I. CALL TO ORDER - The meeting of the Ad Hoc Panel (Panel) on Identification of Suspected Hybrid Animals, Lu (aka Lucifer), Kurios, and Antoinette, was called to order by Deputy Attorney General Haunani Burns in lieu of a yet-to-be-selected chairperson on Thursday, November 15, 2018 at 9:00 A.M. at the Department of Agriculture (Department), Division of Animal Industry (DAI) Conference Room, 99-941 Halawa Valley Street, Aiea, Hawaii 96701.

Members Present:
- Dr. Sheila Conant, University of Hawaii, Professor Emerita, Biology
- Dr. Sylvia Kondo, University of Hawaii, Animal and Veterinary Services Program Manager
- Dr. Fern Duvall, Department of Land and Natural Resources, Biologist

Others Present:
- Bianca King, Owner
- Kurt Floris, Co-Owner
- Trenton Yasui, Acting Inspection and Compliance Section Chief, Hawaii Department of Agriculture (HDOA) / Plant Quarantine Branch (PQB)
- Christopher Kishimoto, Entomologist, HDOA/PQB
- James Thain, Acting Land Vertebrate Specialist, HDOA/PQB
- Karen Hiroshige, Secretary, HDOA/PQB
- Raquel Wong, Administrator, HDOA/DAI
- Haunani Burns, Deputy Attorney General, Office of the Attorney General
- Val Kato, Deputy Attorney General, Office of the Attorney General

II. INTRODUCTIONS AND SELECTION OF CHAIRPERSON

Dr. Sheila Conant volunteered to be the Chairperson of the Panel. Dr. Sylvia Kondo made a motion to nominate Dr. Conant to be the Chairperson of the Panel. Dr. Fern Duvall seconded the motion.

Vote: Approved 3/0.

The Ad Hoc Panel members introduced themselves and summarized their professional backgrounds in vertebrate biology or zoology.

Chairperson Dr. Conant said that she is a retired professor from the University of Hawaii Biology Department and has served on previous Ad Hoc Panels for identification of suspect hybrid animals both for cats and dogs.
Dr. Kondo said she is a Veterinarian and has worked for twenty-five years at the University of Hawaii with Animal and Veterinary Services; as a private practitioner with small animals for nine and a half years; has worked at two different cattery-type facilities; and has also served on other Panels for HDOA.

Dr. Duvall said he works for the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife, Native Ecosystems Protection and Management since 2015. Dr. Duvall said he started working with the DLNR in 1984 and has worked with the captive breeding of endangered species and as a wildlife biologist. Dr. Duvall said he has also been the head of the Subcommittee for Vertebrates for the Maui Invasive Species Committee. Dr. Duvall said he has done a lot of work with exotic and unusual animals that have been found in the wild or brought into the State.

Chairperson Dr. Conant said that the Panel is convened to determine the identification of Lucifer, Kurios, and Antoinette, which are suspected to be prohibited hybrid animals. She said that the Panel is charged with reviewing all of the pertinent information, including but not limited to expert consultation, health and pedigree certificates, owner's statements, PQB findings, and/or viewing of the suspect animals to determine their lineage.

Deputy Attorney General Haunani Burns clarified that the Panel would make findings on what they believe is the correct identification of the animals, and that those findings would be the basis for a course of action to be taken by the PQB.

Dr. Conant concurred with Ms. Burns’ clarification.

III. COMMENTS FROM GENERAL PUBLIC ON AGENDA ITEMS (ORAL OR WRITTEN).

Chairperson Dr. Conant asked whether there are members of the public who want to give testimony to the Panel and whether they have signed up on the signup sheet. Ms. Burns informed Dr. Conant that the owners of the suspect animals had signed up for testimony.

Dr. Conant said that testimony is to be presented after the PQB presents its request to the Panel.

IV. REQUEST FOR DETERMINATION OF WHETHER LU (AKA LUCIFER), KURIOS, AND ANTOINETTE, PRESENTED FOR ENTRY INTO THE STATE AS DOMESTIC CATS, ARE PROHIBITED ANIMALS, SPECIFICALLY, BENGAL CATS OR OTHER HYBRID CATS, THAT ARE NOT PERMITTED ENTRY INTO THE STATE.

