

Addendum to Revised Programmatic Biological/Conference Opinion

Bridge and Culvert Replacements/Repairs/Rehabilitations in Eastern North Carolina, NCDOT Divisions 1-8

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Prepared by:

U.S. Fish and Wildlife Service
Raleigh Field Office
P.O. Box 33726
Raleigh, NC 27636-3726

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[NAME, TITLE]

Date

CONSULTATION HISTORY

This section lists key events and correspondence during the course of this consultation. A complete administrative record of this consultation is available from the U.S. Fish and Wildlife Service's (Service) Raleigh Field Office.

2019-09-11 – The Service issued the *Revised Programmatic Biological/Conference Opinion (PBO) for Bridge and Culvert Replacements/Repairs/Rehabilitations in Eastern North Carolina, NCDOT Divisions 1-8*.

2020-02-06 – The Service proposed critical habitat for the Yellow Lance.

2020-02-10 – The Service began email and phone discussions with the North Carolina Department of Transportation (NCDOT) to address Section 7 for the proposed critical habitat.

2021-04-01 – The Service provided comments to NCDOT on a draft addendum to the Programmatic Biological Assessment (PBA).

2021-04-08 – The Service issued a final rule listing critical habitat for the Yellow Lance.

2021-04-29 – The Service received the final addendum to the PBA and a letter from the Federal Highway Administration (FHWA) and US Army Corps of Engineers (USACE) requesting initiation of formal Section 7 consultation for Yellow Lance critical habitat.

2021-05-04 – The Service provided the FHWA, USACE, and NCDOT with a draft addendum to the PBO.

ADDENDUM TO REVISED PROGRAMMATIC BIOLOGICAL OPINION

1. YELLOW LANCE CRITICAL HABITAT

1.1. Status of Yellow Lance Critical Habitat

This section summarizes best available data about the current condition of all units of critical habitat for Yellow Lance (YL, *Elliptio lanceolata*) that are relevant to formulating an opinion about the Action. The Service published its rule to designate critical habitat for YL on April 8, 2021 (86 FR 18189-18215).

1.1.1. Description of YL Critical Habitat

Critical habitat for YL is comprised of approximately 319 river miles in 11 units. All of the units are currently occupied by the species and contain all of the physical and biological features (PBFs) essential to the conservation of the species. See 86 FR 18195-18197 for more detailed information on individual units. The critical habitat provides the following PBFs essential to the conservation of the YL (86 FR 18193).

1. Suitable substrates and connected instream habitats, characterized by geomorphically stable stream channels and banks (*i.e.*, channels that maintain lateral dimensions, longitudinal profiles, and sinuosity patterns over time without an aggrading or degrading bed elevation) with habitats that support a diversity of freshwater mussel and native fish (such as stable riffle-run-pool habitats that provide flow refuges consisting of silt-free gravel and coarse sand substrates).
2. Adequate flows, or a hydrologic flow regime (which includes the severity, frequency, duration, and seasonality of discharge over time), necessary to maintain benthic habitats where the species is found and to maintain connectivity of streams with the floodplain, allowing the exchange of nutrients and sediment for maintenance of the mussel's and fish hosts' habitat, food availability, spawning habitat for native fishes, and the ability for newly transformed juveniles to settle and become established in their habitats.
3. Water and sediment quality (including, but not limited to, conductivity, hardness, turbidity, temperature, pH, ammonia, heavy metals, and chemical constituents) necessary to sustain natural physiological processes for normal behavior, growth, and viability of all life stages.
4. The presence and abundance of fish hosts necessary for recruitment of the YL.

1.1.2. Conservation Value of YL Critical Habitat

The current distribution of the YL is reduced from its historical distribution. We anticipate that recovery will require continued protection of existing populations and habitat, as well as ensure there are adequate numbers of mussels in stable populations and that these populations occur over a wide geographic area. This strategy will help to ensure that catastrophic events, such as

floods, which can cause excessive sedimentation, nutrients, and debris to disrupt stream ecology, cannot simultaneously affect all known populations. Range-wide recovery considerations, such as maintaining existing genetic diversity and striving for representation of all major portions of the species' current range, were considered in formulating this critical habitat. All of the units are currently occupied by the species and contain all of the PBFs essential to the conservation of the species (86 FR 18189-18215).

