

THE IMPACT OF HURRICANES KATRINA AND RITA ON THE NATIONAL WILDLIFE REFUGE SYSTEM

OVERSIGHT HEARING

BEFORE THE
SUBCOMMITTEE ON FISHERIES AND OCEANS
OF THE
COMMITTEE ON RESOURCES
U.S. HOUSE OF REPRESENTATIVES

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**OVERSIGHT HEARING ON THE IMPACT OF
HURRICANES KATRINA AND RITA ON THE
NATIONAL WILDLIFE REFUGE SYSTEM.**

**Thursday, March 16, 2006
U.S. House of Representatives
Subcommittee on Fisheries and Oceans
Committee on Resources
Washington, D.C.**

The Subcommittee met, pursuant to call, at 9:58 a.m. in Room 1324, Longworth House Office Building, Hon. Wayne T. Gilchrest [Chairman of the Subcommittee] presiding.

Present: Representatives Gilchrest, Kind, Pallone.

**STATEMENT OF THE HON. WAYNE T. GILCHREST, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF
MARYLAND**

Mr. GILCHREST. The hearing will come to order. I want to thank Mr. Hall, Fish and Wildlife Service, and the other witnesses for coming here today to testify to the massive destruction, albeit a lot of it is nature's way of randomly deciding the configuration of the planet I would guess, but in human terms quite an extraordinary catastrophe where many of the refuges down there, homes to just a myriad of splendid and wonderful species, a number of which are endangered, have been for the most part utterly and completely displaced.

We know it will cost hundreds of millions of dollars to repair not only the refuge areas, but the infrastructure that is part of those refuge areas. Many of the people who have lived and worked down there, many of them were in Fish and Wildlife, have lost their homes.

I want to compliment the Fish and Wildlife Service. Having visited the region in I guess it was October and November, all the Federal people down in that area, especially the Fish and Wildlife folks, responded in an extraordinary fashion, and they responded in the way that you would expect people to respond.

They didn't wait for an order. They didn't wait for a memo. They didn't wait for anybody to make a phone call. They just got the boats out of their backyard, drove down that highway and actually rescued thousands of people, so it was an extraordinary display of a community where the integrity was intact.

I want to compliment you, Mr. Hall, for all the people in your Service that have done that and then collaborated as well with people in NOAA and USGS, state folks, local folks. It didn't matter what the identification was in your wallet, just that people joined hands and did an extraordinary amount of work.

What we would like to do today during this hearing is to understand in a more specific way the items that we need to address with a sense of urgency and the kind of money that needs to do that and maybe even perhaps change some of the regulatory or Federal statutes so this kind of thing can be—I don't know if it could be any smoother given the initiative and ingenuity that people displayed, but we will see what we can do to complement your actions.

[The prepared statement of Mr. Gilchrest follows:]

**Statement of The Honorable Wayne T. Gilchrest, Chairman,
Subcommittee on Fisheries and Oceans**

Good morning. Today, the Subcommittee will conduct an oversight hearing on the effects of Hurricanes Katrina and Rita on units of the National Wildlife Refuge System in the Gulf Coast region.

While it did not receive a great deal of media attention, 33 National Wildlife Refuges in Alabama, Louisiana and Mississippi suffered varying degrees of damage because of Hurricanes Katrina and Rita. When these two massive category 5 hurricanes slammed into the Gulf Coast they left behind some 1,400 victims, \$85 billion in property damages and the destruction of thousands of acres of critical wildlife habitat. From my own observations, I would describe the devastation as catastrophic, unbelievable and eerily similar to what I saw in Banda Aceh, Indonesia, after the tsunami.

Over large areas, every tree was brown and every leaf was blown off. Nearly 50 percent of the vegetation at the Breton National Wildlife Refuge in Louisiana, which was established in 1904, is gone. Prior to these storms, Breton provided nesting habitat to 15 percent of the world's brown pelicans and 30 percent of its sandwich terns. At the Bayou Sauvage Refuge, which is located within the New Orleans levee system, its 22,000 acres were inundated with brackish salt water.

Furthermore, these hurricanes destroyed critical habitat for a number of Federally listed species including the endangered Alabama beach mouse, red-cockaded woodpeckers and loggerhead sea turtles. The hurricanes obliterated refuge visitor's centers, environmental and interpretive buildings, administrative offices, refuge roads and bridges, wildlife trails, hundreds of acres of timber and miles of coastal barriers. These storms were the worst to ever strike the National Wildlife Refuge System and the cumulative cost of Katrina, Rita and Hurricane Wilma now exceeds \$200 million dollars.

On February 16th the President submitted a new supplemental appropriation request that would provide \$132.4 million to the U.S. Fish and Wildlife Service. Specifically, these emergency funds would be designated for clean-up and facility repair. While I strongly support this request, it is critical that this money also be available for resource restoration. In my view, it is short sighted to simply repair the physical structures without revitalizing the habitat for which these refuges were created for in the first place. We must fix the coastal barriers, wetlands and timber habitats which are vital to the survival of thousands of species.

The purpose of this hearing is to try to quantify the amount and type of damage done to National Wildlife Refuges in the Gulf; to examine the Federal strategy for repairing, restoring and replacing resources within the units; and to identify how much additional Federal funds beyond the \$132 million may be needed to be appropriated in the future to rebuild this unique system of public lands.

Finally, I would like to compliment the leadership of the Fish and Wildlife Service and its outstanding employees for their heroic efforts in saving lives, clearing roads and improving the lives of those citizens who continue to endure the hardships of Hurricanes Katrina and Rita. The Fish and Wildlife Service was there to ease their pain and suffering.

I now recognize the Ranking Minority Member, Congressman Frank Pallone of New Jersey.

Mr. GILCREST. I will now yield to the gentleman from New Jersey.

STATEMENT OF THE HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Mr. Chairman. I am going to submit my full statement for the record because I know that we want to get moving here this morning.

I am not going to repeat the things that you have said about the devastation of lives and the communities and the environment along the Gulf Coast as a result of the hurricane and the fact that there were so many cases where people really valiantly did what they had to do to try to help people and save people's lives and property.

I wanted to commend you for convening the hearing. Many of these affected refuges, after all, helped define the very fabric of the region and contributed to the characterization of the State of Louisiana particularly as a sportsmen's paradise.

Because of the scale of devastation and because Federal and state resources are limited, recovery of the environment in general and restoration of fish and wildlife habitats specifically are likely to slip from the list of priorities. I think the most important thing that we could state today is that we can't let that happen.

It is unimaginable that we should leave to chance a matter of such national importance and vital significance to the future recovery of the Gulf Coast, and I think greater attention should be directed to the impact of the hurricanes on Gulf refuges, and that is why I think this hearing is an important first step.

The scale of destruction at these refuges may be immense. Moreover, the costs for recovery may be daunting, but we can't shrink from our responsibility to restore these priceless refuge lands, and hopefully we will learn more today about how we can help.

Thank you.

[The prepared statement of Mr. Pallone follows:]

**Statement of The Honorable Frank Pallone, Ranking Democrat,
Subcommittee on Fisheries and Oceans**

Thank you, Mr. Chairman. The vivid images broadcast by both network and cable news channels that conveyed the total devastation of lives, communities and the environment along the Gulf Coast as a result of Hurricanes Katrina and Rita made an indelible impression in the minds of millions of Americans. And that stark impression was that this region will never be the same again.

Few people might realize it, but that impression might just as easily apply to the several National Wildlife Refuges that line the Gulf Coast from the Texas/Louisiana border across to the Florida panhandle.

For example, it is my understanding that the Breton National Wildlife Refuge—formerly an offshore, low-lying chain of coastal islands valued as nesting habitat for endangered migratory birds and sea turtles—was virtually wiped off the charts by Hurricane Katrina. Not to be outdone, Hurricane Rita left debris piles—one six miles long and wider than the Washington Mall—littered across the Sabine National Wildlife Refuge.

For this reason, Mr. Chairman, and because of the fact that our National Wildlife Refuges remain our preeminent system of Federal lands devoted to the protection and conservation of wildlife, I commend you for convening this morning's hearing. Many of these affected refuges, after all, helped define the very fabric of the region and contributed to the characterization of Louisiana as a "Sportsman's Paradise."

Because of the scale of the devastation, and because Federal and State resources are limited, recovery of the environment in general, and restoration of fish and wildlife habitat specifically, are likely to slip from the list of priorities. Yet we cannot let that happen. It is unimaginable that we should leave to chance a matter of such national importance and vital significance to the future recovery of the Gulf Coast.

Greater attention should be directed to the impact of these hurricanes on Gulf refuges, and Mr. Chairman, this hearing is an important first step. The scale of destruction at these refuges may be immense. Moreover, the costs for recovery may be daunting. Yet we cannot shrink from our responsibility to restore these priceless refuge lands. Thank you.

Mr. GILCHREST. Thank you, Mr. Pallone.

I would also ask unanimous consent that my full statement be entered into the record.

Mr. Hall, and I guess you have one of your staff along with you today, Mr. Hamilton. Welcome.

Mr. Hall, you may begin.

STATEMENT OF H. DALE HALL, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR; ACCOMPANIED BY SAM D. HAMILTON, SOUTHEAST REGIONAL DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR

Mr. HALL. Thank you, Mr. Chairman, Mr. Pallone. I would like to introduce Sam Hamilton, who is our Regional Director out of the Southeast. They really orchestrated the response for the whole Fish and Wildlife Service. If there are specific details that are needed, I have asked him to be here to help out.

I ask that my written testimony be entered into the record in its entirety.

Mr. GILCHREST. Without objection.

Mr. HALL. In order to make use of the best time that we have here, I would like to focus on just three areas, the first one being our people, the second one being the impacts that were felt on the national wildlife refuges, and the third being what we hope is a future course to move forward.

I could not be prouder of the people in the Fish and Wildlife Service. You know, I described this once before as being we led, followed or got out of the way, whatever was needed. When it came time to rescue people, our folks got in boats and assisted in rescuing 4,500 people.

When it came time to follow, we picked up chainsaws, and we cleared roads and driveways and found people literally where their respirators, the generators running the respirators, were about to run out of gas and helped people get the help that they desperately needed and also helped clear the pathway to the Heart Hospital so that patients and the medical centers could work.

When it came time to get out of the way, we opened our Big Branch Marsh National Wildlife Refuge as a headquarters for all the other workers to come in, take a shower and rest and have laundry. We served 35,000 meals.

In the midst of all this, we had 50 employees that were significantly impacted. Some of them lost everything, just like everyone else down there did or a lot of people did, and yet the very next morning they showed up to work and said what can we do to help.

The second area is in the impacts that occurred. We have 130 national wildlife refuges in the southeast, and about 66 of those were impacted. We also had three national fish hatcheries and about 12 other offices down there that were impacted.

On the refuges we lost things from administrative buildings to water control structures and everything in between, damage to levees. We had significant impacts from toxic materials, oil drums, et cetera, debris from refrigerators to things that you just wouldn't expect to see on a national wildlife refuge.

If you will allow, I will quickly show some slides when I am finished if that is appropriate.

Mr. GILCHREST. I think that is fine. We will get the pictures back up there.

Adrian, if you can turn the lights off? The timing lights. Leave the lights on the camera. There you go. Thanks.

[Slide.]

Mr. HALL. We had in some cases we estimated 115,000 to 350,000 gallons of unknown toxic gases and substances in drums, et cetera, we were finding on the refuge in addition to all of the refuse that was blown in.

Just basically every aspect of the national wildlife refuges from levees to roads to trails to the buildings were impacted, equipment, and then at the same time we have had the aftermath to deal with.

Now, Congress appropriated \$30 million in a supplemental for us to get going, and we have been working diligently to implement those dollars on pretty important projects. They will all be obligated and spent by Labor Day.

The President has requested a \$132 million additional supplemental that could help us get after a lot of this aftermath, and we have earmarked about \$20 million of that, should it be appropriated, for toxic cleanup to begin the effort. It is very difficult to say how much it will exactly cost because of getting contractors and getting out on the ground.

The third thing though, and we can give you more details on all of these if you would like. The third thing is where should we be going? The future of the coast of Louisiana, Texas, Alabama, Mississippi and Florida is almost certain to experience additional hurricanes. The question is how do we deal with them?

One of the things that is not recognized that the national wildlife refuges provided in Hurricanes Katrina, Rita and Wilma were buffer strips for the communities. As devastating as the damage was, how much worse would it have been had those marshes, wetlands and structures not been there to help slow the storm down?

The U.S. Geological Survey has published literature that says for every 2.7 miles that a hurricane travels across marshes, estuaries and structures like oyster reefs, the stormwater surge is reduced by one foot. Louisiana used to have about 100 miles of solid meandering bayous and oyster reefs and marshes that went down south of New Orleans. At that rate, the storm surge would have been close to nothing had all those marshes been there in their healthy condition.

We tend to think of wetlands and marshes as being wonderful places for birds and fish and amphibians and reptiles and the kinds of wildlife that we need there and production of shellfish and the

economy. That is only a portion of what they do. They provide significant storm protection.

As Oliver Houck, a professor at Tulane University, has said, those marshes are equitable to horizontal levees. In my words, I have said that these marshes, they are the protection for the levees, and the levees are the protection for the people.

Any structure that is built for flood protection as we move forward and for damage abatement we believe must have additional restoration and creation of marshes and wetlands to help slow the storms down so that America's investment in those structures is protected.

In my own personal opinion, I don't believe that it is possible to provide hurricane Level 5 protection to the City of New Orleans or anyone along the Gulf Coast without the protective buffers of the marshes and the wetlands to slow the storms down. We simply can't do it with just manmade structures alone. We need to let nature help us provide the buffer that she always provided.

Those antebellum homes that were destroyed in Gulfport and Biloxi that have lasted 200 years, we need to ask ourselves why did this Category 5 storm cause the damage when those other Category 5 storms like Camille didn't. Those homes lived through that, and at least my observation is the loss of 48 square miles of marsh in Louisiana in the 1970s and the 1980s and our efforts to reduce that to only 24 square miles per year loss is the reason.

We need to figure out how to open up that river sediment that is not flowing off the edge of the Continental Shelf that used to build the marshes and let them go back there and start rebuilding the marshes again. Anything that we can do to help you there, we want to do it.

Mr. Chairman, I won't go on because I could easily get on a soapbox here, and I don't want to do that. It is very important for us to remember that no structure along the Gulf Coast in our opinion can survive unless it has its protection in the marshes and the wetlands.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Hall follows:]

**Statement of H. Dale Hall, Director, U.S. Fish and Wildlife Service,
U.S. Department of the Interior**

Mr. Chairman, Members of the Committee, my name is H. Dale Hall and I am the Director of the U.S. Fish and Wildlife Service. Thank you for the opportunity to discuss the devastating effect Hurricanes Katrina and Rita have had on our national wildlife refuges and other valuable natural resources across the Gulf Coast from the Florida panhandle through Louisiana and the East Texas coast.

On behalf of all of our employees, I think it's important to say here that we recognize we've got many challenges ahead. We know there are still significant needs across the Gulf Coast that our employees and many others are working hard to try to meet. Thousands of citizens are still reeling from the emotional trauma of losing loved ones, homes, and other personal belongings. Our own employees are among them. We are under no illusions about the breadth of need out there.

The first priority should always be the well being of citizens affected by these storms. And as the people of Louisiana, Mississippi, Alabama, and Texas pick up the pieces and begin putting their lives back together, we want to be ready when they once again have the time to enjoy national wildlife refuges and other natural places to hunt, fish, hike, canoe, and watch the amazing wildlife we are working with partners to conserve and restore.

But I also want to emphasize that Refuges played another significant role during the storms: the natural resource hit they absorbed helped lessen the danger to

people and structures. While the damage remained significant, how much worse would it have been without the storm buffering effects of the remaining coastal wetlands and Refuges?

When Katrina struck the Gulf Coast, our people responded in large numbers. They worked with others through the Incident Command Team and our National Interagency Fire Center to rescue more than 4,500 people, cleared more than 14 miles of roads, opened emergency corridors, and provided access to the Louisiana Heart Hospital for starters. Indeed, even as nearly 50 Service employees and their families lost much, if not everything, as thousands of other citizens did, our employees were out there almost immediately working to help others in need. Service employees continue to make outstanding contributions to the recovery effort across the Gulf Coast.

Damage to Service-Owned Facilities

The Service has over 130 national wildlife refuges in the southeast, of which 66 were affected. Additionally, 3 national fish hatcheries and 12 other Service facilities were impacted. The majority of these Service-owned facilities were, at one time, closed due to the impact of the hurricanes. Most have since been reopened, albeit at a much reduced capacity to provide services. The exception is Sabine National Wildlife Refuge in southwestern Louisiana, which remains closed because of the presence of large piles of potentially hazardous debris that pose a risk to human safety. Examples of damages to refuge facilities include:

- Destruction of administrative buildings;
- Destruction of public facilities such as restrooms, boardwalks, and boat ramps;
- Destruction of roads and bridges;
- Breaching of levees and dikes;
- Loss of motor vehicles and vessels;
- Damage to water control structures; and
- Loss of office and maintenance equipment.

Damage to Natural Resources

In addition to damaging and destroying Service facilities, the hurricanes wrought extensive damage on important natural resources throughout the region. Our National Wildlife Refuges were no exception. Beach dunes and coastal marshes that provide essential wildlife habitat and protect vital coastal infrastructure were washed away or severely eroded. Freshwater marshes that serve as nurseries for migratory waterfowl and important commercial fish species were inundated with salt water, exposed to ocean tides, or converted to open water. Severe winds leveled large tracts of forest that serve as important habitat for cavity nesting birds and other species. Specific examples sustained to natural resources on refuge lands include:

- Transformation of approximately 118 square miles of coastal wetlands and marshes to open water across Southeastern Louisiana. These wetlands once served as buffers that diminished the power and devastation of hurricanes and other storms;
- Breton NWR, one of the islands comprising the hard-hit Chandeleur barrier island chain, lost approximately 50 percent of its land mass;
- An estimated 234 square miles of coastal wetlands and bottomland forests have been damaged on national wildlife refuges. This represents expanses of coastal marshlands along the Louisiana/Mississippi coast and important inland systems like the Atchafalaya basin;
- Primary and secondary dunes that protect inland areas and provide habitat for the Alabama beach mouse were destroyed, and beaches along the Alabama coast that normally host nesting sea turtles were washed away;
- More than 70 percent of cavity trees used by Red-cockaded Woodpeckers in Big Branch Marsh NWR were destroyed; and
- Thousands of acres of coastal and freshwater marshes were ripped, torn, or washed away impacting hundreds of acres of wintering habitat for a wide variety of migratory birds, waterfowl and aquatic organisms. For example, 70 percent of the continent's mottled ducks are found in coastal Louisiana and the Texas.

Katrina and Rita have also impacted ecosystems that support many threatened and endangered species in ways that may not be readily apparent. The impact to highly imperiled freshwater mussels and gulf sturgeon in the rivers of Lake Pontchartrain and in the Pearl, Pascagoula, and Escambia River Systems has yet to be assessed. Rare natural dune systems that support endangered beach mice populations along the Gulf Coast have been heavily damaged by hurricanes two years in a row. Hurricane Katrina caused significant changes in some of the coastal

habitats that support the recovering Gulf Coast population of listed brown pelicans. Though the full extent of this type of damage to our natural resources is not immediately measurable, we are working with colleagues at the United States Geological Survey, state fish and wildlife agencies, the U.S. Army Corps of Engineers, the Environmental Protection Agency, and conservation organizations like Ducks Unlimited and The Nature Conservancy to determine the full extent of impacts from the most devastating hurricane season in several decades.

The loss of these valuable habitats and ecosystem functions is akin to losing functional levees. Tulane law professor Oliver Houck is attributed with calling the vast wetlands that once occurred between New Orleans and Grand Isle, Louisiana, as "horizontal levees," as important, or more so, than the vertical levees built by man. It has long been recognized that oyster reefs, coral reefs, marshes, barrier islands and bottomland hardwood wetlands serve to dull the teeth of storms and their potential damage. Research has shown that for every 2.7 miles a hurricane travels over these natural structures, the resulting storm surge is reduced by one foot. See U.S. Army Corps of Engineers, 1961 Interim Survey Report: Mississippi River Delta at and Below New Orleans, Louisiana. New Orleans District, December 29, 1961. Historically, a solid mass of wetlands, oyster reefs and slowly meandering bayous wove their way for nearly 100 miles from New Orleans south to the Gulf of Mexico. Over the past half century, that has changed.

In the 1970's and 1980's, Louisiana coastal wetlands were being lost at a rate of up to 48 square miles per year. That loss has now been "reduced" to 24 square miles per year, a rate that simply cannot be sustained. Indeed, the trend needs to be reversed. As we move forward in addressing the significant challenges that face us in rebuilding the Gulf Coast, we must keep in mind that while levees protect people, wetlands protect both people and levees. Wetland restoration must be a part of any rebuilding plan if we are to address future risks to human safety.

In the subsiding environment of coastal Louisiana, conversion of wetlands to open water has resulted in large areas of a system that no longer maintain their vertical elevation and vegetative cover. Unfortunately, those subsiding and "deeper" large areas of the Louisiana coastal ecosystem more efficiently transmit storm surges than would shallower, healthy vegetated areas that have maintained their elevation. Louisiana coastal marshes are geologically among the youngest lands in the United States. Historically fed by sediment laden waters from the Mississippi River, these marshes were in a continual building process. Since construction of the mainline Mississippi and Atchafalaya River levee system, however, the rich soils from over 30 percent of the U.S. drainage are now being deposited off the edge of the continental shelf at a rate exceeding 10 tons per second.

How to restore a semblance of the depositional functions of the river to the marshes will pose significant challenges, but challenges that must be met nonetheless. These challenges should be faced head on with the welfare of the American people as the constant goal. The effort, however, must be collaboratively orchestrated between the federal, state and local governments, and must include academia and professional organizations and societies. No long-term solution can be expected from any single entity, but must occur through cooperation and collaboration from a myriad of sources.

