

Proposed Changes to Protected Animal List for Fishes, Crustaceans, and Mollusks

April 15, 2026

Revised

North Carolina Wildlife Resources Commission

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Table 1. Summary of Criteria Used to Determine a Species' Recommended Listing Status

	Endangered	Threatened	Special Concern	Results	Listing Status	Overall Listing Status
A: Population Size Reduction						
A1	≥ 90%	≥ 70%	≥ 50%			
A2	≥ 80%	≥ 50%	≥ 30%			
A3	≥ 80%	≥ 50%	≥ 30%			
A4	≥ 80%	≥ 50%	≥ 30%			
B: Geographic Range						
B1	< 100 km ²	< 5,000 km ²	< 20,000 km ²			
B2	< 10 km ²	< 500 km ²	< 2,000 km ²			
AND both of the following:						
(a)	Locations = 1	≤ 5	≤ 10			
(b)	Continuing decline in any of: (i) Extent of Occurrence; (ii) Area of Occupancy; (iii) extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals.					
C: Small Population Size and Decline						
C	< 750	< 3,500	< 10,000			
AND either C1 OR C2:						
C1	25% in 3 y or 1 generation	20% in 5 y or 2 generations	10% in 10 y or 3 generations			
C2	≤ 150	≤ 700	≤ 1,400			
D: Very Small or Restricted Population						
D1	< 150	< 700	< 1,400			
OR						
D2	AOO < 20 km ² or number of locations ≤ 5					
E: Quantitative Analysis – Probability of Extinction						
E	≥ 50% in 10 years or 3 generations	≥ 20% in 20 years or 3 generations	≥ 10% in 100 years			
Regional Correction						
Assesses uplisting or downlisting when emigration or immigration affects North Carolina populations.						
Final Result						

River Redhorse

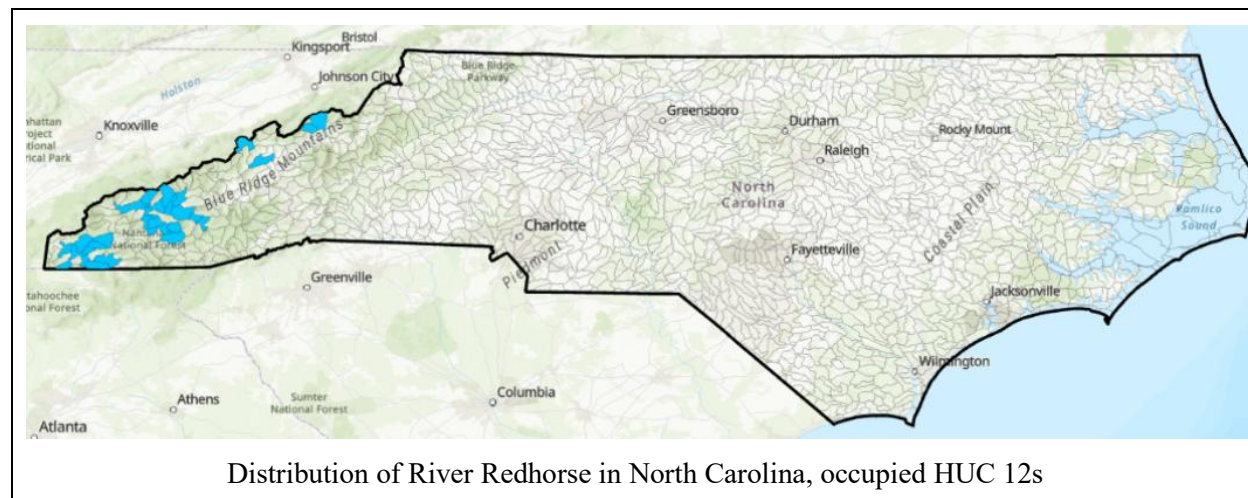
Species Name: River Redhorse, <i>Moxostoma carinatum</i>	 River Redhorse, <i>Moxostoma carinatum</i> Photo courtesy of NCFishes.com
Current N.C. Status: Not Listed	
Proposed N.C. Status: Threatened	

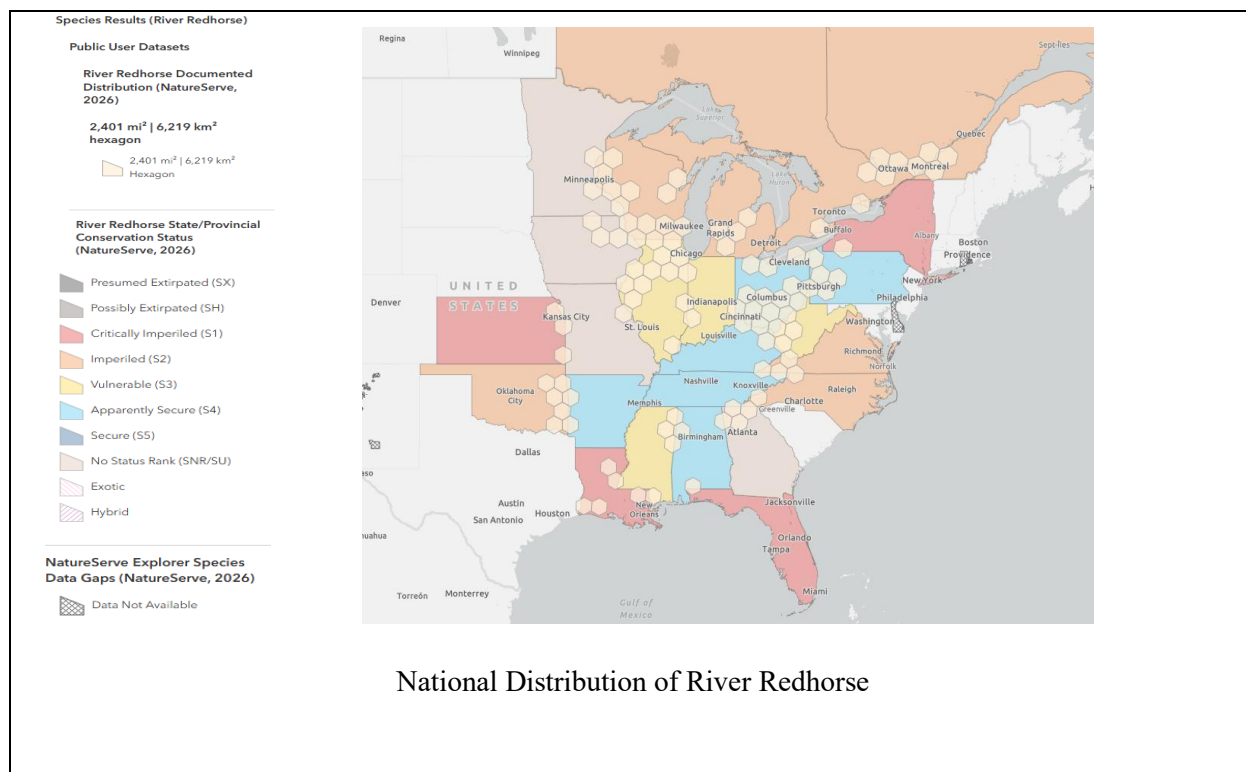
National Status

Entity	Status
USFWS	Not Listed
NatureServe	G4 (Apparently Secure)
IUCN	Least Concern

Range

The River Redhorse range includes the St. Lawrence River, Great Lakes watersheds, throughout most of the Mississippi River Basin, and Gulf Slope river basins from the Escambia River in Florida to the Pearl River in Louisiana and Mississippi (Froese & Pauly, 2024). In North Carolina, the species is found in the Hiwassee, Little Tennessee, and French Broad river basins (Tracy et al. 2020).