1.1.3. Conservation Needs for YL Critical Habitat

The features essential to YL conservation may require special management considerations or protections to reduce the following threats: (1) reduction in water quality, quantity, and resulting sedimentation as a result of urbanization of the landscape, including land conversion for urban and commercial use, infrastructure (roads, bridges, utilities), and urban water uses (water supply reservoirs, wastewater treatment, etc.); (2) nutrient pollution from agricultural activities that impact water quantity and quality; (3) significant alteration of water quality; (4) sedimentation from incompatible forest management or clearcuts in riparian areas; (5) culvert and pipe installations that create barriers to instream movement; (6) impacts from invasive species; (7) changes and shifts in seasonal precipitation patterns as a result of climate change; and (8) other watershed and floodplain disturbances that release sediments or nutrients into the water. Management activities that could ameliorate these threats include: use of best management practices designed to reduce sedimentation, erosion, and bankside destruction; protection of riparian corridors and leaving sufficient canopy cover along banks; moderation of surface and ground water withdrawals to maintain natural flow regimes; increased use of stormwater management and reduction of stormwater flows into the systems; and reduction of other watershed and floodplain disturbances that release sediments, pollutants, or nutrients into the water (86 FR 18189-18215).

1.2. Environmental Baseline for YL Critical Habitat

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of critical habitat for YL within the Programmatic Action Area. The environmental baseline is a "snapshot" of the condition of the PBFs that are essential to the conservation of the species within critical habitat of the Programmatic Action Area at the time of the consultation, and does not include the effects of the Action under review.

1.2.1. Programmatic Action Area Conservation Value of YL Critical Habitat

Of the total 319 river miles of critical habitat for the YL, approximately 193 river miles are located within the Programmatic Action Area. This represents 5 of 11 units (see table below). These units currently support all breeding, feeding, and sheltering needs of the species.

Critical Habitat Units Within Programmatic Action Area

Unit	Streams in Unit	Counties in Unit
TR1	Tar River	Granville, Vance, Franklin, Nash
TR2	Sandy/Swift Creek	Vance, Franklin, Nash, Warren, Halifax
TR3	Fishing Creek Sub-basin	Vance, Franklin, Nash, Warren, Halifax
NR1	Swift Creek	Wake and Johnston
NR2	Little River	Johnston

1.2.2. Programmatic Action Area Conservation Needs for YL Critical Habitat

See 86 FR 18196-18197 for detailed information on the conservation needs of the five critical habitat units within the Programmatic Action Area.

1.3. Effects of the Action on YL Critical Habitat

This section analyzes the direct and indirect effects of the Action on critical habitat for YL, which includes the direct and indirect effects of interrelated and interdependent actions. Direct effects are caused by the Action and occur at the same time and place. Indirect effects are caused by the Action, but are later in time and reasonably certain to occur. Our analyses are organized according to the description of the Action in Section 2 of the Revised Programmatic Biological/Conference Opinion (PBO, dated September 11, 2019). NCDOT estimates that 32 individual projects over 10 years will likely occur within YL critical habitat.

1.3.1. Effects of In-Water Work on YL Critical Habitat

The primary potential effect of in-water work to critical habitat is the resuspension of sediment when existing in-water structures are removed (i.e. bents and abutments). This resuspended sediment is transported downstream where it redeposits on the substrate. Although sediment transport is a normal process within a stream's flow regime (Poff et al. 1997), redeposited sediment could affect, at least temporarily, PBF numbers 1, 3, and 4 (see Section 1.1.1 above). However, NCDOT's use of BMPs (NCDOT 2003, 2014, 2015) will greatly minimize these effects. As such, these effects to the PBFs are expected to be minor and temporary, and thus would not appreciably diminish the value of the PBFs.

