

STATE OF SOUTH CAROLINA  
IN THE COURT OF APPEALS

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APPEAL FROM THE ADMINISTRATIVE LAW COURT  
Ralph King Anderson, III, Administrative Law Judge

RECEIVED

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Case No. 15-ALJ-07-0404-CC

FEB 06 2017

SC Court of Appeals

Coastal Conservation League and South Carolina  
Wildlife Federation ..... Appellants

vs.

South Carolina Department of Health and Environmental Control  
and Horry County Public Works ..... Respondents,

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**REPLY ON MOTION FOR RECONSIDERATION**

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The Petitioners Coastal Conservation League and the South Carolina Wildlife Federation submit this reply in support of the Motion for Reconsideration of this Court's Order dated January 20, 2017 vacating the stay of matters decided in the Final Order and Decision on appeal from the administrative tribunal, allowing Horry County to proceed with concrete and paving work while this appeal is pending.

For all the parties' briefing on supersedeas, the Court should not lose site of the immutable bottom line: that the viability of this appeal in the absence of a stay rests entirely on the premise that this Court could and would order Horry County to rip out and restore 5+ miles of a major five-lane highway, including enough concrete and asphalt to facilitate the road's sixty mile per hour design specifications. Horry County's response is conspicuously silent as to the financial and technical feasibility of undoing the major highway paving it is now authorized to

perform. It follows, though, that if the County's cost of simply maintaining the unpaved highway during a presumed two-year appeal window is nearly \$1 million, then the cost of ripping out the highway and restoring it to its unpaved condition would be orders of magnitude larger.<sup>1</sup> There can be no doubt but that once this highway is paved, it will not be unpaved, and the purpose of Appellate Court Rule 241 will have been thwarted.

The County's primary argument, and this Court's apparent basis for vacating the supersedeas, is that no vehicles – save for emergency vehicles – will be allowed to drive upon the fully constructed roadway. Such a “condition” for vacating the stay fails to meet SCACR Rule 241's goal of preserving this Court's jurisdiction and preventing the contested issue – which is whether this roadway should be constructed as authorized – from becoming moot. Once the roadway is paved and constructed the question of whether it should have been constructed becomes an exercise in futility. Whether all cars drive on a paved road versus only emergency vehicles is not a contested issue, and thus despite the characterization of the Court's Order as a “partial” stay, the most recent Order is of no value or usefulness in preventing the contested issues from becoming moot. Thus, contrary to the County's statement, the impacts sought to be avoided by the Appellants are not cured by the conditional Order.

The County is mistaken because the question is not whether allowing completion of the road will “irrevocably alter the environment in ways that cannot be remedied” thereby depriving the Court of jurisdiction (Response p. 2), but whether the contested issues surrounding if and

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<sup>1</sup>Appellants maintain that financial detriment to the County is not a relevant factor in determining whether this Court's jurisdiction will be preserved or the case will become moot under Rule 241. It will no doubt, however, be used in arguing that any requirement to remove concrete and paving once it is laid down will be economically infeasible.

how completion of the road may take place at all will be rendered moot once the road is paved and completed.

The County continues to assert that the state certifications and related issues on appeal already have been rendered moot, despite this Court's rejection of that argument in denying dismissal of the appeal. (Response p. 2). Indeed, in moving to dismiss, the County conceded that once the permitted work has been completed, the appeal will be rendered moot. (See Motion to Dismiss p. 6). And yet it also argues it should be allowed to complete construction and paving of the road since it will not result in a "change" to the status quo. Notably, the County does not argue, nor could it argue, that performing this work will not result in contested issues becoming moot. At the very core of this inquiry is whether the Appellants – and other citizens seeking accountability and transparency of governmental decision-making – are afforded a meaningful opportunity to be heard as required by the Due Process Clause of the South Carolina Constitution.

The relevant inquiry under SCACR Rule 241 is whether allowing the road to be paved and completed while its underlying authorizations are pending on appeal will adequately preserve this Court's jurisdiction or prevent contested issues from becoming moot. To effectuate this goal, South Carolina Courts look at whether a stay or supersedeas is needed to maintain the *status quo*. Melton v. Walker, 209 S.C. 330, 336, 40 S.E.2d 161, 164 (1946) (citing 4 C.J.S., Appeal and Error §§ 626, 662.) As the County has stated on multiple occasions, the remaining work to be done on the road consists primarily of paving. Despite the characterization of paving as only a minor deviation from the status quo to allow for emergency vehicle access, once the road is paved, the project will be effectively completed in major substance.

Again, the standard is not whether allowing departure from the status quo will result in additional harm. (Response p. 3). The County mischaracterizes the issue before the Court, curiously claiming that “physical completion of the road would not pose significant change in the status quo.” (Response p. 3). The *status quo* is defined as “the situation that currently exists” (Black’s Law Dictionary, 3d ed.), “the existing state of affairs” (Merriam Webster <https://www.merriam-webster.com/dictionary/status%20quo>). The claim that converting a dirt road into a five-lane, paved highway is not a significant change in the status quo overlooks the physical characteristics of each condition. (Exhibit A, Affidavit of Steve Gilbert). Mr. Wooten’s affidavit acknowledges as much: the “[r]oad status quo is the road built *other than paving and final grading.*” (Response, Ex. A, p. 3, ¶ 14 (emphasis added)).<sup>2</sup>

In order to maintain the “situation that currently exists,” that situation must necessarily be kept or stayed in its current state. The harm that Appellants argue will result from the project, and whether it was properly authorized by the agency below, is what is at issue on appeal. Steve Gilbert, an expert in ecology, explains that the “status quo will be completely destroyed if construction of International Drive is allowed to proceed. In my professional opinion, converting what is presently a dirt road into a five-lane, paved roadway would be a significant change in the status quo.” (Exhibit A, p. 6).

