S. HRG. 108–358

IMPORTATION OF EXOTIC SPECIES

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

TO EXAMINE THE IMPORTATION OF EXOTIC SPECIES AND THE IMPACT ON PUBLIC HEALTH AND SAFETY

JULY 17, 2003

Printed for the use of the Senate Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE

92–380 PDF WASHINGTON : 2004

For sale by the Superintendent of Documents, U.S. Government Printing Office
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IMPORTATION OF EXOTIC SPECIES

THURSDAY, JULY 17, 2003

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 9:30 a.m. in room 406, Senate Dirksen Building, the Hon. Wayne Allard [chairman of the committee] presiding.

Present: Senators Inhofe, Warner, Allard, and Jeffords.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. The hearing will come to order.

Today we will explore current regulations governing the importation of exotic species and the impact on human health and safety as well.

I will be unable to attend the entire hearing because we have the Defense appropriation bill on the floor, and I am on that committee. However, I can assure you that Senator Allard is far better equipped to chair this committee than I am with his background. We look forward to that.

In June of this year the first cases of monkeypox in the Western hemisphere were discovered in the United States. We were extremely fortunate that the Agencies testifying today, along with their State counterparts in the Pet Industry Joint Advisory Council acted in a coordinated effort to efficiently contain the monkeypox outbreak. Unfortunately, it is almost inevitable that the United States will face similar threats in the future.

As a result of globalization and the increase in human populations, man is coming into contact with foreign animals at an increasing rate. In addition, the number of individuals owning exotic pets, as well as a variety of species, has increased dramatically.

Diseases transmitted from animals to humans, zoonotic diseases, account for 61 percent of the infectious diseases and 75 percent of the emerging diseases. In 1989, the United States was awakened to the weight of the threat when monkeys were imported from the Philippines to Reston, Virginia, right across the river, and were diagnosed with a new species of Ebola virus.

Apparently it is not as deadly or serious as it is in some of the African countries. I have witnessed some of the problems over there. But it is something that has to be dealt with.

During the course of today's hearings, I am hopeful that the witnesses will also provide insight into whether additional measures

need to be taken to minimize the risk of introduction of zoonotic diseases by imported exotic species.

Additionally, I feel that it is important that we thoroughly explore whether additional legislative authority is necessary, or if any shortcomings would be best addressed at the Agency level.

It is critical that we proceed with caution as a complete ban on some exotic species may simply drive the distribution underground where it cannot be regulated.

I am going to ask unanimous consent that my entire statement, as well as any other member who will be here today, be made a part of the record.

Without objection, so ordered.

[The statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Good morning. The Environment and Public Works Committee will come to order.

We are here today to explore current regulations governing the importation of exotic species and the impact on human health and safety. As I will be unable to attend the entire hearing, I would like to thank my colleague Sen. Allard for generously offering to preside today.

In June of this year, the first cases of monkeypox in the Western Hemisphere were discovered in the United States. We were extremely fortunate that the agencies testifying today, along with their State counterparts and the Pet Industry Joint Advisory Council, acted in a coordinated effort to efficiently contain the monkeypox outbreak. Unfortunately, it is almost inevitable that the United States will face similar threats in the future.

As a result of globalization and the increase in human populations, man is coming into contact with foreign animals at an increasing rate. In addition, the number of individuals owning exotic pets, as well as the variety of species, have increased dramatically.

Diseases transmitted from animals to humans, zoonotic diseases, account for 61 percent of infectious diseases and 75 percent of emerging diseases. In 1989, the United States was awakened to the weight of the threat when monkeys imported from the Phillippines to Reston,

Virginia were diagnosed with a new species of Ebola virus. Fortunately, the virus was not as virulent as other deadly strains of Ebola found in Africa.

Currently, the Animal and Plant Health Inspection Service (APHIS) regulates the importation of exotic species detrimental to livestock and agriculture, FWS regulates the importation of exotic species detrimental to wildlife, but it is not clear who is responsible for proactively regulating the importation of exotic species with regard to human health. CDC has done a very good job at reacting to and containing the outbreak of monkeypox. However, I am looking forward to hearing from the witnesses as to whether the existing authorities should be clarified.

During the course of today's hearing, I am hopeful the witnesses will also provide insight into whether additional measures need to be taken to minimize the risk of introduction of zoonotic diseases by imported exotic species. It is imperative that we determine the threat of zoonosis outbreaks from imported exotic species, as opposed to other avenues of introduction, and whether the threat warrants additional restrictions.

Additionally, I feel it is important that we thoroughly explore whether additional legislative authority is necessary or if any shortcomings would be best addressed at the agency level. It is critical that we proceed with caution as a complete ban on some exotic species may simply drive the distribution network underground where it cannot be regulated.

Senator INHOFE. I see that our other veterinarian has arrived. I would ask Senator Jeffords if he has an opening statement.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS. Yes, I do, Mr. Chairman.

Good morning. Welcome to all of you. I would begin by thanking Senator Inhofe for holding this very important hearing.

We are all fortunate to have in the Senate two members who can give us their insights and expertise on this issue. These two members practiced veterinarian medicine before being elected to the Senator. Senator Allard, who is with us, will chair this hearing. Our first witness this morning is Senator Ensign.

Senator Ensign and I have introduced legislation, which Senator Allard has cosponsored, S. 269, the Captive Wildlife Safety Act of 2003, to address public safety threats posed by private ownership of dangerous exotic cats. It is my hope that we can act on that legislation this season as well as what we are doing now.

However, today's hearing takes a broader look at the problems posed by importing exotic species and their impact on public health. We have all been alarmed by the recent outbreaks of diseases that have reached this country. Many of us have never heard of or thought of these diseases.

What is most alarming is that many of these diseases are being introduced into this country by animals, legally imported for the purposes of being sold as pets. Some of these pets, known among enthusiasts as pocket pets due to their small size, have been found to have served as vectors for monkeypox, which has never been found before in the U.S. Spreading diseases is an unintended result of importing exotic species, but a serious one.

As the monkeypox episode demonstrated, our Nation may be more vulnerable from an unintended outbreak transmitted by an exotic species and from a foreign nation. We must address our vulnerability from exotic species with the same fervor as we defend our Nation against other foreign threats. I believe we have dodged the bullet so far, but we have a responsibility to act before it is too late.

All of the Agencies testifying here today did an outstanding job identifying the monkeypox outbreak, and preventing it from becoming more serious and widespread. Do the Agencies have the tools that they need to prevent future outbreaks? That is the question we ask. The fact that we have four Agencies here today raises another question. Should the importation of exotic species be streamlined, or placed under the control of one Agency?

In the 1970s the Food and Drug Administration banned the importation and sale of turtles less than four inches in length because of the threat of salmonella infection. In 1975, the Centers for Disease Control banned the importation of species for the pet trade because of herpes and hepatitis concerns. In 2000, the Department of Agriculture banned the import of three types of African tortoises because of the tick-borne heartwater disease.

It has long been known that monkeypox can infect rodents and the importation of certain rodents were banned. Could this outbreak have been avoided? Should we have known?

Hindsight is 20/20 but we are here today to look forward to the future to see how these risks to public health and safety can be eliminated. I doubt that Congressman John Fletcher Lacey, an Iowa Republican, the author of the original Lacey Act in 1900, would have ever imagined the problem we face here today.

Representative Lacey had the foresight to propose the ban of the bustling interstate commerce of birds because milliners were using the feathers to decorate hats. But this was 1900 before the invention of the airplane, and before the invention of the nonstop flight between two cities thousands of miles apart.

Today we import birds and animals, many of which have been proven to be carriers of diseases, as exotic pets. What would Congressman Lacey be thinking today?

It is my hope that as a result of today's hearing we will begin to address the problem together and prevent the spread of diseases through unintended carriers. Some of these critters are cute and cuddly, but are they worth putting the public health in serious jeopardy?

Again, I would like to thank Senator Inhofe for calling this hearing. I look forward to the testimony we have today. We have excellent witnesses set up. I look forward to hearing from them.

Senator INHOFE. Thank you, Senator Jeffords.

Senator Allard, I will go ahead and turn the gavel over to you. You can go ahead with your opening statement. Then we will hear from Senator Ensign.

OPENING STATEMENT OF HON. WAYNE ALLARD, U.S. SENATOR FROM THE STATE OF COLORADO

Senator ALLARD [assuming the chair]. Thank you, Senator Inhofe. I think I will just put my opening statement in the record.

Senator INHOFE. Without objection, so ordered.

[The statement of Senator Allard follows:]

STATEMENT OF HON. WAYNE ALLARD, U.S. SENATOR FROM THE STATE OF COLORADO

Thank you, Mr. Chairman, for convening this timely hearing. I appreciate your interest and leadership, as well as Senator Jeffords' and Senator Ensign's leadership on this issue. You may not know this, but both Senator Ensign and I received our Doctors of Veterinary Medicine degree from Colorado State University. Although we were not in the same class, I do try to apply the seniority system. Mr. Chairman, I appreciate the opportunity to address this issue and thank the witnesses for their participation. I would also like to commend those agencies present for the work they did to contain the disease and the strong focus they continue to place on protecting the American people. This hearing is not about beating people up - it is about making sure you have the right tools to do your job effectively.

The danger posed by the importation of exotic species and the introduction - either intentionally or unintentionally - of animal borne diseases is not new. What is new is the time it takes to transfer animals from country to country, as well as the variety of animals now imported. What once took three months to voyage across the ocean now only takes a matter of hours to land on US soil. The mosquito infecting Asian villages in the morning can reach the Los Angeles metropolitan area that same afternoon. We are living in a fast paced world in which the importation of exotic species poses a dynamic challenge to human health, and it is a challenge that must be handled through the application of sound science, reasonable regulations and responsible oversight.

Perhaps nothing illustrates this modern phenomena as well as the recent outbreak of West Nile Virus, and its subsequent spread across the continent. West Nile serves as a prime example of the nexus between an animal disease and human health. The disease is a threat to human health as well as animal health. In fact, the coordination and communication between animal health experts and human health experts has never been more important than it is today as highlighted by West Nile and now monkeypox.

Over the past several years I have attempted to elevate the level of concern about the risk we face from zoonotic diseases and, in particular, the impact animal to human diseases have on public policy. During the farm bill, I worked with members of the Agriculture Committee to include report language that directed the Office of

Science and Technology Policy to consult experts in animal health should a bio-terrorism event occur.

Last year, I had the opportunity to address a conference on biosecurity hosted by the American Veterinary Medical Association. Among those attending were scientists and medical researchers, university professors and students, along with a host of practicing veterinarians, who presented a series of papers on the risks associated with bio-terrorism. At this time, I would like to share with you some of the findings I presented to the conference.

According to a pre–September 11th GAO report, nearly three out of every four emerging diseases reach humans through animals - of the 156 emerging diseases documented in the report, 73 percent are zoonotic. Furthermore, the report went on to note that of 1700 known pathogens, 49 percent are zoonotic.

Some may think the possibilities of a major disease outbreak caused by something as common as a prairie dog is far too remote to worry about. Yet recount the details of the monkeypox outbreak. Illinois State officials determined that the source of the infected prairie dogs was an exotic pet dealer in Villa Park, Illinois. The prairie dogs appear to have been exposed to the virus through contact with Gambian rats imported from Africa that were intended to be sold as pets. A Texas distributor imported the rats together with rope squirrels, dormice, and other small mammals. Once arriving in Illinois, the exposed prairie dogs were held in close proximity with other animals of numerous species, some of which might be susceptible to infection with orthopoxviruses. The following animals were on the Illinois premises: hamsters, gerbils, chinchillas, squirrels, mice, pygmy hedgehogs, jerboas, mole rats, degus, and Brazilian possums. In addition, the dealer had recently sold wallabies, armadillos, short-tailed opossums, raccoons, sugar gliders, and possibly nonhuman primates. While wallabies and pygmy hedgehogs may not be common household pets, hamsters, gerbils and mice are common inhabitants of children's rooms and school houses.

But we must also avoid the temptation to create a zoonotic hysteria. We are not looking at "The Hotzone," nor are we looking at the movie "28 Days Later." And I really don't expect the four horseman of the apocalypse to come trotting through the room any time soon. For those of us in this room, it is our duty to do everything we can to protect human health and prevent these types of things from happening.

While the main focus of this hearing is certainly the impacts that these animals have on the health of humans, as a veterinarian I am also concerned with the impacts that importation of exotic species have on the animals themselves. There is a high rate of mortality in exotic species.

This occurs both during shipment and after the animal is purchased and taken home. Another problem that I see is that few people are qualified to properly care for an exotic animal. The animals often end up neglected or cared for in an inappropriate manner. I do not think that this is acceptable. Pets are a huge responsibility and the decision to adopt one should not be taken lightly.

I look forward to hearing from the witnesses, particularly as they share their views on regulations, both existing and lacking, trace-backs and dangers posed by importation. I would be particularly interested in your thoughts regarding a quarantine period. I believe that one easy safeguard is to make sure a quarantine period is applied to imported species of animals, but I would like to know your thoughts on the matter.

Again, Mr. Chairman, thank you.

Senator ALLARD. I would like to make a few general comments.

The veterinarian, through the health certificates that he issues, is an agent of the State in which he practices. He is mainly concerned about infectious diseases. The health certificate says: "Does the animal show any signs of infectious disease?" It is very broad. It is a vital link in the State management of infectious diseases and in protecting the agricultural industry or, in some cases, might even be extended to public health departments as they promulgate rules and regulations as it applies to pet shops. This is done pretty much at the State level.

I think we need to look closely at how we have allocated this responsibility among the Federal agencies. We have Fish and Wildlife. We have APHIS, which is in Department of Agriculture, and we have the CDC lab that gets involved through the Public Health

Services that the States administer. You also have the Customs agents.

There is no doubt, Mr. Chairman, this is a smaller world.

In the past, animals could move in perhaps not as quickly as they do now. By the time they left their origin to the time they arrive in the United States, enough time has progressed where the animal would begin to show signs of symptoms. Now, we have rapid transportation. It is a matter of hours before an animal moves from one country into here, the incubation period makes it difficult for us to recognize these diseases. Perhaps one of the things we ought to look at is the appropriate quarantine periods that we might have available and might help us solve a lot of our problems.

I just want to thank you, Mr. Chairman, for taking the interest in this particular topic. It is close to my heart and I am sure it is to Senator Ensign's, as well, in the fact that we are concerned about animal health. On the Armed Services Committee, we have had this discussion about various diseases and how they may be used by terrorists. I think we also need to look at the Homeland Security Department and moving responsibilities from Agriculture and CDC into Homeland Security. Perhaps we need to look at where the proper role of some of these programs ought to be.

Thank you very much, Mr. Chairman, for your interest.

Senator INHOFE. Thank you.

Senator ALLARD. Let me go ahead and recognize Senator Ensign.

He does not hesitate to point out to everybody that we are both veterinarians. We are both CSU graduates. He graduated ten years after I did. He has had the practical experience of being a practicing veterinarian, as I have.

It is a great deal of pleasure for me to be able to welcome Senator ENSIGN.

OPENING STATEMENT OF HON. JOHN ENSIGN, A UNITED STATES SENATOR FROM THE STATE OF NEVADA

Senator ENSIGN. Thank you, Senator Allard, Mr. Chairman, and ranking member. I appreciate your holding this hearing today. I think these are topics that many people do not think of most of the time. Certainly the recent issue with monkeypox brought it out and started to cause concern for many people, and rightly so.

I appreciate Senator Jeffords cosponsoring with me the Wildlife Safety Act. It relates to the same way people get animals that should not be pets into their homes to become pets.

They watch movies. Much of these comes from people's fantasies about animals that look cute and cuddly in the wild, or maybe they see it in magic acts such as Siegfried and Roy. They glamorize what looks like a very easy thing to do, to own some of these exotic species.

But in the average person's hands, these animals become dangerous to the person that owns them. They end up not being able to handle those animals. Then they end up with some very bad options—putting those animals down, turning them over to a sanctuary, or just turning them loose—all of which obviously have bad results.

A big focus of today's hearing, though, results in the same kinds of things. Now we are talking about not just animals that are physical threats from the damage that they can do, but also because of the diseases that they can carry, the zoonotic diseases, the transmission of animal diseases to humans is a very real threat.

Domesticated animals that have been around human beings for a long time—companion animals, as we call them in veterinary medicine—those are the animals that we know you are not going to harbor diseases, other than rabies. We have wiped out rabies. You are not going to get any other diseases from dogs and cats. But these other exotic animals that are coming in and being made pets, there are a lot of diseases around the world that are transmissible to human beings. Monkeypox is just one example.

Senator Jeffords mentioned another one, salmonella. Parrots, and some of the psittacine-type birds, certainly carry a respiratory disease, psittacosis. There are many of these types of diseases that are transmissible that have real serious human health effects.

I guess the purpose of this hearing is to hear from some experts. But the reason that I wanted to testify is that in our private practices, we saw the real life results of people bringing those animals to us because they were having problems.

Sometimes they were having behavioral problems. Sometimes they were showing signs of disease.

We are trained more than physicians are in zoonoses, the disease transmission from animals to people. We are taught to recognize those and what to watch for. Those diseases are rapidly coming to where the average veterinarian does not know about many of these exotic diseases. When we are in school and in the literature, we learn about the common ones. But there are so many new animals coming in, there are many diseases we are not even familiar with.

I think it is a very serious issue. We have to educate the American people that companion animals are the ones that are appropriate for pets. All of these cute little cuddly creatures that look cute in the wild, belong in the wild. If they are captured or injured, or if they are in zoo or other facility, that is where they belong with experts that understand the diseases. They understand how to quarantine them. They understand the behavioral aspects. They also understand the needs of the animal.

I will use a very good example. When I was just starting in veterinary medicine, just before I went to vet school, one of the kennel attendants with me owned a raccoon. Raccoons are really cute little cuddly pets before they reach puberty. Once they reach puberty, they are violent, and I mean they are nasty animals. They are not appropriate as pets. They are a common carrier of rabies as well.

What happens is that they see them in a pet store or whatever. They buy them. They capture them in the wild. They bring them in. They have a wonderful pet. Now they see the inappropriate behavior. Somebody else has to deal with them.

The veterinarian has to put them to sleep. Somebody has to try to rehabilitate them or whatever. Whenever they are put in a home, they are not good in the wild anymore.

It has to be an educational process. We have to empower the Agencies to do a much better job on exotic animals coming in and being used as pets. We must educate the public about the dangers

of the physical threats of what the animal can do, as well as the diseases that they can carry.

I appreciate the chance to testify, Mr. Chairman. We are doing research now as to whether we need to do legislation or can some of this just be done by increasing regulatory authority. I agree with Senator Allard that most of this has been done at the State level. The world is changing so rapidly that we have to look at the best way to attack this problem. I appreciate your holding this hearing.

I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you very much for your testimony, Senator Ensign.

Do we have any questions from members of the committee?

[No response.]

Senator ALLARD. Let us move forward to the next panel.

I would like to call the second panel. We have Dr. John Clifford, Deputy Administrator for Veterinary Sciences, Animal and Plant Health Inspection Service, United States Department of Agriculture; Lester M. Crawford, D.V.M., Ph.D., Deputy Director, United States Food and Drug Administration, Department of Health and Human Services; Marshall P. Jones, Jr., Deputy Director, United States Fish and Wildlife Service, Department of the Interior; and Dr. Stephen M. Ostroff, Deputy Director, National Center for Infectious Diseases, Centers for Disease Control, Department of Health and Human Services.

Gentlemen, thank you. I look forward to hearing your testimony and what you have to say about this very important subject that we are dealing with today, which is the examination of the importation of exotic species and the impact on public health and safety in this country.

Let us start with Dr. Clifford. Then we will hear from Dr. Crawford, Mr. Jones, and Dr. Ostroff.

STATEMENT OF JOHN CLIFFORD, DEPUTY ADMINISTRATOR FOR VETERINARY SCIENCES, ANIMAL AND PLANT HEALTH INSPECTION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE

Dr. CLIFFORD. Thank you, Mr. Chairman, and members of the committee. Thank you for this opportunity to speak with you on behalf of the U.S. Department of Agriculture about the importation of exotic animals. My name is Dr. John Clifford. I am the Associate Deputy Administrator for Veterinary Services with the Animal and Plant Health Inspection Service. As we all know, the recent incidence of monkeypox in the United States has highlighted how Federal, State, and local agencies must work together to prevent and respond to the outbreaks of zoonotic diseases.

APHIS' mission is to safeguard American agriculture. One of the ways we accomplish this mission is to regulate the importation of certain animals and animal products under the Animal Health Protection Act, AHPA. USDA has the authority to take action in order to prevent diseases of livestock from entering into or spreading within the United States.

In carrying out this authority, USDA regulates the importation and interstate movement of animals used for agricultural purposes

such as cattle, sheep, goats, swine, and poultry. We also regulate the importation and interstate movement of certain products made from these animals.

In general, animals not used for agricultural purposes, such as prairie dogs, rats, mice, squirrels, and other rodents, are not subject to our regulations because they do not usually carry diseases that threaten agricultural health. There are two exceptions to this. If the animal has been inoculated with a disease of agricultural concern for a scientific study, or if the animal is a vector of a disease of agricultural concern.

For example, USDA prohibits the importation of tenrecs, an exotic animal sold as a pet, from Madagascar, because these animals are vectors for foot and mouth disease, a very serious disease of livestock.

In the case of monkeypox, there is no clear scientific evidence that this disease affects livestock. Therefore, our authorities and regulations do not apply to the import of animals that may be vectors of this disease. Instead, USDA supported the actions of the Department of Health and Human Services, Food and Drug Administration, the Centers for Disease Control and Prevention, and the Department of the Interior's Fish and Wildlife Service in their effort to shut down imports of animals that could carry the disease.

Our supporting role varied. For example, USDA is also charged with enforcing the provisions of the Animal Welfare Act, AWA. The AWA requires that certain individuals be licensed or registered with the USDA and provide their animals with care that meet certain minimum standards. The licensees must also maintain records regarding the veterinary care, and the purchases and sales of exotic animals. Under the AWA all wholesale animal dealers and retail pet stores selling exotic or wild animals and individuals, including owners, selling exotic animals, are required to be licensed with the USDA.

The USDA conducts periodic inspections of licensed facilities to ensure compliance with the AWA. Because of our relationship with these licensed facilities, the USDA was able to assist the FDA by locating licensed dealers of exotic animals and assisting in the trace-back of these animals. USDA also worked with the FDA to distribute information about the ban on the importation, movement, and sale of animals, and to conduct a survey on the health of animals in these locations.

Our personnel also assisted the CDC in the confiscation of animals that were possibly infected. We fielded hundreds of calls from licensees, answering their questions about monkeypox, and ensuring that the licensees were in touch with the CDC and FDA about issues related to the ban.

The USDA also offered to provide follow-up surveillance support to the States. Under the Animal Damage Control Act, USDA is authorized to conduct activities to control wild mammals and bird species that are reservoirs for zoonotic diseases. Under this authority, USDA provides assistance to State and local governments, private individuals, and other organizations in managing wildlife and human conflict.

Our experience in this area has enabled us to offer to assist the State of Illinois by collecting samples from rodent and mammal

populations around several sites, including landfills and garbage transfer stations. These animals can be tested to see if monkeypox has spread into wild populations. A similar service has been offered to the State of Wisconsin.

So, as you can see, USDA has been able to lend valuable assistance to the effort. We are committed to working with other State and Federal agencies to prevent similar situations in the future.

Thank you again for the opportunity to speak with you today. I will be happy to answer any of your questions. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you,

Mr. CLIFFORD.

Dr. Clifford, are you a veterinarian?

Mr. CLIFFORD. Yes, sir, I am.

Dr. Crawford?

STATEMENT OF LESTER M. CRAWFORD, D.V.M, Ph.D., DEPUTY DIRECTOR, UNITED STATES FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Dr. CRAWFORD. Thank you, very much.

Mr. Chairman, and members of the Subcommittee, I am Dr. Lester Crawford, Deputy Commissioner of Food and Drugs. I am only a partial D.V.M. because I did not get to go to Colorado State. But I am working on it.

[Laughter.]

Dr. CRAWFORD. As we have learned all too well, non- native animal species can create serious public health problems when they introduce a new disease to native animal or human populations, or both. Monkeypox, a rare zoonotic viral disease that occurs primarily in the rain forest countries in Central and West Africa, is the most recent emerging infectious disease threat to public health in the United States.

Since the beginning of the monkeypox outbreak, FDA has been engaged in close coordination with many Federal, State, and local partners in working to prevent the spread of this disease. FDA's mission is to protect and promote the public health. One of our goals is to work closely with public and private partners to protect the U.S. population from public health risks associated with infectious diseases, and to facilitate the development of products in which American practitioners can have confidence to help those afflicted with infectious disease.

The Commissioner of FDA and the Director of the CDC have the authority under regulations promulgated under Section 361 of the Public Health Service Act to take actions they believe are reasonably necessary to prevent the spread of communicable diseases. HHS agencies determined that the current monkeypox outbreak, which is not confined by State borders, and which may affect multiple species, is a problem that requires the use of this Federal authority.

It was imperative that the Department act quickly to help prevent the monkeypox virus from spreading and becoming established in the United States. Under their respective authorities on June 11th, the Director of CDC and the Commissioner of FDA issued a joint order, prohibiting until further notice, the transpor-

tation, or offering for transportation and interstate commerce, or the sale, offering for sale, or offering for any other type of commercial or public distribution, including release into the environment of prairie dogs and six species of African rodents.

In addition, CDC implemented an immediate embargo on the importation of all rodents from Africa. I will note that it is not the first time FDA has exercised its authority under Section 361 of the Public Health Service Act, as Senator Jeffords explained a short time ago. Existing regulations cover various measures, shellfish, turtles, and certain birds.

I would like to tell you about some of the specific actions taken by the FDA and others in responding to the outbreak of monkeypox. FDA took many steps to quickly implement the CDC/FDA joint order, closely coordinating activities as appropriate, with CDC, APHIS, the U.S. Fish and Wildlife Service, the Department of Homeland Security's Bureau of Customs and Border Protection, and State and local government counterparts.

The day the order was issued, Federal Agencies conferred to discuss responsibilities and strategies to discuss roles and responsibilities regarding the joint order. Strategies needed to be developed relating to the control of monkeypox, relating to imports, intra- and interstate movements, inspection of dealers, breeders, pet stores and zoos, quarantine authority, euthanasia and disposition, surveillance of wild animals, and exports. FDA sent the joint order to all State agriculture and health agencies, including State and public health veterinarians and State fish and wildlife officials, as well as to the Department of Transportation for distribution to rail, airline, and trucking establishments. We held a conference call with all 50 States and other Federal Agencies to discuss the outbreak and the status of the implementation and the enforcement of the joint order.

In addition, all exotic animal dealers should be licensed. APHIS provided FDA with a list of all the licensed dealers. FDA then designated a coordinator in each district office across the country and issued a priority assignment to the district offices to work with State counterparts. APHIS and the U.S. Fish and Wildlife Service agreed to contact and inspect the exotic animal dealers. FDA coordinators were given a quick deadline to meet and coordinate with local officials.

Follow up activities were conducted by a combination of FDA, APHIS, and State personnel. Over 600 exotic animal dealers have been identified for follow up. Visits were also conducted with other types of entities where exotic animals were likely to be featured, such as swap meets and exhibitions. In total, over 2,500 facilities were visited by the FDA, APHIS, and State officials. Contacts with pet dealers unlikely to have exotic animals, were made by phone and letter.

When dealers were contacted, they were provided extensive information and documentation. Dealers with sick animals have been identified and referred to State authorities and CDC to determine what further actions need to be taken.

In closing, Mr. Chairman, I would agree with you that State authorities through their regulations and also their experience, are

very important to this. Our efforts were no more successful than our liaison with those individuals.

Thank you very much. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you,

Dr. CRAWFORD.

Mr. Jones, we are anxious to hear what you have to say. I am interested in knowing what your formal education is. It is not listed in here.

STATEMENT OF MARSHALL P. JONES, JR., DEPUTY DIRECTOR, UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. JONES. Thank you, Mr. Chairman, for this opportunity to testify.

Unfortunately, I am not a veterinarian, but I have a huge respect for veterinarians, especially those who went to CSU.

[Laughter.]

Senator ALLARD. Your degree is in Fish and Wildlife?

Mr. JONES. That is correct. I am a wildlife biologist, Mr. Chairman I have 28 years with the Fish and Wildlife Service, working with endangered species, international, and other programs.

Senator ALLARD. Thank you.

Mr. JONES. Mr. Chairman, the Fish and Wildlife Service has been involved in regulating the import of exotic species for many years. We viewed these imports in the past, primarily in the context of possible threats to U.S. wildlife resources, as well as in the context of the conservation of those species themselves.

However, today it is clear that there is a new factor which all of us must take into account and that is the threat to human health from exotic wildlife. The Fish and Wildlife Service has the responsibility to inspect all wildlife imports and also to regulate wildlife exports.

Through this and other authorities, we are working actively to assist our Federal partners who are represented here today, as well as States that have expertise and/or authority to identify and address human health risks that are associated with the wildlife trade. We are committed to using that authority to help protect the American people from exotic diseases transmitted through wildlife imports.

Mr. Chairman, as you noted in your opening remarks, the ease of travel, transportation, and transactions, especially electronic transactions, has removed barriers to the wildlife trade which existed in the past. Wildlife importers are growing in number. They have access to financing and they have ready markets among people who travel around the world and have the opportunity to see exotic wildlife, and to desire that wildlife as pets or for other reasons.

From 1992 through 2002, the U.S. trade in wildlife and wildlife products, grew 62 percent in just that one decade. Declared shipments of wildlife coming into the United States increased from 74,000 to more than 120,000 during that period. The number of different species in trade increased 75 percent, jumping from 200,000 in 1992 to more than 350,000 a decade later. The total number of

individual animals imported into the United States in 2002 alone was more than 250 million individual animals.

Senator ALLARD. What was that number again?

Mr. JONES. 250 million.

