REGULATORY IMPACT ANALYSIS FOR PROPOSED AMENDMENTS TO IMPORTATION OF ANIMAL PARTS RULE

Rule Amendments: 15A NCAC 10B .0124 Importation of Animal Parts

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Impact Summary:
State Government: Yes
Local Government: Yes
Private Impact: Yes
Substantial Impact: Potentially substantial benefit, but uncertain.

Authority: G.S. 113-291.2

Necessity: The proposed permanent amendments to 15A NCAC 10B .0124, Importation of Animal Parts, replace the temporary amendments to prohibit the importation, transportation, and possession of all cervid carcasses and certain carcass parts originating outside of North Carolina. Currently there are 25 states considered to be positive for Chronic Wasting Disease (CWD), four of those states are in the southeast. This proposed amendment seeks to reduce the human-related pathways for introduction of CWD into North Carolina's wild and captive deer and elk herds by establishing more restrictive cervid carcass and carcass parts transportation, importation, and possession regulations.

I. Summary

The Wildlife Resources Commission (WRC) is tasked with the conservation of the wildlife resources of the State (G.S. 143-239). This includes rulemaking authority to implement the provisions of the statutes found in G.S. 113, Subchapter IV – Conservation of Marine and Estuarine and Wildlife Resource (G.S.113-134). Included under this rulemaking authority is the mandate that the WRC adopt rules to regulate the importation, transportation, or possession of

game carcasses or parts of game carcasses when they are known or suspected to carry an infectious or contagious disease that represents a threat to the health of wildlife species (G.S. 113-291.2(c1)).

Chronic Wasting Disease (CWD), a fatal neurological disease affecting the deer family (Cervidae), is an imminent threat to the State's wild and captive white-tailed deer and elk populations. The disease is believed to spread through animal-to-animal contact as well as contact with infected carcasses and contaminated soils and plants. There are currently 25 CWD-positive states in the country; four of these states are in the southeast.[1] The current rule prohibits the importation, transportation, and possession of cervid carcasses and certain carcass parts from any CWD-positive state except for: meat that is cut and wrapped, quartered, or boned-out, caped hides, cleaned skull plates, antlers, cleaned teeth and taxidermy products. The primary changes in the proposed rule include restricting importation from any jurisdiction outside of North Carolina, allowing cleaned skulls and lower jawbones, and requiring meat imported for consumption be fully de-boned. Additionally, deer killed in South Carolina before August 1, 2020 can be imported and taken to a NC licensed taxidermist within 24 hours of entering North Carolina. These limitations seek to reduce the risk of human-related pathways for introduction and substantial costs associated with North Carolina becoming CWD-positive.

II. Introduction and Purpose of Rule Change

CWD is a highly infectious, contagious, fatal neurological disease that affects the Cervidae family, which includes deer, elk, moose, and reindeer/caribou. The source of the disease is an abnormal prion (a form of protein) that collects in the animal's brain cells and produces small lesions. CWD is classified as a transmissible spongiform encephalopathy and is similar to mad cow disease. It is characterized by loss of body condition, behavioral abnormalities, and death. It is believed to spread through animal-to-animal contact, contact with infected carcasses, and contact with contaminated soils and plants. CWD has long incubation periods, which can result in an infected cervid appearing healthy while spreading the disease to other cervids. Additionally, CWD is persistent in the environment, which is the most significant obstacle to eradication once the disease is present in an area. When a state's cervid herd is CWD-positive, on-going monitoring and management efforts require the expenditure of millions of dollars in public resources.

In 2006, the WRC adopted the Importation of Animal Parts Rule (15A NCAC 10B .0124) which banned the importation of whole cervid carcasses from states known to be CWD positive and limited importation of cervid parts from these states to specifically identified and treated meat and body parts. There were 11 CWD-positive states when the Importation of Animal Parts rule was adopted. Since 2007, there has been an increase in reported cases of CWD across the United States and internationally. There are currently 25 CWD-positive states (see map in Appendix A). Four southeast states are among these, two of which (Arkansas and Mississippi) confirmed their first case of CWD within the past three years. During this same time, CWD has appeared in free-ranging reindeer and moose in Norway and Finland. Three Canadian provinces are also CWD-positive. Due to the accelerated rate and great distances by which CWD has been

[1] ncwildlife.org/cwdstates.

transferred across the continent (14 additional CWD-positive states since 2006), 14 states (not including North Carolina) have prohibited the importation of cervid carcasses and carcass parts that originate from outside their borders (see map in Appendix B).

The importation of cervid carcasses and carcass parts poses a serious threat to the health and continued existence of North Carolina's white-tailed deer and elk populations. To provide immediate protection to North Carolina's wildlife resources from human-related introduction of this disease, the amendments to this rule were adopted as a temporary rule in July 2018 (effective August 1, 2018), to have the new restrictions in place before other states initiate their 2018-2019 deer hunting seasons. This regulatory impact analysis is a requirement of the permanent rulemaking process to replace the temporary rule.

III. Costs

State

State-level costs are anticipated to be minimal due to proposed changes in the Importation of Animal Parts Rule.

The agency uses several methods to inform the public and its constituency about changes to regulations. To inform hunters of the proposed rule changes, the agency plans to employ an aggressive and targeted educational campaign. In addition to current outreach, which includes press releases, email blasts, and posts on social media, this may include YouTube videos and targeted social media marketing. The estimated cost for in-house video production is approximately $5,132 per video, with a total estimated cost of $20,528 ($5,139 per video x 4 videos = $20,528) for specific content related to CWD. A targeted marketing campaign on Facebook including an ad campaign over a five-month period with 5 distinct ads in areas bordering South Carolina and Tennessee reaching a potential audience of 320,000 people ages 18 – 65+ who have shown an interest in deer hunting, is estimated to cost approximately $5,937 ($5,000 Facebook advertising + $937 staff time = $5,937). A breakdown of costs for education and outreach efforts can be found in Appendix C.[2]

In the past, when violations of this rule have been identified, agency staff have seized the cervid being imported/transported from the CWD-positive state for testing and disposal. During the 2016-2017 season, 24 cervids from CWD-positive states were seized. The preferred method of disposal of potentially infected carcasses is incineration. The total cost per cervid for CWD testing and incineration is approximately $60. While the WRC does anticipate the increased need for these services, the magnitude of the increase is unknown and thus, the additional anticipated cost is unquantifiable.

Local

No specific local costs are anticipated due to proposed changes in the Importation of Animal Parts Rule.

[2] Education efforts for proposed rule changes are based on potential methods of outreach.

Private

The proposed amendments to this Rule are expected to have the following private impacts.

Taxidermists

Taxidermy products are created with carcass parts. Therefore, the restrictions on importation are likely to affect the taxidermy industry in North Carolina. Hunters will be required to do one of the following: prepare their carcass parts for importation themselves; pay to have them prepared by an out-of-state taxidermist; or have the taxidermy work completed (mounted) by an out-of-state taxidermist.