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<sup>2</sup>Mr. Wooten’s affidavit makes numerous claims that are contested in the appeal, such as the claim that the road “will effectively reduce traffic on Highway 501,” despite evidence from the County’s engineer, Steve Gosnell, who testified that paving International Drive will do nothing to alleviate the congestion on Highway 501. Compare Response, Exhibit A, p. 4 with Initial Brief of Appellants, p. 13, citing Tr. Day 4, pp. 92-93 & 233. If this Court does not stay paving and construction of the road, such claims will effectively go unreviewed.

The purpose of Rule 241 and the imposition of a stay is to preserve the Court's jurisdiction to review the lower court or administrative tribunal's decision, as well as to afford the parties a meaningful opportunity to be heard before being finally bound by those matters on appeal. How much, if at all, a party is able to limit *additional* harm while that appeal is pending puts the cart before the horse: allowing the road to be constructed as permitted, while such permits are being challenged, in effect sanctions the permitted project prior to judicial review to hear and consider whether the resultant harm was properly authorized, whether it could be minimized through feasible alternatives, or other matters at the heart of the appeal.

The assertion that Rule 241's standard is anything other than maintaining the *status quo* so as to preserve the court's jurisdiction and prevent contested issues from becoming moot is off base. The County cites the portions of Rule 241 that provide for terms that the courts can impose on a stay order, should the Court conclude that the standard under the rule is met. SCACR Rule 241(c). In other words, the Court must *first* conclude that a stay is necessary to preserve jurisdiction and prevent mootness and *then* it can move to an assessment of what conditions and terms should attach to such order.

This is not a situation where the road will provide access to emergency services that are otherwise inaccessible, and access to emergency services currently exists for the communities in the vicinity of the road project. The road will afford more convenient and potentially faster access to emergency services. While that is certainly a valid reason to want this road completed, it does not make this road or this situation unique. Any new road will provide those in its immediate vicinity with faster, more convenient access to emergency and other services. Many communities and roads were and will continue to be inaccessible during extreme weather events,

such as Hurricane Matthew. There is no dispute that access during times of emergency is critically important, but it is universally important, and equally urgent, to all. Where, as here, access and emergency services can be provided without disturbing the status quo and allowing the road to be paved, this Court should reinstate its Order of supersedeas.

Further, the County still declines to extend its arguments regarding the feasibility of wetland restoration to the situation at hand, and rightly so, because the County surely recognizes the unrealistic probability that pavement and concrete will be ordered to be removed once laid on the road. The only authority the County is able to point to include a case over a hundred years old and two Missouri cases involving encroachment, none of which are applicable here.

First, the case of Monongahela Bridge Co. v. United States, 216 U.S. 177 (1910), simply does not lend the support that the County asserts and is readily distinguishable from the present action.

At issue in Monongahela Bridge was a specific statute providing for alteration or removal of *railroads or other bridges*, after notice and a hearing, that were determined to be an unreasonable obstruction to navigation. 216 U.S. at 185-86. The statute applied to both existing and future structures, regardless of whether such structure was lawfully constructed in the first instance.<sup>3</sup> Following the procedure set forth under the statute, the executive official determined the subject bridge was an unreasonable obstruction to navigation and, after notice and a hearing, prescribed alterations to be made within a certain period of time. Id. When the defendant failed to carry out such alterations by the deadline, suit was brought and defendant was ordered to pay a

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<sup>3</sup> Id. at 193-94 (“[T]he bridge must be taken as having been constructed with knowledge, on the part of all, of the paramount power of Congress to regulate commerce among the states, and subject to the condition or possibility that Congress might, at some time after its construction, and for the protection or benefit of the public, exert its constitutional power to protect free navigation as it then was against unreasonable obstructions.”).

fine pursuant to the statute. Id. The Supreme Court affirmed the judgment against defendant. Id. However, neither the executive charged with carrying out the statute, nor the Court, ordered that the bridge be completely removed. (See Response pp. 2-3). Even if Monongahela Bridge had involved an order requiring bridge removal, such relief was expressly contemplated under the statute.

The cases of Ridgway v. TtnT Development Corp., 26 S.W.3d 428 (Mo. App. 2000), and Wildflower Community Assoc. v. Rinderknecht, 25 S.W.3d 530 (Mo. App. W.D. 2000), in addition to carrying little weight or value as opinions from a foreign district, involve situations entirely distinct from that at hand. They involved specific property disputes between private property owners over the nature and extent of their respective rights. The road at issue is a major, 5-lane highway stretching over five miles in length that would be accompanied by a proportionally significant amount of concrete, not a private drive as in the aforementioned cases. Private property encroachment has no bearing or relevance to the matters before this Court.<sup>4</sup> Moreover, even assuming *arguendo*, that removal of the road after it has been paved can be ordered, is the Court willing and able to provide such remedy?