PQB Acting Land Vertebrate (LV) Specialist James Thain provided a synopsis of the request as presented in PQB’s submittal to the Panel. He said that, upon arrival of Lu, Kurios, and Antoinette in Honolulu, DAI airport staff noted their unusual coat markings, suspected they might be prohibited hybrid animals. Acting LV Specialist Thain visually inspected the three animals at the airport and noted in PQB’s Investigative Report the characteristics of the animals that indicated they may be possible Bengal cats. Acting LV Specialist Thain took photographs of Lu, Kurios, and Antoinette which were provided to the Panel members prior to the Panel’s meeting. Acting LV Specialist Thain said that when he contacted the veterinarian whose signature is on the rabies certificates for Lu and Antoinette, the veterinarian said that he did not
attest to the animals’ breed and that information on the veterinarian’s certificates as to breed was supplied by the owner.

Chairperson Dr. Conant declared the Panel ready for testimony by the owners of the cats and asked for the owners to introduce themselves.

Kurt Floris introduced himself as the co-owner of Kurios, Lu, and Antoinette for the past three and a half years. Mr. Floris stated that the cats are their lives, their babies, and did not think he Bianca King, the other co-owner of Kurios, Lu, and Antoinette, introduced herself and stated that Kurios and Lucifer, the two male cats, were given to Ms. King and Mr. Floris upon their request from a friend who had a litter of cats. She said Antoinette was received from an animal shelter.

Mr. Floris described the cats as very loving, with Antoinette being the only one who does not like to be picked up. Mr. Floris stated that Antoinette takes a little while to get used to people. Mr. Floris stated “Antoinette is a cuddle bug. Whenever we go to sleep at night, she curls up under my shoulder and just, ahh. Antoinette is a lover. We’ve never treated them as wild animals, they are indoor cats, they get babied like children.”

Mrs. King asked what type of questions or information the Panel would like her to verbally provide.

Chairperson Dr. Conant asked the owners about a point made multiple times in the Department’s submittal regarding “Tabby” as not a breed, but rather a color. Mr. Floris stated that it was an error on his part filling out the breed information.

Dr. Conant also asked about the person Kurios and Lucifer were obtained from, and the animal shelter where the owners obtained Antoinette, and whether anyone from the animal shelter ever mentioned any kind of background related to wild cats. Mr. Floris said that they never exhibited any traits of wild cats and they have always just been cool, loving cats.

Dr. Conant then asked if this situation was a surprise to the owners. Mr. Floris responded “yes,” and added that the names were mixed up on Attachment C-1 and C-2., referring to Kurios and Lu. Mr. Floris added that Lu would be the light grey one and Kurios would be the one that is rusty colored. Dr. Duvall asked if the photos were labeled wrong? Mr. Floris indicated that the photographs in Attachment C-1 are Kurios, C-2 are Lu, and C-3 are Antoinette.

Ms. Burns said the references to the attachments C-1 and C-2 would need to be corrected accordingly in the third paragraph of the third page of the submittal, and it should read “Copies of color photographs of Kurios, Lu, and Antoinette . . . “ should list Kurios as C-1 and Lu as C-2 instead of listing Lu on C-1.

Chairperson Dr. Conant referred to page D-4, the Shipmasters Declaration, where the names of the cats reference their microchip numbers. Dr. Conant said that the names and microchip numbers did not coincide with the rest of the documents. Ms. Burns clarified that the names on the Shipmasters Declaration form should list: first, Antoinette (MC: 985112010262893), second: Kurios (MC: 985112008096547) and third: Lucifer (MC: 985112007323675), and all other forms the owners submitted show the correct names and microchip numbers. Prior to the first meeting
recess, Mrs. King acknowledged she had made a mistake in mixing up the microchip numbers for Lu and Kurios on the Shipmaster Declaration.

Dr. Kondo asked co-owner Mrs. Bianca King what the source was for the color photographs of cats that she submitted. Mrs. King said that the photos were listed online and are photos of domestic cats, mostly Tabbies, with markings similar to Lu, Kurios, and Antoinette, and are offered for comparison with them.

