needed for its success. The creation of the Hawaii Invasive Species Authority is called for in the Hawaii Interagency Biosecurity Plan and given a priority ranking of 1. DPH believes the State of Hawaii needs to prioritize and fund the prevention, eradication and mitigation of invasive species in Hawaii. Inaction or insufficient resources towards the fight of invasive species like little red fire ants, rapid

‘ohi‘a death, coffee berry borer, fireweed, etc will have long-term harmful impacts on our State’s economic, cultural, and environmental wellbeing. Farms, ranches, nurseries, and tourism are just some of the industries immediately threatened by invasive species. The spread of the little red fire ants alone, is having a devastating impact on the people of Hawaii’s health and quality of life. The DPH asks you to invest in prevention of the spread of invasive species and give all the tools requested in the Interagency Biosecurity plan including the Invasive Species Authority and necessary funding.

Mahalo for the opportunity to comment on this bill.

Respectfully submitted,

/s/ Tim Vandeveer (tim@hawaiidemocrats.org)
Chair of the Democratic Party of Hawai‘i

/s/ Marie (Dolly) Strazar (hilomds@gmail.com)
Vice Chair of the Democratic Party of Hawai‘i

/s/ Margaret Wille (margaretwille@mac.com)
/s/ Sean Smith (simashang@yahoo.com)
Legislative Committee Co-chairs

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February 1, 2017

HEARING BEFORE THE
SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT

TESTIMONY ON
SB 776: RELATING TO INVASIVE SPECIES PROGRAM ADMINISTRATION

Room 224
1:15 pm

Aloha Chair Gabbard, Vice Chair Riviere, and Members of the Committee:

I am Randy Cabral, President of the Hawaii Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,900 farm family members statewide, and serves as Hawaii's voice of agriculture to protect, advocate and advance the social, economic and educational interests of our diverse agricultural community.

The Hawaii Farm Bureau strongly supports a robust Biosecurity Plan, and provides the following comments on SB 776.

Hawaii agriculture has a long track record of implementing biosecurity measures to protect Hawaii's ecosystem. It was a pioneer in proactive and protective quarantine laws, dating back to 1888, when King Kalakaua signed into law a prohibition on the introduction of coffee trees and shrubs. While addressing natural resources protection (for example, the prohibition of foxes and land crabs), agriculture was a focal point so that diversified crops could be encouraged for commercial production, rather than continue to have Hawaii's people rely on mere subsistence. HFB believes that as we work to improve biosecurity and invasive species management, **biosecurity in relation to agriculture must not be marginalized.**

HFB has long-supported the State's efforts in creating the infrastructure and mechanisms to foster coordination in prevention and control of harmful invasive species. Similar to the goals outlined in this bill, the mission of the Hawaii Invasive Species Council (HRS 194), created in 2003, is, "...to provide policy level direction, coordination, and planning among state departments, federal agencies, and international and local initiatives for the control and eradication of harmful invasive species infestations throughout the State and for preventing the introduction of other invasive species that may be potentially harmful."

HFB also supported the addition and funding of the Biosecurity Chapter (HRS 150A Part VI), updating the Hawaii Quarantine Law, with objectives to (150A-52)

(1) Establish a multi-dimensional system to prevent the entry into the State and interisland movement of pests and prohibited or restricted organisms without a permit; and

(2) Respond effectively to eradicate, control, reduce, and suppress incipient pest populations and established pests and seize and dispose of prohibited or restricted organisms without a permit. [L 2008, c 236, pt of §2]

SB 776 envisions further statutory and regulatory changes. We are hopeful that prior to those changes, a review of existing laws and regulations, and funding mechanisms will be conducted to avoid duplication of efforts and expenditures.

Especially during fiscally challenging times, HFB is a firm believer in collaborative efforts to facilitate implementation of programs. To maximize Hawaii's potential for biosecurity success, we respectfully suggest coordination with experts at USDA, Bishop Museum, UH, and HARC, as well as private organizations with similar goals, in lieu of immediately hiring additional staff for the program.

Thank you for the opportunity to comment on this critical issue. Hawaii Farm Bureau is a strong proponent of biosecurity; our farmers and ranchers are at the forefront of the battle with damaging and invasive species, while trying to meet Hawaii's goal of increased self-sufficiency and sustainability. The challenges of pervasive pests are serious and they are already threatening the viability of sectors of Hawaii's agriculture industry. We respectfully request that the needs of production agriculture and its role in protecting Hawaii from invasive species be recognized and addressed in any new invasive species and biosecurity program.