The County insists completion of the road will not alter or deprive this Court's jurisdiction but fails to differentiate this situation from that in the Town of Arcadia Lakes and Greenville Water Systems where that is precisely what the Court determined. See Town of Arcadia Lakes v. S.C. Dept. of Health & Env'tl. Control, No. 2013-001521, slip op at 2 (S.C. Apr.

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<sup>4</sup> Interestingly, though, the Missouri Court of Appeals in Ridgway rejected the argument that the health and safety of the owners living in units on the Defendants' property justified allowing the encroachment to remain on Plaintiffs' property stating the "health and safety of the [] owners can be protected without allowing Defendants to appropriate property of Plaintiffs." 26 S.W.3d at 434.

9, 2015) (dismissed as moot given that project construction completed); see also Upstate Forever v. Greenville Water Systems, No. 2009-AL-07-00226, slip op. at 2 (S.C. Ct. App. May 25, 2012) Citing dicta from Monongahela Bridge (Response p. 4) is insufficient and evades the fact that South Carolina courts have rendered similar permit challenges moot where the project has been completed. Our appellate courts have been unwilling to “undo” DHEC-authorized projects once construction is completed, see e.g., Town of Arcadia Lakes & Greenville Water Systems. There is nothing “extraordinary” about Appellants’ arguments on this point, as suggested by the County. (Response, p. 2).

If, as the County contends, the removal of a paved road is no different than “any other flexing of courts’ injunctive power” (Response p. 3), then Appellants would respectfully submit that the Court should instead order removal of fill from the wetlands within the right-of-way that has occurred since the notice of appeal was filed with this Court. Restoration of the wetlands would more accurately reinstate the *status quo* that existed at the time the notice of appeal was filed. Allowing the road to be paved, on the other hand, would degrade the *status quo* beyond the point of no return.

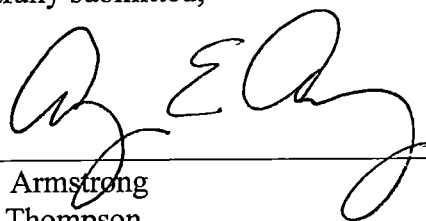
The Appellants have presented ample evidence and arguments that feasible alternatives could be incorporated into this road project that would address some of the harms sought to be prevented by the Coastal Zone Management Act and Coastal Management Program policies, but which would not be possible if construction moves forward and the road is paved. (Exhibit A, Gilbert Affidavit). For instance, Appellants argued a 2-lane road instead of a 5-lane road and/or the inclusion of wildlife underpasses are feasible alternatives to the authorized project that would reduce adverse impacts. (See Appellants’ Initial Brief, pp. 49-56). However, the feasibility of

making these changes is eliminated if the road has already been completed and paved, thereby foreclosing those alternatives as options. (Exhibit A, Gilbert Affidavit). As Steve Gilbert explains, the literature on mitigating the effects of vehicular/wildlife collisions on roadways concludes that it is more economical to plan and incorporate measures such as wildlife underpasses before and at the time of construction, rather than retrofitting existing roads after-the-fact. (Exhibit A, Gilbert Affidavit).

As far back as September, 2016, the County has asserted that the road is passable by emergency vehicles. The County now argues that use by such vehicles is a question of degrees. (Response, p. 4). It appears the degree of use changes from one pleading to the next, depending on the weather (citing Hurricane Matthew) or the court in which the issue of use by emergency vehicles arises; however, there can be no question that emergency vehicles can use the road, should an emergency arise affecting one of the 400 households identified previously by the County's witness Randy Webster.

For all of the reasons set forth above, Appellants respectfully request that the Court reinstate the stay pursuant to Rule 241.

Respectfully submitted,



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Wildlife Federation

February 2, 2017

Georgetown, South Carolina

STATE OF SOUTH CAROLINA  
IN THE COURT OF APPEALS

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APPEAL FROM THE ADMINISTRATIVE LAW COURT  
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Coastal Conservation League and South Carolina  
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**DECLARATION OF STEVE GILBERT**

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PERSONALLY APPEARANCED Steve Gilbert who being duly sworn deposes and says:

I live at 202 Key Court, Charleston, South Carolina. I have a Bachelor's degree in Biological Sciences and Master's degree in Biological Sciences with a Marine Biology major from the Florida Institute of Technology. The topic of my master's thesis was a zonal and productivity study of sea grasses and other macrophytes in the Northern Indian River Lagoon around the Kennedy Space Center. The project was funded by NASA in an effort to develop an ecological baseline to assess the ecosystem and measure for changes in the event of a space shuttle crash.

Following graduation with my master's, I was employed with the Florida Game

and Fresh Water Fish Commission as an Environmental Specialist from 1976 until 1978. While with the Game and Fish Commission I reviewed various projects from an ecological standpoint including wetland and other Corp of Engineers permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors, ecological assessments, and activities that would have affected fish and wildlife resources in the State of Florida. Upon review, I prepared reports and letters that went out on Game and Fish Commission stationary to various state and federal permitting agencies such as the Corps of Engineers. I also coordinated closely with the Florida Department of Environmental Protection, which is the equivalent to South Carolina's Department of Health and Environmental Control ("DHEC").