Chairperson Dr. Conant described the process for the Panel’s visit to the Department’s Animal Quarantine Station (AQS) to view Lu, Kurios, and Antoinette. Dr. Conant emphasized that the owners would be allowed to participate, but would be asked to stay back and out of sight, so as not to influence the animal’s behavior, but the owners would be allowed to hear any Panel member discussion.

Dr. Duvall said that if Antoinette came from an animal shelter, they would not know her parentage. He then asked if Kurios and Lucifer came from a friend’s litter, did that friend say anything about the type of cats the parents were. Mrs. King replied that neither her friend nor the friend’s neighbor, the owners of the breeding pair producing Kurios and Lucifer, knew anything about the lineage of either parent cat.

Chairperson Dr. Conant explained the process for recessing the meeting so that it could be relocated and continue at the AQS to view the animals. After the Panel reviewed the submittal documents, attachments, addenda; briefly touched on material on Bengal breed standards that the Panel would look at later; and verifying the microchip numbers for each cat, the meeting was recessed at 10:00 am.

Meeting was called back to order by Panel Chairperson Dr. Conant and continued at the AQS at 10:15 am.

The Panel members examined each of the three suspect hybrid animals in their individual kennels.

Lu:
Dr. Kondo said she saw definite rosettes patterns on Lu, with black paw pads and a black-tipped tail, which looked like the markings of a Bengal hybrid. Dr. Duvall noted that what he sees on a hybrid, which Lu exhibits, is a head that is sort of rounded, short, relatively small rounded ears, and cheek streaks that go back from the eye over the entire cheek. Dr. Duvall said these features are standards that breeders select for in the Bengal breed, and the way you get the standards is by hybridization. Dr. Duvall continued, saying Lu has rosettes with a different color inside the rosette compared to the base color of the animal, has whisker pads and chin that are a distinct white, back legs that are longer than the front legs, and very pronounced, large toes. Dr. Conant noted that the whisker pads were white in the front.

Kurios:
Dr. Kondo said that she saw on Kurios a distinct rosette pattern unique to the hybrid Bengal breed, with a dark ring and inside the ring a darker color than the base coat. Dr. Duvall said that he saw that Kurios’ back legs were longer than his front legs, his head was rounded, which in profile has a minimal “stop,” his ears were short and rounded, his face had two stripes on the
cheek that go from the eye back across the entire cheek, he has an orange nose, he has very round eyes, his toe pads were not as large as Lu’s, and that Kurios has glitter in his fur. Dr. Duvall said these traits are indicative of the Bengal breed. Dr. Conant said there are other breeds that would also have that type of conformation in the shape of their heads.

Antoinette:

Dr. Kondo said there are silver versions of the Bengal cat hybrid and she does see in Antoinette what appears to be rosetting. Dr. Kondo said that, apparently, Antoinette has some black tabby background, so even though she is silver, you can see the black toe pads and black tip of the tail. Dr. Kondo said that some of these silver Bengal cats can look like Egyptian Maus and the way to determine is to run a cat ancestry blood test to see if there are any hybrid genes. Dr. Duvall said he noticed the cheek stripes on Antoinette that go from the base of the eyes back across the cheek, her nose color, and her head being sort of flat in profile.

Meeting recessed for relocation back to the DAI conference room at 10:30 am.

Meeting was called back to order to order and continued at the DAI conference room at 10:45 am.

PQB acting LV Specialist Mr. Thain introduced as Addendum 3-1, 3-2, and 3-3 the veterinary intake records from the AQS for Lu, Kurios, and Antoinette which recorded their individual microchip numbers as confirmed by scanner upon their arrival at AQS. He noted that Addendum 3-1, 3-2, and 3-3 show that the paperwork included with the Department’s submittal is correct as to the microchip numbers for the three animals, with the exception of the Shipmasters Declaration, filled out by the owner, where Kurios’ and Lu’s names need to be switched to correspond to the correct microchip numbers.