Rationale for Status Change

The River Redhorse range in North Carolina has decreased substantially since 2000, with measurable decreases in Area of Occupancy (AOO) (48% decline) and Extent of Occurrence (EOO), 2,287 km² (= 883.12 mi²) in 2000 to 1,222 km² (= 471.82 mi²) in the last 10 years. Currently, River Redhorse occurs in 5 HUC8s. Although this is a wide-ranging species spanning the SE United States to Canada, the majority of the species' distribution is in decline. In North Carolina, the recent declines in AOO and EOO over the last 10-year period and the restriction of the species distribution by numerous dams across the range qualifies the species to be listed as **Threatened** under Criterion B.

Species Status Assessment Summary (River Redhorse)

Criterion	Score	Final Score
A1	Data Deficient	Special Concern
A2	Special Concern	
A3	Data Deficient	
A4	Data Deficient	
B1	Threatened	Threatened
B2	Threatened	
B(a)	Threatened	
B(b)	True	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Threatened

GS 113-334 (c) Relevant Data and Factual Information

River Redhorse (*Moxostoma carinatum*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
NCWRC	State	Nantahala Game Lands protects portion of headwaters of the Nottely and Hiwassee River sub-basins. Needmore Game Lands protect portion of Little Tennessee River sub-basin. Pisgah Game Lands protects portions of the lower French Broad River watershed.
NC Department of Environmental Quality	State	Outstanding Resource Water (ORW) designation exists for portions of Hiwassee River including Fires Creek and Tusquitee Creek watersheds. In the Little Tennessee River Basin, ORW designation exists for the following watersheds Forney Creek, Lower Fontana, Hazel Creek, and Eagle Creek, and Alarka Creek. In the French Broad River Basin, ORW designation exists for portions of Meadow Fork, Spring Creek, Big Laurel Creek, and lower Cane River watersheds.
NC Clean Water Trust Fund	State	Conservation easements and land ownership along small portions of streams.
US Forest Service and US National Park Service	Federal	Great Smoky Mountains NP protects portions of the Little Tennessee River basin. Nantahala and Pisgah National Forests protect portions of the Hiwassee, Little Tennessee, and French Broad river basins.
Various (e.g., Mainspring Conservation Trust, Conserving Carolina, Southern Appalachian Highlands Conservancy, Blue Ridge Conservancy)	Private	Conservation easements and land ownership along small portions of streams in French Broad River, Little Tennessee, and Hiwassee river basins.

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction and maintenance.

Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance. Alteration and destruction of habitat occurred during Hurricane Helene in 2025.
Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.
Modification, Curtailment	Present	Habitat fragmentation by dams and culverts.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
None known		

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

References

Froese, R. and D. Pauly. Editors. 2024. FishBase. World Wide Web electronic publication. www.fishbase.org

Tracy, B.H., F.C. Rohde, G.M. Hogue. 2020 "An Annotated Atlas of the Freshwater Fishes of North Carolina," Southeastern Fishes Council Proceedings: No. 60.

Siouan Thinlip Chub

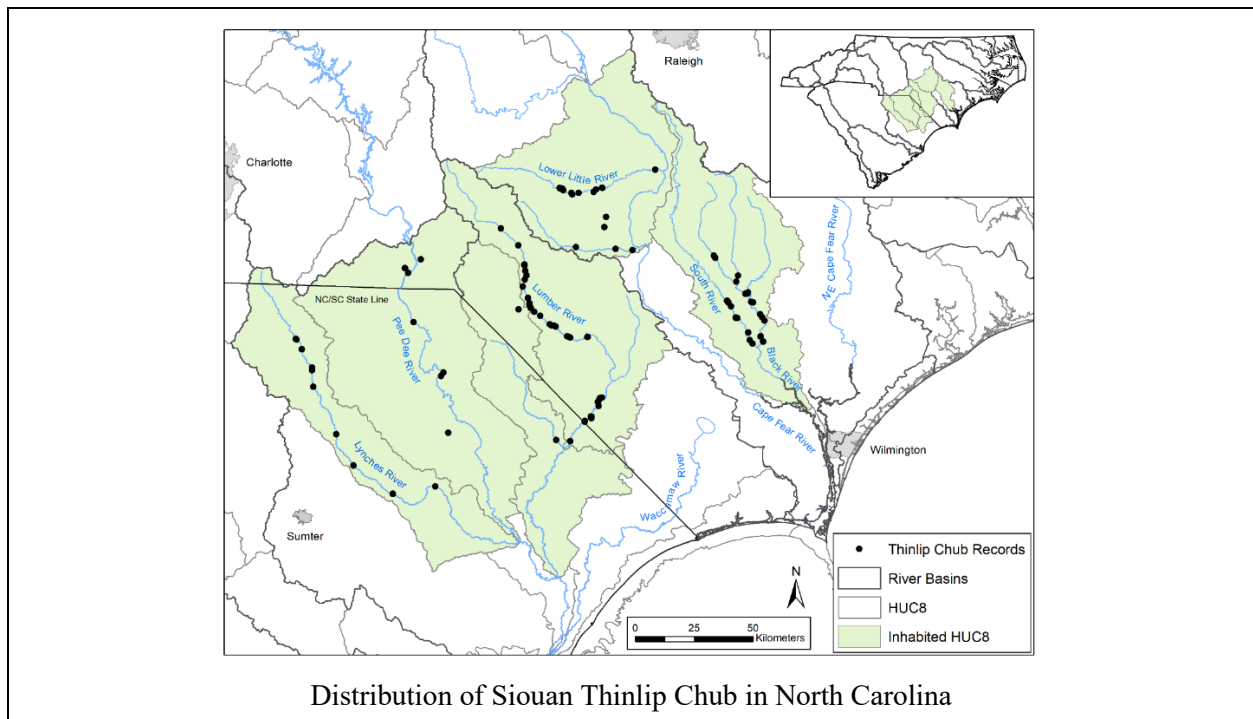
Species Name: Siouan Thinlip Chub <i>Cyprinella leptocheilus</i>	
Current N.C. Status: Special Concern	
Proposed N.C. Status: Threatened	

