



## **Fiscal Note for Proposed Alligator Rule and Possession of Certain Species Rule Amendments for the Wildlife Resources Commission**

**Rule Amendments:** 15A NCAC 10B .0224 American Alligator  
15A NCAC 10B .0123 Possession of Certain Species of Wildlife Resources

**Agency Contact:** Carrie Ruhlman  
Policy Analyst  
NC Wildlife Resources Commission  
1751 Varsity Drive, Raleigh, NC  
(919) 707-0011  
carrie.ruhlman@ncwildlife.org

**Impact Summary:** State Government: Yes  
Local Government: Yes  
Private Impact: Yes  
Substantial Impact: No

**Authority:** G.S. 113-134; 113-274; 113-291.1; 113-291.2; 113-292

### **Background**

The wildlife resources of the State belong to the people of the State, including the enjoyment of these resources (G.S. 113-131(a)). The Wildlife Resources Commission (hereinafter WRC or Commission) is tasked with the conservation of wildlife resources of the State (G.S. 143-239). This responsibility includes managing as equitably as possible the various competing interests regarding these resources, including the use and take of such resources (G.S. 113-131.1(a)). The statutes governing wildlife resources are found in Chapter 113, Subchapter IV of the General Statutes, and WRC has been granted rulemaking authority to implement the provisions of these statutes (G.S. 113-134). In accordance with the supply of wildlife and other factors it determines to be of public importance, the WRC may fix seasons and bag limits upon the wild animals and wild birds authorized to be taken that it deems necessary or desirable in the interests of the conservation of wildlife resources (G.S. 113.291.2(a)). The Commission recently established an Alligator Task Force that has recommended enhancements to the State's management of the American alligator (*Alligator mississippiensis*), including establishment in rule of a season and methods of take.

Additionally, the WRC may take steps to ensure the safety of native wildlife resources, by restricting the acquisition, importation, possession, transportation, disposition, or release of

certain exotic species (G.S. 113-292). In the case of the species prohibited in 15A NCAC 10B .0123, WRC staff, in coordination with professional herpetologists, considered all exotic species posing a threat to wildlife resources. The proposed additional species reflect those which pose considerable threats to the well-being and continued existence of wildlife resources. The prevention of introduction of exotic species is highly desirable versus attempting to eradicate established exotic species, often at great expense.

## **I. Introduction and Purpose of Rule Change**

### **American Alligator:**

The proposed rule will allow limited take of alligators in North Carolina under the following conditions:

- Season of September 1 to October 1.
- Take by permit only.
- Bag limit - one per permit and the season limit is one.
- American alligators must be restrained before being killed. American alligators may only be restrained using hand-held ropes or catch poles; hand-held or rod/reel snatch hooks; harpoons or gigs with attached restraining lines; baited, wooden pegs less than 2-inches in length attached to hand-held restraining lines; or archery equipment with arrow-attached restraining lines.
- American alligators restrained by any lawful method specified above must be dispatched immediately upon capture.
- Alligators may be taken day or night and with the use of artificial lights.
- Baited hooks are prohibited.

The Alligator Task Force has recommended in the final draft of the North Carolina Alligator Management Plan<sup>1</sup> that the Commission consider a rule proposal to allow limited take of alligators. This proposed rule would allow the limited take of alligators to address public safety or to provide recreational hunting where scientific data demonstrates that the permitted take will not impair long-term sustainability of the population. The intent of this regulation is to provide closely regulated and monitored opportunities for take in accordance with the Alligator Management Plan.

### **Possession of Certain Species of Wildlife Resources:**

The proposed amendment to 10B.0123 will add exotic, potentially invasive, species that threaten wildlife resources. Reptiles and amphibians to be added to this rule include brown anole (*Anolis sagrei*), red-eared slider (*Trachemys scripta elegans*), Cuban treefrog (*Osteopilus septentrionalis*), and all Asian newt species in the genera *Cynops*, *Pachytriton*, *Paramesotriton*, *Laotriton*, and *Tylototriton*.

