

**BIOLOGICAL OPINION  
FOR THE PROPOSED  
DISPOSITION OF LANDS ACQUIRED  
BY THE TENNESSEE VALLEY AUTHORITY  
FOR THE COLUMBIA DAM PROJECT,  
MAURY COUNTY, TENNESSEE**

**Prepared by:**

**James C. Widlak  
Ecological Services Field Office  
446 Neal Street  
Cookeville, Tennessee**

**March 1999**

## INTRODUCTION

The U.S. Fish and Wildlife Service (Service) has reviewed the biological assessment submitted for the proposal by the Tennessee Valley Authority (TVA) to dispose of lands acquired for the Columbia Dam project located in Maury County, Tennessee. Your December 14, 1998, request for formal consultation was received on December 17, 1998. This document represents the Service's biological opinion on the effects of that action on the following federally listed species in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.):

Indiana bat - *Myotis sodalis* (E)  
Gray bat - *Myotis grisescens* (E)  
Birdwing pearly mussel - *Lemiox rimosus* (E)  
Cumberland monkeyface pearly mussel - *Quadrula intermedia* (E)  
Cumberlandian combshell - *Epioblasma brevidens* (E)  
Oyster mussel - *Epioblasma capsaeformis* (E)  
Tan riffleshell - *Epioblasma walkeri* (E)  
Pale lilliput pearly mussel - *Toxolasma cylindrellus* (E)  
Leafy prairie clover - *Dalea foliosa* (E)  
Eggert's sunflower - *Helianthus eggertii* (T)

### 0 Consultation History

Construction of the Columbia Dam and Reservoir was begun in August 1973. The original plans were for a summer pool at 630 feet above mean sea level with a winter drawdown at 603 feet above mean sea level. The primary purposes of the reservoir were to provide recreational opportunities, flood protection, and water supply for the City of Columbia and Maury County TVA 1998).

The Fish and Wildlife Service, upon completion of formal consultation with TVA, issued a biological opinion in February 1977. That opinion concluded that the Columbia Dam project would likely result in jeopardy to the birdwing pearly mussel and the Cumberland monkeyface pearly mussel. Subsequently, TVA evaluated two alternatives which would provide desired benefits without jeopardizing the two endangered species. Both alternatives, a river development and low pool alternative, were found to be unacceptable. A part of this evaluation was the development of a conservation program (i.e., the Cumberlandian Mollusk Conservation Program) to benefit the listed species and other endemic mollusks (TVA 1998). The program would, if successfully implemented, improve the status of the two endangered mussel species to the point at which construction of Columbia Dam would not jeopardize their continued existence. A budget of several millions of dollars was proposed for implementation of nine identified activities: (1) mussel distribution surveys, (2) identification of potential fish hosts, (3) identification of fish hosts, (4) artificial propagation, (5) analysis of physical habitat, (6) analysis of water quality factors, (7) analysis of plant and plankton factors, (8) analysis of macrofauna factors, and (9) selection of transplant sites and habitat characterization.

The Service revised its biological opinion in September 1979 and accepted TVA's proposed Cumberlandian Mollusk Conservation Program as a reasonable and prudent alternative to avoid jeopardy which would allow completion of the project as originally designed. However, the Service stipulated that the conservation program (i.e., the nine identified activities) must be proven successful prior to closure of the dam. In 1982, TVA transplanted 1,000 birdwing pearly mussels from the Duck River to each of four sites out of the project impact area. After two years of monitoring the transplanted mussels, it was concluded that this portion of the program was not successful, in part because many of the transplanted mussels were not relocated during subsequent monitoring efforts. Additionally, although it was concluded in 1979 that three other endangered mussel species (i.e., turgid-blossom, pale lilliput, tan riffleshell) no longer existed in the Duck River, a fresh dead specimen of one species (tan riffleshell) was found during a 1988 survey of the river reach which would be impounded by Columbia Dam. (TVA 1998)

In 1995, TVA concluded that the Columbia Dam project could not be completed as a dam and reservoir on the Duck River, in part because several of the identified activities in the Cumberlandian Mollusk Conservation Program were not successfully implemented. Consequently, preparation of an environmental impact statement was begun to consider the effects of alternative uses for the lands acquired by TVA for the project (TVA 1998). That effort is ongoing and will include the results of this formal consultation, which addresses effects to listed species resulting from implementation of the preferred alternative (TVA 1998).

