



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Tennessee ES Office  
446 Neal Street  
Cookeville, Tennessee 38501

July 20, 2017

Mr. Allen H. Fetter  
Licensing Branch 3  
Division of New Reactor Licensing  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

John T. Baxter, Jr.  
Manager  
Biological Compliance  
Tennessee Valley Authority  
WT 11C-K  
400 West Summit Hill Drive  
Knoxville, Tennessee 37902

Subject: FWS# 2017-I-0473. U.S. Nuclear Regulatory Commission (NRC) – Updated List of Federally Threatened and Endangered Species that Potentially Occur near the Proposed Clinch River Small Modular Nuclear Reactor Facility in Oak Ridge, Roane County, Tennessee.

Dear Mr. Fetter and Mr. Baxter:

At the request of the Tennessee Valley Authority (TVA), the U.S. Fish and Wildlife Service (Service) attended a meeting with TVA and NRC staff on July 11, 2017, in regards to the proposed Clinch River Small Modular Reactor Nuclear Facility (CRN) in Oak Ridge, Roane County, Tennessee. The meeting included discussions and verification of the federally threatened and endangered species list provided by the Service and addressed to the NRC in a letter dated May 5, 2017.

TVA provided the Service with a CRN species list based upon the TVA database, which was addressed to the Service dated September 7, 2016. The Service did not respond to this letter, which was a request to verify the species list; however, receipt of this correspondence by the Service has not been verified. The species list provided by TVA identified only those species that could occur on or in proximity to the CRN site in Roane County, Tennessee. At the time of this TVA correspondence, transmission system work associated with development of the CRN site had not been identified.

As previously established during NRC's Environmental Impact Statement Scoping Meeting on May 17, 2017, the species lists in TVA's September 7, 2016, correspondence to the Service and the Service's May 15, 2017, correspondence to NRC were not identical. The Service attributes these differences, in part, to the lack of a completely defined action area at the time of the NRC species list request. The Service's species list was compiled using the IPaC database for Roane County, Tennessee, which represents a 326.18 square mile area, according to IPaC. The TVA has now described the action area in Roane County as the 935-acre CRN site, the Clinch River embayment of Watts Bar Reservoir, and the mainstem Tennessee River portion of Watts Bar Reservoir downstream to Watts Bar Dam. Also included in the current action area are segments of TVA's transmission system in Franklin, Warren, White, Van Buren, Bledsoe, Rhea, Putnam, Cumberland, Roane, Anderson, Scott, Knox, Campbell, Grainger, Hawkins, Greene, Jefferson, Hamblen, and Cocke counties, Tennessee. The Service considers several previously identified species extirpated from the described action area. As a result of these discussions and determinations, the TVA and Service have examined each federally protected species previously identified and have mutually agreed upon which species warrant further consideration.

The proposed CRN facility would be located on an approximate 935-acre site on the northern bank of the Clinch River arm of Watts Bar Reservoir. Furthermore, the proposed site is located downstream of Melton Hill Dam between Clinch River Mile 14.5 and 19. The site was evaluated in the 1970's by the TVA for a breeder reactor, which resulted in some site excavation being performed. However, the breeder reactor was not completed and the site was revegetated. The proposed action is to construct and operate two (2) or more small modular reactors at the CRN site.

The proposed CRN cooling system consist of an intake system, discharge system, and an atmospheric discharge for heat. As indicated in the correspondence, a maximum of 25,608 gallons per minute (gpm) would be withdrawn from the Clinch River to make up for water lost or used via drift (8 gpm), evaporation (12,800 gpm), and blowdown (12,800 gpm). The Clinch River would receive the discharge from the blowdown.

To support the CRN, it would be necessary for the TVA to construct a new 69-kV underground transmission line, approximately 5-miles long, within existing right-of-ways (ROWs) for an active 500-kV overhead transmission line to connect the CRN switchyard to 69-kV transformers at the Bethel Valley Substation on the Oak Ridge Reservation (ORR). TVA would also re-route an existing 161-kV overhead transmission line to avoid the proposed new power block location. Establishment of a barge/traffic area (BTA) on the ORR just north of the CRN site would also be necessary. The BTA would encompass an inactive barge terminal that would be refurbished and roadways would be improved in order to receive and transport SMR components to the CRN site. Additionally, segments of transmission systems well beyond the CRN site would require modifications to support the proposed facility. According to the proposal, these modification locations are all within the nineteen (19) counties listed above. These modifications could include uprating, re-conductoring, or rebuilding existing transmission lines. Correspondence indicates that additional ROWs would not be established, cleared, or widened to support these activities. The current action area, as defined by TVA and the Service, would include all affected transmission line segments within the previously identified counties, as well as the CRN site in Roane County, Tennessee.