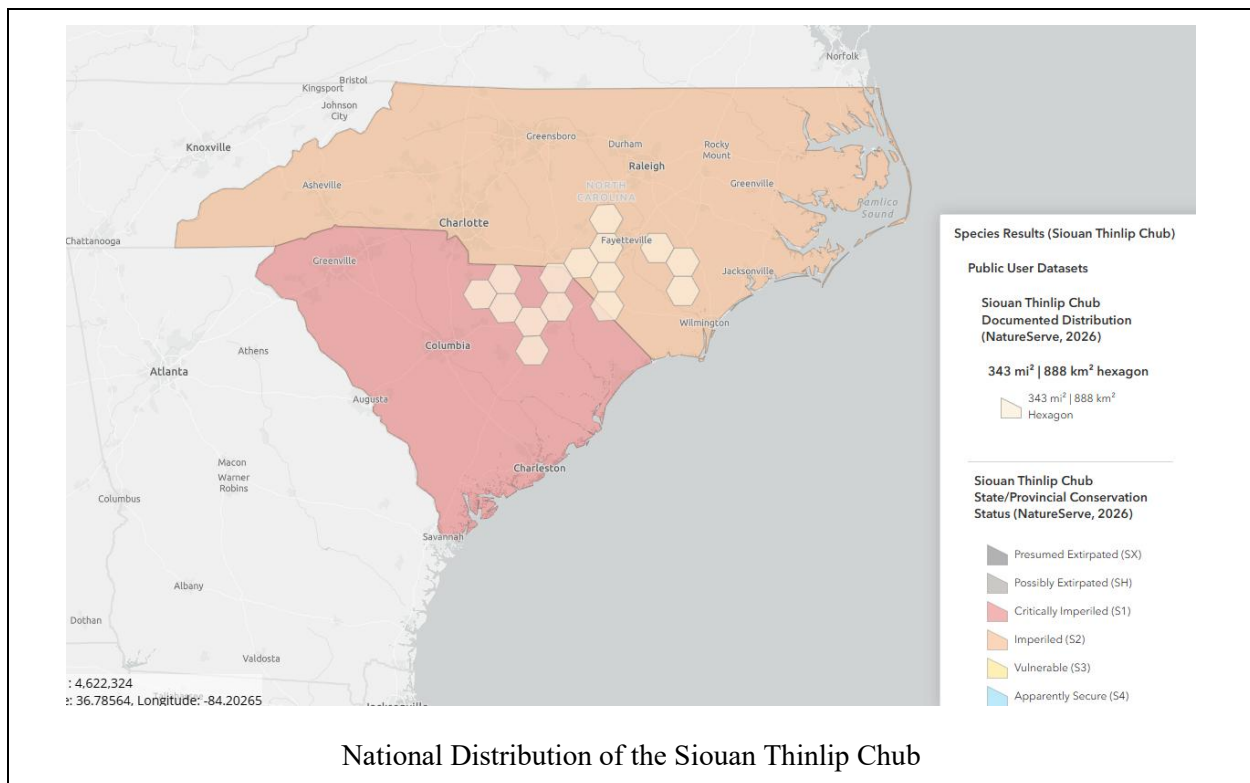
National Status

Entity	Status
USFWS	Not Listed
NatureServe	G2 (Imperiled)
IUCN	Least Concern

Range

Siouan Thinlip Chub are endemic to the Sandhills and Coastal Plain streams of North and South Carolina. In North Carolina, they are found below the Fall Line in the Cape Fear, Pee Dee, and Lumber river basins.





Rationale for Status Change

Siouan Thinlip Chub prior to 1998, occupied 5 HUC8s with an Extent of Occurrence of 2,032 km² (=785 mi²). From 1998 to 2023, it occupied 5 HUC8s with an Extent of Occurrence of 1,746 km² (=674 mi²). The Extent of Occurrence declined 14% and the Area of Occupancy declined 16% in the last 25 years. With an Extent of Occurrence less than 5,000 km² and a 16% decline in Area of Occupancy, the species meets the designated criteria under Geographic Range (Criterion B) using the North Carolina Species Assessment protocol to be uplisted to state Threatened. Threats include habitat fragmentation and predation from invasive species.

Species Status Assessment Summary (Siouan Thinlip Chub)

Criterion	Score	Final Score
A1	Data Deficient	No Finding
A2	No Finding	
A3	Data Deficient	
A4	Data Deficient	
B1	Threatened	Threatened
B2	Threatened	
B(a)	Threatened	
B(b)	True	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Threatened

GS 113-334 (c) Relevant Data and Factual Information

Siouan Thinlip Chub (*Cyprinella leptocheilus*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
US Fish and Wildlife Service	Federal	Small riparian easements along portions of the upper Black River and upper Lumber River.
US National Park Service	Federal	Portions of the Lumber River are designated as the Lumber National Wild and Scenic River.
US Dept of Defense	Federal	Sentinel Landscapes for Fort Bragg and Camp Mackall
NCWRC	State	Sandhills Game Lands protects portions of upper Lumber River.
NC Division of Parks and Recreation	State	Lumber River State Park and Warwick Mill Bay State Natural Area protect portions of the Lumber River.
NC Dept of Agriculture	State	Upper portion of the South River designated as Pondberry Bay Plant Conservation Preserve. Farmland Preservation Trust Fund easements along upper portions of the Lumber River.
NC Department of Environmental Quality	State	Outstanding Resource Water designation for large portions of the Lumber River, South River, and Black River.
Municipalities (City of Lumberton, Sampson County)	State/Local Government	Portions of the Lumber River part of the City of Lumberton Open Space program. Portions of the upper South River part of the Sampson County Open Space program.
NC Clean Water Trust Fund	State	Conservation easements and land ownership along small portions of streams in the Black River, South River, and Lumber River.
Various (e.g., The Conservation Fund, Lumber River Conservancy, The Nature Conservancy, NC Coastal Land Trust)	Private	Conservation easements and land ownership along small portions of streams in Lumber River, Black River, and South River.

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction and maintenance.

Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance.
Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.
Modification, Curtailment	Present	Habitat fragmentation by dams and culverts.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
Predation	High	Invasive predators (invasive catfish)

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

Roanoke Logperch

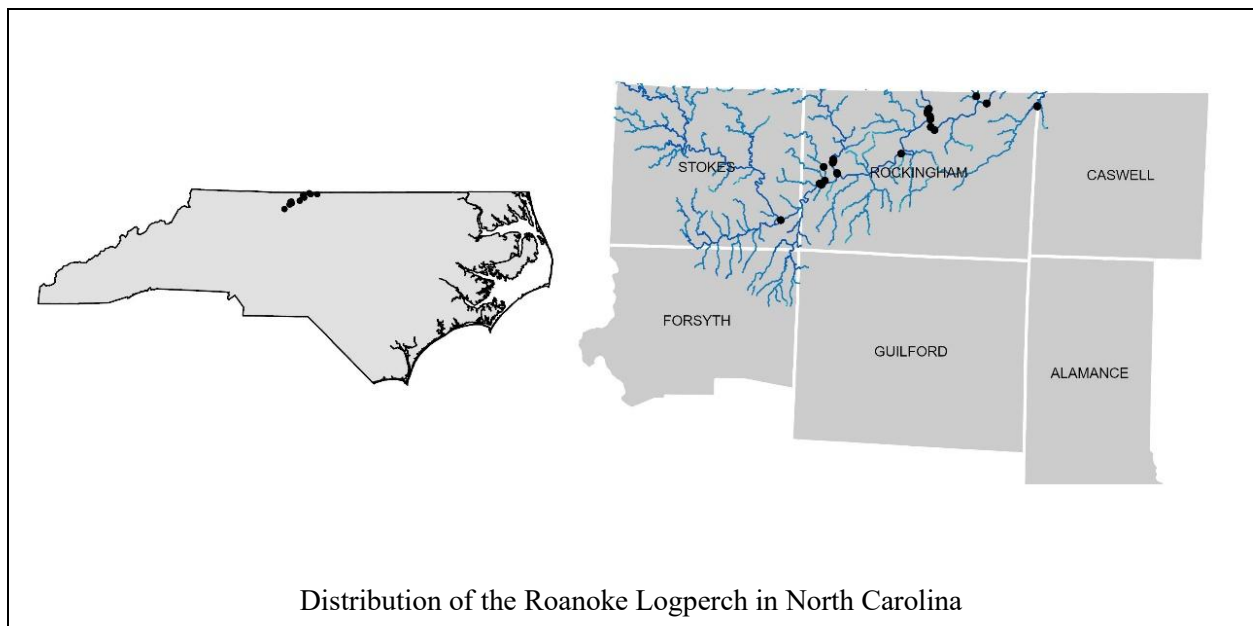
Species Name: Roanoke Logperch, <i>Percina rex</i>	
Current N.C. Status: Endangered	
Proposed N.C. Status: Threatened	

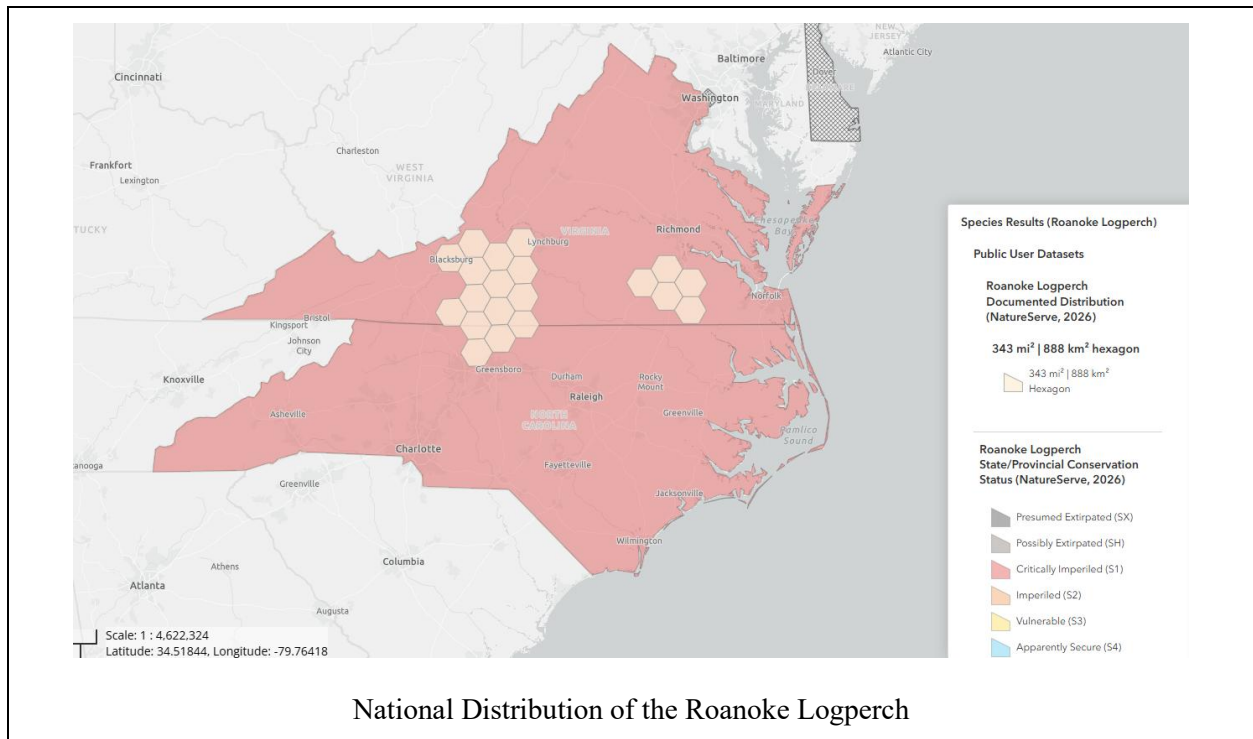
National Status

Entity	Status
USFWS	Not Listed
NatureServe	G2 (Imperiled)
IUCN	Vulnerable

Range

Roanoke Logperch are endemic to the Roanoke, Pigg, Smith, Chowan, and Nottoway River basins in Virginia and in the Dan, Smith, and Mayo River basins within the Roanoke River Basin in North Carolina. In North Carolina, the species occurs in the Dan, Mayo, and Smith Rivers and Big Beaver Island, Cascade, and Wolf Island creeks.





