**“Foresters for Healthy Waters” Program Handbook**

Ver.2, March 2022

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# **Part 1. Program Description**

*Foresters for Healthy Waters* is a time-limited, localized pilot project cooperatively developed by the N.C. Forest Service (NCFS) and the U.S. Fish and Wildlife Service (USFWS) to protect habitat for rare aquatic species during forest harvest operations in the Neuse and Tar river basins of North Carolina.

**Purpose**: Support the preparation of Pre-Harvest Plans (a type of forest management practice plan) which demonstrate strategic, holistic recommendations to implement measures that go ‘above & beyond’ existing baseline requirements for protecting water quality.

**Goal**: Insure rivers and streams on forestlands remain in good condition to support habitat needs for multiple rare aquatic species; see Part 2, Table 1.

**Location**: Edgecombe, Franklin, Granville, Halifax, Nash, Vance, and Warren counties; see Map 1.

**Objectives**:

1. Engage and educate forestry practitioners and forest landowners for improved awareness about imperiled aquatic life in central North Carolina.
2. Promote enhanced harvest planning that addresses measures for protecting water quality and aquatic habitat for rare, at-risk, or listed species; while meeting the landowner’s objectives and supporting the sustainability of working/managed forestlands.
3. Cost-share the expense to landowners for receiving a qualifying Pre-Harvest Plan.

**Eligible Landowners**: Non-industrial private forestland owners; see Part 4.

**Eligible Plan Writers**: Private sector professionals who complete training through this Program; see Part 5.

**Minimum Area Size**: 10 acres (contiguous).

**Cost Share Rates**: Reimbursement is based on acreage; see Part 6, Table 2.

**Cost-Share Availability Start Date**: July 1, 2021.

**Benefits**: Landowners who voluntarily participate will receive reimbursement for the cost of having a qualifying Pre-Harvest Plan prepared for their pending timber harvest (maximum of 3 plans per owner). As a result, when streams are protected from harmful impacts, aquatic life is conserved and biodiversity is sustained through well-implemented forest management practices.

The intent is for this Pre-Harvest Plan to demonstrate a higher level of due-diligence for protecting water resources by identifying alternative methods or extra measures that may offer lower-risks and reduced impacts to water quality, as compared with traditional practices. Listed below are some examples of alternatives to consider:

* Avoid crossing streams entirely, either by accessing timber from the other side of the stream or foregoing harvest on the opposite side. If a crossing is needed, use bridgemats.
* Remove old, obsolete, or sub-standard culverts no longer needed; and stabilize the channel.
* Establish SMZs/stream buffers that exceed minimum regulatory requirements.
* Restrict entry and disturbance within the SMZ/stream buffer, leaving it un-disturbed.
* Use low-ground-pressure equipment or tactics during logging, making sure sensitive areas are well-marked for the logger to recognize them.
* Allow prescribed fire to burn through the stream buffer instead of plowing or blading a line along the stream. Or, install firelines using low-impact methods (ex: hand-lines; mowed, disked, or mulched lines).

Usually, these alternative methods cost more to implement than traditional methods, and this cost difference should be explained to the landowner; but balanced against the potentially higher degree of water resource and aquatic habitat protection they can achieve.

# **Part 2. Background**

Since the passage of the federal Clean Water Act in 1972, Best Management Practices (BMPs) have been developed and deployed to protect the physical, chemical, and biological conditions of the nation’s waters. Much work has been accomplished with BMPs to address physical and chemical conditions. While those two parameters remain important, going forward there will likely be more attention on how BMPs can address biological conditions.

**The connection is straightforward: improvements or protections to water quality also protect the habitat needs for aquatic life**.

Many aquatic species, especially freshwater mussels, are negatively impacted by siltation or sedimentation, excessive nutrients, adverse stream water temperatures, and physical disruptions (obstruction or dis-connection) of the stream they inhabit.

The federal Endangered Species Act also protects federally-listed Threatened and Endangered (T&E) species. Several T&E and at-risk aquatic species occur within this project’s area.

Definition of Terms:

*Endangered*: Species is at risk of becoming extinct in the foreseeable future.

*Threatened*: Species is at risk of becoming Endangered in the foreseeable future.

*At-Risk*: Species is in decline and may warrant listing as either Threatened or Endangered, but has not yet been listed.

Listed below are the aquatic species of interest in the *Foresters for Healthy Waters* Project; all of which occur within the project area, and elsewhere across central and eastern North Carolina.