This biological opinion is based on information provided in the December 14, 1998, biological assessment; meetings in 1997 attended by representatives from TVA, Fish and Wildlife Service, Tennessee Natural Heritage, and Tennessee Wildlife Resources Agency to discuss alternative uses for the lands; and other sources of information. A complete administrative record of this consultation is on file in the Service's Cookeville Field Office, 446 Neal Street, Cookeville, Tennessee; telephone 931/528-6481.

## BIOLOGICAL OPINION

### 0 Project Description

The proposed action is the disposition of the uncompleted Columbia Dam and the disposal of lands acquired by TVA for the reservoir. The preferred alternative is to modify the existing concrete and earthen components of the dam to stabilize present control on flood flows in the Duck River. Various methods (e.g., sawing, drilling, blasting, or impact machinery) will be used to remove the upper parts of the dam down to approximately 26 feet above the existing foundation. Internal machinery and usable components in the dam will be removed as this work proceeds. The majority of the 12,000 cubic yards of concrete removed from the dam will be used to stabilize the side slopes of the western channel and to form the core of a 30-foot tall berm over the existing dam foundation. The earthen portion of the dam will be used to form work surfaces around the vertical concrete members as they are demolished, then reshaped to form the side surfaces of the western channel. Standard construction, demolition, and best management practices will be employed during all phases of removal of the dam to minimize noise, erosion, dust, and other potential environmental impacts. Upon completion of required work, the entire disturbed area will be re-seeded and planted with trees to facilitate stabilization of the site. Estimated time for the proposed work is nine months to one year (TVA 1998).

Another component of the proposed action is the determination of future use of the lands acquired by TVA for the Columbia Dam project. To accommodate the reservoir, 12,800 acres of land were acquired. Of five alternatives considered; the preferred alternative is a combination of public use and protection. This alternative would place the lands into four categories--Duck River Protective Corridor, Fountain Creek Protective Corridor, Fountain Creek Reservoir Land, and Possible Development Areas. Limits on the types of activities which could be conducted on each of the four categories will be specified in deed restrictions attached to the land title at the time of transfer. The four categories are as follows:

***Duck River Protective Corridor*** - Columbia Dam project lands totaling approximately 6,800 acres located within the 100-year floodplain along the Duck River, and project lands supporting known populations of terrestrial endangered or threatened species, unique natural areas, and cultural resources.

***Fountain Creek Protective Corridor*** - Columbia Dam project lands totaling approximately 900 acres within the 100-year floodplain along Fountain Creek (a tributary to the Duck River) and its tributaries.

***Fountain Creek Reservoir Lands*** - Columbia Dam project lands totaling approximately 2,900 acres within the Fountain Creek watershed, but outside the 100-year floodplain. This entire area, plus the 900 acres in the Fountain Creek Protective Corridor, will be reserved for possible future use as a water supply reservoir.

**Potential Development Area** - All Columbia Dam project lands not assigned to one of the other three categories. These lands total approximately 2,200 acres. Prior easements would affect approximately 250 acres of these lands in parcels along Tom Hitch Parkway and Iron Bridge Road. These prior easements will be used as sites for construction of schools, civil defense facilities/fire halls, convenience centers, or other broad-based community services.