From 1978 until 2002 I was employed with the Ecological Services (ES) Division of the U.S. Fish and Wildlife Service as a Senior Fish and Wildlife Biologist in Charleston, South Carolina. My work in that position was similar to but went beyond what I did at the Florida Game and Fish Commission. I was the lead in the Fish and Wildlife ES Office for the wetlands regulatory program reviewing Section 404 wetlands permits, environmental assessments and environmental impact statements on large projects requiring state and federal authorizations. I also taught wetlands regulatory and other Ecological Services related courses at the National Conservation Training Center.

From 2002 until 2006 I worked on the Comprehensive Everglades Restoration Project for the Fish and Wildlife Service's ES office in Vero Beach, Florida. I was one of three leads on an interagency team that focused on the science and adaptive management of this major restoration project.

From 2006 until 2009 I was employed with National Oceanic and Atmospheric Administration ("NOAA") as Program Manager for their Coastal Learning Services program that primarily developed and taught courses for coastal professionals across the United States and its territories. And from 2014 to present I have been an Ecological Consultant, primarily consulting for the South Carolina Wildlife Federation ("SCWF") on environmental issues of concern including wetland permits.

I have a career spanning over 32 years in federal and state service as a biologist, leader and supervisor. I reviewed hundreds and hundreds of permits, the majority of which related to wetland, water quality and wildlife/wildlife habitat impacts.

Typically when reviewing a wetland permit I would go out in the field to look at the site, characterize the area and take samples if needed. I would then bring the data collected in the field back to the office and, utilizing my knowledge of ecology and ecological systems as well as the literature, develop recommendations on the project to be provided to the permitting agencies. Likewise, when undertaking an ecological assessment of a project, I would try to get a feel for the area through a site visit in order to determine how the proposed project would affect wetland functions and other characteristics of that area.

In addition to site visits and literature, other tools I utilized to familiarize myself with a project and the habitats in the project included aerial photography, the National Wetlands Inventory and surrogate species. Also called indicator species, surrogate species are representative of a particular habitat or assemblage of species and provide a model for habitat quality and the impacts of a project.

For approximately 25 years, I reviewed permit applications and made determinations on the potential impacts of a project. I provided those opinions under Fish and Wildlife Service letterhead to the permitting agencies as well as made recommendations about how to address, lessen or minimize adverse impacts of a project.

I testified before the Administrative Law Court in the above-captioned case as an expert in wildlife and wetlands ecology and environmental impact analysis in wetlands, water quality, wildlife and their habitats. I have reviewed the Final Order and Decision issued by the Court on July 7, 2016 as well as the Order on Reconsideration issued by the Court on July 26, 2016. The Orders uphold the permits and certifications issued by DHEC to Horry County authorizing the paving and widening of a 5.6-mile portion of the existing unimproved road known as International Drive and impacts to 24.17 acres of wetlands in and adjacent to the Lewis Ocean Bay Heritage Trust Preserve ("LOB").

LOB is protected under the Heritage Trust Program because of its unique natural resources, rare and endangered species, and cultural heritage. It was set aside for the citizens of the state as a trust resource with the Department of Natural Resources ("DNR") owning and managing it for the benefit of the public. I am familiar with LOB, its habitat and its wildlife having visited the site, conducting a literature review and applying my knowledge of ecology and wetland systems.

Relevant to the issues before this Court, and based on scientific studies and data, I have concluded that roadways pose a serious threat to wildlife and black bears, in

particular, because they fragment habitat and increase mortality. See attached, Exhibit 1, excerpt of “Population Abundance and Genetic Structure of Black Bears on Coastal South Carolina,” Drewrey, 2010 & Exhibit 2, DNR’s “Species of Conservation Concern.” In addition, I have researched and studied alternatives that would reduce or minimize some of the adverse impacts that would result from the road being constructed as authorized. In particular, I have concluded that wildlife underpasses would maintain habitat connectivity that otherwise would be fragmented by highway construction. See, e.g., Glista, J.J., T.L. DeVault, J.A DeWoody. 2009. *A review of mitigation measures for reducing wildlife mortality on roadways*. Landscape and Urban Planning, Vol. 91, Issue 1. However, if the road is paved and constructed, then inclusion of these protective measures becomes infeasible. Id.

I have also concluded that a two-lane road, as opposed to the authorized four-lane road with median and shoulders, would significantly reduce the direct, secondary and cumulative adverse impacts resulting as a direct consequence of this project. However, if the road is paved and constructed, then a two-lane road would be infeasible.

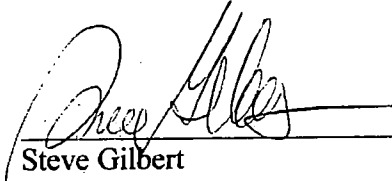
In sum, I have concluded that if a four-lane road is constructed, it will become infeasible and impractical to “undo” the project, modify the project to ameliorate its adverse impacts, or restore the site to its original, natural condition.

A dirt road and a paved road have very different physical characteristics. The status quo has already been disrupted from a natural, functioning wetlands system and undisturbed heritage trust property. That status quo will be completely destroyed if

construction of International Drive is allowed to proceed. In my professional opinion, converting what is presently a dirt road into a five-lane, paved roadway would be a significant change in the status quo.

Pursuant to 28 U.S.C. Sec. 1746, I declare, under penalty of perjury, that the foregoing is true and correct to the best of my professional opinion, knowledge and belief.

Signed on the: 2<sup>nd</sup> of February 2017.