From: mailinglist@capitol.hawaii.gov
Sent: Friday, January 27, 2017 1:55 PM
To: AEN Testimony
Cc: nredfeather@kohalacenter.org
Subject: Submitted testimony for SB776 on Feb 1, 2017 13:15PM

SB776
Submitted on: 1/27/2017
Testimony for AEN on Feb 1, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
Nancy Redfeather	Ka Ohana O Na Pua	Support	No

Comments: A very necessary step to creating the level of Biosecurity residents can envision. My neighbors are leaving Hawai'i because of lack of support and coordinated effort at the state level. It's time to Act! Mahalo

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The Nature Conservancy
Hawai'i Program
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Testimony of The Nature Conservancy of Hawai'i
Supporting S.B. 776 Relating to Invasive Species Program Administration
Senate Committee on Agriculture and Environment
Wednesday, February 1, 2017, 1:15PM, Room 224

The Nature Conservancy of Hawai'i is a private non-profit conservation organization dedicated to the preservation of the lands and waters upon which life depends. The Conservancy has helped to protect nearly 200,000 acres of natural lands in Hawai'i. We manage 40,000 acres in 14 preserves and work in 19 coastal communities to help protect the near-shore reefs and waters of the main Hawaiian Islands. We forge partnerships with government, private parties and communities to protect Hawai'i's important watershed forests and coral reefs.

The Nature Conservancy supports S.B. 776 to restructure the Hawai'i Invasive Species Council as the Hawaii Invasive Species Authority, attached administratively to the Department of Agriculture.

The Legislative Reference Bureau recently released its update to the 2002 report *Filling the Gaps in the Fight Against Invasive Species*. The 2015 update, *Can't See the Forest for the (Albizia) Trees: An Invasive Species Update*, can be found at: http://lrbhawaii.org/reports/legrpts/lrb/2015/invasive.pdf. One of the LRB's recommendations in this new report is that the Legislature consider amending the structure of the Hawai'i Invasive Species Council (HISC) to provide clearer authority to direct interagency coordination and provide resources and support for priority actions necessary in the fight against invasive species. While the HISC has had many successes, we agree that raising the status of the HISC to become the Hawai'i Invasive Species Authority, including an increased base budget for consistent staffing and programs, would be an important step forward in further addressing Hawai'i's invasive species challenges.

We also note that the LRB's report repeatedly states that a major gap in the fight against invasive species has been insufficient funding for invasive species work on the ground and for the operations and staffing of the HISC. Amongst the LRB's recommendations are a statewide biosecurity plan and for stable—even dedicated—funding to address invasive species prevention, early detection, rapid response, control, research, and outreach priorities across the state. We agree and are pleased that the Department of Agriculture recently completed a comprehensive biosecurity plan.

LOCAL FOOD COALITION

- 4 Ag Hawai'i
- Hawai'i Aquaculture & Aquaponics Association
- Hawai'I Association of Independent Schools
- Hawai'i Cattlemen's Council
- Hawai'i Farm Bureau Federation
- Hawai'i Farmers' Union United
- Hawai'i Food Industry Association
- Hawai'i Food Manufacturers Association
- Kohala Center
- Malama Kaua'i
- Maui School Garden Network
- Ulupono Initiative

SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT
Wednesday, February 1, 2017 – 1:15 PM - Room 224

RE: SB 776 - Relating to Invasive Species Program Administration – In Support

Aloha Chair Gabbard, Vice Chair Riviere and Members of the Committee:

The Local Food Coalition <u>supports</u> SB 776, which restructures the Hawaii Invasive Species Council as the Hawaii Invasive Species Authority, administratively attached to the Department of Agriculture to coordinate implementation of the Hawaii Interagency Biosecurity Plan.

The Local Food Coalition is an organization comprising of farmers, ranchers, livestock producers, investors and other organizations working to provide Hawai'i's food supply.

Invasive species threaten agricultural production. In addition, they threaten the natural environment, the health of Hawaii's residents and the State's economy. The State needs enhanced coordination of its invasive species prevention, early detection, rapid response, control, enforcement, and outreach programs. We support SB 776 as it will provide the leadership, staffing and funding to help mitigate current and future threats and impacts.

Thank you for the opportunity to provide testimony. We ask for your favorable consideration of this measure.