Debris Cleanup

As previously mentioned, Sabine National Wildlife Refuge remains closed due to the vast amount of debris, including potentially hazardous debris that is piled throughout the marsh. It has been estimated that over nine million cubic yards of debris, including between 115,000 to 350,000 gallons of hazardous liquids and gases, are spread over 1,770 acres of marsh. While the problem is most severe at Sabine, other refuges, including Bayou Sauvage, Cameron Prairie, Lacassine, Bon Secour, and Delta are strewn with tons of debris including tractor trailer containers, household appliances, propane tanks, chemical drums, and organic material. Exact costs for removing this debris have yet to be determined, but the preliminary cost estimate for debris clean-up and recovery of subsurface tanks could range from \$10 to \$50 million at Sabine National Wildlife Refuge alone.

Supplemental Funding

On September 21, the Service received the authority to transfer \$10 million in emergency funds for emergency operations. These funds were used to cover the cost of emergency management, including the cost of emergency teams that conducted Service recovery and relief efforts.

In December, the Service received \$30 million in supplemental funding for the repair and reconstruction of facilities necessary to restore operational capabilities. By

Memorial Day, these funds will be obligated. The majority of these funds have been expended on projects such as:

- Over \$4.7 million to repair the Maxent Levee at Bayou Sauvage NWR;
- Over \$3 million per refuge to repair facilities at Loxahatchee NWR, Mississippi Sandhill Crane NWR and National Key Deer NWR;
- Over \$700,000 to replace damaged vehicles and equipment at refuges throughout the region;
- Over \$600,000 to repair roads and bridges at Big Branch Marsh NWR; and
- Over \$300,000 per refuge to repair trails, boardwalks, campgrounds, fences, signs, docks and parking areas at Bayou Sauvage NWR, Big Branch Marsh NWR, and Bon Secour NWR

In addition, the Administration has requested additional supplemental funding of \$132.4 million for Service-related clean-up and facility repair needs. Projects that would be completed under this request include items such as:

- \$30 million to repair levees, dikes and water control structures at Sabine NWR and Cameron Prairie NWR, and at Bayou Sauvage NWR, where the Maxent Levee not only provides wildlife habitat but also supports flood control for East New Orleans;
- Over \$13 million to repair facilities, roads, and bridges at Mississippi Refuges;
- Over \$24 million to remove hazardous and other debris at Sabine NWR and other refuges throughout the region;
- Over \$9 million to repair facilities at Sabine NWR and over \$11 million to repair facilities at other refuges throughout the region; and
- Over \$3 million to repair public infrastructure at Sabine NWR and \$2 million for beach renourishment at Breton NWR.

A complete table of prioritized damages to be addressed with supplemental funding, both that which we have already received and that which has been requested, is included in the attached table.

Conclusion

Mr. Chairman, our employees are working hard each day to aid in the recovery from last year's devastating storms. The supplemental funds we have received helped the Service conduct emergency operations and begin to restore operational capabilities to facilities throughout the Gulf Coast. The additional funds we have requested will help us address our most critical needs at the 81 Service-owned facilities impacted by hurricanes during the 2005 season, including 66 national wildlife refuges, three national fish hatcheries, and 12 other Service-owned facilities. In the coming years, we hope to restore our refuges to places Americans can come to hunt, fish, hike, canoe, and watch amazing wildlife, and we are ready to assist the States and private landowners in restoring the habitats that support healthy people, healthy wildlife, and a healthy economy.

But as we make progress in all these areas, it must be understood that short term restoration efforts can only heal the present wounds. The long-term stability of the Gulf Coast, its people and its economy will depend on our willingness to face difficult problems that are long term in nature, recognize that no long-term solution will be effective without natural buffer restoration, and that legitimate risk analyses should drive economic and human safety decisions.

Thank you again for the opportunity to be here. I would be happy to answer any questions you might have.

Mr. GILCHREST. Thank you, Mr. Hall. Washington is a soapbox. There are thousands of soapboxes around here with the staff and the Members.

The members of the Fish and Wildlife Service, and there are numerous other Federal and state agency people down there that I am sure lost homes and vehicles and all kinds of things. Are you aware of any of the Fish and Wildlife Service people in that region, the Gulf region that was affected by the last couple of hurricanes, that are still finding it difficult to find a place to live?

Mr. HALL. We know of about 16 that lost everything. I will ask Regional Director Hamilton if he knows what the status is of their assistance.

Mr. HAMILTON. We still have several folks that are living in trailers, FEMA trailers, and going through the insurance woes that so many other folks on the Gulf Coast are going through.

We have folks primarily in the southeast Louisiana area, and we do have a few in southwest Louisiana, that are still displaced and in temporary accommodations.

Mr. GILCHREST. Since they work for the Federal government, is there any advantage to working for the Federal government, knowing how to work the system? My wife always said I had better health insurance when I was a school teacher.

Is the system, in your mind, for your employees, and then we will take the system that you are aware of with your employees as far as accommodations, insurance, response by FEMA and so on. That will be a reflection on the system as a whole for the most part I would guess.

How is it working for your employees to get through the bureaucracy?

Mr. HALL. Go ahead.

Mr. HAMILTON. That is a good question. I don't think there is much difference at all, quite honestly. These folks I think suffered just like everyone else down there. They are in various stages of trying to find housing.

The Fish and Wildlife Service, we did our best. People rolled up their sleeves, collected donations and tried to accommodate as best we could as an organization to try to take care of our folks, but they stood in line like everybody else.

It was kind of interesting, I think. Director Hall mentioned that the first thing they did was to try to secure their places, but really went out into the community and started helping other folks. I think they are treated just like everyone else.

Mr. GILCHREST. All of you are to be commended.

As far as the debris is concerned and the toxic materials, could you give us some idea how much can be buried onsite, how much has to be hauled away and how much is likely to be incinerated and then some ballpark estimate?

Mr. Hall, you mentioned \$20 million. Is that a good starting point? I don't think that would cover the problem.

Mr. HALL. I think a lot of the non-toxic materials we will try and find places to haul them off or bury them, et cetera, where they won't have lingering environmental consequences.

Mr. GILCHREST. Is the EPA helping with that, the Corps of Engineers helping with that? How does that work?

Mr. HALL. Well, EPA and the Corps are working with us to try and help us determine toxicity and other things. We have some people on staff. You know, our Environmental Contaminants folks are with that.

On the ground, they are working with us. We are working with everyone out there, but anything that is toxic will have to be carried off and properly disposed of. Incineration is a method being considered, but there is so much of that. We aren't sure how we can even find proper places to incinerate it all.

The \$20 million that is, in our view, sort of designated to begin that is a beginning. This is going to be a long-term process.

Mr. GILCREST. We are going down next week to look at some of the fisheries issues and some of the wetland issues. Maybe a followup trip just to look at the problem of debris would be in order.

I think my time has probably expired. Before I yield to Mr. Pallone, the folks in the back can sit in the lower dais if you would like.

Mr. Pallone?

Mr. PALLONE. Don't hesitate to come on up. You seem like you are hesitating. Really, it is fine.

I just wanted to ask Mr. Hall. The Administration has requested \$132 million in additional emergency appropriations for the refuges affected by the hurricanes, and along with the \$30 million I guess supplemental appropriation Congress passed in December that is a total of \$162 million. This figure is consistent with the earlier estimates made by Fish and Wildlife Service of damages to facilities, vehicles and public use facilities.

My question is, is this number enough to fully restore the damaged refuges, because the Fish and Wildlife Service has also estimated there are almost \$100 million in natural resource related costs from clearing down trees, monitoring of wildlife and habitat, so why has the Administration been reluctant to request monies for these important costs?

Mr. HALL. First, you are correct that the \$162 million was in the proximity of what our original estimates were.

As I just mentioned earlier, I am not sure that anyone can tell you what the total costs are going to end up being. We are going with estimates that we have. We are doing the best we can on the structural type aspects, and then we frankly will come back and let people know how much it has taken care of and where we are.

Contracting is a real issue on the Gulf Coast. Not only is it hard to get a contractor they are pretty proud of their work price. Things are costing us a little more money. It is a bid process, and we are trying to work on it. We will have to come back to you.

The second part of your question, why hasn't the Administration supported the \$100 million we think is therefore at least a first estimate on resource damages. I am not sure of the total answer for that, but I do know that the Administration, in looking at the natural resource issues, is trying to look at the myriad of natural resource issues along the Gulf Coast in the context of what I just mentioned earlier about finding ways to restore the marshes, finding ways to rebuild, finding ways to harvest blown down timber and get new trees growing because we had 150,000 acres impacted just on our national wildlife refuges.

What I am getting back in the conversations is that they are trying to get their arms around all of the different possibilities. FEMA, for example, cannot use funding on Federal lands, but my understanding is that seven percent of the monies allocated to FEMA could be used to acquire habitat, to acquire lands, to reduce risk.

We don't know whether or not that plays in and the Corps of Engineers' activities for the structures and how much wetland restoration recovery will come from there. I think that they are still trying to get their arms around just how large this question is.

Mr. PALLONE. Now, the cost for cleaning up the hazardous materials at the Sabine. I guess I am pronouncing it right.

Mr. HALL. Sabine.

Mr. PALLONE. OK. Sabine National Wildlife Refuge and others are obviously potentially astronomical. Secretary Norton testified last week that \$50 million of the Administration's \$132 million request was going to hazardous materials cleanup.

Obviously they need to be a priority to ensure that the refuges are safe for employees and visitors, but if the \$50 million is earmarked from the \$132 million what will happen to damaged refuge infrastructure, and what won't be repaired if we don't provide enough funds to cover all of your storm-related costs?

I guess I am concerned that we may be simply borrowing against the growing operations and maintenance budget without having any intention of providing the funding to cover those expenses.

Mr. HALL. If I may, I would like to give you an answer and then follow up for the record to make sure my answer is correct.

Mr. PALLONE. Sure.

Mr. HALL. My understanding is the \$50 million estimate is what we expected to place on Sabine Refuge alone, the single refuge for the work to be done there, and \$20 million of that would be at the beginning point for the toxic materials.

Possibly two \$50 million figures are getting crossed over here. The estimate for toxic cleanup ranges from \$20 million to \$50 million. Then the numbers that we are trying to say we believe it will probably take to restore the infrastructure and clean it up at Sabine is in the \$50 million figure.

I will double check that for the record and get back to you, but I think that might be the confusing point.

Mr. PALLONE. So you are not concerned that we are borrowing against operations and maintenance?

Mr. HALL. No. We are talking about \$30 million, at least to my understanding, and I will verify this for the record for you. My understanding is that \$50 million would be going to Sabine. \$20 million of that would be for toxic cleanup, \$30 million for other infrastructures.

Mr. PALLONE. OK. Thanks.

Mr. HALL. Is that correct? OK.

Mr. PALLONE. Thank you, Mr. Chairman.

Mr. GILCREST. Mr. Kind?

Mr. KIND. Thank you, Mr. Chairman. I want to thank you and the Ranking Member for holding this very important hearing. It is one of the great really untold stories of the impact of Katrina and Rita that we are experiencing in those southern Gulf states.

Again, I, along with the others, are very appreciative of the work that Fish and Wildlife Service has done with regard to the emergency response that had to be dealt with immediately, but also this short- and long-term planning that you are undergoing right now. The scope of the work is quite mind-boggling.

We are dealing with the supplemental right now to try to address a lot of the short-term projects, but obviously it is really the tip of an iceberg, the impression I am getting with the more information that I am privy to.

One of the questions I have, and we know how incredibly valuable the refuge and the wetlands and the marshes are in regard to storm protection for a lot of these communities in the southern states, but in regards to the priorities, the levee reconstruction versus wetlands rehabilitation. Is that something that we have to do simultaneously, or does one have a higher priority than another?

I mean, what is the real long-term vision in regards to what do we have to accomplish now to try to restore a lot of the natural habitat and also access storm protection versus the man-made construction that needs to be repaired at the same time?

Mr. HALL. I will answer that and then also let Regional Director Hamilton add to it.

Those structures are down there. The levees, the water control structures, these other physical structures are there to help us manage and create the wetlands and do things with them.

As long as the levees are breached, as long as water control structures are out, it is going to be difficult for us to do the management necessary to make sure that the outcome in wetlands on the refuge are there, so we place the structures first so that we can move into management. We do want to quickly move into management as soon as the structures are there.

Is that correct?

Mr. HAMILTON. That is correct. I mean, we have our own set of levees. There are flood protection levees that you hear about in New Orleans, and folks are talking about Category 5 storms, and then we have our own management levees and water control structures that we use for wildlife management. We are trying to get those back in place because those are critical to be able to manage freshwater in-flows and for wildlife.

In terms of the other levees and what Director Hall mentioned a minute ago was that the wetlands are a critical part of the overall flood attenuation, everything that goes on down there. That is a critical part of what has been lost over the years at a huge rate.

We have a golden opportunity right now to really do it right. There will be structural alternatives proposed, but if wetlands are not part of that we have really missed it in our minds.

Mr. KIND. Is Fish and Wildlife taking the lead or prioritizing a calculation of the habitat destruction that occurred there, the impact it is going to have on like waterfowl species, or are outside organizations like DU—I see Mr. Young is here—doing a lot of that calculation right now?

Mr. HALL. It is truly a team effort. Inside the Federal government from a scientific standpoint our folks are certainly out there working, and so is the U.S. Geological Survey on trying to help us understand what is left of the marshes.

D.U., Nature Conservancy, all these partners, the state, have been critical in this. Frankly, I wish the public could truly see the partnership and the cooperation that is going on. We could not do it without them. No entity can do this alone. We are doing it together, and I am really proud of that.

Mr. KIND. Well, personally that is going to be one of the keys to how successful we are as we move forward is this crucial public/

private partnership and how we can meld things together to try to accomplish similar goals. That is going to be absolutely vital.

In regards to the scope of the hazardous waste cleanup, it is my understanding it is the biggest challenge we have ever faced within the refuge system in the history of our country.

How much of this is going to be naturally flushed out or taken care of by nature alone? How much is going to have to be dealt with by us in getting in there and cleaning it up ourselves?

Mr. HALL. Well, the materials that we are really concerned about, we hope none of them get flushed out. We hope we get all of them out, and they are not exposed and released into the environment.

Other debris-type materials frankly, like I said—refrigerators and cars and boats. I mean, everything is there. We will hopefully just try and deal with that by burying it, but I don't believe that this is the kind of challenge that we want nature assimilating it. This is the kind of thing that we want to remove it from nature.

Mr. KIND. So if we have sunken tanks or things of that nature we have to literally just go in and pull that out? We just cannot let that be subterranean?

Mr. HALL. Well, no. The subterranean things are if you noticed in some of these slides there was one there in the marshes in the open area, the open water area, that showed like little chevrons. That was a NAWCA project. They survived.

You know, anything that the water got up above—I mean, the damage was from wind and surface action, and so even those levees inside open water areas survived to do what we wanted them to do in removing sediment and allowing grasses to come into the bay, et cetera, so things underground certainly we are concerned about possible ruptures if they occurred, but we are really concerned about what is laying on the surface right now.

Mr. KIND. OK. Mr. Chairman, I appreciate you wanting to go down and have a field hearing next week. Unfortunately, due to prior commitments I am not going to be able to make that, but if you are planning a second trip down there I would certainly be interested in coming along for that.

I guess I am happy to report today that myself and Representative Jim Saxton, Mike Castle and Mike Thompson are moving forward on the formation of a national refuge caucus here in the House of Representatives, and we would like to delve into this particular issue as one of our first working projects out of the block, so we will look forward to some follow-up contact and communications with all of you as we get this caucus up and going.

Mr. HALL. We are really pleased to hear that.

Mr. KIND. Yes. Thank you.

Thank you, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Kind.

I have just a couple of follow-up questions and wonder if Adrian can put those pictures back up there on the screen.

While we are waiting for those, I guess, Mr. Hall, the Stafford Disaster Relief and Emergency Assistance Act talks about things that FEMA can do and FEMA cannot do. I guess one of the things that FEMA cannot do is it has no authority to clean up debris on Federal land.

Mr. HALL. That is correct.

Mr. GILCHREST. Yes. Leave it right there, Adrian. Thanks.

[Slide.]

Mr. GILCHREST. Given the situation, in this circumstance is FEMA too overwhelmed with everything else they are doing to assist in this cleanup, or can the Corps of Engineers?

You say it is a big team effort down there. Is there any statute that we could change or modify that would expedite some of this cleanup?

Mr. HALL. Well, there are a couple of obstacles. I can't suggest law changes, but I can tell you that the obstacle for using FEMA funds on Federal lands, especially when those Federal lands are providing protective buffers to the people, is something that certainly should be evaluated.

The other one is, and this was a pretty significant concern to us. All of our people were out there working. We sent them, no questions asked. We didn't say where is the money coming from. FEMA was not able to in most, the vast majority, of cases reimburse us for helping them with FEMA activities because we were not on their list. That is troublesome.

Mr. GILCHREST. You were not on their list because?

Mr. HALL. You know, I don't know the answer to that. I don't know who establishes the list.

Mr. GILCHREST. You were never specifically tasked?

Mr. HALL. The Fish and Wildlife Service.

Mr. GILCHREST. I see.

Mr. HALL. If we got a task order, it usually was through the Corps of Engineers or through someone else.

Mr. GILCHREST. I see.

Mr. HALL. They had the list of agencies that is a task workforce type list, and the Fish and Wildlife Service is not on there.

Mr. GILCHREST. And yet you were the first responders.

Mr. HALL. We ended up, frankly, absorbing all of our costs out of operations.

Mr. GILCHREST. Right.

Mr. HALL. We would do it again because of the need.

Mr. GILCHREST. Yes.

Mr. HALL. But that is something we couldn't do very many times.

Mr. GILCHREST. We are going to try to make sure that you get your due compensation one way or the other.

The other quick comment about the restoration of the wetlands and the marshes. This may not be the best adequate picture, but given the fact that you went from 48 square miles a year losing fastland to 20 some square miles, can you tell us about how many square miles was lost between Rita and Katrina in lower Louisiana and how do you rebuild that land under the present circumstances? Is it likely?

This is a good example I guess of some of the structures you are putting up.

Mr. HALL. That is the NAWCA grant—

Mr. GILCHREST. It is the NAWCA grant.

Mr. HALL.—that survived it because it went underwater.

Mr. GILCHREST. Can you tell me how many square miles was lost in Rita and Katrina? Did that exacerbate that 20 some square miles so it is back up to 40 square miles?

Is there any prediction about the amount of dollars or how you are going to put the sediment back in those marsh areas to keep them from washing away?

Mr. HALL. Well, I will give two quick responses.

Mr. GILCHREST. OK.

Mr. HALL. And then I will ask Sam to follow up. The first quick response is that we calculate that on national wildlife refuges alone we lost in the neighborhood of 220 square miles or were impacted. A lot of that turned to open water.

We are not exactly sure how much of that will respond. Some of that is timber because we haven't broken it down the way you have asked for it, but we can try and get that. Some of it was timber blown over.

Those are impacted acres, but a large portion of that was this kind of open marshland turned to open water, which of course—

Mr. GILCHREST. Is that a marshland turned to open water?

Mr. HALL. No. This is marshland. The marsh starts up there at the edge.

Mr. GILCHREST. Yes.

Mr. HALL. This is an example of what we could do to try and improve the conditions down there. We use NAWCA to do that. This was an example that we do know ways to try and do this.

Another way though is the marshes have just simply been starved. When the mainline Mississippi levees were constructed—the floodplain of the Mississippi River was historically 100 miles wide when you get down into the Lower Mississippi.

Now it is constrained by the mainline Mississippi levees and the mainline Atchafalaya levees and so all of that sediment, 10 to 20 tons per second, is just being shot straight off the edge of the Continental Shelf, which is also contributing to the hypoxia zone that you also hear about.

That sediment was the food to build the marshes, and we need to figure out long-term how to get some of that sediment back over into doing the job that it was doing to build the marshes when the levees were built.

Now, as far as the overall, I will ask Sam to respond to that.

Mr. HAMILTON. Well, there have been a number of figures. We have seen as high as 118 square miles of productive marsh converted to open water in a period of eight hours. That is a staggering amount when you look at the nation's wetland loss rate, what happened in eight hours on the coast.

These fragile marshes, as Director Hall had mentioned, have been starved for really a century in terms of sediment, so they are very fragile, and certain parts of the Louisiana coast are suffering more than others.

I sit on the Louisiana Wetlands Task Force and representing Secretary Norton, often referred to as the Breaux Act, the CWPPRA Program. It is not a question of how you do it or the know-how how to do it. There are structures that are in place that can work—Caernarvon, the Davis structures. There are diversion

structures that are designed and engineered to pour sediment and water out into the marshes, so they can work.

The wave action structures that you saw are designed to stop the fetch that comes across open water and allows sediments to build behind it so that marshes can be created.

There are probably, I am going to guess, 100 to 200 projects that are on the books today that are through the Breaux Act that funding has not been available through that program in order to construct them. We are taking them one at a time, taking the highest priorities one at a time. We have been doing that for years. We know how to do it.

Mr. GILCHREST. Will we see you down there next week? Could you give us a dollar figure for those projects that come under the Breaux Act that you have to do one at a time if it is possible that those projects are ready to go and that money could come down and you could expedite this process?

Mr. HAMILTON. We can get you the figures, and then the LCA, which is really the bigger, longer term view, the Louisiana Coastal Authority, the bigger projects have some cost figures with those.

Mr. GILCHREST. Thank you.

We have the votes underway, and I am not sure if either Mr. Pallone or Mr. Kind had one follow-up question before we head down.

Mr. PALLONE. I don't know if we have time, but I just wanted to ask in terms of the amounts requested in this recent supplemental funding request is there any funding to establish a network of observation and monitoring systems or stations, I should say, to assess ecological change and recovery over time?

I mean, obviously so much money is going to be spent, and I am just wondering if we are going to have some kind of observation or monitoring stations so we can see whether it is well spent.

Mr. HALL. In our portion of the supplemental, we are putting every dollar we can to restoration. I don't know if there are portions of this request for U.S. Geological Survey, for example, to do monitoring on change.

Mr. PALLONE. How would you assess then whether the money is being well spent? What kind of assessment would there be?