Senator ALLARD. That is what I thought you said.

Mr. JONES. Over 200 million of those were live tropical fish. The next largest category was amphibians, more than 50 million individual frogs, toads, or salamanders. The total is approaching 300 million individual live animals per year.

The Fish and Wildlife Service regulates this trade through several authorities. The Lacey Act and the Endangered Species Act give the Fish and Wildlife Service broad authority to detain and inspect any shipment, mail parcel, vehicle, or passenger baggage, and all accompanying documents, whether or not the wildlife has been formally declared.

In addition, the Endangered Species Act and regulations adopted pursuant to the ESA require that all wildlife—not just endangered species, but all wildlife—be imported and exported through specific ports to facilitate enforcement of wildlife laws and clearance of shipments. Commercial importers and exporters of wildlife must be licensed by the Fish and Wildlife Service, and they must file declarations detailing the contents of their shipments. The Fish and Wildlife Service must then clear those shipments before they can be released by the Bureau of Customs and Border Protection.

We also regulate trade under the Lacey Act, provisions of which make it unlawful to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife which was already taken, possessed, or transported in violation of some other law. In other words, the Lacey Act takes the State law, another Federal law administered by another agency, or even another country's law, and federalizes that and makes that also a wildlife law, and gives us the authority to enforce it.

In addition, another provision, also called the Lacey Act, restricts the injurious and interstate transportation of wildlife which has been determined to be injurious or potentially injurious to human beings, or the interest of agriculture, horticulture, forestry, wildlife, or wildlife resources.

To fulfill these responsibilities, Mr. Chairman, the Fish and Wildlife Service operates through our Office of Law Enforcement. I am accompanied here today by Kevin Adams, who is the Chief of our Law Enforcement Division. The photograph that you see here, Mr. Chairman, is of Fish and Wildlife Service wildlife inspectors at the port of Seattle, inspecting a shipment of live primates. The crate that you see behind them housed five live monkeys. Because these animals may carry ebola or other diseases, we provide protective equipment to our inspectors— disposable Tyvek suits and disposable respirators, which are used only one time. After the inspection of the shipment, they go into the burn bag as hazardous waste.

We take our responsibilities seriously. Mr. Chairman, we only have 92 wildlife inspectors currently who staff 32 ports around the United States. The President's budget for 2004 does include a 10 percent increase in our funding. With that increase, we hope that we can increase the number of inspectors to about 100. Obviously

they are still stretched very thin, particularly in view of the wide range of responsibilities that they have.

Nevertheless, Mr. Chairman, we are determined to do everything that we can to work with the Department of Homeland Security, as well as with the USDA, with the FDA, and with the CDC, to help enforce necessary controls at our borders to prevent the illegal import of wildlife, including, for example, the species that could carry monkeypox.

When the Health and Human Services first began to consider the possibility of this import prohibition, we worked closely with them. We provided data from our declarations and our databases about the number of African rodents coming into the country. Once that ban was announced, we used our system of registered importers and exporters as our first notification system to put the word out to all licensed dealers. We also notified our inspectors and all of the Customs brokers and others involved in wildlife trade.

I am happy to report that since that ban went into effect, we have had no live shipments of rodents from Africa which had to be detained at our ports. However, Mr. Chairman, just to give you some idea of how pervasive this issue is, we have discovered rodents in other places that you might not expect. For example, in inspecting a shipment of what we thought was caviar in a refrigerated warehouse in New York City, we discovered bushmeat, that is, dried smoked meat. We believe it included very likely meat from rodents from Africa.

Similarly, in inspecting shipments of trophies which legitimately can come back into the United States if declared, we discovered that there were trophies of rodents, porcupines, and other species that had been taken by hunters and were going to be mounted and displayed. We are finding that African rodents could be in places that one might never expect.

We are using all of our authorities under the Lacey Act and other laws to do everything that we can to help back up the protections for the American people which CDC, FDA, and the USDA are also all involved with. We look forward to working with this committee in any way that we can to help in this important effort.

Thank you, Mr. Chairman. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you,

Mr. JONES.

Dr. Ostroff, would you share with us what your degree is?

STATEMENT OF DR. STEPHEN M. OSTROFF, MD, DEPUTY DIRECTOR, NATIONAL CENTER FOR INFECTIOUS DISEASES, CENTERS FOR DISEASE CONTROL, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Dr. OSTROFF. Thank you, Senator Allard.

I will start off by saying while the posters are being put up that I am not a veterinarian. I am a physician. I do not have any affiliation with CSU, but I did do my medical residency training at the University of Colorado Health Sciences Center.

Senator ALLARD. We are getting a host of conflicts here, by the way.

[Laughter.]

Dr. OSTROFF. As you know, one of our divisions is located in Fort Collins, Colorado.

Senator ALLARD. I worked with them as a practicing veterinarian.

Dr. OSTROFF. Thank you for providing us the opportunity to take part in this timely and important hearing regarding exotic animal importation and distribution in the United States, and its implications for human and animal health and welfare.

I will make a brief statement concerning the monkeypox outbreak. While this hearing was prompted by our recent experience with monkeypox disease linked to exotic animals imported from Africa, infectious agents jumping the species barrier from animals to humans is a long-standing phenomenon.

Many of the major emerging disease threats of recent years are known or suspected zoonoses, including the ebola virus, avian influenza, HIV, hantavirus, variant CJD, and SARS. Some are related to domestic animals and wildlife, others transit national borders. The latter have increased in importance as a result of the dramatically expanding global commerce in animals and animal products. Whether we have kept pace with these trends is an open question.

Veterinarian human health have traditionally operated in separate domains. If there is one lesson to be gleaned from outbreaks like West Nile virus and monkeypox, it is that we must overcome the barriers between these disciplines in order to optimize human and animal health and best serve the American public.

In early June, CDC learned of an outbreak of fever and rash illness among persons recently in contact with ill prairie dogs. Extensive investigations, many of which are still ongoing, determine that the causative agent was monkeypox, a close cousin of the smallpox virus. This virus is known to be primarily acquired through contact with infected rodents in its natural host range in Africa.

To date, 72 persons in six Midwestern States have developed known or suspected disease. Many were hospitalized, and two children were severely ill. Fortunately, there have been no human deaths. Most ill persons were known to have recently purchased, distributed, handled, or cared for ill prairie dogs. Labor-intensive trace-back efforts, which are summarized in the graphic that you have before you, determined that all of the confirmed cases could be linked back to a single registered animal distributor in suburban Chicago where the prairie dogs were apparently cohoused with imported Gambian giant rats, along with many other species. The Gambian rats were legally imported into Texas in early April, transported to Iowa, and sold to the Illinois distributor, who then sold the infected prairie dogs to other distributors and at animal swap meets in the Midwest.

As noted in the next graphic, the Gambian giant rats were part of a larger shipment from Ghana of more than 800 mammals destined for the exotic pet trade. Most of these were rodent species capable of harboring the monkeypox virus. These animals were dispersed throughout the country, and some were reexported.

Not all of these animals could be successfully traced and many of them had died. Testing at the CDC has identified monkeypox in three of the rodent species from this shipment.

A variety of aggressive actions were taken to minimize the impact of this introduction to human and animal public health. These included patient and animal handling guidance and recommendations regarding prophylactic use of the smallpox vaccine. Most importantly, as was noted by Dr. Crawford, on June 11th, the FDA and CDC issued a joint order under existing authorities emanating from the Public Health Service Act to ban the importation of African rodents, and the movement, distribution, sale, or offering of prairie dogs, or the six implicated African rodent species. We subsequently issued guidance regarding euthanasia of implicated animals and the quarantine of other species in contact with these animals.

These activities appeared to have achieved the desired result. The importation ban was issued on June 11th, and the last human case had an onset of June 20th, which is consistent with the known incubation period for monkeypox.

This outbreak has raised a number of questions about current practices regarding domestic and international trade in exotic animals, as has already been mentioned. These issues have been laid out in numerous editorials, commentaries, and physician statements. As a human public health agency, CDC's primary mission is to develop science- based approaches to protect human public health.

We know that wild animals harvested for the commercial pet trade have been associated with previous outbreaks of human infectious diseases. These include prairie dogs, which are known to harbor plague and tularemia and were the primary vectors of monkeypox to humans in this particular outbreak.

In this episode, the rapid and widespread distribution of newly captured and imported wild animals to distributors and to potential buyers in numerous settings enabled the spread of this virus through multiple States before the problem was even recognized. It is very important that we carefully weigh the options available to reduce the potential for this to happen again, as well as the consequences of any actions that might be taken.

We look forward to working with Congress and our Federal, State, local, public and private partners to address not only this problem but the emerging infectious disease threats of the present, and certainly of the future.

Thank you for your attention. I will be happy to answer any of your questions. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you,

Dr. OSTROFF.

Thank you all for your testimony. I appreciate all that you had to say. I have a better feel of where all of your responsibilities are.

Just to give you some background as to my experience, not only was I a veterinarian, but I was a public health officer for a city. I have been involved on the practical side of managing these things and had been involved with encephalitis outbreaks, as well as the bubonic plague issues.

I would like to take this step-by-step. I assume that a pet shop, or some distributor here in the United States, determined that a Gambian rat, for some reason or another, could be of commercial

value and could be sold in the United States to make a profit. When they make that decision, do they approach a distributor in a foreign country and then the distributor in the foreign country decides to send that to the United States?

I would like to have from the panel what happens next once that decision has been made to bring it into the United States.

Maybe that animal is destined for a particular State. I am not sure how that happens. If this animal is of domestic origin, there is almost invariably a health certificate that gets involved in many of these pets, depending on what the rules and regulations are of the State. The veterinarian writing the health certificate becomes an agent of that State, or we become an agent of a foreign country. For example, if it has gone to India, before we write our health certificate, we work with the State department, we write a health certificate which basically says there is no sign of infectious diseases.

What I am interested to know is what happens when it is coming back into the United States. Is there an initial inspection as to a healthy animal in the country of origin? Is that variable? Could somebody answer that question?

Dr. Crawford?

Dr. CRAWFORD. At the present time the order that Dr. Ostroff and I mentioned makes it unlawful for them to bring those kinds of animals in, basically African rodents from the rain forest area, including Gambian rats and a series of other similar animals.

Senator ALLARD. But that animal came in here illegally?

Dr. CRAWFORD. No. After we had the monkeypox, then we passed this regulation.

Senator ALLARD. What I am talking about is the regular process before we even get to identification of a disease.

Dr. CRAWFORD. I think we might have a Catch–22 here. I think probably no one covers those kinds of animals. The FDA does not do it until something has happened. Then the Secretary of Health and Human Services, such as with the turtles and also with psittacosis ornithosis in birds in the 1940s, the HHS or its predecessor agencies might say, "This is a threat to human health. Therefore, we are going to do the following things."

So to predict in a way that would prevent these kinds of things from happening, I think that might be a little loophole we have. In the last Administration, they did create the National Invasive Species Council. It was entitled to deal with this sort of thing and to coordinate it.

Senator ALLARD. Including plants, I think. I do not think it was strictly the animals. It was all sorts of species.

Dr. CRAWFORD. Absolutely. I believe it is still in place, and I believe it is still staffed.

Senator ALLARD. Then when the animal arrives we have no system of knowing what happened before the animal arrived to the border of this country. Is there an automatic quarantine? What happens when it hits the entry point into the United States?

Dr. Clifford?

Dr. CLIFFORD. Senator Allard, I can address that relative to animals that we would control. In this case we did not with this particular animal.

Animals that normally would come into the U.S. under our rules and authority, they would apply for an import permit from APHIS. We would issue the conditions for importation. That would be listed on that import permit.

Senator ALLARD. That condition would vary on the known disease status of the country that the animal is coming from, as well as maybe some other factors?

Dr. CLIFFORD. That is correct. A number of those animals, and part of those mitigations may be that they have to go to a quarantine facility for a certain period of time, as well as have additional tests in that quarantine facility before they are allowed to move further into the U.S., into a State. That is in place for APHIS.

Senator ALLARD. And then once that animal leaves that quarantine facility and let us say it heads for Colorado, does that quarantine facility then issue a health certificate so that when they are traveling with that animal, it gets them through the ports of entry and gets them into the State of destination? Is that what happens? Is there a veterinarian there that writes that?

Dr. CLIFFORD. There would be an international health certificate that arrives with the animals. Once they went through the quarantine, there is a document we have that releases them. It is not an actual health certificate, but it indicates that the animal is free of infectious diseases.

Senator ALLARD. The animal is free of infectious diseases at the time it left; is that correct?

Dr. CLIFFORD. Yes. It was tested for these diseases and it is free of those. It would then be allowed to move to the State of destination.

Senator ALLARD. So the Gambian rat, for example, when they came into the United States, it came into Dallas, I would assume.

Is there a holding facility at Dallas for animals when they come in? How does it get through the Customs process?

Mr. JONES. Mr. Chairman, I will start with that and then others can add. Let us talk about wildlife that has not already been identified under some ban of some kind, like the Gambian rats before the time of the HHS order. It is required that they come in through a designated port, which was designated by the Fish and Wildlife Service. Dallas is one of those. It is required that the shipment be declared as wildlife and that the documents be provided to the Fish and Wildlife Service. They are held in some kind of Customs warehouse or other bonded facility until they have passed all the clearances.

Senator ALLARD. And there is Federal law requiring a quarantine period?

Mr. JONES. For the requirements for a quarantine for birds. That is administered by the USDA, not for mammals, at least not for all mammals.

Dr. OSTROFF. There are for non-human primates.

Senator ALLARD. For non-human primates there are also restrictions.

Mr. JONES. But in the case of the Gambian rat, there was no quarantine requirement for that species. We do have species for which there are more restrictive requirements. But for your aver-

age wildlife species, like the Gambian rats prior to this order, they would be held at a secure location, a bonded location of some kind, until they had met all of the different Federal agency requirements.

In the case of the Fish and Wildlife Service, we would review the documentation which came with them to make sure that we were confident that this was a legal export from the country of origin. A health certificate is required to accompany mammals and birds coming from other countries. That health certificate is part of our regulations primarily designed to protect the health and the safety of the animals themselves. We have a responsibility to ensure humane transport conditions.

Animals which are pregnant, for example, and animals which are ill should not be put into shipment to begin with. We are looking for evidence that the exporter had the shipment cleared for health purposes in the country of origin.

What I cannot say, Mr. Chairman, is the inspection that we give would in any way detect whether or not an animal is a carrier, for example, of monkeypox. We do not have that expertise. Although we want them to meet high standards, I am not sure that every other country in the world can have the capability to issue the kind of certificate that you are issuing with your background and your expertise when you were involved as a health officer.

Senator ALLARD. Well, even with our system, you may have carriers out there. They may be asymptomatic.

Mr. JONES. Absolutely. It is not completely foolproof. But for this particular disease, for example, it seems to me as though if they have been in somewhat of a holding period, there is more of a likelihood that we would have recognized that coming through. It sounds to me like that came through rather quickly and that we did not have any kind of a quarantine period.

Senator ALLARD. Dr. Ostroff?

Dr. OSTROFF. Senator, I would like to mention one additional issue pertaining to this shipment. This importer actually traveled to Africa and participated in the trapping of these animals. He then came home and after these animals were held for some period of time in Ghana, he actually went back and accompanied the shipment itself to the United States. After they were released by Fish and Wildlife, basically he took them to his facility in suburban Dallas.

Senator ALLARD. You do not know whether these rats were exposed in the holding facility in Ghana? Sometimes the condition of some of these foreign countries it is hard to know just how much science was applied in this process. He may very well have thought he was being very responsible since he personally went there and escorted them back. Obviously, somewhere along the way the rats were exposed and became carriers.

It seems to me that once the animal leaves the holding facility or goes through Customs, there are States that may have regulations that would say, "Well, if you are going to bring an animal into my State, they need to be accompanied by a health certificate." They are very specific in their rules and regulations. They say what specific animal. Sometimes they are not specific. Sometimes they just say any rodent, for example.

What effort is made at Customs to make sure that that animal, when they are transported to the State of destination, are meeting the rules and regulations of that State?

Mr. JONES. Senator, I will start. States have import prohibitions for all sorts of reasons. Some States do not allow something that they may consider to be an endangered species under a State law to come in, even though it is okay under a Federal law. We would deny clearance of a shipment if we know that it is going to some place where that would be illegal under the State law.

However, I am not sure that our net is fine enough to always catch every species that may have some specific human health requirement imposed by a State. We would certainly look to our Federal partners to help advise us about what are the species that we should detain because there is a human health hazard.

Senator ALLARD. As a practicing veterinarian, I had a book of State rules and regulations. I could look it up by State and see what all they required on limits. Some of them were on zoonotic diseases, for example, rabies. Do you have that kind of reference when it comes through Customs?

Mr. JONES. We have references about State wildlife laws and other countries' laws, extensive references, because we want to make sure that this was a legal export out of whatever country it came from, and that it is a legal import. We have to consult further, Mr. Chairman, about how much information that we have at each of our 32 ports on all of the State health laws that may affect that. I suspect we do not have all the information complied easily and readily available.

Senator ALLARD. I want to thank you all. I think it is important for the committee to understand the flow of system.

I will yield to Senator Jeffords.

Senator JEFFORDS. You have been very helpful. I appreciate your knowledge and experience in sharing it with us.

I have a three-part question. I would like each of you to address this.

Each of your agencies has a different responsibility in dealing with the impact of imported species in addition to disseminating warnings to the public. What is your agency doing to curtain the spread of these dangerous diseases?

Do you think your agency needs additional authority to deal with the problems you see? If so, what do you want?

Dr. Clifford?

Dr. CLIFFORD. Senator, in this case obviously APHIS does not have the authority to address the Gambian rat issue for prohibition into the U.S. because it does not affect animal livestock health. That is where our authorities lies, is the protection of livestock and our production in the U.S.

As far as actions we take, we are always available. In this case we have done so as well to assist the other Federal agencies in any way we can to address this issue. That is what we have done here as well with the monkeypox issue as well as other diseases.

We would address these issues appropriately where our authorities lie, for example, with Exotic Newcastle Disease, currently APHIS is in an eradication effort with that disease in California. So we have taken a very active ongoing approach for the eradi-

cation of Exotic Newcastle Disease, and do so with the introduction of any type of foreign animal disease into the U.S. that would affect livestock populations.

As far as additional authorities needed, I think APHIS' position on that would be that we would need to go back and sit down with our other Federal agencies, look at gaps, and try to come up with a plan to address those together.

Senator JEFFORDS. Is there any effort going on to do that now?

Dr. CLIFFORD. There has been some early discussions on getting together to have some discussions at the administrator level between the Federal agencies, yes.

Senator JEFFORDS. Dr. Crawford?

Dr. CRAWFORD. As I mentioned earlier, we are taking efforts to contain these diseases by keeping the carrier animals out.

There are a number of animals in addition to the Gambian rat. They are mainly rodent species from these particular areas of Africa.

After the fact, Senator Jeffords, we did put in this order with CDC, which Dr. Ostroff will also mention I am sure. Right now you cannot bring them in legally. Also, if you have them, you cannot move them between States without consulting with us.

We work directly with the State authorities to find out what the situation is there. Our program now, after the fact, is very strong.

In terms of getting together and seeing whether or not we need new authority, I was not familiar with this National Invasive Species Council that I mentioned earlier, which was the subject of an Executive Order from the White House in February 1999. I now know why I am not familiar with it. Health and Human Services is not included.

I think if we could get added, or at least have diplomatic relations with them, I believe we could sit down and probably figure out where the gaps are. It seems to me they would be a good organization, in the Executive Branch at least, to point us to where the gaps are and what we might need to do.

I believe that we need to be more proactive. We need to know that when something like monkeypox is happening and some of the other diseases around the world, what species of exotic animals we ought to be keeping out. There is one in Malaysia, and maybe even in Singapore, now called Nipah virus which affects pigs. I think we probably ought to be looking into what sort of pet animals that are coming in that might also carry that, as well as a variety of others.

Although we get the scientific information, it is not memorialized by any existing authority that I know of at the present time. This National Invasive Species Council has been meeting now for four years. I am sure they have some opinions.

If we can get on their Council, we will see what we can do.

Senator JEFFORDS. Mr. Jones?

Mr. JONES. Thank you, Senator. I will talk about the Fish and Wildlife Service's responsibilities, and then a little more to add to what Dr. Crawford has said about the National Invasive Species Council.

First of all, our first responsibility is to enforce prohibitions on wildlife, import, export, transport, sale, offer for sale. Any Federal law which affects wildlife, we are ready and willing to enforce. It

is, however, Senator, a thin green line that we have with only 92 inspectors. They are backed up by a force of another 250 or so special agents. We cannot be everywhere and do everything that we would like to do.

Thus, we have to prioritize our work. Clearly this is something that a few years ago was not even something we were very much aware of. Now it is becoming an increasing priority for us. But we are not staffed with either veterinarians or medical doctors. We have wildlife biologists and wildlife experts.

When it comes to species that carry human diseases, or diseases which can spread to humans, we must rely on experts from the other agencies that are represented here, and State governments and others, to advise us on what the priority should be. Then we will do everything that we can to use the resources that we have to help back that up.

Secondly, Senator, Dr. Crawford is very right to point out the National Invasive Species Council. The Secretary of the Interior is one of the co-chairs, along with the Secretary of Commerce, and the Secretary of Agriculture. There are a number of other departments and agencies who are involved with the Council. But the focus of the National Invasive Species Council to date has been on species that may get loose, and get into the natural environment and thus threaten either the natural environment or economic interests, for example, species like zebra mussels that are infecting the Great Lakes.

Senator JEFFORDS. There is a problem in the Chesapeake Bay with that shellfish that has now come in and has caused serious destruction to the famous blue crab and the struggling effort to restore the oysters. That would be in the same category; would it not?

Mr. JONES. That is correct, Senator.

Animals that carry diseases which may spread to humans, if there has been any focus of the National Invasive Species Council, it has been not very much. The Department of the Interior provides the staff for the National Invasive Species Council. We certainly would be willing to work with our partner agencies to consider number one, how the Council could help with this, and number two, does the umbrella of the Council need to be expanded to include other agencies that have the expertise and the kind of issues we are talking about today.

It is my understanding right now that the Council has been considering what else should be done, developing a strategic plan, and taking a look at the Executive Order to see if the order should be modified in some way.

I think this is an opportune time, Senator, for all of us to work together to see how could we coordinate better to address all of these kinds of issues.

Senator JEFFORDS. Dr. Ostroff?

Dr. OSTROFF. Thank you, Senator. As you know, we are primarily a human public health agency. The way that we work to curtail many of these diseases is by monitoring human public health. I will point out that the only animal disease that I am aware of that is reportable to human public health agencies is animal rabies. That has been a tradition in this country for a long period of time.

Most of the testing for animal rabies that goes on in the United States is generally done in State public health laboratories.

I will point out that under the Public Health Service Act the authorities that we have to take actions, such as the types that were taken for non-human primates, are quite broad. We certainly are in the process of taking a look at what actions may be appropriate to take under the Public Health Service Act to try to curtail these types of episodes from happening in the future.

We were one of the ones, and since Senator Warner is here, I actually was one of the investigators of the Reston ebola outbreak in the late 1980s. I was there in that facility. I saw those animals and was well aware of what happened there.

We were the agency that took the actions that related to non-human primates in 1975. Subsequent to that, we tightened those regulations. We required that the importers of non- human primates be registered with us. They were inspected by us, and they continue to be inspected by us. They have to report deaths that occur amongst those animals during the quarantine period.

That is a requirement. That was a direct consequence of seeing a quantifiable and recognizable public health risk to both humans and animals.

What I can say to you is that we are taking a look at this situation. We will do that from a scientific perspective as well as what the appropriate procedures would be to try to move on this particular issue.

It is worth pointing out that there were a whole variety of animals in this particular shipment. I do not know what palm civets. I have to confess that I do not know what many of these animals are. I have never heard of them before. But the palm civets that are in the middle are the animals that at least in China were found to be found to harbor the SARS corona virus.

This is a difficult and fairly pervasive problem. As I said in my oral statement, what we have to do is to try to balance what is appropriate in terms of public health with the magnitude of the trade in exotic animals. We are not primarily a veterinary health agency. If we do decide to expand what bans are currently in place, we would have to rely on the assistance of some of the other agencies in terms of enforcing it.

Senator JEFFORDS. I know the Senator from Virginia has a great interest here. I will yield to you.

Senator ALLARD. The Senator from Virginia is recognized.

Senator WARNER. I would thank my colleagues. I would just ask Mr. Jones a question.

This hearing primarily is related to the human diseases. I do not know that this particular problem in the Chesapeake relates in that category. I wanted to express my concern, as I have done before on this committee, as to what we can do to prevent these sorts of things. Once we determine they have invaded and they are there, how do we get the invasion stopped or curtail it. It is an enormous loss of money to the economy of my State, and to the bordering States on the Chesapeake Bay. At the same time, the American taxpayers are pouring very significant sums of money to improve the quality of life in the Bay. The two forces are going against each other.

Can you enlighten me at all about the problems in the Bay and how active the Federal Government is in working on that?

Mr. Jones?

Mr. JONES. Senator, I can give you some very general information. Then I think we would want to provide you with some additional details for the record. We would also be pleased to meet with you and your staff, and any other members who have an interest in this issue.

We take these issues very seriously. The main authority that the Fish and Wildlife Service has to address injurious wildlife species is the Lacey Act, the injurious wildlife provisions. We do have a number of species and also broader groups that are listed now as injurious. That includes a number of mammals, like mongoose, that could get loose and threaten native birds and various birds that could threaten agriculture.

It includes zebra mussels. It includes the mitten crabs, walking catfish, and most recently we listed the snakehead fish, which had been found in a pond in Maryland, in Florida, and in other places in the country.

Senator JEFFORDS. What was that name again?

Mr. JONES. Snakehead. It is a fish, but it has a big head with a big set of teeth. It is pretty fearsome looking. They are found in Asia. They can be very detrimental to native fish.

Senator WARNER. They are a vicious predator?

Mr. JONES. There are even reports of humans being killed by some of the larger species.

Senator WARNER. I might add that it has the capability, albeit limited, to leave the water environment and walk across certain expanses of land, seeking, I presume, another water environment.

Mr. JONES. That is correct, Senator.

Senator WARNER. In that way, I think the Fish and Wildlife did a very wonderful job in responding, like emergency responders, to this pond in Maryland. I have not heard that there is any spread of that problem now.

Mr. JONES. I will give the credit to the State of Maryland for taking the lead for that. Our job was to help back up the States, in this case, by prohibiting imports. We listed all the snakehead fish. Then you have to deal with the ones that are already here. That is where State agencies have the lead. I think the State in this case did a marvelous job.

We are aware of threats to ecosystems like the Chesapeake Bay from other species. However, the injurious wildlife provisions, work best before something has gotten here. Once something is here, unfortunately that is basically closing the barn door after the horse is out of sight.

We are now involved in a number of reviews of other species to see whether they qualify for listing under the injurious wildlife statute. We have a deliberative process that does involve a lot of scientific study, and then a proposed rule and a final rule. It is a process that can take quite a bit of time, although we are willing to expedite it where there is a true emergency situation, as with the snakehead fish.

We will work closely with the States of Maryland and Virginia in the case of the Chesapeake Bay, and do everything that we can

to help that is first of all, a State responsibility to address the threat of exotic species in the Bay.

Senator I would like to provide you with more details about what we are doing separately.

Senator ALLARD. Without objection, so ordered.

Senator WARNER. Mr. Jones, we thank you for your courtesy and your work. You have one of the few jobs in Washington I would like to have.

[Laughter.]

Senator WARNER. It would be wonderful to go around fish and wildlife and visit all the wonderful things we have in this great land of ours and not wake up every morning like we do in a world of national defense and there are six alligators in your bed trying to eat you alive.

[Laughter.]

Mr. JONES. Thank you, Senator.

Senator WARNER. You can resume your questions.

Senator JEFFORDS. Thank you very much.

I have another question here. Despite public health warnings about serious zoonotic diseases, the CDC continues to report dozens of cases of E. coli infections from casual contact with exotic animals every year. There are nearly 100,000 reported cases of salmonella infections from reptiles every single year.

How can we guarantee that the monkeypox and other zoonotic diseases will not continue to spread unless we ban the possession and movement of exotic animals, like prairie dogs and other pocket pets?

Dr. Crawford?

Dr. CRAWFORD. Do you want all of us to answer?

Senator JEFFORDS. Well, anybody who wants to talk can talk.

Dr. CRAWFORD. I think that is a CDC question.

[Laughter.]

Dr. OSTROFF. I will start and then we can go in the other direction.

Your point is very well taken, Senator. The focus of most of the questions have been related to importations. But we have a number of zoonotic diseases that are also domestic zoonotic diseases, at least some of which come from wild animals. It is important to point out that all the human cases here of monkeypox were related to the prairie dogs and not the imported animals themselves, although that is how the prairie dogs got it.

Issues related to the appropriateness of prairie dogs as pets, as Senator Ensign mentioned, is a legitimate question and one that I think we seriously have to take a look at. As far as the diseases that you talked about, E. coli 015787, and salmonella, the lion's share of the burden of illness is related to food-borne infections that come from actually consuming a variety of different foods.

A small percentage of them that we have been able to document in recent years have come from sources such as petting zoos, where people actually go and come in direct contact with these animals. One of our more infamous outbreaks that we investigated a couple of years ago was at the Denver zoo related to the exhibition of Komodo dragons which were carriers of salmonella and managed to infect a fair number of individuals.

This is a definite problem. There is a huge trade, as was mentioned, in reptiles and amphibians. We know that a substantial proportion of those reptiles are potential carriers of salmonella. It is something that I think we have to seriously take a look at.

Senator JEFFORDS. Mr. Jones?

Mr. JONES. Senator, I will be very brief and then pass the ball on to my colleague. I will repeat the figures again. For 2002, just for reptiles and amphibians, 2 million live reptiles, and 49 million live amphibians—that is 51 million—were imported into the United States. That is just those two groups.