Dr. Duvall introduced a power point presentation on the Bengal breed that Chairperson Dr. Conant found online and that was done by a group of enthusiasts who exhibit and educate, particularly on Bengal cats. (Addendum 6.) He said that he has been learning about Bengal cats for about 10 years. He said that the power point presentation was put together by breeders who are trying to characterize the Bengal breed as different from other breeds. The goal was to standardize the breed, to be certified to be shown as “good Bengal cats”. Dr. Duvall said that Bengal cats are domestic cats crossed with the Asian leopard cat (Prionailurus bengalensis bengalensis), which has a wide range in the Asian tropics, because breeders wanted to have wild characteristics in a tame cat. Dr. Duvall showed the power point presentation of color slides with text on a computer screen to the Panel members and Mrs. King and Mr. Floris. The power point presentation identified specific characteristics of the Bengal cat hybrid, which Dr. Duvall commented on, specifically; rosettes (coat color and pattern variations), different coloration, wide variety of coloration, head shape (modified wedge, profile with minimal or no dip), ear shape (rounded, relatively small), how the chin is, the nose (color and shape), the pronounced muzzle, cheek stripe (something that is genetically really set in Bengals), body stance (back legs longer than front legs), robust body (comes from Asian wild cat). Dr. Duvall said that this presentation shows the genetic representation from the wild Asian leopard cat to the domestic cat, the thing to be noted is you really don’t get away from hybridization, you take one half from one half you’re still getting a portion that is wild.
Mr. Floris asked if, for any other breed, is there a possibility of having a drop of wild blood in that breed if you took DNA testing? Chairperson Dr. Conant replied “yes,” maybe in the Egyptian Mau. Panel member Dr. Kondo replied that she would be surprised if there would be a wild gene in a domestic cat without it being intentionally bred that way. Dr. Conant said “no,” it could happen by accident. Dr. Duvall stated that what he knows about the genetics is that in early generations (F1-F4), males are not fertile, so only the hybrid females can breed back to a male domestic cat. He said that the biggest problem with cat genomes in general, is that there are all sorts of cats, and if you look at the genetics of any of them about ninety nine percent of the genome is identical, so, if a DNA test is going to be conducted, it would need to be highly refined to try to look at the one percent. Dr. Duvall added that is why cats in general can cross breed.

Dr. Kondo stated that she sat on an Ad Hoc Panel like this before and made contact again with Dr. Adriana Kajon, a scientist from Lovelace Respiratory Research Institute in Albuquerque, New Mexico. Dr. Kajon is a member of The International Cat Association (TICA) Genetics Committee, is a genetics instructor, and is an all-breed cat show judge. Dr. Kondo also contacted Dr. Leslie Lyons, a Gilbrath-McLorn Endowed Professor of Comparative Medicine at the Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, University of Missouri. Dr. Kondo also contacted Dr. Chris Kaelin, Senior Scientist, Stanford Department of Genetics, Hudson Alpha Institute, California. She said all three consultants concurred that the cats in the photographs in Attachments C-1 through C-3 had some distinct features of the Bengal breed, including, but not limited to, the rosetted pattern of spots which are only rarely seen, if at all, in any other domestic cat (pure bred or feral).

Chairperson Dr. Conant stated that phenotypical characteristics, such as head shape and longer rear legs are not reliable for species determination due to intraspecies variations, but rosettes would be characteristic of the Bengal breed. Dr. Conant then asked if there was any other breed of domestic shorthair that has facial stripes. Dr. Duvall answered that it is a characteristic associated with Bengal cats. He said that they only have those noted characteristics if they have that blood in their heritage.

Chairperson Dr. Conant said she had asked Dr. William Murphy, Professor, Department of Veterinary Integrative Biosciences, Texas A&M University, College Station, Texas, if DNA analysis is an avenue worth pursuing and if so, from whom? She said that Dr. Murphy responded that DNA testing is worth doing, however depending on how admixed the hybrid is, F1 versus F6 to F12 (F being the generation), it can make the testing more expensive. Dr. Conant said that Dr. Murphy had added that it is fairly straight forward to determine if a F1 is a hybrid, but most hybrids in the population, specifically Bengals, are late generation and may only carry 5-6 percent of the Asian leopard cat genome. The tester would need to generate a whole genome sequence to reliably detect wild cat ancestry with any precision. (Attachment 8.)