**Table 1. Federally listed and at-risk aquatic animal species that occur in this project’s area.**

|  |  |  |
| --- | --- | --- |
| **Animal Type** | **Species Name** | **Listing Status** |
| Fish | Carolina Madtom | Endangered (effective 7/09/21) |
| Permanently aquatic salamander | Neuse River Waterdog | Threatened (effective 7/09/21) |
| Freshwater mussel | Dwarf Wedgemussel | Endangered |
| Freshwater mussel | Tar River Spinymussel | Endangered |
| Freshwater mussel | Yellow Lance | Threatened |
| Freshwater mussel | Atlantic Pigtoe | Threatened (effective 12/16/21) |
| Freshwater mussel | Green Floater | At-Risk |

# **Part 3. Aquatic Species Habitat Needs**

This section briefly explains the fundamental needs required by the aquatic species of interest.

All streams provide habitat for some aquatic species. Degradation of in-stream habitat is a primary reason for the decline of the species listed in Table 1. Some streams in the *Foresters for Healthy Waters Program* area are designated as “Critical Habitat” for Federally-listed T&E species. This means that the associated species is known to exist in the designated waterway, and that waterway is essential for the continued conservation and survival of that species.

**Even if a landowner’s stream is not a “Critical Habitat”, sediment pollution can impact downstream waterways in a watershed**. Some at-risk species may inhabit streams that are not designated as “Critical Habitat”. Poorly installed culverts or other obstructions can block the movement of aquatic life. Culverts can also intensify the stream flow discharge out from the pipe, altering the stream’s structure and modifying the habitat. Aquatic organism passage in streams is vital for the animals to find food sources, make nests, maintain a diverse gene pool, and disperse their habitat. If isolated, the species is more vulnerable to stressors. This highlights the important connection between sustainable forest management, the use of BMPs, and protection of habitat conditions in streams and rivers.

**All of the animals listed in Table 1 require:**

* Streams with unobstructed and regular flow of clean, unpolluted, silt-free water.
* Stream-bottom habitat of coarse sand, gravel, or rock that is free of fine silt or sediment.
* Well-oxygenated water free from excessive/harmful algae.
* Stream temperature that does not fluctuate widely from normal seasonal variations.

Mussels live in the streambed, do not move much within the stream, and they emerge to feed in the water. They rely upon fishes to host their larvae for development and dispersal as a critical step in their life cycle. Similar to mussels, the Carolina Madtom (fish) and Neuse River Waterdog (salamander) live at the water/streambed interface where they feed on aquatic insects and other animals. A silt-free stream bottom is essential where they lay eggs and guard their nests.

**A key stressor to all of the aquatic species of interest is habitat degradation – especially from sedimentation and impaired water quality**. Sedimentation can smother fish and salamander eggs resulting in failed reproduction; it can clog the gills of mussels and salamanders, causing physical damage or suffocation; and it can interfere with the filter feeding of mussels. Sedimentation also fills up the small spaces in the streambed, resulting in habitat conditions that cannot support these species. Some land-based pesticides are especially toxic to aquatic animals. Chemical pollution can kill aquatic species; compromise immune systems; impair reproduction; or reduce growth – all of which are detrimental to species conservation and recovery.

# **Part 4. Eligible Tracts and Ownerships**

Tract eligibility requirements are listed below, all 3 items must be met:

1. **Area of harvest must be 10 acres or more.**
	1. This includes the SMZ/stream buffer area.
	2. The 10 acres must be contiguous.
2. **Timber harvest is expected in the next 1 to 3 years.**
	1. Commercial thinning is also eligible. Precommerical thinning is not.
3. **The harvested area will continue as a forest.**
	1. This may include natural or artificial regeneration.

Any eligible tract in a participating county is eligible, regardless of what River Basin it is located in.

Applications will be reviewed on a first-come/first-served basis.

Funding is available for non-industrial privately-owned forestlands. A private individual, group, association, corporation, or nonprofit that owns land in North Carolina is eligible. Where forestland is owned jointly by more than one individual, group, association, or corporation, as tenants in common, tenants by the entirety, or otherwise, the joint owners shall be considered as one eligible landowner and entitled to receive cost-share for that tract.

Individual landowners who share in a joint ownership, but also possess distinct, separate property in their own name, are entitled to cost-share as individuals, and the joint ownership does not affect the eligibility. Government-owned lands are not eligible for this program’s cost-share. Land owned by forest industry is not eligible for this program’s cost-share. Private non-industrial forestlands managed under existing Federal, State, or private sector financial and conservation-technical assistance programs (including rental agreements and easements) are eligible for this funding.

**Map 1. Foresters for Healthy Waters Program area.**



*Dark blue lines depict waterways that include segments of Critical Habitat for Federally-listed and at-risk species.*

*Map prepared by USFWS.*

# **Part 5. Type of Plan and Plan Writers**

Eligible Plan Type

**Pre-Harvest Plans are the only plans available for cost-sharing through the *Foresters for Healthy Waters* *Program***. The *Foresters for Healthy Waters* *Program* will not pay for plans prepared through other funding sources (such as CAP 106 Plans through NRCS). If individual practices have been previously funded through Federal or State cost-share (FDP, SPBPP, EQIP, etc.), then *Foresters for Healthy Waters* *Program* funding is available for preparing a Pre-Harvest Plan for those landowners.