CWD-positive states have been impacted by a form of these limitations since 2006 when the original rule was adopted. The proposed rule will enact new limitations for these states and states that are not known to have CWD. Because of this, hunters may be unaware of how to comply with the proposed restrictions or unaware of the restrictions altogether and may attempt to deliver non-compliant parts to taxidermists. This may put taxidermists in jeopardy of violating the rule or result in infected carcass parts being discarded on the landscape.

The proposed rule does not prevent importation or transportation of carcass parts altogether, it simply requires that hunters do a certain amount of preparation of the carcass before bringing the parts back to North Carolina. While this preparation is feasible, it will likely require extra knowledge and effort to ensure compliance. Instead of expending this extra effort, the agency anticipates that some hunters may choose to either 1) not have their out-of-state cervid taxidermied (mounted); or 2) use the services of an out-of-state taxidermist for preparation prior to transportation into North Carolina. Unfortunately, the agency cannot predict changes to hunter behavior due to the proposed amendments.

During the 2015-2016 hunting season, 565 North Carolina licensed taxidermists received approximately 1,546 cervid carcass or carcass parts from out-of-state, accounting for 18% (1,546 out-of-state carcasses/8,588 total carcasses x 100 = 18%) of the total cervids they processed that year [3]. While the proposed changes will not restrict the types of mounts that taxidermists can produce, they could impact the number and the type of mounts requested and amount of overall work, as bringing compliant carcass parts into the State may be more difficult for some hunters. Because no data exist on hunters' willingness to prepare their own deer and the agency has no data on the types of mounts produced from parts of the 1,546 out-of-state cervids, the potential decrease in the business that taxidermists may experience from out-of-state cervids cannot be quantified.

Additionally, there is variability in the cost of different mounts and the agency is unaware of any regulations or standards for fees that taxidermists can charge their clients. Based on readily available information, the agency estimates that the cost of a European mount is approximately $150, a shoulder mount is approximately $460, and a full body mount is approximately $2,260[4]. While the agency can assume that more European and shoulder mounts are produced than full body mounts each year, because no data are available on the number of each type of mount

[3] Data from 2016 WRC taxidermists survey of 2015-2016 hunting season; 565 respondents.
[4] Advertised costs (online) averaged from ~20 North Carolina taxidermists. Note: not all taxidermists provide all services.

produced on out-of-state deer, the agency is unable to accurately estimate the potential lost revenue due to the proposed rule change.

To address the concerns of NC licensed taxidermists, the agency is planning an aggressive educational campaign to inform hunters about the proposed rule changes and instruct them on compliance with the new requirements. Additionally, the agency is planning a phased implementation approach beginning in the 2018-2019 season with the temporary rule, such that the first two years will be educational years (verbal warning in year one, a single written warning per individual in year two), and citations will not be issued/ cervids will not be seized until the third year after the temporary rule change unless otherwise necessary for repeat offenders or individuals importing, transporting, or in possession of a cervid or non-compliant cervid parts from a CWD-positive state. Also, a head with attached hide from a white-tailed deer killed in South Carolina may be imported if taken to a NC licensed taxidermist within 24 hours prior to August 1, 2020 (delays the rule for 1-year on deer parts from South Carolina).

Deer Processors

The proposed additional restrictions on importation and transportation of out-of-state cervid carcasses is also likely to affect the deer processing industry. While hunters will still be able to bring their out-of-state deer to an in-state processor, additional effort may be required from some hunters to import compliant parts.

Deer processors in North Carolina are not regulated by the State. Based on available data, the agency conservatively estimates that there are currently 68 meat processors in North Carolina that process deer.[5] Of these, five are in counties that boarder Tennessee and 11 are in counties bordering South Carolina. Because many North Carolina hunters are believed to deer hunt in bordering states, WRC anticipates the largest impact to processors to occur in bordering counties. While the WRC has no mechanism to predict if hunters will expend the effort to bone-out their meat so that they can have it processed in-state, nor do data exist to help the agency determine how many deer are imported for processing each year, the agency does anticipate a loss of revenue for deer processors. Based on available online information collected from 4 processors, the average cost to process a full deer is $93.77[6]. Processing de-boned meat may cost less. Unfortunately, due to lack of data, the total anticipated impact is unquantifiable.

Hunters

Although boned-out cervid meat can still be imported from other states, some hunters will inevitably be impacted by this change. This is likely to be an especially noticeable change for hunters in the bordering states of Tennessee, Georgia, and South Carolina (Virginia is already CWD-positive and was included in the previous rule, thus no changes anticipated). Individuals that process their own deer meat will be required to de-bone it before bringing it back into North Carolina. Those who currently bring whole cervid carcasses back to North Carolina for professional processing will be need to field dress and de-bone their deer themselves to bring only compliant carcass parts back to North Carolina or take their deer to an out-of-state processor. While the proposed changes are not expected to add monetary costs for hunters, if

[5] List of deer processing plants from NC Department of Agriculture website: http://www.ncagr.gov/meatpoultry/directory.htm and WRC website: http://ncwildlife.org/Hunting/After-the-Hunt/Processing.

[6] Estimated range from online price lists. Cost per deer of $88.97 to $98.58, depending on if the deer was pre-skinned and gutted.

they chose to take their cervid to an out-of-state processor, this would be an added cost of approximately $93.77.[6] Either way, it could be an inconvenience for these hunters to prepare the cervid parts before transporting.

Additionally, hunters that want to have their cervid taxidermied may also be impacted by the proposed changes. While the proposed changes do not prevent importation or transportation of carcass parts altogether, it does require hunters to do a certain amount of preparatory work before bringing them into the State. While this is feasible, extra knowledge and effort would be required to prepare the carcass into parts that comply with North Carolina regulations. This may be a factor when a hunter is deciding whether to use an in-state or out-of-state taxidermist.

Individuals importing or traveling through North Carolina with whole cervid carcasses, prohibited carcass parts, or improperly labeled cervid meat/parts will be in violation of the proposed Rule. If these individuals are identified, they could receive a citation and their cervid may be seized. The fine for a WRC rule violation is $205 ($25 fine + $180 court costs = $205). During the 2016-2017 deer season, 18 citations were issued for violations of the current rule.[7] The agency anticipates that the amendments to further restrict importation and transportation from anywhere out-of-state could lead, at least initially, to an increase in the number of citations issued, especially for people returning from neighboring CWD negative states. Unfortunately, there is no mechanism to estimate this anticipated increase. However, the Commission plans to ease the regulatory burden on the public by initiating a phased implementation of these regulations beginning in the 2018-2019 season with the temporary rule and lasting for two years. Unless otherwise necessary (repeat offenses or individuals importing, transporting, or possessing cervids or non-compliant cervid parts from a CWD-positive state), citations will not be issued and cervids will not be seized until the third year after the temporary rule change. Additionally, as proposed, individuals importing trophy parts from South Carolina will have an extra year for required compliance.