  
Steve Gilbert

**POPULATION ABUNDANCE AND GENETIC STRUCTURE OF BLACK BEARS IN  
COASTAL SOUTH CAROLINA**

A Thesis  
Presented for the  
Master of Science Degree  
University of Tennessee, Knoxville

John Michael Drewry

August 2010

**Exhibit 1**

## ABSTRACT

Because of increasing frequency of bear sightings, vehicle collisions, and nuisance incidents in coastal South Carolina, the South Carolina Department of Natural Resources is developing a comprehensive black bear management plan. However, no reliable estimates of population abundance or density are available. I used genotypes of black bears determined from hair samples collected in Lewis Ocean Bay and Carvers Bay to estimate population abundance and density. I obtained hair samples from snares during 8 weekly sampling periods in 2008 and 2009. I used Huggins closed population models to estimate abundance and spatially explicit capture- recapture models to estimate density. Based on model averaging, black bear abundance was 30 (SE = 9.3) on Carvers Bay and 42 (SE = 5.4) on Lewis Ocean Bay. Model-averaged density was 0.037 bears/km<sup>2</sup> (SE = 0.003) for Carvers Bay. For Lewis Ocean Bay, population densities were much higher: 0.307 bears/km<sup>2</sup> (SE = 0.025). I extrapolated the density estimates to the upper coastal region of South Carolina, using logistic regression to weight density based on similarity of the regional landscape with the 2 study areas. Predicted bear densities were low throughout the coastal region but several areas centered on more productive habitats (e.g., Carolina Bays, pocosin) and public lands (e.g., Francis Marion National Forest, Lewis Ocean Bay) had high densities. I also sampled an area in North Carolina and assessed genetic structure among the 3 areas. Based on heterozygosity, genetic distance, and genetic assignment, I found no evidence of historic or recent barriers to gene exchange among the 3 sampled populations. However, demographic connectivity may be a concern for areas such as Lewis Ocean Bay, which is surrounded by highways and development. If the goal is to maintain current black bear densities in those areas, maintaining connectivity with other habitat areas and mitigating impacts of highways would be important. The regional map of potential black bear density may be

useful to identify areas that should be surveyed for occupancy or where additional studies may be conducted (e.g., Francis Marion National Forest).

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# I. INTRODUCTION

## General Problem Statement

The American black bear (*Ursus americanus*) once inhabited all of South Carolina (Hall 1981), but currently there are 2 disjunct populations. One population occurs in the mountainous, northwestern portion of the state, whereas the other is located in the northern coastal region (Pelton and van Manen 1994, Wooding et al. 1994). The exact time that the population became allopatric is unknown, but overexploitation, habitat loss, and habitat fragmentation likely contributed to the extirpation of bears in the central portion of the state. In the early 1900s, cities, agriculture, canals, roads, and railway lines (William 1829) created divisions in forest connectivity between coastal and mountainous regions of the state. Today, numerous interstates, highways, and developments fragment bear habitat in the South Carolina Coastal Region. The Myrtle Beach and Charleston metropolitan areas have a combined population >1 million people and Myrtle Beach was the 13<sup>th</sup> fastest growing urban area in the United States in 2000 (U.S. Census Bureau 2000). Dixon et al. (2007) found that habitat fragmentation and man-made barriers restricted connectivity among Florida black bear (*U. a. floridanus*) populations, creating 8 disjunct and genetically distinct populations. Because of anthropogenic impacts, limited connectivity may also exist among black bear populations in South Carolina's coastal region.

Prime bear habitats in the coastal regions of Virginia, North Carolina, and South Carolina are centered on pocosins and Carolina bays (Landers et al. 1979, Hellgren et al. 1991, Lombardo 1993, Brandenburg 1996, Jones 1996, Martorello 1998, Allen 1999, Telesco and van Manen 2006). Pocosin, an Algonquian Native-American word meaning "swamp on a hill", is composed of low brushy plants that form dense vegetation and produce abundant foods (e.g., berries) for

wildlife. Carolina bays are elliptical landform depressions with vegetation similar to pocosins. They typically are poorly accessible because of high water levels or dense vegetative cover and also provide substantial foods for wildlife. In South Carolina, 97% of Carolina Bays >0.8 ha have been disturbed by human activities (Sharitz 2003) and most upland habitats in coastal South Carolina have been converted to pine plantations. For decades, the coastal black bear population has been limited to counties with large areas of Carolina bays and pocosin habitats, primarily Georgetown, Horry, and Marion counties (Wooding et al. 1994, Harter 2001; Fig. 1). However, since 2007, wildlife biologists from the South Carolina Department of Natural Resources (SCDNR) have received numerous reports of bear sightings, including female bears with cubs, in Berkeley and Florence Counties, possibly indicating range expansion (D. Ruth, SCDNR, personal communication; Fig. 1). Additionally, the number of reported nuisance incidents and bear-vehicle collisions has increased substantially throughout the state. Reported nuisance complaints in South Carolina increased from <50 in 1998 to >400 in 2007 and reported bear-vehicle collisions increased from <5 to >50 during that same period (SCDNR 2010). In 2007, 41 bear-vehicle collisions occurred in the coastal region (D. Ruth, SCDNR, personal communication). Vehicle collisions, nuisance complaints, and sightings are currently used as an index of changes in population size, but abundance and density of the coastal black bear population have not been estimated through scientific study.