Rationale for Status Change

Roanoke Logperch was previously placed on the State Protected Animal List due to federal protection under the Endangered Species Act. On July 22, 2025, Roanoke Logperch was federally delisted. Roanoke Logperch met the designated criteria under Geographic Range (Criterion B) using the North Carolina Species Assessment protocol to be downlisted to Threatened. Historically (1979 to present), the Extent of Occurrence was 678 km² (= 262 mi²). When comparing historic distribution (pre-2014) and current distribution (2014-2024), the species has undergone a 19% reduction in Extent of Occurrence with known current localities comprising 548 km² (= 212 mi²). Recent surveys (post 2014) of the Wolf Island and Cascade Creek watersheds using eDNA, seining, and backpack electroshocking have not detected the species contributing to decline in EOO and AOO. Restoration activities for the species include stocking in upper Dan River basin, in the Mayo River above Avalon and Washington Mills dams through a Safe Harbor Agreement and augmentation in the Big Beaver Island Creek and Dan River near the Lindsey Bridge dam site. Post monitoring surveys have detected stocked individuals; however, additional time and surveys are needed to evaluate if these populations have fully established. Genetic techniques like eDNA surveys have detected DNA almost 30 river miles above the lowered Lindsey Bridge Dam site, however, surveys in these areas have not produced animals in hand. The reduction in Extent of Occurrence, along with decline in occupancy, and fragmentation of habitat across the species range meets the criteria to be listed as **Threatened**. Continued restoration activities, like surveys, stockings, and dam removals, will aid in the species reaching a stable and secure state.

Species Status Assessment Summary (Roanoke Logperch)

Criterion	Score	Final Score
A1	Data Deficient	Data Deficient
A2	Data Deficient	
A3	Data Deficient	
A4	Data Deficient	
B1	Threatened	Threatened
B2	Threatened	
B(a)	Endangered	
B(b)	True	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Threatened

GS 113-334 (c) Relevant Data and Factual Information

Roanoke Logperch (*Percina rex*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
NC Dept of Cultural and Natural Resources	State	Mayo River State Park protects large portion of the Upper Mayo River watershed. Hanging Rock State Park protects upper portions of the Dan River
US Fish and Wildlife Service	Federal	Properties enrolled in NC Programmatic Safe Harbor Agreement for Roanoke Logperch in the upper Mayo River with NCWRC and land trusts.
NCWRC	State	Dan River Game Lands protect lower portions of the Dan River watershed.
NC Dept of Transportation	State	Mitigation sites owned by the NCDOT potentially protect portions of the upper Dan River watershed.
NC Department of Environmental Quality	State	Outstanding Resource and High Quality Water in Cascade Creek and Indian Creek in Hanging Rock State Park protect water quality for Upper Dan River watershed.
NC Clean Water Trust Fund	State	Conservation easements and land ownership along small portions of streams.
Municipalities (Town of Mayodan, Stokes County, City of Eden, Rockingham County)	State	Various land ownership for open spaces programs protect riparian areas in the upper and lower Dan River, Smith River, and upper Mayo River watersheds.
Various (e.g., Piedmont Land Conservancy)	Private	Conservation easements and land ownership along Dan and Mayo Rivers.

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction and maintenance.
Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance.
Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.
Modification, Curtailment	Present	Habitat fragmentation by dams and culverts.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
None known		

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

Stony Fork Crayfish

Species Name: Stony Fork Crayfish <i>Cambarus lapidosus</i>	
Current N.C. Status: Not Listed	
Proposed N.C. Status: Special Concern	

National Status

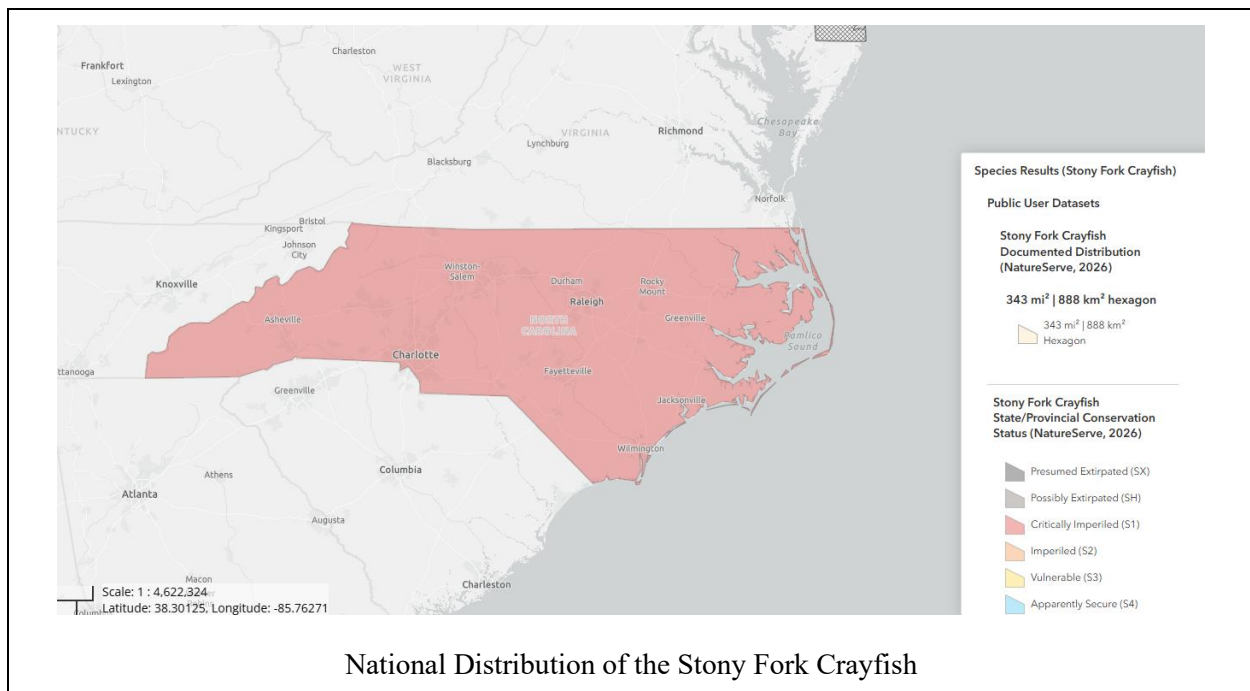
Entity	Status
USFWS	Not Listed
NatureServe	Not Ranked
IUCN	None

Range

The Stony Fork Crayfish is a narrow-ranged species endemic to the upper Yadkin River Basin of western North Carolina and is only known from the upper Stony Fork watershed in Watauga and Wilkes counties. There are no other known extant or historic populations. The species was recently described in 2023 (Perkins et al. 2023).



Distribution of the Stony Fork Crayfish in North Carolina



Rationale for Status Change

The Stony Fork Crayfish is a recently described North Carolina endemic species with a documented distribution of only a few streams in the Blue Ridge mountains. The Extent of Occupancy and Area of Occupancy of this species are both less than 10 km² (=3.9 mi²). The distribution of the species meets the criteria for a listing status of **Special Concern** based on Criterion D: Very Small or Restricted Population with a restricted AOO of less than 20 km² and only one known location. The species appears stable where present. However, given the highly restricted range of the Stony Fork Crayfish, current and emerging threats identified during sampling efforts (i.e., logging operations in the headwater areas of Stony Fork) pose substantial risks to persistence of the species over even a short time span. A state listing status of Special Concern supports continued monitoring of the taxon to fill any remaining data gaps and monitor the limited habitat within the species range.