Mr. Floris asked the Panel members, if you tested any cat, is there a possibility that they have a percentage of a percentage of wild blood in them? Dr. Conant said “yes,” but it might be undetectable because they are so far removed. Dr. Duvall answered “yes,” if there had been a cross breeding from a wild animal to a feral cat, then the test would find it.

Mr. Floris asked whether the Panel is looking at the spirit of the law or the letter of the law. Mr. Floris said he conducted research and based on that, he said that the rule prohibiting import of
hybrids was made in response to a lawsuit against the State by a party who was attempting to import a thirty-pound serval cat and the rule was instituted in response to that attempt.

Chairperson Dr. Conant reviewed Attachment A-1 and A-2 to the Department’s submittal and asked LV Specialist Mr. Thain for clarification about the Department’s Administrative Rules regarding prohibited hybrid animals. Mr. Thain clarified that if an animal’s parent is a prohibited animal, then, by definition, the offspring would be a prohibited animal and then, if it had offspring, they would also, by definition, be prohibited.

Mrs. King asked if at any point through the breeding process, if you go further generations down with the hybrid cat, is there any point where they become domestic. Dr. Duvall responded that they would have more and more domestic characteristics, but would still retain some wild percentage. Dr. Duvall further referenced the reverse situation where, in conservation organizations, they try to breed back to a wild animal and that, when done so, the Federal laws do not cover the hybrid. For example, the Hawaiian crow crossing back with a raven, even if you breed back with crosses that have more Hawaiian crow in them, it is always a hybrid cross.

Chairperson Dr. Conant introduced Dr. Kondo’s e-mail exchanges with Dr. Kajon, Dr. Lyons, and Dr. Kaelin, which the Panel reviewed and which Department staff labeled as Addendum 4.

Dr. Conant introduced her own e-mails from Dr. Murphy, which staff labeled as Addendum 5.

Chairperson Dr. Conant said that the next step for the Panel would be to make a motion to either vote on the cats today or to ask for a DNA test and have another meeting. Ms. Burns clarified that if there was a subsequent meeting, it would be to discuss the results of the DNA test but asked the Panel who would pay for the testing.

Dr. Duvall stated that he sees two potential problems with DNA testing: (1) he does not think it will show no Bengal cat hybridization; and (2) in this case, the letter of the law, as outlined by the State, is that any percentage of wild cat is prohibited and therefore genetic testing would not be called for.

Mr. Floris asked why a hybrid cat would not be allowed, whether it is a danger to the ecosystem. Dr. Duvall said that leopard cats are a concern in Hawaii is because they are not water shy and they swim to obtain prey. Dr. Duvall said Hawaii is the endangered species capital of the world and has lost 80 percent of the original native birds and the last 20 percent out there are highly endangered. Dr. Duvall said that some of the native birds have refuge on off-shore islets or human created islands and if wild or hybrid cats were able to get out, they would pose a new threat for the last remaining native birds.

Mr. Floris asked, since his cats are neutered and spayed, are we going by the spirit of the law or the letter of the law for protecting the ecosystem? Dr. Duvall responded that the State has this law because it prevents new hybrid animals from coming to Hawaii. Dr. Duvall added that the State also prevents all sorts of animals from coming to Hawaii, including snakes and whole families of birds.

Ms. Burns asked that, prior to making a motion for a decision, that the Panel state specifically what they find relative to the characteristics of each animal.
For Kurios:
Dr. Duvall identified that this cat is most like the coloration of a wild Bengal and identified several additional Bengal characteristics: round eyes, facial patterns with two stripes on the cheek that go back from the eye across the entire cheek, the basic colors, rosettes with the darker color inside the ring than the base coat, the black-tipped tail and foot pads. Dr. Duvall stated that he thinks Kurios is a hybrid. Dr. Kondo concurred with Dr. Duvall and referred to her correspondence with the three experts in Addendum 4, especially Dr. Kajon who judges these types of cats. Dr. Kondo also identified the rosetted pattern as what gave the cat away as a Bengal hybrid. Chairperson Dr. Conant agreed that the rosette marking was characteristic, but she did not agree that a lot of the other characteristics were diagnostic.