During the 2016-2017 deer season, 24 cervids from CWD-positive states were seized by WRC law enforcement[7]. While there is no specific "value" for a cervid, as it cannot lawfully be sold on the open market in North Carolina, the calculated "replacement cost" of a wild cervid can be found in WRC rules (15A NCAC 10B .0117). In North Carolina, white-tailed deer are valued at $602/animal and elk are valued at $2,500/animal.[8] However, there are additional costs for hunting out-of-state, including license fees, travel expenses, hunt/guide fees, etc. If the cervid is seized, the loss associated with that animal could be significant. The agency anticipates that the amendments to further restrict importation and transportation from anywhere out-of-state could lead, at least initially, to an increase in the number of cervids seized.

IV. Benefits – Reduced Risk of CWD Introduction

It is unknown if or when CWD will be detected in North Carolina and there are several scenarios in which CWD could be introduced, including discarding infected carcass material from a hunter-killed cervid, importation of an infected captive cervid, or through natural immigration of an infected free-ranging deer or elk. Based on other states' history with the disease, it is more

[7] Data from District LE Records for 2016-2017 season.
[8] Replacement cost of animals specified in 15A NCAC 10B .0117(c).

likely that CWD will be introduced to North Carolina by human transportation than any mode of natural expansion, though the actual probability is unknown. Additionally, it is fairly certain that once CWD is introduced, it is virtually impossible to eradicate after it contaminates the environment and the wild cervid population. The long-term impacts to the state would be significant. Amendments proposed for the Rule seek to reduce the human-related pathways for introduction of CWD.

The probability of CWD being spread to North Carolina through natural movement of infected deer is also uncertain. Due to extensive incubation periods, the lack of a live test for the disease, and the movement behavior (dispersal and shifts of home-range) of wild cervids, there is a fair amount of uncertainty about where the disease is on the landscape. The closest known infected wild deer population is in the northwestern Virginia / northeastern West Virginia area (about 150 miles straight line distance from North Carolina). The disease has not been contained in that area and, despite efforts to slow the spread, it will likely continue to spread outward from the infected zone. The risk of wild deer transmitting the disease to neighboring wild deer is extremely high and continues to occur in most areas where CWD has been detected. Eventually it may occur across the entire continent through natural transmission, but states are doing what is within their means to slow the spread and keep it from "jumping" from herd to herd.

Another threat to North Carolina is from human transport of live cervids and infected cervid parts. The disease has spread vast distances between known points of occurrence. While unproven, speculation exists that movement of live captive deer is the way CWD has appeared so quickly across the US. The WRC worked extensively to minimize this threat (bought out stock from facilities and euthanized animals to decrease the number of facilities, increased/strengthened rules, etc.) before the captive cervid program was transferred to the NC Department of Agriculture and Consumer Services (NCDA) in 2015. Current statutes governing captive cervids make it illegal to import CWD susceptible cervids until a live test is available.

The probability of North Carolina's deer population becoming infected from CWD-positive carcass parts being imported and disposed on the landscape is unknown; it depends on the prevalence of CWD in the area where the out-of-state deer is killed (which nobody knows for certain except in well defined "hot zones"), and the likelihood of a North Carolina deer coming in contact with the prions that remain in the soil and possibly vegetation after decomposition. The proposed rules seek to minimize this risk to the greatest extent possible. By expanding the parts transport limitations to *any* out-of-state cervid, and requiring all meat to be fully de-boned, deer parts brought into the state should be consumed or used as a trophy and not discarded on the landscape.

State

The proposed amendments to the Importation of Parts Rule are expected to have substantial benefits to the state by way of avoided costs.

CWD Response

CWD would no doubt have significant biological, economic, and sociological ramifications if detected in North Carolina. As such, the WRC has a Chronic Wasting Disease Response Plan (hereafter CWD Response Plan)[9]. The goal of the CWD Response Plan is to contain the disease, to the extent possible, to protect North Carolina's wild white-tailed deer and elk herds.

If CWD were to be detected in North Carolina, the agency's CWD Response Plan would be immediately enacted. Based on this plan, once a CWD-positive cervid is identified, an extensive series of events would commence, including: confirmation testing, notification of authorities, establishment of WRC response teams, and creation of CWD surveillance areas (Primary Surveillance Area – 5 mile radius around the detection; Secondary Surveillance Area – 30 mile radius around the detection), all in an immediate effort to collect prevalence and distribution information. Additionally, specific regulations would be established for the surveillance areas, including: a prohibition on fawn rehabilitation, additional regulation for supplemental feeding and baiting, mandatory CWD check stations, harvested deer testing, changes to season lengths and bag limits, and an increased wildlife law enforcement presence. However, many variables would impact the level of response to a CWD detection. These include: location of initial detection; disease prevalence at time of detection; size of the CWD management area and containment potential; agency ability to fully implement the Plan; required duration and effort; and hunter response.

Because CWD has not yet been detected in North Carolina, several assumptions must be made when quantifying costs associated with an outbreak. Assuming a single CWD detection with one Primary and one Secondary CWD Surveillance Area, the short-term (year one) costs associated with implementing the CWD Response Plan are estimated at $110,307 ($103,085 for staff time + $7,222 in mileage = $110,307).[10] Personnel expenses include: staff to work WRC check stations, collect and submit tissue samples for testing, implement deer sampling and population reduction strategies, and conduct law enforcement activities. Additionally, supplies for herd management and surveillance would be needed. The annual cost of supplies is estimated at $46,605, making the total cost of short-term management $156,912 ($110,307 + $46,605 = $156,912). If the outbreak remained localized and no additional areas became CWD positive, the estimated personnel cost over the subsequent 5 years would be approximately $234,598 ($277,471 for staff + $21,740 in mileage = $299,211). Including the cost of supplies, the total estimated cost for the following 5 years would total $467,623 ($299,211 + (5 years x $46,605) = $532,236).

If the outbreak of CWD is widespread, all costs would increase. However, the agency has no way to accurately quantify this increase without making unreasonable assumptions. A breakdown of the estimated agency costs for implementing the CWD Response Plan can be found in Appendix D.

Hunting & License Sales

Hunting is a popular activity in North Carolina. In 2006, 277,357 resident hunters spent an estimated $488 million on retail purchases, generating $818 million in economic output.[11] These

[9] North Carolina Wildlife Resources Commission. 2015. Chronic Wasting Disease Response Plan. Division of Wildlife Management, Raleigh, N.C., USA

[10] Division of Wildlife Management (2016). Chronic Wasting Disease Response Plan. Wildlife Resources Commission, Raleigh, NC, USA.

[11] U.S. Fish and Wildlife Service (2006) National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

hunting related expenditures supported 8,332 jobs and contributed $46 million in state tax revenue. Resident deer hunters (197,220 of the 277,357) spent $187 million on retail purchases, generating $322 million in economic output. Expenditures by deer hunters supported 3,408 jobs and contributed to $20 million in state tax revenue. Deer hunters also spent $50 million on travel-related expenses[12]. More recently, in 2011, approximately 259,000 residents and 23,000 non-residents hunted in North Carolina[13]. An analysis of this data indicated that 83% of the 259,000 were deer hunters, but expenditures of these individuals were not estimated[14].