In terms of possession of animals as pets, that is not the Fish and Wildlife Service's responsibility. We are certainly willing to back up whatever Federal laws, regulations, and orders there are which relate to wildlife. To the extent that we have the capability of doing that, we would look to our colleagues at CDC, FDA, and USDA to advise on what are the threats to either human health or to livestock that need to have additional Federal enforcement.

Senator JEFFORDS. Mr. Crawford?

Dr. CRAWFORD. Yes, Senator, I would make a couple of comments.

One, I agree with Dr. Ostroff that the main course of the particularly vicious E. coli, the 015787 is generally from domestic animal sources. Sometimes they get spread through sewage into salads and things like that. But that is not something that we believe comes from another country, although it did start in Canada before it got here. It wound up in Australia about the time it came here. It is a variant of the Escherichia E. coli that inhabits the intestines of all mammals. Eradicating it at this point does not seem to be a possibility.

The salmonella that you mentioned that came from the pet turtles that we dealt with, probably could be carried by virtually any reptiles. So you comment of how can we deal with it without banning all importation of reptiles and the handling of reptiles across State lines is a salient one. I do not think we are ready for that.

We also have to continue to get the word out that handling reptiles of any kind, you are going to have to wash your hands probably before and after in a serious kind of way. The best way we have of dealing with these food-borne and animal-borne disease is hygiene, both of the animals and also of ourselves. Handwashing will prevent an appreciable percentage of it.

Senator ALLARD. And I might add, adequately prepared food.

Dr. CRAWFORD. Absolutely, yes. Eating food raw is like Russian roulette. Eventually it is going to hit you. We have a penchant for doing that in the United States, all of a sudden. I think it is something we have to continue to educate people about.

The last thing I would mention is about the turtles.

Recently we have had some pressure at FDA from a variety of sources to release that prohibition on the sale and interstate shipment of pet turtles. I would submit that is something we need to hold the line on because there really was a serious problem in the 1970s until we stopped it. These are the little small turtles that are less than four inches, as was mentioned earlier.

Some years ago, I believe it was in 1985, my daughter was in school in France. My wife and I went there and took her on a little

trip to Spain. She had had so much trouble learning French, we decided we would expose her to another language.

When we were there, we had lunch at this outdoor restaurant where they had a big terrarium in the middle of it. Pet turtles were crawling around. The waitresses were coming up. They were showing you the pet turtles. My daughter looked younger than she was at the time. So they said, "Do you want to hold the pet turtle?" My wife held the pet turtle. Then they handed the pet turtle to me and I said, "No, I do not want to hold the pet turtle because eating and holding pet turtles do not go together." They were sick for about a month-and-a-half after that. From personal experience, I think we should hold the line there.

But I also want to seriously talk about being proactive about these things. When animal diseases that are clearly zoonotic pass from animals to man and back again, occurring anywhere in the world, we really need to get on top of that. I think, as Senator Allard said, with transportation being what it is between countries, the movement of people, and even the movement of livestock and animals that are at a greater rate than ever before in history, we just have to be more reactive.

The great majority of shrimp that we consume in the United States today, for example, comes from a variety of other countries with little or no restrictions. We have to know what is going on in those countries. There are some international organizations that can help us with that. We need to be more active with it, and certainly more proactive.

Thank you.

Senator JEFFORDS. Dr. Clifford?

Dr. CLIFFORD. With regard to the prohibition of exotic species into the U.S. from other countries, I think one of the things that really needs to be looked at is not prohibiting species, but really the true risk of those species and how you mitigate those risks. We as human beings love our pets. As a veterinarian, that is a good thing that we have pets.

But we also need to be very diligent and pertinent in the way we choose those pets. I think part of that comes in education of individuals and knowing the type of pets they are getting and knowing what type of risks that presents to them.

But with regard to E. coli and salmonella, those are diseases that are very much a domestic issue. We do not have to import exotics to have those types of things and concerns within the U.S. Again, it comes to the things that have already been spoken here—good hygiene and knowing the type of pet you have and knowing that risk of that pet can present to you as a human being.

Senator JEFFORDS. Thank you.

Thank you, Mr. Chairman. This has been a wonderful panel. You have been very patient.

Senator ALLARD. I want to give you plenty of opportunity.

I wanted to follow up just a little bit. Just for the record, Dr. Clifford, you talked about quarantine. But you were talking about just the quarantine of livestock. You were not talking about quarantine of animals that are a vector of concern, or those that have been injected with a livestock disease; were you? Is that included in that quarantine provision?

Dr. CLIFFORD. It would vary. Birds are quarantined.

Senator ALLARD. Any birds?

Dr. CLIFFORD. Avian species. Any psittacine-type birds that are imported into the U.S., would have to go through a quarantine facility.

Senator ALLARD. So you and the Fish and Wildlife work on those quarantines?

Dr. CLIFFORD. Fish and Wildlife would definitely be a part of that, especially if it is a bird on their CITES list.

Mr. JONES. But the USDA actually operates or licenses the quarantine facilities. We rely on their expertise. But we will not clear the shipments until we are sure that all the quarantine requirements are going to be met.

Dr. CLIFFORD. We look at particular risks in some of those species, such as the tenrecs, the hedge hogs, brush-tail possums from New Zealand that can transit TB, we prohibit the importation of those species. We do not allow them into the U.S.

But the other species that you are talking about, it depends upon the animal, the diseases of concern as to the quarantine, and the length of the quarantine period.

Senator ALLARD. Let me just make a couple of comments here.

I would suggest that the Agency look at this quarantine period on certain species. Somehow or the other, there should be a reference available where you can look and know what diseases to watch out for from which countries. That is going to be available from literature. It is going to take a while to dig it out. But it is there.

I want to compliment you on the way that this monkeypox outbreak was handled. I am looking here at a chart as was mentioned in your testimony. This thing was controlled in 30 days. That is pretty phenomenal, I think. I think all the agencies need to be complemented on that. The first outbreak was on the 15th of May, and your last confirmed case was on the 20th of June. So you basically have about a month there.

I think that is very good work. It tells me that a lot of our rules and regulations are working. We just need to look at little more on the preventive side in order to address this. My original impression is that we need a lot more rules and regulations. It looks like you have a lot of rules and regulations. This Lacey Act is very far reaching, from what I understand.

You federalized foreign law, as far as endangered species is concerned, I would assume. You also federalized State law, the way I understand it. If you take the most rigorous State rule and regulation out here and you try to apply it, the Lacey Act applies at the time of importation of that, the way I understand it. Is that correct, Mr. Jones?

Mr. JONES. Yes, Senator, what I would ask is that we probably need to study a little bit more of what the range of State laws that would affect wildlife and how does that mesh with the Lacey Act. That probably will keep some lawyers busy. But we have already had that discussion with them we know that we will be asked to look at the frontiers of the Lacey Act. We began those discussions yesterday.

Senator ALLARD. That is why I was amazed that you did not have some kind of a central reference on State law on that.

Without objection, so ordered.

Senator ALLARD. I want to thank you all for your time. I think it has been a very informative panel. Thank you for your expertise.

We will call the third panel. Gabriela Chavarria, Ph.D., Policy Director, Wildlife Conservation, National Wildlife Federation, on behalf of the National Environmental Coalition on Invasive Species; Robert A. Cook, V.M.D., M.P.A., Adjunct Professor of Environmental Affairs, The School of International and Public Affairs, Columbia University; and N. Marshall Meyers, Executive Vice President and Counsel, Pet Industry Joint Advisory Council.

Let us start off with Ms. Chavarria. Then we will call on Dr. Cook and Mr. Meyers.

STATEMENT OF GABRIELA CHAVARRIA, POLICY DIRECTOR, WILDLIFE CONSERVATION, NATIONAL WILDLIFE FEDERATION, ON BEHALF OF THE NATIONAL ENVIRONMENTAL COALITION ON INVASIVE SPECIES

Ms. CHAVARRIA. Thank you, Mr. Chairman and Senator Jeffords. Thank you for the opportunity to address you today. I am testifying on behalf of the nine members of the National Environmental Coalition on Invasive Species, a group of environmental organizations working to promote the prevention, control, and eradication of invasive alien species, particularly through sound policy solutions at the State, Federal, and international levels.

Invasions by exotic plants, animals, and pathogens into non-native environments pose one of the most significant but least addressed threats to human health, agriculture, and our natural ecosystems. Aside from the viral threats to human health, many imported invasive species present more direct threats to personal health and safety. Such concerns do not even touch upon the widespread environmental damage to native habitats and high mortality levels of invasive species that are transported legally and illegally across the borders.

Significant efforts have been made to develop sanitary regulations to protect our livestock and agriculture. Yet, similar protections are lacking to protect humans from the range of threats presented by the import of exotic animals.

Compounding the tremendous problems of a largely unregulated trading in invasive species, there is a particular lack of knowledge regarding the biology of many of them, particularly how they will affect a new environment.

Congress needs to focus regulatory efforts on areas where the larger risks to human health, economies, and the environment outweigh the potential social and/or economic advantages. Such tactical decisions need to be taken proactively as prevention as the best means for conveying widespread human health and environmental impacts.

Significant attention has recently been paid to unintentional or accidental aquatic introductions such as the National Aquatic Invasive Species Act whose passage could provide valuable guidance on the issue before us. However, similar legislative attention

needs to be devoted to intentional import and introduction of exotic animal species into the United States.

More specific recommendation for Congressional actions include: One, import restrictions are needed to deal with imports of exotic species that present significant threats to human health or the environment far beyond their ornamental value or other social benefits. The burden of proof that a species does not pose a significant threat to human health or the environment must be the responsibility of the importer and must be proven before importation.

Number two, for areas and pathways where imports are permitted, authorities should develop supplementary screening approaches to evaluate the potential adverse impacts to human health and the environment. However, developing an effective screening protocols requires a significant investment in research because the invasiveness and the availability of diseases to jump species are difficult to predict. Further research is necessary regarding the environmental and health impact of invasive species, and decisions to allow imports should be based on thorough scientific assessments.

Number three, prevention measures should focus on key pathways for the introduction of harmful exotic animals as opposed to the species-by-species approach. Pathways include various modes of transportation, imported animals, live food plants and animals.

Number four, any new programs or legislation to control the import of exotic species must be placed within the context of existing regulations whether it is for protecting agricultural and plant health or for preventing the trade of endangered species.

Number five, focusing on controlling alien species at the United States borders alone is inadequate to control trade and introductions. While pursuing domestic measures to prevent introductions, the U.S. also needs to engage with Canada and Mexico to ensure a consistent and coordinated regional approach to regulating and managing intentional introductions within North America.

Number six, Congress needs to promote rules within the negotiation and implementation of regional and international trade and environmental agreements that will ensure appropriate sanitary levels, and means to protect human health and the environment.

Number seven, and, appropriate mechanisms and incentives need to be put in place to ensure that those importing and/or housing species with potential adverse impacts assume financial and legal responsibility. Otherwise, public agencies and the taxpayers ultimately bear the burden.

We appreciate the opportunity to testify today. I will be happy to entertain any questions, Mr. Chairman. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you, Ms. CHAVARRIA.

Mr. Cook?

STATEMENT OF ROBERT A. COOK, ADJUNCT PROFESSOR OF ENVIRONMENTAL AFFAIRS, THE SCHOOL OF INTERNATIONAL AND PUBLIC AFFAIRS, COLUMBIA UNIVERSITY

Dr. COOK. Mr. Chairman, and Senator Jeffords, thank you for the opportunity to testify. My name is Dr. Robert Cook. I am the

Chief Veterinarian and Vice President of the Wildlife Health Sciences for the Wildlife Conservation Society, and an Adjunct Professor of Environmental Affairs at Columbia University.

In addition, I chair the Animal Health Committee of the American Zoo and Aquarium Association. I am chair of the Captive Wildlife Committee of the United States Animal Health Association.

The Wildlife Conservation Society is a science-based organization which conserves wildlife throughout the world and manages the Bronx Zoo and four other living institutions in New York City. We provide critical veterinary support to the care of 23,000 wild animals in our New York parks, as well as to over 300 international field conservation projects in 53 nations. In 1989 we began the first field veterinary program and we were deeply involved in the health surveillance of animals around the world.

I have been specifically asked to speak on the health threats posed by the global movements of exotic animals and their products, including the bushmeat trade in three specific areas:

Exotic animals that are carriers of disease; the types of diseases, and the risks to human health.

Unfortunately, while these are the areas of greatest concern, they are also the areas that we know the least about.

If we hope to generate solutions to these disease issues, we must start to think about the health of people, domestic animals, and wildlife in a more holistic way.

As we better understand the complexity of our interrelationships, we can and must devise solutions to these problems that are proactive and not reactive. A wide range of domestic and non-domestic animals carry diseases that can threaten the health of people. Scientists at the University of Edinburgh noted in the journal Science that "humanity is currently plagued by 1,709 known pathogens." They concluded that almost half of those are zoonotic. diseases that pass between animals and people.

While what we know about emerging diseases is instructive, it is what we do not know that may threaten us the most. For example, rodents carry many zoonotic diseases, like the plague and hantavirus, and while it is known that monkeypox could be spread by rodents in Central Africa, until the crisis of a few weeks ago, no one was really looking.

We need to act sooner and more effectively on a global scale. In addition, we must also be prepared to handle diseases that make the jump to infect new species. The corona virus which causes SARS, appears to have moved from animals in the wildlife markets of China to people. The WHO recently listed the total number of SARS deaths at 813.

We must not limit ourselves strictly to those diseases that can spread between animals and people. We must also look at emerging diseases that threaten domestic livestock and wildlife, for here, too, humanity is at risk either through the loss of wild species or agricultural losses such as those being experienced in the recent outbreak of Enzootic Newcastle Disease in the Southwest U.S. where almost four million domestic birds have been depopulated.

We must consider both the legal and illegal exotic pet trade. More must be done to halt the illegal movement of exotic pets be-

lieved to be worth tens of billions of dollars a year, a tremendous threat to the health of animals and people. The legal pet trade must also be more strictly regulated, especially as it affects the movement of wild animals that are caught in wild environments. Tighter regulations would lessen the threat these animals pose to our health, and would also help save species in the wild.

What can be done now? We must be more proactive, not only within our borders but in countries around the world. We must do it in a holistic way and not with an eye to eliminate one or another species that is believed to be a threat. Such piecemeal approaches will trap us in a never-ending cycle of reaction.

To be proactive, we must one, maintain high-quality quarantine protocols such as those used by the institutions of the American Zoo and Aquarium Association. These protocols require that any animal entering their collections be examined and maintained in a secured facility under veterinary supervision with a quarantine period.

Second, expand range-country and homeland surveillance systems. The ebola virus has ravaged the great ape and human populations of central Africa. Field vets of the Wildlife Conservation Society are working with international teams to collect samples from wild animals to try to determine the vectors of the disease and understand how to contain it.

The West Nile virus entered the U.S. in the late summer of 1999. The first connections made between this deadly disease of animals and people came from the Wildlife Conservation Society's Veterinary Pathology Department. By simply performing standard surveillance protocols, and by expecting the unexpected, the lesions were discovered and the alarm was sounded.

Third, restrict the trade—legal or illegal—in exotic wildlife that is taken from the wild for the pet or bushmeat trade. Wildlife destined for food markets and the pet trade is often transported over enormous distances with animals and consumers from different ecosystems coming into contact. The lack of natural immunity to new pathogens makes humans and animals alike fertile uncontrolled laboratories for mutation and species jumps.

What we known right now is that many different species of animals have the ability to carry infectious agents that can threaten human and animal health. It will not be enough to isolate specific species after an outbreak occurs, or worse, to attempt to eradicate each implicated species when an emerging disease is diagnosed.

If we limit ourselves to this view, we will miss the big picture. The proactive measures, including long-term surveillance, effective quarantine protocols, and limits on the global trade of exotic animals, will best protect the public health, help ensure the quality of our food supply, and improve the prospects for the conservation of wildlife worldwide.

Mr. Chairman and Senator Jeffords, as you formulate legislation to address the issues of importation of exotic species and the impact on public health and safety, I strongly encourage you and your staff to call upon the informational resources and expertise of the Wildlife Conservation Society, and the American Zoo and Aquarium Association. These resources can assist the committee in devel-

oping effective common-sense measures that can help protect wildlife and humans both here and abroad.

I would be happy to answer any questions that you may have.

I would ask that my complete testimony be included in the record in its entirety. Thank you.

Senator ALLARD. Without objection, so ordered. Thank you for your testimony, Dr. Cook.

Mr. Meyers?

STATEMENT OF N. MARSHALL MEYERS, EXECUTIVE VICE PRESIDENT AND COUNSEL, PET INDUSTRY JOINT ADVISORY COUNCIL

Mr. MEYERS. Mr. Chairman and Senator Jeffords, my name is Marshall Meyers. I am Executive Vice President and General Counsel of the Pet Industry Joint Advisory Council, known as PIJAC.

Also in my practice I have worked with biomedical research facilities and the zoo community in dealing with legislative and regulatory issues, permits, and everything else, internationally, domestically, at the Federal and State level.

PIJAC has worked with Federal and State governments on behalf of the pet trade for some three decades to ensure a responsible pet industry to promote the public health and safety of the public as well as the animals in trade. Companion animals are an integral part of our society. Sixty- two percent, or 64 million households, own companion pets. Approximately 20 million of those households maintain at least one exotic.

When examining the role of exotics and human health, one must place in perspective relative to other vectors, including humans and animals in our global economy. The number of human health related instances involving traditional as well as nontraditional pets is extremely small. There is no activity that is without some element of risk.

That being said, the industry recognizes its responsibility to partner with government to take various steps to minimize risk. This could be achieved through a variety of screening, quarantining, isolation measures, monitoring, health certification, and last but not least, education.

First of all, there is the problem of using the term "exotic." It is overly broad. Parakeets, goldfish, gerbils, hamsters, guinea pigs, reptiles, and most other pets are technically "exotics." In fact, for a purist, if a dog and a cat was introduced into this continent it would be an exotic.

The dialogue should focus on what we characterize as "nontraditional pets" or those animals that are not normally found in the regular pet trade. Prairie dogs, sugar gliders, Gambian rats, flying squirrels, non-human primates, skunks, minks, wolf, wolf-crosses are not traditional pets. We do not recommend that they be part of the trade.

But in dealing with nontraditional pets, we have a double-edged sword. Outright bans engender increased interest in demand, followed by an unregulated underground market where there is little to no change to protect the public health and safety.

We have been longtime advocates, especially at the State and local level, for regulations that will allow a permit system if, and only if, that nontraditional pet owner has adequate facilities to protect the public health and safety, and can demonstrate adequate facilities for the safety and human care of the animals.

Our industry has long been concerned about the human health efforts. In fact, PIJAC was founded some 30 years ago because of the importation of fish. We discovered in that research done at the University of Georgia that the fish being imported were actually farm-raised primarily in Asia. Their water and their fish were in better shape than those being raised in Florida.

We have been concerned for many years. We worked with APHIS in establishing the Avian Quarantine Program to keep Exotic Newcastle Disease out of the United States. With reptile-associated salmonella, we worked with CDC in the production of a poster attached to my testimony, which is an educational poster dealing with the basic things one has to do on the sanitation, proper husbandry, and keeping them out of the kitchen.

Recently because of the threat of heartwater coming into the United States, meetings with the USDA, APHIS, and with the State of Florida, we formed what is called the National Reptile Improvement program, a voluntary accreditation program which has a very unique element. Anybody who is part of the program gives USDA and the States department of agriculture the automatic right to inspect the facility as if they were a regulated facility.

The person who would be overseeing the operation of those facilities would be licensed veterinarians in the State where the facilities are located.

We have worked on psittacosis and educational programs which incorporated biosecurity measures in our husbandry protocols. We also include sanitation, nutrition, disease prevention, and preventative medicine.

With the outbreak of any zoonotic disease from a pet, or even a significant risk, is a serious concern. We have worked closely with the CDC and the State veterinarians in disseminating information to the entire industry, both to our members and nonmembers alike. A sample is attached to my testimony.

What is needed is a review of existing regulatory mechanisms, both Federal and State, to ensure that appropriate safeguards are in place to minimize the risk of the introduction and spread of zoonotic diseases. We recommend that USDA revisit this regulatory mechanism governing the importation of mammals and work with us to establish appropriate isolation and health protocols.

We cannot overemphasize the need to maintain a balanced perspective in undertaking this process, and that the resulting standards are risk-based and should be supported by verifiable data and science. Quick fixes are not automatically curative.

Some 50 years ago a famous journalist and social critic, talking about governance, commented that for every complex problem there is a solution that is simple, neat, and wrong.

Calls for bans by activist groups in the media are overly simplistic. They do not automatically and sometimes really address the issue or fix the problem. In fact, they may exacerbate it.

The demand for nontraditional pets has probably increased a hundredfold as a result of this outbreak and attendant publicity.

Hopefully this hearing will lead to USDA's convening a task force that can deal with this issue. I am a member of the Invasive Species Advisory Committee. Human Health and Services is a member of that committee. What they really need is not diplomacy but some general persuasion to become more active in that process.

We appreciate the opportunity to contribute to the review of this issue. Please know that we stand ready to make our resources available to the Committee in dealing with this issue.

Thank you. I would ask that my complete testimony be included in the record in its entirety.

Senator ALLARD. Without objection, so ordered. Thank you, Mr. Meyers.

Thank all of you for your testimony.

I would like to have all of you comment a little bit about the current regulatory requirement in general. Do you think it is adequate or inadequate. Specifically state where we perhaps need to make any changes.

Do any of you have any comments?

Mr. Meyers?

Mr. MEYERS. Mr. Chairman, I believe that it is abundantly clear that the USDA issue regarding mammals is a gap that needs to be addressed. I think it may be able to be done by interagency memorandums of understanding and protocols. It may require an amendment to their overall authority.

I think that birds are well covered because of the Avian Import Program. I think that we are working with the State veterinarians. We made the presentation on the National Reptile Improvement Plan. It includes amphibians. We presented it to the Southeastern United States Animal Health Association meeting.

I think that will become a Federal–State coalition to work with reptiles and amphibians.

I think the real gap is in mammals. Quite honestly, I had to call some 50 people before I found the first people who had ever heard of a Gambian rat. They are not part of the traditional pet industry, but I think it is clearly an area where we need to look at the regulatory structure.

Senator ALLARD. I would just point out for the record that the Newcastle Disease outbreak that you referred to in your statement was introduced by illegal birds coming in. They were cockfighting birds. I carried some legislation to restrict that movement. They were illegal and they got in.

Dr. Cook?

Dr. COOK. I think each of the agencies in the area that they are tasked with does an excellent job. Quarantine by the USDA is very thorough but it is limited. The CDC has taken steps to regulate the importation of non-human primates. It is very thorough. The problem is the gaps.

The problem is really looking at it in a different way. We need to look at our surveillance and quarantine systems overall.

It cannot just be in this country. We need to know what is out there. So as we look at surveillance and quarantine, we say, "Well, internationally we need a good surveillance system."

Whatever agency would be tasked with that, could then partner with organizations such as the Wildlife Conservation Society where we already have the infrastructure. Our field veterinarians are working in countries all over the world to try to ascertain what diseases, what threats there are both to people and to wildlife. It is there. It just needs to work a little differently than it does right now. There needs to be more partnership.

Senator ALLARD. Good comment, Dr. Cook.

Ms. Chavarria?

Ms. CHAVARRIA. Again, I will second the previous answers.

We need to expand the regulations in some of these agencies.

Already some of these agencies are doing good things. They have good programs that can be expanded to wild animals. For example, the Fish and Wildlife Service has a really good program, the Form 3177 Importation and Exportation Declaration.

This applies to every single scientist in the United States that bring specimens, plans and animals, into the United States.

Most of these specimens are dead. But each scientist, before they come into the country, have to have a list of what they have. Sometimes they do not even know what they have. They already need to provide a list.

The Fish and Wildlife Service has a list, a book, where they keep track of all the scientific material that is coming in. So it is a process that has worked. I know it involves a lot of work for the scientific community, but it is something that could be implemented for wild animals.

Senator ALLARD. Mr. Meyers?

Mr. MEYERS. Senator, if I could add to that, the Form 3177

Declaration does apply to all wildlife shipments into the United States of live animals, parts, and derivatives thereof. They all of that data on wildlife imports. The data are there. It is a compilation issue. I think it is a resource issue on their part.

I know the CITES information goes into a database. I think some of the non–CITES species you have to manually pull it together.

Senator ALLARD. Senator Jeffords?

Senator JEFFORDS. Dr. Cook, in order to be proactive, you recommend maintaining high quality quarantine protocols. Can you tell us how the protocols work within the zoo and the aquarium industry and how they could be adopted to the exotic pet industry?

Dr. COOK. I think there are two parts. One is how they work is this. Each of the 212 accredited zoos of the American Zoo and Aquarium Association have adopted together protocols that the veterinarians within their institutions oversee. They are secure facilities. Every animal that comes into our collection, whether it comes from some other part of the country, or comes from outside of the country, goes through a quarantine period of a minimum of 30 days.

During that time we investigate those animals for the diseases that we know to look for, both by government regulation and beyond that. Our concerns are with wildlife and wildlife disease. We are trained to look more broadly.

How we would do this on a national level is simply through partnership. Because we have good relationships, we work on surveillance programs with the USDA on things like tuberculosis, and

with the CDC on West Nile virus right now as a national organization. We simply need to expand our capabilities.

This would need some sort of resource ramp up in order for us to partner together to say, "Okay. Let us not look at program species. Let us look at the complete range of wildlife out there and better understand what the risks are."

Senator JEFFORDS. What value is there in the eradication of individual species that may carry one of these zoonotic diseases?

Dr. Cook?

Dr. COOK. Well, while we can eradicate a single species, or at least try do—I do not know how easy it would be to eradicate a rodent species or another species quite honestly — that is really not addressing the bigger picture. The bigger picture is understanding the ecosystem and how these animals play in that ecosystem, and work together in order to maintain biodiversity.

An example, and one that we were very concerned about, was the Nipah virus in Malaysia. This outbreak occurred in 1999.

One hundred and five people died of the disease. One million pigs were euthanized because they were amplifier species. Then it was believed—and in some works suggested—that fruit bats carried the disease. We did not know whether fruit bats were the only animal that carried the disease. But there was a movement afoot then to eradicate the fruit bat.

That would have been a very short-sighted decision if it had actually played out. Fruit bats are significant pollinators in the forest. We would lose the diversity of the forest. We would lose the forest of Asia, not just by the means that are occurring right now, but these additional means.

To eradicate a single species has great implications to diversity beyond that species, and ultimately to all of our survival.

Senator JEFFORDS. Ms. Chavarria, one of your recommendations for dealing with this problem is to put the burden of proof on the importer to demonstrate that a species does not pose a threat to human health or the environment.

Could you elaborate on how this might work by giving us an example of this?

Ms. CHAVARRIA. One of the things that is that if the importer is the one interested in bringing a lot of the species from abroad. They should be in consultation with the scientific community in the country where they are working to learn more about the biology of a lot of these species.

Before they can bring anything into the country, they know the biology and how that animal will behave. It can be Gambian rats or it can be anything. So we know in advance the potential that a lot of these species are already carriers of diseases.

They should be the responsible ones. They are the ones that are bringing these species for economical reasons.

Senator JEFFORDS. One of the recommendations you made to us is to develop screening protocols. Are you familiar with the protocols Dr. Cook has talked about?

Ms. CHAVARRIA. Yes, we are.

Senator JEFFORDS. In your opinion, would those protocols be effective in dealing with the exotic species we are importing?

Ms. CHAVARRIA. It would be a good start, definitely a good start. But again, I stress the voice in the partnership. We need to start working together.

Senator JEFFORDS. Are there any comments you would like to make before we close up?

Mr. Meyers?

Mr. MEYERS. I just think that on the screening and on the type of isolation protocols, that is something that is being discussed, not only within the Agencies but also with pending legislation. We, as an industry, are not opposed to those types of protocols and procedures. We think they should be science-based and supported by good data.

There is the issue about species that are already in trade versus new introductions on a new species that has never been brought here. I agree with the comments that you have to have good biological information. We have to know something about them. For those species in trade, we may need a different mechanism for monitoring, screening, and doing isolation and testing.

It is a complex issue. We are dealing with it with the Invasive Species Advisory Committee and to the Council, and also with legislation that is pending before the Congress.

Senator JEFFORDS. Thank you, Mr. Chairman.

Senator ALLARD. Senator Jeffords, I do not have any more questions either.

I want to thank the panel for their testimony. I thought that we stayed pretty much on schedule. We got through our panels. I know the Chairman was hoping that we would get out of here at 11:30. We are right on the button.

Senator JEFFORDS. That is pretty good. Sixty seconds is not bad, right?

[Laughter.]

Senator ALLARD. We will go ahead and adjourn the committee.

[Whereupon, at 11:30 a.m., the committee was adjourned, to reconvene at the call of the Chair.]

[Additional statements submitted for the record follow:]

STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM THE STATE OF MONTANA

Thank you, Mr. Chairman and Members of the committee. I am pleased that this committee has taken the opportunity to learn more about exotic species, their impacts on human health, and the most efficient means of regulation. This is an important issue that must be addressed if we are to avoid future harms.

The threat of zoonotic diseases is one of deep significance to Montana, where wildlife is an important part of our culture and heritage. However, as the line between traditional and non- traditional animals blur, zoonotic diseases become a more important issue. For example, in my home State of Montana, prairie dogs call over 90,000 acres of land home and their population rivals our human population in number. We need to take the threat of zoonotic diseases, like the recent outbreak of monkeypox, seriously in order to ensure the safety of the American people.

Measured responses to these diseases must be addressed, whether such diseases originate through exotic species importation or from native species at home.

Montana has had its own struggle with exotic species, most notably noxious weeds. Of course, Montanans are not yet keeping noxious weeds as exotic pets. Nevertheless, these weeds continue to plague many valuable landscapes and remain a detriment to native species. As a result, I am pleased that we are taking steps to help ensure that exotic species have measured and desirable impacts. We need to forge strong connections between local, State, and Federal groups and agencies to ensure that we have the tools to adequately respond to threats. I hope that we can

find a balanced way to efficiently handle problems with exotic species and I strongly support efforts to that end.