For Lu:
Dr. Duvall identified the rosette patterns on Lu as being diagnostic of Bengal heritage. Dr. Duvall said that Lu has several other characteristics of the Bengal breed, the black foot pads, the ears, the cheek stripes, and the eye shape. Dr. Kondo agreed with Dr. Duvall as to the rosette patterns and said that while she was leaving the kennels, she heard yowling from one of the two male cats, which is one of the characteristics of Bengal hybrids, but she could not verify which male cat it was coming from. Dr. Kondo added that she concurred with the opinions of the experts’ she consulted, that Lu looked like a Bengal or Bengal hybrid. Chairperson Dr. Conant said that the rosette pattern on Lu is characteristic of Bengal hybrids.

For Antoinette:
Dr. Duvall identified tri-colored rosettes with a darker rim with a darker color in the middle than Antoinette’s base color, although it is silver, her eye shape, nose color which is a trait of Bengal hybrids retain, and in this case, the corroboration from the experts referenced by Dr. Kondo in Addendum 4. Dr. Kondo stated that even though Antoinette has a silver pattern, it was the rosettes, black foot paws and black tipped tail which would suggest Antoinette may have some black tabby ancestry and that is a Bengal characteristic explained by Dr. Kajon in Addendum 4. Dr. Kondo stated that Antoinette is some kind of Bengal hybrid. Chairperson Dr. Conant said the rosettes are characteristic of a hybrid Bengal cat.

The Panel discussed the e-mail correspondence with the experts and the reference that Antoinette may have Egyptian Mau lineage. However, Dr. Duvall said that he does not know of any other domestic breed that has rosette patterns. Chairperson Dr. Conant said that she wanted to make the decisions based on her own knowledge and, with reference to morphology, she is uncomfortable using head shape and rounded ears as definitive characteristics, but that the rosette marking was definitive. Dr. Kondo referred to her e-mail correspondence with the experts where they referred to Antoinette as most likely a Bengal hybrid but could possibly have Egyptian Mau and the best way to differentiate is through DNA testing.

Dr. Duvall made a motion that the Panel find all three cats to be hybrids to some extent with the Asian leopard cat, therefore being Bengal cats in common English. Dr. Kondo seconded the motion. There was no further discussion.

Vote: Approved 2/0 (Kondo, Duvall); 1 abstention (Dr. Conant.)

Ms. Burns clarified that the Panel’s determination is that Lu, Kurios, and Antoinette are found to be Bengal hybrid cats and, as a result, are not permitted entry into the State. She said the
Panel’s oral findings will be written up in the form of a decision to be circulated for Panel signature, will be sent to PQB, and PQB’s response will be delivered to Mrs. King and Mr. Floris along with the decision. She said PQB would instruct the owners what their options are at this point.

Mr. Yasui stated that according to section 150A-7, Hawaii Revised Statutes, regarding the disposition of a prohibited animal, the prohibited animal would be refused entry and would have to be sent out of the State by the owner and at the owner’s expense. PQB would work with the owners to make the necessary arrangements. Dr. Conant thought it would be appropriate to inform the owners on what action they can take. Ms. Burns added that they can petition the Board of Agriculture for a contested case hearing to review this case.

Dr. Conant said that she interpreted the rules to mean that one of the parents of the individual animal had to be a first-generation Bengal cat and suggested, for the record, that HDOA clarify the rules pertaining to the Prohibited List’s definition of hybrid.

VI. ADJOURNMENT

Chairperson Dr. Conant invited a motion to adjourn. Dr. Dr. Kondo made a motion to adjourn the meeting and Dr. Duvall seconded the motion.

Vote: Approved 3/0.

Chairperson Dr. Conant adjourned the meeting at 12:05 pm.

Respectfully submitted,

James Thain
Acting Land Vertebrate Specialist

PQB