Mr. HALL. Well, we would hope to get there. I mean, we certainly will want to do that. I am just saying our first priority is to restore.

Mr. PALLONE. Sure.

Mr. HALL. We do need to get though, once we are able to go out and start restoring, we do want to monitor. We were doing that before with the help of USGS, and we will continue to do that, but that is a little further down the road.

Do you want to add?

Mr. HAMILTON. Let me just add one thing. Yesterday, for example, we had a helicopter in the air at Sabine Refuge and at Cameron Prairie Refuge, and we were flying USGS scientists who were collecting water quality data looking at the effect of salinity.

They have actually got money in their budget to do some of the research and monitoring. We used our helicopter to get them up to do that.

Mr. PALLONE. Maybe with the Chairman's permission you could maybe get back to us in writing about how you would assess it and

whether there would be some monitoring station or whatever envisioned down the road.

Mr. HALL. Absolutely, Mr. Pallone.

Mr. PALLONE. Thank you.

Mr. HALL. We can do that.

Mr. PALLONE. Thanks, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Pallone.

Mr. Kind, any follow-up?

Mr. KIND. No, Mr. Chairman.

Mr. GILCHREST. Gentlemen, thank you very much. We apologize for the vote.

Mr. Hall?

Mr. HALL. I just want to make one final comment if I may, and that is you will be hearing from another panel when you come back. I just can't say enough about the partnership and what these panelists will be telling you.

None of this could happen unless we were doing this together, so I want to enter for the record our appreciation and compliments to the people that have been helping us out.

Mr. GILCHREST. Yes, sir. Thank you, Mr. Hall, Mr. Hamilton.

We will recess until noon.

[Whereupon, at 10:40 a.m. the Committee recessed, to reconvene at 12:00 p.m. the same day.]

Mr. GILCHREST. The hearing will come to order. Thank you, all of you, for coming this afternoon and for bearing with the vote schedule.

I don't know if we will be interrupted between now and the end of the hearing, but I understand there is another hearing in this room at 1:30, and I have another meeting at 1:30. This is Washington scheduling. Thank you for coming. We look forward to your testimony.

This afternoon we have Mr. Don Young, Executive Vice President, Ducks Unlimited. Thank you. Mr. W. Parke Moore, III, Assistant Secretary of the Louisiana Department of Wildlife and Fisheries. Welcome, sir. Mr. Evan Hirsche, President, National Wildlife Refuge Association. Welcome. Mr. Michael Daulton, Director of Conservation Policy, National Audubon Society. Thank you. And Mr. David Richard, Executive Vice President, Stream Property Management, Inc., Stream Company. Welcome.

Thank you very much for coming, and I think we will start with Mr. Don Young.

**STATEMENT OF DON A. YOUNG, EXECUTIVE VICE PRESIDENT,
DUCKS UNLIMITED**

Mr. YOUNG. Thank you, Mr. Chairman. It is indeed a pleasure and honor to be before you and your committee again this week.

As you mentioned, I am Don Young, the Executive Vice President of Ducks Unlimited, and we represent a conservation organization that has been in business since 1937. Its mission is to focus on wetlands and waterfowl conservation, and we do that effectively across the entire North American continent.

I would like for the record to enter my written testimony if you will, sir, and we will proceed from there.

Mr. GILCHREST. Without objection.

Mr. YOUNG. Thank you, sir.

As I have mentioned, the subject of today is entirely consistent with Ducks Unlimited's conservation mission. We are very concerned about wetland issues across North America and particularly with respect to what has been transpiring on the Gulf Coast of this great nation.

We are obviously well aware organizationally, as are people around this room and across this nation, regarding the significant damage that occurred there last fall. I would like to bring to your attention the fact that the DU organization as a whole has been stepping forward in our typical fashion to help out not only with the wetland restoration issues there, but the DU community if you will—we have presence in virtually every community in the nation—has stepped forward to provide relief efforts for hurricane victims down there led by our past Chairman of the Board, Dr. L.J. Mayeaux, a physician from the area around Alexandria.

Over the course of about a week's time, the Ducks Unlimited constituency from across this nation mobilized dollars, as well as finite resources, to the tune of about 40 tons of relief supplies were provided by our Ducks Unlimited membership to aid the relief efforts in that part of the world. We are proud of that activity not just with respect to our wetlands and wildlife issues, but, most importantly, with regard to the people there.

In response, Mr. Chairman, to the concerns regarding the wetlands issues in that part of the world that I will speak to in more detail, we made, if you will, a preemptive commitment of an additional \$15 million as an organization to nudge along the wetland restoration efforts in that part of the world, and that is incremental resources applied to this particular effort.

We believe, given that our mission relates to wetland conservation, that the issue before this committee today is entirely consistent with concerns for the Fish and Wildlife Service—we heard from Mr. Hall this morning—and the national wildlife refuge system as a whole.

Diverse parties have come to the table, many of whom are represented at the table here today, coupled with the Fish and Wildlife Service and others, to put their attention to this vital issue for the nation. We are well aware that the Chairman of the House Resources Committee, Mr. Pombo, has provided a letter with respect to his support for funding allocations to deal with this particular issue.

I would like to bring to the Committee's attention an excerpt from that letter which Ducks Unlimited wholeheartedly supports. I will read, if I may, in quotes:

"Mr. Chairman, I strongly support this request for additional funding and believe it will go a long way toward reducing the preliminary damage estimates to the refuge system of \$208 million. However, I would urge that you broaden the availability of these funds to include resource restoration. It is absolutely critical that these coastal wetlands be restored because they are the lifeblood of these wildlife resources and are absolutely necessary for the stability of the coastal region."

We believe the Chairman was right in terms of his conclusions about the issue, and we would like to provide additional support this afternoon for this particular topic.

I would like to begin by talking briefly about the importance of the Gulf Coast to migratory birds, which are fundamental to our work. Louisiana and Texas represent crucial areas with regard to our mission. In fact, they represent one of the top five conservation priorities for our organization across North America.

From a waterfowl specific perspective, these areas are vitally important with a number of species, including the gadwall and gray duck from that part of the world. Approximately 70 percent of that entire population of gadwalls winter in that Gulf Coast area, and significant numbers of also green-winged teal and scaup, to name a few, find this area to be incredibly important for their wintering needs.

The saline, the brackish and the freshwater wetlands of the Gulf Coast are vitally important to support these birds, and we believe that needs to be brought to a lot of people's attention. It is not only waterfowl, Mr. Chairman, that depend upon these wetlands. Hundreds of other species, including shorebirds such as sandpipers and also endangered species such as the piping plover are very much dependent upon that particular part of the world.

I would also bring to your attention that importantly a wide variety of fish species depend upon these both freshwater and salt-water habitats, and that in turn provides significant issues with respect to one other important species, and that is people. From a recreational and commercial fisheries perspective, that is fairly intuitively obvious, but also the oil and gas industry is vitally dependent upon these areas.

Wetlands in general, beyond their value from a flood attenuation perspective and erosion reduction perspective, also are vitally important for the provision of clean and abundant fresh water for people as well.

The overarching problem we are facing in this part of the world relates to an ongoing degradation of wetlands. Mr. Hall spoke earlier today about how this is occurring on an ongoing basis. Approximately 25 square miles of wetland are lost each year by ongoing activities, including coastal subsidence, but the hurricanes of last fall, Rita and Katrina in particular, put an accelerated pressure in terms of wetland loss in that part of the world.

Perhaps to briefly put it in perspective, if the scope of the wetland loss that occurred during last summer and fall was to transpire here in the nation's capital, within a period of less than two years the only dry area in the District of Columbia would be the nation's Capitol Hill building itself.

Looking forward two years from now, had we seen that rate of loss continuing the flooding would result in the respected Members of this committee having to canoe to work, which is a pretty sad commentary on what is happening in Louisiana right now. We are, as an organization, very engaged in trying to ensure that the work down there will provide protection for not only wildlife, but also for people, as I mentioned.

Mr. Hall again mentioned this morning the buffering effect or if you want to call it a speed bump for hurricanes occurs in the form

of these wetlands that protect these areas. It is considered that for every mile of wetland lost in that part of the world, we lose the protection of one foot of storm surge, so we very much believe it is an important issue.

Turning my attention now to post-hurricane conditions and impacts on migratory birds, that is yet to be fully quantified. Some of our colleagues here at the table may speak to this issue a little bit more, but suffice it to say when we are losing tens and even hundreds of square miles of wetlands it is clearly going to have both short-term and long-term impacts upon the wildlife and the people who depend upon these areas.

We heard today that——

Mr. GILCHREST. Mr. Young, we will have some time for questioning, but we have a number of witnesses.

Mr. YOUNG. Right.

Mr. GILCHREST. We have time limited in this room.

Mr. YOUNG. Right.

Mr. GILCHREST. If you could bring your statement to a conclusion?

Mr. YOUNG. Sure. I would be happy to do that. Thank you.

Mr. GILCHREST. Thank you.

Mr. YOUNG. We heard today how important national wildlife refuges are, and we are very supportive of those concerns and act as a very close partner with the Fish and Wildlife Service in terms of delivering protection and enhancement of those areas.

Let me close by indicating that Ducks Unlimited has both the energy, the commitment and the passion for working with a diverse array of partners, some of whom are at the table here today. We believe that this is an issue that merits this nation's attention.

We have signed a Memorandum of Understanding with the U.S. Corps of Engineers, and as recently as about a month ago I met with General Riley, and interestingly out of that meeting where we spoke at length about the need for concerns in terms of restoring that Gulf Coast, General Riley spoke to the fact that the flood protection measures that the Corps of Engineers is charged with providing that include structural issues, he indicated that that kind of structural flood protection measures by the Corps of Engineers would not happen, could not happen, without going hand-in-hand with the need for wetland restoration in that part of the world.

We are very delighted to hear that vote of confidence for wetland restoration from the Corps of Engineers to supplement other comments here today, and we stand ready to work with these partners to make sure this kind of work is done. It needs to be done quickly, and we stand ready to help with that.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Young follows:]

**Statement of D.A. (Don) Young, Executive Vice President,
Ducks Unlimited**

Introduction

Mr. Chairman, and members of the Subcommittee, my name is Don Young. I am the Executive Vice President of Ducks Unlimited (DU). Ducks Unlimited is a non-profit wetlands conservation organization, with affiliates in Canada and Mexico. In my role as the staff leader for Ducks Unlimited, I manage our employees and provide leadership to our volunteers and members in all 50 states.

Ducks Unlimited was founded in 1937 by concerned and farsighted sportsmen-conservationists. It has grown from a handful of people to an organization of over 1,000,000 supporters who now make up the largest wetlands and waterfowl conservation organization in the world.

Since our inception, DU has conserved more than 11.5 million acres of wildlife habitat in the U.S., Canada, and Mexico. DU prides itself on our work with private landowners and our ability to assist and advise farmers, ranchers, and foresters in order to meet their economic goals while still providing high quality habitat for the wildlife.

Ducks Unlimited has a simple and focused mission: "Ducks Unlimited conserves, restores and manages wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people." Given this mission, it is understandable that DU has a strong connection to the U.S. Fish and Wildlife Service (Service) and the National Wildlife Refuge System. There is much in common between DU's mission and that of the Service and the National Wildlife Refuge System.

Ducks Unlimited has an extensive science and technical staff with over 30 PhD biologists in North America and over 100 Master's level scientists. In the late 1980s, DU developed an International Conservation Plan to help guide the location and focus of our conservation work, and it is updated routinely to keep it current with changing habitat and duck population data. Our International Conservation Plan identifies five highest priority areas critical for the life cycle of North American waterfowl, with a focus on either breeding, migration or wintering habitats. The coast of Louisiana is the major portion of one of these top five priority areas!

As an indication of how important Louisiana's wetlands are to DU, shortly after Hurricane Katrina, Ducks Unlimited pledged to direct \$15 million toward the restoration of Louisiana's coastal wetlands. We intend to partner with federal, state, private, and nonprofit entities in fulfilling this pledge and leveraging the money.

Ducks Unlimited is proud to have been involved with the first post-hurricane wetlands restoration project, which was completed last October. In this North American Wetlands Conservation Act (NAWCA) project, DU partnered with a host of local, state, federal, private and nonprofit organizations to restore and enhance 4,736 acres of coastal marsh in the Point-aux-Chenes State Wildlife Management Area. Point-aux-Chenes and the surrounding marshes provide habitat to tens of thousands of waterfowl, representing many species, especially Gadwalls, Green-Winged and Blue-Winged Teal, and Lesser Scaup. It also benefits many other birds like shore birds, wading birds, songbirds and other wildlife like alligators. We hope to continue our partnership efforts through NAWCA to restore and protect the critical coastal marshes in Louisiana.

Ducks Unlimited's response to the hurricanes did not end with our commitment to help mitigate wetland damage. On a more personal level, the immediate past Chairman of the Board of Ducks Unlimited, Dr. L.J. Mayeaux from Marksville, LA, coordinated Ducks Unlimited members and supporters from around the country in a hurricane relief effort. To date, this humanitarian relief effort has shipped well over 40 tons of food, water and supplies to the hurricane victims along the Gulf coast and, although retired, Dr. Mayeaux re-opened his medical clinic to serve hurricane evacuees.

Hurricanes Katrina and Rita are terrible tragedies that must not fade from our country's consciousness. The nation's first priority must continue to be to help those in need and to get our devastated communities back on their feet. We must respond in a way that does justice to those whose lives have been lost and whose homes have been destroyed, so that we can prevent disasters like this from happening in the future.

In a letter dated March 2, 2006 from Chairman Pombo, of the House Resources Committee, to Congressman Jerry Lewis, Chairman of the House Appropriations Committee, Chairman Pombo takes a very strong position in support of wetland restoration in Louisiana. The letter deals with President Bush's most recent supplemental appropriations request. In this letter, when speaking about the \$132.4 million request slated for the U.S. Fish and Wildlife Service, Congressman Pombo says:

"Mr. Chairman, I strongly support this request and believe it will go a long way towards reducing the preliminary damage estimates to the refuge system of \$208 million dollars.—However, I would urge that you broaden the availability of these funds to include resource restoration. It is absolutely critical that these coastal wetlands be restored because they are the lifeblood of these wildlife resources and are absolutely necessary for the stability of the coastal region."

Chairman Pombo is correct. Ducks Unlimited would like to take this opportunity to provide scientific support and empirical evidence to support Mr. Pombo's

statements. DU's testimony will stress the importance of wetland restoration as the Service repairs its refuges and other federal agencies work to help Gulf Coast communities recover from hurricanes Katrina and Rita. The loss of coastal wetlands, especially along the Louisiana Gulf coast, was a problem long before last year's terrible hurricane season. This devastating land loss continues at an alarming rate. The dramatic loss of wetlands needs to be factored into recovery plans, not only to address current natural resource restoration needs but, even more importantly, to provide a wetland buffer to reduce the impact of future hurricanes. This recovery approach is also financially responsible since the restoration of coastal wetlands will help to protect the huge capital investments the American taxpayer will be making as we rebuild coastal communities, levees, and refuges.

In this testimony Ducks Unlimited will first explain and discuss the unique importance of the Louisiana Gulf Coast to migratory waterfowl and other wildlife. Next the challenging issue of coastal loss in Louisiana (flooding, subsidence, and erosion) will be outlined and described. There will then be a report of how these terrible hurricanes have impacted migratory birds. This will overlay a discussion of which National Wildlife Refuges along the Louisiana Gulf Coast were most damaged by Hurricanes Katrina and Rita and a description of which of the damaged refuges are most important to waterfowl. The testimony will conclude with a discussion of what actions should be taken by the U.S. Fish and Wildlife Service and how Ducks Unlimited can be of assistance.

Importance of Gulf Coast to Migratory Birds

The Louisiana and Texas Gulf Coasts are very important to the mission of Ducks Unlimited, and to this nation. The coastal wetlands of Louisiana and Texas provide critical habitat for North American waterfowl populations as well as a tremendous diversity of other birds, fish, and other wildlife. This unique coastal wetland ecosystem annually provides a winter home for between 6 and 10 million ducks and geese, and millions of wading birds, shorebirds, and other species of wetland-dependent species of migratory birds, as well as many other wildlife species.

Specifically, over 70% of the Gadwall and Green-Winged Teal populations in North America rely on this unique wetland habitat along the Louisiana coast. Additionally, at least 40% of all Lesser Scaup and 25% of Northern Pintail and American Widgeon populations in North America depend upon habitat provided by Louisiana's coastal wetlands. Coastal Louisiana also provides wintering habitat to about 20% of North American populations of Snow Geese and White-fronted geese using the Mississippi flyway. That is about a half a million geese each year. It is also important to note that the Louisiana coast is home to the Mottled Duck, which is a non-migratory species. These ducks spend their entire life cycle in this coastal habitat, and over 90% of the North American population of Mottled Ducks lives along the Gulf Coast of Louisiana and Texas, 60% in Louisiana alone. In short, the Louisiana and Texas Gulf coasts, with their unique mix of saline, brackish, and freshwater marsh habitats, are critical to the life cycle of North American ducks.

Coastal Louisiana is also considered one of the continent's premier stop-over spots for shore birds to use during their migration, providing critical migration and winter habitat for millions of American Avocets, Marbled Godwits, Whimbrel, Semipalmated Sandpipers, and at least 35 other species of shorebirds in North America. Similarly, it supports substantial breeding populations of colonial water birds such as Roseate Spoonbills, Snowy Egrets, and Royal, Least and Sandwich Terns. While bird watching along the Louisiana coast, famed ornithologist and artist Roger Tory Petersen was once reported to say that he saw the largest colony of Sandwich Tern in the world, with over 40,000 breeding pairs.

Coastal Louisiana also provides critical habitat to several birds on the endangered species list, including the Brown Pelican, the Piping Plover, and the Bald Eagle. If the Louisiana coast continues to erode these species may never make it off the endangered species list, or they could even become extinct.

Over-Archiving Problem of Coastal Loss in Louisiana

The Hurricane Katrina and Rita events of 2005 are estimated by U.S. Geological Survey to have devastated 181 square miles of coastal wetlands. Even a normal year's coastal wetlands loss shrinks Louisiana's wetlands by 25 square miles because river sediments that once spread out and replenished the Mississippi River's coastal delta are now funneled into the Gulf of Mexico. These wetlands once served as a natural hurricane buffer, reducing storm surge and absorbing wind and wave energy. More than 1 million acres of these coastal wetlands—or 1,900 square miles—have been lost since 1930. If this land loss is not reversed, nothing can be done to secure Louisiana from future storm damage

Here is a scenario that puts this issue of the disappearing coast into terms closer to home for the people in attendance at today's hearing. Let's assume that Capitol Hill is the highest point of land in the 61 square mile District of Columbia, and let's further assume that the Potomac River is eroding and flooding the District of Columbia at the exact same rate that coastal wetlands are being lost in Louisiana. If this scenario were to begin here today, the only land that would be left above water 2 years and 3 months from now would be Capitol Hill; so you folks would be commuting to work by boat. This rate of land loss is not an exaggeration, it is happening at this very moment on the coast of Louisiana. We're losing towns, we're losing roads, we're losing marshes, and we're losing refugees.

The fundamental problem along the Louisiana coast is an induced collapse resulting from hydrologic changes and wetland conversions on a landscape scale.—To be sure, there are factors other than human activities that contribute to this situation, but it is beyond dispute that the principled drivers are related to efforts to confine the Mississippi River, facilitate navigation, and promote the exploration and production of oil, gas, and other subsurface minerals.—This statement is not meant to be critical, but rather to make the simple point that for much of the last 150 years it was the aim of our society—and often federal policy—to channelize our waterways, convert our wetlands, support the exploration, production and transportation of oil and gas, and facilitate deep-draft and coastal navigation.—There were often good reasons for those actions and policies, but they came with a cost that was not adequately appreciated or understood at the time.—Now we know the price of all that progress—over one million acres of land lost to subsidence and erosion since 1900 and an ongoing loss of nearly 25 square miles each year in Louisiana alone.

The response to this calamitous land loss must be both systematic and long-term.—To approach it too narrowly or with short-term fixes is to court certain disaster and sustain loss of what is among the most important wetland systems in North America, perhaps in the world.—The restoration effort that DU seeks will not replace the million-plus acres of land that have been lost.—Rather, it will restore a functional balance to this coastal ecosystem, so that it becomes ecologically, culturally and economically sustainable.—The key to sustainability is to work with the same natural forces that built and nurtured these lands over thousands of years principally the Mississippi River and its tributaries. For those who live along the river or in its coastal plain, it has always been necessary to balance and rebalance our relationship with the river and our waters.—Many of the decisions that are now driving our coastal collapse made it possible at one time to live and prosper there, but unless a new balance is struck, and struck soon, this place will cease to exist.—It is no exaggeration to say that the continued collapse of this area could claim tens of thousands of lives in increasingly flood-prone areas, wipe out one of the greatest biological and estuarine treasures in the world, and severely disrupt our nation's energy and transportation system. This is a global environmental problem as well as a national security issue for the U.S.

Another critical point is that these lost wetlands once served as a natural hurricane buffer, reducing storm surge and absorbing wind and wave energy. It is estimated that a hurricane's storm surge is reduced by 1 foot for every square mile of coastal wetlands that it travels over. Therefore, coastal wetlands act as a "speed bump" for hurricane damage, a very important line of defense in a comprehensive flood protection system. This valuable coastal storm surge buffer will be lost forever if the wetland loss is not reversed.

Post-Hurricane Conditions and Impacts on Migratory Birds

It may come as a surprise to some, but historically hurricanes have played an important ecological role in maintaining the health and productivity of the Louisiana coastal wetlands. Saltwater storm surge and extreme winds combined to "shock" the marsh, and in ways analogous to prairie wildfires of pre-settlement North America, often reinvigorated coastal marshes. The storms changed plant communities and kept them productive and vigorous. Typically, negative short-term effects of less than a year were offset by long-term gains in habitat quality in subsequent years.

