TESTIMONY OF
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ON BEHALF OF
LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

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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 habit 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 US 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.