Thank you again Mr. Chairman, and I thank the witnesses for being here today.

STATEMENT OF HON. JOHN ENSIGN, U.S. SENATOR FROM THE STATE OF NEVADA

Mr. Chairman, thank you for allowing me to participate in this important hearing on the importation of exotic species and the impact on public health and safety. As a veterinarian who operated a small animal practice, I have dealt first-hand with exotic animals, and it is a subject I have passionate feelings about.

As you know, Senator Jeffords and I introduced the Captive Wildlife Safety Act, S. 269, earlier this year in order to combat the interstate movement of big cats for use in the pet trade. Keeping lions, tigers, and other big cats as pets is a prescription for trouble for both animals and people.

Wild animals belong in the wild. Only certain types of domesticated animals belong in the home. Wild animals are not behaviorally suited for pet-keeping. They often have very specific needs that cannot be met by housing them in a tank, in the basement, or in a cage in the backyard. Many people quickly give up these animals because they cannot adequately deal with them and their often destructive and dangerous behaviors. They have few disposal options, all bad: kill the animal, release the animal, or turn it over to already overburdened sanctuaries and humane societies, which then must bear the long-term financial cost of an irresponsible and often impulsive decision to acquire a wild animal as a pet.

The House Resources Committee earlier this week reported the House companion bill to the floor, and we hope this committee moves S. 269 in an expeditious manner. Senator Jeffords and I would be delighted to see the President sign the legislation into law before the year ends.

While I am here to respectfully request your support for the Captive Wildlife Safety Act, I also appear to applaud your effort to take a broader review of the exotic wild animal trade.

While big cats and other predators pose a threat to public safety and protection from violent attacks is a primary rationale for S. 269—the pathogens that many other animals can carry and transmit to people pose an even graver threat to the health of Americans. This is why Senator Jeffords and I together requested this hearing.

We have long known that animals transmit zoonotic diseases to humans. These diseases include E. coli, rabies, salmonella, trichinosis, yellow fever, malaria, botulism, streptococcus, and influenza. The Centers for Disease Control and Prevention reports that there are more than 90,000 cases a year of salmonella infection stemming from pet reptiles, which have salmonella in their intestinal tract.

In more recent times, so-called "emerging diseases" have increasingly jumped from animals to humans. These include Hepatitis B, the hemorrhagic Ebola and Marburg viruses, Lyme disease, hantavirus, West Nile virus, the respiratory killer SARS, and now monkeypox.

Scientists present evidence that suggests that even HIV–AIDS and mad cow disease are zoonotic diseases.

We are playing Russian roulette with the American public by allowing the free-flow of exotic wild animals into this country for the pet trade. The risks far outweigh the rewards, and a public policy response is heavily warranted and long overdue.

There are other costs to society. An unrestricted flow of wild animals into this country puts native wildlife, forests, and agriculture at risk. My home State of Nevada recently experienced an outbreak of Exotic Newcastle Disease, a deadly avian contagion. It appears that parakeets or fighting cocks were illegally transported into California from Mexico. Some of these birds were infected with Newcastle Disease and an outbreak in Los Angeles County spread throughout all of southern California and into Arizona, Nevada, and Texas. To contain the spread of the disease, USDA spent more than $110 million in its containment and compensation efforts. Government authorities had to kill more than 3.7 million birds, disrupting egg and poultry production and other poultry-related industries.

Currently the ownership of and traffic of wild or exotic pets is largely unregulated. On the State level, only 12 States prohibit owning dangerous animals. The Convention on International Trade in Endangered Species, (CITES) restricts ownership and trade only in endangered wildlife. With scant Federal regulation, virtually any non-endangered wild animal to be brought into the U.S. to be sold, bred, and kept as pets.

With thousands of exotic pet outlets ranging from exotic animal auctions, flea markets, online sales and other effective distribution channels, the potential for similar events involving much more dangerous pathogens is a very real threat to public health and safety.

In light of the recent outbreaks of SARS, monkeypox and Newcastle Disease, Federal response is absolutely necessary. Because many Federal agencies including the Center for Diseases, Department of Agriculture, the Food and Drug Administration regulate animal import, I suggest the need for cooperative effort to:

1. First, identify policy suggestions that would prevent outbreaks similar to the SARS and monkeypox outbreaks.

2. Second, recommend policy suggestions that better prepares agencies to react in the event that another outbreak occurs.

As the Congressional Research Service suggests, "development of a systematic method for using disease outbreak response to evaluate public health system preparedness could assist in identifying areas for improvement in the system and a metric for measuring improvement."

Mr. Chairman, wild animals belong in the wild where they are less likely to transmit zoonotic diseases posing risk to public health. That is the principle that should guide our actions in the Congress.

Thank you this opportunity to speak on this issue. I look forward to reviewing the findings of this hearing.

STATEMENT OF DR. JOHN CLIFFORD, ASSOCIATE DEPUTY ADMINISTRATOR VETERINARY SERVICES, ANIMAL AND PLANT HEALTH INSPECTION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE

Mr. Chairman and Members of the committee, thank you for this opportunity to speak with you on behalf of the U.S. Department of Agriculture (USDA) about the importation of exotic animals. My name is Dr. John Clifford and I am the Associate Deputy Administrator for Veterinary Services with the Animal and Plant Health Inspection Service (APHIS).

As we all know, the recent incidence of monkeypox in the United States has highlighted how Federal, State, and local agencies must work together to prevent and respond to outbreaks of zoonotic diseases.

APHIS' mission is to safeguard American agriculture. One of the ways we accomplish this mission is to regulate the importation of certain animals and animal products. Under the Animal Health Protection Act, or AHPA, USDA has the authority to take action in order to prevent a disease of livestock from entering into or spreading within the United States.

In carrying out this authority, USDA regulates the importation and interstate movement of animals used for agricultural purposes, such as cattle, sheep, goats, swine, and poultry. We also regulate the importation and interstate movement of certain products made from these animals.

In general, animals not used for agricultural purposes - such as prairie dogs, rats, mice, squirrels, and other rodents - are not subject to our regulations, because they do not usually carry diseases that threaten agricultural health. There are two exceptions: if the animal has been inoculated with a disease of agricultural concern for a scientific study or the animal is a vector of a disease of agricultural concern. For example, USDA prohibits the importation of tenrecs, an exotic animal sold as a pet, from Madagascar, because these animals are vectors for foot and mouth disease, a very serious disease of livestock.

In the case of monkeypox, there is no clear scientific evidence that this disease affects livestock. Therefore, our authorities and regulations do not apply to import of animals that may be vectors of this disease. Instead, USDA supported the actions of the Department of Health and Human Services' Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC) and the Department of Interior's Fish and Wildlife Service in their effort to shut down imports of animals that could carry the disease.

Our supporting role varied. For example, USDA is also charged with enforcing the provisions of the Animal Welfare Act or AWA. The AWA requires that certain individuals be licensed or registered with USDA and provide their animals with care that meets certain minimum standards. Licensees must also maintain records regarding the veterinary care, purchases, and sales of exotic animals. Under the AWA, all wholesale animal dealers, retail pet stores selling exotic or wild animals, and individuals, including owners, selling exotic animals are required to be licensed with USDA. USDA conducts periodic inspections of licensed facilities to ensure compliance with the AWA.

Because of our relationship with these licensed facilities, USDA was able to assist FDA by locating licensed dealers of exotic animals and assisting in the tracebacks of these animals.

USDA also worked with the FDA to distribute information about the ban on the importation, movement, and sale of animals and to conduct a survey on the health of animals in these locations. Our personnel also assisted CDC in the confiscation of animals that were possibly infected. We fielded hundreds of calls from licensees, answering their questions about monkeypox and ensuring the licensees were in touch with CDC and FDA about issues related to the ban.

USDA has also offered to provide follow-up surveillance support to the States. Under the Animal Damage Control Act, USDA is authorized to conduct activities to control wild mammals and bird species that are reservoirs for zoonotic diseases. Under this authority, USDA provides assistance to States and local governments, private individuals, and other organizations in managing wildlife-human conflict. Our experience in this area has enabled us to offer to assist the State of Illinois by collecting samples from rodent and mammal populations around several sites, including landfills and garbage transfer stations. These animals can be tested to see if monkeypox has spread into wild populations. A similar service has been offered to the State of Wisconsin.

So, as you can see, USDA has been able to lend valuable assistance to the effort. We are committed to working with other State and Federal agencies to prevent similar situations in the future.

Thank you again for the opportunity to speak with you today. I'll be happy to answer any of your questions.

STATEMENT OF LESTER M. CRAWFORD, DEPUTY DIRECTOR, U.S. FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES

INTRODUCTION

Mr. Chairman and members of the Subcommittee, I am Dr. Lester Crawford, Deputy Commissioner of Food and Drugs. Thank you for the opportunity to participate in today's hearing examining the importation of exotic animal species into the United States and the related potential impact on public health and safety. Today, I will discuss the Food and Drug Administration's (FDA or the Agency) role in the national response to an emerging zoonotic disease or other secondary transmitted infectious disease that may potentially occur in the U.S. A zoonotic disease is one that can be transmitted from animals to humans under natural conditions.

As we have learned too well, non-native animal species can create serious public health problems when they introduce a new disease to the native animal and human populations. Once introduced into the U.S., the sale or other distribution of an infected animal, or its release into the environment, can result in the rapid spread of disease to other animal species and to humans. A single uncontrolled case of a new disease has the potential to trigger an epidemic. As we know from our experience with West Nile virus, it may be extremely difficult, if not impossible, to eradicate a disease once it becomes established.

FDA's potential response to the threat of an emerging zoonotic disease would be coordinated with other government agencies, industry and academia and would be expected to include, but not necessarily be limited to:

- Facilitate the development of reliable diagnostic tools;
- Facilitate the development of safe and effective treatments for patients suffering from infectious disease;
- Facilitate the development of a safe and effective human vaccine to prevent the disease; and
- Help safeguard regulated products against the possible transmission of an infectious agent to a consumer of the regulated product e.g. blood and food products.

In describing FDA's role in responding to this type of threat, let me first elaborate on these specific Agency measures to facilitate the development of products for diagnosis, treatment, and prevention of an emerging zoonotic disease, as well as additional measures to help ensure the safety of regulated products against the possible transmission of an infectious agent. Then, I will briefly describe some of FDA's activities in responding to the recent monkeypox outbreak.

FDA'S ROLE IN FACILITATING THE DEVELOPMENT OF EFFECTIVE PRODUCTS TO DIAGNOSE, TREAT, OR PREVENT AN EMERGING INFECTIOUS DISEASE AND IN PROTECTING CONSUMERS FROM POTENTIALLY INFECTIVE REGULATED PRODUCTS

Depending on a particular disease threat from an exotic animal species, FDA's response could be expected to involve, but not necessarily be limited to, several key activities:

Facilitate the development of reliable diagnostic tools

The mission of FDA's Center for Devices and Radiological Health (CDRH) includes working to ensure the safety and reliability of diagnostic tools that will allow the identification of infectious agents that are a threat to public health. An emerging infectious disease may have no or minor symptoms, such as in the case of West Nile Virus, or have more easily clinically identifiable symptoms, such as smallpox or monkeypox. It is critical in being able to manage each disease and the range of diseases to have accurate and sensitive diagnostic tools. FDA routinely works closely and proactively with other government agencies such as Centers for Disease Control (CDC) and National Institutes of Health (NIH), as well as with the private sector, to foster the development of reliable diagnostic tools for emerging infectious diseases.

I am pleased to tell you that on July 9, 2003, FDA cleared the first test or use as an aid in the clinical laboratory diagnosis of West Nile infection. The new test for West Nile virus infection works by detecting the levels of a particular type of antibody, IgM, to the disease in a patient's serum. IgM antibodies can be detected within the first few days of the onset of illness and can assist in diagnosis. FDA was committed to the rapid review of this test, and its approval provides a useful tool just in time for the start of the West Nile season.

Facilitate the development of safe and effective treatments for the infection

FDA works to facilitate the development of safe and effective treatments for patients suffering from emerging infectious diseases. FDA's Center for Drug Evaluation and Research (CDER) and Center for Biologics Evaluation and Research (CBER) both respond to this need by identifying drugs and other therapeutic products that may be effective in combating an infectious agent or modifying the course of the disease. FDA's Centers may work cooperatively with CDC and NIH to design and implement both emergency protocols and protocols for properly controlled clinical trials for using products to treat patients who meet certain medical criteria for inclusion in the clinical trials. This collaboration allows the U.S. to be better prepared to quickly respond to an escalation in the number of disease cases and to help patients and practitioners around the world further their understanding of the best ways to treat an infectious disease.

Facilitate development of safe and effective vaccines

FDA's CBER regulates vaccine products for humans and USDA's Veterinary Services (VS) for animals. Vaccines, as with most products regulated by FDA, undergo a rigorous review of laboratory and clinical data to ensure the safety, efficacy, purity and potency of these products. Vaccines approved for marketing may also be required to undergo additional studies to further evaluate the vaccine and often to address specific questions about the vaccine's safety, effectiveness, or possible side effects.

Vaccines are an important tool in preventing and treating emerging infectious diseases. In some cases, vaccine development may potentially be the most viable strategy to address a specific public health threat. FDA facilitates the development of vaccines by conducting intramural research, as well as working cooperatively with CDC, NIH, and the private sector.

In the case of monkeypox, experience in Africa showed a reduced risk of monkeypox for individuals who had previously been vaccinated against smallpox. CDC recommends and is offering smallpox vaccination under Investigational New Drug (IND) to people who have been exposed to monkeypox or who are likely to become exposed. Persons can be vaccinated up to 14 days after exposure.

Helping safeguard the blood supply.

The FDA is responsible for ensuring the safety of our blood supply. The Center for Biologics Evaluation and Research (CBER) regulates the collection of blood and blood components. The FDA has taken tremendous steps in recent years to greatly enhance the safety of our blood supply. While we continue to face new challenges, the American public can be assured that FDA is vigilant in its efforts to keep blood as safe as possible.

One of the challenges of safeguarding and promoting the blood supply is responding to infectious disease outbreaks. It is a challenge that FDA is well prepared to face. FDA works closely with other parts of PHS to identify and respond to potential threats to blood safety, to develop safety and technical standards, to monitor blood supplies and to help industry promote an adequate supply of blood and blood products.

Over a period of years, FDA has progressively strengthened overlapping safeguards that protect patients from unsuitable blood and blood products. FDA's blood-safety system includes the following five measures, all of which are relevant as we address the threat of emerging infectious diseases from exotic animal species:

- Donor screening: Donors are provided educational materials and asked specific questions by trained personnel about their health and medical history. Potential donors whose blood may pose a health hazard are asked to exclude themselves. Donors also undergo medical screening to ensure that they are in good health at the time of donation.
- Blood testing: After donation, each unit of donated blood undergoes a series of tests for blood-borne agents such as HIV–1, HIV–2, HBV (hepatitis B virus), HCV (hepatitis C virus), HTLV–1 and HTLV–II (Human T–Cell Lymphotropic Viruses), and the agent of syphilis.
- Donor lists: Blood establishments must keep current a list of individuals who have been deferred as blood or plasma donors and check all potential donors against that list to prevent use of units from deferred donors.
- Quarantine: Donated blood must be quarantined until it is thoroughly tested and the donation records have been verified.
- Problems and deficiencies: Blood establishments must investigate any failures of these safeguards, and correct system deficiencies that are found by the firms or through FDA inspection. Firms must report to FDA any manufacturing problems, e.g., biological product deviations that may affect the safety, purity, or potency of products that were distributed.

Providing industry and consumers information regarding emerging infectious diseases and blood safety issues is another critically important function. For example, on June 13, 2003, FDA published a notice providing information regarding the monkeypox virus and blood and plasma donors. Individuals with monkeypox usually have clear clinical symptoms and will be deferred from blood donation. FDA also recommends blood and plasma donor deferrals for people who have recently received the smallpox vaccine, which may include individuals exposed to monkeypox.

Ensure the safety of the food supply, including both animals imported for slaughter and imported food products

FDA has lead responsibility within HHS for ensuring the safety of food products and has the authority to remove a food from the market (or sanction those marketing the food) if the food poses a risk to public health. Exotic animal species may be imported to be slaughtered for food or slaughtered exotic animals or parts of animals may be offered for importation into the U.S.

Globalization of the food supply regulated by FDA presents significant challenges to the Agency. FDA, the U.S. Fish and Wildlife Service (FWS), and USDA's Food Safety and Inspection Service (FSIS) and the Animal and Plant Health Inspection Service (APHIS) work in close cooperation with the Department of Homeland Security's Bureau of Customs and Border Protection (BCBP) on items related to imports. FDA issues Import Alerts and Import Bulletins regarding problems or potential problems with imported products under FDA's jurisdiction. FDA coordinates its Import Alerts and Bulletins closely with BCBP and other appropriate Federal agencies. FDA has also established procedures to enhance interagency coordination and to efficiently use Customs' civil monetary penalties procedures against importers who attempt to enter food into the U.S. by means of a material false statement, act, or omission.

To further enhance safety of imported food products, FDA has led a series of food safety workshops around the world in Central America, South America, the Southern Pacific region, Asia, and Africa. These workshops educate foreign governments and food producers on the food safety standards needed to meet U.S. requirements.

EMERGING INFECTIOUS DISEASES AND BIOTERRORISM

The President's plan to combat bioterrorism is comprised of a number of essential elements in which FDA plays an integral role, many of which are the same essential elements that are involved in responding to an emerging infectious disease outbreak. One such element is the expeditious development and licensing of products to diagnose, treat or prevent outbreaks from exposure to pathogens that have been identified as bioterrorist agents.

These products must be reviewed and approved prior to the large-scale distribution necessary to create and maintain a stockpile. FDA scientists must guide the products through the development and marketing application review processes, which includes review of the manufacturing process, pre-clinical testing, clinical trials, and the licensing and approval process. This process is extremely complex and early involvement of expert FDA scientists is crucial to the success of the expedited development and review process. FDA's involvement in bioterrorism preparedness and the expertise we have gained in rapid response and proactive approaches to product development have been and will in the future be helpful as we respond to emerging infectious diseases.

Conversely, how we respond to emerging infectious diseases can serve as a model for preparedness and response to a bioterrorism event in that we are dealing with a previously unfamiliar infectious agent that has proven rapid worldwide diffusion and secondary transmission.

RESPONDING TO MONKEYPOX OUTBREAK

Monkeypox, a rare, zoonotic, viral disease that occurs primarily in the rain forest countries in central and west Africa, is the most recent emerging infectious disease threat to public health in the United States. Unlike the West Nile Virus, for which we will probably never know the original source of its introduction in the U.S., the epidemiological and animal tracing investigations have determined that all 35 lab-confirmed cases of monkeypox were associated with prairie dogs that appear to have been infected though contact with Gambian giant rats and dormice that originated in Ghana.

As one of my colleagues from CDC is testifying here today on the disease aspects of monkeypox and the epidemiological investigation, I will focus the remainder of my testimony on specific DHHS and FDA actions to control and prevent the spread of the disease.

THE DEPARTMENT OF HEALTH AND HUMAN SERVICE'S COORDINATION

Section 361 of the Public Health Service (PHS) Act (42 USC 264), gives the Secretary of Health and Human Services the authority to make and enforce regulations to prevent the introduction into and the spread of communicable disease within the United States. Under this authority, the Secretary promulgated regulations (42 CFR 70.2 and 21 CFR 1240.30) giving the Director of CDC and the Commissioner of Food and Drugs the authority to take actions they believe are reasonably necessary to present the spread of communicable diseases. HHS determined that the current monkeypox outbreak, which is not confined by State borders and which, as shown by the presence of the monkeypox virus in prairie dogs, may affect multiple animal species, is a problem that requires the use of this Federal authority. It was imperative that the Department act quickly to establish restrictions on the transport, offer to transport, sale, offer to sell, distribution, offer for commercial or public distribution, release, and importation of various rodent species to prevent the monkeypox virus from spreading and becoming established in the United States.

On June 11, 2003, the Director of CDC and the Commissioner of Food and Drugs, pursuant to 42 CFR 70.2 and 21 CFR 1240.30, respectively, issued a joint order prohibiting, until further notice, the transportation or offering for transportation in interstate commerce, or the sale, offering for sale, or offering for any other type of commercial or public distribution, including release into the environment, of: prairie dogs, tree squirrels, rope squirrels, dormice, Gambian giant pouched rats, brush-tailed porcupines, and striped mice.

The June 11, 2003, order did not apply to the transport of listed animals to veterinarians or animal control officials or other entities pursuant to guidance or instructions issued by Federal, State, or local government authorities. In addition, pursuant to 42 CFR 71.32(b), CDC implemented an immediate embargo on the importation of all rodents from Africa (order Rodentia).

FDA has previously invoked Section 361 of the PHS Act to prevent the transmission of communicable disease through shellfish, turtles, certain birds, and human tissue intended for transplantation [see 21 CFR 1240.60 (molluscan shellfish), 1240.62 (turtles), 1240.65 (psittacine birds), and 1270.1 through 1270.43 (human tissue)]. CDC likewise has invoked section 361 of the PHS Act for various purposes.

FDA Actions to Implement the CDC/FDA Joint Order

FDA has taken several steps to quickly implement the Joint Order, closely coordinating activities, as appropriate, with CDC, APHIS, USFWS, CBP, and State and local government counterparts. FDA participated in an Inter-agency conference call

held on June 11, 2003, to discuss roles and responsibilities regarding the CDC/FDA Joint Order. In addition, FDA hosted an inter-agency meeting on June 24 with CDC, APHIS, USFWS, and CBP to discuss legal authorities, resources and programs, and cooperation strategies relating to the control of monkeypox relating to the following areas: imports; intra/inter state movements; inspection of dealers, breeders, pet stores, and zoos; quarantine authority; euthanasia and disposition; surveillance of wild animals; exports; and re-exports.

To implement the ban on the domestic transportation of affected animals, FDA:

- Sent the Joint Order to all State Agriculture and Health Agencies, including State and Public Health Veterinarians and State Fish and Wildlife officials, as well as to the Department of Transportation for distribution to rail, airline, and trucking establishments.
- On June 13, 2003, initiated a series of regular conference calls with all 50 States and other Federal agencies to discuss the outbreak and the status of implementation and enforcement of the Joint Order.
- Obtained from APHIS a list of dealers licensed to sell exotic animals and issued a priority assignment to FDA District Offices to work with State counterparts (Departments of Health and State agricultural veterinarians), APHIS, and USFWS to contact and inspect the exotic animal dealers. When dealers are contacted, they are provided with the CDC/FDA Joint Order, the related Federal Register Notice, guidance documents for safe handling of the animals, as well as copies of 21 CFR 1240.30. Dealers with sick animals are identified and referred to the State authorities and CDC to determine what further actions need to be taken.
- Issued on June 27, 2003, (revised July 11) a "Dear Government Authority Letter" (to other Federal, State, and local government authorities) that describes the restrictions on wild-to-wild translocation/transportation of prairie dogs. All interstate translocation/transportation requests, as well as requests for movement within implicated States, are to be referred to FDA for consideration by FDA and CDC.

CONCLUSION

Our recent experiences with emerging infectious diseases, such as Severe Acute Respiratory Syndrome (SARs), West Nile virus, and monkeypox virus, have reinforced the need for strong public health systems, robust health service infrastructures, and expertise that can be mobilized quickly across national boundaries to mirror disease movements. These experiences have highlighted the need for on-going coordination and communications among international public health organizations, counterpart public health organizations in other countries, U.S. Federal, State and local governments, the public health and medical infrastructures throughout the U.S., and with private industry.

The growing experience and expertise of government agencies at all levels in responding to emerging infectious diseases has been particularly clear in the case of monkeypox. Many program officials in Federal, State, and local government agencies worked exhaustively to bring authorities to bear to fight the outbreak and prevent further spread of the monkeypox virus. The level of communication and coordination has been extremely demanding. People at all levels of government have acted decisively, quickly, and in coordination. The forcefulness, persuasiveness, and competence of government actions helped to ensure a high degree of cooperation from the public.

In closing, let me assure you that FDA, and I am sure every Federal, State, and local agency, realizes the need to be vigilant and to continue to evolve and improve our public health infrastructure and other capabilities to be able to respond to the possible nature of future infectious disease threats to public health. FDA looks forward to continuing to work cooperatively with your committee and others in Congress in preparing for the public health challenges that lie ahead.

At this time I would be happy to answer any questions.

STATEMENT OF MARSHALL JONES, DEPUTY DIRECTOR, UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. Chairman, thank you for this opportunity to testify regarding the linkage between wildlife trade and the risks to human health and domestic wildlife and the laws and regulations that now govern the importation of exotic wildlife. I am Marshall Jones, Deputy Director of the U.S. Fish and Wildlife Service (Service). The Service is the principal Federal agency responsible for enforcing U.S. wildlife protection laws and treaties, including those that regulate international wildlife trade.

The importation of exotic species was for many years viewed by the Service in the context of possible threats to U.S. wildlife resources through such species being be-

coming invasive, as with zebra mussels or snakehead fish, or by introducing new diseases among wildlife populations. Recent events demonstrate clearly they can also represent a threat to human health. The Service has broad authority to inspect all wildlife imports. Through this, and other authority, we will actively assist those Federal agencies that have the expertise and authority to identify and address human health risks associated with wildlife trade. We are committed to using our authority to help protect the American people from exotic diseases transmitted through wildlife imports.

U.S. WILDLIFE TRADE

U.S. wildlife trade has grown over the past decade, heightening concerns about species conservation, the introduction of injurious animals and plants, and potential risks to human health and domestic wildlife. In particular, the demand for live wildlife has escalated, driven in part by the increasing popularity of exotic pets in the United States.

The ease of travel, transport, and transaction (including e-commerce) has removed barriers to wildlife trade. Wildlife importers have access to ample financing, the latest computer and communications technology, and overnight air cargo shipping services from virtually anyplace in the world. The economic boom of the 1990s spurred international travel, giving Americans new opportunities to visit exotic locales and acquire exotic wildlife.

From 1992 through 2002, the number of species regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) the international treaty which regulates trade in species that are endangered or threatened, or that are otherwise vulnerable to the effects of trade increased 75 percent, and the number of CITES member nations rose from 115 to 162. U.S. trade in wildlife and wildlife products grew 62 percent, with declared shipments jumping from 74,620 to more than 121,000. The number of different species in trade increased 75 percent, jumping from some 200,000 in 1992 to more than 352,000 a decade later. Overall, in 2002, over 38,000 live mammals, 365,000 live birds, two million live reptiles, 49 million live amphibians, and 216 million live fish were imported into the United States.

AUTHORITIES TO ADDRESS THE INTERNATIONAL WILDLIFE TRADE

The Service enforces nine wildlife conservation statutes that include provisions governing international trade: the African Elephant Conservation Act, the Antarctic Conservation Act, the Bald and Golden Eagle Protection Act, the Endangered Species Act, the Lacey Act, the Marine Mammal Protection Act, the Migratory Bird Treaty Act, the Rhinoceros and Tiger Conservation Act, and the Wild Bird Conservation Act. The Service also implements the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The Lacey Act and the Endangered Species Act give the Service broad authority to detain and inspect any international shipment, mail parcel, vehicle, or passenger baggage and all accompanying documents, whether or not wildlife has been formally declared. These two statutes define import to include landing on, or introduction to, any place subject to U.S. jurisdiction whether or not such activity is considered an import under customs laws. This definition allows the Service to address illegal wildlife moving through duty-free areas, free trade zones, or in-transit through the United States.

In addition, the Endangered Species Act and Service regulations require wildlife to be imported and exported through specific ports to facilitate both enforcement of wildlife laws and clearance of legitimate shipments. Commercial importers and exporters of wildlife must be licensed by the Service and must pay applicable user fees. In addition, they must file declarations with the Service detailing the contents of their shipments in order to receive Service clearance before the Bureau of Customs and Border Protection (BCBP) inspectors can release a shipment for import or they can load it for export. Declaration and clearance requirements also apply to non-commercial and personal wildlife imports and exports.

The Service also addresses wildlife trade under the Lacey Act. This statute makes it unlawful to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife already taken, possessed, transported, or sold in violation of State, Federal, Indian tribal, or foreign wildlife laws or regulations. The Lacey Act also requires that contents of wildlife shipments moving in interstate or foreign commerce be accurately marked and labeled on the shipping containers. Under this statute, it is also unlawful to make a false record or identification of any wildlife transported in interstate or foreign commerce.

The injurious wildlife provisions of the Lacey Act under Title 18 restrict the importation and interstate transportation of wildlife deemed "injurious" or potentially injurious to human beings, to the interests of agriculture, horticulture, and forestry, or to wildlife or wildlife resources of the United States. The statute only applies to wild mammals, birds, fish, amphibians, reptiles, mollusks, and crustaceans. The Service cannot regulate insects, spiders, plants, or other organisms under the injurious wildlife provisions of the Lacey Act.

There are currently 12 genera of mammals, four species of birds, three families of fishes, one species of crustacean, one species of mollusk, and one reptile species listed as injurious under the Lacey Act. The Service has received petitions for listing the black carp, bighead carp, silver carp, and the remaining 27 species of snakes in the genus Boiga related to the brown tree snake as injurious wildlife. The Service is actively engaged in the administrative steps required to process each of these petitions.

Several general criminal laws also help the Service address international wildlife trade. Section 545 of Title 18 prohibits smuggling which includes knowingly importing any merchandise contrary to law. It also addresses subsequent transactions involving smuggled goods. Section 1001 of Title 18, which outlaws false statements, is useful when importers or exporters deliberately file false declarations or other required information.

The African Elephant Conservation Act, the Antarctic Conservation Act, the Bald and Golden Eagle Protection Act, the Endangered Species Act, the Marine Mammal Protection Act, the Migratory Bird Treaty Act, the Rhinoceros and Tiger Conservation Act, and the Wild Bird Conservation Act all have conservation-related prohibitions on the import and/or export of certain wildlife species.