Research indicates that hunter behavior toward CWD depends on prevalence of the disease and human health consequences. Surveys have shown that up to 49% of hunters would stop hunting deer and elk if the prevalence of CWD increased. The decline was even greater (65%) if the high prevalence was combined with any threat to human health. Though resident hunters are likely to continue deer hunting in their state despite the presence of CWD, nonresidents are more likely to hunt in another state where CWD is not present. And as prevalence increases, the likelihood of hunters becoming non-hunters increases.[15]

After Wisconsin became CWD-positive in 2001, the state experienced an 11% decline in hunting license sales.[16] Approximately 26% of WRC funding comes from the sale of hunting and fishing licenses annually. Hunting and sportsman licenses specifically make up 15% of that. The WRC averages $12 million in sportsman and hunting license sales each year.[17] If hunting license sales were to decline 11%, the agency could reasonably expect to lose up to $1.3 million annually ($12M annually x 11% = $1.3 annually). If North Carolina experiences a significant decline in license sales, it may affect the agency's ability to obtain certain federal funding that require matching funds. For example, Pittman-Robertson (P-R) requires 25% match from the agency.

Additionally, approximately 23% of agency funding is provided from P-R funds ($18.5 million).[18] Because of the way that P-R funds are distributed, if the number of North Carolina license holders decreases substantially compared to license holders in other states, WRC would receive less federal funding. However, due to annual fluctuations in funding, the agency is unable to quantify this potential loss.

<u>Herd Management</u>

Some CWD-positive states such as Colorado and Wyoming have seen cervid populations decline due to CWD. One study described a 10% annual decrease among deer in an area with a CWD prevalence of 33%. Another study in southeastern Wyoming (where there are significant declines in mule deer herds) hypothesized that the herd they were studying could be extinct within 41 years.[19] Not only would this eliminate hunter opportunities long-term, but the agency would also likely see commensurate declines in hunting license sales over time. If there are no deer, there are no deer hunters. By implementing the proposed changes to the Importation of Animal Part

[12] NCWRC Division of Wildlife Management. 2011. Chronic Wasting Disease and the Holding of Deer in Captivity. North Carolina Wildlife Resources Commission, Raleigh, NC, USA.
[13] U.S. Fish and Wildlife Service (2011) National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
[14] U.S. Fish & Wildlife Service (2011) Deer Hunting in the United States: Demographics and Trends.
[15] Lyon, K.M. and Vaske, J.J. (2010) *Predicting hunting participation in response to chronic wasting disease in four states*, Human Dimensions of Wildlife, 15:3, 208-220
[16] Vaske, J.J. (2010) *Lessons learned from human dimensions of chronic wasting disease research, Human Dimensions of Wildlife*, 15:3, 165-179
[17] Based on two-year license sale average.
[18] Based on three-year average P-R funds awarded to the WRC.
[19] Cima, G. (2017) *Chronic wasting disease continues to spread*, American Journal of Veterinary Research, 78:9 1004-1005

Rule, the WRC anticipates that the North Carolina deer herd will be better protected from declining populations.

Due to the nature of CWD, the potential for long-term effects on resident cervid populations exist. Therefore, WRC management efforts would be ongoing once CWD is detected. Unfortunately, depending on the magnitude of the outbreak, this may negatively impact the agency's ability to maintain or implement other programs over time. Because of the uncertainty associated with a detection and the vast array of possible scenarios, long-term effects to the State cannot be accurately predicted.

Initial discovery of CWD in North Carolina could occur in either the State's wild or farmed cervid herds; with the additional possibility of one infecting the other.[20] Discovery of CWD within a captive facility would result in that facility becoming quarantined and possibly depopulated. Deer from an infected facility could not be moved to other facilities for breeding/stocking or hunting purposes therefore they would have little, if any, value. The value lost depends on the species, genetics, and/or phenotypic characteristics of the animal and number of animals in the facility. Because of the array of potential scenarios surrounding a CWD detection in the State's captive cervid population, the effects of CWD on these deer, their owners, and the agency that regulates them cannot be quantified.

Local

The proposed amendments to the Importation of Parts Rule are expected to have substantial local benefits by way of avoided costs.

Unfortunately, there is no accurate method for estimating the cost that a CWD detection would have on localized areas in North Carolina, and no data exist on hunter/hunting expenditures at that scale. However, as previously noted, approximately $525 million was spent in-state on trip-related expenses, equipment, and other hunting-related expenditures in North Carolina in 2006.[21] In 2013, Maryland (a CWD-positive state) surveyed three counties with varying proximities to the CWD Management Area of the State (similar to North Carolina's Surveillance areas). The county where Maryland's CWD management area was located reported a 7% reduction in deer harvest.[22] While a change in deer harvest is not a perfect measure of the extent of change in hunting activity in an area, this reduction in harvest could reflect the magnitude of a reduction in hunters in the area and a likely reduction in hunter expenditures in the area.

The agency anticipates that the proposed amendments to further restrict importation and transportation from anywhere out-of-state could lead, at least initially, to an increase in the number of citations issued, especially for residents hunting in neighboring CWD-negative states. The fine for a rule violation includes $180 local court costs. Unfortunately, there is no mechanism to estimate this anticipated increase.

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[20] Farmed cervid is defined in G.S. 106-549.97 and is regulated by the NC Department of Agriculture and Consumer Services.
[21] U.S. Fish and Wildlife Service (2011) National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.
[22] Haus, J.M., Eyler, T.B., Duda, M.D., and Bowman, Jacob, J.L. (2017) *Hunter perceptions toward chronic wasting disease: Implications for harvest and management*, Wildlife Society Bulletin, 41:2, 294-301

Elk hunting is not currently permitted in North Carolina, but according to a 2014 RTI study, elk viewing is a popular activity with associated tourism benefits in western counties of the state where the herd currently resides. Economic benefits were estimated for areas where elk currently reside (three counties) and two potential restoration areas, assuming continuous natural expansion of the elk population over 25 years and no major change in elk demographic parameters. Visitation for elk viewing was projected to be 7,220 to 36,100 visitors per year in 2019 in the study areas and was projected to remain relatively steady at that level into the future, so long as the herd remained stable or increased. However, it was also determined that if the elk population declined to low levels (15 animals or less), tourism to view elk would likely stop. RTI projected that the potential net benefit of elk-viewing tourism in future years in the five study areas evaluated could be anywhere from $0.6 to over $5 million annually, assuming viewing visits lasted 3 days each. [23] North Carolina residents would lose these expected benefits, should the elk population decline significantly from CWD.

Private

The proposed amendments to the Importation of Parts Rule are expected to have substantial private benefits by way of avoided costs.