Each landowner may receive a maximum of 3 cost-shared Pre-Harvest Plans through this program.

Eligible Plan Writers

**Plans are only accepted from private-sector forestry or wildlife management practitioners who have completed training through the *Foresters for Healthy Waters Program***. Plan writers are encouraged to work closely with the NCFS. The NCFS foresters are not eligible to prepare Plans for this Program.

# **Part 6. Program Funding and Administration**

Funding is provided by a grant from the USFWS to the NCFS for a 2-year period, or until funding is fully obligated. Funding will be used as cost-share assistance for landowners to work with a Trained Plan Writer to prepare a Pre-Harvest Plan.

The NCFS will manage the *Foresters for Healthy Waters Program* using the same electronic application form and administrative process as the NCFS-SIP cost-share program for Forest Stewardship Plans, and Tree Farm Plans. **However, this program’s requirements and required Plan elements are different**.

Program participants will need to coordinate with the following [NCFS Districts](https://www.ncforestservice.gov/contacts/contacts_main.htm) for funding, Plan submission and review, and invoice submission for reimbursement payment:

NCFS District 5 – Rocky Mount Office (252-442-1626)

Eligible Counties include Edgecombe, Franklin, Halifax, Nash, and Warren.

NCFS District 11 – Hillsborough Office (919-732-8105)

Eligible Counties include Granville and Vance.

**Applications will be accepted at the NCFS offices starting on July 1, 2021**.

Funding allocations will be made on a “first come, first served” basis, based upon the date of receipt of the application at the NCFS Headquarters in Raleigh, NC.

Application Instructions

The *Foresters for Healthy Waters Program* will use the existing application forms and same processes already in-place for the NCFS-SIP Program, Form 4852-SIP. That form is a fillable PDF format.

The landowner must complete the NCFS-SIP “Landowner Information” section, sign & date the application in the “Signatures” section and return the application to the NCFS County or District Office.

Forms may be filled out electronically with electronic signatures. Electronic signatures must be date- and time-stamped. Adobe Acrobat Reader is an example of a widely-used software system that can be used for electronic signatures. Below is an example of an acceptable electronic signature:



Initial Application, “Funding Request”: This can be completed by a NCFS Service Forester, the landowner or the landowner’s agent.

* It can be signed by the NCFS Service Forester or by the NCFS County Ranger.
* This section can be filled out electronically, using the *Foresters for Healthy Waters Program* cost-share rates listed below in Table 2, based on acreage being planned for harvest.
* The original application remains at the NCFS District Office until project completion.
* The Service Forester will provide an electronic copy of the application via OneDrive to Mandy-Tallman Marty of the NCFS State Headquarters.
* If the project is approved, an electronic copy of the approval letter will be provided by the NCFS State Headquarters to the District via OneDrive. Landowners will receive a copy by U.S. Mail.

Performance Report to Request Reimbursement: This must be signed-off by either a NCFS Service Forester or Assistant District Forester.

* Upon completion of the project, the original hand-signed application and performance report must be mailed to the NCFS State Headquarters for processing the reimbursement payment.

Landowners who are approved to receive funding will receive a funding approval letter from the NCFS State Headquarters, along with a NC “Substitute W-9 Form”. The NC “Substitute W-9 Form” is not needed until the landowner has completed the work and is requesting reimbursement payment.

**Table 2: Cost-Share Rates of the *Foresters for Healthy Waters Program*.**

|  |  |
| --- | --- |
| **Acres Planned for Harvest**\* | **Maximum Total Cost Share Payment** |
| 10 to 25 | $750 |
| 26 to 50 | $1,250 |
| 51 to 75 | $1,750 |
| 76 to 100 | $2,250 |
| 101 to 150 | $3,000 |
| 151+ | $3,500 |

\*Total Acres includes the SMZ/stream buffer area.

* If the invoice is less than the Maximum Total Cost Share Payment, then the full invoiced amount will be reimbursed, with no additional funds paid-out in excess of the invoiced amount.
* If the invoice is more than the Maximum Total Cost Share Payment, then the landowner will be reimbursed at the rate shown in the above table.

**Work will not be authorized for reimbursement until written notice (approval letter) has been received describing the allotment of funds to the project.** Therefore, the landowner cannot receive payment for any work started prior to the written authorization from NCFS. After notification of funding to the landowner, the Plan Writer can proceed.