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<sup>1</sup> Available upon request.

The primary impact of brown anole introduction into North Carolina would be competition and extirpation of native green anole populations, as documented elsewhere in its established range. The proposed action in North Carolina is to ban possession and sale of live brown anoles within the state. The primary threat that red-eared sliders pose in North Carolina is genetic pollution of native yellow-bellied sliders; the secondary threat is competition with native turtles for food, basking and nesting sites. The proposed action in North Carolina is to ban the sale of live red-eared sliders, and their apparent intergrades (based on morphology and/or mitochondrial DNA), within the state. The primary impact of Cuban tree frog introduction into North Carolina would be predation on native, small-sized amphibians, other vertebrates, and invertebrates, and direct competition with native tree frogs (genus *Hyla*). The proposed action in North Carolina is to ban possession and sale of live Cuban tree frogs within the state.

North Carolina is home to more species of salamanders than any other state (approximately 65 species). The salamander chytrid fungus *Batrachochytrium salamandrivorans* (*Bsal*), a fungal pathogen that causes infectious disease in salamanders has not yet been detected in the wild in the United States, but risk for spread of *Bsal* via trade in Asian newts remains high. The proposed action in North Carolina is to ban the possession and sale of live Asian newts (genera *Cynops*, *Pachytriton*, *Paramesotriton*, *Laotriton*, and *Tylototriton*) with the goal of preventing the introduction and/or spread of *Bsal* to wild salamanders.

## II. Fiscal Impacts - Costs

### State Impact<sup>2</sup>

#### *10B .0224 American Alligator*

The WRC estimates a cost of approximately \$24,928 per year (including labor, gasoline, and other supplies) to coordinate with local governments to allow limited take of alligators. This coordination will include surveys and monitoring of alligator populations in municipalities and is based on the costs of previous work ((three staff: \$45/hr + \$45/hr + \$62/hr) x 164 hrs = \$24,928).

By creating a hunting season, the WRC will be able to offer limited opportunities to take alligators. The WRC anticipates offering permits for take to provide for public safety or recreational opportunities in specific circumstances. The WRC will incur administrative costs associated with setting-up an alligator permit system to closely control hunting. Based on similar permit opportunities, the agency anticipates a cost of approximately \$1,643 associated with development ((four staff: \$45/hr + \$37/hr + \$48/hr + \$67/hr) x 8 hrs = \$1,576) and administration (\$67/hr x 1 hr = \$67).

#### *10B .0123 Possession of Certain Species of Wildlife Resources*

The enforcement of 10B .0123 already requires all new wildlife enforcement officers to participate in WRC training that includes a one-day review of regulations and field identification specifically for reptile and amphibian species. This training includes 8 hours of information on the illegal pet trade, collection, and food market, and accurate species identification. Routine

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<sup>2</sup> All hourly rates for WRC staff herein reflect total compensation.

refresher trainings are also offered to officers. Though new training materials will need to be developed due to the proposed changes to the 10B Rule, the materials are produced in-house. Staff time anticipated for completion of this task is, at most, two hours. This will be a one-time cost to the agency of \$90 (\$45/hr x 2hrs = \$90). No additional costs are anticipated for enforcement.

Despite the proposed prohibition of certain species, permits for possession will be issued to state and federal governmental agencies, corporate research entities, and research institutions. Staff review permit applications when requested by these entities, thereby requiring additional WRC staff time. Though the WRC is unable to estimate the number of permits that will be requested for the newly listed species, approximately 1 hr is needed to review permit applications, at a cost to the WRC of approximately \$37 (\$37/hr x 1 hr/permit = \$37/permit).

### **Local Impact**

The proposed amendments to the alligator and possession of certain species of wildlife resources rules are not anticipated to have local economic costs.

### **Private Impact**

#### *10B .0224 American Alligator*

As specified in the proposed rule, the WRC would allow take of alligators by permit only. While there is no cost to individuals for a permit, the WRC does charge a \$5 administrative fee associated with the permit application.