Today, any beneficial effects of hurricanes on marsh productivity are reduced and limited. Because of the vast scale of alterations to marsh hydrology, the storms now can cause significantly more permanent wetland loss and damage than in historical times. The U.S. Geological Survey (USGS) estimates that nearly 100 square miles of marsh were lost in southeastern Louisiana as a result of Hurricane Katrina alone. Historically, these losses would have been repaired naturally over a relatively short period of time as the Mississippi River delivered new sediment to rebuild affected areas. Today, levees prevent the river from repairing this marsh, and losses from storms like Katrina are essentially permanent.

Some areas of coastal wetlands impacted by Katrina and Rita will recover and perhaps provide short-term benefits in terms of their productivity and value as wildlife habitat. Unfortunately however, in most impacted areas, natural processes are so interrupted that the long-term net outcome will be accelerated rates of loss for these important coastal wetlands. As mentioned previously, this system is in dire need of large-scale restoration. Until restoration needs are met, wetland losses will continue, and rates of loss very likely will be exacerbated by future storm events. The impact on populations of migratory birds is predictable—it is very clearly established that wildlife populations go the way of the habitat they depend upon. In this case, loss of wetlands along Louisiana's coast will negatively impact populations of waterfowl and other migratory birds over the long term.

While it is too early to give a complete assessment of the results of the two storms, we do know that the coastal marshes of Louisiana need to maintain the capacity to recover. Louisiana's coastal marshes have experienced numerous changes that have reduced their ability to respond and recover from natural events that include hurricanes. To rebuild the capacity of the coastal marshes to recover, various restoration features have been proposed and some have been implemented throughout Louisiana.

In the Chenier Plain portion of southwestern Louisiana, the primary features include levees and water control structures. Those features are needed as a result of man-made channels that have altered the hydrology of those natural systems. Those channels allow increased tidal fluctuation and provide avenues for higher-salinity water to enter the fragile marshes. The levees and structures are an effort to reduce tidal amplitude and reduce the intensity of saltwater that enters those systems. Those features need refurbishment and replacement to ensure that the marshes of the Chenier Plain maintain their ability to recover from future hurricanes like Katrina.

In the Mississippi River Coastal Wetlands area of southeastern Louisiana, the primary feature is the ability to use fresh, sediment-laden water beneficially. This is achieved by restoration techniques like freshwater diversions, siphons, and delta splays. Initial assessments have indicated that, across Southeastern Louisiana, these features themselves appear to have fared well in the storms. Southeast coastal marshes containing these features can continue to use the sediment laden river water and provide the right conditions for these marshes to recover. Unfortunately there are other places that need these types of restoration features, and the impacts of the recent storms have increased that need.

At this time it is difficult to give a comprehensive assessment of the storm's impact on migratory birds. Currently it is important to focus efforts on assessing the damage to habitat restoration features and begin repairing what has been compromised, so that the marsh has the capacity to recover from the recent events in a natural manner. Without these restoration efforts, coastal wetland loss can be expected to increase on refuge lands and other lands.

Status of Hurricane-Impacted National Wildlife Refuges

The 2005 hurricane season caused damage on 66 National Wildlife Refuges in the states of Texas, Louisiana, Mississippi, Arkansas, Alabama, and Florida. The storms caused major destruction to buildings, roads and other Refuge infrastructure. Less obvious, but even more important from the standpoint of the Refuge System's mission, is the damage suffered by wildlife and natural resources on Refuge lands and adjacent areas. Measurable impacts to natural resources include significant loss of bottomland forests; reduction in water management capability of levees and dikes; transformation of wetlands due to saltwater intrusion; infiltration of aquatic invasive species, and significant erosion due to ocean tides. DU is working with the Service and other partners to determine the full extent of the damage on coastal wetlands in the region and long-term impacts on waterfowl populations.

Approximately 1/3 of the refuges affected are in the State of Louisiana. Hurricane Katrina caused severe damage to refuges in southeastern Louisiana, while Hurricane Rita devastated the refuges of southwestern Louisiana. As previously mentioned in this testimony, preliminary assessment of Southeast Louisiana suggests that more than 100 square miles of wetlands have been transformed from productive marsh to unproductive open water as a result of the hurricanes.

Habitat restoration within the impacted Refuges and adjacent areas is critical to local communities and to their efforts to rebuild their economies in the wake of two devastating hurricanes. According to the U.S. Fish and Wildlife Service, visitation at hurricane-affected refuges exceeded 4.5 million visitors in 2005, including 250,000 visitors at Sabine Refuge, located in southwestern Louisiana. Hunters, anglers, bird-watchers, photographers and other outdoor enthusiasts who visited Sabine Refuge contributed \$9 million to the local economy and generated \$1 million in tax revenue.

This type of economic return is evident at other refuges in the region and throughout the entire Refuge System. As we move forward with repair, a critical first step is for habitat damage to be addressed in a timely manner to enable visitors to observe and enjoy the wildlife and natural resources that flourished on these refuges prior to the hurricanes.

Hurricane Rita caused significant damage to Sabine Refuge in another way. Reports indicate that over 1,700 acres of the Refuge are covered with debris, and at least 1,400 items of potentially hazardous materials have been identified. Bayou Sauvage, Cameron Prairie, Lacassine, Bon Secour and Delta Refuges have also been impacted by heavy debris. As the Service and partners continue the assessment of resource damage, it is important to be aware that in some cases removing debris (biodegradable and non-hazardous) may cause more harm to sensitive marshlands than leaving it in place. If human safety is not a risk, the Service should let nature repair itself and invest their limited professional and financial resources on habitat restoration efforts. Cleaning up some material will harm more than help the marsh.

National Wildlife Refuges Critical to Migratory Birds

Several of the National Wildlife Refuges (NWR) that are located along the coast of Louisiana are extremely important to migratory waterfowl. They include, from west to east, Sabine NWR, Cameron Prairie NWR, Lacassine NWR, Mandalay NWR, Bayou Sauvage NWR, Big Branch NWR, Delta NWR, and Breton NWR. All of these refuges provide essential and significant habitat to waterfowl, other migratory birds, and a host of other wildlife species. Some NWRs, such as Sabine, Cameron Prairie, Lacassine and Delta, are more important for waterfowl, whereas others like Breton are more important for colonial nesting water birds like Brown Pelicans and Royal Terns. We also note that, farther east, the Mississippi Sandhill Crane NWR provides key habitat for this unique subspecies of wetland-dependent bird.

The coastal Louisiana refuges (federal and state) provide important natural as well as managed habitat for waterfowl. Over recent decades, managed habitat has become increasingly valuable given the large-scale alterations and loss of natural habitats related to causes previously discussed. Hence, DU recommends that adequate funds are used for, and that the Service places priority upon, the repair of habitat management infrastructure. In highly altered wetland systems, management is important to meet the needs of migratory birds, and proper habitat management depends on the refuges having operable levees, water control structures and pumping systems.

Responsibility of the U.S. Fish and Wildlife Service and the role of Ducks Unlimited

Ducks Unlimited stands ready to assist the federal government, and the U.S. Fish and Wildlife Service in particular, with the national effort to repair the massive hurricane damage along the Gulf Coast. DU has extensive experience in wetland restoration, including the design of wet soil management systems, wetland stabilization techniques, and topographic mapping. DU's professional staff includes some of the nation's most talented waterfowl biologists and wetland engineers along with a sophisticated Geographic Information Systems (GIS) mapping team. Our role will likely be one of a partner and professional service provider. We look forward to contributing to this national challenge.

As the Service gears up to address the many landscape and infrastructure challenges that it faces on the various national wildlife refuges damaged by Katrina and Rita, we believe it appropriate to reflect on the "public trust doctrine" that defines the Service's roles and responsibilities. The concept of public trust, which evolved from English common law, addresses the issue of how our country manages its natural resources for the general public good. The principle is that the government (mostly federal) has an affirmative duty and responsibility to administer, protect, manage, and conserve fish and wildlife resources for the benefit of current and future generations of Americans.

The public trust doctrine has evolved from a series of Supreme Court rulings dating back to the mid-1800s and various federal laws. The most notable federal laws that provide the basis of the public trust doctrine have been the Lacy Act, the Weeks-Mclean Law, the Migratory Bird Treaty Act of 1918, and various Migratory Bird Conventions and Treaties. All these court rulings and federal laws combine to outline the public trust responsibilities of the federal government. Most of the management responsibility falls under the purview of the U.S. Fish and Wildlife Service.

As this massive hurricane recovery effort continues, DU hopes that the U.S. Fish and Wildlife Service will pay particular attention to restoring capacity to manage for its trust species.—Those of us who enjoy the great outdoors fully appreciate the wonderful job that the Service does while executing their duties and fostering the

trust resources for which they are responsible. As priorities for repair and future management are established, the underlying natural resource should be given a very high priority.—The natural resources that are being protected as habitat for wildlife on our NWRs should be repaired, restored, stabilized and conserved while other repair and operational issues—are being addressed.

Conclusion

As substantiated in the testimony above, the Louisiana coast is vitally important to North American migratory birds, especially ducks. Continued loss of this unique wetland habitat will have a significant negative effect on North American duck populations and other migratory birds. Our nation is expected to spend well over \$100 billion to recover from the disaster caused by Hurricanes Katrina and Rita. It is imperative that a portion of these funds be directed to projects necessary to assure that Louisiana's population does not remain at risk in the future. This means restoring coastal wetlands and working to reduce future wetland loss.

We recognize that the response to this hurricane will involve several federal agencies and span many years. On behalf of over 1 million members and supporters of Ducks Unlimited, many of whom were directly impacted by these catastrophic storms, we join with the Chairman of the Resources Committee in recommending that the some of the funds made available through the President's February 16, 2006 supplemental appropriations request be directed to natural resource restoration. Special priority should be given to funding repairs of damaged habitat management infrastructure at Gulf Coast NWRs of greatest importance to migratory waterfowl.

The restoration of coastal wetlands in Louisiana has multiple benefits. These wetlands not only provide great wildlife and fish habitat but, even more importantly will serve as a natural hurricane and flood protection system to protect the huge taxpayer investment that will be made in the rebuilding of New Orleans, other Louisiana coastal communities, and the National Wildlife Refuges.

Mr. GILCHREST. Thank you very much, Mr. Young. We couldn't agree with your statement and your sentiment more.

Mr. Moore? Welcome.

STATEMENT OF W. PARKE MOORE, III, ASSISTANT SECRETARY, LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

Mr. MOORE. Thank you, Mr. Chairman. I would like to show a brief PowerPoint if that is OK.

Mr. GILCHREST. Sure. We would like to see it.

Mr. MOORE. I have also submitted written testimony.

As Mr. Richard and I are residents of the State of Louisiana, we are going to look at this a little differently and a little more specific to our habitats in Louisiana. That is going to be the focus of my PowerPoint. We will run quickly through it. It will give you a flavor of what we are dealing with as our state's resource agency in the Department of Wildlife and Fisheries.

[Slide.]

Mr. MOORE. First of all we will look at the storm path, and what I would like to do is refocus on the breadth of these storms and then the depth that we incurred damage. Katrina, a very quick storm. It was identified as a hurricane on August 25. It hit us on August 29.

Katrina impacted our coastal areas and our forested areas. We were impacted to the tune of about 300,000 acres and a number of wildlife management areas and facilities in the southeastern part of the state, and then our forested areas were hit especially hard, to the tune of about 50,000 acres in which we sustained 60 to 70 percent losses of our hardwoods and pine timbers.

Katrina's storm was broad. I think that one good illustration of the impact that we incurred was just simply the diameter of the storm and the low barometric pressures.

Then we move to Rita, which is about a month away. We didn't expect that. However, after Katrina we prepared as best we could in a couple of days. We started preparing Wednesday for Rita. It hit Saturday, and it hit the southwest part of our state.

Now, Rita had impacts across the entire coastal area of Louisiana. Rita impacted a number of our wildlife refuges and wildlife management areas, about 350,000 acres, and also our forested areas in the location that is right along the Texas-Louisiana border, about an 8,000 acre facility. It was one of the strongest hurricanes on record.

Again, you can visualize with this picture that doesn't tell you the damage that it is going to do, but gives you an indication of the breadth of Rita and then the strength which imparted tremendous energy to our habitats and our properties in Louisiana.

I will go now through the impacts of each storm briefly. We sustained severe browning of the marshes and flooded upland areas. Scalding and wind damage were the mechanisms by which this impact was incurred, primarily in our southeastern part of the state.

You can see here that these are areas that are normally marsh areas that you wouldn't see as much water, but in Plaquemines and St. Bernard and down to Delacroix it was just entirely flooded. Water remained for a long time. We had oil spills all over the countryside, and this is some of the cleanup that was occurring.

Our Pass a Loutre facility is at the mouth of the Mississippi River. As you can imagine, that was the first place that Katrina hit. Here is a very nice facility on a 115,000 acre wildlife management area, a very productive area. Water was up about four feet inside the camp. The camp is elevated. You can see the debris and the damage that was incurred.

Here are some historic photographs of some of the activities which the department engaged early in the 1950s in which we captured deer stocked areas, and the Pass a Loutre area was one of the sources for a lot of the deer that was used to restock the areas within the mainland Louisiana.

Impacts. We have had impacts directly to various species. It was not as great as what you might think. However, we did have animal species that were killed.

Now, when we talk about survival, the Pass a Loutre at the mouth of the Mississippi River with eight feet of water over all the land body. We assume that we lost our deer herd. We set cameras up at night to take different indices of what is our deer herd doing, and to our surprise we counted about as many deer as we have ever counted on Pass a Loutre in years earlier, which was a wonderful thing. How did those deer survive? We don't know. Were they on rafts of debris or in trees? They did it.

During the day we set out corn stations to try to attract animals. This tells you the difficulty these animals had after the water receded in finding something to eat. Deer were not accustomed to feeding on corn or bait. They are looking for browse. You will see a little bit of recovery here in February in the middle of winter in south Louisiana.

Again, here is a buck that is saying I don't know what this stuff on the ground is. I am looking for green.

Rabbits are a species of high reproductive capability. We feel as though we sustained heavy damage to the rabbit population. However, those remnants will quickly respond to green-ups, and I think that we will be in good shape with the rabbit population.

The upland impacts. Our timber loss was tremendous in our hardwoods with the trees blown over. In the softwoods or pines they were snapped about 20 feet above the ground. We are going to get into a very difficult dynamic, which is going to provide challenges to us as well as biologists and foresters in the field to manage those habitats that have been so massively destructed, and we are going to have to put hands on the ground to the extent that we can and minds on paper to try and figure out how to manage this property not only for the fauna that are produced, but also the people that enjoyed our properties.

Here is one dynamic I think that is worth mentioning. This is an area of pine timber in Washington Parish, which is in that toe part of Louisiana above Slidell in which we had a young pine stand that was recently harvested and was not real dense. It was almost mowed down as though you got in there and rolled it over with a big roller.

You will see that area, and then in the distance and off to the right you will see an area that has not been thinned. This may have implications to our forest practices in the future, but it gives you an idea about the impact on the various cover types that we had and then the silvicultural or forest practices that were employed prior to the storm.

Here are some areas on the left. You will see a nice little what used to be a path with a number of cypress knees coming up and then the same area after Katrina on our Pearl River Wildlife Management Area. You will see the devastation that occurred. This is not in a path that a tornado would take. This is in very large areas.

The same again on the Pearl River area due to Katrina. You will see the swept tree there and what is left around it. Not much after the storm.

Turkeys are a real important resource that in Louisiana we try to manage. It is our other big game species. They are going to respond in various ways. Particularly with all the downed timber, we are going to have to curtail our seasons and actively manage for open areas and try to recover our turkeys.

Rita. You will see the flooding soon after the storm. We got in the air, and we took pictures and made assessments. You will see the land area was just completely inundated. This would have been three days after the storm. The difficulty was that the Gulf stayed high. The water did not recede. We had water on our marshlands, forestlands and agricultural lands.

Our Rockefeller Refuge is 70,000 acres plus in the southwest corner in Cameron Parish. You can't really get a good idea, but you will see that down in the lower right corner this is our west end camp. Storms ripped the roof off, and water poured in from rain. It was at 12 feet above mean sea level. We had damage from wave action and water coming into the floor and also from the roof.

Our main complex to the left there is at 12 feet above mean sea level. We sustained minor damage to structures from the wind, but the wave action put a lot of water inside of our structures. Off to the left of the top picture you will see one of our at-grade facilities. That is our maintenance facility. That was just gutted. It was like a big washing machine with the wave actions.

A couple of weeks after that we came back and landed with an amphibious airplane, and we were walking around that building. The refuge manager, Guthrie Perry, said look at that. In the back of the building there was a gap between the siding, and he said there is a truck in there. Well, we had not seen the truck for weeks of having been there, but it was amazing to see the dynamics.

Again, another picture of the damage. You can see the storm had passed through the facilities in the upper left and just mixed things up in our workshops just like a washing machine action.

A major problem that we are dealing with now is the salinity that was deposited on our ag lands and our forestlands and our marshland. This is a sugar cane field that had just come up and was salt damaged. We don't know what is going to happen to our ag properties.

Fish inland. We had amberjack in fence lines.

Farmers, ourselves and other agencies trying to get the water out had to break levees to let it out after it had surged over.

Here is a big tractor-trailer rig over in the corner of this sugar cane field, debris throughout the field. You will see the line of the debris at the tree line. That is just an indicator of what we experienced.

Here is a Cameron graveyard. Some of the graves fortunately did not open up. A lot of the graves were in cement tombs. They were opened up and caskets floating all over the countryside.

Plant species. Well, most of our understory was impacted negatively due to the storm surge. Saltwater is going to burn a lot of these plants. Wind action/wave action physical damage was prominent.

Here is an indication of what saltwater did to our fresh areas.

These are just going to be some real quick pictures of scalds due to inundation by high saline waters.

Again, more pictures. You will see a little new growth starting to sprout out. Louisiana is a very dynamic environment. We get quick recovery.

This is a raft of debris. This is mostly vegetative debris. This is an area for comparison of what that area would look like without the saltwater.

What do we do? We had to close seasons. We had to make adjustments. We base those on habitat surveys and collections.

We went out, and not soon after the storms we started seeing hog tracks—not a good sign, may I add—deer tracks. That is a good sign. There was evidence of animals out and about. We collected animals to try to determine what their physical condition was. What did we need to do as wildlife biologists to come in and protect our herds?

This is the stomach contents on the right of a deer that we killed in Plaquemines Parish. They were eating citrus. Citrus is not a good deer browse species.

In Orleans Parish where there is no hunting by parish ordinance the habitat was severely damaged. We had a two and a half year old buck that was 82 pounds. That buck should be 150 to 170 pounds. We had a six and a half year old doe that was 75 pounds and a five and a half year old doe that was 65 pounds.

This is not good. Deer were just totally consumed with looking for something to eat. They were not concerned about human activity and were oblivious to that. All they wanted was something to eat.

Pen-raised animals, exotic deer and elk, were released into our environments, which is a major concern for disease transmission. We still have elk, and Louisiana is some of the historic range for the elk but no longer is. You know us Cajuns. We like to utilize big animals, and the elk didn't survive too well when we moved in.

We also have a number of our exotic animals that are running loose. We are encouraging those farmers to bring their animals in one way or another.

The success story here. What I told my staff in the Office of Wildlife, our wildlife biologists—we manage 1.5 million acres—is let us get back to business. Let us make sure the recreational opportunities for our citizens and those who recreate in Louisiana are afforded. We got back out taking care of business.

We only had about an eight percent reduction in our license sales—you will see the various groups—which was amazing. At first we thought we might have a 50 percent reduction. Of course, we are not a general fund agency. We generate our own revenues, so this is a major concern for us.

That is the end of my presentation on PowerPoint. If the Chairman has time, I have an annotated written.

Mr. GILCREST. I think at this point we will submit that for the record, Mr. Moore.

Mr. MOORE. Thank you, sir.

[The prepared statement of Mr. Moore. follows:]

**Statement of W. Parke Moore, III, Assistant Secretary,
Office of Wildlife, Louisiana Department of Wildlife and Fisheries**

Mr. Chairman and distinguished committee members, thank you for the invitation to appear today and provide answers to your questions on issues important to my state, the Gulf Coast region and the nation. I am Parke Moore, III, Assistant Secretary for the Louisiana Department of Wildlife and Fisheries, Office of Wildlife.

In prior testimony, news stories, and perhaps even through personal inspection of Louisiana and other states impacted by Hurricanes Katrina and Rita, you have heard of and seen the widespread human tragedy and damage associated with these storms. Hurricane Katrina had a storm surge ranging from 4-32 feet while Hurricane Rita's surge was between 4 and 16 feet. The sheer magnitude of the area impacted is among the more striking facts of these two storms. For example, in 1980 when Mount St. Helens erupted, the impact zone was estimated to be about 230 square miles. In contrast, Hurricanes Katrina and Rita impacted about 200,000 square miles in six southern states, or in the neighborhood of 850 times the area impacted by the Mount St. Helens' eruption. In other words, we are talking about an area that's larger than the entire State of California.

Louisiana is known as the Sportsman's Paradise. Collectively our marshes, coastal wetlands and bottomland hardwood forests are the most important waterfowl wintering area in North America. They also have some of the largest alligator, river otter, and waterbird populations in the country. They are enormously important to a multitude of other wetland species. Even though our forests are not always aerially the most expansive relative to many other states, they provide critical habitat for hundreds of species of neotropical migrant songbirds, not only because of their strategic location, but also because of their high quality and diversity.

I would like to describe the habitat impacts in Louisiana and needs in two broad categories: coastal marshes and forest as well as potential impacts on wildlife.

Marsh

In Louisiana, we have approximately 3.5 million acres of coastal wetlands (marshes and forested wetlands). Although estimates vary somewhat, approximately 20 square miles of land is lost each year through coastal erosion, saltwater intrusion, subsidence, and other factors. Hurricanes Katrina and Rita resulted in the loss of approximately 100 square miles of coastal wetlands in Louisiana. These losses have serious ramifications for the long-term health of our marshlands, particularly when landmass is limited. Barrier islands, our first line of protection from storm surge, and sand beaches and shorelines were dissected and often times washed away. Marshland was literally moved, rippled like an accordion, ripped apart due to winds and wave action, and acted as a depository for all types of vegetative and other debris. Within the marsh complex, considerable marsh management infrastructure in the form of major levees for water management basins, major impoundment levees, smaller interior levees, terraces, and water control structures were extensively damaged in a number of locations. Federal funding and permit expeditions to complete repairs to these types of structures are important for remediation of damaged marsh habitat as well as protection of freshwater resources used for agricultural purposes such as rice farming.