Specific deed restrictions and preamble to be attached to the land transfer document are as follows:

GRANTEE, by accepting this conveyance, deed restrictions and agrees on behalf of itself, its successors and assigns, that the following constitute real deed restrictions which attach to and run with the land hereby conveyed and will be binding upon anyone who may hereafter come into ownership thereof or be authorized to use such land whether by purchase, devise, descent, or succession; that these deed restrictions may be enforced by GRANTOR (the United States of America), TVA, or any agency of GRANTOR whose responsibilities include the protection of wildlife or the environment (including, without limitation, the U.S. Fish and Wildlife Service); and that any failure to enforce any deed restriction shall not be construed to be a waiver of such deed restriction or any other deed restriction:

1. For so long as the property conveyed hereby is owned by the State of Tennessee or any governmental subdivision thereof, the property and all facilities constructed thereon shall at all times be made available for use by all members of the general public without distinction or discrimination, and no person shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in the use of the property, which shall be administered in full compliance with the provisions of Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and all regulations issued by TVA thereunder at 18 C.F.R. pts. 1302, 1307, and 1309, the provisions of which, and all future amendments of such statutes and regulations, are incorporated herein by reference and made a part hereof; provided however, that nothing herein shall preclude restricting the public's access to property as necessary to protect sensitive resources, including, but not limited to, species, habitats, and cultural resources.
2. Except to the extent that the use of certain portions of the land hereby conveyed is further restricted herein, GRANTEE deed restrictions that the land hereby conveyed shall be used only for purposes now authorized by Section 4(k)(a) of the Tennessee Valley Authority Act of 1933, as amended (hereinafter "TVA Act"). These purposes include recreation or use for summer residences or for the operation of pleasure resorts for boating, fishing, swimming, or any similar purpose; provided, however, that the occupancy of a residence at times other than, or in addition to, the summer season shall not be deemed to be a breach of this deed restriction; provided, further, that the use of a reservoir for water supply purposes as well as recreation shall not be deemed to be a breach of this deed restriction.

3. GRANTEE shall comply with all applicable standards and requirements relating to environmental protection and pollution control now in effect or hereafter established by or pursuant to Federal, State, or local statutes, ordinances, regulations, or codes.
4. GRANTEE will conduct all land-disturbing activities on the property in accordance with best management practices as defined by Section 208 of the Clean Water Act and implementing regulations, to control erosion and sedimentation so as to prevent adverse impact on water quality and related aquatic interests, including threatened and endangered species.
5. GRANTEE will not construct any structure or facility for which TVA approval is required under Section 26a of the TVA Act until plans for such structure or facility have been submitted to TVA and have been approved in writing in accordance with established procedures. Nothing in this instrument shall be construed as constituting such approval by TVA.
6. GRANTEE will not construct or maintain any buildings, fill, or other structures, except water-use facilities constructed in accordance with plans approved in advance by TVA, on any portion of the property which is located within the limits of the 100-year floodway as defined or established by the Federal Emergency Management Agency. GRANTEE will not construct or maintain any buildings, fill, or other structures within the 100-year floodplain unless: (a) GRANTEE determines there is no practicable alternative to locating the structures in the floodplain; (b) such structures comply with all applicable regulations for construction in the floodplain; (c) the structures are designed so as to minimize potential flood damage and harm to the floodplain; and (d) the elevation of the floor level of all such buildings is at least 1 foot above the elevation of the 100-year floodplain. GRANTEE will not construct any buildings, fill, or other structures within the wetlands, as described in TVA's Final Environmental Impact Statement entitled Use of Lands Acquired for the Columbia Dam Component of the Duck River Project (hereinafter "Land Use FEIS"), unless: (a) there is no practicable alternative to such construction; (b) the construction is designed to include all practicable measures to minimize harm to the wetlands which may result from such use; and (c) all applicable permits and approvals for construction in the wetlands have been obtained, including any necessary permits or approvals from the U.S. Army Corps of Engineers.
7. Any residential development or other use, on any portion of the property where residential development or another use is permitted under this deed, shall conform to all applicable environmental commitments identified and contained in the Land Use FEIS.