Species Status Assessment Summary (Stony Fork Crayfish)

Criterion	Score	Final Score
A1	Data Deficient	Data Deficient
A2	Data Deficient	
A3	Data Deficient	
A4	Data Deficient	
B1	Endangered	Data Deficient
B2	Endangered	
B(a)	Endangered	
B(b)	Data Deficient	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Special Concern

GS 113-334 (c) Relevant Data and Factual Information

Stony Fork Crayfish (*Cambarus lapidosus*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
None known.		

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction, use, and maintenance.
Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance.
Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
Disease	Low	Porcelain Disease and Crayfish Plague

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

References

Perkins MA, Williams BW, and Russ WT. 2023. Integrative taxonomy reveals two new narrowly-endemic crayfish species (Decapoda: Cambaridae) from the Yadkin River Basin in western North Carolina, USA. *Zootaxa* 5270 (2): 207–230.

Falls Crayfish

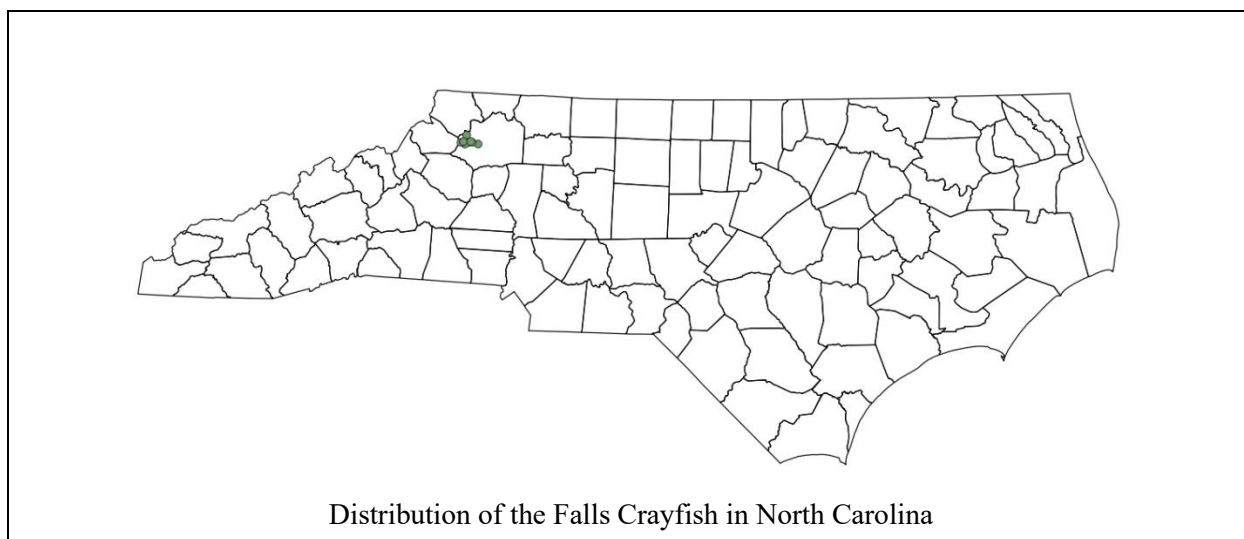
Species Name: Falls Crayfish <i>Cambarus burchfielae</i>	
Current N.C. Status: Not Listed	
Proposed N.C. Status: Special Concern	

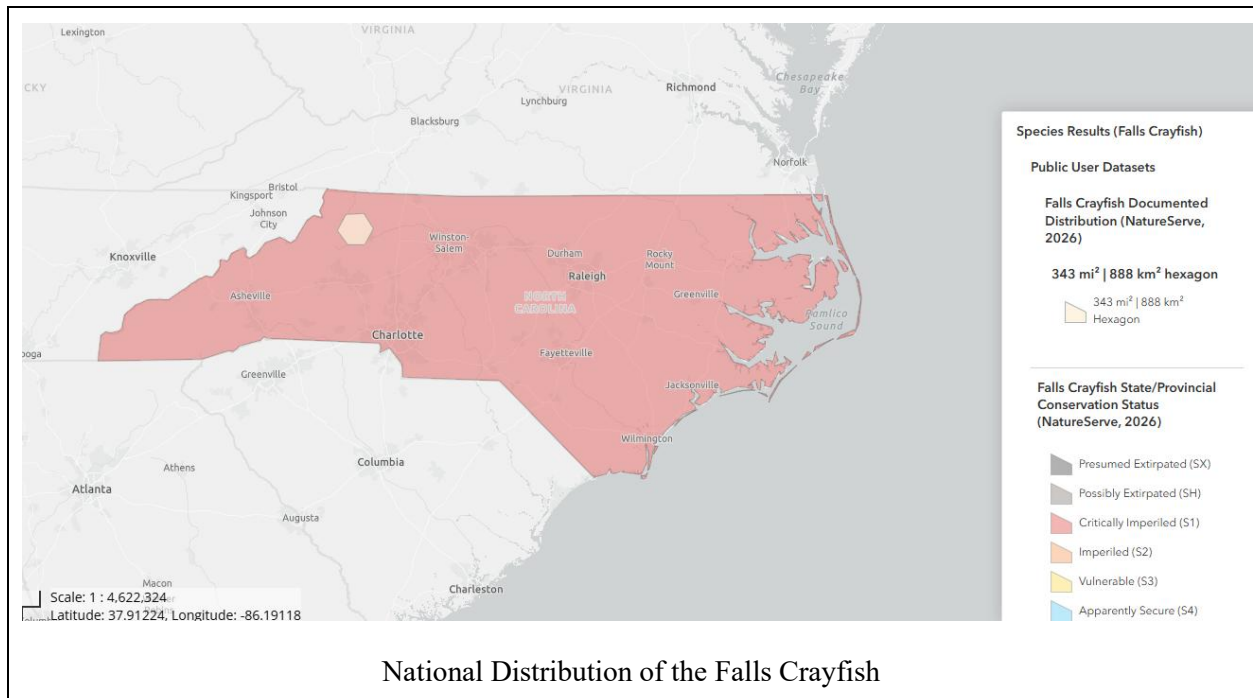
National Status

Entity	Status
USFWS	Not Listed
NatureServe	Not Ranked
IUCN	None

Range

The Falls Crayfish is endemic to the upper Yadkin River Basin of western North Carolina and is only known from the upper Lewis Fork watershed in Wilkes County. There are no other known extant or historic populations. The species was recently described in 2023 (Perkins et al 2023).