The Parishes of Plaquemines, St. Bernard, Orleans, and St. Tammany were impacted significantly by Hurricane Katrina (Jefferson Parish to a lesser extent). Marshes throughout these Parishes were inundated by a tidal surge of high salinity water. Although the direct physical damage to the wetlands have not yet been quantified, initial over-flights indicated extensive damage to wetland areas, in particular the Delacroix marshes in Plaquemines and St. Bernard Parishes. An estimated 600,000 acres of primarily intermediate and brackish coastal marsh habitat were impacted.

Hurricane Rita's storm surge flooded the entire coastal wetlands, with the parishes in southwest Louisiana being most affected. The tremendous tidal surges associated with Rita flooded millions of acres of coastal wetland habitat with high salinity flood waters. Extensive inland fresh marshes in southeast Louisiana were likewise flooded with high salinity water.

The overall impact of the storms on coastal marsh habitats will take some time to assess. Direct physical damage to wetlands through scour, scrapes, erosion and rolling will be best assessed through digitizing land/water ratios before and after the storm events. The excessive salinities measured immediately following the storm surge in southwest Louisiana are cause for concern. Salinity levels from 8-20 ppt in fresh water marshes and 15-24 ppt in the intermediate and brackish marshes of Cameron and Vermilion Parishes will likely have significant impacts on vegetative composition in both the short and long term. Even the moderate salinities of 3-5 ppt in the fresh marshes of Terrebonne and other eastern parishes are reason for concern. The critical factor will be how long these high salinities persist before drainage and moderation of salinities occurs. Many of the marshes in southwest Louisiana drain through limited outlet points, thus increasing the flood period and further impact on vegetation.

Forest

The forest resources in the southeastern Louisiana parishes were the heaviest impacted from Hurricane Katrina. The forest resources in southwest and west-central Louisiana were the heaviest impacted from Hurricane Rita. Calcasieu Parish (50%) was damaged proportionally the most, followed by other parishes in southwest Louisiana.

The Louisiana Department of Agriculture and Forestry loss estimates were based on post Hurricanes Katrina and Rita flights and analysis of forest resource data available for these parishes. In total, these storms damaged the equivalent of over 1,000 years worth of timber harvest for the reported parishes. This is based on last year's harvest by softwood and hardwood components within a parish. Mature bottomland hardwood areas within the affected areas generally received more damage. Recovery efforts will likely continue for the next 24 months, with most salvage operations winding down after 18 months. The recovery is and should be a real concern for us as stewards of the wildlife resources of the state.

Private landowners took a serious loss in timber revenue as much of the salvage value is only half or less of the standing timber value. The Louisiana State University Cooperative Extension Service estimated the cumulative timber losses of the two storms to be in excess of \$800 million, about 65% of which was contributed to Hurricane Katrina. However, recovering any of this revenue is going to be difficult

for many landowners as such tremendous losses at one time make it nearly impossible to accomplish a total salvage of most tracts. During the initial Forest Recovery meetings held by Louisiana Department of Agriculture and Forestry (LDAF) and the Louisiana Forestry Association, some participants active in disaster recovery efforts in the southeast U.S. noted that salvage of approximately 35% of most large scale disaster areas is an average attainable goal. Various constraints with such operations, including weather conditions, insufficient logging resources in the area and mill demands due to resource availability make it difficult to accomplish more.

The private landowner must make some hard decisions on what to do with their damaged property, a critical decision that will impact wildlife resources in these areas for years to come. Inability to obtain salvage of their timber may result in insufficient funds available to the landowner to accomplish reforestation operations, possibly leading to natural stand reestablishment or offering of the land for alternative uses, such as residential or commercial development. Though the former may favor naturally regenerated forests, habitat fragmentation and habitat quality degradation for many species dependent on larger forested blocks of habitat will continue if the latter option is implemented. St. Tammany Parish was the most rapidly developing parish in the state prior to Hurricane Katrina and should continue to be with the resettlement of over 150,000 people from the south shore of Lake Pontchartrain. The adjacent parishes, Washington and Tangipahoa, also received a large influx of displaced citizens, which will place additional land use conversion pressure on the forest resources of those parishes as well. Population data from the 1990 and 2000 censuses indicate rapid growth in Allen Parish with moderate growth in Calcasieu and Beauregard Parishes. With the loss of these natural resources, aesthetic qualities that attracted people into these rural areas will decline as well.

As the forest resources are also important to forest industry for long-term productivity, some industry officials are equally concerned that landowners will now find new uses for their land because of the high cost of recovery and reforestation. As a way to address this serious concern, regional forestry officials requested changes to federal aid regulations to provide timberland owners assistance following natural disasters. To this end, we would like to thank Congress for its support of the Emergency Forestry Conservation Reserve Program (CRP) to assist in restoring the damaged resources, thereby perpetuating quality forested habitat. This is critical support for many private landowners who, without such help, would likely be unable to reforest their seriously damaged woodlands. We do encourage Congress to adequately fund the technical assistance aspect of this reforestation effort. Without sound technical assistance, landowner and wildlife benefits from reforestation efforts can be seriously compromised. If accomplished successfully, Hurricanes Katrina and Rita's devastation of yesterday's forest resources could turn out to be improved habitat conditions for tomorrow's wildlife resources in the long term.

Public lands within the impacted areas of these parishes, specifically LDWF's Wildlife Management Areas (WMAs) were also proportionately damaged relative to their position in the storms' path. Pearl River WMA incurred the greatest damage (60-90% canopy opening within the non-cypress/tupelo sites) from Katrina, being located on the eye path of the storm, while Sandy Hollow WMA received light damage overall and the other noted areas in the east basically experienced a light brushing. Sabine Island, a state-owned area on the Texas border, received heavy damage from Rita, similar to that which occurred on Pearl River WMA from Katrina. Salvage of the LDWF public properties was put on hold to allow as much salvage as possible to occur first on the private lands within the region. However, as site evaluations progressed on the WMAs, especially Pearl River WMA and Sandy Hollow WMA, it became apparent that a real need for some limited salvage existed and would benefit the wildlife resources as well as the human resources utilizing these areas in the short and long term. Thus, after two months, the LDWF began aggressively pursuing contracts to accomplish a limited salvage on these two areas. Additional work in this area may require the need for federal assistance.

LDWF's wildlife/forest managers remain concerned about the impact of the tidal surge waters on the lower forest resources on Pearl River WMA. A serious lack of rainfall post Katrina and Rita appears to have limited the flushing of salt deposited during the tidal surge. Field surveys generally found a lack of vegetative response in these areas compared to the vegetative response witnessed on the forest area not covered by the tidal surge. This suggests a definite impact, possibly long term. Another major concern is the potential spread of Chinese tallow tree (an aggressive non-native invasive species) in the tidal impacted forests. Native canopy species were noted as the major regeneration component in the non-tidal influence damaged forest, yet Chinese tallow was the primary regeneration component in the tidal influenced damaged forest on the WMA. In southwestern Louisiana, Chinese tallow is already a common forest component at the fringes and it is likely that

encroachment toward the forest interior is inevitable. This has a potentially negative long-term impact on the native forest. Wildlife habitat values associated with the native forest composition will be diminished greatly if Chinese tallow becomes the dominant canopy tree in these newly regenerating forests. Federal funding would be required to control invasive species such as Chinese tallow in the event of increased spread as a result of hurricane damage.

The damage to the forest resources on Sandy Hollow WMA was not as extensive, but more concentrated toward the older longleaf pine component on the WMA. The loss of this component will hurt the seed production on the area, but the greatest loss is to wildlife species that require the older age class forests. Older longleaf pine forest is limited in the Florida Parishes. Management actions, especially the extensive amount of prescribed burning accomplished annually on this area, also will be hampered because of the downed trees. If LDWF is unable to salvage on this area (and to date none has been salvaged), increased management costs, especially in the prescribed burning program, will be incurred. Extra measures will have to be taken to insure safety to those employees carrying out these practices as well as to prevent fire escaping to adjacent lands.

Wildlife

Assessing impacts on wildlife is extremely difficult because species have different requirements. After the eruption of Mt. St. Helens, scientists believed that everything in the path of rocks, volcanic gas and steam that were released had been decimated. However, upon field inspection, signs of life were found, so it was with Hurricanes Katrina and Rita. However, a number of animals did perish in the storms, including shorebirds, waterfowl, wading birds, deer, squirrels, rabbits, raccoons, opossums, alligators, nutria, and muskrat and other species. So, as with Mount St. Helens, our and other agencies begin the long process of documenting the wildlife impacts of the Hurricanes.

Wild Alligator Harvest Impacts

The opening of the 2005 wild alligator season was delayed due to the impact of Hurricane Katrina on alligator hunters, alligator processors and dealers, and on the entire infrastructure needed to conduct the statewide harvest season. Hunters in numerous southeastern parishes were displaced and dealers and processors were unable to obtain refrigerated trucks, truck drivers, ice, fuel and other required supplies. The damage to the banking infrastructure hindered the dealers' capability of obtaining sufficient capital to buy alligators. Additionally some dealers could not access their computer data bases and others were without electrical service.

Hurricane Katrina impacted alligator hunters primarily in Jefferson, Plaquemines, St. Bernard, Orleans, and St. Tammany Parishes. Many of the alligator hunters lost their homes and simply were unable to harvest alligators in 2005. Of the allotted harvest in these parishes, an estimated 1,800 alligators (valued at nearly \$435,000) were not harvested. Under normal circumstances these animals would move through buyers and processors, creating jobs for workers processing, sorting, grading and shipping these skins to tanners. Other lost income includes businesses selling supplies (gas, food, bait, etc.) to hunters. Future harvest in these areas may be reduced due to loss of quality alligator habitat. Additionally, at least one processing plant in Venice was destroyed.

Hurricane Rita's storm surge flooded marshes throughout coastal Louisiana, delaying efforts of alligator hunters to complete their 2005 harvest allotments. Hunters in Cameron, Vermilion, and Calcasieu Parishes faced a catastrophic situation with severely flooded marshes, loss of homes and displacement for months. Only a portion of the alligator hunters in southwest Louisiana who had not completed their harvest prior to Rita were able to resume their hunting activity. An estimated 1500 alligators valued at \$362,000 were not harvested. Additional economic impact includes loss of jobs in the processing industry and loss of sales of supplies to hunters. Harvest quotas in the affected areas will likely be reduced in future years due to the impact of high salinity flood waters on fresh, intermediate and brackish marshes. Processing facilities in Cameron and Vermilion were damaged and at least one facility in Cameron Parish was destroyed.

Wild Alligator Populations/Nest Production

Hurricane Katrina may impact wild nest production and future egg collections in Plaquemines, St. Bernard, Orleans and St. Tammany Parishes. In these parishes an estimated 3,700 nests are produced on privately owned wetlands while an estimated 750 nests are produced on public lands. While all permitted 2005 egg collection activities were completed prior to Hurricane Katrina, it is anticipated that the 2006 nest production and subsequent egg collections will be impacted. The marshes in Plaquemines and St. Bernard Parishes in the area of the Caernarvon Freshwater

Diversion were damaged by storm surge and saltwater intrusion. Initial aerial observations indicated significant physical marsh damage to large areas of vegetated wetlands. This area has been particularly productive in recent years and nest production may be impacted significantly in selected areas in 2006 and in future years.

Virtually all of coastal Louisiana was flooded from the storm surge associated with Hurricane Rita. An estimated 37,700 alligator nests are produced annually on nearly three million acres of coastal alligator habitat. The marshes in Cameron, Vermilion and Calcasieu will be most affected by the high salinity flood waters. Privately owned alligator habitat in these parishes totals over 800,000 acres and annually produces nearly 10,000 alligator nests. Storm impacts to these wetlands include direct physical damage to selected areas and high salinity flood waters has scalded and caused damage to thousands of acres of fresh marsh and intermediate marsh vegetation. Further habitat analysis to assess vegetative recovery in spring 2006 will be necessary before we can realistically assess impacts to future alligator populations and subsequent nest production.

We are concerned that the high salinity flood waters that inundated large expanses of brackish, intermediate and fresh marshes in southwest Louisiana for an extended period of time following Hurricane Rita may have caused some additional mortality to alligators. Particularly vulnerable would have been immature alligators that were unable to disperse to areas of lower water salinity. It is fortunate that through the Department's wild alligator egg collection program, alligator farmers had collected over 500,000 alligator eggs during the summer of 2005. Alligators hatched from these eggs were nearly all saved from storm impacts, as they are being raised in environmental controlled buildings on alligator farms throughout the state. As per the Department's regulations, 14% of these hatchling alligators will be released in 2007 as juvenile/subadults to maintain the state's wild alligator population.

Long term impacts of Hurricanes Katrina and Rita to wild alligator populations are a concern for the Department. Specific concerns include: 1) impact of water and soil salinity on marsh vegetation, 2) impact of water salinity on alligator dispersal, survival and nest production, and 3) impact of physical marsh damage to alligator habitat quality.

Alligator Farming Industry Impact

Numerous alligator farms in several southeastern Louisiana parishes were affected by Hurricane Katrina. Some 18 farms with a collective December 2004 inventory of over 285,000 alligators were impacted. Hurricane Rita affected 13 alligator farms with collective inventories of about 150,000 alligators as of December 2004. As per communications with most affected farmers, direct mortality from either hurricane was not excessive; farmers were proactive and when possible moved alligators to other locations. However structural damage to numerous farms was significant and extensive losses in terms of equipment were noted (tractors, storage sheds, pumps, generators, hot water heaters, walk-in freezers, refrigerators, incubators, barns, etc.). Farmers estimated these physical plant losses at nearly \$2.0 million. Some alligators escaped due to rising flood waters. An estimated 8,400 alligators escaped as farm facilities were inundated; exact counts of these losses can only be done once the entire year's crop has reached market size. Three small farms were completely destroyed.

The long-term effects of these stresses on alligator hide quality could appear over the next one to two years. Alligator growth could be adversely affected by the recent stressors and possible loss of heating capabilities on farms.

Some alligator farmers are also dealers, and hurricane damages were incurred to dealers' warehouses, check stations and processing facilities. These processing facilities are used year round to process farm, wild, and nuisance alligators. Reports from various dealers indicated that wild hide inventories were secured immediately after the storms and moved to safe locations.

Impacts to Birds

Coastal Louisiana is composed of many types of critical bird habitat including the barrier islands, coastal marshes and forested wetlands. Some of these bird species include colonial nesting waterbirds (terns, herons, egrets, brown pelicans, etc.), neotropical migrants, shorebirds and waterfowl. The hurricanes had a major impact on many of the habitats utilized by these species due to direct loss or degradation and/or saltwater inundation.

Of utmost concern are the hurricane's effects on nesting habitat of colonial waterbirds. Especially hard hit were the islands of the Chandeleur chain, where most of the sandy beaches were lost. It is anticipated that some of this beach area may recover somewhat after the sand has been reworked over the next six months

to a year. The loss of sandy beaches on the barrier islands may cause many colonies to be abandoned due to the limited availability of this type of habitat in coastal Louisiana. If there is no other available nesting habitat in the vicinity of the former colony sites, many individuals may be forced to forego breeding in 2006.

The barrier islands of the Louisiana coast also provide nesting habitat for several species of shorebirds and are essential foraging and resting habitat during the spring and fall migrations for a multitude of neotropical migrant species and shorebirds. Numerous shorebird species utilize barrier islands as wintering habitat (plovers, sandpipers, curlews, etc.) including the threatened piping plover.

The Louisiana Department of Wildlife and Fisheries recommends that all colonial nesting waterbird colonies and plover sites be monitored for nesting success from 2006 through 2010, which will require federal funding to accomplish. Baseline data from the 2005 comprehensive colonial nesting waterbird survey of the Louisiana coast should be used as a benchmark to compare the relative sizes and species composition of the colonies in 2006. Every effort should be made to fast track all coastal restoration projects to restore as much nesting habitat in the short term as possible. Additionally a representative sample of individuals should be taken for contaminant testing because of the numerous oil spills that occurred on the Louisiana coast and the Gulf of Mexico during both Hurricanes Katrina and Rita.

Louisiana contains one of the primary flyways for both the spring and fall migration of neotropical migrant songbirds. The coastal forests of Louisiana provide critical stopover habitat for the spring migration of species flying non-stop across the Gulf of Mexico and important feeding areas for these species' southward migration. Radar data analysis by USGS after these storms revealed a dramatic shift in neotropical migrants from hard hit forested areas to areas of less damage. A survey methodology needs to be developed (either point counts or constant effort mist-netting) to determine the abundance of neotropical migrant songbird species present within this forest type post hurricane damage which would require federal assistance.

The bald eagle is commonly found nesting in dominant cypress trees in the southeastern coastal marshes of Louisiana. The greatest impact to the bald eagle from Hurricanes Katrina and Rita would be the loss of nests. However early indications with the 2006 nest counts documented minimal numbers of damaged or destroyed nests. These impacts may be mitigated by the fact that most nesting pairs have several nests within their territory. The secondary impact to both mature and immature bald eagles could be contaminant loading from the numerous oil spills that occurred on the coast of Louisiana. LDWF should continue to conduct its yearly bald eagle surveys of known nesting locations and search for new nests at sites where nest trees have been destroyed. Additionally LDWF recommends that blood samples be taken from eaglets and all injured eagles beginning in 2006 to determine if contaminant loading has occurred which would require federal assistance.

Recovery and Rebuilding Assistance

There will be many opinions both inside and outside of government about what to do. Recovery and rebuilding will be a long-term endeavor; however, action by Congress is needed now before restoration efforts can begin. Many who are considering reinvestment in coastal Louisiana are looking for acknowledgment that the federal government recognizes the importance of the resources of the area and the vital need to protect these resources. Recovery efforts must include rehabilitating coastal wetlands and assessing the wildlife and natural resources where direct impacts have been documented.

Coastal restoration and enhanced storm and flood protection projects are presently being reevaluated at all levels of government and in the public forum. Wildlife and resource managers must play a role in future coastal planning to ensure that potential impacts of these projects on the wildlife and natural resources are considered.

I have presented the importance of the coastal marshes, forested wetlands and some of the wildlife species that depend on these habitats. I have presented how these habitats and resources have been impacted due to damage from the storms, and have suggested ways that Congress can help.—Federal funding will be a key to adequately allow resource managers to assess damages to the resources and habitats and to begin the process of rebuilding and restoring these habitats and the multitude of wildlife species that utilize them. Your consideration is appreciated.

Mr. GILCHREST. Thank you very much. It was very informative.
Mr. MOORE. I appreciate it.
Mr. GILCHREST. Mr. Hirsche?

**STATEMENT OF EVAN HIRSCH, PRESIDENT,
NATIONAL WILDLIFE REFUGE ASSOCIATION**

Mr. HIRSCH. Thank you, Mr. Chairman.

My name is Evan Hirsch. I am President of the National Wildlife Refuge Association, and on behalf of the NWRA and its membership comprised of current and former refuge professionals, nearly 110 refuge friends, affiliate organizations and thousands of concerned citizens throughout the U.S., thanks for the opportunity to testify regarding damages to America's national wildlife refuges caused by Hurricanes Katrina and Rita.

At this point, Mr. Chairman, I would like to submit my written testimony for the record.

Mr. GILCREST. Without objection.

Mr. HIRSCH. Thank you.

As we know, in August of 2005 Hurricane Rita, the worst natural disaster in U.S. history, caused unprecedented damage to our national wildlife refuges in the region. In the wake of Katrina, 16 refuges were closed. Only a few weeks later, Hurricane Rita, as we just saw, slammed into Louisiana near the Texas border causing further damages.

While Rita and Katrina caused extreme damages to refuges along the coast, the effects were also felt as far inland as Arkansas. All told, facility and natural resources damages from the 2005 storms exceed \$270 million. This represents approximately 70 percent of the refuge system's total Fiscal Year 2006 operations and maintenance budget. In short, we are quite literally looking at an unmitigated disaster.

Before I move on, I did also want to recognize the Fish and Wildlife Service's role in serving on the front lines in assisting with humanitarian efforts, a herculean effort certainly.

Four hurricanes in 2005 affected 66 national wildlife refuges in eight states with damages to facilities and infrastructure totaling about \$170 million. In addition, damages to habitat and natural resources on refuges are estimated by Fish and Wildlife to be about \$88 million.

However, estimates for cleanup range from \$10 to \$50 million at Sabine when we are talking about HAZMAT materials being distributed on several refuges. Quite frankly, if the refuge system doesn't receive sufficient emergency funding to recover from these damages we fear that refuges around the country are going to pay the price. They are already stretched to their breaking point, and we are concerned that they will not recover from the excessive burden that these storms had to an already crippling funding situation.

Mr. Chairman, as I think you know, the national wildlife refuge system as a whole continues to be hobbled by a lack of funding and resources with a top-tier maintenance and operations backlog approaching \$2.7 billion. The hurricane damages simply add insult to injury for an already beleaguered system.

That said, we do appreciate that President Bush has requested \$132 million for facilities repair in the most recent emergency supplemental. If approved by Congress, it will certainly go a long way to meeting fundamental repair needs. Nevertheless, the Refuge Association does urge Congress to appropriate an additional

\$88 million for habitat and resource restoration on these hurricane-affected refuges.

I wanted to go to the PowerPoint. There we go.

[Slide.]

Mr. HIRSCH. At this point I wanted to talk about a couple individual refuges that illustrate some of the problems we are looking at. This first is a photo on the ground at Sabine, which we have heard quite a bit about. There we have 1,400 barrels of toxic materials sinking into the marsh. The question is how did all this get there?

Next slide, please?

Part of it, we are looking here at the town of Holly Beach, which is on the coast. The border of the refuge begins about a mile north of this photograph. This was before the storm.

If we can go to the next slide, we will see the town of Holly Beach after the storm. That gives you a sense of where some of this debris came from.

Next slide, please?