If CWD were detected in North Carolina, a large and noticeable impact would occur at the local level. Based on the agency's CWD Response Plan, once detected, the area within a 5-mile radius of the infected deer would become the Primary CWD Surveillance Area, and the area with a 5 to 30-mile radius would become the Secondary CWD Surveillance Area. Specific regulations would be established for these areas that would impact hunters, including: regulating the exportation of cervid carcasses or carcass parts, a prohibition on fawn rehabilitation, additional regulation for supplemental feeding and baiting, mandatory CWD testing, changes to season lengths and bag limits, and an increased wildlife enforcement presence. While some restrictions may actually reduce hunter expenditures (i.e. not purchasing supplemental feed because baiting is no longer permitted), the loss would likely be transferred to local retailers and/or farmers.[25]

In a 2010 fiscal note prepared by the WRC, it was estimated that hunters would incur a collective cost of approximately $1,008 to transport deer to agency check stations within a 5-mile radius CWD management zone should the CWD Response Plan be enacted. Restrictions on the removal of certain deer carcass parts from the CWD management zone could result in collective costs to hunters of $6,300 annually in meat processing and carcass disposal. These expenses would increase proportionally as new CWD-positive cervids were detected, resulting in an increase in the size of the CWD management zone[24]. The 2010 Fiscal Note can be found in Appendix D.

Based on WRC Hunter Harvest Survey data, approximately 253,164 licensed hunters went deer hunting in North Carolina during the 2016-2017 season. With the detection and spread of CWD, fewer hunters may deer hunt and will therefore experience a loss of the recreational benefits

[23] RTI International. 2014. Evaluation and Feasibility of Establishing a Huntable Elk Population in North Carolina.
[24] NCWRC Division of Wildlife Management. 2011. Chronic Wasting Disease and the Holding of Deer in Captivity. North Carolina Wildlife Resources Commission, Raleigh, NC, USA.

associated with hunting. Should CWD be detected in North Carolina, the quality of the deer hunting experience would likely decline and hunters may be advised against eating harvested venison. The lost social and recreational value of deer hunting, beyond what hunters spend to participate, could be in the tens of millions depending upon the extent of the disease.[25] But these potential nonmarket losses are highly uncertain because the potential extent of the disease in North Carolina is unknown, the agency lacks State-specific estimates of how much hunters value the hunting experience today, and the WRC is not aware of any studies that have been conducted to date to estimate how much that value would decline if North Carolina were CWD-positive

Hunter behavioral changes can be reasonably expected because of CWD. However, these cannot be accurately estimated or predicted. As previously mentioned, participation in hunting has been shown to decrease as CWD prevalence increases. In addition to reductions in cervid populations, the perceived human health risks associated with CWD contribute to changes in hunter behavior. Although there are no current reported cases of natural CWD infection in humans, the Centers for Disease Control and Prevention (CDC) advises against eating the meat from CWD-positive animals. If hunters refrain from consuming deer meat because of CWD, they may incur additional costs for the purchase of alternative sources of meat.[26] Based on survey data from the 2017 WRC deer forums, most hunters in attendance indicated that the primary reason they hunt is for the venison. It is possible that some hunters will consume less venison because they are deterred by CWD and therefore will need to spend additional money on commercially available meat.[27]

As shown by the Tennessee Department of Agriculture Economics' economic impact report, the total economic losses associated with CWD detection were estimated at $98 million and 1,459 jobs. These estimates include private sectors such as service stations, retail, hotels and other lodging places, restaurants, real estate, food stores, and wholesale trade. These effects would stem from less travel (both within and into the State), food expenditures, lodging, equipment and supply purchases, fewer licenses, and other spillover effects. Other losses to note would be cervid farms and deer and elk viewing opportunities. However, due to lack of North Carolina specific data, these costs are unquantifiable.[28]

Individuals that partake in wildlife viewing could lose recreational benefits associated with this activity from the presence of CWD in the state. While the economic impacts associated with the loss of white-tailed deer viewing are expected to be relatively insignificant should CWD be detected, the impacts from loss of elk viewing would likely be substantial.[29] As discussed in the previous section, a 2014 study conducted by RTI projected that the potential net benefit of elk-viewing tourism in future years in the five study areas evaluated could be anywhere from $0.6 to

[25] Assumptions and methodology from Bishop, 2002 applied to the current number of licensed hunters in NC. Bishop, R.C. 2002. The Economic Effects in 2002 of Chronic Wasting Disease (CWD) in Wisconsin. University of Wisconsin-Madison, Agricultural and Applied Economics. Staff Paper No. 450. 2002.
[26] NCWRC Division of Wildlife Management. 2011. Chronic Wasting Disease and the Holding of Deer in Captivity. North Carolina Wildlife Resources Commission, Raleigh, NC, USA.
[27] NCWRC Division of Wildlife Management. 2016. Deer Hunting and Management Survey. North Carolina Wildlife Resources Commission, Raleigh, NC, USA.
[28] Menard, J., Jensen, K., and English, B.C. (2003) *Projected economic impacts of a Chronic Wasting Disease (CWD) outbreak in Tennessee*, Agri-Industry Modeling & Analysis Group Industry Brief.
[29] NCWRC Division of Wildlife Management. 2011. Chronic Wasting Disease and the Holding of Deer in Captivity. North Carolina Wildlife Resources Commission, Raleigh, NC, USA.

over $5 million annually, assuming viewing visits lasted 3 days each. [30] North Carolina residents would lose these expected benefits, should the elk population decline significantly from CWD.

Individuals that partake in wildlife viewing could also lose the aesthetic and existence values associated with wild cervids. While both of these are non-economic values and are difficult to assess and measure, the impacts associated with the loss of these benefits would be significant.

VI. Alternatives

To address the increasing risk of CWD being introduced into North Carolina by a hunter or other individual importing a cervid carcass or carcass part(s), the WRC evaluated several options, one being to leave the rule as-is, and the other to close the borders of the State to importation of cervids from any outside jurisdiction with immediate enforcement and no exemptions.

The Commission dismissed the alternative of leaving the rule as-is in favor of a more protective rule that is expected to further reduce the risk of the disease reaching the state through human transportation of infected cervids and cervid parts.

At their July 2018 meeting, the Commission adopted a temporary rule (effective August 1, 2018) prohibiting importation, transportation, and possession of any cervid carcass and certain carcass parts originating outside of North Carolina, as have 14 other states (see Appendix B). This temporary rule was supported by the agency's constituency (214 comments received in support of temporary rule and 3 opposed). However, prior to the 2018-19 deer hunting season, additional suggestions were received on potential hardships of the rule to hunters and taxidermists, especially those residing near and hunting in South Carolina. To address these concerns, minimizing the burden on the regulated community and in-state businesses while still reducing the risk of CWD being introduced into North Carolina, the Commission modified the second alternative in favor of the proposed rule. Instead of closing the borders of the State to importation of cervids from any outside jurisdiction with immediate enforcement and no exemptions, the Commission is suggesting the following:

1. Implement phased enforcement of the proposed rule amendment beginning in the 2018-2019 season and including two educational years where individuals importing or in possession of non-compliant parts from states where CWD has not been detected will be given a verbal warning (year one) and a single written warning (year two) unless they are repeat offenders. Citations will not be issued and cervids will not be seized until the third season after the temporary rule change (unless an individual has received a written warning, or they are importing, transporting, or in possession of a cervid or non-compliant cervid parts from a CWD-positive state);
2. Create and execute an aggressive educational campaign and work with NC licensed taxidermists to: 1) increase CWD awareness and knowledge; and 2) train hunters on necessary preparation for regulatory compliance; and
3. Impose an exemption for heads and attached hides of white-tailed deer harvested in South Carolina being brought into the State for delivery to a NC licensed taxidermist accompanied by a delayed effective date for full rule compliance.