### **Justification**

The SCDNR is developing a comprehensive black bear management plan for the coastal region. Scientific information is crucial for wildlife managers to make decisions regarding hunting seasons, issuance of agricultural depredation permits, and to determine if populations need

special protection. However, limited data are available. Harter (2001) completed the only major study on black bears in coastal South Carolina and focused his research on home ranges, movements, and morphological characteristics. His study was conducted on the Lewis Ocean Bay Heritage Preserve (hereafter Lewis Ocean Bay), Carvers Bay, and surrounding private lands (Figs. 2 and 3). Although Harter's (2001) study was not designed to determine population abundance or density, he speculated that population extinction could occur in Lewis Ocean Bay within 15–20 years (Harter 2001:79). However, recent increases in the frequency of vehicle collisions and nuisance reports seem to contradict these findings. Thus, reliable population distribution and density information is fundamental for the development of a coastal black bear management plan.

If range expansion and population increase have occurred in coastal South Carolina, it is unclear if these are internal processes or if ingress of bears from the southern coastal areas of North Carolina may play a role (e.g., Green Swamp area; Fig. 1). Thus, understanding gene flow within and among populations also is a key component to the development of a comprehensive bear management plan. Low genetic variation and genetic drift have been observed in small isolated black bear populations in the southeastern Coastal Plain (Kasbohm and Bentzien 1998, Edwards 2002, Csiki et al. 2003, Dixon et al. 2007), which could lead to reduced individual fitness and affect demographics (Conner and Hartl 2004). A better understanding of genetic similarity on a regional scale would provide important information regarding connectivity among populations.

Large-scale ecological studies often are not feasible due to the time, funding, and labor required to collect data. However, data collected from a few intensively studied, smaller areas

that are representative of the broader region may be used to estimate population distribution and density (Settlage et al. 2008). In the last decade, the majority of bear encounters recorded by the SCDNR in coastal South Carolina have occurred in Lewis Ocean Bay and Carvers Bay (D. Ruth, SCDNR, personal communication; Fig. 1). These areas represent the 2 primary management practices and landscapes typical of the South Carolina coastal region: (1) managed pine plantations on private lands and (2) public lands with limited access, often containing remnant wetland habitats such as Carolina bays and pocosin. The former is represented by the Carvers Bay area and the latter by the Lewis Ocean Bay Heritage Preserve.

### **Objectives and Hypotheses**

The objectives of my study were to:

- (1) determine population abundance and density of black bears at Carvers Bay and Lewis Ocean Bay,
- (2) map potential density of black bears in the coastal plain of South Carolina,
- (3) determine historic and recent genetic connectivity among black bear populations in Carvers Bay, Lewis Ocean Bay, and Green Swamp.

My research hypotheses were:

- (1) population abundance and density would be lower at Carvers Bay compared with Lewis Ocean Bay because of differences in habitat quality and availability,
- (2) areas with high potential black bear densities would primarily be located in areas with Carolina bay and pocosin habitats (e.g., Lewis Ocean Bay, Francis Marion National Forest),

(3) genetic similarity among bears at Carvers Bay, Lewis Ocean Bay, and Green Swamp would be low because of anthropogenic barriers between the 3 areas.

**Black Bear***Ursus americanus*

Contributors (2005): Skip Still (SCDNR), Jay Butfiloski (SCDNR)  
 Reviewed and Edited (2012): Deanna Ruth (SCDNR), Richard Morton (SCDNR)

**DESCRIPTION****Taxonomy and Basic Description**

The black bear is a large mammal with small, rounded ears, dark fur and a short tail. There are many color phases of black bears across their North American range including black, cinnamon, blonde, brown, and occasionally blue or white. In South Carolina and across the eastern United States, black is the only documented color (Burch 1997). Black bears commonly have a brown or tan muzzle and occasionally have a white or yellowish blaze on their chests, usually in the shape of a 'V'.

The size of bears varies greatly according to sex, age and the quality of available habitat. Male bears are typically larger than female bears. Adult bears usually weigh between 125 and 400 pounds, although bears weighing 600 pounds or more are not uncommon (Burch 1997). The state record bear in South Carolina is 594 pounds and was harvested in Oconee County; the national record is 880 pounds from eastern North Carolina (Skip Still, pers. comm.).

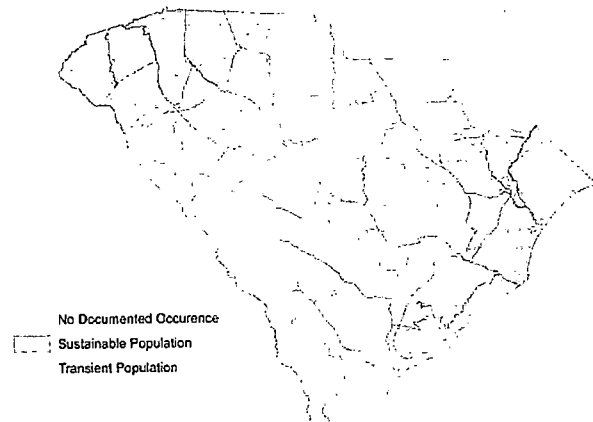
Black bears can stand and walk on their hind legs but usually move about on four legs. Their hind legs are slightly longer than their front, giving the bear a flat-footed, slightly shuffling gait. Each paw has five sharp claws for digging, tearing and climbing. The black bear can sustain enough force with a front paw swipe to kill an adult deer. Ninety-five percent of this bear's diet, however, is vegetarian including nuts, roots, berries, shoots, buds and fruits. They may become accomplished fishers or feed on fawns when other foods are scarce (Wilson and Reeder 1993).