What happened was that a whole lot of debris washed into the refuge, and what you are looking at here on the left there is a green line which denotes a water control structure in the refuge. On the right of that is the debris that washed in. This is a six mile long debris field that includes everything from oil and propane to bleach and chlorine. There are several 18-wheelers in there, and of course refrigerators, ovens and other materials.

Next slide, please?

Here you have a good sense of the "white goods" strewn up and down the refuge. It is just an enormous problem, and clearly the hazardous debris poses a serious risk to wildlife while also putting groundwater for local people at risk.

The Fish and Wildlife Service did commission an independent report on the prospective cleanup, what the cleanup is likely to look like. The report says, and I quote, "It is likely that without the address of these issues Sabine will be at significant risk of chemical and physical damages for decades."

Next slide, please?

Next I am going to go through a few photos showing Breton Island or Breton National Wildlife Refuge, which is a part of the Chandeleur Islands. These are before and after photos.

Next, please? Next, please? And another? I think we have one more. And another? I think that is it for the photos. Thank you.

That gives you a sense of what the damage is to the Chandeleur Islands. Biologists estimate that 50 to 70 percent of the habitat on these islands has been completely washed away with nothing but open water in its place. This is the second oldest refuge in the system established by President Theodore Roosevelt and hosts 15 percent of the world's nesting ground penguins and up to 30 percent of the world's nesting sandwich terns. I am sorry. Did I say penguins? Unbelievable. We are watching you.

Mr. HIRSCH. You know, that is the second time this happened to me. All right. Pelicans. Thank you.

Mr. GILCHREST. I heard pelican. Up here we heard pelican.

Mr. HIRSCH. Fortunately, somebody was reading along on my testimony.

As for direct impacts to wildlife, we know that wintering waterfowl numbers are down by about 75 percent at Bayou Sauvage within the New Orleans city limits, 70 percent at Delta National Wildlife Refuge, and 70 percent of endangered red-cockaded woodpecker nesting trees were lost at Big Branch Marsh also near New Orleans.

While the ramifications to wildlife are obviously of paramount concern to the Refuge Association, we also recognize the important value of refuges to people. According to the Fish and Wildlife Service, visitation at the affected refuges exceeded 4.5 million people in 2005, including more than 250,000 at Sabine. They also contribute heavily to the local economies.

I wanted at this point to reiterate Director Hall's earlier comments about the importance of wetlands and coastal marshes in protecting communities. We think it is vitally important to recognize that refuges play an instrumental role in this regard and should be viewed as a benefit not only to wildlife, but also to people and communities and that it is vitally important that we address these wetland restoration issues sooner than later.

Finally, I did want to say that with total damages exceeding \$270 million, the refuge system is simply unable to absorb the cost of cleanup and recovery, so we strongly urge Congress to pursue additional funding in supplementals to address these vital issues.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Hirsche follows:]

**Statement of Evan Hirsche, President,
National Wildlife Refuge Association**

Mr. Chairman and Members of the Subcommittee:

My name is Evan Hirsche, and I am the President of the National Wildlife Refuge Association (NWRA). On behalf of the NWRA and its membership comprised of current and former refuge professionals, nearly 110 refuge Friends organization affiliates and thousands of concerned citizens throughout the United States, thank you for the opportunity to testify on the issue of damage to America's national wildlife refuges caused by hurricanes Katrina and Rita.

The National Wildlife Refuge System is the only network of Federal lands managed for the conservation of fish, wildlife, plants and their habitat. President Theodore Roosevelt created the first national wildlife refuge (NWR) in 1903 on Florida's Pelican Island to protect brown pelicans as well as egrets and herons from commercial hunting. Today, the Refuge System, administered by the U.S. Fish and Wildlife Service (FWS), consists of 545 refuges in all 50 states and most U.S. territories.

On August 29, 2005, Hurricane Katrina, the worst natural disaster in U.S. history, struck the Gulf Coast, causing unprecedented damage to national wildlife refuges in the region. In the wake of Katrina, 16 national wildlife refuges were closed. Only a few weeks later, Hurricane Rita slammed into Louisiana near the Texas border, causing further damage to refuges in the Gulf. Hurricanes Rita and Katrina caused extreme devastation along the coast; however, the effects were also felt as far inland as Arkansas, where refuges experienced storm-related impacts such as damaged roads from flooding, downed trees and debris build up.

Mr. Chairman, before I discuss the damages to refuges by hurricanes Katrina and Rita, I believe it is important to recognize that the U.S. Fish and Wildlife Service was out in front on conducting humanitarian efforts and helping local communities immediately following these terrible storms. The Service brought its equipment and expertise to aid those devastated by Katrina and Rita, including providing 20,400 meals, disposing of more than 100 truckloads of debris, and housing Red Cross and Federal Emergency Management Agency (FEMA) workers, among other things. While FEMA provided reimbursement for certain activities, the total non-reimbursed costs to FWS for incident operations was approximately \$6.6 million.

Hurricanes in 2005 (Dennis, Katrina, Rita, and Wilma) affected 66 national wildlife refuges, located in eight states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina and Texas), with damages to facilities and infrastruc-

ture totaling approximately \$170 million. In addition, damages to habitat and natural resources on refuges are estimated by FWS to be approximately \$88 million. Costs related to hazardous materials (HAZMAT) and debris on refuges remains mostly unknown. However, cost estimates for surface clean up and removing subsurface tanks range from \$10 million to \$50 million at Sabine National Wildlife Refuge in Louisiana alone.

Total facility and natural resource damages from the 2005 storms exceed \$270 million. This represents approximately 70% of the Refuge System's total FY2006 Operations and Maintenance funding (\$382 million). If the Refuge System does not receive sufficient emergency funding to recover from the damages caused by hurricanes Katrina and Rita, we fear that refuges throughout the country—already stretched to the breaking point—will not recover from the extensive burden the storms add to an already crippling funding situation.

The National Wildlife Refuge System as a whole continues to be crippled by a lack of sufficient funding and resources, with the top-tier operations and maintenance backlog alone registering at \$2.7 billion. Funding shortfalls limit the ability of refuges to successfully conduct important biological programs and hire critical staff, while also hindering opportunities for the public to engage in compatible wildlife-dependent recreation.

While significant strides were made to reduce the budgetary shortfall in connection with the 100th anniversary of the National Wildlife Refuge System in 2003—and we extend our appreciation to Congress and members of this Committee for those increases—funding since that time has been stagnant. Recently, the Cooperative Alliance for Refuge Enhancement (CARE), a diverse group of national conservation and sporting organizations that I chair, sent a letter to Capitol Hill recommending that Congress approve hurricane supplemental funding for the Refuge System of at least \$132.4 million, as requested by President Bush. While this amount does not cover all hurricane damage costs, when combined with the \$30 million already approved by Congress, it should provide for the fundamental facility needs of hurricane-affected refuges. Nevertheless, the NWRA and CARE urge the Congress to appropriate an additional \$88 million to address habitat and natural resource damage on hurricane-affected refuges in a third supplemental funding bill this year.

Hurricanes Katrina and Rita resulted in tremendous destruction of national wildlife refuge facilities and natural resources. At Sabine NWR, where the eye of Hurricane Rita passed directly over the refuge, five of eight buildings were immediately condemned, while the remaining 3 need extensive repairs before they can be occupied again. In fact, NWRA staff and other CARE representatives visited Sabine after the storm and witnessed the extensive damage to boardwalks, bathroom facilities and the headquarters buildings firsthand. With the damage to public-use facilities and extensive distribution of HAZMAT, it is clear the refuge poses a public health risk and must remain closed until these issues are resolved. At Delta NWR in Louisiana, where Hurricane Katrina made its landfall, the headquarters building, along with all refuge facilities, was almost completely destroyed. FWS staff returning after the storm were greeted by a refuge boathouse crushed beneath a 900-ton barge. Big Branch Marsh NWR in Louisiana also suffered extensive damages. The refuge needs funding to replace a number of vehicles, and repairs are necessary for the visitor center, administrative building and roads, among other things.

Habitat and natural resource damage from hurricanes Katrina and Rita was equally devastating and widespread. Vast areas of coastal wetlands in the Gulf Coast region have been converted to open water by the two storms. According to the FWS, satellite imagery of Southeast Louisiana shows that more than 100 square miles of coastal wetlands have been transformed from marsh to open water. In addition, approximately 150,000 acres of coastal wetlands and bottomland forests on national wildlife refuges were damaged. Aquatic habitats are choked by debris, silt, oil, chemicals, and other hazardous wastes. Wintering waterfowl numbers are down 75% at Bayou Sauvage NWR in Louisiana and 70% at Delta NWR, while 70% of endangered red-cockaded woodpecker nesting trees were lost at Big Branch Marsh NWR.

At Breton NWR in Louisiana, which includes all of the federally owned Chandeleur islands, an estimated 50-70% of habitat has been completely washed away, with nothing but open water in its place. Breton is the second-oldest refuge in the System, established by decree by President in 1904, and hosts up to 15% of the world's nesting brown pelicans and up to 30% of the world's nesting sandwich terns. The refuge at one time had the largest tern colony in the U.S., and more than 10,000 brown pelicans have recently been found in the island chain, along with red-dish egret, American oystercatcher, and snowy plover. The islands are also an important location for wintering piping plovers and serve as a stopover site for songbirds in spring.

Sadly, the acceleration of habitat loss has been dramatic over the past few decades, with Katrina dealing a near fatal blow. We must act quickly if we are to salvage this critical bird refuge.

Levees and dikes on national wildlife refuges are important resource management tools, preventing saltwater intrusion and controlling water levels for wildlife and plants. They also support habitat for millions of migratory waterfowl. Hurricanes caused extensive damage to these water control structures, and, if left unrepaired, the impacts to habitat and migratory bird populations will be felt nationwide. Refuge levees and marshes absorb the brunt of storm surges before they reach communities. For example, at Bayou Sauvage NWR in Louisiana, levees on the refuge protect New Orleans from flooding. After the refuge levee was breached during Katrina, stabilizing the levee and utilizing the pumps that support it aided in the removal of water from New Orleans and prevented further damage to the city.

Of great concern is that many of the hurricane-damaged refuges are contaminated with HAZMAT, including Bayou Sauvage in Louisiana, Big Branch Marsh, Delta and Sabine. Of these, Sabine NWR has suffered some of the most serious and disturbing consequences. Hurricane Rita passed directly over Sabine NWR, bringing with it tons of debris from the remnants of beach communities as well as oil and gas facilities. Among the debris are thousands of refrigerators and appliances, lumber, and at least two complete tractor-trailer trucks. As we sit here today, more than 1,400 barrels of toxic liquids and gases are sinking further into the low-lying marsh right in the heart of the refuge. A report prepared for the FWS found that 115,000-350,000 gallons of hazardous liquids and gases—full of everything from oil and bleach to propane and four missing containers of chlorine gas, which kill immediately upon exposure—are contained within those barrels. The barrels have contributed to a six-mile debris field that can be seen from space. According to the report, "It is likely that, without the address of these issues, [Sabine] will be at significant risk of chemical and physical damages for decades." In spite of this, neither the Environmental Protection Agency nor FEMA have been granted authority to work on refuge lands; the Department of the Interior is paralyzed to act due to a lack of funding. While the hazardous debris clearly poses a serious risk to wildlife at the refuge, it is also putting groundwater for local people at risk as well as the local economy. In short, we're looking at a refuge that's been converted to a toxic dump.

Our wildlife refuges are economic engines for many local communities. The Fish and Wildlife Service estimates that, in FY2004 alone, nearly 37 million people visiting refuges generated \$1.37 billion of sales in regional economies, helping to create nearly 24,000 jobs and about \$454 million in employment income. At many refuges on the Gulf Coast, for every one dollar of budget expenditures, ten dollars of total economic effects are returned to the community. According to the FWS, visitation at affected refuges exceeded 4.5 million during 2005, including over 250,000 at Sabine NWR. These visitation figures were already lower than previous years, due to impacts from the 2004 hurricane season, and visitation will be dramatically decreased until public use facilities can be repaired.

As our only public lands system dedicated to wildlife conservation, the National Wildlife Refuge System is truly an American treasure. During the past 100 years, the Refuge System has been instrumental in restoring North America's wildlife populations, providing diverse opportunities to hunt, fish, birdwatch and photograph wildlife. Moreover, wildlife refuges serve as anchors for important natural systems that help support a clean and safe environment. In the affected regions, wildlife refuges protect vital wetlands and coastal marshes, often serving as key buffers protecting communities from storm surges. As our nation begins to repair the damage from these devastating storms, we must not neglect these critical resources.

Finally, it has become common knowledge that the absence of marshes along the Gulf Coast, and the virtual elimination of marsh-buffers over the years, only exacerbated the damage of Katrina and Rita. There were enormous human consequences to this habitat neglect. It is not my role to revisit this issue again for the Committee, but simply to remind the members here that the national wildlife refuges play a major role in sustaining that barrier. Indeed, the Refuge System should be called upon to fulfill a natural resource responsibility and a human need in recovering and re-building that vital marsh-buffer.

With total damages exceeding \$270 million, the Refuge System simply cannot absorb the cost of clean up and recovery from hurricanes Katrina and Rita. Emergency supplemental funding from Congress to sufficiently address the massive facility and natural resource damages is essential to the continued viability of the entire National Wildlife Refuge System, as well as the economic and environmental well being of the Gulf Coast region.

Mr. GILCHREST. Thank you very much, Mr. Hirsche.
Mr. Daulton?

**STATEMENT OF MICHAEL DAULTON, DIRECTOR OF
CONSERVATION POLICY, NATIONAL AUDUBON SOCIETY**

Mr. DAULTON. Thank you, Mr. Chairman.

My name is Mike Daulton. I am Director of Conservation Policy for the National Audubon Society. Thank you for the opportunity to testify regarding the impacts of Hurricanes Katrina and Rita on the national wildlife refuge system.

At this time I would like to ask that my full testimony be entered for the record.

Mr. GILCHREST. Without objection.

Mr. DAULTON. National Audubon Society has a long history in the Gulf Coast region with three state offices and 81 local chapters in Louisiana, Mississippi, Alabama, Texas and Florida. My testimony today will focus on three main areas: The urgent need for funding to address the damage to affected Gulf Coast refuges, the impacts of the hurricanes on bird and wildlife habitat and the impact specifically on birds, including species of conservation concern.

In the three hurricane seasons from 2003 through 2005, the national wildlife refuges of the Gulf Coast region have experienced substantial damage from some of the most severe hurricanes ever to strike the United States. The U.S. Fish and Wildlife Service estimates a total funding need to address these damages of \$270 million.

Audubon supports the President's budget request of \$132 million to clean up debris and hazardous materials, rebuild roads and facilities and repair the water control infrastructure necessary to protect and manage refuge resources.

However, the Fish and Wildlife Service also has identified a \$100 million funding need to stabilize, assess, monitor and restore damaged habitat on the affected refuges. This request was not included in the President's proposal, but I strongly urge this committee and the Congress to support this critical funding.

The hurricane impacts to birds and their habitats on Gulf Coast wildlife refuges are extensive with a number of high priority species and habitats affected. The Fish and Wildlife Service has estimated that the wildlife refuges of the southeast region experienced land losses, accelerated degradation or other damage on 150,000 acres of coastal and bottomland wetlands.

Wind and storm surge impacts to bird habitats were pervasive across the Louisiana coast. Trees were completely stripped of their leaves. Fruit and insects were at low levels or were gone. Low-lying shrubs and woody cheniers were sprayed with salt and buried in sand and silt. Saltwater intrusion into freshwater marshes and other bird habitats was widespread.

Among the most striking examples of habitat damage is to the Sabine National Wildlife Refuge in Louisiana. This refuge is threatened by a six mile debris field that includes more than 1,400 barrels of toxic liquids blown in by the hurricane.

Of particular concern to Audubon and its members is the potentially devastating impact of the recent hurricanes on birds. Scientists working at the U.S. Geological Survey at the National

Wetlands Research Center in Lafayette, Louisiana, have completed radar studies that show massive shifts in bird migration patterns immediately following Hurricane Katrina. Neotropical birds moved away from the Louisiana coast to uplands in Mississippi. Waterfowl moved from coastal habitats impacted by the saltwater storm surge into freshwater habitats further north.

Preliminary evidence from Audubon's Christmas bird counts in the Gulf Coast also point toward significant impacts. Audubon completed its 106th Christmas bird count on January 5. Each year this event engages 50,000 citizens in an all-day census of early winter bird populations.

An organizer in Grand Isle, Louisiana, reported that, and I quote, "Many resident species and some wintering species appear to be affected. At Grand Isle during Hurricane Katrina the water poured over the back part of the island and swept toward the beachfront. Much of the understorey has been replaced by debris. Trees like mulberries and sugarberries have been knocked back."

The report from Dauphin Island, Alabama, said it was the lowest count in birds and species in the past 10 years. Similar accounts came in from across the Gulf Coast.

Birds of conservation concern may also have been affected. Big Branch Marsh National Wildlife Refuge lost 70 percent of the trees that were documented habitat for the endangered red-cockaded woodpecker. Mississippi's Sand Hill Crane Refuge lost two of their most important breeding female cranes. These two females alone had been responsible for 40 percent of all fledged young since 1997.

Braten Refuge, which is a nesting area for 15 percent of the world's endangered brown pelicans, was devastated by Hurricane Katrina and is now largely under water.

In conclusion, the hurricanes of the past three years have drastically altered Gulf Coast wildlife refuges. Some have been devastated and will take years to recover. Audubon supports the President's supplemental request, but strongly urges this committee and the Congress to provide additional funding to stabilize, monitor and restore the coastal wetlands and barrier islands within the national wildlife refuges of the Gulf Coast.

Mr. Chairman, this concluded my prepared statement. I would be happy to answer any questions you may have.

[The prepared statement of Mr. Daulton follows:]

**Statement of Mike Daulton, Director of Conservation Policy,
National Audubon Society**

Mr. Chairman and Members of the Subcommittee:

I am Mike Daulton, Director of Conservation Policy for the National Audubon Society. Thank you for the opportunity to testify regarding the impacts of Hurricanes Katrina and Rita on the National Wildlife Refuge System. I commend you for holding this important hearing today.

National Audubon Society's 27 state offices and more than 500 local chapters throughout the United States serve more than one million members and supporters. Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. Our national network of community-based nature centers and chapters, scientific and educational programs, and advocacy on behalf of areas sustaining important bird populations, engage millions of people of all ages and backgrounds in positive conservation experiences.

Audubon has a long history in the Gulf Coast region and has three state offices and 81 local chapters in Louisiana, Mississippi, Alabama, Texas and Florida.

Audubon also has a long history of deep connection and commitment to the National Wildlife Refuge System. Early Audubon Societies provided the first wardens to guard our wildlife refuges, a commitment to protection that continues today. As one of the founding members of the Cooperative Alliance for Refuge Enhancement (CARE), Audubon has worked to ensure the great potential of the Refuge System is fulfilled through increased appropriations for operations and maintenance needs.

My comments today will focus on three main areas: habitat and ecosystem impacts, facility and structural damage at the refuges, and funding and management needs. In the three hurricane seasons from 2003 through 2005, the National Wildlife Refuges in the Gulf Coast region have experienced a wide range of damages from some of the most severe hurricanes ever to strike the United States. The U.S. Fish and Wildlife Service estimates a total funding need to address these damages of \$270 million. Emergency supplemental funding granted by the Congress on December 30, 2005 provided \$30 million to address some of the most critical needs facing these refuges in the immediate aftermath of the hurricanes.

The President's budget for Fiscal Year 2007 requests \$132 million to address the needs on 61 wildlife refuges in the Gulf Coast region to clean up debris, rebuild and repair roads and facilities, and repair the water control infrastructure necessary to protect and manage refuge resources. The state-by-state summary of the funding is: Louisiana \$103 million, Mississippi \$17.5 million, Florida \$17.1 million, Texas \$12.3 million, Alabama \$2.6 million, and Georgia \$1.25 million. This funding request is phase one of a multi-year effort to monitor, repair, rehabilitate, and restore the refuges, levees, dikes, marshes, dunes, barrier islands, seagrasses, and forests in the Gulf Coast. Audubon strongly supports the President's request.

The Service also has identified a \$96.7 million funding need for immediate stabilization and restoration of damaged habitat and long-term monitoring of the effects of the hurricanes on wildlife resources. The \$96.7 million for habitat stabilization and monitoring was not included in the President's proposal but I strongly urge this committee and the Congress to provide this critical funding. The Service would use this money for coastal habitat assessment and restoration, aquatic and upland ecosystem impacts, invasive species, and imperiled species. It will be important moving forward for wildlife habitat needs, as determined by sound science, to be considered as part of recovery planning for Gulf Coast wetlands and barrier systems.

The Importance of Restoring Wetlands and Barrier Systems on Wildlife Refuges to Protect Coastal Areas and Provide Protection for Trust Species

The national wildlife refuges in the Gulf Coast region were established as critical stopovers for migratory birds and to support endangered species and millions of waterfowl. It has long been understood that wetlands provide multiple benefits such as protecting biodiversity, storing water, controlling and mitigating floods, purifying water, and serving as nurseries for populations of fish and shellfish that support the seafood industry. The recent hurricanes, however, brought into stark relief one of the most critically important services that wetlands and barrier islands provide to the Gulf Coast: protecting communities from storm surges and other devastating impacts from hurricanes.

The Fish and Wildlife Service has estimated that the wildlife refuges of the Southeast Region experienced direct land losses, accelerated degradation, or other damage on more than 150,000 acres of coastal and bottomland wetlands. Without the stabilization and restoration of these areas, coastal wetland loss will continue, biodiversity will decline, ecosystem health will suffer, and future storms will be more and more damaging to coastal communities and ecosystems. Although these refuges are highly valuable for protecting trust species of birds and wildlife, they also can play an integral role in the larger restoration efforts ongoing to rebuild and restore the coastal wetlands and barrier systems of the Gulf Coast to better protect coastal communities.