Timeframes for Plan Development

**From the date of funding approval, the landowner will have 4 months to have their plan completed and submit documentation for payment**. Extensions may be requested by NCFS Service Foresters by emailing the Forest Stewardship Coordinator with a courtesy-copy to the ARF-FM. A single 1-month extension may be granted with proper justification provided by the landowner.

Cancellation of Projects

If the project application has been submitted, but has not received a funding approval letter, an email from the NCFS District office to the NCFS Headquarters in Raleigh, NC will be enough to cancel the request. A note to the District office and county file is needed to document the reason for cancellation.

If the project has already been funded, the NCFS Service Forester should write “Cancel” across the top of the 4852-SIP, date, and sign. Send a copy of the cancelled 4852-SIP application by email to the NCFS State Headquarters (Attn: Mandy Tallman Marty, *mandy.tallman.marty@ncagr.gov*; and Jonathan Murray: *jonathan.murray@ncagr.gov*), requesting the project be cancelled; provide a courtesy-copy of that email to the ARF-FM, ADF, and County office.

Program Reimbursement Process

After the plan is complete, the landowner or their agent will submit the following to the NCFS District office for reimbursement payment (electronic versions of the Plan and Maps are acceptable, but an original paid invoice and original signed “NC Substitute W-9 Form are required):

1. A copy of the completed Pre-Harvest Management Plan with maps.
2. A copy of the paid invoice for plan preparation services from the forestry consultant or natural resource professional.
3. A “NC Substitute W-9 Form” completed by the landowner with the original signatures.

The NCFS Service Forester will review the plan using a standard checklist for this funding program (see Appendix C). The plan must meet the minimum plan standards described in this Handbook in order to qualify for reimbursement funding. The NCFS Service Forester will have 10 working days to review the plan and accept it or contact the plan writer to request any notable changes or additions.

If Minimum Plan Standards are not met, the NCFS Service Forester should address any resource elements or standards that need to be added with the Plan Writer. The plan must be brought up to the Minimum Plan Standards by the Plan Writer for the plan to be eligible for cost-share payment.

# **Part 7. Required Elements of the Pre-Harvest Plan**

**Note: All required elements in this section must be included in the Plan, even if no species of interest is found to occur on the tract**.

**(A) Required Basic Information**

1. Landowner Name(s) and contact information: phone number, email, mailing address.
2. Plan Writer’s Name(s) and contact information, including any professional certifications.
3. Landowner Objectives for the Harvest.
4. Describe the current forest/stand condition for the planned harvest area(s) including management recommendations, reforestation goals and activity timeline.

**(B) Required Map Features**

The Plan must include maps containing the following information. You do not need to submit 4 separate maps if you can combine certain elements on the same map, as long as all items are included.

1. Acreage determination map, overlayed onto recent aerial photo imagery.
2. Outlined area to be harvested with all intermittent streams and perennial streams shown.
* **This will likely require ground-truthing by the Plan Writer to verify stream locations**.
* Do not rely just on the soils or topographic maps to indicate where streams are.
1. Soils mapped for the area to be harvested.
* Any soil mapping reference source is acceptable. *(****NOTE:*** *For the Riparian Buffer Rule, you must reference the most-recently published/printed soil survey manuscript book.)*
1. Topography (contour lines).
* Any contour line source is acceptable. *(****NOTE:*** *For the Riparian Buffer Rule, you must reference the most-recently published USGS 7.5-Minute topo quad.)*

**(C) Required Plan Elements: Review At-Risk Animals and Critical Habitat**

1. Review data to identify any animal that is designated as a federally “Threatened” or “Endangered” or “At-Risk” species on the tract, or in close proximity (1 to 2 miles). Provide documentation to show what sources of data were examined to obtain this information, even if no animal species are found to occur. Any of the following data sources are acceptable:

*USFWS Information for Planning and Consultation (IPaC) Tool:* [*https://ecos.fws.gov/ipac/*](https://ecos.fws.gov/ipac/)*.*

*N.C. Natural Heritage Data Explorer:* [*https://ncnhde.natureserve.org/*](https://ncnhde.natureserve.org/)

*NCFS Forest Preharvest Planning Tool:* [*https://www.ncforestservice.gov/water\_quality/fppt.htm*](https://www.ncforestservice.gov/water_quality/fppt.htm)*.*

1. Conduct a review of data to determine if any stream upon, or adjacent to, the harvest area is a designated or proposed “Critical Habitat” for a T&E species; and report the findings of the review. The USFWS *Critical Habitat Map Viewer* should be used; see Appendix A.

**(D) Required Plan Elements: Review of Soils**

1. Identify the rating of the soils in the harvest area for the following two hazards described in the Woodland Management / Forest Productivity section of the NRCS county soil survey:
2. Erosion Hazard. (focus is the “on road/skid trail” erosion rating)
3. Rutting Hazard.