#### *10B .0123 Possession of Certain Species of Wildlife Resources*

Several of the proposed species are currently found in the pet industry or are acquired by hobbyists at a cost ranging from \$3 for a small Brown Anole to \$25 for a 4" – 5" Red Eared Slider.<sup>3</sup> However, these animals are not integral to reptile and amphibian trade, and have low financial value. Due to lack of data, the agency is unable to estimate the potential impact of the proposed rule change.

## **III. Fiscal Impacts - Benefits**

### **State Impact**

#### *10B .0224 American Alligator*

By creating a hunting season for the American alligator, the WRC could issue permits for limited take of alligators in specific circumstances to provide for public safety or recreational opportunities. The WRC collects a \$5 administrative fee associated with each permit hunt application. Though the WRC is uncertain about the number of permits that may be offered, there is high interest in alligator hunting from citizens. Because all hunters interested in obtaining a permit would pay a \$5 application fee, the WRC anticipates revenue generation due

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<sup>3</sup> Cost estimates obtained from [undergroundreptiles.com](http://undergroundreptiles.com) and [backwaterreptiles.com](http://backwaterreptiles.com)

to this proposed regulation change. Applicants awarded a permit may also need to buy additional licenses. However, any increase in license sales is not expected to be significant.

Responding to human-wildlife interactions is a routine duty of WRC biologists and law enforcement personnel. The WRC's human-wildlife interactions database documents that in an average year, employees respond to over 120 nuisance alligator complaints, with approximately 30 of those requiring relocations of alligators. In areas of the state where alligators are prevalent, it is possible that limited take by hunters could decrease the number of nuisance alligator situations and associated costs. However due to a lack of specific data, the WRC is unable to quantify this benefit.

#### *10B .0123 Possession of Certain Species of Wildlife Resources*

WRC biologists often work to predict decline of a species, as it is much easier to proactively maintain species than it is mitigate losses. Additionally, wildlife species have diverse life histories which can heavily influence recovery efforts. Due to these factors, early prevention of establishment of exotic invasive species that threaten wildlife resources can provide for proactive, biologically sound management ensuring the conservation and wise use of wildlife resources, minimizing the risk of federal listing, which can put restrictions on private land, and fostering partnerships with local, state, and federal entities.

There can be significant economic benefits to avoiding federal listing of a species through proactive management. Based on 2015 state expenditure data for conservation projects for federally-listed species, benefits could be a savings of from \$2,500 per year (gray bat, *Myotis grisescens*) to \$1,142,843 per year (red-cockaded woodpecker, *Picoides borealis*) in state funds.<sup>4</sup> Additionally, avoided federal listing may preclude the delay or cancelation of major construction projects. Any project with the potential to jeopardize the existence of a federally-listed species must undergo a Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS), which could take anywhere from one to 10 years and cost a significant amount of money.<sup>5</sup> For example, the research study required for a NCDOT highway maintenance project with potential impacts to the northern long-eared bat (*Myotis septentrionalis*) in eastern North Carolina cost the state \$400,000 per year for 5 years. Prohibiting the possession of species that have the potential to negatively affect native populations is a benefit to the state.

#### **Local Impact**

The proposed amendments to the alligator and possession of certain species of wildlife species rules are expected to have limited local benefits.

#### *10B .0224 American Alligator*

In some areas, it is possible that hunting effort on alligators will decrease the number of alligator nuisance situations. This would decrease costs for local municipalities and communities to deal with these situations, including costs of Nuisance Alligator Agent services that could cost from \$300 to \$750 per incident.

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<sup>4</sup> <http://ecos.fws.gov/expenditures>

<sup>5</sup> <https://www.fws.gov/midwest/Endangered/section7/section7.html>

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No benefits to local governments are anticipated.