According to the Fish and Wildlife Service, 61 wildlife refuges were directly impacted by Hurricanes Katrina, Rita, Wilma, and Dennis, resulting in habitat destruction and damage to facilities essential for refuge management and recreational programs. More than 4.5 million people visited the 61 affected refuges in 2005. These refuges are immensely popular with birdwatchers who visit the Gulf Coast to see a wide array of bird species including a variety of neotropical migratory birds. More than 45 million birders spend \$32 billion each year pursuing their interest in bird and wildlife watching. Overall, these purchases have a ripple effect in the economy that leads to a total of \$85 billion in economic benefit and generates more than 800,000 jobs, according to the Fish and Wildlife Service.

Concerns Regarding Impacts to Birds and Bird Habitat

The hurricane impacts to birds and their habitats on Gulf Coast wildlife refuges are extensive, with a number of high priority species and habitats affected. Historically, the Gulf coast areas damaged by the hurricanes have been extremely rich in supporting migratory birds and these areas enjoy some of the highest bird-related recreation. Coastal Louisiana, for example, provides critical habitat for birds migrating across the Gulf of Mexico twice a year and is a prime destination for birding and ecotourism. Coastal Louisiana is the home to 60 percent of all mottled ducks and 66 percent of the entire Mississippi flyway waterfowl population.

Preliminary data from scientific studies performed by federal agencies, as well as direct observations and anecdotal evidence from sources such as Audubon's annual Christmas Bird Count, provide an alarming picture of widespread habitat changes and large shifts in bird migrations. It is not possible to assess accurately at this time whether these changes will result in equally alarming reductions in bird populations, but this early data suggests that the Congress should consider very carefully the need to provide additional funding to restore habitat and provide adequate resources to properly understand the scope of these impacts and how they might be lessened or mitigated.

In preparation for my testimony, I spoke with scientists working with the U.S. Geological Survey at the National Wetlands Research Center in Lafayette, Louisiana. Their research is not yet published but they expect to release it within the next few weeks. These scientists have been monitoring the habitat use of migratory birds in Louisiana and have recorded field observations of significant habitat destruction and large scale shifts in bird migration patterns.

Based on field observations of the USGS scientists, wind and storm surge impacts to bird habitat was pervasive across the Louisiana coast. Trees were completely stripped of their leaves. Fruit and insects, which would have served as food for migratory birds, were at low levels or were gone. In other areas, the low lying shrubs and woody cheniers that would have provided stopover locations for neotropical migratory birds had been buried under six feet of sand and silt. Saltwater intrusion into freshwater marshes and other valuable bird habitats was widespread.

Based on data from radar studies, bird migration patterns appear to have shifted in response to the changes in habitat. In eastern Louisiana, for example, the riverine systems along the shore of Lake Pontchartrain historically used by neotropical migrants widely during this time of year were used very little in the months following Hurricane Katrina. Their habitat use appears to have shifted to upland areas in Mississippi where food might have been more available.

Similarly, based on the radar studies by USGS, in western Louisiana, waterfowl populations appear to have shifted after the hurricanes toward the north into more freshwater areas, away from the coastal areas affected by the saltwater storm surge.

It is difficult to assess at this time how bird populations would be affected. But the scope of the changes in habitat and the significance of the shift in migratory patterns suggests the need for Congress to provide the resources necessary to allow federal agencies with responsibility for these trust resources to do the studies and monitoring necessary to make appropriate management decisions and maximize the use of funds dedicated to restoration of coastal habitats.

I received a number of anecdotal accounts of declines in bird populations based on a preliminary analysis of data from Audubon's annual Christmas Bird Counts along the Gulf Coast. A sampling of these accounts follows:

- From an organizer of the Sabine Refuge Christmas Bird Count: "It is hard to draw too many conclusions...but I have no doubt that most everything will be near historic lows...Most of these numbers would have been considered low just for a single party on a bad weather day."
- From the Venice, Louisiana Christmas Bird Count: "Very few wintering sparrows, few raptors...essentially all undergrowth was dead, offering little or no cover. No wax myrtle, no berry vines."
- From the Dauphin Island, Alabama Christmas Bird Count: "This was the lowest count in birds and species in the last 10 years...vegetation was seriously damaged, our western area was overwashed."
- From the Grand Isle, Louisiana Christmas Bird Count: "Many resident species and some wintering species appear to be affected. At Grand Isle during Hurricane Katrina, the water poured over the back part of the island and swept toward the beachfront. Much of the understory has been replaced by debris. Trees like mulberries and sugarberries have been knocked back."
- From the New Orleans Christmas Bird Count: "Obviously, bird populations were affected. The most obvious effect seems to have been on resident forest birds and some water birds. For most resident birds, the news was bad—most came in less than half the previous six year average number."

I also received a report from Audubon's Center for Birds of Prey in Florida. The center observed a striking decrease in the number of eastern screech owls admitted to the center in the spring of 2005. Typically, the month of May is when the center will observe an increase in admissions of baby screech owls, most of them fallen from their nests. In 2004, the center admitted 42 screech owl babies. In 2005, the number dropped to 15. Screech owls are cavity nesters dependent on snags and oaks for nest cavities. This may indicate that a loss of trees in Central Florida due to the hurricanes contributed to a decline in this species.

Over the years, Audubon has monitored many of the birds affected by the hurricanes and is particularly concerned that a number of imperiled bird species may have been impacted. Species considered by Audubon scientists to be of conservation concern that may have been affected by hurricane impacts include freshwater wet grass species such as the Black Rail, Long-billed Curlew, Yellow Rail, and Whimbrel; beach species such as Snowy Plover, Piping Plover, Wilson's Plover, Reddish Egret, American Oystercatcher, Red Knot, and Short-billed Dowitcher; and emergent salt march species such as Nelson's Sharp-tailed Sparrow and Seaside Sparrow. Each of these birds is included on Audubon's WatchList of birds of conservation concern.

Audubon recommends extensive monitoring of neotropical migratory birds and priority bird species of conservation concern, as well as complete assessments of natural resource damage. Without annual surveys and habitat assessments over the next five years, the Service will be unable to separate effects of Hurricane Katrina from other causes of habitat change and bird population fluctuations.

Concerns Regarding Impacts to Threatened and Endangered Species

Audubon is concerned about the impacts the hurricanes have had on species listed as threatened or endangered under the federal Endangered Species Act. In Southeast Louisiana, for example, the Big Branch Marsh National Wildlife Refuge has lost 70 percent of the trees that were documented nesting sites for the endangered Red-cockaded Woodpecker.—

The refuge staff at Big Branch Marsh NWR has been actively going out and putting new cavities in trees to replace the nesting sites. The Service is conducting "spring roost counts" for the birds right now and is optimistic that many of the 15 to 17 Red-cockaded Woodpecker families that nest on the refuge each year will nest again this April.—

However, there is one area of Big Branch Marsh NWR where no trees are left standing at all, and the ground is making it difficult for refuge staff to access. There is a layer of "sticky pudding" from deposited debris and muck that their four-wheelers cannot get through.—Five of the Red-cockaded Woodpecker families historically used this area that is difficult to access with no standing trees. It is unclear how the birds that used the habitat in this area that was completely destroyed will adapt to the changed environment.

The Breton National Wildlife Refuge is important for nesting birds and in particular it is a globally important nesting area for 15 percent of the world's endangered Brown Pelicans. Breton is part of Chandeleur Islands and lost 50 to 70 percent of its land due to the hurricanes. The amount of land that is above the water line that could serve as nesting habitat has been greatly reduced. The refuge is not getting the natural replenishment of sediment from the Mississippi River the way it did historically.—The refuge staff is considering projects to do dredging to build up the islands and do plantings to bring back native vegetation.—The Breton Refuge's chain of barrier islands provides a significant wave buffer for the City of New Orleans as well as wetland coastal areas. Restoration on the refuge will help protect the communities of Louisiana, protect the area's vital wetlands, and also provide habitat for endangered species.

Audubon recommends that monitoring and surveys be conducted for the Brown Pelican. Late last year, the Service announced plans to issue a rule to delist the Gulf coast population of the brown pelican. Many coastal habitats have been destroyed and assessment of the nesting and roosting areas is needed before the Service can move forward with delisting.

Mississippi Sandhill Crane NWR was created to protect the endangered Mississippi Sandhill Crane, of which 135 exist in the wild. The recent hurricanes caused the deaths of two very important breeding females, which have been responsible for 40 percent of all fledged young since 1997. Biologists at the refuge are optimistic that other females will be able to replace this reproductive success, but extensive monitoring of this vulnerable population will be needed. Structures used to observe the species in the field must be rebuilt, and the refuge will need biologists to conduct monitoring. Currently the refuge has one full time biologist and one full time assistant to conduct the field work, and additional staffing may be necessary.

The Need to Repair Damage to Water Control Infrastructure to Ensure Ecological Health and Biological Integrity

The 2005 storms breached levees and dikes important to wildlife and habitat management and flood control on national wildlife refuges. These levees and dikes protect freshwater marshes from damaging saltwater intrusion and allow the Fish and Wildlife Service to manage the wetlands for optimal conditions for millions of migratory birds. For example, some water control structures used in Gulf Coast refuges allow refuge managers to maintain a historic continuum of different marsh types—freshwater, intermediate, and saline—to which different species are adapted. Without active management of water levels to maintain this diversity of habitats, the species that use the refuge will be less biologically diverse. With pieces of the ecological puzzle missing, the wetlands may provide fewer ecosystem services to surrounding communities.

The Refuge System is managed under authority of the Refuge Improvement Act of 1997, which directs the Fish and Wildlife Service to manage the System to ensure the environmental health and ecological integrity of the refuges. The Service's ability to manage the refuges in a manner consistent with its legislative mandate will be severely limited without additional funding to repair water control infrastructure.

The Need for Immediate Assistance to Ensure Proper Cleanup of Hazardous Debris

In addition to habitat impacts to a variety of Gulf Coast refuges that require major restoration efforts to protect trust species, many refuges are in need of an immense amount of debris cleanup. All four of the southwestern Louisiana refuges were devastated by hurricane Rita. According to a recent report, the Sabine National Wildlife Refuge is threatened by more than 1,400 barrels of toxic liquids blown in by the hurricane. These barrels hold 115,000 to 350,000 gallons of oil, bleach, and propane, and several containers of lethal chlorine gas were found on the refuge as well. The barrels are part of a six-mile debris field which includes two 18-wheelers, plywood, aluminum siding, and refrigerators. Much of the debris came from the oil and gas facilities that surround the refuge.

The marsh presents difficulties both in terms of access to the refuge to retrieve hazardous materials and other debris, as well as presenting a risk that hazardous materials will sink down into the marsh, out of sight. Fish and Wildlife Service hired consultants to review the risks at Sabine National Wildlife Refuge who recommended that thermal surveys be conducted to identify any sunken materials that may present a risk to the environment.

The costs of managing the damage to Sabine Refuge are not yet completely understood. The cost of managing the damage to Bon Secour Refuge from Hurricane Ivan may help to put the potential costs in perspective. Hurricane Ivan hit Bon Secour Refuge with a 16 foot storm surge carried large amounts of debris from destroyed houses in nearby development. The refuge spent \$3.5 million and eight months using the cooperation of three federal and state agencies to remove hazardous and non-hazardous debris from 200 acres of the refuge. The hazmat cleanup took three weeks, but most of the hazardous debris was from household products. Sabine Refuge presents a hazardous materials problem that is orders of magnitude larger, with acutely toxic materials brought in from oil and gas facilities, and a debris field strewn across 32,000 acres.

The recent report entitled "Assessment of Hazardous Materials and Debris from Hurricane Rita in the Sabine National Wildlife Refuge" provides important data on the extent of the problem but additional surveys are needed to identify submerged items. The Service has estimated that it will cost between \$10 million and \$50 million to clean-up and remove the hazardous debris at five national wildlife refuges during to the hurricanes.

It appears that additional funding, beyond the Bush Administration request in the emergency supplemental bill, will be needed to cleanup debris and toxic waste at many of the refuges. Contaminant assessments are necessary to enable us to identify and prioritize corrective actions.

Conclusion

Facing a backlog of operations and maintenance needs now well over \$2 billion, the National Wildlife Refuge System does not have the funding available to divert to the acute threats and emergency needs created by Hurricanes Katrina and Rita. National Audubon Society supports the President's emergency supplemental request to restore the wildlife refuges of the Gulf Coast that have been devastated by hurricanes. An additional \$96.7 million for habitat stabilization and monitoring of the national wildlife refuges impacted by the hurricanes should be included in the emergency supplemental appropriations bill.

The refuges in the Gulf Coast region have drastically changed and it is essential that baseline surveys of habitat damage and bird and wildlife populations are conducted as soon as possible. These surveys will be an important guide for managers as they begin to cleanup, repair, and restore the refuge system. In addition, it is critical that the Fish and Wildlife Service, as a large landowner in the Gulf Coast region, participate fully in the efforts of federal, state, and local agencies, as well as partner organizations, to rebuild and restore wetland habitat and the barrier islands that will be necessary to ensure protection of the vast biological resources of the area and to protect coastal communities from future storm events.

Mr. Chairman, this concludes my prepared statement. I would be happy to answer any questions you may have.

Mr. GILCHREST. Thank you, Mr. Daulton.
Mr. Richard?

**STATEMENT OF DAVID RICHARD, EXECUTIVE VICE
PRESIDENT, STREAM PROPERTY MANAGEMENT, INC.,
STREAM COMPANY**

Mr. RICHARD. Thank you, Mr. Chairman.

I am David Richard. I am a wildlife biologist who has worked on the coast of Louisiana and southwest Louisiana in particular for the past 30 years. I spent 16 years working for the State of Louisiana and the last 14 years working with private land management.

I am a resident of Grand Chenier or was a resident until Hurricane Rita when that community and our home was devastated.

Mr. GILCHREST. What was the name?

Mr. RICHARD. Grand Chenier. It means oak ridge in French, the Chenier word.

It is a unique geological area between Vermilion Bay and Galveston Bay. There are only three of them in the world, and that is on the northern shore of Australia and the eastern shore of Madagascar. It is called the Chenier Plain. It is actually an isolated beach ridge, but it made an awfully wonderful home.

You all have heard about land lost in Louisiana. It is catastrophic. To put it in perspective, there is a million acres that is gone. The three main topics that I think we need to look at today are some of immediate concern. You have heard of the huge land loss in Louisiana and how that land loss has impacted. I feel it is a direct result, the devastation that we saw in Mississippi and in New Orleans, because of the loss of that million acres of coastal wetlands.

The diversity in coastal wetlands in Louisiana is unparalleled in this country. Marshes are not monotypic. There are fresh marshes and intermediate marshes and brackish marshes and saline marshes, and the diversity of Louisiana coastal wetlands is a unique feature.

So what do we need to do? You asked Mr. Hamilton this morning about particular monies that were available through PL-646 of the Breaux Act. There are \$257 million that are needed to fund designed and engineered projects that are ready to be constructed at this point in time. \$200 million of that remains unfunded as we sit here today.

The Louisiana coastal area plan in the year 2000, after the formulation of the 2050 plan, called for a \$15 billion investment. A

\$15 billion investment would be cheap in comparison to where we are today.

It gives you a total at this point in time that there are \$200 million worth of projects ready to construct. There is another \$500 million of projects that are in design and engineering, and for the complete implementation of the Louisiana coastal area plan we are in the range at this point in time of about \$18 billion.

From a national wildlife perspective, which is what I was asked to speak on, the national wildlife refuge system works very closely with the private landowners, with the parishes and with the local governments in regard to the overall plan and regional planning system.

Sabine National Wildlife Refuge, Cameron Prairie National Wildlife Refuge and Lacassine National Wildlife Refuge are located in Cameron Parish encompassing about 180,000 acres. They work very closely with us in a program for watershed management. We have state-of-the-art structures on Sabine built with PL-646 money and PL-566 money on the watershed program under the Cameron-Creole Watershed that not only impact refuge lands, but impact the lands that are adjacent to that, the many thousands of acres of private lands. We urge and encourage that those water control structures and levees be repaired and rebuilt as soon as possible.

The socio-economic proportion of these hurricanes. We have hundreds of thousands of visitors that went down the Creole Nature Trail, which is an American byway, that learned education and hands-on experience that was completely destroyed at Sabine National Wildlife Refuge and heavily damaged at Cameron Prairie. This gave the public a real opportunity to walk through the wetlands in Louisiana and to also see specific exhibits in that regard.

Lacassine National Wildlife Refuge is one of the most important wintering waterfowl areas in the country. Half a million birds winter there. We have a levee breach there that needs to be immediately done, and we also have public facilities there that were damaged. Cameron Prairie also.

I do urge that we do the hydrologic issues that need to be restored and the public facilities and public use facilities and administrative buildings that should be restored on those refuges.

You have heard a lot about the hazardous waste. I worked with live cattle rescue and spotting the 360 graves that were talked about a while ago that were lost, and I would like to commend Fish and Wildlife Service for their help, but would also like to commend General Honoré. When I needed helicopters, I called General Honoré, and he provided whatever we needed to be able to do what we needed to do.

I have witnessed the debris fields on Sabine, just as I have witnessed thousands of acres of debris fields on private lands. The EPA began their cleanup from Hurricane Rita on lands that I manage. They have done an excellent job of picking up the hazardous waste off of those areas. We had hundreds of containers, thousands of containers that have been picked up. Those methods have been seen and have been shown and proven that we can do it.

The estimate of money that is involved in doing that is approximately \$20 to \$30 million. My written testimony, I would ask that

that be submitted. A lot of those figures are in that written testimony.

Mr. Chairman, I appreciate being asked to come here and appreciate whatever you can do for the needs of coastal Louisiana on private lands and on Fish and Wildlife Service lands.

Thank you for being here. I would love any questions that you might have.

[The prepared statement of Mr. Richard follows:]

**Statement of David M. Richard, Executive Vice-President,
Stream Property Management**

I was asked to testify before you with an assessment of the destruction and the type of damage that was inflicted upon National Wildlife Refuges by Hurricanes Katrina and Rita. I have spent 30 years of my professional career in coastal Louisiana working as a State Wildlife biologist and private land manager with emphasis in Southwestern Louisiana. I was a resident of Grand Chenier, located in lower Cameron Parish that was devastated by Hurricane Rita. My emphasis today will be on the impacts of Hurricane Rita on Sabine National Wildlife Refuge, Lacassine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge. These refuges comprise approximately 180,000 acres in Cameron Parish located in extreme Southwestern Louisiana. These refuges are intricately involved with the water management and resources management of Southwestern Louisiana. Southwestern Louisiana is home to some of the most diverse wetlands in the United States. This area comprises the Chenier Plain zone of Louisiana which extends from Vermilion Bay in Southwest Louisiana to Galveston Bay in Southeast Texas. Because of the geology and the topography of the area with extensive marshes and cheniers, the wildlife and wetlands diversity is unparalleled. The wintering waterfowl, the stopover habitat for neotropical passerine birds and the wetland diversity is home to multitudes of species of wildlife.

The destruction that was wrought upon Southwest Louisiana by Hurricane Rita is unparalleled in our history. The hurricane struck this area with winds in excess of 120 miles per hour, with tidal storm surge up to 20 feet. In this low, flat wetland the damage that was inflicted was beyond comprehension to the coastal communities involved of Cameron, Grand Chenier, Creole, Holly Beach, Pecan Island and Vermilion Parish and the entire coast of Louisiana that was affected by excessive storm surge.

The damage inflicted upon National Wildlife Refuges in the area was serious and catastrophic to the infrastructure. This infrastructure includes levees, water control structures, headquarters facilities, visitor centers and public use trails and supporting facilities.

Sabine National Wildlife Refuge was particularly hard hit due to the storm surge. Major water control structures and levees that are used to combat salt water intrusion were severely damaged. Subsequent vegetative destruction and marsh deterioration are of immense proportion. These structures and levees are needed to maintain the historical wetland diversity of the area and thus its productivity. The diversity of the land and productivity are linked through habitat diversity. The needs of the Refuge include the rebuilding of these levees and the water control structures in the Cameron-Creole Watershed on the east side of Calcasieu Lake and the water control structures on the west side of Calcasieu Lake. These structures and levees have been built in coordination with the Coastal Wetlands Planning, Protection, Restoration Act program (PL646), the Natural Resource Conservation Service Watershed program (PL566). These structures which are state-of-the-art water control structures impact not only National Wildlife Service lands but also private lands. The United States Fish and Wildlife Service have worked with the people of Southwestern Louisiana in constructing and maintaining these water control structures and levees to protect and maintain this historical diversity. The structures and levees are repairable and should be repaired at the earliest date possible. The infrastructure of Sabine National Wildlife Refuge which includes waterways, headquarters facilities, visitors center, and support buildings were completely destroyed in Hurricane Rita. These facilities should be rebuilt to support the continuing management of over 100,000 acres of coastal wetlands as well as centers for outreach and education of the values of America's Wetland.

Other types of damage that were inflicted upon Sabine National Wildlife Refuge was the deposition of debris fields. Over 1,700 acres of debris has been located and identified on the Sabine National Wildlife Refuge. The Sabine National Wildlife

Refuge management conducted an assessment of hazardous materials and debris from Hurricane Rita in the months following the hurricane. This assessment is attached to my written testimony for your perusal. In essence this plan identifies 1,400 potential hazardous material items in the debris field. These items are estimated to contain between 115,000 and 350,000 gallons of hazardous liquids and gases. This hazardous waste came from offshore facilities, inshore facilities, and common household items. The hazardous waste on private lands in Southwestern Louisiana is progressing as planned and implemented by the Environmental Protection Agency. The Environmental Protection Agency has retrieved tens of thousands of containers from private lands in Southwest Louisiana and has done a commendable job. These containers and hazardous materials should be removed from Sabine National Wildlife Refuge to prevent present and future damage to that habitat. There are also no doubt some hazardous materials that have not been able to be identified due to the immensity of the project. These debris fields can be at depths and heights of 6-8 feet of vegetative, residential and hazardous materials. There is the distinct possibility that more than the estimated number of containers of hazardous waste is present on the Refuge. Every effort should be made to commence their removal from Sabine National Wildlife Refuge as is being done on private lands. There have been a number of procedures that have been used to cause the least damage to the wetland habitat that have been used in the hazardous material removal by the Environmental Protection Agency that is on-going at this time.