If either category is rated as “Severe”, then estimate the percent of the total harvest area covered by that Severe rating.

* You may use either the soil survey manuscript book or online/web resources.
* ***NOTE:*** *For the Riparian Buffer Rule, you must reference the most-recently published (printed) soil survey manuscript book; you cannot use WebSoil Survey for the Buffer Rules*.

**(E) Required Plan Elements: SMZs (Stream Buffers)**

All items below must be addressed for each stream that will have a SMZ.

1. Each SMZ must be a minimum of 50 feet wide (on each side).
2. This Program’s preference is to retain each SMZ completely undisturbed.
3. However, if timber removal from a SMZ is to occur, describe the following:
4. The general type of timber to be removed (species, size, location in the SMZ).
5. How timber in the SMZ will be identified/marked, so the logger knows what to harvest.
6. How damage to residual/leftover trees will be minimized.
7. How stream canopy shade will be maintained.
8. SMZ Layout:
9. Explain how the SMZ will be marked in-the-woods, so the logger will know its location.
10. Describe if the SMZ will incorporate an ephemeral transition area.

**(F) Required Plan Elements: Stream Crossings**

All items below must be addressed for each stream crossing. Mark each crossing on the map.

1. This Program’s preference is to avoid crossing the stream entirely.
2. If a stream crossing is required, explain how other alternatives have been explored to avoid having to cross the stream (ex: gaining access from the opposite side of the stream; foregoing timber harvest on the opposite side).
3. If an existing stream crossing will be used, explain the BMP measures for limiting sedimentation, controlling erosion and promptly establishing groundcover.
4. If a new stream crossing is required, this Program’s preference is to use temporary bridgemats.
5. If a new culvert, ford, or log/pole crossing is required, instead of bridgemats, then describe the following:
6. Identify the type of crossing method to be used.
7. Will the new crossing be temporary or permanent?
* (**Note: Log/pole crossings must be Temporary. Ford crossings are not for skid trails**.)
1. If a culvert will be installed, explain the method used to calculate proper culvert size.
2. If temporary, establish a timeline of when the crossing should be removed. Describe specific BMPs to implement to control erosion & sedimentation; and prevent streamflow blockage.
3. If permanent, describe specific BMPs to implement for installation and long-term maintenance; including erosion & sedimentation control; and maintaining aquatic organism passage through the crossing.

**(G) Required Plan Elements: Forest Operations**

1. This Program’s preference is to locate new roads, log decks and primary skid trails at least 50 feet away from the edge of the SMZ.
2. If these features must be installed closer than 50 feet, describe the following:
3. Why placement closer than 50 feet is necessary.
4. List specific BMP measures to implement for erosion & sedimentation control.
5. This Program’s preference is to apply leftover limbs and logging slash/woody debris atop of primary skid trails that are susceptible to erosion, while logging is ongoing, to provide continuous groundcover and erosion control.
6. If logging slash will not be used, describe specific BMP measures to implement, to achieve a comparable level of erosion & sedimentation control and groundcover atop of skid trails.
7. Describe measures to implement for preventing pesticides, chemicals, petroleum, and equipment servicing waste from polluting soil and water.
8. Describe triggers that would require logging to cease in order to assure maximum protection of water quality (ex: flooding; excessive soil damage; excessive rain; lack of sufficient BMP measures being implemented; visible sediment reaching stream; turbid water; etc.).

**(H) Required Plan Elements: Rules Awareness**

Include statements that highlight the need to comply with the following requirements where applicable:

1. Federal Clean Water Act, Section 404

If a stream crossing is installed in an Intermittent or Perennial stream; or a road or skid trail is constructed in a wetland, the federal Clean Water Act’s Section 404 rules include 15 required BMPs to minimize the discharge of dredged or fill material into a water of the U.S. Those 15 requirements are available at this website link [see items 6(i) through 6(xv)]:

<https://ecfr.federalregister.gov/current/title-33/chapter-II/part-323/section-323.4>

One of those 15 required BMPs includes the following provision tied to T&E species [item (ix)]:

*“The discharge shall not take, or jeopardize the continued existence of, a threatened or endangered species as defined under the Endangered Species Act, or adversely modify or destroy the critical habitat of such species.”*

1. State of North Carolina: FPGs

All forestry-related, land-disturbing activities are required to comply with the 9 standards prescribed in the statewide rules called the *Forest Practices Guidelines Related to Water Quality* (FPGs). **The FPGs apply to any Intermittent Stream and any Perennial Stream, regardless if that stream appears on a map, or not**. The FPGs are outlined in N.C. Forest Service *Forestry Leaflet #WQ-1*, available from their website:

<https://www.ncforestservice.gov/publications/Forestry%20Leaflets/WQ01.pdf>

1. State of North Carolina: DWR River Basin Riparian Buffer Rules [where applicable]

In the Neuse River basin and Tar-Pamlico River basin, there are additional requirements to protect and maintain riparian stream buffers along certain designated mapped streams. These ‘[Riparian Buffer Rules](https://www.ncforestservice.gov/water_quality/buffer_rules.htm)’ include special *Forest Harvesting Requirements* that limit forestry practices and timber harvest within the 50-foot wide required Buffer Rule Zone. The *Forest* *Harvest* *Requirements* are explained in N.C. Forest Service *Forestry Leaflet #WQ-10*, available from their website: <https://www.ncforestservice.gov/publications/Forestry%20Leaflets/WQ10.pdf>

To be eligible to selectively harvest timber from Zone 1 of the Buffer Rule, the tract must either:

A) Be enrolled in the county’s Present-Use Value (PUV) Program for Forestry; or,

B) Have a forest management plan that is prepared or approved by a Registered Forester.

For questions about the Riparian Buffer Rules, contact a Buffer Rule Specialist of the Water Quality Regional Operations, in the Raleigh Regional Office for the NCDEQ-Division of Water Resources: 919-791-4200. <https://deq.nc.gov/contact/regional-offices/raleigh>.

1. Federal Endangered Species Act: Section 4(d) Rules

When an animal is listed as Federally “Threatened,” the U.S. Fish and Wildlife Service may adopt rules to conserve and protect the species or its habitat, to support biological recovery of that species. Those rules are called “4(d) Rules.” In the project area of the *Foresters for Healthy Waters Program*, there are 4(d) Rules in place to protect the Neuse River Waterdog and the Atlantic Pigtoe. See Appendix B.

1. NCFS Agency Contact

Provide contact information for the NCFS County Forest Ranger Office, and advise the landowner to contact the NCFS within 3 days of starting the timber harvest, as a requirement of participating in the *Foresters for Healthy Waters Program*.

The NCFS will conduct routine inspections to assess FPG compliance. If applicable, the NCFS will also observe the Forest Harvest Requirements of the Neuse / Tar-Pamlico Riparian Buffer Rules and notify DWR if an apparent Buffer Rule violation is observed.

# **Appendix A: Online Planning Tools**

**T&E Species Listings**

The list of T&E species in North Carolina is available from the U.S. Fish & Wildlife Service (USFWS) website: [www.fws.gov/raleigh/es\_tes.html](http://www.fws.gov/raleigh/es_tes.html).

**USFWS Critical Habitat Map Viewer**

Some federally-listed T&E species have “Critical Habitat” designated by rule. This habitat is vital for the survival of that species. For aquatic species, this usually includes segments of streams and rivers. The USFWS has an online map viewer showing proposed and designated Critical Habitat:

1. Go to <https://ecos.fws.gov/ecp/>.
2. Click the bullet point “*Critical Habitat Report*.” This takes you to a new web page.
3. On this new web page, look for “*ArcGIS Online Web Services*”. Click the bullet point “*Critical Habitat ArcGIS Feature Service*”. This takes you to a new web page. (Note: This web page also has .zip files for downloading critical habitat shapefiles into a GIS system.)
4. On this new web page, click the link “*View In: ArcGIS.com Map*.” You can zoom-in to your area of interest and observe the colored areas of Critical Habitat, designated or proposed.

**USFWS Species and Habitat Locator Tool**

The USFWS *Information for Planning and Consultation* (IPaC) tool is a map viewer to determine whether a project is near listed species and Critical Habitat.

1. Go to <https://ecos.fws.gov/ipac/>. Users can explore a project area for protected species and habitats without having to log-in to the website. If you get a pop-up window about a “MAJOR UPGRADE”, just close that pop-up and select “*Get Started*”.
2. Follow the instructions on the interactive map to find a location, draw your project area, and get a list of protected species and Critical Habitats. You can also upload shapefiles.

**NRCS Soil Survey Printed Manuscripts:** <https://www.ncforestservice.gov/water_quality/pdf/soilMaps.pdf>.

(\****Note****:* ***You must use Mozilla FireFox or Internet Explorer browser*** to download soil survey manuscript maps.

Google Chrome and Microsoft Edge do not work.)

**USGS Topographic Maps, TopoView:** <https://ngmdb.usgs.gov/topoview/viewer/#4/40.01/-100.06>

**NC Forest Preharvest Planning Tool:** <https://www.ncforestservice.gov/water_quality/fppt.htm>

(\*Note: Google Chrome works best)

**NCFS Round-Culvert Sizing Calculator:** <https://www.ncforestservice.gov/water_quality/wq_CulvertSizing.htm>

This Excel worksheet calculator allows a user to adjust the rainfall rate and runoff coefficient.