**Private Impact**

*10B .0224 American Alligator*

By creating a hunting season for the American alligator, citizens will be afforded additional hunting opportunities. Although the Commission does not have a mechanism to determine the fiscal impact of this opportunity, economic research on the value individuals place on hunting can provide useful context for rules that affect opportunities for this activity. Taking the median of the findings across multiple studies, researchers have estimated that the value of hunting per person per day is approximately \$63.<sup>6</sup> This figure represents individuals' total willingness to pay to engage in the activity, less the cost to do so. It does not represent any economic activity generated by the activity, such as retail sales. Additionally, this estimate is not species or location-specific. However, to the extent that the proposed rule induces hunters to increase or decrease their trips in particular areas of the state, these findings provide a rough approximation of the costs or benefits to the individual.

Any citizen who harvests an alligator may also benefit from meat, hide, and taxidermy opportunities. Additionally, there may be other economic benefits to private individuals, such as guide services, sale of hunting equipment specifically designed for harvesting alligators, and property leases for landowners who may lease their property for alligator hunting. Due to a lack of data, the agency is unable to quantify these benefits.

Private landowners that request the assistance of a Nuisance Alligator Agent to remove an unwanted alligator from their property incur costs of \$300 - \$750 per incident. The proposed alligator rule could result in a cost savings to landowners, in that permitted hunting would be an option. Landowners could allow access to hunters and a problematic alligator could be removed at no cost.

*10B .0123 Possession of Certain Species of Wildlife Resources*

North Carolina residents value the opportunity to view and interact with nongame species. Individuals also value protecting these species for present and future generations, even if they never interact with them.<sup>7</sup> Together, the value of wildlife viewing and related recreation and the value of maintaining biodiversity are the "non-consumptive" benefits of species protection (through prevention of establishment of invasive exotic species).

The non-consumptive values of wildlife species can be estimated by measuring residents' willingness to pay for wildlife protection. Although economists and biologists have conducted many studies over the past 30 years to estimate the value of protecting species, it is difficult to

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<sup>6</sup> Rosenberger, Randall S.; White, Eric M.; Kline, Jeffrey D.; Cvitavovich, Claire. 2017. Recreation economic values for estimating outdoor recreation economic benefits from the National Forest System. Gen. Tech. Rep. PNWGTR-957. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.

<sup>7</sup> Wallmo, Kristy and Daniel Lew, 2016. A comparison of regional and national values for recovering threatened and endangered marine species in the United States. *Journal of Environmental Management*, Volume 179. Accessed at <http://www.sciencedirect.com/science/article/pii/S0301479716302249>

estimate the impact of the WRC's proposed actions to minimize invasive exotic species, because benefits are species-specific and location specific. The WRC is unaware of any value studies involving the species that will be protected as a result of this rulemaking. Given the species-specific nature of the value individuals place on wildlife protection, the WRC is not able to quantify the total social benefit of protecting wildlife resources with the proposed rule. However, the potential benefits are discussed below:

### Ecotourism

- Research shows that society enjoys biodiversity and there are many physical and mental benefits associated with spending time outdoors.<sup>8</sup> Although the WRC does not actively collect data specific to ecotourism, the WRC does partner and participate in surveys on willingness to pay.<sup>9</sup> These surveys request participants to answer questions regarding their willingness to travel to see wildlife. Also, the USFWS 2011 report indicated that North Carolina had 2,432,000 recorded wildlife watchers ages 16 years and older.<sup>10</sup>
- To the average recreationist, a more diverse and abundant wildlife population may increase recreational opportunities in an area. Not only may it increase the number of recreational experiences, but also it may increase the quality of those experiences. Although the Commission does not have a mechanism to determine the fiscal impact that the proposed rule changes will have on ecotourism, economic research on the value that individuals place on nature-related activities, including nature watching, may provide a useful context on the potential impact. Taking the median of the findings across multiple studies, researchers have estimated that the value of nature-related activities per person per day is approximately \$47.<sup>11</sup> This figure represent individuals' total willingness to pay to engage in the activity, less the cost to do so. It does not represent any economic activity generated by the activity, such as retail sales. Additionally, this estimate is not species or location-specific. However, to the extent that the proposed rule induces individuals to increase or decrease their trips in particular areas of the state, these findings provide a rough approximation of the costs or benefits to the individual.