Lori Lum
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From: mailinglist@capitol.hawaii.gov
Sent: Saturday, January 28, 2017 10:20 PM
To: AEN Testimony
Cc: dale@hicattle.org
Subject: *Submitted testimony for SB776 on Feb 1, 2017 13:15PM*

SB776
Submitted on: 1/28/2017
Testimony for AEN on Feb 1, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
Dale Sandlin	Hawaii Cattlemens Council	Support	No

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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Reducing Homeless Cat Populations on Kauai

Compassionate Approaches are Working Better

Many people see trapping, removing and killing homeless outdoor cats as a necessary, fast and permanent way to reduce the cat populations, but the real experience on Kauai shows otherwise. An estimated 12,000 [i, ii] homeless cats live in Kauai's towns and neighborhoods. Over the last decade, about 23,000 of these "community" cats have been trapped, removed, and killed.[iii] And yet, their numbers seem relatively unchanged.

The primary reason for this apparent contradiction is the cat's high reproductive rate. Homeless female cats, living outdoors without optimal nutrition, can produce up to 550 kittens per 100 adult females each year.[iv, v] After cat removal, population growth rates can be as high as 95%.[vi] Since this greatly exceeds the 20% annual catch rate, no significant population reduction was ever possible.

While most of the cat removal has been geographically scattered and short-term, some has focused within specific areas for longer time periods. This is more likely to achieve the high removal rates necessary to reduce cat populations significantly. To assess how well these focused removal efforts are working on Kauai, KCCP obtained records of 16 such projects.[vii] These were conducted over the last 6 years, and trapped about 500 cats.

None of these have permanently removed the cats, and three were intentionally stopped due to exploding rat populations. Total population suppression is estimated at 255 cats,[viii] or 2.1% of the island total. The most successful projects are in four wildlife areas where continuous trapping is employed: within these areas population suppression is over 90%. For the other areas, it was only 30%. The low rate is due to intermittent trapping and subsequent repopulation from high birth rates and immigration.[ix]

Since cats' high reproductive rate is the primary factor that is confounding efforts to reduce the population, why not target their reproduction? This is what TNR does.

In the last decade, about 5400 cats have been Trapped-Neutered-Returned[x] (TNR'd) on Kauai,[xi] and these projects have reduced the island-wide population of neighborhood cats by an estimated 2200,[xii] or 18%. The estimated population suppression from trapping and killing over four times the cats – the 23,000 – is only 11%.[xiii]

In addition to reducing cat populations, TNR also reduces predation [xiv, xv, xvi, xvii] and disease[xviii, xix] for the cats that remain. The total impact mitigation from the combination of population reduction, less predation and reduced disease is much greater than the 18% through population reduction alone. Analysis shows it's up to 30% island-wide.[xx]

TNR is significantly less expensive than trap and remove,[xxi] has proven that it can scale island-wide, and is working better! It should be the preferred method to resolve cat population problems within our towns and neighborhoods.

To fully solve the community cat problem we must address its source. Both sides of the debate agree on this. That means available, inexpensive spay/neuter for all. A low kill rate approach like TNR is needed for those who see lethal removal as unacceptable and who won't cooperate if this is the only supported choice.[xxii]

References and Notes

[i] Feral Cat Task Force Final Report, from Accord3.0 Website, http://www.accord3.com/pg79.cfm, estimate is 15,000 to 20,000 in wild and populated areas combined.

[ii] Scott, Kauai's Feral Cats, The Scope of the Problem, 2013. This is source of the Feral Cat Task Force estimate, and it shows that about 75% live in populated areas. Available on request.

[iii] From Kauai Humane Society statistics, FOIA information from US Fish and Wildlife, and UIPA information from Hawaii's Dept. of Land and Natural Resources. See Appendix 2.

[iv] Nutter, Evaluation of a Trap-Neuter-Return Management Program for Feral Cat Colonies: Population Dynamics, Home Ranges, and Potentially Zoonotic Diseases, NCSU Comparative Biomedical Science, 2005. The author reports on a sample of over 2000 cats.

[v] Schmidt et. al., Survival, Fecundity, and Movement of Free-Roaming Cats, Journal of Wildlife Management 71(3):915–919; 2007)

[vi] Appendix 1, calculation 1

[vii] KCCP obtained information from State and Federal agencies via information requests. KCCP itself removed certain cats (non-lethally). Records from 19 projects were obtained, but long-term results are not known for 3 of these. See Appendix 2.

