

4.14 Managed Areas and Ecologically Significant Sites

4.14.1 Introduction

Managed areas and ecologically significant sites are lands set aside for a particular management objective or lands that are known to contain sensitive biological, cultural, or scenic resources. TVA identified 428 managed areas and 98 ecologically significant sites within 1 mile of full pool levels of TVA reservoirs, using the TVA regional Natural Heritage Project comprehensive database. Managed areas and ecologically significant sites are typically established and managed to achieve one or more of the following objectives:

- **Species/Habitat Protection**—places with endangered or threatened plants or animals, unique natural habitats, or habitats for valued fish or wildlife populations. Examples include national and state wildlife refuges, mussel sanctuaries, TVA habitat protection areas, Audubon refuges, and identified but unprotected ecologically significant sites.
- **Recreation**—parks, picnic areas, camping areas, trails, greenways, and other sites managed for outdoor recreation or open space, such as national parks, national recreation trails, scout camps, and county and municipal parks.
- **Resource Production/Harvest**—lands managed for production of forest products, hunting or fishing, such as national forests, state game lands, and fish hatcheries.
- **Scientific/Educational Resources**—lands protected for scientific research and education, including biosphere reserves, research natural areas, environmental education areas, and research parks.
- **Cultural Resources**—lands with human-made resources of interest, including military reservations, state historic areas, and state archeological areas.
- **Visual/Aesthetic Resources**—areas with exceptional scenic qualities or views, such as national and state scenic trails, wildlife observation areas, and wild and scenic rivers.

Resource Issues

- ▶ Integrity of managed areas and ecologically significant sites

Most managed areas and ecologically significant sites have multiple management objectives. If management objectives cannot be met, the integrity of the area may be lost or compromised. Twenty-three percent of the 526 areas identified are located on or adjacent to TVA reservoirs and could be affected by changes in reservoir operations (Table 4.14-01). For example, extending summer pool levels into the fall migration season could adversely affect wildlife refuges with flats critical to migratory birds. This change could also affect rare plant protection sites on reservoir shorelines. Seasonal changes in water depth could affect (adversely or

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beneficially) habitat for rare aquatic plants and animals. Higher winter water levels could increase the risk of spring flooding on impounded croplands managed for wildlife.

Altered discharge rates could directly affect endangered mussel sanctuaries, rare snail habitat, riparian roost trees, or rare plant sites along tailwaters or major rivers. These sites comprise 13 percent of managed areas and ecologically significant sites. Sites in upland or headwater positions in the landscape, comprising 64 percent of all managed areas and ecologically significant sites, are unlikely to be directly affected by changes in reservoir operations. However, all three categories of managed areas and ecologically significant sites could be indirectly affected by increases in shoreline development, recreational use, erosion, and water quality decline potentially associated with changes in reservoir operations.

4.14.2 Regulatory Programs and TVA Management Activities

The managed areas and ecologically significant sites addressed in this section have been established by various agencies for numerous and often overlapping objectives. Federal agencies, such as TVA, manage small wild areas and habitat protection areas (HPAs) (such as the Riley Creek Islands HPA) according to agency policy. Federal lands, such as Tennessee and Wheeler National Wildlife Refuges (NWRs), the Appalachian National Scenic Trail, and several national forests, are managed with public funds by various agencies within the Department of the Interior and Department of Agriculture, in accordance with applicable laws and regulations.

State laws and regulations permit state agencies, commissions, departments, and divisions to establish and manage a variety of public sanctuaries, parks and forests, and wildlife management areas (WMAs)—such as Kentucky Reservoir State WMA. City and county governments, through their parks and recreation divisions or their equivalent, serve to provide passive recreational opportunities for the public through management of municipal parks, watersheds, and picnic areas. Various private entities, including the National Audubon Society and The Nature Conservancy, often use private donations to purchase and maintain lands for protection of sensitive resources and passive recreational activities.