As discussed, the Service originally identified species with potential to occur within or in near proximity of the area using the Service's IPaC database for Roane County, Tennessee. Upon further consideration, the Service has removed several federally threatened and endangered species from the CRN list. We have included this updated species list as an enclosure to this letter (Table 1.). The following species are not considered extant within the project action area and have been removed from the Service's species list: Alabama lampmussel (*Lampsyllis virescens*), Anthony's riversnail (*Athearnia anthonyi*), cracking pearlymussel (*Hemistena lata*), Cumberland bean (*Villosa trabalis*), dromedary pearlymussel (*Dromus dromas*), fanshell (*Cyprogenia stegaria*), finereyed pigtoe (*Fusconaia cuneolus*), orangefoot pimpleback (*Plethobasus cooperianus*), purple bean (*Villosa perpurpurea*), ring pink (*Obovaria retusa*), rough pigtoe (*Pleurobema plenum*), shiny pigtoe (*Fusconaia cor*), snail darter (*Percina tanasi*), spectaclecase (*Cumberlandia monodonta*), turgid blossom (*Epioblasma turgidula*), Virginia spiraea (*Spiraea virginiana*), white fringeless orchid (*Platanthera integrilabia*), and white wartback (*Plethobasus cicatricosus*).

The entire species list for the transmission line upgrades provided by the Service in May 5, 2017, correspondence to NRC should be carried forward for further analysis; including designated critical habitat (DCH) crossed by or adjacent to the proposed transmission line upgrades. Species with DCH within or adjacent to the project action area are identified in the species list (Table 2.). The Service recommends that you evaluate the proposed project for potential direct, indirect, and cumulative impacts to these listed species or their habitats in compliance with section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

While the project proponent is not required to consult on petitioned species, Section 7(a)(4) of the Endangered Species Act of 1973 does provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species during the early planning stage. Therefore, we take this opportunity to recommend that you consider impacts to the hellbender (*Cryptobranchus alleganiensis*), petitioned for listing in FY18. IPaC and TVA data indicate there are historic records of this species occurring near the proposed site of the CRN.

The Service recommends that you coordinate with the Tennessee Wildlife Resources Agency and Tennessee Department of Environment and Conservation's Natural Heritage Program to address concerns regarding state listed species. If you have any questions regarding our comments, please contact Dustin Boles of my staff at 931/525-4984 or at [dustin.boles@fws.gov](mailto:dustin.boles@fws.gov).

Sincerely,



Mary E. Jennings  
Field Supervisor

Enclosures as stated

Table 1. Federally listed species, occurring near the CRN site, Roane County, Tennessee.

Species – Common Name	Scientific Name	Federal Status	Critical Habitat Within Action Area
Gray bat	<i>Myotis grisescens</i>	Endangered	No
Indiana bat	<i>Myotis sodalis</i>	Endangered	No
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	No
Pink Mucket	<i>Lampsyllis abrupta</i>	Endangered	No
Sheepnose Mussel	<i>Plethobasus cyphus</i>	Endangered	No
Spotfin Chub	<i>Erimonax monachus</i>	Threatened	No

Table 2. Federally listed species, which may occur within near proximity of the proposed transmission line upgrades: Franklin, Warren, White, Van Buren, Bledsoe, Rhea, Putnam, Cumberland, Roane, Anderson, Scott, Knox, Campbell, Grainger, Hawkins, Greene, Jefferson, Hamblen, and Cocke counties, Tennessee.