[viii] Appendix 1, calculation 2

[ix] Miller et. al., Simulating Free-Roaming Cat Population Management Options in Open Demographic Environments, PlosOne, 2014

[x] TNR (Trap-Neuter-Return) captures fertile cats, surgically sterilizes them, returns them to their outdoor home, and then manages the cats to reduce their population over time.

[xi] Estimates from KCCP data (2007 – present) and Kauai Humane information, see Appendix 3

[xii] See Appendix 3.

[xiii] See Appendix 1, Calculation 2.

[xiv] TNR Fact Sheet 2, Predation, http://voxfelina.com/voxfelina/Vox_Felina_Fact_Sheet_Predation_v_1.1.pdf

[xv] Loyd et. al. Quantifying free-roaming domestic cat predation using animal-borne video cameras, 2013

[xvi] Silva-Rodríguez, E.A. and Sieving, K.E., "Influence of Care of Domestic Carnivores on Their Predation on Vertebrates." Conservation Biology 2012. 25(4): p. 808–815.

[xvii] From FOIA, US Fish and Wildlife field notes, 20140114 Email Marie McKenzie to Kim Uyehara_Botulism DB.pdf

[xviii] Nutter, Evaluation of a Trap-Neuter-Return Management Program for Feral Cat Colonies: Population Dynamics, Home Ranges, and Potentially Zoonotic Diseases, NCSU Comparative Biomedical Science, 2005

[xix] VanWormer, Toxoplasma gondii, Source to Sea: Higher Contribution of Domestic Felids to Terrestrial Parasite Loading Despite Lower Infection Prevalence EcoHealth, September 2013

[xx] Appendix 3

[xxi] Zawistowski et. al., Simulating different approaches for managing free-roaming cat populations, ACC&D, 2011

[xxii] On Kauai, animal abandonment rates tripled in some areas after high kill rates for cats at the Kauai Humane Society became highly publicized in mid-2013. Requests for no-kill service from KCCP have tripled since then as well.

Appendix 1: Calculations

Calculation 1: Cat Reproductive Rate

All estimates are from mainland studies, and many feel that birth and survival rates would be higher on Hawaii due to full-year breeding seasons and richer environmental resources.

	Nutter North Carolina	Schmidt et. al. Texas
Birth Rate	4.2 (median)	5.6 (mean)
Kitten Survival	50% (3 months), 25% (6 months) *Est. annual: 17%	50% (3 months, feral) 75% (3 months, semi) Est. Annual: 30%, 20%
Population ratio M/F	33%/67%	Not given
Adult survival M/F	0.40 / 0.60	0.57 / 0.88
Total Birth rate	50% or 0.5	80% to 120% or 0.8 to 1.2
Population growth rate, r	3% or 0.03	60% to 95% or 0.6 to 0.95

*Nutter presents a Kaplan-Meier analysis indicating that after 125 days, kitten death rates approach those of adults. Accordingly, annual death rates are calculated by:

$$6\ month\ survival \times \sqrt{adult\ annual\ survival} = kitten\ annual\ survival$$

Nutter's death rate of 47% is very close to the birth rate, so this represents a stable population, as one would find in a "full" biological environment.

Schmidt's data suggests that higher values are possible when food is plentiful. This value is used in analysis below (Calculation 2) for maximal rates when cats are removed from an area.[i] These birth rate values greatly exceed the death rate, so that the population growth rate is quite high.

Multiple authors report lower numbers as well, with birth rates as low as 40% of Nutter's. These suggest negative population growth rates (contraction) when populations are too high, i.e. above the environment's carrying capacity.

We believe this analysis is conservative for Hawaii. Lohr postulated birth rates of 0.75 for Hawaii under normal situations.[ii] This would suggest population growth rates, r, of 0.55, just under Schmidt's lower value. This higher value supports the assertion by many that birth and population growth rates will be higher in Hawaii due to its warm climate.

Calculation 2: Island-wide impact mitigation from Trap and Remove

Details for the population suppression resulting from removal of the 23,000 cats in the last decade are presented below. Some of the trapping was focused, for example, local hotels that trap cats on their property. Most of the trapping was not focused, e.g. residence obtained a trap from KHS, trapped one or two cats on their property, and returned the trap.[iii]

Known Focused Trapping at 16 locations
The island-wide neighborhood cat mitigation from known focused trap and remove can be determined from the tables in Appendix 2. Some of this trapping was in wildlife areas adjacent to but not within neighborhoods. Nonetheless, all the cats are included. Total cat suppression is estimated as 255 of the original population. This is a 2.1% reduction of the island-wide total of 12,000 neighborhood cats. This trapping was performed on an estimated original population of 480 cats, or 4% of the island-wide total.