Almost all existing NCDOT bridges are replaced with bridges that are longer and have either no bents in the water or with a reduced number of bents in the water. With increased bridge lengths, some existing fill in the floodplain for approach roads is often removed. This, along with removing or reducing the number of bents in the channel, generally has the effect of removing unnatural constriction points in the stream which often cause scouring of the banks or channel. Therefore, the replacement of bridges has the potential for long-term improvement of PBFs by reducing erosion and redeposition of sediment.

1.3.2. Effects of Land-Based Work on YL Critical Habitat

All bridge and culvert replacements involve some degree of earthwork along approach roads and adjacent stream banks. These disturbed areas create the potential to erode sediment into the

stream and affect PBF numbers 1, 3, and 4. However, NCDOT has developed stringent erosion control measures (see Section 2.5 of PBO) which greatly minimize sediment entering the stream. Assuming the proper installation and maintenance of these erosion control measures, such effects to the PBFs are expected to be minor and temporary, and thus would not appreciably diminish the value of the PBFs.

1.3.3. Effects of Post-Construction Activities on YL Critical Habitat

Since most post-construction activities described in this Action are related to permanent BMPs that are designed to protect water quality and/or to stabilize a construction site, their effects on YL critical habitat are expected to be beneficial.

1.3.4. Effects of Conservation Measures on YL Critical Habitat

The Conservation Measures, in part, are designed to reduce sedimentation effects. Therefore, their effects on YL critical habitat are expected to be beneficial.

1.3.5. Effects of Interrelated and Interdependent Actions on YL Critical Habitat

Utility relocations necessitated by bridge and culvert replacements could provide a potential source of additional, but likely minor (assuming directional boring of stream), sediment input into a stream. This sediment input into the stream could potentially affect PBF numbers 1, 3, and 4. However, the use of proper sediment and erosion control measures will greatly minimize this potential. Offsite use areas such as waste and borrow areas are unlikely to be located adjacent to a stream with designated critical habitat. However, should a contractor opt to pursue such a location, additional coordination would be required.

1.4. Cumulative Effects on YL Critical Habitat

We are not aware of any non-Federal actions in the Programmatic Action Area that may affect critical habitat. Therefore, cumulative effects are not relevant to formulating our opinion for the Action.

1.5. Conclusion for YL Critical Habitat

In this section, we summarize and interpret the findings of the previous sections for YL critical habitat (status, baseline, effects, and cumulative effects) relative to the purpose of a PBO under §7(a)(2) of the ESA, which is to determine whether a Federal action is likely to:

- a) jeopardize the continued existence of species listed as endangered or threatened; or
- b) result in the destruction or adverse modification of designated critical habitat.

“*Destruction or adverse modification*” means a direct or indirect alteration that appreciably diminishes the value of designated critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the PBFs essential to the conservation of a species or that preclude or significantly delay development of such features (50 CFR §402.02).

Of the total 319 river miles of critical habitat for the YL, approximately 193 (60.5%) occur within the Programmatic Action Area. NCDOT estimates that 32 projects are likely to occur within YL critical habitat over 10 years. Some adverse effects to critical habitat may occur from movement of sediment within the stream or from input of sediment into the stream, thus potentially affecting PBF numbers 1, 3, and 4. However, implementation of conservation measures as part of the Action will greatly minimize these effects. All such effects are expected to be minor and temporary, and thus will not appreciably diminish the value of the PBFs.

After reviewing the current status of the critical habitat, the environmental baseline for the Programmatic Action Area, the effects of the Action, and the cumulative effects, it is the Service's biological opinion that the Action is not likely to destroy or adversely modify critical habitat for YL.

2. REINITIATION NOTICE

Formal consultation for the Action considered in the PBO regarding YL critical habitat is concluded. Reinitiating consultation is required if the FHWA and USACE retain discretionary involvement or control over the Action (or is authorized by law) when:

- a. the amount or extent of incidental take is exceeded;
- b. new information reveals that the Action may affect listed species or designated critical habitat in a manner or to an extent not considered in the PBO;
- c. the Action is modified in a manner that causes effects to listed species or designated critical habitat not considered in the PBO; or
- d. a new species is listed or critical habitat designated that the Action may affect.

3. LITERATURE CITED

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