4.14.3 Integrity of Reservoir- and Tailwater-Dependent Managed Areas

Protecting resources and management objectives within their boundaries maintains the integrity of managed areas. To identify the range of management objectives and protected resources associated with managed areas and ecologically significant sites, seven reservoir, tailwater, or upland areas were examined to identify the variety of management objectives, managed area types, and landscape positions that may potentially be affected by changes in reservoir operations. Many of the resources and activities for which managed areas and ecologically significant sites are managed, including aquatic resources, wetlands, terrestrial ecology, endangered and threatened species, cultural resources, and recreation, are addressed in other sections of this EIS.

Table 4.14-01 Number of Managed Areas and Ecologically Significant Sites by Reservoir

Reservoir	Mainstem (A) or Tributary (B)	Managed Areas	Ecologically Significant Sites	Total Natural Areas	Pooled Reservoir Areas	Tailwater and Mainstem Riverine Habitats	Upland and Headwater Areas
Apalachia	B	3	0	3	0	0	3
Barkley	N/A	20	5	25	10	0	15
Barkley tailwater	N/A	1	2	3	0	1	2
Bear Creek	B	0	1	1	0	0	1
Blue Ridge	B	2	0	2	0	0	2
Boone	B	7	2	9	0	5	4
Cedar Creek	B	0	1	1	0	0	1
Chatuge	B	8	0	8	2	0	6
Cherokee	B	10	0	10	3	7	0
Chickamauga	A	36	2	38	9	8	21
Douglas	B	4	0	4	4	0	0
Fontana	B	5	3	8	3	0	5
Fort Loudoun	A-B ¹	16	3	19	4	7	8
Fort Patrick Henry	B	1	0	1	1	0	0
Great Falls	N/A	2	0	2	0	0	2
Guntersville	A	32	1	33	9	2	22
Hiwassee	B	4	0	4	0	0	4
Kentucky	A	66	19	85	17	13	55
Kentucky tailwater	A	4	1	5	0	3	2
Little Bear Creek	B	1	2	3	1	0	2
Melton Hill	A-B ¹	49	5	54	12	1	41
Nickajack	A	20	13	33	5	7	21
Normandy	B	5	1	6	2	0	4
Norris	B	25	7	32	11	0	21
Nottely	B	1	0	1	0	0	1
Ocoee #1	B	3	2	5	0	1	4

Table 4.14-01 Number of Managed Areas and Ecologically Significant Sites by Reservoir (continued)

Reservoir	Mainstem (A) or Tributary (B)	Managed Areas	Ecologically Significant Sites	Total Natural Areas	Pooled Reservoir Areas	Tailwater and Mainstem Riverine Habitats	Upland and Headwater Areas
Ocoee #2	B	3	0	3	0	0	3
Ocoee #3	B	4	1	5	0	0	5
Pickwick	A	12	13	25	2	7	16
South Holston	B	3	0	3	0	0	3
Tellico	A	9	2	11	4	1	6
Tims Ford	B	4	0	4	1	0	3
Upper Bear Creek	B	8	3	11	4	0	7
Watauga	B	6	3	9	1	0	8
Watts Bar	A	27	2	29	12	0	17
Wheeler	A	21	3	24	3	3	18
Wilbur	B	4	1	5	1	0	4
Wilson	B	2	0	2	0	1	1
Total		428	98	526	121	67	338

Notes:

Areas with multiple designations are represented once, although overlapping/nestled areas are each counted. The Managed Areas category supercedes the Ecologically Significant Sites category. National Forest Purchase Units were not counted individually but as part of the National Forest.

¹ Fort Loudoun Reservoir includes Tennessee River Mile (RM) 602.3 to 641.0 (mainstem) and Tennessee RM 641.0 to 652.2, French Broad RM 0.0 to 32.3, and Holston RM 0.0 to 52.3 (tributary). Melton Hill Reservoir includes Clinch RM 23.1 to 66.3 (mainstem) and Clinch RM 66.3 to 79.8 (tributary).

Source: TVA Natural Heritage database.