**Status**

Black bears are ranked vulnerable (S3?) in South Carolina with a global listing of secure (G5).

**POPULATION SIZE AND DISTRIBUTION**

There are two populations of black bear in South Carolina: one is located in the mountainous region along the South Carolina/North Carolina border and the other in the upper coastal plain. The



mountain black bear population of South Carolina is located primarily in Oconee, Pickens, Greenville, Anderson and Spartanburg Counties; the coastal population is found in Georgetown, Marion, Charleston, Berkeley, Florence and Horry Counties. Both black bear populations are increasing in numbers and as a result are expanding their range. The loss of viable habitat through land conversion increases human-bear conflicts and may alter future management.

South Carolina Department of Natural Resources (SCDNR) wildlife biologists use multiple surveys to monitor temporal trends in black bear populations. Surveys and other data used to track the state's black bear population include: scent station surveys, hard and soft mast surveys, black bear observations, mortalities, annual reproduction, and the number of human-bear encounter complaints received per year. In addition to these annual surveys, SCDNR has conducted two population estimates since 2000.

Estimating the size of wildlife populations is among the most challenging tasks that wildlife biologists undertake. Populations of animals with large home ranges, like bears, are extremely difficult to estimate using mark-recapture techniques. Harter (1999) estimated the mean annual black bear home range size in coastal South Carolina to be 12.3 mi.<sup>2</sup> for females and 32.5 mi.<sup>2</sup> for males. Butfiloski (1996) estimated the mountain home range for female black bears to be 6.4 mi.<sup>2</sup>.

Estimates in the late 1990's projected the coastal population at 250 black bears and approximately 500 black bears in the mountains. During 2007 the black bear population was estimated to be 1,150 animals statewide (19<sup>th</sup> Proc. Eastern Black Bear Workshop, 2008). Biologists representing the US Forest Service and SCDNR believed this to be a very conservative estimate (Skip Still, pers. comm.). In 2010, black bear population estimates were roughly 1,000 bears in the Upstate (Richard Morton, pers. comm.) and 800 bears along the coast (Drewry 2010). It is clear the statewide population is increasing.

#### HABITAT AND NATURAL COMMUNITY REQUIREMENTS

In coastal South Carolina, bears typically use early successional areas, bottomland hardwoods or mixed pine-hardwoods, and Carolina bays. Areas used less often include upland hardwoods, pine plantations, existing developments, or areas currently being developed.

The average home ranges of males and females in South Carolina were found to be significantly different in the coastal plain study (Harter 2001). Male home ranges averaged 30.9 mi.<sup>2</sup> (19,793 ac.<sup>2</sup>) and female home ranges averaged 11.7 mi.<sup>2</sup> (7,512 ac.<sup>2</sup>). Movement data also indicated that all bears reduced home range size during winter months. Average home range size was reduced 70% (67% for males and 76% for females) during winter months. Even though home ranges were reduced, bears continued to move throughout the year.

Home range size for the upstate population was 17 mi.<sup>2</sup> (10,897 ac.<sup>2</sup>) for males and 6.4 mi.<sup>2</sup> (4,102 ac.<sup>2</sup>) for females (Butfiloski 1996). Female bears in the upstate population utilized young yellow poplar stands less than 10 years old and riparian zones 30 to 50 years old more often than expected. In addition, they used yellow poplar stands 11 to 30 years old and pine stands over 10 years old less often than expected. Analysis of road disturbance indicated a significantly greater

presence of bears within 457 m (1,500 ft.) of primary logging roads in the study area before the roads were opened than after the public was allowed in the area (Butfiloski 1996).

## CHALLENGES

The primary challenge to South Carolina's bear population appears to be residential and commercial development. Human populations in the counties with existing bear populations grew 14.6% from 2000 to 2010. Persons per square mile averaged 232. Thirty-three percent of the human population in the ten counties mentioned live in a rural environment (SC Statistical Abstract 2010; US Census 2010). Humans have varying reactions to bears but generally do not tolerate bear activity near residential or commercial development.

The coastal bear population is becoming more fragmented due to highway construction, urbanization and general development. More protected contiguous acreage is available for the mountain population, but human population growth and subsequent development adjacent to and between these properties may preclude expansion and fragment the population. Some areas of the state offer good bear habitat but are isolated from current bear populations by development.

Education of the general public is the key component to bear population expansion and, in some areas, survival. While bears learn to live with people, people have a hard time living around bears. Educational programs, bear-proof demonstration kits, and displays and brochures are all effective.

## CONSERVATION ACCOMPLISHMENTS

Educating the public about bears may have a greater effect on bear management than any other effort SCDNR undertakes. As people become educated about bear biology and behavior, public acceptance and tolerance increases. The most popular of these items is a full-color, eight-page pamphlet entitled "A Homeowner's Guide – Living with Bears". Over 20,000 of these bear brochures have been disseminated since the first printing in 2007. Other pamphlets and posters designed to inform people on how to avoid human-bear encounters have also been distributed to residents living in bear habitat and to those experiencing bear damage.