[30] RTI International. 2014. Evaluation and Feasibility of Establishing a Huntable Elk Population in North Carolina.

VII. Economic Impact Summary

CWD, a fatal neurological disease affecting the deer family (Cervidae), is an imminent threat to the State's wild and captive white-tailed deer and elk populations. It is unknown if or when CWD will be detected in North Carolina. Fortunately, based on results of continuous testing, the disease has not been detected to date. With the proposed changes to the Importation of Parts Rule, the probability of human introduction of the disease into North Carolina's cervid herds through an infected carcass or carcass parts is anticipated to be greatly reduced. Although many of the costs are quantifiable, the agency is unable to estimate the magnitude of costs and benefits due to uncertainty about the probability of CWD's introduction to North Carolina from natural and/or human modes of transmission and how effective the proposed rules will be at mitigating that risk. However, the WRC believes that the biological, economical, and sociological benefits of the proposed changes to reduce the human-related pathways for introduction of CWD far outweigh the costs.

Benefits from reduced risk of CWD introduction:

CWD can be spread by natural movements of wild cervids or by human transportation of live or dead infected cervids or cervid parts. While the spread of CWD cannot be entirely prevented through regulatory action, the WRC can reduce the risk from transportation, importation, and possession of wild cervid carcasses and parts and their disposal on the landscape, reducing the likelihood of incurring associated costs.

Should CWD be detected, hunters, wildlife recreators, the recreational industry, and the state are likely to incur significant costs. The WRC would implement more restrictive management strategies to contain the disease, and hunting activity would likely decline in CWD affected areas over time, either due to reduced cervid populations or concern about the human health risks of consuming potentially infected venison.

- The WRC could incur costs of up to $689,148 in the first six years of an outbreak for management interventions in a single CWD management area, and loss of up to $7.8M in license sales during that same time. Costs would increase with the addition of surveillance areas if CWD spread, but the effect on license sales is unknown. This cost would increase by 75% if these funds are not available for use as match (25%) to obtain federal operating grants.
- Hunters who continue to hunt in CWD-positive jurisdictions would incur additional costs for taking deer to WRC check stations and additional processing and disposal costs, estimated at $7,300 annually for a single CWD management area. In addition, the WRC would impose prohibitions and restrictions on fawn rehabilitation, feeding and bating of deer, mandatory CWD testing, and changes to season lengths and limits. Costs would vary depending on the size of the management area.
- Captive cervid owners and the NCDACS would also incur costs for disease management in the captive cervid population.

- Over time, the wild and captive cervid populations could be substantially reduced or eliminated.
- Lost recreational benefits from hunting could be in the tens of millions annually depending upon the extent of the disease, but these potential nonmarket losses are highly uncertain. The potential loss of elk-viewing tourism in future years could be anywhere from approximately $0.6 to over $5 million annually.
- The loss of the aesthetic and existence values of wild cervids is unknown.

Direct Impacts from Proposed Rules:

State**:**

- Testing and incineration of seized out-of-state cervid carcasses are estimated to cost approximately $60 each.
- Additional communication, education, and outreach to in-state and out-of-state hunters about the new regulations are estimated to have a one-time cost of approximately $26,465.
- An increase in citations for violations of the proposed rule are valued at $205 each.

Local**:**

- Fines associated with citations for a rule violation include $180 in local court costs.

Private**:**

- Hunters who choose to hunt out-of-state and harvest deer will need to field dress and de-bone their deer themselves to bring only compliant carcass parts back to North Carolina or take the carcasses to an out-of-state processor. They could incur costs for out-of-state meat processing (estimated at $93.77 per deer) or may be inconvenienced by preparing the cervid parts before transporting.
- Violations of the proposed rule would cost hunters $205 in citation costs and seizure of their cervid, an estimated loss of $602 per whitetail deer and $2,500 per elk in addition to the cost of their trip, out-of-state hunting license, hunt/guide fees etc. This cost will not be incurred by hunters importing cervids from states where CWD has not been detected until the rule is in full effect (three years after the effective date) or if an individual hunter is in violation of the rule for a third time before year three.
- Up to an 18% reduction in business for taxidermists from the taxidermy of out-of-state cervids.
- Meat processors in border counties (approximately 16) may lose business from the processing of out-of-state cervids. The estimated cost to process a full deer is approximately $93.77. Processing de-boned meat may cost less.

Proposed Rule Text

15A NCAC 10B .0124 IMPORTATION OF ANIMAL PARTS

(a) It shall be unlawful to import, transport, or possess a ~~No~~ cervid carcass or carcass ~~part~~ part(s) originating from ~~any state or province where Chronic Wasting Disease occurs as identified by the Chronic Wasting Disease Alliance on the Internet at http://www.cwd-info.org/index.php/fuseaction/about.map shall be imported, transported, or possessed in~~ outside of North Carolina ~~except as provided herein:~~ except:

~~(1) meat that is cut and wrapped;~~

~~(2) quarters or other portions of meat with no part of the spinal column or head attached;~~

~~(3)~~(1) meat that has been boned ~~out;~~ out such that no pieces or fragments of bone remain;

~~(4)~~(2) caped ~~hides;~~ hides with no part of the skull or spinal column attached;

~~(5)~~(3) antlers, antlers attached to cleaned skull ~~plates;~~ plates, or skulls free from meat or brain tissue;

~~(6) antlers;~~

~~(7)~~(4) cleaned lower jawbone(s) with teeth or cleaned teeth; or

~~(8)~~(5) finished taxidermy ~~products.~~ products and tanned hides.