**NC Div. of Water Resources Map Viewer/Data Locator**:

Includes 20-ft DEM/Digital Elevation Model layer, 1:24000 stream layer, stream polygons (pond) layer, and other data.

<https://experience.arcgis.com/experience/689283d17bf342c2a96364fbab09a5d8>

**NC OneMap**: <https://www.nconemap.gov/>

**USGS Stream Stats:** <https://streamstats.usgs.gov/ss/>

This tool delineates the watershed area draining to a pixel you select on the blueline stream. Not all streams are shown.

# **Appendix B: Explaining the ESA Section 4(d) Rule**

The Endangered Species Act (ESA) prohibits “take” of a Threatened or Endangered species unless the USFWS issues a permit. However, section 4(d) of the Act can allow exceptions to the permitting requirements if an ‘incidental take’ occurs as a result of specific activities that are spelled-out in federal rule. These permit exceptions are known as “4(d) Rules”, and usually include conditions that must be met for that activity to maintain the exception from permitting in the event of an incidental take. When adopted, each 4(d) Rule is for an individual species. **For aquatic animals, the required conditions of the 4(d) Rule apply to any waterway where the listed species occurs, not just in designated Critical Habitat**.

For reference, the definitions of the terms “take” and “harm” are provided below.

Note that it can also include the animal’s habitat:

“Take”: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

“Harm” (as used in the above definition of “take”): An act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

**There is a 4(d) Rule for the following two species, with their effective dates:**

* **Neuse River Waterdog, effective July 9, 2021.**
* **Atlantic Pigtoe, effective December 16, 2021.**

**The forestry-related requirements of these two 4(d) Rules are outlined below:**

(1) Establish a streamside management zone alongside the margins of each waterway.

(2) Restrain visible sedimentation caused by the forestry-related activity from entering the waterway.

(3) Maintain native groundcover within the streamside management zone of the waterway, and promptly re-establish native groundcover if disturbed.

(4) Limit installation of vehicle or equipment crossings of the waterway to only where necessary for the forestry-related activity. Such crossings must:

(i) Have erosion and sedimentation control measures installed to divert surface runoff away and restrain visible sediment from entering the waterway;

(ii) Allow for movement of aquatic organisms within the waterway; and

(iii) Have native groundcover applied and maintained through completion of the forestry-related activity.

(5) Prohibit the use of tracked or wheeled vehicles for reforestation site preparation within the streamside management zone of the waterway.

(6) Prohibit locating log decks, skid trails, new roads, and portable mill sites in the streamside management zone of the waterway.

(7) Prohibit obstruction and impediment of the flow of water within the waterway, caused by direct deposition of debris or soil by the forestry-related activity.

(8) Maintain shade over the waterway similar to that observed prior to the forestry-related activity.

(9) Prohibit discharge of any solid waste, petroleum, pesticide, fertilizer, or other chemical into the waterway.