Beginning in 2007, a team of biologists, law enforcement staff, legal staff, and technicians developed the "Human-Bear Encounters Procedures and Protocol" to streamline decision making for the numerous SCDNR staff who deal directly with situations involving human interactions with bears. This protocol was adopted and implemented in June 2008. Later in 2010, a bill was passed by the state legislature giving SCDNR regulatory authority to set black bear seasons with the exception of existing seasons in the mountains and provided for a bear tagging system where tag/application revenue was to be spent on black bear management and research.

The "South Carolina Black Bear Management and Conservation Strategy" plan was adopted in 2011 outlining priorities and goals for the management of the species.

The SCDNR Black Bear Workgroup continues to meet twice a year and discuss management and research needs for South Carolina's black bear population. South Carolina is also a member of the Southern Appalachian Black Bear Study Group with three nearby states (Georgia, North

Carolina and Tennessee). This group meets to discuss and monitor bear related research and activities.

SCDNR personnel continue to cooperate with sportsmen groups, industry, other state and federal agencies, and universities to enhance black bear habitat and conduct black bear research and management in South Carolina. Cooperative efforts have included hard and soft mast surveys, black bear scent station surveys, black bear trapping and research, DNA research and analysis, nuisance bear control, bear related legislation, co-sponsoring bear related meetings, educational and nature related youth events, and hunting opportunities.

A project entitled, "Estimating Black Bear (*Ursus americanus*) population in the Mountains of South Carolina using DNA genetic analysis", is in the analysis stage of the 350 hair samples collected from June to August 2013 from 114 sampling sites in Oconee, Pickens, and Greenville counties. It is hoped that a more accurate population estimate for black bears in the Upstate study area. Results from the samples are expected to be complete in Summer 2014.

#### CONSERVATION RECOMMENDATIONS

- Utilize web-based technology as well as more traditional avenues (brochures, presentations, and posters) to inform/educate the public about black bears.
- Collect trend data such as sightings using web-based technology.
- Continue encouraging private housing and industry in bear areas to use bear-proof trashcans and food lockers.
- Continue monitoring bear populations in both the coastal plain and mountain ecoregions with DNA analysis studies.
- Initiate studies of bear travel corridors in the Coastal Plain and zone ecoregions.

#### MEASURES OF SUCCESS

A reduction in nuisance complaints would indicate a successful education program. Bear sightings and reproduction in other areas would suggest an expanding population. Use of bear-proof containers could be easily measured through a survey. Initiate GPS collar monitoring for bears.

#### LITERATURE CITED

- Burch, R. A. editor. 1997. North American Black Bear Report. Columbia, South Carolina, USA. 107pp.
- Butfiloski, J.W. 1996. Home range, movements and habitat utilization of female black bears in the mountains of South Carolina. M.S. Thesis, Clemson University. Clemson, South Carolina. 53 pp.
- Drewry, J.M. 2010. Population Abundance and Genetic Structure of Black Bears in Coastal South Carolina. M.S. Thesis, Univ. of Tenn., Knoxville, Tennessee, USA. 99 pp.

Harter, H.W. 2001. Biology of black bears in the northern coastal plain of South Carolina. Thesis, Clemson University, Clemson, South Carolina. 89 pp.

Proceedings of the 19<sup>th</sup> Eastern Black Bear Workshop. 2008. Human-Bear Conflict Management: Aversive Conditioning and Information Outreach. Compiled by: C. Ryan, H. Spiker, and M. Ternent. 140 pp.

Wilson, D.E., and D.M. Reeder (eds). 1993. Mammal Species of the World. Smithsonian Institution Press, 1206 pp.

STATE OF SOUTH CAROLINA  
IN THE COURT OF APPEALS

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APPEAL FROM THE ADMINISTRATIVE LAW COURT  
Ralph King Anderson, III, Administrative Law Judge

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Appellate Case No. 2016-001758

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FEB 06 2017

SC Court of Appeals

South Carolina Department of Health and Environmental Control  
and Horry County Public Works ..... Respondents,

vs.

South Carolina Coastal Conservation League and South Carolina  
Wildlife Federation ..... Appellants.

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**CERTIFICATE OF SERVICE**

---

I hereby certify that on this date I served the foregoing Reply on Respondents SCDHEC and Horry County Public Works and the Administrative Law Court by placing copies of same in the U.S. Mail addressed to:

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Michael S. Traynham  
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\_\_\_\_\_  
Amy E. Armstrong

Georgetown, South Carolina

February 2, 2017



# South Carolina Environmental Law Project

Lawyers for the Wild Side of South Carolina

February 2, 2017

a 501c3  
non-profit organization

VIA EMAIL AND U.S. MAIL

**Amy E. Armstrong**  
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Honorable Jenny Abbott Kitchings  
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FEB 06 2017

Re: SCCCL & SCWF v. SCDHEC & Horry County  
Appellate Case No. 2016-001758

SC Court of Appeals

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Dear Ms. Kitchings:

I am enclosing for filing the Appellants' Reply to Horry County's Response to Motion for Reconsideration in the above-referenced case, along with my certificate of service.

Kindly return a locked-in copy of the motion in the enclosed postage-paid, self-addressed envelope. Thank you for your assistance with this matter.

Yours very truly,

  
Amy E. Armstrong

cc: Stan Barnett, Esq.  
Michael Traynam, Esq.  
Nathan Haber, Esq.

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