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Approximately 60 percent of 53 selected areas identify protection of state- or federal-listed species as a management objective. Approximately 40 percent are managed for water-dependent birds (including waterfowl, gulls, shorebirds, herons, eagles, and ospreys), and 26 percent specifically list non-consumptive recreation (hiking, bird-watching, and camping) as popular activities. Almost all managed areas and ecologically significant sites protect habitat, whether or not the objective is stated. Approximately 13 percent of recreational boating, fishing, swimming, camping, picnics, hiking, and hunting user days in the TVA system originates on public lands (see Section 5.24, Recreation), many of which are managed areas; approximately 83 percent of these recreational user days depend on water.

Managed areas and ecologically significant sites on reservoir or tailwater shorelines are affected by existing reservoir operations, and could be affected by changes in operations. In general, the integrity of managed areas is not compromised by existing operational practices, although shoreline erosion is an issue at a few sites. TVA reservoir Land Management Plans and other activities involve consideration of and coordination with the various managing entities of managed areas and ecologically significant sites.

Existing Conditions

Reservoir-Dependent Sites

Approximately 121 managed areas and ecologically significant sites are located on or adjacent to TVA reservoirs and contain resources or uses directly dependent on reservoir water levels and potentially sensitive to secondary impacts (Table 4.14-01). These areas comprise from 12 to 69 percent of the shoreline of selected reservoirs (Table 4.14-02). The Kentucky Reservoir State WMA (3,270 acres) includes flats, islands, lowlands, and narrow shoreline strips along the Kentucky Reservoir managed for waterfowl and hunting. Both Tennessee and Wheeler NWRs were established as wintering areas for waterfowl and migratory birds. Both areas are popular for hunting, fishing, hiking, and wildlife observation. The 15-acre Riley Creek Island TVA HPA is managed for waterfowl, herons, and wetlands. The 19-acre Maclellan Island Audubon Society Wildlife Refuge harbors a colony of great blue herons (*Ardea herodias*). The Watauga Reservoir Protection Planning Committee Rare Plant Site includes populations of the state-listed species showy lady's-slipper (*Cypripedium reginae*), northern white cedar (*Thuja occidentalis*), white camass (*Zygadenus elegans* ssp. *glaucus*), and shining ladies' tresses (*Spiranthes lucida*).

Tailwater-Dependent Sites

Approximately 67 managed areas and ecologically significant sites are located along flowing mainstem rivers or tailwaters. These sites are typically small, but often critical for protection of endangered or threatened species. Included are most of the representative state mussel sanctuaries and restricted mussel harvest areas. Managed areas and ecologically significant sites with shorelines or riverine islands containing nest or roost trees, fringe wetlands, or endangered riparian plants would also be included if protection of these resources is a management objective.

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Table 4.14-02 Shoreline Miles of Managed Areas and Ecologically Significant Sites for Seven Representative Reservoirs in the TVA System

Reservoir	Shoreline Miles on Reservoir	Approximate Miles of Shoreline Designated as Managed Area or Ecologically Significant Site ¹	Percent of Reservoir Shoreline Comprised of Managed Area or Ecologically Significant Site
Chatuge	128	44	34%
Kentucky	2,064	663	32%
Nickajack	179	123	69%
Normandy	75	43	57%
Watts Bar	722	92	13%
Watuaga/Wilbur	110	61	55%
Wheeler	1,027	120	12%

¹ In the event of overlapping areas, miles for each designation were included in the total. In most cases, the amount of overlap was small.

Upland and Headwater Areas

Approximately 338 managed areas and ecologically significant sites are located within 1 mile of full pool levels but are not dependent on reservoir water levels or river flow for maintaining their resources. These sites account for the greatest number and largest acreage of managed areas. Examples include the Appalachian National Scenic Trail, small (less than 20-acre) upland bluff HPAs, large (35,000-acre plus) state WMAs with a focus on upland game, and the Eller Seepage Bog Preserve located on a headwater stream.

Upland/headwater resources are not generally directly affected by reservoir operations. Resources worthy of management or protection continue to be identified through TVA's land planning process.

Future Trends

The general trend for the period 2003 to 2030 is likely to be a gradual increase in the number and size of managed areas and ecologically significant sites and a gradual increase in visitor use. With increasing development in the Tennessee Valley, the importance of protecting managed areas and ecologically significant sites will increase.