The Lacassine Wildlife Refuge is also located in Southwestern Louisiana. The infrastructure of Lacassine Wildlife Refuge was also damaged by Hurricane Rita. Although Lacassine Wildlife Refuge is located 20 miles inland the storm surge and accompanying salt water intrusion damaged the levees that maintain diversity of this National Wildlife Refuge. The levees and water control structures damaged should be rebuilt and replaced as soon as possible. This Refuge maintains a pristine historical wetland in the Mermentau Basin in Southwest Louisiana as Sabine is used by thousands of people per year. The incidence of debris fields and hazardous waste on Lacassine Wildlife Refuge is not the scope that it is on Sabine National Wildlife Refuge but the infrastructure damage and removal of hazardous waste on Lacassine National Wildlife Refuge should be implemented as soon as possible.

Cameron Prairie National Wildlife Refuge is located on the eastern side of Calcasieu Lake and also sustained heavy damage through Hurricane Rita. The debris fields and infrastructure damage on Cameron Prairie are similar to Sabine National Wildlife Refuge. The headquarters facilities and visitors center were used as a temporary headquarters for the recovery of Cameron Parish. As a resident and citizen of Southwest Louisiana we commend the Fish and Wildlife Service for their willingness to house and coordinate the recovery activities through that office in the early period following Hurricane Rita. This area was used as a command center, as a staging area for troops and private personnel that were involved in live cattle rescue, damage assessment, road clearing, and as a support facility for hundreds of Cameron Parish residents. The headquarters building and visitors center sustained damage due not only to the hurricane but to the number of people and equipment that used the headquarters after the hurricane.

The infrastructure on Cameron Prairie was also damaged in Hurricane Rita. There are waterways that need to be cleared of debris. There are hazardous materials that have been deposited. This infrastructure should be replaced as soon as possible.

One of the questions asked in your letter of invitation was if these Refuges were permanently changed. The incidence of hurricanes is a natural phenomenon along the Southeastern United States. These hurricanes have historically changed the landscape over centuries. The problem is that man has also changed the topography and hydrology of the lands. When the Mississippi River was harnessed the natural flow of the Mississippi with its nutrients and immense amount of wetland creation capabilities were diverted and have forever changed the landscape. We must now rely on man-made techniques to preserve the diversity and wetlands of Coastal Louisiana. The Refuges will recover if the existing infrastructure that was in place prior to the hurricane is replaced. This infrastructure, comprised of levees and water control structures maintain the historical diversity. There is going to be a succession period where the plants and animals must recover. This time frame is, hopefully, short. There are some areas that have been permanently changed in regard to the removal of vegetation from the marsh that created open water. These areas will take much longer to heal and will take management of those wetlands to achieve that goal.

How much money Congress needs to appropriate for the repair for these severely damaged Refuges in Southwestern Louisiana could range from \$20-50 million. The repair of the infrastructure alone is estimated to cost between \$10-20 million. The

estimates regarding the removal of hazardous material from the Refuges could range from \$20-30 million. These heavily damaged Refuges in Southwest Louisiana are in need of rebuilding and re-establishing in infrastructure. The socioeconomic impacts of Cameron Prairie National Wildlife Refuge, Sabine National Wildlife Refuge and Lacassine National Wildlife Refuge are important for the education and economy of Southwest Louisiana. These Refuges have in excess of one-half million visitors per year that learn and enjoy the ecology and natural resources of this productive area. I urge this Committee to appropriate those funds necessary to rebuild the levees, water control structures, headquarters buildings, visitor centers and support facilities that have made Southwestern Louisiana and National Wildlife Refuges so productive and so unique and so important to the people of Southwestern Louisiana.

Mr. GILCHREST. Yes, sir. Thank you, Mr. Richard.

We are going down to Louisiana next week mainly to look at the fisheries issues, the fishermen, the boats, the processors, the infrastructure, those kinds of things, but I think this issue, as big as it is, it would be important for us to go down and visit some of the places that you have seen and personally walked and see what we can do to help in this arena.

Mr. Richard, you talked about wetlands recovery, land loss mainly due because of the loss of wetlands, \$15 billion of the original estimate for the recovery of lower Louisiana I guess over about a 40-year period or something like that, and you said it was bumped up to \$18 billion I guess considering the hurricane.

Do you think that without this massive introduction of funds to understand the hydrologic issues so that the wetlands can be restored and reduce to a minimum land loss, without that do you see any hope for lower Louisiana?

Mr. RICHARD. As I have said in my testimony, we have lost a million acres. That land loss is accelerated. USGS, as was stated here earlier today, estimated we had lost 118 square miles just with this hurricane. We have a normal land loss of 25 square miles per year at this time. If there are not major massive efforts to restore coastal Louisiana it will cease to exist. Absolutely no question.

I began the bald eagle program in Louisiana in monitoring. I have done the alligator surveys in Louisiana since 1976. I used to band every brown pelican that we brought into the state to reestablish in my hands in the late 1970s.

I have witnessed that land disappear. I have witnessed cypress forests die with bald eagle nests on the ground. I have witnessed the Chandeleur Islands being completely destroyed. I have witnessed vast wetlands where I used to look at productive marshes now in open water.

The answer to your question is from firsthand experience, drastic measures are needed, and they are needed quickly. The \$15 billion figure was compiled by the Corps off the 2050 plan. The 2050 plan was compiled in 1998 with a cost of \$14.9 billion in 1998. In normal inflation we are looking at an \$18 billion figure. It needs to be put at the top of a priority list to preserve the diversity of that ecosystem.

Mr. GILCHREST. Now, the 2050 plan, I guess also incorporated into the 2050 plan was a technological fix for coastal or lower Louisiana based in part on some changes in the sediment flow from the Mississippi River I would guess?

Mr. RICHARD. That is correct. You know, the Mississippi River has to be looked at from a nationwide perspective. Number one, we know that we have 50 percent of the silt that used to come down the Mississippi no longer comes here.

Since the 1927 flood when we harnessed the Mississippi, and we have all the locks and dams up the Mississippi River, and we have all the dredging that is imposed because of those lock and dams and lack of flow. We do have a huge lack of sediment coming down the Mississippi. We need to make use of every available spoonful in regard to rebuilding that coast.

That works very well in what we call the Delta Plain and the sub Delta Plain, which is from Vermilion Bay to the State of Mississippi, but in the southwestern part of the state we have hydrological controls there that need to be maintained because there is not that flow.

We do have literal flow coming through the Gulf. Major operations on the Mississippi River are necessary to save coastal Louisiana.

Mr. GILCHREST. Mr. Daulton, you said you were in support of the supplemental from President Bush, which amounted to some \$130 million or so, but you also I think made a comment that the total needed, at least if I added up everything you said, and I am assuming you mean just on Federal wildlife refuges, was \$370 million. Or was it \$270 million?

Mr. DAULTON. I think the Fish and Wildlife Service has estimated \$270 million as a total overarching need. \$132 million was in the President's request.

Mr. GILCHREST. I see.

Mr. DAULTON. There was a \$100 million need for habitat assessment, habitat monitoring.

Mr. GILCHREST. Is that over and above the \$270 million?

Mr. DAULTON. No.

Mr. GILCHREST. That was included in the \$270 million?

Mr. DAULTON. That question could be maybe better directed to Fish and Wildlife Service, but I think that my understanding of it is that the habitat request is within the \$270 million.

Mr. GILCHREST. So we are short about \$100 million with the President's request?

Mr. DAULTON. Correct.

Mr. GILCHREST. As we look at this, coastal Louisiana, the state refuges, the state land and in the Federal wildlife refuges, as you look at these areas of need are you making distinctions?

In your efforts in Louisiana and your efforts to talk to us are you making distinctions between the Federal dollars that will go for Federal wildlife refuges or for the state-owned land? Is there a collaboration? This is the region from Texas to Mississippi that needs to be fixed.

Mr. MOORE. Mr. Chairman, if I may?

Mr. GILCHREST. Yes.

Mr. MOORE. Parke Moore. We have made an estimate based upon our initial assessments of damage to our state-owned lands of approximately \$258 million that is not included in any of those dollars that have been talked about today.

Mr. GILCHREST. So it is \$250 million just for the state-owned land?

Mr. MOORE. Yes, sir.

Mr. GILCHREST. Where are you looking to get that money from?

Mr. MOORE. You.

Mr. GILCHREST. Mr. Jefferson?

Mr. MOORE. Maybe in Jeffersons.

Mr. GILCHREST. OK. So the state is looking to the Federal government—

Mr. MOORE. Yes, sir.

Mr. GILCHREST.—for some of those dollars?

Mr. MOORE. Yes, sir. We feel as though the Federal government is a major player in the recovery of Louisiana and the health of our ecosystems in Louisiana to the benefit of the Nation as a whole.

Our estuarine system is critical to the seafood industry, to the whole United State and also internationally.

Mr. GILCHREST. Yes. So just between what the Federal refuges appear to need and what the state land appears to need, which I am assuming we are talking about land lost to Hurricane Katrina that was marsh or swamp or wetlands and now is open water or potentially open water, so we are looking at that to be about \$500 million I would guess.

From the Federal side and the state side is a round, ballpark figure of about \$500 million for that habitat restoration?

Mr. MOORE. Well, it is not only habitat restoration, but those projects that are involved in ensuring that we can maintain what we have.

Mr. GILCHREST. Right. Sure. Not only habitat restoration, but make sure the habitat can withstand another hurricane.

Mr. MOORE. Yes, sir. To get back to where we were, not to improve really much of anything.

Mr. GILCHREST. Right. Mr. Hirsche?

Mr. HIRSCH. If I could comment? Yes, Mr. Chairman. Fish and Wildlife has estimated \$170 million for facilities and infrastructure repair needs and \$88 million for habitat restoration to get us back to where we were, but I think there is a real question mark with those numbers. I think the likelihood is that they are going to increase.

Mr. GILCHREST. I see. I have some other follow-up questions, but my time is up so I will yield to the gentleman from New Jersey, Mr. Pallone.

Mr. PALLONE. Thank you, Mr. Chairman.

I wanted to ask Don Young about his statement. In your statement you mention that it might be more harmful to attempt to remove some debris or hazardous material than to leave the waste in place and let nature repair itself, and this would allow the Service to invest limited resources in restoration efforts.

I just wondered by what criteria you would make such a judgment to leave waste or debris in place. How would you determine that?

Mr. YOUNG. Mr. Pallone, I believe that testimony was provided by Director Hall this morning. I didn't provide comments on that.

Mr. PALLONE. OK. So I am misquoting you then? It was not you who said that?

Mr. YOUNG. Not in my remarks today, no.

Mr. PALLONE. OK.

Mr. YOUNG. With regard to our written testimony, we spoke to some of the same concerns that Director Hall spoke of this morning that in some cases the materials, the toxic materials in situ, may be problematic in terms of removal of some of those materials in terms of releasing them by virtue of the actual process of removing them from their current location, so we will have to look on a case-by-case basis as to what is the most effective way of dealing with the particular toxic elements.

Mr. PALLONE. So there may be some cases where you would advocate that, but you don't really want to establish a criteria saying what those would be?

Mr. YOUNG. No. That is correct.

Mr. PALLONE. OK. Let me ask Mr. Hirsche. I don't know if I am pronouncing it right.

Mr. HIRSCHKE. It is Hirsche, Mr. Pallone.

Mr. PALLONE. OK. Like Hershey, Pennsylvania, I guess.

Mr. HIRSCHKE. That is right.

Mr. PALLONE. All right. In your statement you note that the estimated storm damage to refuge facilities and infrastructure exceeds \$270 million or about 70 percent of the refuge system's total 2006 operations and maintenance budget.

Then you say you fear that refuges across the country, already stretched to the breaking point, would not recover from the extensive budget burden already crippling the system.

I just wanted you to share with us what the Cooperative Alliance for Refuge Enhancement currently estimates as the budget backlog for operations and maintenance activities within the refuge system.

Mr. HIRSCHKE. Yes, sir. The Cooperative Alliance for Refuge Enhancement is, as I think you know, a diverse alliance of 21 national organizations that runs the gamut from the National Rifle Association to Defenders of Wildlife. We don't always agree on management strategies, but we certainly agree that the refuge system is massively underfunded.

Our most recent, and this goes back a couple years, estimate on an annual budget for the refuge system that would help to alleviate the \$2.7 billion backlog would be \$700 million a year, so you can see we are already operating behind the curve.

I think our concern with the expenses associated with cleaning up the Gulf—I mean, you have two options; either do it or you don't, and what are the ramifications if you don't, and if you do address the facilities repairs and the habitat restoration where is that money going to come from?

If we take it from the refuge system budget it is going to have a serious impact on refuges throughout the nation.

Mr. PALLONE. Are there ways in which the unintended operations and maintenance activities in the refuge system may have amplified the damage inflicted by the hurricanes in 2005?

Mr. HIRSCHKE. I am not sure I understand your question.

Mr. PALLONE. In other words, is it possible that because of the underfunding or problems with O&M activities in the refuge system that once the hurricane came through that there were consequences that may not have existed otherwise?

Mr. HIRSCH. I mean, I think that is entirely possible. I can't point to specifics, but the reality is that at refuges around the country, including the Gulf, you have facilities that were already in need of enormous repairs. In some cases they needed tearing down and actual replacement to reduce costs.

There were serious habitat restoration needs. In many cases you have water control structures and other things that were not up to full operating standard, but I think we would have to look case-by-case, and I don't have specific examples with me.

Mr. PALLONE. OK. In your written statement you express concern in the contracted report of hazardous materials about contamination at the Sabine National Refuge, that unless the issue of contaminant removal and rehabilitation is addressed that that refuge will be at significant risk of chemical and physical damage for decades.

I only mention that because that seems at odds with the idea, and again I don't want to misquote Mr. Young, that it might make more sense to leave some of the spoiled areas alone to heal themselves.

Do you want to comment on this sort of leave-it-alone approach at all?

Mr. HIRSCH. My gut would say you let hazardous material sink into the marsh you are looking at a ticking time bomb.

The reality is the habitats we are talking about have already taken a significant hammering, and it seems that at this point removing these items would be probably the best option, but it may be a case-by-case situation as well.

Mr. PALLONE. OK. Thank you, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Pallone.

Just a couple of extra questions. Mr. Hirsch, following up on Mr. Pallone's questions about leaving certain things alone, I think I would agree with you that if we can get those toxic materials out of there that would be one of our top priorities.

The other thing though is looking at the national wildlife refuges and looking at certain buildings or infrastructure that have been destroyed, have you given any thought to just leaving those, to taking the debris of those buildings away and not rebuilding in those areas? Is there any consideration given to that?

Mr. HIRSCH. I can't speak for the Fish and Wildlife Service. My sense is that is under consideration. On the other hand, most of these facilities that we are talking about are vital to the operations. They store maintenance equipment. Often we are talking about visitor services structures.

The reality is refuges provide an outstanding opportunity for the public to enjoy these places, and if they don't have the interpretive and educational opportunities to engage at these refuges we are going to lose community and public support for them.

Mr. GILCHREST. Given the fact that we have to squeeze out blood from a stone here—

Mr. HIRSCH. Yes.

Mr. GILCHREST. Not that we wouldn't want to rebuild some of those structures, but just to give your honest opinion if we had to prioritize this.

We are not going to come up with \$18 billion over the next two or three years. We hope to bump the \$132 million up, but given the fact that there are toxic waste problems out there, that there are restoration to habitat problems out there, that there is holding onto wetlands problems where structures are going to have to be built, and we haven't talked to Mr. Hall about this.

This is a fairly minor equation into the whole problem, but if we had to prioritize I guess that would be low on our priority list to rebuild some of the facilities on those refuges that need to be protected with wetlands first.

Mr. HIRSCH. Yes. Mr. Chairman, I guess I would in answering that question raise a question for the Committee, and that is we are talking about funding all these activities through emergency supplemental dollars, but the reality is that FEMA dollars are precluded right now by statute from being spent on Federal lands.

As I understand it, at Sabine there are areas where EPA has been hard at work, and they have cleaned up all the "white coats" and other items right along the boundary and so there is a stark contrast between within and without the refuge. I guess I would urge the Committee to explore the notion of being able to allocate some of those FEMA dollars to addressing cleanup.

As far as habitat restoration is concerned, this is an issue not only of vital importance to wildlife, but to communities, to people, to economies. It seems to me that the burden should be shared.

Mr. GILCHREST. We did discuss that briefly this morning, and that will be an issue of concern with us whether we have to change the statute or how to get FEMA dollars because we have been pumping, and rightly so, a lot of money down to lower Louisiana. We just don't want it to sit in a field in Arkansas, but make sure it gets to the right spot.

Just a quick question about the salt problem. Mr. Moore, you mentioned a number of the farm fields, not to mention a vast array of other areas that have been inundated with saltwater, brackish water. We saw the burned out fields and vegetation.

What is the solution? Is it natural rain and washing this salt through the soil? Is that how you get rid of it? How long does that take?

Mr. MOORE. Mr. Chairman, you are exactly right. Can you get us some rain? We have a drought in southwest Louisiana. Rain is one of the mechanisms that will help wash our soils.

We also need other aggressive techniques. Sometimes gypsum applied to the soils will then make it more agronomic. We are now involved in extensive studies on a pilot scale throughout the Ag Extension Service, and the Rice Experiment Station is doing work to determine what levels of salinity in the soils will allow a crop to be successfully grown.

We are engaged in a number of venues of research, investigations. The best course is good rains with good runoff to allow that washing to occur. We are just not getting that right now.

Mr. GILCHREST. The wildlife situation, especially the migratory waterfowl. Do you know whether or not the migrating waterfowl or red-cockaded woodpecker or a number of other of these species that have depended upon lower Louisiana—where are they now? Are they making out? Are they on golf courses? Are they doing OK?

Where have they flown to? Are they starving? A general assessment.

Mr. MOORE. Excellent question. I appreciate you asking that. We had an average year for wintering waterfowl. We had a cold winter in the north, which brought them down. We had ample water and ample food.

In time though the food resource is provided by our natural properties that grow natural plants and seeds, as well as that mosaic and matrix of agricultural or agronomic activities that provide feed for those waterfowl and other species.

From the standpoint of the red-cockaded woodpecker, we have many mechanisms by which we will make cavities in older coniferous trees, typically long-leaf pines, and we augment those populations.

We are engaged in a very aggressive and proactive program of engaging the private sector and their lands and hope that we can recover the red-cockaded sufficiently with the damage that was done. I think that we are on track there.

Mr. GILCHREST. All right.

Mr. MOORE. Waterfowl over time will detriment if we don't plant our agricultural fields and our properties that we manage with natural vegetation do not produce grains and greenery.

Mr. GILCHREST. Thank you very much.

Did you have any other questions, Mr. Pallone? Frank has a question.

Mr. PALLONE. I just wanted to ask. I could ask Mr. Don Young initially, and then if anybody else wants to answer it.

When we were talking about this leave-it-alone approach with hazardous waste, I just wanted to ask the same thing with regard to harmful invasive species because when you have the hurricane they might be established easier after a natural disaster and so I just wanted to ask what you would think about a leave-it-alone approach or case-by-case with regard to invasive species, you know, the same type of question.

Mr. YOUNG. Let me provide some clarification to your earlier question.

Mr. PALLONE. Sure.

Mr. YOUNG. With respect to the leave-it-alone concept, what I was speaking to primarily, more specifically to, is that there are certain biodegradable materials, such as timber and things like that, that will naturally degrade with time that don't have toxic implications.

We would certainly not be advocating leave-it-alone where you have particularly notorious toxic chemicals out there, for example, that may be problematic, so I just wanted to make that clarification.

Mr. PALLONE. Sure.

Mr. YOUNG. Now, with regard to the invasive species issue that is a significant concern not only with regard to plant species, but also with regard to animal species. Our colleagues here from the State of Louisiana can speak to that, but we are very actively involved as a conservation organization in terms of advocating control of invasive species where it is feasible.

They are extremely productive and aggressive in their growth and can cause significant problematic issues for indigenous wildlife and other plant species, so our view on that is to look for opportunities for controlling invasive species.

Mr. PALLONE. Does anybody else want to comment?

Mr. MOORE. Yes, sir, I would like to. Parke Moore, Wildlife and Fisheries. We are very much concerned from both aquatic invasives and also terrestrial flora and fauna. I will give you one example, and that is the Chinese tallow tree.

These types of invasives come in. They are not normally in the food chain. They do well. They are not eaten up. They then spread. They then become monotypic. They cover the ground. It precludes other beneficial plants from coming up.

In our areas, particularly in southeast Louisiana where we sustained heavy timber damage, we are going to have those invasives to come in, and Chinese tallow tree is one. We are going to seek substantial assistance wherever we can to combat that establishment and allow for our natural species, our plant species, to then develop an understory which will then constitute an overstory in our 20 to 40 year establishment of a forest.

We have to get our natives established, and these types of invasives will come in, will shadow out and shelter out any of the good plants and will not provide any kind of habitat or home for our animals.

As we have seen in southwest Louisiana, these invasives species on terrestrial habitats have been not only established on the periphery of areas. They have begun to infiltrate and migrate into the centers of our forests and marshlands, so, yes, invasives is a major concern to the State of Louisiana.

Mr. HIRSCH. Yes. I would just like to add that as I think you probably know, invasive species are a top threat to the refuge system, and whenever you have disturbed habitat you are looking at the threat of invasives establishing a real foothold.

When we are talking about habitat restoration, we should be thinking that funding in part as a way to reduce the level of invasive infestation.

Mr. DAULTON. And I would just like to add that the invasive species management would be included in the habitat management portion of the funding so that that is not included in the current President's budget request.

I think that what you have heard on the panel underscores how important that problem will be to address and in addition to that underscores the importance of that additional funding.

Mr. PALLONE. OK. Thank you.

Thank you, Mr. Chairman.

Mr. GILCHREST. Thank you, Mr. Pallone.

Gentlemen, thank you for your testimony. We hope to see you down in the Gulf fairly soon. Thank you for your time and your effort and your skill and your passion for what you do.

The hearing is adjourned.

[Whereupon, at 1:25 p.m. the Subcommittee was adjourned.]