### Ecological Benefit

- Although unquantifiable, the overall value added by protecting ecological processes from degradation by invasive, exotic species cannot be overstated. When ecological processes are impaired, there are consequences which may incur management costs. For example, establishment of feral hogs has incurred tremendous management costs in southern states. Native species sustain processes in ecosystems such as energy flow through food webs. If exotic species degrade food resources, a species may not thrive. Unhealthy wildlife can be more susceptible to disease, resulting in a variety of management issues. These results

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<sup>8</sup> Sandifer, Sutton-Grier, Ward, 2015

<sup>9</sup> Deason, Seekamp, 2015

<sup>10</sup> [http://insidewrc.org/div09\\_management/documents/FWS-021SurveyReport2011-2WildlifeWatching-FINAL.pdf](http://insidewrc.org/div09_management/documents/FWS-021SurveyReport2011-2WildlifeWatching-FINAL.pdf).

<sup>11</sup> Rosenberger, Randall S.; White, Eric M.; Kline, Jeffrey D.; Cvitanovich, Claire. 2017. Recreation economic values for estimating outdoor recreation economic benefits from the National Forest System. Gen. Tech. Rep. PNWGTR-957. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.

weigh on the state's resources. By limiting the establishment of exotic invasive species, the WRC is proactively conserving wildlife resources and mitigating serious negative impacts.

#### **IV. Uncertainties**

##### *10B .0123 Possession of Certain Species of Wildlife Resources*

Because the proposed amendments to this rule are preventative in nature, and the current rule only prohibits possession of one species, there are no data available on the effectiveness of the rule at preventing possession. However, the agency does enforce restrictions on possession of state-listed reptiles and amphibians. The WRC performs approximately 5 confiscations of state-listed species each year from individuals who are not authorized to collect or possess them. WRC officers have made one confiscation of listed species from a business in the past five years. Though these state-listed reptile and amphibian species are all native, the number of confiscations provides an estimate of the magnitude of potential impacts from new species being added to 10B .0123. Potential impacts include an increased cost to the state for enforcement, a minimal increase in the number of local court cases dealing with illegal possession, and the cost to individuals for getting caught in possession of the species proposed for addition to the rule. It should however be noted that because all the proposed species are exotic, enforcement actions are more likely to occur in businesses than with private individuals; and though the agency acknowledges these as potential costs, it lacks appropriate data to accurately quantify them.

#### **V. Economic Impact Summary**

##### *10B .0224 American Alligator*

The proposed alligator rule is anticipated to have minimal state, local, and private costs, while many economic benefits are expected at all these same levels. Although most of the costs and benefits are unquantifiable with available data, the WRC was able to quantify the following

##### **State**

- Alligator survey costs of approximately \$24,928 per year
- Approximately \$1,643 for development and administration of permit hunts
- A \$5 administration fee per application for permit hunts

##### **Local**

- Decreased need for contracting with Nuisance Alligator Agents at approximately \$300 - \$750 per incident

##### **Private**

- A \$5 administration fee per application for permit hunts
- Decreased need for contracting with Nuisance Alligator Agents at approximately \$300 - \$750 per incident

Unquantifiable costs and benefits include the following:

**State**

- Additional sales of licenses
- Decrease in staff time needed to address nuisance issues

**Local**

- Decrease in staff time needed to address nuisance issues
- Decreased need for contracting with Nuisance Alligator Agents

**Private**

- Additional hunting opportunity
- Meat, hide, and taxidermy opportunities
- Increased income for guides/outfitters
- Increased sales of equipment
- Increased value of hunting leases

Though most of these economic impacts lack data and are unquantifiable costs, the WRC expects the benefits of the proposed rule to outweigh the costs.