CITES requires party countries to use a system of permits to regulate trade of listed animal and plant species. The Endangered Species Act, which implements the treaty in the United States, prohibits any trade contrary to CITES or the possession of any specimens traded contrary to CITES. While CITES regulates over 3,000 animal species, the vast majority of wildlife in trade is not listed on its appendices.

CITES requires that live specimens be transported to minimize risk of injury or damage to the health of the animal. Shipments that travel by air must comply with the International Air Transport Association (IATA) guidelines for humane transport.

IATA guidelines require the shipper to certify that animals are in good health and condition. In addition, for reptiles and amphibians, the shipper must certify that the animals are free of external parasites and any readily recognizable diseases. Shippers must also provide health declarations and permits required under any national authority. Service humane transport regulations for importing mammals and birds (including CITES species) reflect the IATA guidelines and require veterinary health certificates stating that the mammal or bird is healthy and appears to be free of any communicable disease.

POLICING U.S. WILDLIFE TRADE

The Service's wildlife inspection program provides the Nation's front-line defense against illegal wildlife trafficking while facilitating legitimate trade. At present, 92 wildlife inspectors are stationed at 32 major U.S. airports, ocean ports, and border crossings, where they monitor imports and exports to ensure compliance with our laws and regulations. In addition, the President's fiscal year 2004 budget request seeks funding for 9 additional inspectors to meet immediate needs for additional staffing along the Nation's northern and southern borders.

Wildlife inspectors focus on detecting and deterring illegal trade in protected species and preventing the introduction of injurious wildlife. The training and expertise required for this specialized field of import/export control include an in-depth grasp of both U.S. and foreign wildlife statutes; wide-ranging species identification skills for recognizing live specimens, parts, and products; knowledge of humane transport requirements; and use of protective clothing and equipment.

Service wildlife inspectors are an integral part of the Federal inspection team responsible for policing the people, goods, and vehicles entering the United States. They work closely with BCBP inspectors in the newly formed Department of Homeland Security, as well as with the Department of Agriculture's Veterinary Services (APHIS–VS), the Food and Drug Administration (FDA), and the Centers for Disease Control and Prevention (CDC).

Wildlife inspectors, however, are the only Federal officers at ports of entry who focus exclusively on wildlife trade. The information they collect through the wildlife declaration process is valuable to Federal agencies, U.S. and international conservation organizations, wildlife trade industries, educational institutions, researchers, and other groups. In recent years, for example, the Service has used these records

extensively to help CDC identify possible health risks associated with exotic wildlife trade.

DISEASES ASSOCIATED WITH WILDLIFE IN INTERNATIONAL TRADE

The Service recognizes that disease, contamination, or injury are possible risks to wildlife inspectors. Inspectors are trained to follow safety guidelines and use protective equipment when they handle shipments of concern, which include raw hunting trophies treated with pesticides, live non-human primates, live venomous snakes and insects, bushmeat, and carcasses or other raw wildlife parts. Inspectors are not, however, trained in the detection of disease.

Live wildlife presents the highest risk for introduction of diseases that may be transmitted to humans or animals. Live mammals have been associated with rabies, brucellosis, herpes–B, hantavirus, ebola, plague, tularemia and several other diseases that are transmissible to humans. According to CDC, 70,000 people get salmonellosis from live reptiles each year, and live birds have been responsible for transmitting avian chlamydiosis.

The import of exotic wildlife parts, including meat, also poses the risk of introducing diseases. Contact with non-human primates in Central Africa is believed to be the source of HIV/AIDS in humans, and it has been suggested that the recent outbreak of Severe Acute Respiratory Syndrome (SARS) is linked to an Asian palm civet.

SERVICE ENFORCEMENT COORDINATION WITH AGENCIES RESPONSIBLE FOR HEALTH ISSUES

Service wildlife inspectors routinely inspect and take enforcement action on wildlife shipments that are known to pose a disease risk. Inspectors regularly coordinate with CDC on physical inspections of non-human primates, under-sized turtles and tortoises, and bats all of which are subject to CDC import restrictions based on human health concerns.

Inspectors also coordinate with USDA–VS on wildlife importations that are prohibited due to livestock health issues, such as hedgehogs that can transmit hoof and mouth disease and tortoises carrying ticks infected with heartwater disease and to quarantine exotic birds seized at our borders.

SERVICE EFFORTS RELATED TO MONKEYPOX

Before the Department of Health and Human Services (HHS) issued its joint order addressing African rodents, CDC consulted the Service about possible enforcement assistance with trade embargos and other prohibitions that might be needed to prevent the introduction and additional spread of monkeypox. The Service also analyzed trade records collected through the declaration process to provide CDC, FDA, State wildlife and agriculture officials, and local health officials with information on potential businesses associated with, and the extent of, the live African rodent trade.

When HHS announced its African rodent trade embargo, the Service alerted wildlife inspectors to begin immediate enforcement of the new import/export bans and issued a public bulletin explaining our enforcement actions. We published this bulletin on the web, posted it at staffed wildlife ports of entry, shared it with our Federal inspection partners including CPB, CDC, and FDA, and provided it to our licensed commercial dealers and to the National Customs Brokers Association, which circulated it to their members. Wildlife inspectors have also reached out to the trade community, airlines, and Federal inspection counterparts at the local level to ensure awareness of, and compliance with, the trade embargo.

The Service is actively involved in an interagency working group at the national level and is coordinating with CDC on importations. Our wildlife inspectors have worked closely with other Federal inspection agencies to identify and address shipments from Africa that may contain rodents.

At New York's John F. Kennedy International Airport, for example, Service inspectors conducting routine physical inspections of caviar in a refrigerated warehouse spotted shipments from Ghana manifested as fish for human consumption that actually contained rodent bushmeat from Africa. In addition, Service inspectors, who are equipped with protective masks and suits and are intensively trained in their use, provided such protective gear to other Federal inspection agencies involved in monkeypox enforcement efforts at the airport.

After receiving information from CDC about the possible shift in bushmeat shipments from New York to Baltimore due to enhanced enforcement at JFK, Service inspectors and agents in Maryland began to target African flights for inspection. At the port of Chicago, wildlife inspectors invited local CDC and FDA inspectors to

view physical inspections of hunting trophies and bushmeat from Africa that had the potential to contain rodents. Several shipments are now being held there for final disposition by CDC. Other wildlife ports have encountered both bushmeat and hunting trophies that contain prohibited rodents and are coordinating with CDC on their disposition.

We have also reviewed our authority to address wildlife-linked threats to human health under the injurious species provisions of the Lacey Act. Because the Lacey Act requires the Service to first make an injurious finding before listing a species a finding which includes the opportunity for public comment and is somewhat limited in scope, it is not as well suited as other vehicles to rapidly respond to such threats. For example, the HHS joint order imposing a trade and interstate transport embargo on African rodents was far more encompassing and enacted more rapidly than any action that the Service could take under the injurious wildlife provisions of the Lacey Act.

CONCLUSION

In closing, I want to assure the committee that the Service is prepared to continue assisting those Federal agencies that have the expertise and authority to identify and address human health risks and risks to domestic wildlife associated with wildlife trade. We are committed to providing whatever help we can by collecting and analyzing trade data and by using our inspectors and special agents at ports of entry for enforcement of any wildlife trade restrictions that are introduced to protect the American people from wildlife-transmitted disease.

We share the committee's concerns about the possible introduction of such diseases and appreciate this opportunity to review our authorities and role in regulating the import and export of exotic wildlife. This concludes my testimony and I would be happy to answer the committee's questions.

RESPONSES OF MARSHALL P. JONES, JR. TO ADDITIONAL QUESTIONS FROM SENATOR CRAPO

Question 1. What is the risk that State wildlife management agencies may be forced to manage rainbow trout as an aquatic nuisance species?

Response. The proposed legislation would not interfere with the State's primary authority to manage resident species; therefore, this bill will not force State wildlife agencies to manage rainbow trout as an aquatic nuisance species. S. 525 reauthorizes the incentive-based program under the Nonindigenous Aquatic Nuisance Pre-

vention and Control Act of 1990 that offers federal cost-share dollars for States to implement ANS Task Force-approved State Aquatic Nuisance Species Management Plans. These management plans are developed under the leadership of the State and reflect the State's priorities. The federal government's role in the development of State management plans is to provide technical assistance.

Some States have recognized that the introduction of non-native rainbow trout can potentially impact the surrounding ecosystem. For example, Montana's State ANS Management Plan identifies rainbow trout as a species that is introduced from outside of its natural range and has the potential to spread and impact native species. The State actively manages rainbow trout to prevent dispersal and avoid intentional introduction of the species to water bodies where it is not yet established. Several other States, including Arizona, take management action to ensure that non-native rainbow trout are not stocked in areas where activities to recover threatened or endangered trout species (i.e., Gila trout) are taking place.

Question 2. Define "native species" that might be potential candidates for listing under the Endangered Species Act, and "nuisance" and "invasive" species that might be addressed under this proposed legislation. What is the chance that one species might end up being managed under both laws?

Response. The typical differences between imperiled species and invasive species as well as the flexibility that exists in the Endangered Species Act make it unlikely that a species would be managed under both laws.

As defined under 5. 525, "invasive species" are non-native to the ecosystem under consideration; however, listed species under the Endangered Species Act are defined as those species "throughout all or a significant portion of its range" that are in danger of extinction or likely to become extinct in the future. Invasive species are successful competitors for resources, adaptable to a variety of habitats, and generally expanding rapidly in population.

RESPONSES OF MARSHALL P. JONES, JR. TO ADDITIONAL QUESTIONS FROM SENATOR VOINOVICH

Question 1. Although prevention should be our number one goal, response - a very rapid response - is extremely important. How do you envision a successful rapid response to a new aquatic invasive species? Do you think that the rapid response provisions in S.525 are adequate?

Response. A successful rapid response action will be one that has been well thought out and well planned in the future - before the infestation occurs. Much of our experience has shown us that we have a very limited window of opportunity to eradicate a newly established invasive species successfully. We must develop a rapid response plan in advance and be prepared to implement the plan immediately after an invasive species is detected. The rapid response planning process must also include criteria to evaluate the infestation and make the critical decision about whether to undertake the effort, and it must identify the goals we expect to meet with regard to eradication. The rapid response provisions in S.525 clearly emphasize the planning process and have mandates to require States to develop rapid response contingency plans as part of their State ANS Management Plans. We believe these provisions will move us forward in being better prepared to respond rapidly to new invasions. We also believe that more emphasis is needed on the development of control methods to ensure that we have adequate tools to implement control actions when deemed necessary.

Recognizing the importance of advance planning, the Aquatic Nuisance Species Task Force has already requested each of its Regional Panels to prepare rapid response plans. The rapid response plan for the Western Regional Panel has been completed. The other panels are in various phases of development of their plans, with the exception of the Mid-Atlantic Regional panel, which was just approved by the Task Force in November and is in the early stages of formation.

RESPONSES OF MARSHALL P. JONES, JR. TO ADDITIONAL QUESTIONS FROM SENATOR ALLARD

Question 1. The National Oceanic and Atmospheric Administration has expressed some concern about S. 525. Their first general concern is that the bill requires 31 separate actions each with deadlines that must be completed by members of the Aquatic Nuisance Species Task Force within 18 months of passage. NOAA has stated that it will be difficult to simultaneously give all of these actions the level of attention they deserve in the time allowed. In some instances, the Task Force has already initiated action and the deadlines are reasonable. In other cases, it will be necessary to develop capacity to implement the activities. NOAA has recommended that the Committee assess the priority level of each of these actions and allow for

additional time for lower level priority activities. How are these concerns to be addressed?

Response. The Service agrees with the comments submitted by NOAA regarding the prioritization of the mandates outlined in S. 525. We share NOAA's concern that the sheer magnitude of actions required in a short period of time will not allow these actions to be adequately addressed. As stated in our testimony, we believe that prevention is the most important component to address. It is also an area that S. 525 provides significant direction. In addition, control, early detection and rapid response planning are critical areas that are needed to address those species that do invade and become established. We also agree with NOAA in that some of the deadlines should be extended to allow for adequate time to complete higher priority level actions. One possible way to address this concern and assist in the prioritization of these required actions would be for the Committee to compare the list of priorities drafted by the National Invasive Species Council with the list of actions in S. 525.

Question 2. Some people are concerned about an apparent multiplicity of reporting requirements. These people allege that each report will require a significant commitment of resources that could actually inhibit implementation activities. NOAA recommends that there be a single reporting requirement and the Committee identify the elements to be included in the report. How are these concerns to be addressed?

Response. The Service is also concerned about the multiplicity of reporting requirements and agrees with the statement that each report will require a significant amount of resources to complete. As we stated in our testimony, we hope to have the opportunity to work with you and your staff to try to consolidate some of these reporting requirements to ensure that we can implement the activities outlined in the Act aggressively, but also that the timeframes established are meaningful and manageable.

Question 3. This legislation requires that each State have a rapid response contingency plan. If the federal government requires such a plan, how do we ensure that all ships that discharge ballast waters are aware of each State's plan?

Response. The Service agrees that each State should have a rapid response contingency plan as required in Section 1211. However, the Service does not believe that each vessel should be required to have knowledge of every State's plan. Rather each vessel's ballast water management plan should include a requirement to report unplanned ballast water discharges to the State of jurisdiction. In addition, the discharging vessel should be required to assist the State in implementing its rapid response contingency plan if the State requests its assistance. The Service has submitted technical comments to Committee staff, suggesting that 1 101(a)(1)(C)(ix) be deleted from the ballast water provisions. Procedures guiding vessels actions in the event of an unplanned ballast water discharge should be part of the overall ballast water management plan, but they should not necessarily be linked to the rapid response contingency plan that will now be required to be a component of each State ANS Management Plan (Section 1211).

STATEMENT OF DR. STEPHEN M. OSTROFF, DEPUTY DIRECTOR, NATIONAL CENTER FOR INFECTIOUS DISEASES, CENTERS FOR DISEASE CONTROL, DEPARTMENT OF HEALTH AND HUMAN SERVICES

Good morning, Mister Chairman and other Members of the committee. I am Dr. Stephen Ostroff, Deputy Director of the National Center for Infectious Diseases, Centers for Disease Control and Prevention. I would like to thank you for the invitation to participate in this hearing on the important public health issues raised by exotic animal importation and distribution in the United States. Today I will discuss the role of zoonotic diseases in public health and CDC's involvement in the investigation and control of the recent outbreak of monkeypox infections in the Midwest which prompted this hearing.

As highlighted in a report released by the Institute of Medicine earlier this year entitled Microbial Threats to Health: Emergence, Detection, and Response (copy provided), at the beginning of the 21st century, we live in an era of emerging infectious diseases. Over the last several decades, dozens of newly recognized infectious diseases have been identified, many of which pose significant threats to public health and safety. In only the last year, we have seen three major emerging infectious disease threats. Last summer's West Nile virus outbreak was unprecedented in scale and scope, with more than 4,000 human illnesses in 44 States and Washington D.C. Earlier this year, severe acute respiratory syndrome, or SARS, rapidly spread throughout the world from an initial focus in southern China with extraordinary

public health, economic, and political consequences. And now for the first time, we have seen the emergence of monkeypox infections outside of the natural range of the virus in rural areas of west and central Africa.

More than half of these newly recognized emerging infectious diseases have their origins in animals, either via direct transfer from animals to humans (known as zoonotic diseases) or through an intermediate vector (known as vectorborne diseases). Examples of the former include hantavirus pulmonary syndrome from domestic rodents, human immunodeficiency virus from non-human primates, salmonellosis from reptiles, variant Creutzfeldt Jacob disease (or human BSE) from cattle, and probably the SARS coronavirus. Examples of the latter are Lyme disease (from deer via ticks) and West Nile virus (from birds via mosquitoes). The emergence of a number of these diseases has been facilitated by the ever increasing global movement of people, products, and animals. West Nile virus was unknown in North America before 1999, and although we do not know how it was introduced into New York City, the leading hypothesis remains via an infected bird, either imported or migratory. These phenomena highlight the fact that U.S. health and global health are inextricably linked and that fulfilling CDC's domestic mission to protect the health of the U.S. population- requires global awareness and collaboration with domestic and international partners to prevent the emergence and spread of infectious diseases.

THE OUTBREAK

In early June, CDC received reports from several Midwestern States of persons with fever and rash illness who had recently had close contact with prairie dogs. The Marshfield Clinic in Wisconsin identified a virus that was consistent with a poxvirus in tissue samples from a patient and an ill prairie dog. Additional testing at CDC indicated that the causative agent was monkeypox, a virus first identified in the 1950s that belongs to the family of orthopox viruses which also includes smallpox. Monkeypox and smallpox share many clinical features, but monkeypox has a known animal reservoir in rodents, is less transmissible in humans, and is less virulent than smallpox.

In response, CDC initiated extensive investigations (many of which continue today) to determine the scope and scale or the outbreak in humans and animals, and initiated prevention and control measures to limit the impact of the disease on the public's health and welfare.

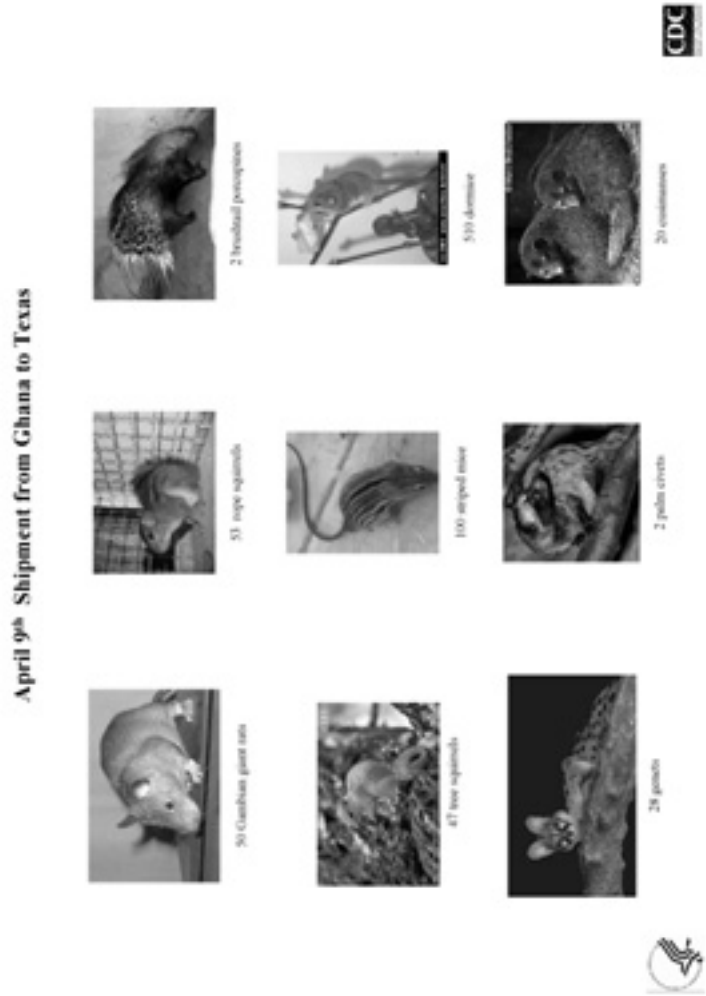
As of July 15th, a total of 72 human cases of monkeypox have been reported to CDC from Wisconsin, Illinois, Indiana, Missouri, Kansas, and Ohio. In 37 of these cases the diagnosis of monkeypox has been laboratory confirmed, while the remainder are considered suspected or probable cases. Eighteen of these persons were hospitalized, and two children were severely ill but are now recovering. Fortunately, there have been no fatalities associated with this outbreak.

THE TRACEBACK

In partnership with our other Federal, State, and local partners, traceback investigations were conducted to identify how monkeypox virus was introduced into the United States. Results of this traceback effort are summarized in graphic A and in CDC's Morbidity and Mortality Weekly Report (MMWR) of July 11th, 2003.

The prairie dog associated with the index patient in Wisconsin was obtained from a Milwaukee-area distributor (distributor A) that had obtained the animals from a vender in suburban Chicago (distributor B). At distributor B, the prairie dogs had been housed with Gambian giant rats, a rodent species found in areas of Africa known to be endemic for monkeypox virus. So far, all confirmed cases of human monkeypox are associated with prairie dogs that are known or suspected to have come from distributor B.

Further investigation revealed the Gambian giant rats had been legally imported from Ghana into Texas in early April, sold to an Iowa distributor, who then sold them to the Chicago distributor. These animals were part of a larger shipment of approximately 800 animals of nine different species, including six genera of African rodents which could serve as potential hosts for monkeypox (graphic B). These animals were then widely distributed within the United States and some were even re-exported to Japan. Subsequent testing of some of these animals at CDC has identified monkeypox virus in a Gambian giant rat in addition to dormice and rope squirrels.



PREVENTION AND CONTROL MEASURES

In addition to issuing guidance on infection control, therapeutics, and use of smallpox vaccine for pre- or post-exposure prophylaxis, on June 11, 2003, the Director of CDC and the Commissioner of Food and Drugs, pursuant to 42 CFR 70.2 and 21 CFR 1240.30, respectively, issued a joint order prohibiting, until further notice, the transportation or offering for transportation in interstate commerce, or the sale, offering for sale, or offering for any other type of commercial or public distribution, including release into the environment, of prairie dogs, tree squirrels, rope squirrels, dormice, Gambian giant pouched rats, brush-tailed porcupines, and striped mice.

The June 11, 2003, order did not apply to the transport of listed animals to veterinarians or animal control officials or other entities pursuant to guidance or instructions issued by Federal, State, or local government authorities. In addition, pursuant to 42 CFR 71.32(b), CDC implemented an immediate embargo on the importation of all rodents from Africa (order Rodentia). These actions have been enhanced

by recommendations regarding euthanasia of prairie dogs linked to the Illinois distributor and the rodents from the original shipment, and quarantine of other mammals in contact with the implicated animals.

ANIMAL IMPORTATION AND HUMAN HEALTH

Introduction of exotic species, such as rodents from Africa, can pose a significant threat to human public health, to domesticated animals and agriculture, and to indigenous wildlife through the introduction of non-native pathogens. As noted in last week's MMWR and in a recent editorial in Lancet Infectious Diseases (copy provided), importation of exotic animals and the movement in commerce of indigenous, wild animals harvested for the commercial pet trade have been associated with previous outbreaks of infectious diseases in humans. Examples include salmonellosis associated with reptiles and tularemia associated with prairie dogs.

West Nile virus may be another such example. Prairie dogs are also known to harbor the bacterium responsible for plague. In the monkeypox outbreak, the rapid and widespread distribution of infected and potentially infected wild animals to distributors and potential buyers in numerous settings enabled the spread of this virus through multiple States before the problem was even recognized and effective interventions could be implemented. Fortunately, the June 11th joint order appears to have been highly effective in reducing further transmission, as few human illnesses have been recognized due to exposures that occurred since that time.

The development of long-term strategies is needed to coordinate and control the importation, exportation, re-exportation, interstate trade, and intrastate sale and distribution of exotic and native wild animals. However, there are a number of complex issues and questions which must be addressed regarding the sale and trade of exotic and native wild animals. Such a position was recently adopted by the Council of State and Terroritorial Epidemiologists and the National Association of State Public Health Veterinarians (position statement provided). Accredited zoological parks and bona fide research facilities mandate specialized training for handlers and enforce strict protocols concerning prevention of zoonotic diseases and injury hazards with captive animals. In contrast, well intentioned pet dealers, breeders, and private owners often lack the expertise and resources to maintain exotic and native wildlife safely.

In conclusion, the recent experience with monkeypox highlights the continued threat of emerging infectious diseases and the importance of global disease surveillance, to have prompt disease reporting, and to strengthen the linkages and interactions between human and veterinary clinical and public health practitioners.

While we have made progress in building domestic and global capacity to address intentional and naturally- occurring threats to human public health, our job is far from complete and much more remains to be done. CDC looks forward to working with Congress, and our Federal, State, local, public, and private partners, to address the infectious disease threats of the present and the future.

Thank you for allowing us to participate in today's hearing. I would be happy to answer any questions that you may have.

March
2003

INSTITUTE OF MEDICINE

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MICROBIAL THREATS TO HEALTH:
EMERGENCE, DETECTION, AND RESPONSE

Infectious diseases continue to be a serious burden around the world, in developing and industrialized countries alike. Whether naturally occurring or intentionally inflicted, infections can cause illness, disability, and death in individuals while disrupting whole populations, economies, and governments. And because national borders offer trivial impediment to such threats, especially in the highly interconnected and readily traversed "global village" of our time, one nation's problem soon becomes every nation's problem. The United States has shown leadership in the past by strengthening its own and others' capacities to deal with infectious diseases, but the present reality nevertheless is that public health and medical communities are inadequately prepared. We must do more to improve our ability to prevent, detect, and control emerging— as well as resurging—microbial threats to health.

In 1992, the Institute of Medicine (TOM) published a landmark report, *Emerging Infections: Microbial Threats to Health in the United States,* offering the consensus of a wide-ranging group of specialists that America needed a wakeup call. The report maintained that infectious diseases were a tangible threat to our security and that we might soon regret the comfort and complacency that had overtaken us with the advent of wonder drugs and vaccines. That study was a stimulus for numerous other studies and policy actions, many of them in response to the harsh realities of the spread of HIV/ATDS, the emergence of new~ or previously unrecognized diseases, the resurgence of old diseases, and the looming failure of scientific research and technological innovation in antimicrobial drugs to keep up with the constant evolution of microbial resistance.

The present report is the successor to the 1992 IOM document, and it observes that a decade later the impact of infectious diseases on the United States has only increased. Illnesses unknown in this country only a few years ago, such as West Nile encephalitis and hantavirus pulmonary syndrome, have emerged to kill hundreds of Americans—and the long-term consequences for survivors of these illnesses are as yet unknown. Meanwhile, *known* diseases that were thought to be virtually eradicated in the United States, such as measles, pertussis, and malaria, still

reappear, occasionally in epidemic proportions. Moreover, gains made against sexually transmitted diseases have recently slowed or reversed in certain population groups.

Compounding the danger posed by these infectious diseases are other important trends: the continuing increase in antimicrobial resistance, which has become pervasive not only in the United States but worldwide; the country's diminished capacity to recognize and respond to microbial threats—particularly those originating elsewhere; and the intentional use of biological agents to do harm.

Thus conclude the report's authors, the Committee on Emerging Microbial Threats to Health in the 215t Century, who were charged by IOM in 2001 to: review the current state of knowledge on the emergence of infectious diseases; assess the capacity of the United States to detect and respond to microbial threats to health; and identify potential challenges and opportunities for public health actions, both global and domestic, to strengthen capabilities in prevention, detection, and response.

In other words, the committee's assignment was to set forth the principal factors involved in the threats' emergence, take stock of existing measures for dealing with them, and specify what further investments of fiscal and political capital are needed. The committee's subsequent conclusions and recommendations are summarized below.

FACTORS IN EMERGENCE

Thirteen individual factors—some reflecting the ways of nature, most of them reflecting our ways of life—account for new or enhanced microbial threats. Any of these factors alone can trigger problems, but their convergence creates especially high-risk environments where infectious diseases may readily emerge, or re-emerge, afflicting individuals and societies alike while posing particular challenges for the medical and public health communities that must face these situations at the front lines. It's conceivable, in fact, that in certain places microbial "perfect storms" could occur—convergences of several factors—and unlike meteorological perfect storms, the events would not be on the order of once-in-a-century, but frequent.

The individual factors in emergence examined in this report are these:

Microbial Adaptation and Change. The tremendous evolutionary potential of microbes makes them adept at developing resistance to even the most potent drug therapies and complicates attempts at creating effective vaccines.

Human Vulnerability. Susceptibility to infection can result when normal defense mechanisms are impaired by causes such as genetically inherited traits and malnutrition. Susceptibility can also result from antimicrobial resistance induced by the promiscuous use of antibiotics.

Climate and Weather. Climate can directly affect disease transmission through its impacts on the replication, movement, and evolution of microbes and vectors; climate can also operate indirectly through its effects on ecology and human behavior.

Changing Ecosystems. Altered environments have immense influence on the transmission of microbial agents, whether waterborne, airborne, foodborne, or vector-borne.

Economic Development and Land Use. Commercial activities can have intended or unintended impacts on the environment. For example, new or previously unknown infectious diseases have emerged from the increased human contact with animal reservoirs that resulted from changing land-use patterns.

Human Demographics And Behavior Infectious diseases can result from individuals' activities that involve exposure to microbial pathogens or simply from the increased probability of infectious disease as populations grow and people come into closer contact.

Technology and Industry. Advances in medical technologies, such as blood transfusions and organ transplants, have created new pathways for the spread of certain infections. Meanwhile, the use of antibiotics in food-product animals has heightened antimicrobial resistance.

International Travel and Commerce. The rapid and virtually unrestricted transport of humans, animals, foods, and other goods can lead to the broad dissemination of pathogens and their vectors throughout the world.

Breakdown of Public Health Measures. In many places, the lack of basics such as potable water or sanitation contributes to infectious diseases. But similar effects can also occur elsewhere from inadequate vaccine supplies, low immunization rates, or a paucity of expertise—say, in vector control.

Poverty and Social Inequality. Mortality from infectious diseases is closely correlated with global inequities in income. Economic trends affect not only the individuals at risk but also the structure and availability of public health institutions necessary to reduce risks.

War and Famine. Displacement caused by war and the fairly consistent sequelae of malnutrition from famine can contribute significantly to the emergence and spread of infectious diseases.

Lack of Political Will It is not only the governments in the regions of highest disease prevalence that must commit themselves, but also the leaders of affluent regions that ultimately share the same global microbial landscape.

Intent To Harm. The world today is vulnerable to the threat of deliberate biological attacks that can cause large numbers of deaths and widespread social disruption. The likelihood of such events, in fact, is high, and public health systems and health care providers must be prepared to address them.