(b) ~~Pursuant to G.S. 113-291.2, any~~ Any cervid carcass, carcass ~~part,~~ part(s), or container of cervid meat or carcass parts ~~processed and packaged cervid meat imported as in (a)~~ listed in Subparagraph (a)(1) through (4) of this Rule ~~above from a state or province where Chronic Wasting Disease is known to occur as identified by the Chronic Wasting Disease Alliance on the Internet at http://www.cwd-info.org/index.php/fuseaction/about.map~~ shall be ~~tagged~~ ~~identifying:~~ labeled or identified with the following information:

(1) ~~Hunter's~~ the individual's name and address;

(2) ~~State or province~~ the state, Canadian province, or foreign country of ~~origin of any cervid carcass, carcass part, or container of processed and packaged cervid meat;~~ origin;

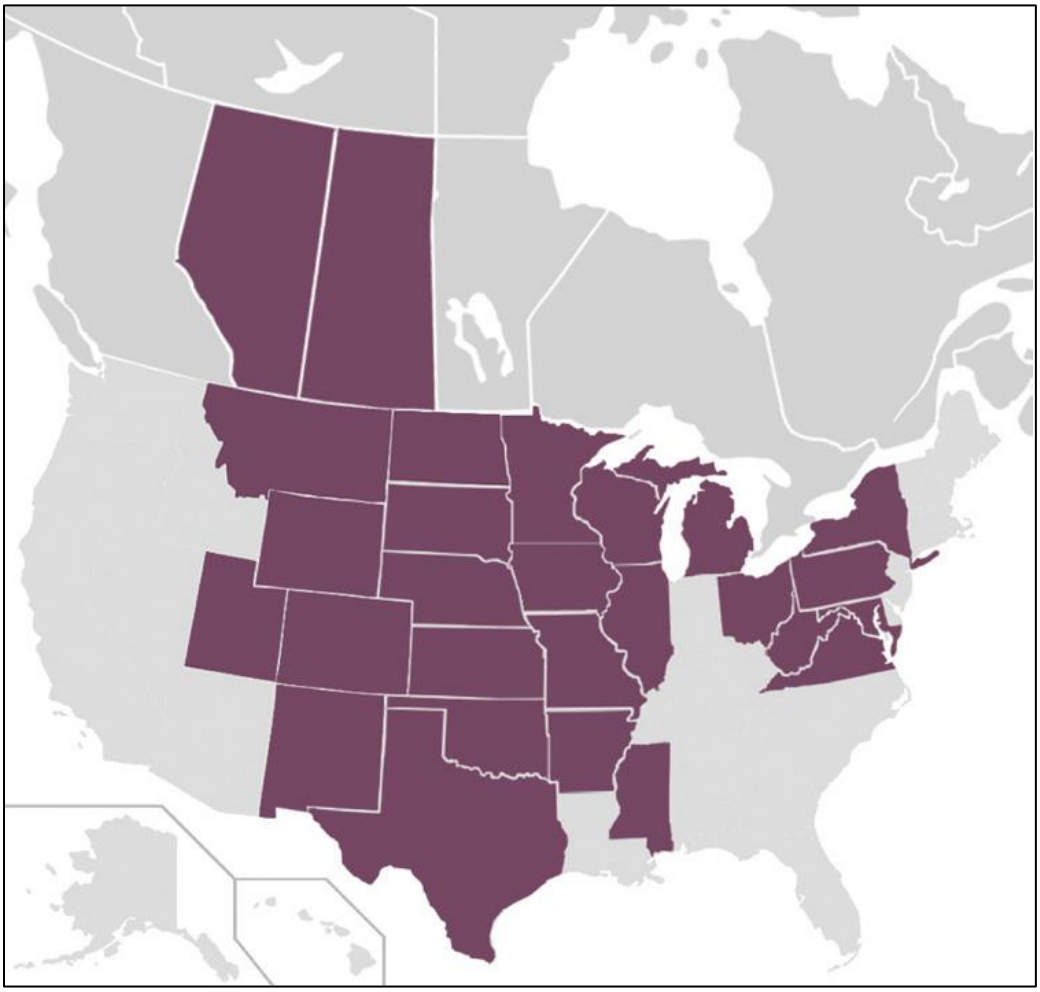
(3) ~~Date~~ the date the cervid was killed and the ~~hunter's~~ individual's hunting license ~~number~~ number, permit number, or equivalent identification from the ~~state or province~~ state, Canadian province, or foreign country of ~~origin of any cervid carcass, carcass part, or container of processed and packaged cervid meat;~~ origin; and

~~(4) Destination of the cervid carcass, carcass part or container of processed and packaged cervid meat within North Carolina~~.

(c) It shall be lawful to import, transport, or possess a hide with head attached from a white-tailed deer lawfully taken in South Carolina, if delivered to a licensed North Carolina taxidermist within 24 hours of entering the State. The hide and head shall be double plastic bagged and labeled or identified with the information required in Paragraph (b) of this Rule and the name of the county in South Carolina where the white-tailed deer was killed. This Paragraph shall expire on August 1, 2020 or upon confirmation of Chronic Wasting Disease in a cervid from South Carolina, whichever occurs first. Upon expiration, all restrictions and requirements of Paragraph (a) shall apply.

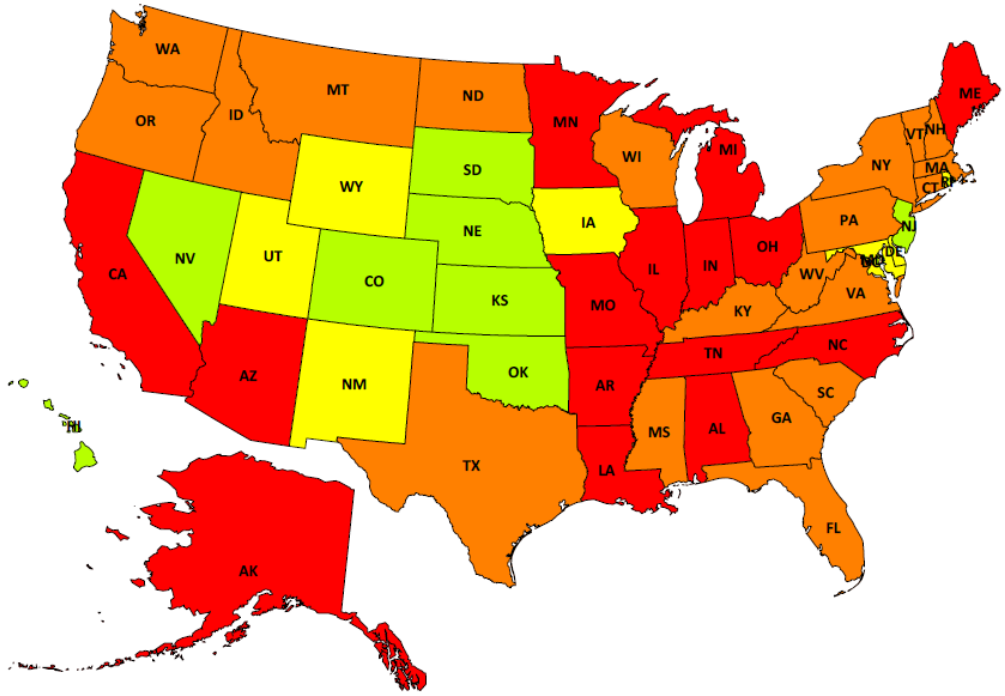
APPENDIX A

States and Provinces where chronic wasting disease has been detected



APPENDIX B

Rules Governing Interstate Transport of High-risk Cervid Carcass Parts[1,2]



No high-risk parts, regardless of CWD status of exporting jurisdiction (15)

Import rules apply to entire CWD-positive jurisdiction, regardless of number or distribution of cases (20)

Import rules apply to positive units only, not entire jurisdiction (7)

No rules restricting importation of high-risk cervid parts (8)

[1]High risk carcass parts may include one or more of the following: head (brain, tonsils, eyes, lymph nodes), spinal cord, spleen, skull plate with attached antlers if visible brain or spinal cord is present, cape if visible brain or spinal cord is present, upper canine teeth if root structure or other soft material is present, any object or article containing visible brain or spinal cord material or brain-tanned hide.