Species – Common Name	Scientific Name	Federal Status	Critical Habitat Within or Adjacent to the Action Area
Anthony Riversnail	<i>Athearnia anthonyi</i>	Endangered	No
Appalachian Elktoe	<i>Alasmidonta raveneliana</i>	Endangered	No
Birdwing Pearlymussel	<i>Lemiox rimosus</i>	Endangered	No
Blackside Dace	<i>Chrosomus [= Phoxinus] cumberlandensis</i>	Threatened	No
Bluemask (Jewel) Darter	<i>Etheostoma akatulo</i>	Endangered	No
Catspaw	<i>Epioblasma obliquata obliquata</i>	Endangered	No
Chucky Madtom	<i>Noturus crypticus</i>	Endangered	Yes
Clubshell	<i>Pleurobema clava</i>	Endangered	No
Cracking Pearlymussel	<i>Hemistena lata</i>	Endangered	No
Cumberland Bean	<i>Vilosa trabalis</i>	Endangered	No
Cumberland Elktoe	<i>Alasmidonta atropurpurea</i>	Endangered	Yes
Cumberland Monkeyface	<i>Quadrula intermedia</i>	Endangered	No
Cumberland Pigtoe	<i>Pleurobema gibberum</i>	Endangered	No
Cumberland Rosemary	<i>Conradina verticillata</i>	Threatened	No
Cumberland Sandwort	<i>Arenaria cumberlandensis</i>	Endangered	No
Cumberlandian Combshell	<i>Epioblasma brevidens</i>	Endangered	Yes
Dromedary Pearlymussel	<i>Dromus dromas</i>	Endangered	No
Duskytail Darter	<i>Etheostoma percurum</i>	Endangered	No
Fanshell	<i>Cyprogenia stegaria</i>	Endangered	No

Finerayed Pigtoe	<i>Fusconaia cuneolus</i>	Endangered	No
Fluted Kidneyshell	<i>Ptychobranthus subtentum</i>	Endangered	Yes
Gray Myotis	<i>Myotis grisescens</i>	Endangered	No
Hart's-tongue Fern	<i>Asplenium scolopendrium</i> var. <i>americanum</i>	Threatened	No
Indiana Myotis	<i>Myotis sodalis</i>	Endangered	No
Large-flowered Skullcap	<i>Scutellaria montana</i>	Threatened	No
Laurel Dace	<i>Chrosomus saylora</i>	Endangered	Yes
Littlewing Pearlymussel	<i>Pegias fabula</i>	Endangered	No
Morefield's Leather-flower	<i>Clematis morefieldii</i>	Endangered	No
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	No
Orangefoot Pimpleback	<i>Plethobasus cooperianus</i>	Endangered	No
Oyster Mussel	<i>Epioblasma capsaeformis</i>	Endangered	Yes
Pale Lilliput	<i>Toxolasma cylindrellus</i>	Endangered	No
Palezone Shiner	<i>Notropis albizonatus</i>	Endangered	No
Pink Mucket	<i>Lampsillis abrupta</i>	Endangered	No
Price's Potato-bean	<i>Apios priceana</i>	Threatened	No
Purple Bean	<i>Vilosa perpurpurea</i>	Endangered	Yes
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	Threatened	No
Rayed Bean	<i>Villosa fabalis</i>	Endangered	No
Ring Pink	<i>Obovaria retusa</i>	Endangered	No
Rough Pigtoe	<i>Pleurobema plenum</i>	Endangered	No
Rough Rabbitsfoot	<i>Quadrula cylindrica strigillata</i>	Endangered	No
Sheepnose	<i>Plethobasus cyphus</i>	Endangered	No
Shiny Pigtoe	<i>Fusconaia cor</i>	Endangered	No
Slabside Pearlymussel	<i>Pleuonaia dolabelloides</i>	Endangered	Yes
Slender Chub	<i>Erimystax cahni</i>	Threatened	No
Small Whorled Pogonia	<i>Isotria medeoloides</i>	Threatened	No
Snail Darter	<i>Percina tanasi</i>	Threatened	No
Snuffbox	<i>Epioblasma triquetra</i>	Endangered	No
Spectaclecase	<i>Cumberlandia monodonta</i>	Endangered	No
Spotfin Chub	<i>Erimonax monachus</i>	Threatened	Yes
Tan Riffleshell	<i>Epioblasma florentina walkeri</i>	Endangered	No
Virginia Spiraea	<i>Spiraea virginiana</i>	Threatened	No
White Fringeless Orchid	<i>Platanthera integrilabia</i>	Threatened	No
White Wartyback	<i>Plethobasus cicatricosus</i>	Endangered	No
Yellowfin Madtom	<i>Noturus flavipinnis</i>	Threatened	No