DETECTION AND RESPONSE: ADDRESSING THE THREATS

Who should do what, and why, to reduce the rising infectious disease rates prompted by the above emergence factors both singly and in combination? The committee responded with an array of conclusions and recommendations for specific actions, actors, and coordinators to fortify

or replace current policies and infrastructural elements that the committee deemed inadequate.

Among the committee ~s' most prominent recommendations are the following two, based on the inevitability that an effective national response to infectious diseases, given their highly transportable nature, must be a global response:

> The United States should seek to enhance the global capacity for response to infectious disease threats, focusing in particular on threats in the developing world. Efforts should be coordinated by key international agencies such as the World Health Organization (WHO); based in appropriate U.S. federal agencies (the Centers for Disease Control and Prevention [CDC], the Department of Defense [DOD], the National Institutes of Health [NIH], the Agency for International Development [USAID], and the Department of Agriculture [USDA], for example); and include collaboration with private-sector organizations and foundations. Investments should take the form of financial and technical assistance, operational research, enhanced surveillance, and efforts to share both knowledge and best public health practices across national boundaries.
>
> The United States should take a leadership role in promoting the implementation of a comprehensive system of surveillance for global infectious diseases that builds on the current global capacity of infectious disease monitoring. To this end, CDC should enhance its regional infectious disease surveillance; DOD should expand and increase in number its Global Emerging Infections Surveillance overseas program sites; and NIH should increase its global surveillance research. In addition, CDC, DOD, and NIH should intensify their efforts to develop and arrange for distribution of laboratory diagnostic reagents needed for global surveillance, transferring technology to other nations where feasible to ensure self-sufficiency and sustainable surveillance capacity. Overseas activities should be coordinated by a single federal agency such as CDC. Sustainable progress and ultimate success in these efforts will require health agencies to broaden partnerships to include nonhealth agencies and institutions such as the World Bank.

Another of the committee's main recommendations stresses the need to bolster the U.S. public health infrastructure, which has suffered from years of neglect:

> U.S. federal, state, and local governments should direct the appropriate resources to rebuild and sustain the public health capacity necessary to respond to microbial threats to health, both naturally occurring and intentional. Expanded prevention and control measures must be executed by an adequately trained and competent workforce. Examples of such measures include surveillance; laboratory capacity; epidemiological, statistical, and communication skills; and systems to ensure the rapid utility and sharing of information.

The committee directly aims a recommendation—involving the critical need for vaccine development, production, and deployment—to the highest levels in government, which at present are "neither addressing all of these challenges at a sufficiently high level nor providing adequate resources

> The U.S. Secretary of Health and Human Services should ensure the formulation and

implementation of a national vaccine strategy for protecting the U.S. population from endemic and emerging microbial threats. Only by focusing leadership, authority, and accountability at the cabinet level can the federal government meet its national responsibility for ensuring an innovative and adequately funded research base for existing and emerging diseases as well as an ample supply of vaccines. In that spirit, the Secretary of HHS should work closely with other relevant federal agencies, Congress, industry, academia, and the public health community.

To avert an imminent crisis resulting from microbial agents' increasing resistance to available antimicrobial drugs, the committee recommends procedures to alert infectious disease control stakeholders to the problem and more finely target the use of antimicrobials. It also advises action on one major source of the problem:

CDC, FDA, professional health organizations, academia, health care delivery systems, and industry should expand efforts to decrease the inappropriate use of antimicrobials in human medicine through (1) expanded outreach and better education of health care providers, drug dispensers, and the general public on the inherent dangers associated with the inappropriate use of antimicrobials; and (2) the increased use of diagnostic tests, as well as the development and use of rapid diagnostic tests, to determine the etiology of infection and thereby ensure the more appropriate use of antimicrobials.

FDA should ban the use of antimicrobials for growth promotion in animals if those classes of antimicrobials are also used in humans.

Another important pair of recommendations reflect the present realities that "the reporting of infectious diseases by health care providers and laboratories remains inadequate" and that open lines of communication are essential to robust systems of surveillance, investigation, and response:

CDC should take the necessary actions to enhance infectious disease reporting by medical health care and veterinary health care providers. The agency should develop innovative strategies to improve communication between health care providers and public health authorities, and it should do so by working with other public health agencies federal, state, and local; health sciences educators; and professional medical organizations. *(The committee specifically identifies what it believes are some of the obligatory actors in these categories.)*

CDC should expeditiously implement automated electronic laboratory reporting of notifiable infectious diseases from all relevant major clinical laboratories (e.g., microbiology, pathology) to their respective state health departments as part of a national electronic infectious disease reporting system. This set of actions would not only improve surveillance but assist in the control of antimicrobial resistance.

Other recommendations in the report involve the development and use of diagnostics, the education and training of the microbial threat workforce, the need for new antimicrobial drugs, vector-borne and zoonotic (animal to human) disease control, a comprehensive infectious disease research agenda for the United States, and the establishment of interdisciplinary in-

fectious disease centers.

TRUMPETING THE MESSAGE

No responsible assessment of microbial threats to health in the 2l5t century can end without a call to action on what the committee has called a potentially "catastrophic storm of microbial threats."

Dramatic advances in science, technology, and medicine have enabled us to make great strides forward in our struggle to prevent and control infectious diseases, yet we cannot fall prey to an illusory complacency. We must understand that pathogens—old and new—are endlessly resourceful in adapting to and breaching our defenses. We must also understand that factors relating to society, the environment, and our increasing global interconnectedness actually enhance the likelihood of disease emergence and spread. Moreover, it is a sad reality that today we must also grapple with the intentional use of biological agents to do harm, human against human.

Thus the prevention and control of infectious diseases are fundamental to individual, national, and global security. Failure to recognize—_and act on—this essential truth will surely lead to disaster. We must therefore continue to trumpet a message of urgency and concern.

That message is basically this: the magnitude of the problem requires renewed commitment. Despite our past achievements, we have still not done enough in our defense, or in the defense of others. But as we look at our prospects, it is clear that the best defense against any disease outbreak will be a robust public health system, both in its science and practice, and that sustained attention, dedication, and support will be essential.

Only in this way will we be able to ensure the health and safety of our nation—and the world. We certainly know that in our complex global village, numerous forces converge to make us more vulnerable; but we also know that a great many opportunities stand before us to make a real and enduring difference.

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For More Information...
Copies of *Microbial Threats To Health: Emergence, Detection, and Response* are available for sale from the National Academies Press; call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP home page at www.nap.edu. The full text of this report is available at http://www.napedu

Support for this project was provided by the Centers for Disease Control and Prevention's National Center for Infectious Diseases (Contract No. H75/CCH31 1468, TO#8), the U.S. Department of Defense (Contract No. DAMD 17-01-2-0040), the U.S. Agency for International Development (Contract No. HRN-A-0o-o00001200) the U.S. Department of Agriculture's Food Safety and Inspection Service (Contract No. 590-0790-1-188), the National Institutes of Health's National Institute of Allergy and Infectious Diseases, the National Institutes of Health's Fogarty International Center, the Ellison Medical Foundation, the U.S. Food and Drug Administration, and the U.S. Joint Institute for Food Safety Research. The views presented in this report are those of the Institute of Medicine Committee on Emerging Microbial Threats To Health in the 21" Century and are not necessarily those of the funding agencies.

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The leading edge

THE LANCET
Infectious Diseases

Trade in wild animals: a disaster ignored

On page 399 we report an outbreak of monkeypox in the midwestern USA, the first such outbeak in the western hemisphere. The likely source of the outbreak is a Gambian giant rat imported from Ghana, which came into contact with prairie dogs at a Chicago-area pet distributor. On page 395 we describe isolation from masked palm civets and a raccoon dog at a market in southern China of a virus almost identical to the coronavirus associated with severe acute respiratory syndrome (SARS). What both these examples illustrate is how trade in wild animals, whether as pets or for consumption, endangers human health.

This lesson should have been learnt and acted upon long ago. AIDS, the great human plague of the past 20 years, likely crossed over to human beings through contact with great apes in central Africa. Ebola infects these apes and human outbreaks probably begin with the despicable traffic in bushmeat. The bushmeat trade, estimated in 2000 to be worth £600 million a year, includes illegal importation into Europe. How long before ebola escapes Africa in the infected corpse of a chimpanzee?

We can count ourselves lucky that monkeypox is a usually mild, self-limiting infection that transmits poorly from human to human. Hindsight is a fine instrument, yet it has long been known that monkeypox can infect rodents, so carriage of the virus across the seas from its focus in central and west Africa in rodents exported as pets was predictable. A disturbing thought is that the cute-looking west African *Mastomys* sp rodents—the reservoir of Lassa fever—are among those exported. It would be reassuring to know that this is not occurring.

A maze of federal and state legislation governs the importation of wild animals and their products into the USA. Federal responsibility is shared between the Customs and Border Protection Service (part of the Department of Homeland Security), Fish and Wildlife Service, Department of Agriculture, and the Centers for Disease Control and Prevention. Importers of wildlife require a permit from the Fish and Wildlife Service and entry must be through a designated port. Importation of endangered animals is largely prohibited, but for non-endangered species the fact that—for example—800 000 iguanas are imported for the pet trade every year indicates that permits are not hard to obtain. There seem to be no quarantine restrictions on the importation of many species of wild animals. It is an anachronism that an individual may not bring meat or meat products into the USA from a foreign country, yet that same individual can obtain a permit to import a box of rats from west Africa.

The clear message of the monkeypox incident for US authorities should be that legislation on the importation of wild animals needs to be tightened, streamlined, and brought under the control of a single department. Indeed, on June 11, US Secretary of Health and Human Services Tommy Thompson announced an immediate ban on the importation of rodents from Africa, on their sale and movement within the USA, and on the sale and movement of prairie dogs between and within states. Although this move is to be applauded, it again demonstrates administrative confusion—surely this ban was the responsibility of the Director of the Fish and Wildlife Service, Steven Williams, or of his boss at the Department of the Interior, Gale Norton? If we accept that importation of wild animals represents a potential threat to human health, perhaps it might best be administered by the Department of Homeland Security.

In response to SARS, authorities in Shenzhen province are reported to be preparing legislation to outlaw the hunting, processing, purchasing, slaughtering, and consumption of wildlife, which will bring to an end thousands of years of traditional cuisine in the area. In the long-term, this is the course all governments should consider. The practice of taking animals from the wild for the pet trade also should swiftly be brought to an end. There will be fierce opposition to any such moves, and some of the trade will move underground, but if we can abolish such entrenched cultural traditions as burning at the stake and slavery, we can abolish the clear danger to human health of the wildlife trade.

The Lancet Infectious Diseases

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MMWR

Weekly

July 11, 2003 / 52(27);642-646

Update: Multistate Outbreak of Monkeypox --- Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003

CDC and state and local health departments continue to investigate cases of monkeypox among persons in the United States who had contact with wild or exotic mammalian pets or with persons with monkeypox (*1*--*4*). This report updates results of the epidemiologic investigation, provides information on the use of smallpox vaccine during the outbreak, and summarizes the animal tracing activities to identify the origin and subsequent distribution of infected animals.

Epidemiologic Investigation

As of July 8, 2003, a total of 71 cases of monkeypox have been reported to CDC from Wisconsin (39), Indiana (16), Illinois (12), Missouri (two), Kansas (one), and Ohio (one); these include 35 (49%) cases laboratory-confirmed at CDC and 36 (51%) suspect and probable cases under investigation by state and local health departments (Figure 1). Eleven cases were excluded from those reported previously because they met the exclusion criteria outlined in the updated national case definition, and one new case was added (*1*). The number of cases increased from May 15 through the week ending June 8 and declined subsequently; the date of onset for the last case was June 20. Of the 71 cases, 39 (55%) occurred among females; the median age was 28 years (range: 1--51 years). Age data were unavailable for one patient. Among 69 patients for whom data were available, 18 (26%) were hospitalized; some patients were hospitalized for isolation precautions only. Two patients, both children, had serious clinical illness (*1*--*4*); both of these patients have recovered. The majority of patients were exposed to prairie dogs. Some patients were exposed in premises where prairie dogs were kept, and others were exposed to persons with monkeypox. No patients have been confirmed to have had exposure to persons with monkeypox as their only possible exposure.

Of the 35 laboratory-confirmed cases, 32 (91%) tested positive for monkeypox by polymerase chain reaction (PCR), culture, immunohistochemical testing (IHC), and/or electron microscopy in skin rash lesions; two tested positive by PCR and/or culture of an oropharyngeal or nasopharyngeal swab; and one tested positive by PCR and culture of a lymph node aspirate. For laboratory-confirmed cases, onset of illness ranged from May 16 to June 20. The majority of patients reported a clinical illness that included rash (one patient had a single, atypical plaque-like skin lesion) and fever (Table 1). The median incubation period* was 12 days (range: 1--31 days).

Use of Smallpox Vaccine

To prevent transmission of monkeypox, 30 persons (28 adults and two children) in six states have received smallpox vaccine since June 13. Vaccine was administered pre-exposure to seven persons (three veterinarians, two laboratory workers, and two health-care workers) and post-exposure to 23 persons (10 health-care workers, seven household contacts, three laboratory workers, one public health veterinarian, one public health epidemiologist, and one work contact). No serious adverse events were reported following smallpox vaccination, and no requests for vaccinia immune globulin have been received. Among the 30 persons who received smallpox vaccine, three (10%) reported

rash within 2 weeks of vaccination. One of the three was confirmed as having monkeypox; another person had two skin lesion specimens that tested negative for orthopoxvirus and varicella zoster virus at the state health laboratory; no specimens were obtained for the third person who reported a single, dime-sized, pruritic and erythematous skin lesion (not pustular) remote from the vaccination site that appeared 4 days after vaccination and faded within a week.

Animal Traceback and Trace-Forward Investigations

Traceback investigations have determined that all 35 confirmed human cases of monkeypox were associated with prairie dogs obtained from an Illinois animal distributor (IL-1), or from animal distributors who purchased prairie dogs from IL-1 (Figure 2). Traceback of animal exposures are ongoing for other cases. Prairie dogs at IL-1 appear to have been infected through contact with Gambian giant rats and dormice that originated in Ghana and were purchased on April 21 by IL-1. Approximately 200 prairie dogs had been at the IL-1 facility during April--May; an unspecified number overlapped with the arrival of the imported African rodents on April 21 and probably were exposed to monkeypox. A total of 93 infected or potentially infected prairie dogs were traced from IL-1 to six states (Figure 2); in addition, an unknown number of prairie dogs died or were reportedly sold (as pets for sale or exchange) at animal swap meets for which no records were available for tracing. At CDC, laboratory testing of four prairie dogs originating from IL-1 confirmed the presence of monkeypox virus by PCR and IHC.

Traceback investigations to identify the source of introduction of monkeypox into the United States identified a Texas animal distributor (TX-1) that had imported a shipment of approximately 800 small mammals from Ghana on April 9 that contained 762 African rodents, including rope squirrels (*Funiscuirus* sp.), tree squirrels (*Heliosciurus* sp.), Gambian giant rats (*Cricetomys* sp.), brushtail porcupines (*Atherurus* sp.), dormice (*Graphiurus* sp.), and striped mice (*Hybomys* sp.). CDC laboratory testing of some animals from this shipment confirmed the presence of monkeypox by PCR and virus isolation in several rodent species, including one Gambian rat, three dormice, and two rope squirrels (*1*). Trace-forward investigations of the rodents on the shipment were initiated before the availability of laboratory results because of concerns that animals were a potential source of continued spread of monkeypox (Table 2; Figure 2). Of the 762 rodents from the original shipment, 584 (77%) have been traced to distributors in six states. A total of 178 (23%) African rodents could not be traced beyond the point of entry in Texas because records were not available. No suspect, probable, or confirmed cases of human monkeypox have been associated with direct contact with the African rodents from the April 9 shipment. In addition, other than the prairie dogs traced from IL-1 to subsequent sites, no cases of monkeypox in other animals that had contact with the African rodents from the April 9 shipment have been reported.

Reported by: *State and local health departments. Monkeypox investigation team, CDC.*

Editorial Note:

The outbreak described in this report highlights the public health threat posed by importation, for commercial purposes, of exotic pets into the United States. Epidemiologic and animal traceback investigations confirm that the first community-acquired human cases of monkeypox in the United States resulted from contact with infected prairie dogs that had been housed or transported with African rodents imported from Ghana.

Imported, exotic wild animals can carry nonindigenous, zoonotic pathogens, which can spread rapidly among indigenous susceptible animal populations in the United States, particularly when mixed together in close proximity. In addition, interspecies exchange of pathogens is possible because of close relations between humans and their pets. In this outbreak, the rapid and widespread distribution of monkeypox-infected and potentially infected imported wild animals to distributors and potential buyers in several settings (e.g., pet stores, swap meets, and wild animal trade centers) in the United States and to other countries enabled epizootic spread through multiple states before effective interventions could be implemented.

Public health strategies to control this outbreak, including the Food and Drug Administration-CDC joint order banning importation and prohibiting movement of the implicated animal species

(http://www.cdc.gov/ncidod/monkeypox/pdf/embargo.pdf), state-enacted measures to further restrict intrastate animal shipment and trade (*4*), premise quarantine, and animal euthanasia, appear to have been effective in reducing exposure of humans to infected animals, with few cases reported since its implementation on June 11. Additional control measures have included pre- and post-exposure vaccination of potentially exposed persons with smallpox vaccine (*5*).

Laboratory tests have demonstrated the presence of monkeypox virus in several rodents from the original shipment from Ghana that died unexpectedly and did not exhibit characteristic signs of monkeypox in animals (e.g., conjunctivitis, lymphadenopathy, and skin lesions). For this reason, CDC guidance for premise quarantine and animal euthanasia (http://www.cdc.gov/ncidod/monkeypox/quarantineremoval.htm) is based on the possibility that infected rodents from the April 9 shipment could be asymptomatic, shed virus, and potentially cause infection in other susceptible animals or humans. Although no human monkeypox cases have been associated with contact with rodents from the April 9 shipment, these animals are considered to pose a continued risk for infection for other animals and humans. Euthanasia, following American Veterinary Medical Association guidelines (http://www.avma.org/noah/members/policy/default.asp), is recommended for all rodents from the April 9 shipment and for any prairie dogs that were on the premises at the same time as any of the African rodents. In addition, mammals in facilities that housed a rodent from the April 9 shipment should be placed under quarantine for 6 weeks following the last date a rodent of concern was present. Efforts are underway to collect additional epidemiologic and laboratory data on both human and animal cases and their contacts, including animal handlers who might have been exposed to infected rodents.

Importation of exotic animals and indigenous, wild animals harvested for the commercial pet trade have been associated with previous outbreaks of infectious diseases in humans, including salmonella associated with reptiles (e.g., lizards, snakes, and turtles) and tularemia associated with prairie dogs (*6,7*); prairie dogs also have been documented to be infected with other human pathogens (e.g., plague) (*8*). The Institute of Medicine recently highlighted the role of international travel and commerce in the emergence of infectious diseases through the dissemination of pathogens and their vectors throughout the world (*9*). CDC and other federal agencies, in collaboration with state and local health departments and professional organizations, are developing long-term strategies to coordinate the control of importation, exportation, interstate trade, and intrastate sale of exotic and native wild animals (*10*).

Health-care providers, veterinarians, and public health officials who suspect monkeypox in animals or humans should report such cases to their state and local health departments. State health departments should report suspect cases to CDC, telephone 770-488-7100. An updated case definition with revised case exclusion criteria is available at http://www.cdc.gov/ncidod/monkeypox/index.htm. Rash illnesses suspected to be monkeypox should be confirmed by laboratory evaluation. Clinical specimens should be submitted for testing after consultation with the state and local health departments. Protocols for specimen collection, including completion of specimen submission forms, should follow CDC guidance available at http://www.cdc.gov/ncidod/monkeypox/diagspecimens.htm. Because information included in the specimen-submission and case-reporting forms is essential for accurate interpretation of laboratory results, these forms should be completed by state health departments. Preferred specimens for testing are those from skin lesions. Because smallpox vaccine might modify monkeypox disease, evaluation of any rash postvaccination in a person exposed to monkeypox should include laboratory testing for monkeypox virus.

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* Defined as first possible exposure date to illness onset date; however, some persons reported intermittent or continuous exposure.

Table 1

TABLE 1. Number and percentage of laboratory-confirmed monkeypox cases, by selected characteristics — United States, 2003

Characteristic	No.	(%*)
State		
Illinois	8	(23)
Indiana	7	(20)
Kansas	1	(3)
Missouri	2	(6)
Wisconsin	17	(49)
Age group (yrs)		
6–18	11	(31)
19–51	24	(69)
Sex		
Female	18	(51)
Male	17	(49)
Possible sources of monkeypox exposure		
Prairie dog(s)	14	(40)
Prairie dog(s) and human case(s)	14	(40)
Premises housing prairie dogs	6	(17)
Premises housing prairie dog(s) and human case	1	(3)
Clinical features		
Rash†	34	(97)
Fever	29	(85)
Respiratory symptoms§	27	(77)
Lymphadenopathy	24	(69)
Hospitalized¶	16	(46)
Previous smallpox vaccination**	8	(33)

* Totals might not add to 100 because of rounding.
† Excludes one patient who had a single atypical, plaque-like skin lesion and no further lesions.
§ One or more of the following symptoms: cough, sore throat, shortness of breath, and nasal congestion.
¶ Some persons were hospitalized for isolation precautions and not because of severe illness.
** Information was available for 25 (71%) of the laboratory-confirmed cases.

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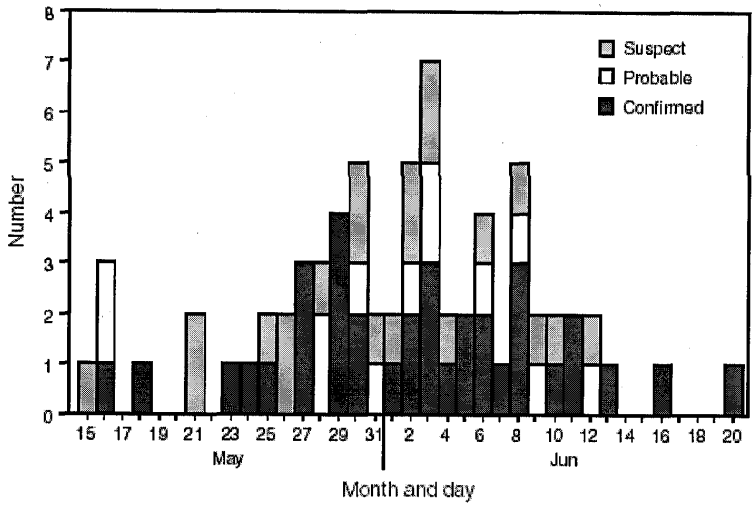
Figure 1

FIGURE 1. Number of monkeypox cases*, by date of illness onset — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003†



* N = 69 of 71 cases with known date of illness onset.
† As of July 8, 2003.

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Table 2

TABLE 2. Disposition of African rodents* imported from Ghana to the United States on April 9, 2003, associated with monkeypox infection of prairie dogs

Rodents	Dead	Alive	Lost to follow-up	Total
Gambian giant rats	26	20	4	**50**
Dormice	~350	27	~135	**510**
Rope squirrels	49	4	—	**53**
Tree squirrels	24	20	3	**47**
Striped mice	14	50	36	**100**
Porcupines	2	—	—	**2**

* N = 762.

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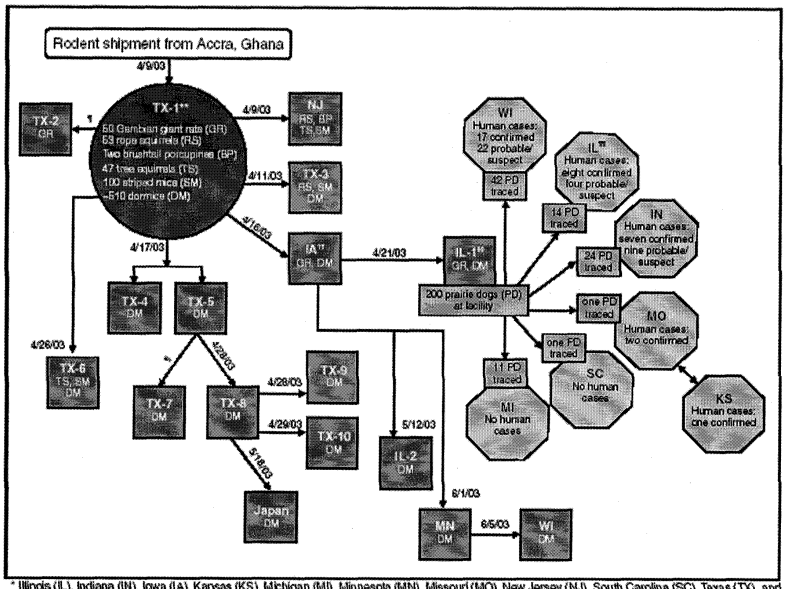
Figure 2

FIGURE 2. Movement of imported African rodents to animal distributors and distribution of prairie dogs from an animal distributor associated with human cases of monkeypox — 11 states*, 2003†§



* Illinois (IL), Indiana (IN), Iowa (IA), Kansas (KS), Michigan (MI), Minnesota (MN), Missouri (MO), New Jersey (NJ), South Carolina (SC), Texas (TX), and Wisconsin (WI). Japan is included among sites having received shipment of rodents implicated in this outbreak.
† As of July 8, 2003.
§ Does not include one probable human case from Ohio; investigation is ongoing.
¶ Date of shipment unknown.
** Identified as distributor C in *MMWR* 2003;52:561–4.
†† Identified as distributor D in *MMWR* 2003;52:561–4.
§§ Identified as distributor B in *MMWR* 2003;52:561–4.
¶¶ Includes two persons who were employees at IL-1.

03-ID-13

Committee: Infectious Diseases

Title: Developing Importation and Exportation Restrictions on Exotic and Native Wildlife with Potential Adverse Impact on Public Health

* Definitions: Exotic Wildlife: Any wildlife that is not native to the United States including mammals, birds, reptiles, amphibians. Native Wildlife: Any wildlife that is native to the United States.

Statement of the Problem:
A lucrative and largely unregulated trade in imported exotic wildlife is thriving in the United States. This trade poses a risk of introducing and disseminating exotic zoonotic pathogens. These pathogens threaten both human and animal health, and have the potential to become established and maintained in native animal and insect reservoirs. On June 11, 2003, an emergency executive order was implemented by the Food and Drug Administration (FDA) and Centers for Disease Control and Prevention (CDC) banning the importation, interstate and intrastate movement of certain African rodents and prairie dogs in the United States in response to an outbreak of monkeypox in animals and humans. To protect public health, this order should be permanently sustained and expanded to restrict the importation, exportation and movement of exotic wildlife with potential adverse impact on public health. This is a joint statement of the National Association of State Public Health Veterinarians (NASPHV) and the Council of State and Territorial Epidemiologists (CSTE).

Position to be Adopted:
NASPHV and CSTE recommend that a working group consisting of representatives from the CDC; U.S. Department of Agriculture (USDA), FDA, U.S. Fish and Wildlife Service (USFWS), and NASPHV and CSTE be formed with goals of rapidly:

- Developing recommendations for effectively restricting the importation and exportation of exotic or native live or dead wildlife having a potential impact on public health, except for legitimate scientific use, exhibition in an accredited zoological institution, or captive breeding in programs for conservation or species survival in an accredited institution. These recommendations should include:

  - Identifying the responsibilities of various federal agencies with regard to regulation of importation of exotic wildlife and exportation of exotic and native wildlife.

  - Developing methods to monitor and maintain ownership and movement data on all imported wildlife and to enforce institutional responsibility in maintaining exotic wildlife so that they are not redistributed for private ownership and recreational purposes.

  - Monitoring and assuring legitimacy and safety of interstate movements and redistributions of exotic wildlife.

  - Supporting state and local public health infrastructure in identification and response to public health threats from diseases introduced and transmitted from exotic wildlife.

  - Working with zoos and research institutions to develop policies to reduce risks of introduction of disease into their collections.

  - Collecting comprehensive data on the distribution channels for exotic wildlife in the pet trade. Develop a national action plan to restrict the redistribution and translocation of all exotic wildlife to legitimate scientific and exhibition purposes.

Background:
Exotic wildlife is bred, traded, sold, and purchased for private ownership in most states. Health department and animal control officials are often consulted following animal bites and other exposures. Assessment of these exposures requires special attention due to the potential for rare and fatal zoonoses, severe injuries, and serious wound-related infections.

Zoonoses posing serious or fatal risks for humans, such as herpes B virus, monkeypox, plague, simian immunodeficiency virus, rabies and tularemia, have been transmitted from infected exotic wildlife to humans. More than 60% of newly recognized emerging infectious diseases, including hantaviruses, arboviruses, arenaviruses, and monkeypox, are zoonotic. There are no licensed vaccines or medical treatments to prevent or protect exotic wildlife against zoonotic disease. Due to the close relationship between humans and the animals in their care (including pets) there is potential for interspecies exchange of a wide spectrum of disease-causing organisms. Currently, the exotic and native wildlife pet trade does not maintain sufficient records to allow trace backs or trace forwards after problems are identified. Extensive interstate and intrastate movement and mixing of animals from various sources occurs. State and local regulations vary widely regarding restrictions on the maintenance of exotic and native wildlife in private ownership, however, most states do not have regulations which effectively address this issue. Federal regulations involve many agencies and as they are enforced presently, these regulations lack the ability to effectively control the public health risks of exotic wildlife in the pet trade. The exotic and native wildlife trade raises complex issues of animal welfare, public health, and conservation.

Accredited zoological parks and bona fide research facilities mandate specialized training for handlers, and enforce strict protocols concerning zoonotic disease and injury hazards associated with captive animals. In contrast, well-intentioned pet dealers, breeders and private owners generally lack the expertise to maintain exotic and native wildlife safely, and consequently put humans and other animals at risk for disease and serious injury.