Trapping for 22,500 Cats: Casual, Intermittent Focused, and Continuous Focused
The results from Appendix 2 are used as a model. An estimated 20% of the trapping is focused in one area.[iv]

	Focused, Continuous	Focused, Intermittent	Casual
Percentage of trapping	5%	15%	80%
Population suppression	80%	20%	10%*
Total, Island-wide	4%	3%	8%

*The justification for the 10% value is shown in calculation 3.

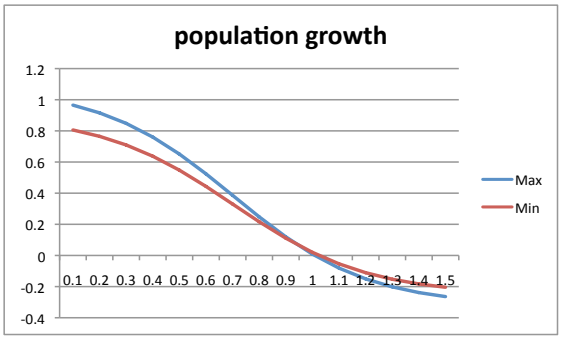
Total population suppression is 15% of cats from the entire population less cats in the known focused trapping or under TNR management. Thus, total cat suppression is:

15% x (100% - 4% - 34%) = 9.3% or 1120 cats

Combined total: 9.3% + 2.1% = 11.4% or 1375 cats

Calculation 3: Casual Trapping Metrics

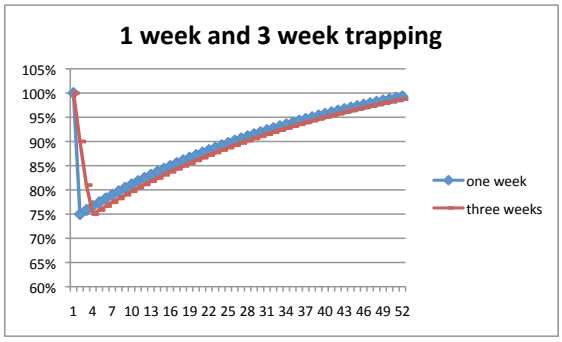
The estimated effect of casual trapping is based on a growth rate analysis. Two logistic growth curves are shown in the graph at the right, based on values from Schimdt et. al., which was referenced in calculation1 above. The values establish a range for maximum values of the logistic function, which occurs for very low population levels. The value at a 100% population level (biological carrying capacity) is very near zero.



The number of animals trapped annually in casual trapping is 80% of 22,500/10 or 1800. This is 25% of the of the total cat population of 7000 that is being casually trapped.[v]

At a population level of 75%, the growth rate (27% to 31%) exceeds the removal rate. Immigration, while modest, adds more. Simplistically, this means there is a zero population reduction. This is not what actually happens. In a real situation, there is a time lag between cat removal and cat rebound. The length of time between removal and rebound back to a 100% population level determines the average number of cats and thus the degree of cat suppression.

Two examples are shown in the graph. One traps 25% in 1 week. This might correspond to removing one cat from a small neighborhood population. The second traps 5 cats in 3 weeks. This might correspond to removing 5 cats from a condominium area. Each shows a resulting annual average cat population of approximately 90%. Thus, the cat suppression from ongoing casual trapping is approximately 10%. In both cases, the permanent suppression is zero, i.e. the cat population returns to 100% after about one year.



Population rebound within one year is very typical on Kauai, so both examples are realistic.

References

[i] Maximum populaiton growth rates, r, are assumed when 80% of cats are removed; for lesser removal percentages, the maximal rate is linearly prorated to lower values.

[ii] Lohr, C. et. al, Costs and benefits of trap-neuter-release and euthanasia for removal of urban cats in Oahu, Hawaii, Conserv Biol. 2013 Feb;27(1):64-73. doi: 10.1111/j.1523-1739.2012.01935.x. Epub 2012 Sep 25.

[iii] KCCP requested data from KHS to determine how much focused trapping versus scattered trapping has been performed in the last 6 years, but KHS declined to provide the information.