Rationale for Status Change

The Falls Crayfish is a recently described North Carolina endemic species with a documented distribution of only a few streams in the Blue Ridge mountains. The Extent of Occupancy and Area of Occupancy of this species are both less than 100 km² (=38.6 mi²). The distribution of the species meets the criteria for a listing status of **Special Concern** based on Criterion D: Very Small or Restricted Population with a restricted AOO of less than 20 km² and only one known location. The species appears stable where present. However, given the highly restricted range of the Falls Crayfish, current and emerging threats identified during sampling efforts (i.e., increased agriculture and logging operations) pose substantial risk to persistence of the species over even a short time span. A state listing status of Special Concern supports continued monitoring of the taxon to fill any remaining data gaps and monitor the limited habitat within the species range.

Species Status Assessment Summary (Falls Crayfish)

Criterion	Score	Final Score
A1	Data Deficient	Data Deficient
A2	Data Deficient	
A3	Data Deficient	
A4	Data Deficient	
B1	Endangered	Data Deficient
B2	Endangered	
B(a)	Endangered	
B(b)	Data Deficient	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Special Concern

GS 113-334 (c) Relevant Data and Factual Information

Falls Crayfish (*Cambarus burchfieldae*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
US National Park Service	Federal	The Blue Ridge Parkway protects a very small portion of the upper most section of the Falls Creek watershed.
NC Clean Water Trust Fund	State	Land ownership of a small tract protect a portion of the upper section of the Falls Creek watershed
NC Forest Service	State	Rendezvous State Forest protects headwater reaches of Little Fork and Purllear Creeks of the North Prong Lewis Fork.

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction and maintenance.
Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance.
Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
Disease	Low	Porcelain Disease and Crayfish Plague

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

References

Perkins MA, Williams BW, and Russ WT. 2023. Integrative taxonomy reveals two new narrowly-endemic crayfish species (Decapoda: Cambaridae) from the Yadkin River Basin in western North Carolina, USA. *Zootaxa* 5270 (2): 207–230.

Uwharrie Elktoe

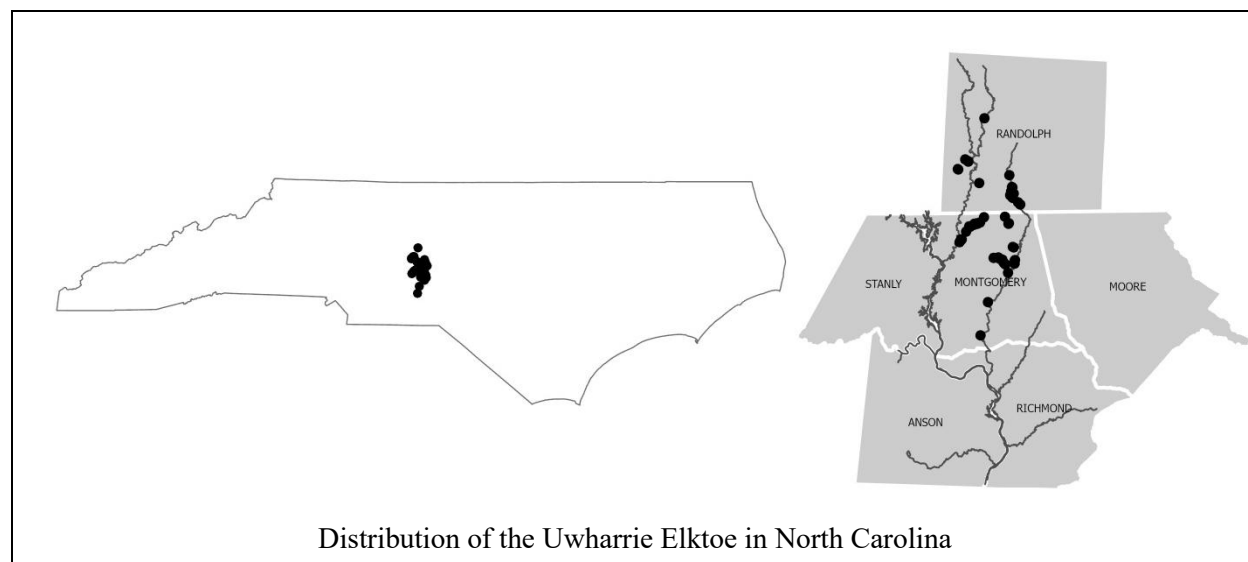
Species Name: Uwharrie Elktoe, <i>Alasmidonta uwharriensis</i>	
Current N.C. Status: Not Listed	
Proposed N.C. Status: Threatened	