[2]Consult state's website for complete rule details. Intended as a summary of **general** rules only.

Revision Date: 8/2/2018

APPENDIX C

Estimated Cost of In-House Video Production

Position	Duties	Estimated Time	Total Hourly Compensation	Total Personnel Cost per Video
Information & Communications Specialist II	Video production; recording footage + editing	56	$ 38.08	$ 2,132.33
Information & Communications Specialist II	production; recording footage +	32	$ 38.08	$ 1,218.48
Information & Communications Specialist III	Video review/editing	8	$ 43.95	$ 351.62
Conservation Biologist II	Video production	32	$ 38.08	$ 1,218.48
Conservation Management Administrator	Approval and oversight	4	$ 54.65	$ 218.60
				$ 5,139.51
Total compensation based on midpoint salary for Grade and 10 yrs of service.				

Estimated Cost of Facebook Ad Campaign

Position	Duties	Estimated Time (hrs)	Total Hourly Compensation	Total Personnel Cost per Video
Information & Communications Specialist II	Ad creation and monitoring	20	$ 38.08	$ 761.55
Information & Communications Specialist III	Video review/editing	4	$ 43.95	$ 175.81
				$ 937.36
Total compensation based on midpoint salary for Grade and 10 yrs of service.				

APPENDIX D

Estimated agency costs for implementing the CWD Response Plan

Field Response Team hours and mileage for one CWD Surviellance Area (based on the 2015 Response Plan and the 2013-2014 surveillance effort).

Position	Duties	Estimated Time[a]	Total Hourly Compensation[b]	Total Personnel Cost Yr 1	Estimated Mileage[b]	Estimated Time Over 5-Years[c]	Total Personnel Cost Over 5-Years	Estimated Mileage Over 5-Years[d]
Private Lands Program Supervisor	Field Response Team Leader; Determine best location for a CWD operations facility; appoint a data coordinator; Secure additional sampling sources; assign personal to operate check stations.	28	$ 47.25	$ 1,307.83	401	94	$ 4,446.61	1,365
District Wildlife Biologist	Determine location of unconfirmed CWD-positive sample; Finalize list of all supplies and material needed; Collect a minimum of 1,500 animals for CWD samples; Develop CWD Monitoring and Mangement Plans.	398	$ 38.08	$ 15,151.00	6,048	1,194	$ 45,453.00	18,144
Regional Engineering		71	$ 38.08	$ 2,700.83	1,035	213	$ 8,102.49	3,104
Lands Management Supervisor		73	$ 47.25	$ 3,433.05	711	218	$ 10,299.14	2,133
Deer Biologist		439	$ 38.08	$ 16,731.97	5,048	1,318	$ 50,195.92	15,144
Wildlife Veterinarian		291	$ 75.94	$ 22,072.57	491	872	$ 66,217.71	1,474
Permits Biologist		69	$ 38.08	$ 2,634.96	346	208	$ 7,904.87	1,038
District Wildlife Enforcement Captain		69	$ 54.65	$ 3,781.78	346	208	$ 11,345.34	1,038
Other Staff (per individual)[e]		78	$ 38.08	$ 2,964.33	1,273	234	$ 8,892.98	3,820
Total				**$ 70,778.31**	**$ 7,221.89**		**$ 212,858.05**	**$ 21,739.51**

a. Estimated time is based on the average number of hours staff logged during the the 2013-2014 surviellance efforts (per position) plus the difference between collection efforts during the 2013-2014 surveillance and minimum requirements of the 2015 CWD Response Plan.

b. Total compensation based on midpoint salary for Grade and 10 yrs of service.

c. Estimated milage is based on the average milage staff logged during the the 2013-2014 surviellance efforts (per position) plus the difference between collection efforts during the 2013-2014 surveillance and minimum requirements of the 2015 CWD Response Plan.

d. Five year estimates are based on the assumption no additional areas become CWD-positive in North Carolina and certain duties that are required in the first year are removed.

e. Number of staff assisting in CWD collections vary among districts. This table assumes one additional staff member will be added to the group during sampling. If more are added, this number will be multiplied by the number of staff assisting.

Logistical Response Team hours for one CWD Surviellance Area (based on the 2015 CWD Response Plan and recent CWD outreach efforts).

Position	Duties	Estimated Time[a]	Total Hourly Compensation[b]	Logistics Team Personnel Cost Yr 1	Estimated Time Over 5-Years[c]	Logistics Team Personnel Cost 5-yr
Division Chief	Logistical Response Team Leader	16	$ 54.65	$ 874.40	32	$ 1,748.80
Wildlife Veterinarian	List approprate media contacts, draft press release, develop information section on website, identify stakeholders, begin preparations for public meeting; Create contact list of private land owners, captive cervid facilities, and fawn rehabbers; Review and report on General Statutes, Session Laws, and other local laws; Coordinate with a landfill; Identify options for carcass processing	92	$ 75.94	$ 6,986.78	184	$ 13,973.56
Surveys and Research Program Supervisor		28	$ 47.25	$ 1,322.95	56	$ 2,645.89
Wildlife Diversity Program Supervisor		28	$ 47.25	$ 1,322.95	56	$ 2,645.89
		92	$ 33.04	$ 3,039.63	184	$ 6,079.25
Public Information Officer		163	$ 38.08	$ 6,206.62	326	$ 12,413.23
Information Technology Representative		155	$ 38.08	$ 5,902.00	310	$ 11,804.00
Division of Law Enforcement Representive		28	$ 54.65	$ 1,530.20	56	$ 3,060.40
Raleigh Office Aministrative Assistant		155	$ 33.04	$ 5,121.11	310	$ 10,242.22
Total				**$ 32,306.63**		**$ 64,613.25**

a. Estimated time is based on the average number of actual staff hours logged during CWD outreach efforts.

b. Total compensation based on midpoint salary for Grade and 10 yrs of service.

c. Five year estimates are based on the assumption that no additional areas become CWD-positive in North Carolina and certain duties required in the first year are unnecessary in subsequent years.

Estimated agency costs for implementing the CWD Response Plan Continued

Minimum number of supplies needed for one CWD Surveillance Area for one year of surveillance (based on 2015 CWD Response Plan).				
Item	**Price**	**Quantity**		**Total**
Extra Large Gloves	$ 74.90	1	case(s) of 1000	$ 74.90
Large Gloves	$ 74.90	1	case(s) of 1000	$ 74.90
Formalin	$ 188.30	5	5 gallons	$ 941.50
Sample Container	$ 165.82	4	case(s) of 400	$ 663.28
Testing of Samples	$ 30.00	1,500	each	$ 45,000.00
Total				**$ 46,604.78**

APPENDIX E