8. GRANTEE shall not use or permit the use of the land identified as the Duck River Protective Corridor, as shown on the map attached hereto and incorporated herein as Exhibit A [see Biological Assessment Figure 5], for any purpose other than recreation purposes. As used in this deed restriction, "recreation purposes" includes hiking, hunting, boating, fishing, swimming, sightseeing, camping, wildlife management (including agricultural use related to wildlife management, such as food crops and hay), resource conservation and preservation activities, and similar uses, but does not include residential use or intensive recreational uses such as, but not limited to, golf courses, off-road vehicles, and pleasure resorts. In addition, GRANTEE shall not use or permit the use of such land for any purpose that would diminish its value for mitigation of environmental losses associated with the development of a Fountain Creek Reservoir; provided, however, that this additional restriction shall no longer apply if, after January 1, 2050, GRANTEE determines that a Fountain Creek Reservoir will not be built.
9. Unless and until the land identified as the Fountain Creek Protective Corridor, as shown on the map attached hereto and incorporated herein as Exhibit A, is used for a Fountain Creek Reservoir, GRANTEE shall not use or permit the use of such land for any purposes other than recreation purposes. As used in this deed restriction, "recreation purposes" includes hiking, hunting, boating, fishing, swimming, sightseeing, camping, wildlife management (including agricultural use related to wildlife management, such as food crops and hay), resource conservation and preservation activities, and similar uses, but does not include residential use or intensive recreational uses such as, but not limited to, golf courses, off-road vehicles, and pleasure resorts. In addition, prior to the year 2050, GRANTEE shall not use or permit the use of such land for any purpose that would be inconsistent with the future use of the land as a reservoir for recreation and water supply.
10. Until the year 2050 or until the construction of a Fountain Creek Reservoir, whichever first occurs, the land identified as the Fountain Creek Reservoir Land, as shown on the map attached hereto and incorporated herein as Exhibit A, shall be reserved for reservoir purposes. During this period, GRANTEE shall not use or permit the use of such land for any purposes other than recreation purposes. As used in this deed restriction, "recreation purposes" includes hiking, hunting, boating, fishing, swimming, sightseeing, camping, wildlife management (including agricultural use related to wildlife management, such as food crops and hay), resource conservation and preservation activities, and similar uses, but does not include residential use or intensive recreational uses such as, but not limited to, golf courses, off-road vehicles, and pleasure resorts. In addition, during this period, GRANTEE shall not use or permit the use of such land for any purpose that would be inconsistent with the future use of the land as a reservoir for recreation and water supply. Beginning January 1, 2050, and thereafter, whether or not a Fountain Creek Reservoir has been built, such land may be used for any purpose now authorized by

Section 4(k)(a) of the TVA Act, subject to deed restrictions 1-6 above; provided, however, that if a Fountain Creek Reservoir is not built, the use of the land identified as the Fountain Creek Protective Corridor shall continue to be restricted as provided in deed restriction 8 above in perpetuity.

11. Until January 1, 2050 (and thereafter, if a Fountain Creek Reservoir is built), any development of the Fountain Creek Reservoir Land conveyed by this deed, as shown in the map attached hereto and incorporated herein as Exhibit A, and other lands in the watershed of the potential Fountain Creek Reservoir otherwise acquired by GRANTEE from any source, shall be consistent with all environmental standards and requirements relating to the use of the reservoir for water supply, including standards and requirements for source water protection.
12. The entity or entities that manage the Duck River Protective Corridor, the Fountain Creek Protective Corridor, and/or the Fountain Creek Reservoir Land for GRANTEE shall have experience in, and statutory responsibility for, managing lands for natural resources and recreation purposes and shall have law enforcement authority. The management entity may enter into contracts concerning permitted uses of these lands but must retain and diligently exercise oversight and law enforcement authority.
13. GRANTEE shall, before conveying to a third party any of the property hereby conveyed, and before commencing or allowing any action on the property that can result in changes in the character or use of historic properties on the property, if any such historic properties are present in the area of potential effects, obtain the certification of the State Historic Preservation Officer (SHPO) that the SHPO has completed the determinations and consultations required by the Advisory Council on Historic Preservation's (Advisory Council) regulations implementing the National Historic Preservation Act. As used herein, "historic properties" means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. The "determinations and consultations" referred to herein mean identifying historic properties, evaluating historical significance, assessing the effects of the proposed action on historic properties, and consulting with the Advisory Council, all as provided in the Advisory Council's regulations. If any proposed action will have an adverse effect on historic properties, GRANTEE shall seek ways to avoid or reduce the effects.