[iv] Apparent continuous trapping is between 5% and 10% based on anecdotal observations in the KHS lobby (random sampling). Here the assumed 20% is quite high and thus conservative.

[v] 12,000 – 440 (16 known trapping areas) – 620 (focused trapping) – 4080 (TNR) ≈ 7000

Appendix 2: Trap and Remove Activities Analyzed on Kauai

	Location	Date	Event	Outcome	# rem	base #	Source	remain	Comment
1	Salt Pond 1	mid-2012	30 cats removed	cats back by mid-2013	30	40	ACO/KHS	100%	
2	Salt Pond2a	late 2014 - mid 2015	2 TNR colonies removed (17) plus additional 20 (estimated)	cats back by late 2016	37	40	ACO	100%	near complete removal
unk	Salt Pond 2b	late 2014 - mid 2015	total of 70 cats removed by ACO, but some were from park	one time trapping; estimated return rate to wild area is 0.1	50	55	ACO	25%	% remain estimated from immigraiton rate = 0.1
3	HNWR	2010 - 2015	continuous trapping	cats contuously present but at very low levels	130	90	USFWS	5%	base numbers are projected from immigration rates of .25, .25, .05 and 0.8 growth rate
4	KNWR		intermittent trapping		70	50	USFWS	5%	
5	HNWR		intermittant trapping		15	10	USFWS	10%	
n/a	mahalepu	2013	58 cats removed from wild areas and near GC	unknown **this is mostly a wild area and is excluded	58		DLNR	excluded	
6	Kukuiula	mid-2015	cats removed	all cats returned in ~1 year	12	15	KCCP	100%	cats now in a rescue
7	Larsen's beach	mid-2015	10 colony cats plus unknown other cats	subset of cats back in 4 months **wild area abuts farms and illegal camping areas	20	25	KCCP	70%	based on reports from illegal campers
8	Small boat harbor	late 2015 - early 2016	colony of 25-30 apparently removed	cats gone for several months, but a large populatio is back in 6 months	25	30	KCCP & ACO	100%	virtually no effect
9	Waimea PC	late 2015 - early 2016	~ 10 cats removed from one area, but other cats present on the property	cats continue to be present with no reported bird issues	10	12	KCCP	50%	

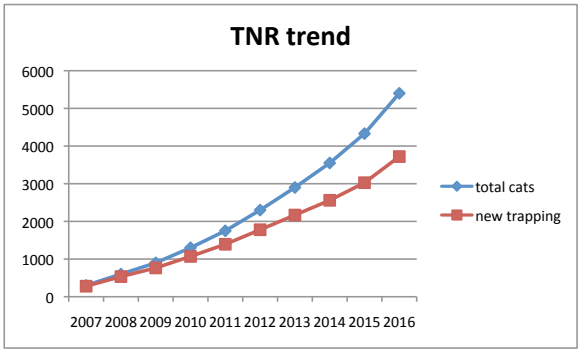
	Location	Date	Event	Outcome	# rem	base #	Source	% remain	Comment
10	Coffee fields	10 & 11 2014	trapping near bird colonies	11 cats trapped, but assess that cats are still present	11	15	DLNR	100%	due to non-continuous
11	Kaumakani	Oct 2014 - Jan 2015	trapping near bird colonies	4 cats; OK for several months; but trapping stopped	4	4	DLNR	100%	due to non-continuous
	Private trapping, Albatross	2014	30 cats removed	unknown **excluded; too little is known	30		COK UIPA	excluded	
12	Princeville SC	2012	12-15 cats removed	large number of rats; 5+3 cats brought back	15	15	KCCP	50%	
13	Regency Resort	2016	maintained colony removed	rat invasion; unk number of cats brought in	12	12	KCCP	50%	estimated # cats returned
14	PMRF base	2013	cats on base removed	rats eating signal cables; allowed TNR on base	30	35	KCCP	50%	based on volunteer information
15	PMRF wetlands	2013-2105	cats removed around wetland restoration	ongoing cat removal; no reports of predation problems	50	25	DLNR	10%	DLNR data
16	Lagoons GC	ongoing	cats removed in nesting season	~10 cats removed annually	30	10	DLNR	50%	ongoing with 6 months on, 6 months off

Summary:

reduction in 4 continuous areas	93%
reduction in 5 intermittent areas	31%
reduction in 7 one time areas	29%
total original cat population (est.)	483
cats removed (est.)	255
percentage removed	53%

Appendix 3: TNR Conducted over the Last 10 Years

About 5400 cats were trapped for TNR over the last decade. Data is from KCCP, KHS and members of the community who practice TNR independently. The KHS data is used to estimate TNR spay and neuter done by volunteers not associated with KCCP.