*10B .0123 Possession of Certain Species of Wildlife Resources*

Wildlife recreation benefits our state's economy. By preventing the establishment of exotic invasive species, the WRC aims to proactively conserve wildlife resources. The proposed amendments to the possession of certain species rule are anticipated to have minimal costs at the state, local, or private levels, while they are expected to have many positive economic benefits at all those same levels. Although most of the costs and benefits are unquantifiable with available data, the WRC was able to quantify the following:

**State**

- Approximately \$37/permit for possession permit application review
- Development of training program for staff costing \$90

**Private**

- Lost revenue from sale of species estimated from \$3 - \$25 per potential sale

Unquantifiable costs and benefits include the following:

**State**

- Officer court time for newly added exotic species possession cases
- Increased species resilience and ecological integrity
- Avoidance of federal listing
- Increased wildlife watching

**Local**

- Increased court cases dealing with illegal possession

**Private**

- Reduction in available species for pet trade
- Fines and court fees for illegal possession of exotic species
- Opportunities for wildlife watching
- Ecotourism and biodiversity

Though most of these economic impacts lack data and are unquantifiable costs, the WRC expects the benefits of the proposed amendments to outweigh the costs.

**15A NCAC 10B .0224 AMERICAN ALLIGATOR**

- (a) The season for taking American alligators is September 1 to October 1.
- (b) Take is by permit only.
- (c) The bag limit is one per permit and the season limit is one.
- (d) American alligators must be restrained before being killed. American alligators may only be restrained using hand-held ropes or catch poles; hand-held or rod/reel snatch hooks; harpoons or gigs with attached restraining lines; baited, wooden pegs less than 2-inches in length attached to hand-held restraining lines; archery equipment with arrow-attached restraining lines.
- (e) American alligators restrained by any lawful method specified in part (d) of this paragraph must be dispatched immediately upon capture.
- (f) Alligators may be taken day or night and with the use of artificial lights.
- (g) Baited hooks are prohibited.

*History Note: Authority G.S. 113-134; 113-291.1; 113-291.2;*  
*Eff. August 1, 2018,*

**15A NCAC 10B .0123 POSSESSION OF CERTAIN SPECIES OF WILDLIFE RESOURCES**

It is unlawful for any individual to import, transport, export, purchase, possess, or sell any species of Tongueless or African Clawed Frog (*Xenopus* spp.), Brown Anole (*Anolis sagrei*), Cuban Treefrog (*Osteopilus septentrionalis*), or any Asian Newts (genera *Cynops*, *Pachytriton*, *Paramesotriton*, *Laotriton*, *Tylotriton*); or to import, purchase, or sell Red-eared Sliders (*Trachemys scripta elegans*); or to stock or release ~~them~~ any of the aforementioned species in the public or private waters or lands of North Carolina, except as authorized under permit issued by the Executive Director pursuant to G.S. 113-274(c)(4) and subject to limitations as specified in this Rule:

- (1) Importation, possession, sales, transportation, and exportation will be allowed under permit by retail and wholesale establishments whose primary function is providing scientific supplies for research; provided that they must be possessed in indoor facilities; and that all transportation of specimens provides adequate safeguards against accidental escape; and that sale or transfer is permitted only as listed in Item (2) of this Rule. Written applications for permits shall include plans for holding, transportation, advertisement, and sale in such detail as to allow a determination of the safeguards provided against accidental escape and sales to unauthorized individuals.
- (2) Purchase, importation, and possession of this species within North Carolina will be allowed under permit only by state and federal governmental agencies, corporate research entities, and research institutions; provided that sales are permitted to lawful out-of-state consumers; and, provided that they must be possessed in indoor facilities and that all transportation of specimens provides adequate safeguards against accidental escape; and that the agency's or institution's Animal Use and Care Committee has approved the research protocol for this species; and, further provided that no specimens may be stocked or released in the public or private waters or lands of North Carolina and may not be transferred to any private individual.

*History Note: Authority G.S. 113-134; 113-274; 113-292;*

*Eff. February 1, 1994;*

*Amended Eff. August, 1, 2018; April 1, 1997.*