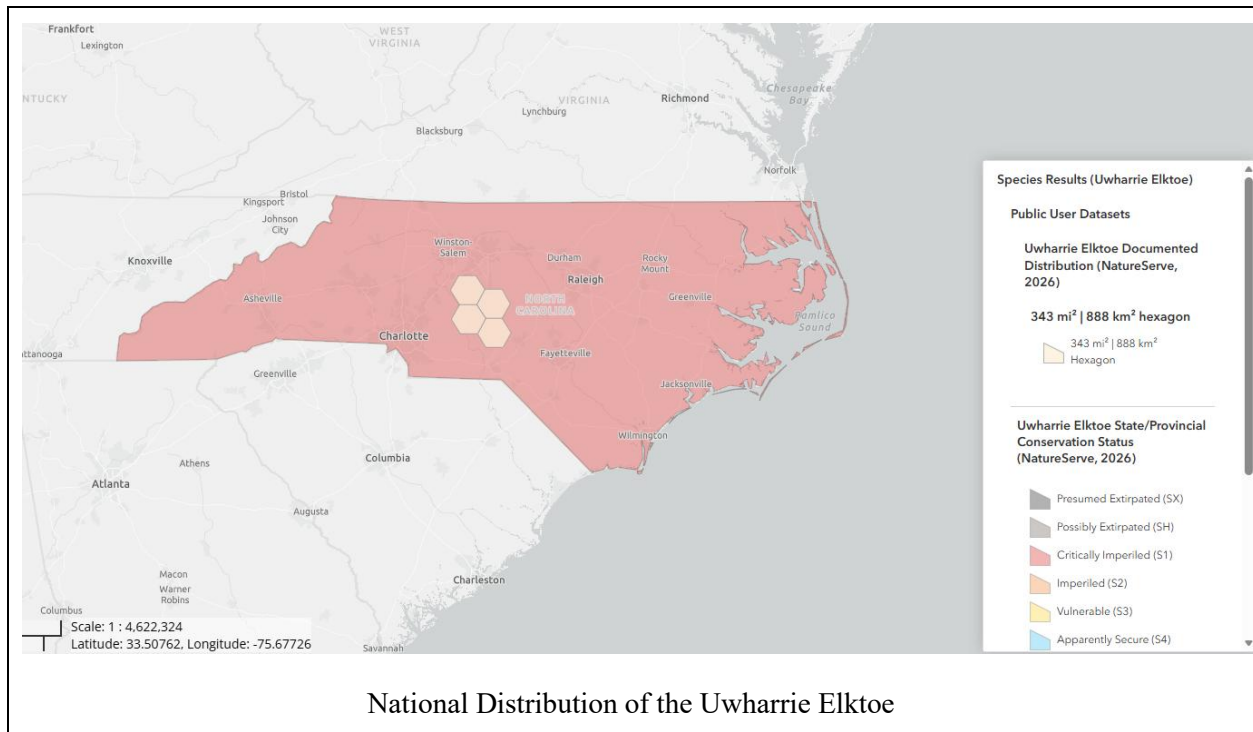
National Status

Entity	Status
USFWS	Not Listed
NatureServe	G1 (Critically Imperiled)
IUCN	None

Range

The Uwharrie Elktoe, *Alasmidonta uwharriensis*, is endemic to the Uwharrie River watershed in Montgomery and Randolph counties in North Carolina. The Uwharrie River is a tributary to the Yadkin-Pee Dee River basin. The species was recently described in 2023 (Whelan et al. 2023). The current range is in tributaries of the Uwharrie River including Barnes, Toms, Poison, Hannahs, Carraway, Second, and South Fork Second creeks. The species also occurs in the the Little River, and its tributaries including Densons, Dumas, Reed, and Rocky creeks as well as West Fork Little River.





Rationale for Status Change

The Uwharrie Elktoe was recently described in 2023. Previously the species was presumed to be another species, Brook Floater, within the Uwharrie watershed. Analysis of the historical records of the species in the Uwharrie watershed using museum shell records, life history studies, and genetics revealed that records within the Uwharrie River basin watershed are the newly described species and the Brook Floater is no longer considered to be in the Uwharrie River watersheds. The species meets the criteria for **Threatened** under Criteria B. The Extent of Occurrence (EOO) for the species is less than 5,000 km² and the Area of Occupancy is less than 500 km², with fewer than 5 known locations in the state. Historically (pre-2014), the EOO of the species was 1,140 km² (= 440 mi²) and the Area of Occupancy (AOO) was 34 km² (= 13 mi²). Recent data (2014-2024) show the EOO has declined to 826 km² (= 319 mi²) and 30 km² (= 12 mi²), a 20% and 9% reduction in EOO and AOO respectively. Given the highly restricted range of the Uwharrie Elktoe, current and emerging threats of land-use changes associated with rapid population growth and urban sprawl, particularly in the upper reaches of the watershed, pose substantial risk to persistence of the species over even a short time span.

Species Status Assessment Summary (Uwharrie Elktoe)

Criterion	Score	Final Score
A1	Data Deficient	No Finding
A2	No Finding	
A3	Data Deficient	
A4	Data Deficient	
B1	Threatened	Threatened
B2	Threatened	
B(a)	Threatened	
B(b)	True	
C	Data Deficient	Data Deficient
C1	Data Deficient	
C2	Data Deficient	
D1	Data Deficient	Special Concern
D2	Special Concern	
E	Data Deficient	Data Deficient
Regional Correction	None	None
Final Result		Threatened

GS 113-334 (c) Relevant Data and Factual Information

Uwharrie Elktoe (*Alasmodonta uwharriensis*)

1. Are any other State or Federal agencies or Private Entities taking steps to protect the wild animal which is the subject of the proposal?

Agency/Private Entity	Agency/Entity Type (Fed., State, Private)	Protection
U.S. Forest Service	Federal	Uwharrie National Forest protects portions of Uwharrie River and its tributaries.
NC Dept of Cultural and Natural Resources	State	Morrow Mountain State Park protects portions of the Uwharrie River watershed.
US Fish and Wildlife Service	Federal	Critical habitat for the Atlantic Pigtoe Mussel protects portions of the West Fork Little River watershed.
NCWRC	State	Uwharrie Game Lands protect upper portions of the Uwharrie River watershed.
NC Dept of Agriculture	State	Various land ownership for plant conservation preserves that protect riparian areas and Farmland Preservation Trust Fund Easements.
NC Department of Environmental Quality	State	Outstanding Resource Water designation in portions of the Little River, Rocky, Densons, and Barnes creek watersheds protect water quality for portion of the species range. Easements and land ownership as part of the Stewardship Program protect riparian areas in the Densons and Barnes Creek watershed and upper Uwharrie River.
NC Clean Water Trust Fund	State	Conservation easements and land ownership along small portions of streams.
Municipalities (Montgomery County, Town of Troy, City of Asheboro)	State	Various land ownership for open spaces programs protect some riparian areas in Little River watershed
Various (e.g., Three Rivers Land Trust, Piedmont Land Conservancy)	Private	Conservation easements and land ownership along small portions of Uwharrie River watershed and tributaries.

2. Is there present or threatened destruction, modification, or curtailment of its habitat?

Type of Impact (Destruction, Modification, Curtailment)	Occurrence (Present, Threatened)	Description
Destruction, Modification, Curtailment	Present, Threatened	Water quality degradation from chemical and excess nutrient pollution, agriculture, logging, residential and commercial development, and road construction and maintenance.
Destruction, Modification, Curtailment	Present, Threatened	Siltation and physical habitat degradation from stormwater, agriculture, logging, residential and commercial development, channel clearing and snagging, and road construction and maintenance.

Modification, Curtailment	Present, Threatened	Flow reduction or alteration from agriculture and water supply withdrawals. Could be exacerbated by climate change.
Modification, Curtailment	Present	Habitat fragmentation by dams and culverts.

3. Is there the potential for over-utilization for commercial, recreational, scientific, or educational purposes?

Type of Over-Use (Commercial, Recreational, Scientific, Educational)	Potential (Low, High)	Description
None known		

4. Is there the potential for critical population depletion from disease, predation, or other mortality factors?

Type of Depletion (Disease, Predation, Other)	Potential (Low, High)	Description
Unknown		

5. Are there alternative regulatory mechanisms?

Agency	Agency Type (Federal, State)	Regulatory Mechanism
None known		

6. Are there other man-made factors that can affect continued viability of the animal in the State?

Other Man-Made Factor
None known

References:

Whelan, N. V., N. A. Johnson, A. Williams, M. A. Perkins, C. E. Beaver, and J. W. Mays. 2023. Hidden in the hills: phylogeny of the freshwater mussel genus *Alasmodonta* (Bivalvia: Unionidae) and description of a new species. *Zoological Journal of the Linnean Society* 2023:1–17.