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STATEMENT OF GABRIELA CHAVARRIA, POLICY DIRECTOR, NATIONAL WILDLIFE FEDERATION

ON BEHALF OF NATIONAL ENVIRONMENTAL COALITION ON INVASIVE SPECIES, AMERICAN LANDS, DEFENDERS OF WILDLIFE, ENVIRONMENTAL DEFENSE, ENVIRONMENTAL LAW INSTITUTE, GREAT LAKES UNITED, INTERNATIONAL CENTER FOR TECHNOLOGY ASSESSMENT, NATIONAL WILDLIFE FEDERATION, NATIONAL WILDLIFE REFUGE ASSOCIATION, THE NATURE CONSERVANCY

Mr. Chairman and members of the committee, my name is Gabriela Chavarria, Policy Director for Wildlife Conservation at the National Wildlife Federation. I would like to thank you for the opportunity to address you today on the important issue of the importation of exotic species and their impact on public health and safety. I am testifying on behalf of nine members of the National Environmental Coalition on Invasive Species (NECIS), which is a group of environmental organizations working to promote the prevention, control and eradication of invasive alien species, particularly through sound policy solutions at the State, Federal and international levels. Together, our organizations have nearly six million individual members and supporters, and span a broad range of experience including: management and protection of private preserves; work with community groups, hunters, anglers and labor unions; and scientific, economic, and legal expertise on the issue of alien invasive species.

Invasions by exotic plants, animals, and pathogens into non-native environments pose one of the most significant, but least addressed, threats to human health, agriculture and our natural ecosystems. Monkey pox, SARS and West Nile virus are the new buzzwords of public health, as communicable diseases increasingly leap hosts from animals to humans. In the United States, in 2002 alone, West Nile virus claimed more than 60 lives among constituencies represented by this committee and sickened more than a 1,000 people. Deliberate animal imports (legal or illegal) are thought to be one of the most likely ways that WNV got to New York City in 1999.

For agriculture, current estimates put the cost of exotic livestock diseases at $10 billion per year, and the total cost of agricultural pests, including invasive insects, weeds and livestock diseases, amounts to $90 billion (Pimentel 2000). Invasive species also represent a primary threat to approximately 50% of endangered species in the U.S., and are well established in more than half of the U.S. National Wildlife Refuges and National Parks. In the past weeks alone, media attention has focused on invasive rats decimating auklet and other sea bird populations in the Aleutian islands, and the impacts of the mute swan on the Chesapeake Bay. These merely add to the long list of other exotic invaders, including kudzu in the southeast, Dutch Elm disease, the Asian longhorned beetle, the Northern snakehead, Asian carp, the zebra mussel and nutria.

While all invasive species are of central concern for environmental, agricultural and economic reasons, our testimony today will concentrate on intentional imports of species and the related aspects of public health and safety.

Invasive Species and Concerns for Public Health and Safety

As noted above, the import of alien and invasive species can present severe threats to human and environmental health. The recent spate of animal related diseases has highlighted the increasing opportunity for viral diseases to jump from animals to humans thereby presenting significant concerns for public health safety. SARS, monkey pox, West Nile virus and AIDS are but a few examples of such communicable diseases. Additionally, imported reptiles can convey salmonella, wild parrots may carry psittacosis a form of Chlamydia, and rodents are infamous for carrying a range of diseases.

One particularly telling example is the class of paramyxoviruses, fifteen of which have been discovered over the last four decades. This class of viruses, which is related to measles and mumps, as well as Exotic Newcastle disease (a particularly deadly virus affecting poultry) uses a wide range of animal hosts, including rats, bats, pigs, dolphins, seals, snakes and horses, and have jumped from animal species to animal species as well as to humans. In 1999, in Malaysia, an outbreak of the Nipah virus, listed as a potential viral bioagent by the U.S. Centers for Disease Control and Prevention caused more than a hundred deaths almost half the population of the local village. The virus was communicated from bats to pigs to humans. Outbreaks of paramyxoviruses have also occurred in recent years in Singapore and Australia, and scientists are investigating SARS as a potential member of that class of disease. The wide range of potential hosts, combined with the speed and rapidity at which SARS spread, reveal the significant threat posed by imports of animal host species as well as by and to the people who handle these animals.

Other vectors for disease include ticks, entering the country on imported turtles or other animals, which caused a rash of fatal bovine heart disease in the late 1990s. Medical research indicates that such heart disease could feasibly be communicated to humans as well.

There are over 100 known arboviruses, including West Nile virus and St. Louis encephalitis, which are carried by an array of mammals and birds. Finally, with more than 2,000 species, rodents are infamous as carriers of disease, including monkey pox, hantavirus, murine typhus, and pneumonic and bubonic plagues. In many cases, there are known diseases, such as four European varieties of the pathogenic hantavirus, which have yet to arrive.

In addition to being transferred from exotic plant and animal trade, pathogens and disease may also be transferred directly from ballast water discharges. For example, the Great Lakes Panel on Aquatic Nuisance Species notes the potential for communication of ballast water-mediated pathogens and diseases, such as cholera and cryptosporidium. Additionally, the outbreak of disease within animal populations could pose public safety concerns. The recent invasion of the Great Lakes by the zebra mussel, quagga mussel and round goby is now being linked to the rash of Botulism outbreaks in fish and bird populations in Lake Erie.

The public hazard associated with these outbreaks needs to be clarified, particularly for those species which are commonly consumed by humans.

Aside from the viral threats to human health, many imported invasive species present more direct threats to personal health and safety. Exotic carnivores and primates can be a physical threat to families, particularly children, in ill-conceived attempts at domestication.

Such concerns don't even touch upon the widespread environmental damage to native habitats and high mortality levels of invasive species that are transported legally and illegally across borders.

Inadequacy of Present Measures

While there have been major advances in modern medicine and hygiene, such progress has not been sufficient to prevent outbreaks of viral diseases, particularly in a globalized era of international travel, intensive livestock production, and increasing population density and growth. Significant efforts have been made to develop sanitary and phytosanitary regulations to protect our livestock and agriculture, yet similar protections are lacking to protect humans from the range of threats presented by the import of exotic animals.

Compounding the tremendous problem of a largely unregulated trade in invasive species, there is a particular lack of knowledge regarding the biology of many invasive species, particularly how they will affect a new environment. While prescreening has been used in some cases, there are still difficulties in evaluating species for the complete range of environmental, human and animal health threats they may pose. Finally, there is no guarantee that end users those who purchase exotic animals have sufficient knowledge to address animal or human health issues. There are numerous examples from the Northern snakehead to larger exotic cats of animal owners discarding or letting these animals loose with a wide range of potentially adverse impacts.

Recommendations

Congress needs to focus regulatory efforts on areas where the larger risks to human health, economies and the environment outweigh the potential social and/or economic advantages. Such tactical decisions need to be taken proactively as prevention is the best means for combating widespread human health and environmental impacts. Significant attention has recently been paid to unintentional or accidental aquatic introductions, such as the National Aquatic Invasive Species Act whose passage could provide valuable guidance on the issue before us. However, similar legislative attention needs to be devoted to intentional imports and introductions of exotic animal species into the U.S. More specific recommendations for Congressional action on the issue include:

- *Imposing import restrictions where risks outweigh benefits.* As highlighted above, import restrictions are needed to deal with imports of exotic species that present significant threats to human health or the environment far beyond their ornamental value or other social benefits. The burden of proof that a species does not pose significant threat to human health or the environment must be the responsibility of the importer, and must be proven before importation. Prevention should be the focus, particularly in areas of high risk or potential scientific uncertainty about the impacts of a particular species. For example, this could include restrictions on new imports of species known to host a virus or disease that is closely related to

a known human pathogen. Also, determinations of harm should be made for invasive species already permitted in the U.S.

- *Controlling key pathways for introduction.* Prevention measures should focus on key pathways for the introduction of harmful exotic animals, as opposed to the more laborious species by species approach. Pathways can include various modes of transportation as well as imported animals, live food products and plants.
- *Developing screening approaches.* For areas and pathways where imports are permitted, authorities should develop supplementary screening approaches to evaluate potential adverse impacts to human health and the environment. However, developing effective screening protocols requires significant investment in research, because the qualities of invasiveness and the ability of diseases to jump species are difficult to predict. Further research is necessary regarding the environmental and health impacts of invasive species, and decisions to allow imports should be based on thorough scientific assessments.
- *Coordinating control efforts domestically.* Any new programs or legislation to control the import of exotic species must be placed within the context of existing regulations, whether it is for protecting agriculture and plant health or for preventing trade in endangered species.
- *Coordinating control measures regionally.* Focusing on controlling alien species at U.S. borders by themselves is inadequate to control trade and introductions. While pursuing domestic measures to prevent introductions, the U.S. also needs to engage with Canada and Mexico to ensure a consistent and coordinated regional approach to regulating and managing intentional introductions within North America.
- *Advocating strong international rules.* Congress and U.S. representatives need to promote rules within the negotiation and implementation of regional and international trade and environmental agreements that will ensure appropriate sanitary levels and means to protect human health and the environment.
- *Ensuring financial responsibility for impacts.* Appropriate mechanisms and incentives need to be put in place to ensure that those importing and/or housing species with potential adverse impacts assume financial and legal responsibility for adverse impacts. Otherwise, public agencies and the taxpayer ultimately bear the burden.

We appreciate the opportunity to appear before this committee to discuss the issue of the importation of exotic species and their impact on public health and safety.

STATEMENT OF ROBERT A. COOK, V.M.D., M.P.A., ADJUNCT PROFESSOR OF ENVIRONMENTAL AFFAIRS, COLUMBIA UNIVERSITY, SCHOOL OF INTERNATIONAL & PUBLIC AFFAIRS

Mr. Chairman, members of the committee, thank you for the opportunity to testify concerning the critical issues surrounding the importation of exotic species and its impact on public health and safety. Before I begin, I would like to request that this written testimony be entered in the hearing record.

My name is Dr. Robert Cook, I am the Chief Veterinarian and Vice President of Wildlife Health Sciences for the Wildlife Conservation Society and an Adjunct Professor of Environmental Affairs at Columbia University in the School of International and Public Affairs. In addition I am chair of the Animal Health Committee of the American Zoo and Aquarium Association as well as Chair of the Captive Wildlife and Alternative Livestock Committee of the United States Animal Health Association. The Wildlife Conservation Society is a science based membership organization, founded in 1895 to conserve wildlife and wild lands throughout the world and manage the Bronx Zoo and other living institutions in New York City. Our Health Sciences Division provides critical veterinary support to the care of 23,000 wild animals in our New York zoos and aquarium as well to over 300 international field conservation projects in 53 nations. In 1989 we began the first Field Veterinary Program of any conservation organization and are deeply involved in health surveillance programs in key wildlife habitats. At Columbia University I work with students in the Masters in Public Administration program in Environmental Science and Policy examining national and global health and conservation issues.

I have been specifically asked to speak on the health threats posed by the global movement of exotic animals and their products, including the bush meat trade, in three specific areas:

- Exotic animals that are carriers of disease
- The types of diseases
- The risks to human health

I regret to inform you that while these are the areas of greatest concern, they are also the areas that we know the least about. If we hope to generate solutions to

these disease issues we must start to think about the health of people, domestic animals and wildlife in a more holistic way. A way that addresses the reality that the environment, human activities, movements of animals out of their native habitats and human health are obviously interrelated. As we better understand the complexity of these interrelationships we can—and must—devise solutions that are proactive and not reactive: solutions that address the realities of ONE HEALTH for our planet's people, domestic animals and wildlife.

A wide range of domestic and non-domestic animals carry diseases that can threaten the health of people. Pet dogs can contract rabies if not vaccinated. They can also become infected and spread other zoonotic diseases (those transmissible between animals and people) such as tularemia, leptospirosis, visceral larva migrans, trichinosis, plague, scabies and salmonellosis. But if domestic dogs are properly managed with sound veterinary care, they are safe and wonderful additions to the American household.

Dr. Mark Woolhouse and his colleagues at University of Edinburgh noted in the journal SCIENCE that "humanity is currently plagued by 1709 known pathogens (from viruses and bacteria to fungi, protozoa and worms)". They concluded that 49% of those are zoonotic and further it was noted that zoonoses are three times more likely to be emerging diseases than non-zoonotic diseases.[1]

While what we know about emerging diseases is instructive- it is what we don't know that may threaten us the most. For example, rodents carry a plethora of diseases that move between people and animals. Leptospirosis, listeriosis, plague, streptobacillosis, lymphocytic choriomeningitis, hanta virus, ringworm, tapeworm, lassa fever and pneumocystis carinii to name a few. These are the major diseases that professionals routinely look for, but even though it was possible for Monkey Pox to be spread by rodents, until the crisis of a few weeks ago no one was looking for that one. It is only once the threat has realized itself by causing disease close to home that we institute control measures. We need to act sooner and more effectively on a global scale. But even at that, diseases such as Monkey Pox or West Nile Virus have been described elsewhere in the world before entering our country, we must also be prepared to handle diseases that make the jump to infect new species, including humans. The coronavirus which causes SARS appears to have moved from animals in the wildlife markets to people .and the prion disease, bovine spongiform encephalopathy (BSE) or "Mad Cow" made the jump from cattle to people. Both have had a devastating impact on human lives and the economy of nations. The World Health Organization listed the cumulative number of probable SARS cases in people as of 11 July 2003 at 8,437 with 813 deaths.[2] The World Organisation for Animal Health (OIE) lists over 182,745 cases of BSE in United Kingdom cattle alone between 1988 and 2002.[3] The University of Edinburgh reports 132 human deaths attributed to definite or probable vCJD, Creutzfeldt Jacob disease, the human prion variant linked to BSE.[4]

We must not limit ourselves strictly to those zoonotic diseases that can spread between animals and people. We must also look at emerging diseases that threaten domestic livestock and wildlife as well- for here too humanity is threatened, either through the loss of wild species or agricultural losses, such as those experienced in the 2001 Foot and Mouth disease outbreak in Great Britain or most recently the Enzootic Newcastle Disease (END) outbreak in the Southwest U.S. On July 2, 2003 Dr. Thomas Walton of the United States Department of Agriculture reported in the ProMed Digest that 3,928,281 domestic birds had been depopulated due to the END disease concerns.[5]

And we must consider both the legal and illegal exotic pet trade. According to most estimates, the illegal global trade in exotic pets is worth tens of billions of dollars a year.

More must be done to halt this movement, not only for the sake of the wildlife taken from their natural environments but for the health of people, domestic animals and native wildlife- all threatened by the introduction of novel pathogens to a naive population.

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[1]SCIENCE Vol 289, 28 July 2000. News: Emerging Diseases, Malaysian Researchers Trace Nipah Virus to Bats.

[2]World Health Organization Communicable Disease Surveillance & Response: Cumulative Number of Reported Probable Cases of SARS. www.who.int/csr/sars/country/2003—07—11/en/

[3]World Organisation for Animal Health (OIE): Number of cases of BSE reported in the United Kingdom. www.oie.int/eng/info/en—esbru.htm

[4]University of Edinburgh, The UK Creutzfeldt–Jakob Disease Surveillance Unit. CJD Statistics. www.cjd.ed.ac.uk/figures.htm

[5]ProMed–Ahead Digest V200312: Emergency Management Warning 105:Exotic Newcastles Disease in the United States www.promed.org

While I started with the illegal trade, it must be noted that there is a multi-billion dollar legal trade as well which needs to be addressed. Stricter regulations governing the movement of wild caught animals destined for the United States pet trade would not only bolster efforts to maintain intact landscapes but also would lessen the threat these animals pose to our health. For example, millions of reptiles and amphibians are transported around the globe as both pets and bushmeat. Few controls exist to stem this flow. We know that these animals can carry diseases such as salmonellosis, camplyobacteriosis, mycobacteriosis, Q fever and pentastosomiasis. At the Annual Meeting of the United States Animal Health Association in 1995, Dr. Stephanie Ostrowski of the Centers for Disease Control and Prevention reported on the work of Clark and Doten who studied ticks on imported reptiles coming into Miami International Airport. Between November 1994 and January 1995, United States Department of Agriculture's Animal Plant Health Inspection Service personnel inspected 349 reptile import shipments with a total of 117,690 animals originating from 22 countries. Ticks were removed from one or more animals in each of 97 shipments. Infested shipments included 54,376 animals in total.6 Ticks are a disease vector species that can potentially carry a number of pathogens present in the United States as well as many other diseases from around the globe that threaten animal agriculture and human health within our borders.

Lastly we must also consider the broader scope of injurious invasive species of flora and fauna that have and will enter our air, land and waterways by chance or by purpose.

More must be done to regulate conveyances and movement if we are to control these threats to our native environment and our health.

So what can be done now? We must be more proactive. And to be proactive we must be looking for those things we know little about- not only within our borders but in range countries around the world. We must do it in a way that respects the role that animals and people play in the perpetuation of a healthy ecosystem and not with an eye to eliminate one or another species that is believed to carry a particular disease. Such piece meal approaches will trap us in a never-ending cycle of reaction. To be proactive we must:

- *Maintain high-quality quarantine protocols:* Quarantine protocols such as those used by the 212 accredited institutions of the American Zoo and Aquarium Association. These procedures require that any animal entering their collections be examined and maintained in a secure facility for the quarantine period to ensure that disease threats can be controlled. Protocols are in place to quarantine all new arrivals under veterinary supervision, whether they come from across the country or across the world. These procedures include veterinary exams, diagnostic testing as well as pathology examinations in the event of an animal death.
- *Expand range-country and homeland surveillance systems:* Right now Ebola virus is ravaging the great ape and human populations of central Africa. Field veterinarians of the Wildlife Conservation Society are on the ground, working with a multi-disciplinary team of scientists and local peoples to collect samples from wild animals to not only determine the vectors of disease but to work towards understanding how to contain the disease within the forest. It was through these collaborative international efforts that we discovered gorillas also die of the disease and it is through the samples collected by trained field staff that eventually the vector will be identified—an important missing link that will allow the scientific community to begin to formulate sound control measures.

The West Nile virus entered the United States in the late summer of 1999. The first connections made between this deadly disease of birds and the illnesses in people came from the Wildlife Conservation Society's Veterinary Pathology Department. The then head pathologist, Dr. Tracey McNamara, was performing standard surveillance protocols looking at wild crows that had died and whose disease could affect the health of the animals in the zoos collections. By expecting the unexpected, one of the hallmarks of a thorough surveillance system, the lesions were described and the alarm was sounded. While today we know that the isolate is identical to that found in a goose during the 1998 outbreak in the Middle East, we may never know how it breached our borders. However it arrived, the results are clear and ominous. Dr. Roy Campbell of The Centers for Disease Control and Prevention reported in February 2003 that the results from 2002 included 4,161 human cases with 277 fatalities. Thousands of horses were affected as well.

- *Restrict the trade (legal or illegal) in exotic wildlife that is taken from the wild for the pet or bushmeat trade:* In today's global marketplace, wildlife is just another commodity. Wildlife destined for food markets and the pet trade is often transported over enormous distances. For example, animals found in the markets in Guangshou, Guangdong Province, China include soft-shelled turtles captured in Sumatra, pangolins from Vietnam and Thailand, pythons from Myanmar and red-eared slid-

ers from Florida. The result is a dangerous concatenation of circumstances, with animals and would be consumers from different ecosystems coming into contact. The lack of resistance to new pathogens makes humans and animals alike, fertile, uncontrolled laboratories for these organisms to adapt and rapidly mutate. The staggering numbers of animals and people coming into contact with each other change the one-in-a-million odds of disease spillover into almost a daily possibility. Even under the most hygienic conditions, this pool of viruses, bacteria, and other pathogens creates an optimal breeding ground for diseases to multiply rapidly and jump between species enabling them to exploit new hosts.

What we know right now is that many different species of animals have the ability to carry infectious agents that can threaten human and animal health. These vectors of disease tell us not only what threatens us today but are especially instructive in showing us what is at stake when the balance of nature is tampered with. The Nipah virus emerged in Malaysia in 1999 and killed 105 people. One theory is that fruit bats were carrying the pathogen that infected domestic pigs that then became the "amplifying" hosts for the human outbreak.[6] The bat "fear factor" amongst people prompted calls to annihilate the species- a major pollinator of the forests in that region. If this eradication had been successful the implications to the future of healthy forests, the food supply and ultimately human health would have been dramatic. It will not be enough to isolate specific species after an outbreak occurs or worse, to attempt to eradicate each implicated species when an emerging disease is diagnosed. If we limit ourselves to this view we will miss the big picture- that proactive measures including long term surveillance, effective quarantine protocols and limits on the global trade of exotic animals will best protect the public health, help ensure the quality of our food supply and improve the prospects for the conservation of wildlife worldwide.

Mr. Chairman, as you formulate legislation to address the issue of importation of exotic species and the impact on public health and safety, I strongly encourage you and your staff to call upon the informational resources and expertise of the Wildlife Conservation Society and the American Zoo and Aquarium Association. These resources can assist the committee in developing effective, common sense measures that can help protect wildlife and human resources both here and abroad. I would be happy to answer any questions that you may have.

STATEMENT OF MARSHALL MEYERS, EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL, PET INDUSTRY JOINT ADVISORY COUNCIL

Mr. Chairman and members of the committee, my name is Marshall Meyers. I am the Executive Vice President and General Counsel of the Pet Industry Joint Advisory Council (PIJAC), the largest pet industry trade association in the world. PIJAC represents all segments of the pet industry consisting of companion animal breeders, importers, exporters, product wholesale distributors, manufacturers, and retailers.

PIJAC has worked with the Federal and State governments on behalf of the pet trade for three decades to ensure a responsible pet industry that promotes the health and safety of the public and of animals in trade. We remain committed to acting proactively in response to current health concerns, while not over-reacting in a way that threatens the right to keep pets supported by the vast majority of Americans.

Companion animals are an integral part of American society. 62% of US households - or 64 million homes - currently own companion animals. Approximately 20 million households maintain one or more "exotics." Studies indicate that the pet population in the United States is larger than our human population.

Historically, the US pet industry breeds and/or imports millions of specimens annually of numerous species of aquatic organisms, reptiles, amphibians, and birds that come from various parts of the world. In many instances, these animals are captive-bred and reared in Europe, Asia, Africa and South America, as well as in the United States.

When examining the role of "exotics" and human health, one must place it in perspective relative to other vectors (including humans) in our global economy. The actual number of human health related incidents involving traditional, as well as non-traditional, pets is really extremely small compared to the numbers of animals

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[6]United States Animal Health Association. Proceedings of the Ninety–Ninth Annual Meeting, October 28–November 3, 1995. Report of the Committee on Public Health and Environmental Quality. Pages 471–480.

maintained as pets. The risk is also relatively low compared to diseases associated with the import and trade of non- pet animals for other industries.

Needless to say, there is no activity that is without some element of risk, but the benefits derived from pet ownership far outweigh the negative consequences actually experienced by the US population. That being said, the pet industry recognizes its responsibility to partner with government to take a variety of steps that minimize risks to human health and safety. This is achieved in many ways including, but not limited to, a variety of screening/quarantining/isolation measures, monitoring, health certification, and last, but not least, education.

An initial issue that needs to be addressed is the overly-broad use of the term "exotics" to describe a broad range of animals in the pet trade. The term "exotic" is quite misleading it can include virtually every companion animal other than a dog or cat that is captive-bred, wild harvested, native or non-native. For some purists, dogs and cats are "exotics" because they were not indigenous to America prior to man's introduction of them centuries ago. Parakeets, goldfish, gerbils, hamsters, guinea pigs, reptiles, and most other pets and aquatic organisms are classified as "exotics." When discussing those wildlife species, mainly mammals, that pose a human health threat, we believe the dialogue should focus on non-traditional pets or those animals not normally found in regular retail channels.[1]

Man's interest in owning a wide diversity of wildlife species (animals and plants alike) is traceable to his fascination with nature. A number of species found in homes across America are non-traditional pets — Prairie Dogs, Sugar Gliders, Gambian Rats, Flying Squirrels, Non-human Primates[2] — pets that our industry would not consider mainstream pets. And some animals viewed by their owners as "pets" such as large cats and venomous reptiles are clearly non-traditional pets and should be treated differently from companion animals handled through traditional retail channels.

In dealing with non-traditional pets or non-pet wildlife species that pose threats to public safety and human health, we are confronted with a double-edged sword. Outright bans engender increased interest and demand followed by an unregulated, underground market where there is little to no chance to protect the public health and safety.[3] That is why PIJAC has been a long-time advocate of State or local regulatory mechanisms that permit possession pursuant to a permit system if, and only if, the owner of non-traditional pets that been documented to pose a threat to public health and safety demonstrate that their facilities and handling protocols protect the public health and safety and provide a humane and safe environment for the animal.

Our industry has long been concerned about the possibility of introduction of diseases that are harmful to animals as well as humans. Some 30 years ago, PIJAC funded research at the University of Georgia to ascertain whether imported ornamental fish shipments posed a danger to humans or the environment. That research demonstrated that imported aquarium fish shipments did not represent a threat.

Over the past 30 years PIJAC has worked closely with Federal and State agencies to minimize the risk of importing injurious diseases.

- *Exotic Newcastle's Disease* - Industry worked with USDA–APHIS in the establishment of an avian quarantine system that remains in place today. Industry participated in educational programs on how to comply with import laws.
- *Reptile-associated Salmonella* - PIJAC and the Centers for Disease Control (CDC) joined together on a public outreach education program to minimize the risk of Reptile-associated salmonella. Industry has also been funding research at Louisiana State University on ways to avoid the potential for spread from reptiles to humans. Copies of the educational materials are attached as exhibits 1 and 2.
- *National Reptile Improvement Plan (NRIP)* - In response to the possibility of Bont ticks transmitting heartwater disease into the United States, PIJAC and the reptile community, in conjunction with APHIS and the Florida Department of Agriculture, designed a voluntary accreditation program that contains Best Management Practices covering isolation, screening, disease prevention, humane care standards,

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[1]Companion pets are sold through a wide variety of retail channels: private breeders, retail pet stores, superstores, mass merchandisers, animal shelters, garden centers, farm/feed stores, and the Internet.

[2]PIJAC historically has recommended that a number of wildlife animals are non-traditional pets and should not be sold through pet stores: e.g., Bears, Coyotes, Flying squirrels, Foxes, Game animals, Kinkajous, Mink, Non-human primates, Non-Domestic Cats (i.e., lions, tigers), Crocodilians, Raccoons, Skunks, Venomous reptiles, Wolves, Wolf Crosses.

[3]Reports of increased demand for Prairie dogs is clearly attributable to media exposure received in recent weeks and as a result of State and local calls for bans. PIJAC has received reports that people are offering between $500 and $750 for Prairie dogs that previously sold, if one could find them, for approximately $125 each.

and a host of related concerns. While the program is voluntary, USDA and State departments of agriculture have access to the accredited facility just as they would under a government-regulated program.

- *Psittacosis* - Industry funded research over the years on improving diagnostics and treatments at the University of California, Davis; North Carolina State University; and, Louisiana State University.
- *PIJAC's educational activities* are directed within the pet trade and to the broader community alike. They include widely acclaimed certification programs that inform persons in the commercial pet industry, as well as those in animal shelters and others dealing with pets, as to appropriate care standards for pet animals; and public information campaigns through media such as posters that are made available to retailers, schools, shelters and other pertinent outlets. These materials emphasize the need to incorporate bio-security measures in husbandry protocols. Other aspects of good husbandry include sanitation, nutrition, disease prevention, proper housing, isolation and quarantine facilities, preventative medicine, etc.

The outbreak of any zoonotic disease from a pet, or even significant risk of such an outbreak, is of serious concern to the pet trade. The seriousness of the Monkeypox outbreak drew an immediate response from the pet industry. Despite the fact that the vast majority of pet stores do not sell Prairie dogs, Gambian rats or any of several other species of African rats, the industry's rapid response mechanism immediately notified pet stores, animal importers and breeders, veterinarians, rescue groups and shelters of the outbreak and the precautionary steps that should be implemented according to CDC guidelines as well as State recommendations.

PIJAC, in coordination with the Centers for Disease Control and a number of State veterinarians, acted as an information center and clearing house for disseminating information to the pet industry on the Monkeypox outbreak and steps to contain the outbreak. As individual States issued guidelines, regulations or other measures, PIJAC posted the materials on its website and arranged to have member distributors forward such information to all of their customers whether or not they were PIJAC members.

PIJAC's Emergency Alert Network members forwarded copies of the PIJAC PetAlert, the CDC/FDA Order banning movement, as well as state specific information to their customers. The *PetAlert* contained a summary of Federal and State rules, copies of which could also be found on PIJAC's website.[4]

The Pet Industry is committed to improving the relationship and quality of life between humans and animals, while striving to minimize related health risks. While PIJAC supports the industry's ongoing captive breeding initiatives, PIJAC is also cognizant of the importance of appropriate and regulated utilization of renewable resources by developing countries and the need to ensure that such natural resources do not become devalued. Irrespective of whether animals are imported from captive breeding facilities or from the wild, the pet industry recognizes the need for appropriate health protocols governing importation, especially mammals. These protocols may include a variety of mechanisms such as quarantine, screening, testing as deemed appropriate for the species.

What is needed is a review of existing regulatory mechanisms, both Federal and State, to ensure that appropriate safeguards are in place to minimize the risk of introduction and spread of zoonotic diseases. We believe there is always the potential to improve any system. Our industry recommends that USDA–APHIS revisit its regulatory mechanism governing importation of mammals and work with industry to establish appropriate isolation and health protocols to minimize the likelihood of a repeat of a Monkeypox or similar zoonotic outbreak.

We cannot overemphasize the need to maintain a balanced perspective in undertaking this process; that the resulting standards are risk-based, and that they should be supported by verifiable data and science.

As I earlier suggested, outright bans are counter productive, will drive demand, and will vitiate the apparatus critically needed to ensure protection against future potential risks. Nor are quick fixes automatically curative. Some 50 years ago, a famous social critic and journalist, H. L. Mencken, commented on governance when he observed, "For every complex problem, there is a solution that is simple, neat and wrong." Calls for bans by activist groups and the media are overly simplistic; they don't really address the issue or fix the problem. In fact, they may exacerbate it. The demand for such non-traditional pets has probably increased a hundred fold as a result of this outbreak and its attendant publicity.