**Appendix C: Review Checklist for Pre-Harvest Plans in the Foresters for Healthy Waters Program**.

|  |  |  |
| --- | --- | --- |
| **Item** | **Minimum Required Plan Standards** | **Included in Plan?** |
|  | **Plan Basics** | **Yes** | **No** | **N/A** |
| A1 | Landowner name and contacts. |[ ] [ ]   |
| A2 | Plan writer name and contacts. |[ ] [ ]   |
| A3 | Landowner objectives for the harvest. |[ ] [ ]   |
| A4 | Current condition of harvest area, with recommendations, reforestation goals, and timeline. |[ ] [ ]   |
|  |  |  |  |  |
|  | **Tract Maps** |  |  |  |
| B1 | Acreage determination with aerial image. |[ ] [ ]   |
| B2 | Harvest area outlined with all intermittent and perennial streams mapped. |[ ] [ ] [ ]
| B3 | Soils are mapped. |[ ] [ ]   |
| B4 | Topography contours are mapped. |[ ] [ ]   |
|  |  |  |  |  |
|  | **Habitat and Animal Species Review** |  |  |  |
| C1 | A review of Critical Habitat streams was conducted and reported. |[ ] [ ]   |
| C2 | A review of T&E animal species was conducted and reported, with data sources included. |[ ] [ ]   |
|  |  |  |  |  |
|  | **Soils Review** |  |  |  |
| D1.a | Soil survey *Erosion Hazard* (‘On Road & Skid Trail’) assessed and reported in the Plan: If rated “Severe”, the estimated % area in the harvest is noted in the Plan. |[ ] [ ]   |
| D1.b | Soil survey *Rutting Hazard* assessed and reported in the Plan: If rated “Severe”, the estimated % area in the harvest is noted in the Plan. |[ ] [ ]   |
|  |  |  |  |  |
|  | **Streamside Management Zones (SMZs)** |  |  |  |
|  | ***Note: Plan must include a description of these elements for each SMZ.*** |  |  |  |
| E1 | All SMZs are noted as being at least 50-feet wide. |[ ] [ ] [ ]
| E2 | All SMZs will be left un-disturbed. *(If “No”, Then Items 3.a - 3.d Must Be Included in the Plan)* |[ ] [ ] [ ]
| E3.a | If timber will be harvested from SMZ: Describe type of timber to be harvested. |[ ] [ ] [ ]
| E3.b | If timber will be harvested from SMZ: Explain how timber will be marked. |[ ] [ ] [ ]
| E3.c | If timber will be harvested from SMZ: Explain how to minimize damage to residual trees. |[ ] [ ] [ ]
| E3.d | If timber will be harvested from SMZ: Explain how stream temperature will be protected. |[ ] [ ] [ ]
| E4.a | SMZ Layout: Description included of how SMZ will be marked for logger. |[ ] [ ] [ ]
| E4.b | SMZ Layout: Description included on whether SMZ includes the ephemeral transition area. |[ ] [ ] [ ]
|  |  |  |  |  |
|  | **Stream Crossings** |  |  |  |
|  | ***Note: Plan must include a description of these elements for each stream crossing.*** |  |  |  |
| F1 | Stream crossings are avoided entirely. *(If “No”, Then Item F2 Must Be Included in the Plan)* |[ ] [ ] [ ]
| F2 | If crossing cannot be avoided: Explain effort to gain alternative access or forego harvest. |[ ] [ ] [ ]
| F3 | For existing crossings, describe BMPs erosion, sedimentation and groundcover. |[ ] [ ] [ ]
| F4 | If any new crossings cannot be avoided: Then bridgemats will be used and is noted in the Plan.  *(If “No”, Then Items 5.a - 5.e Must Be Included in the Plan, Where Applicable)* |[ ] [ ] [ ]
| F5.a | If bridgemats not used: Identify crossing method type. |[ ] [ ] [ ]
| F5.b | If bridgemats not used: Explain if crossing will be temporary or permanent. |[ ] [ ] [ ]
| F5.c | If a new culvert is to be installed: Explain method used to calculate proper culvert size. |[ ] [ ] [ ]
| F5.d | For each new Temporary crossing: Include a timeline for removal; and describe BMPs for erosion & sediment control, and to prevent streamflow blockages. |[ ] [ ] [ ]
| F5.e | For each new Permanent crossing: Describe BMPs for installation and long-term maintenance; including erosion & sediment control, and aquatic organism passage. |[ ] [ ] [ ]
|  |  |  |  |  |
|  | **Forest Operations** |  |  |  |
| G1 | Decks, roads, & primary skid trails will be at least 50 feet from edge of SMZ. *(If “No”, Then Items 2.a - 2.b Must Be Included in the Plan)* |[ ] [ ] [ ]
| G2.a | If placed closer than 50 feet: Need is explained. |[ ] [ ] [ ]
| G2.b | If placed closer than 50 feet: BMPs described for erosion & sediment control. |[ ] [ ] [ ]
| G3 | Logging slash will be applied on primary skid trails. *(If “No”, Then Item G4 Must be Included)* |[ ] [ ]   |
| G4 | If logging slash not used: BMPs described for erosion & sediment control, and groundcover. |[ ] [ ] [ ]
| G5 | Measures to prevent chemical, petroleum and other pollution of water and soil. |[ ] [ ]   |
| G6 | Triggers to cease logging are included. |[ ] [ ]   |
|  |  |  |  |  |
|  | **Rules Awareness & Contact Info** |  |  |  |
| H1 | Federal Clean Water Act, Section 404 Requirements for Stream Crossings. |[ ] [ ] [ ]
| H2 | North Carolina FPGs. |[ ] [ ]   |
| H3 | North Carolina DWR, Neuse / Tar-Pamlico Riparian Buffer Rule. |[ ] [ ] [ ]
| H4 | Federal Endangered Species Act 4d-Rule. |[ ] [ ] [ ]
| H5 | NCFS County Ranger Office contact is included. |[ ] [ ]   |
|  |  |  |  |  |
| **- - THIS SECTION BELOW IS ONLY FOR N.C. FOREST SERVICE AGENCY USE - -** |
|  | ***This Pre-Harvest Plan meets the Program’s requirements and is eligible for cost-share.*** |
|  | ***This Pre-Harvest Plan requires additional content to meet the Program’s requirements (highlight or circle Item #).*** |
| ***Plan Reviewed By:*** |  | ***Date:*** |  |

*NCFS Form F4HW-1 (2 pages). 07/2021.*