



UNIVERSITY
of HAWAII
MĀNOA

College of Tropical Agriculture and Human Resources
Department of Human Nutrition, Food and Animal Sciences

February 7, 2019

Brian Takeshita
Chief Clerk
House of Representatives
State of Hawaii
State Capitol
Honolulu, HI 96813

DEPT. COMM. NO. 362

Dear Mr. Takeshita,

[This is a corrected letter (original letter dated 2/6/19).]

In response to 2018 House Resolution No. 195, I am providing the enclosed report, "**Rat Lungworm Disease Survey of Hawaii Veterinarians 2018**," on behalf of the Hawaii Veterinary Medical Association. This report includes information gathered via a voluntary statewide survey of veterinarians in April 2018.

The survey results were compiled in September 2018; however, in November/December 2018, I was made aware of two confirmed canine cases of Rat Lungworm Disease (aka canine neural angiostrongyliasis) on Oahu. Both dogs survived with treatment.

Please do not hesitate to contact me if there are any questions.

Sincerely,

Jenee S. Odani, DVM, DACVP
Secretary, Hawaii Veterinary Medical Association
Associate Specialist: Veterinary Extension

HVMA Report Responding to 2018 House Resolution 195: **Rat Lungworm Disease Survey of Hawaii Veterinarians 2018**

During April 2018, 232 surveys were mailed to veterinarians from Hawaii Island, Maui, Oahu, and Kauai (see appendix 1) along with a self-addressed stamped envelope to encourage participation. As of September 2, 2018, 94 surveys were returned (response rate was ~40%).

Of the 94 respondents, 21 veterinarians reported either having suspected or confirmed cases of Rat Lungworm Disease (RLWD). This number corresponds to ~22% of the respondents and ~9% of the number of veterinarians surveyed.

Veterinarians were asked for the number of suspected and number of confirmed cases seen in animals. Two time frames were queried: within the past 12 months and over the course of their careers. Additional information regarding treatment and clinical outcomes were also requested.

Data for suspected cases in animals are summarized in Table 1.

Island	Table 1: Suspected Cases of Rat Lungworm Disease (<i>Angiostrongylus cantonensis</i>) in Hawaii									
	Dogs		Cats		Horses		Other		All Species	
	w/in past year	Total	w/in past year	Total	w/in past year	Total	w/in past year	Total	Total w/in past year	Total
Hawaii	~146-166	200+¹	5	5	0	7	0	3-4	~151-171	200+
Maui	7	14-15	0	0	0	1	0	0	7	15-16
Oahu	5-6	5-11	0²	0²	3	3	0	3	8-9	11-17
Kauai	0³	0	0	0	0	0	0	0	0	0
All Islands⁵	158-179	200+	5	5	3	11	0	6-7⁴	166-187	200+

- Five veterinarians from Hawaii Island had suspected cases in dogs. Three veterinarians reported having 9 cases. Two veterinarians from East Hawaii reported having over a hundred cases each over their careers.
 - One veterinarian from Oahu reported having 5-10 suspected and confirmed cat cases, based on the Baermann test. These were probably *Aelurostrongylus* spp. and not *Angiostrongylus cantonensis*.
 - One response from Kilauea reported 1 suspected dog within the past 12 months and over their career. It was unclear whether this was from Hawaii Island or Kauai. This case was not reported in the table above.
 - Hawaii Island reports one barn owl within the past year, and 2-3 raptors in the past.
 - One response was received that did not specify an island but said they found unidentifiable lungworm ova in feces from a dog. This is not consistent with the life-cycle of *Angiostrongylus cantonensis* in accidental hosts, therefore this data was not included in the table above.
- Dogs were treated with antibiotics (clindamycin, metronidazole, doxycycline, trimethoprim/sulfadiazine, cephalosporins, fluoroquinolones), non-steroidal anti-inflammatory drugs, corticosteroids (prednisolone, dexamethasone, prednisone), analgesics, and anthelmintics (ivermectin, fenbendazole).
 - The eventual clinical outcomes ranged from full recovery to euthanasia.

HVMA Report Responding to 2018 House Resolution 195: **Rat Lungworm Disease Survey of Hawaii Veterinarians 2018**

Data for confirmed cases in animals are summarized in Table 2.

Island	Table 2: Confirmed Cases of Rat Lungworm Disease (<i>Angiostrongylus cantonensis</i>) in Hawaii									
	Dogs		Cats		Horses		Other		All Species	
	w/in past year	Total	w/in past year	Total	w/in past year	Total	w/in past year	Total	Total w/in past year	Total
Hawaii	0	0	0	0	0	1¹	0	0	0	1
Maui	0	0	0	0	0	0	0	0	0	0
Oahu	2	2	0	0	0	0	0	2^{1,2}	0	2
Kauai	0	0	0	0	0	0	0	0	0	0
All islands	0	0	0	0	0	1	0	2	0	3

1. Cases in horses and zoological animals were confirmed at Dr. Sue Jarvi's laboratory at UH Hilo (qPCR).
 2. Additional information about the cases in "other" species was not available.
- Horses were treated with IV DMSO, steroids (including dexamethasone), ivermectin, fenbendazole, and trimethoprim sulfamethoxazole. Clinical outcomes ranged from limited recovery to euthanasia.
 - Dogs were treated with steroids +/- fenbendazole and doxycycline. Clinical outcomes for both puppies were excellent.

This survey was developed and conducted by Dr. Jenee Odani, Extension Veterinarian, University of Hawaii, College of Tropical Agriculture and Human Resources.