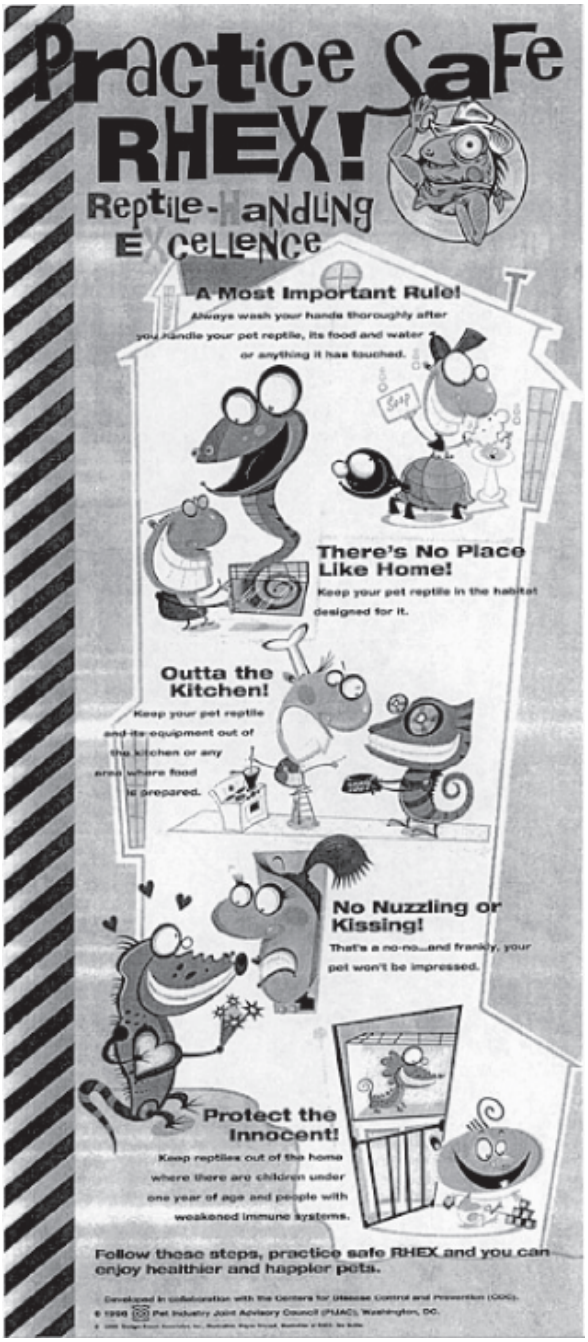
Hopefully this hearing will lead to USDA's convening a Task Force of interested stakeholders to devise a solution that is neat, simple, and meets our common objective of minimizing the likelihood of the introduction of foreign zoonotic diseases into

[4]"Breaking News" www.pijac.org. See Exhibit 3.

the United States. Most importantly, let's design it so it works. Our industry remains committed, as we have over the past 30 years, to assist in achieving these goals.

We appreciate the opportunity to contribute to the review of this issue.

Thank you Mr. Chairman, and please know that I stand ready to make PIJAC's resources available to further the good work of this committee. Do not hesitate to call on me as necessary.


Practice Safe RHEX!
Reptile-Handling Excellence
A Most Important Rule!
Always wash your hands thoroughly after you handle your pet reptile, its food and water or anything it has touched.
Soap
There's No Place Like Home!
Keep your pet reptile in the habitat designed for it.
Outta the Kitchen!
Keep your pet reptile and its equipment out of the kitchen or any area where food is prepared.
No Nuzzling or Kissing!
That's a no-no...and frankly, your pet won't be impressed.
Protect the Innocent!
Keep reptiles out of the home where there are children under one year of age and people with weakened immune systems.
Follow these steps, practice safe RHEX and you can enjoy healthier and happier pets.
Developed in collaboration with the Centers for Disease Control and Prevention (CDC).
© 1999 Pet Industry Joint Advisory Council (PIJAC), Washington, DC.

IMPORTANT!
Reptile Handling Steps
Follow these safe reptile handling steps...
and enjoy your pets!
As with many other animals, reptiles carry Salmonella bacteria which can make people sick. To reduce the chance of infection, follow these safe reptile handling steps.
Always wash your hands thoroughly after you handle your pet reptile, its food and anything it has touched.
Keep your pet reptile in a habitat designed for it; don't let it roam around the home.
Keep your pet reptile and its equipment out of the kitchen or any area where food is prepared.
Don't nuzzle or kiss your pet reptile.
Keep reptiles out of homes where there are children under 1 year of age or people with weakened immune systems. Children under 5 should handle reptiles only with adult/parental guidance. And, they should always remember to wash their hands afterwards.

Updated 06/30/03

PIJAC *PetAlert*
Summarizes the issue and need for the industry to respond and suggests recommendations for action. Read PetAlert

FEDERAL REGULATIONS

June 11, 2003 -- Centers for Disease Control (CDC) and the Food and Drug Administration (FDA) published an **embargo and prohibition on transportation or sale or public distribution** (including release into the environment). The embargo applies to prairie dogs and all African rodents and also imports of all rodents from Africa. Also see **Federal Register Notice dated June 18,2003**. The animals restricted are:

Prairie dogs (*Cynomys* sp.)
Tree squirrels (*Heliosciurus* sp.)
Rope squirrels (*Funisciurus* sp.)
Dormice (*Graphiurus* sp.)
Gambian Giant Pouched Rats (*Cricetomys* sp.)
Bush-tailed porcupines (*Atherurtus* sp.)
Striped mice (*Hybomys* sp.)

The CDC embargo permits movement to veterinarians, animal control officers or other persons designated by federal, state or local authorities.

CDC has also published a series of advisories that may be downloaded and provided to your customers. These are in PDF format. *If you do not have an Adobe Acrobat Reader* **click here** *to download the FREE Acrobat Reader.*

- Embargos -- *Interim Questions and Answers on Embargo and Prohibition of Certain Rodents and Prairie Dogs* **[Download]**
- Q & A -- *Questions and Answers About Monkeypox* **[Download]**
- General -- *What You Should Know About Monkeypox* **[Download English]** **[Download Spanish]**
- Pet Stores, Breeders, Animal Distributors -- *Monkeypox Infections in Animals: Interim Guidelines For Persons Who Have Frequent Contact With Animals, Including Pet Owners, Pets Shop Employees, Animal Handlers, an Animal Control Officers* **[Download]**
- Pet Owners -- *What Pet Owners Should Know About Monkeypox* **[Download]**
- Veterinarians -- *Monkeypox Infections in Animals: Interim Guidance for Veterinarians* **[Download]**

Other federal documents of importance:

- Interstate Quarantine: Measures in the event of inadequate local control: **42 Code of Federal Regulations Part 70.2**
- FDA powers to prevent spread of diseases including inspection, fumigation, disinfections, sanitation, pest exterminations and destruction of animal: **21 Code of Federal Regulations Part 1240.20**
- Health Measures at US Ports: **42 Code of Federal Regulations Part 71-32**

European Union Bans Imports -- The EU banned imports of all prairie dogs from the United States. The EU also banned importation of squirrels and other non-domestic rodents from Sub-Saharan Africa.

STATE ACTIVITY

The following states have published interim or temporary restrictions on the seven species listed by the CDC/FDA. If you are located in any of the states listed below, download a copy of the applicable Order or Rule to ensure full compliance. **In addition to the CDC listed animals, Michigan also bans RABBITS.**

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Arkansas -- County Environmental Health Specialists (EHS's) are surveying pet stores and other animal operations. People not contacted by June 24 are asked to contact the County Health Unit and ask for an EHS specialist to complete the survey.

- **Colorado** -- State bans all trapping and relocation of prairie dogs.
- **Delaware** -- Public Health Department reminds the public that prairie dogs are illegal in Delaware since 1996. Despite the ban, it is believed that at least 11 animals have been sold by a pet store. Residents who have recently had contact with any prairie dogs should contact the Health Department at (888) 295-5156. If any resident handled or purchased animals at any swap meets in Illinois, Indiana, Ohio or Wisconsin they should contact the Health Department.
- **Florida** -- Florida Agriculture Commissioner & State Veterinarian Press Release (June 10, 2003) on Health Certificates Before Buying a Pet.
- **Iowa** -- Order (June 12, 2003) banned transportation, movement, sale, public display or release into the environment of the seven species identified in the CDC/FDA embargo. Covers interstate and intrastate activity. Movement of veterinarians or animal control officers permitted.
- **Illinois** -- Executive Order (June 7, 2003) prohibited importation, sale, distribution or display of prairie dogs or Gambian rats. Department of Agriculture (June 10, 2003) established emergency rules designating the monkeypox virus (orthopox virus) as a contagious or infectious disease.
- **Indiana** -- Emergency Order (June 9, 2003) temporarily banned display, exhibit, sale, distribution, transport, movement, release into the environment, or engage in any activity that could result in human contact with prairie dogs or Gambian rats acquired since April 1, 2003.
- **Kansas** -- Order (June 12, 2003) made it illegal to sell, offer for sale, transport or offer to transport any prairie dogs or African rodent within the state of Kansas.
- **Louisiana** -- Agriculture Department urges Louisiana veterinarian to be on lookout for monkeypox in "exotics."
- **Maryland** -- State Health Department reminds residents that it is **illegal to sell** prairie dogs in Maryland and discourages Marylanders from buying them in any state.
- **Michigan** -- Amended Order (June 27, 2003) declared "imminent danger to the public health" and prohibited intrastate transport, display, sale, release into environment, or any other distribution (barter, exchange, gift) or the seven species listed by CDC/FDA. The June 13, 2003 ban on rabbits (*Leporidae*) is no longer effective. Michigan Press Release (June 10, 2003) urges pet stores to watch for signs of disease and contains precautionary guidelines for pet stores, animal handlers, veterinarians, shelter workers and pet owners.
- **Minnesota** -- Health Department urges residents who purchased or handled prairie dogs or other animals at swap meets in Illinois, Indiana, Ohio and Wisconsin to contact their health provider and the Health Department at (612) 676-5414.
- **New York** -- Department of Health (June 13, 2003) advised pet store owners, animal breeders, and kennel operators of the outbreak and the ban on the movement of the 8 species listed by CDC/FDA. **Do not release any of the animals into the environment.** If any of the listed species are on the premises, they should be separated from other species and not be offered for sale to the public . Also do not transfer, transport or otherwise move the animals to any person or other facility or home until further notice. Nor should the animals be allowed to come in contact with the public. If any of the listed animals become ill, **notify** the local health department. Disposal of healthy animals can only be done in consultation with the local health department. Veterinarians received a June 10 letter.
- **North Carolina** -- State Agriculture Department advised residents to contact a health professional whenever they have an unusual ailment or sickness following contact with animals. Veterinarians have been alerted to be on the lookout for sick animals, and report suspected or confirmed cases of monkeypox. For more information, contact North Carolina authorities at (919) 773-7601 or visit www.cd.gov/ncidod/monkeypox/
- **North Dakota** -- Order (June 11, 2003) banned imports of or release from captivity prairie dogs and Gambian rats in the state.
- **Oklahoma** -- Health Department issued a public health alert and guidance on pet-associated Monkeypox outbreak Any person exhibiting an unusual rash illness should contact their health provider. Consultation and laboratory testing is available 24-hours a day (405) 271-4060.
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Vermont -- Department of Health reminds public that "wild" animal possession/importation permits are required from Fish and Game Department (802-241-3700) and encourages people to periodically visit the Health Department's home page for updates. www.healthyvermonters.info/

- **West Virginia** -- Governor invoked a ban on possession of prairie dogs or their release into the environment. Agriculture and Health and Natural Resources departments, commencing June 23, statewide inspections of pet stores to determine if they have any sick animals. All animals acquired after April 15 should be monitored for illness.
- **Wisconsin** -- Emergency Order (June 12, 2003) prohibited import, sale, release into environment, public access to, or disposal of prairie dogs or any mammals known to have come in contact with a prairie dog since April 1, 2003. Order also prohibited intrastate sale or offering for sale or any other type of commercial or public distribution (including release into the environment) of rodents identified in the CDC/FDA Order.
- **Wyoming** - Department of Health issued Epidemiology Bulletin (June 11, 2003) on Monkeypox infections in humans having direct contact with prairie dogs.

STATEMENT OF NICOLE G. PAQUETTE, ESQ., DIRECTOR OF LEGAL AND GOVERNMENT AFFAIRS AND GENERAL COUNSEL, ANIMAL PROTECTION INSTITUTE

On behalf of the Animal Protection Institute (API), a national non-profit animal advocacy organization with over 85,000 members and supporters, I am pleased to offer testimony regarding the importation of exotic species and the impact these species have on public health and safety. I wish to thank the Committee on Environment and Public Works for holding a public hearing on this very important issue.

For several years, API has been studying the issue of exotic animals held in private hands. We have tracked incidents across the country involving attacks, escapes, and transmission of communicable diseases, and have analyzed all of the State laws that govern these issues, including caging requirements and standards. API has worked on legislation in North Dakota, Ohio, Oregon, South Carolina, and Washington State that would prohibit the private possession and breeding of exotic ani-

mals. Several cities have also passed API's model legislation restricting the possession and breeding of exotic animals. In addition, we operate the API Primate Sanctuary, which is home to approximately 350 non-human primates, many of whom were rescued from private possession.

The trade in exotic animals is a multi-billion-dollar-a-year industry. People are breeding captive wild animals in large numbers. Every year, thousands of animals enter the captive wild animal trade from a variety of sources. These animals are either "surplus" from various roadside menageries and zoos; are captured from their native habitat; are sold at auctions, pet stores, or over the Internet; or come from backyard breeders. These animals are then sold on the open market and freely moved via interstate commerce. For example, a primate bred in Kentucky can be shipped with ease to an individual in Texas in a matter of days.

Exotic animals, such as lions, tigers, servals, monkeys, bears, snakes, iguanas, wolves, prairie dogs, and binturongs are being privately possessed as "pets" across the country. These animals pose public safety and health risks to their possessors and to the community at large. By their very nature, these animals are wild and inherently dangerous and, as such, do not adjust well to a captive environment. The American Veterinary Medical Association (AVMA), the United State Department of Agriculture (USDA), the Centers for Disease Control and Prevention (CDC), and the American Zoo and Aquarium Association (AZA) have all opposed private possession of certain exotic animals.

Across the country, many privately held captive wild animals have attacked humans and other animals, or have escaped from their enclosures to freely roam the community. In many instances, children and adults have been mauled by tigers, bitten by monkeys, and asphyxiated by snakes. For example, monkeys are the most common non-human primates to be privately kept. After the age of two, monkeys tend to exhibit unpredictable behavior. Males often become aggressive, and both males and females bite to defend themselves and to establish dominance. There have been numerous reported monkey bites since 1990 resulting in serious injury to the individual involved who was either the possessor, a neighbor, or a stranger on the street.

Further, many exotic animals are carriers of zoonotic diseases, such as salmonella, Herpes B, rabies, and monkeypox, all of which are communicable to humans. For example, ninety percent of all reptiles carry and shed salmonella in their feces. Iguanas, snakes, lizards, and turtles are common carriers of the bacteria. Reptiles that carry salmonella do not show any symptoms, thus there is no simple way to tell which reptiles play host to the microbe and which do not. Salmonellosis associated with exotic pets has been described as one of the most important public health diseases, affecting more people and animals than any other single disease. The CDC estimates that 93,000 salmonella cases caused by exposure to reptiles are reported each year in the United States.

Eighty to 90 percent of all macaque monkeys are infected with Herpes B-virus or Simian B, a virus that is harmless to monkeys but fatal to 70 percent of humans who contract it. Monkeys shed the virus intermittently in saliva or genital secretions, which generally occurs when the monkey is ill, under stress, or during breeding season. At any given time, about two percent of infected macaque monkeys are shedding the virus. A person who is bitten, scratched, sneezed on, or spit upon by a shedding macaque runs the risk of contracting the disease.

Also, there are no known rabies vaccinations licensed by the Food and Drug Administration for exotic animals. Exotic animals that are not completely excluded from all contact with rabies vectors can become infected. As such, animals that are kept outside in cages can be infected from wild animals in the area. Therefore, all exotic animals that are capable of contracting rabies, such as lions, tigers, bears, etc., are potential carriers.

Moreover, according to the CDC, as of July 8, 2003, there have been a total of 71 cases of monkeypox reported to the CDC from Wisconsin (39), Indiana (16), Illinois (12), Missouri (two), Kansas (one), and Ohio (one) as a result from exposure to "pet" prairie dogs. This recent outbreak of monkeypox clearly demonstrates that it is extremely difficult to predict what other communicable diseases are out there waiting to jump from animals to humans.

The only way to stop the proliferation of the exotic animal trade and the public safety and health risks that possession of exotic animals causes is to stop the breeding, bartering, transporting, trading, and selling of exotic animals on the open market for profit and amusement, and by educating the public to understand that wild animals belong in the wild, not in our homes.

There is very little Federal oversight on the exotic animal industry. The Federal laws that do exist outline minimal care and treatment standards for specific animals according to the Animal Welfare Act, regulate threatened and endangered spe-

cies, or regulate the interstate transport of specific animals that may spread communicable diseases.

Pursuant to 42 USC §264, the "Surgeon General, with the approval of the Administrator [Secretary], is authorized to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the States or possessions, *or from one State or possession into any other State or possession"* (emphasis added). Regulations implementing this section have prohibited the importation of all non-human primates into the United States, as well as restricted the number of turtles, tortoises, and terrapins that may be imported. Please see 42 CFR §71.52 - §71.55.

Clearly, 42 USC §264 gives Congress the authority to prohibit transport of exotic animals between foreign countries and States, as well as prohibit outright the possession of designated species of animals. Considering this broad authority, Congress can and should prohibit the interstate transport and possession of additional exotic animals that have the potential to spread communicable diseases.

With this in mind, API recommends that, at the very least, Congress acts under its authority and instructs the Director of the Centers for Disease Control and Prevention, Public Health Service, and/or the Department of Health and Human Services to adopt regulations that will prohibit the interstate transport and possession of all exotic animals that have the potential to spread a communicable diseases. The following is a partial list of exotic animals that are known to be possible carriers of zoonotic diseases transmittable to humans:

- Non-human primates—Herpes B with respect to macaque monkeys, ebola, and monkeypox
- Reptiles—Salmonella
- Prairie dogs—Monkeypox
- Exotic rodents (e.g. Gambian rats)—Monkeypox
- Bears—Rabies
- Exotic felines (e.g. lions, tigers, ocelots, servals, etc.) — Rabies
- Wolves—Rabies

In addition, API encourages Congress to devise an Advisory Committee, which would meet to discuss other exotic animals that should be considered as a potential health risk if privately possessed.

Currently, the Captive Wildlife Safety Act (H.R. 1006 and S. 269) is moving through Congress. These bills amend the Lacey Act to ban the interstate movement of lions, tigers, leopards, cheetahs, jaguars, and cougars for private use as "pets." A hearing was held on H.R. 1006 in which the bill was well received. This important bill attempts to address the exotic animal trade; however, stronger restrictions must be put into place that will protect the American public from the exotic animals that are in private hands.

There is a critical need for the Federal government to step-in and regulate the exotic animal trade. API strongly asserts that the means to address this issue is to amend 42 USC §264 to prohibit the interstate transport and possession of all exotic animals that have the potential to transmit communicable disease to humans.

Thank you for your consideration of this statement on behalf of the Animal Protection Institute.

STATEMENT OF WAYNE PACELLE, SENIOR VICE-PRESIDENT, COMMUNICATIONS AND GOVERNMENT AFFAIRS, HUMANE SOCIETY OF THE UNITED STATES

On behalf of the Humane Society of the United States and its 7.7 million members and constituents, I would like to thank the Chairman for conducting a hearing on the critical issue of exotic animals imported into the United States for the pet trade, and the concomitant dangers they pose to public health, native wildlife, and the environment.

At the root of the government's recent scramble to contain the outbreak of monkeypox lies a simple fact. Anyone arriving in the United States carrying a meat product, a piece of fruit or a potted plant from any foreign destination is subject to a thorough inspection and confiscation of the item to make sure it isn't harboring diseases or parasites.

But an importer of live exotic animals, say Gambian giant pouched rats that are blamed for introducing the monkeypox virus into the United States from Africa and passing it on to humans via pet prairie dogs, faces no such check. Gambian rats, and hundreds of other exotic wildlife species, have a far easier time entering the United States than dogs, cats, livestock, horses and people.

This latest outbreak of yet another alien disease is the direct result of the government's failure to regulate the flow of tens of millions of wild creatures into this

country for the pet trade. A veritable Noah's Ark of exotic wildlife carrying viruses, bacteria and parasites that can transmit endemic foreign contagions to humans and to native wildlife, are being imported into the United States with scant Federal regulation, restriction, or precaution.

America's craze for exotic pets has created a freewheeling, virtually unregulated wildlife import industry that may account for close to half of the roughly $30 billion market for pets and pet products in this country. The industry is in serious need of controls. Everything from dangerous carnivores to omnivorous fish to venomous reptiles and amphibians are sold in pet stores, on the Internet, by mail order catalogue, at regional auctions, and in local swap meets.

As monkeypox vividly illustrates, the virtually unrestricted flow of exotics into the U.S. poses a serious disease threat. Animals have long been known to transmit zoonotic illnesses to humans. They include E.coli, rabies, salmonella, trichinosis, yellow fever, malaria, botulism, streptococcus, and influenza. The Spanish flu pandemic of 1918-19 that killed some 20 million people worldwide, is believed to have originated either with swine or waterfowl.

In recent times, so-called "emerging diseases" have increasingly jumped from animals to humans as contact with exotic creatures has increased and opportunistic infectious agents have found new hosts. These diseases include HIV-AIDS, Hepatitis B, the hemorrhagic Ebola and Marburg viruses, Lyme disease, hantavirus, mad cow disease, West Nile virus, the respiratory killer SARS, and now monkeypox. This virus, never before seen in North America, spreads between humans and kills about 10 per cent of its victims in Africa.

Experts believe this animal-human crossover could spawn dangerous new pathogens and increase the chances for another deadly disease outbreak. Robert Webster, a leading virologist at St. Jude's Children's Research Hospital in Memphis, has warned: "There are probably hundreds, if not thousands - maybe even millions - of viruses out there. We don't even know they're there until we disturb them. SARS is probably just a gentle breeze of what one of these big ones is going to do someday."

The Humane Society of the United States began campaigning against exotic animal imports three decades ago when it supported a successful petition to the U.S. Food and Drug Administration to ban the import and sale of small turtles that carry salmonella. Since then, we have continued to battle this growing public passion for unusual pets and have tracked with alarm the deleterious consequences for both people and wildlife.

In 1975, the government banned imports of all primates for the pet trade because they carry several dangerous diseases. Later, it prohibited the import of three species of African tortoise that can transmit a disease deadly to livestock. In the wake of the monkeypox outbreak, the government recently banned the import, sale and distribution of Gambian rats and other African rodents.

Trade was also halted in native American prairie dogs which vectored monkeypox to humans and are known to carry bubonic plague and tularemia. The government's practice of targeting wildlife after a disease outbreak illustrates a major flaw in public health protection -- the classic approach of closing the barn door after the horse has bolted.

Washington has failed to stiffen the nation's public health defenses sufficiently even as the threat to public health has increased dramatically. Four years ago, for example, the HSUS petitioned the FDA for an import ban on all pet reptiles in response to the soaring incidence of salmonellosis. We are still awaiting the agency's response.

According to the Centers for Disease Control and Prevention, there are nine million pet reptiles—snakes, iguanas, lizards and turtles—in the U.S. and they are responsible for some 90,000 cases of salmonella poisoning annually. The disease causes severe diarrhea, fever, vomiting, even death - with children and the elderly the most vulnerable.

Government defenses against the exotic animal disease threat are fragmented between several Federal agencies. The CDC, for example, regulates imports of cats, dogs, and pet-trade primates because they are known vectors of disease to humans. The Fish and Wildlife Service checks a wide variety of wildlife shipments - alive and dead - looking for endangered species, but its inspectors are not trained to detect diseases.

Along with meat and produce, the Department of Agriculture inspects horses, livestock and birds which are subject to quarantine and a raft of other screening procedures. Everything else gets waved through. Says a USDA spokesman: "We don't regulate importation of fish, reptiles, lions, tigers, bears, foxes, monkeys, endangered species, guinea pigs, hamsters, gerbils, mice, rats, chinchillas, squirrels, mongooses, chipmunks, ferrets and other rodents."

The HSUS has warned for years that exotics can also wreak ecological and financial havoc by introducing diseases to domestic wildlife, livestock, poultry, and fish populations which have no natural resistance to them. In 2000, the government clamped an emergency ban on three species of African tortoise that carry ticks capable of transmitting heartwater disease to ungulates. Had it become established here, the contagion could have wiped out half the nation's cattle, sheep, goats, antelope and deer.

Exotic Newcastle Disease, carried into California this year by smuggled Mexican parakeets and initially spread to four other States by illegal cockfighters whose game fowl became infected, has forced the government to destroy 3.5 million chickens and turkeys and has cost taxpayers over $100 million.

Fanciers of unconventional pets eager to obtain the latest fad animal for personal amusement, public recognition, or bragging rights, rarely stop to consider the true costs of the exotics trade. All forms of wildlife suffer extreme cruelties and high death rates during capture and transportation. Mortality among tropical birds, for example, runs as high as 80 percent.

When millions of surplus cats and dogs are euthanized every year because homes cannot be found for them, there is no good reason to take wild animals from their natural habitats and confine them to a tiny cage or a small enclosure for the rest of their lives. Before the monkeypox outbreak, tens of thousands of prairie dogs were captured out west and sold into the pet trade. In their natural habitat, these gregarious animals live in large social groups: as solitary caged pets, they are condemned to a miserable and lonely existence.

Properly caring for exotic pets, particularly large predators like big cats, is difficult at best as owners often try to change the nature of the animal rather than accommodate its normal behavior. The HSUS estimates that Americans now own anywhere up to 12,000 pet tigers, lions, cougars and other big cats. These magnificent carnivores - particularly easy-to-breed tigers - have become the nation's hottest new exotic pet, animal status symbol, advertising gimmick, and roadside attraction.

They are imprisoned in tiny wire mesh cages, tethered or chained in basements and barns, displayed outside gas stations and convenience stores to attract customers, used as guard animals by drug dealers, and held in squalid, unaccredited roadside zoos. Astonishingly, they are also carted around to schools and shopping malls to be photographed and petted.

They may appear to be tame and friendly, but the reality of recent attacks -- many on children -- reinforces the omnipresent danger to their owners, or to anyone who comes into close contact. Big cats are hard-wired to kill, and in the past five years, at least 9 people have been mauled to death by tigers, scores have been attacked, and many have suffered grievous injuries. Twice as many people die each year from dog bites but with 50 million dogs, the threat from tigers is far greater.

Tigers kept as pets or held in roadside zoos suffer from abuse, ignorance, poor diet, lack of veterinary care, and painful physical ailments from random inbreeding. A few lucky ones end up in accredited sanctuaries. Most are dumped into pseudo-shelters that operate like puppy mills. They breed the big cats to churn out cubs for sale on the internet or at exotic animal auctions. They cost as little as $300 - the price of a pure-bred puppy.

Many tigers end up being dumped on local animal shelters that are ill-equipped to care for them. Humane officers report a catalogue of misery suffered by the animals from untreatable ailments requiring euthanasia, to cats mutilated and crippled by ignorant owners who try to declaw their pets with garden shears.

This growing threat to the American public, the widespread abuse of these animals, and the patchwork of State and local exotic animal laws, underscores the need for Federal action. Twelve States (Alaska, Calif., Colo., Ga., Hi., Mass., N.H., N.M., Tenn., Utah, Vt., and Wyo.,) prohibit the private possession of exotic animals. Seven States (Conn., Fla., Ill., Md., Mich., Nev., Va.,) have a partial ban. Fifteen States (Ariz., Del., Ind., Maine, Miss., Mont., N.J., N.Y., N.D., Okla., Ore., Pa., R.I., S.D. and Tex.,) require a license or permit to possess them.

However, enforcement is spotty, loopholes are wide, and local ordinances are a regulatory patchwork. From the squalid backyard menagerie to the seedy roadside zoo, it's time for Congress to step in and begin policing the big cat underground. It is also time to stem the tide of millions of exotic animals imported for the pet trade.

Consumers should consider the health risks and the humane issues associated with any species of wild animal - exotic or native - obtained as a pet. Any time a wild creature is brought into the home, it can bring with it every bacteria, virus, or parasite it has been exposed to. Even with a lengthy quarantine, there is no way to assure that these animals are healthy, or will not pass on disease-causing patho-

gens to humans. The risks far outweigh the novelty and fascination of owning the animal.

The Humane Society of the United States believes Congress and the Federal government have several available options for decisive action to regulate these unrestricted wildlife imports and protect public health.

- Enact the Captive Wildlife Safety Act [HR 1006 and S.269] now before the House and Senate that would prohibit the interstate transportation of big cats and other dangerous predators for sale and commerce in the private pet trade.
- Form an advisory committee within the Department of Health and Human Services to determine which species pose a health threat, and recommend their placement on the U.S. Fish and Wildlife Service list of injurious species.
- Expand the injurious species list immediately to include exotic reptiles and rodents, thus preventing their importation and interstate transportation under the Lacey Act.
- Consider new legislation to establish a fund to assist in the confiscation and placement of captive wild animals in the U.S. and improve their quality of care in accredited animal shelters and sanctuaries.

Until a sound system to protect public health is in place, Washington should prohibit imports of all exotic mammals, reptiles, amphibians and birds - wild caught or captive bred - destined for the pet trade.

Thank you again for conducting this important hearing.