Many of the cats trapped are within areas where 100% of cats have already been spayed or neutered, but new cats have immigrated in. These are designated as re-trapped cats. The re-trapping is necessary to maintain population counts at reduced levels and quantifies the inefficiency caused by cat immigration.

Total cats trapped	5400
New Cat Trapping	4080
TNR population reduction	1165
Cats pulled	1005
Total population reduction	2170
Reduction within TNR areas	60%
Island Population %	18%

Explanations:

- New Cat Trapping is the initial near-100% trapping that occurs when TNR is started in a new area. For example, if trapping was conducted in 50 areas, which altogether contained 600 cats when trapping started, then New Cat Trapping would equal or be very close to 600. However, after the initial trapping, additional trapping would occur in these areas due to immigration of new cats. This might result in total trapping of 750 cats.
- TNR population reduction is the attrition from natural causes or accidents.
- Cats pulled are the adoptable animals that were removed

TNR provides mitigation in addition to the direct population reduction because disease is reduced by 60% to 75% (see sources in main paper). Predation is reduced by 75% to 90% according to various sources (see main paper). Calculating both as a 75% reduction gives the following:

Reduction from 100% in TNR area	60%
Remaining cats in TNR area on average	40%
Mitigation of disease and predation	75%
% disease/predation remaining	10%
% of total neighborhood cats TNR'd	4080/12000 = 34%
Total island-wide mitigation	30%

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Testimony for AEN on Feb 1, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Barry	Individual	Support	No

Comments:

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SB776
Submitted on: 1/30/2017
Testimony for AEN on Feb 1, 2017 13:15PM in Conference Room 224

Submitted By	Organization	Testifier Position	Present at Hearing
Arianna Feinberg	Individual	Support	No

Comments: Aloha Senate Agriculture and Environment Committee Members, I am a born and raised Maui resident and small business owner and I strongly support SB776 "Related to Invasive Species Program Administration." This bill restructures the Hawaii Invasive Species Council to become the Hawaii Invasive Species Authority. The Authority will be given more resources such staff, board members, and additional funding in order to fulfill the goals of the Hawaii Interagency Biosecurity Plan. I am greatly disappointed in Hawaii's historical response to the threat of invasive species. It sickens me that the Big Island's East Side seems terminally doomed to be ridden with Little Fire Ants and Coqui frogs. I visit Hilo monthly for business and am always disturbed by the calls of the coqui frogs and am paranoid that I'm getting bit by LFA or accidentally bringing them home to Maui in my luggage. I wish we could go back in time to intercept the LFA and coqui on their way to the Big Island. As a second best option, once these species were discovered we should have given more resources towards their early eradication. Now it seems like it is too far gone for those East Hawaii Island communities to ever be free of these pests. I think this mentality of defeat on the Big Island needs to change and we should go to war with the LFA, coqui and other invasives by being better organized, funded and focus our efforts on biocontrols. Until biocontrols are properly developed for eradication we must give adequate resources to mitigation and containment. We cannot let the invasive species on the Big Island get a hold on the other islands. It will be cheaper, in the long run, to focus now on the interception and early detection vs the economic toll of losing whole industries to invasive species such as nurseries, farms, and orchards. Also if LFA spread to our beaches it will be detrimental to our tourism industry and locals quality of life. Currently, it seems like the Hawaii Invasive Species Council is spread too thin putting out fires such as new outbreaks of existing invasive species problems. I fear that they do not have the infrastructure to respond to a totally new threat if one arises. Additionally, the Hawaii Invasive Species Council does not have the funding or tools to adequately carry out the plans of the Interagency Biosecurity Plan. Please do all in your power to help the Agencies succeed in following through with the Biosecurity Plan including creating the Hawaii Invasive Species Authority and significantly upping their budget. We need to do everything in our power to prevent, eradicate and mitigate the harms from invasive

species. Much of Hawaii's value is in our unique natural resources. Please do everything in your power to protect these resources for the sake of our economy and future generations. Please vote in favor of SB776. Mahalo for considering my testimony. Arianna Feinberg Upcountry Maui

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Submitted By	Organization	Testifier Position	Present at Hearing
Javier Mendez-Alvarez	Individual	Support	No

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