

APPENDIX C – TECHNICAL DATA

Table C-1 Plant List of Species Observed on August 3, 2005

Common Name	Scientific Name
American ginseng*	<i>Panax quiquifolius</i>
America hog peanut	<i>Amphicarpaea bracteata</i>
American beautyberry	<i>Callicarpa americana</i>
American beech	<i>Fagus grandifolia</i>
American lopseed	<i>Phyrma leptostachya</i>
Beaked panic grass	<i>Panicum anceps</i>
Black gum	<i>Nyssa sylvatica</i>
Black walnut	<i>Juglans nigra</i>
Black oak	<i>Quercus veluntina</i>
Bog hemp	<i>Bohmeria cylindrica</i>
Box elder	<i>Acer negundo</i>
Broad beech fern	<i>Thelypteris hexagonoptera</i>
Canada black snakeroot	<i>Sanicula canadensis</i>
Canada wild lettuce	<i>Lactuca canadensis</i>
Carolina buckthorn	<i>Rhamnus carolinanus</i>
Cherrybark oak	<i>Quercus pagoda</i>
Chestnut Oak	<i>Quercus montana</i>
Chinese Privet*	<i>Ligustrum sinense</i>
Christmas fern	<i>Polystichum acrostichoides</i>
Crane's fly orchid	<i>Tipularia discolor</i>
Deciduous holly	<i>Ilex decidua</i>
Devil's walking stick	<i>Aralia spinosa</i>
Ebony spleenwort	<i>Asplenium platyneuron</i>
Elephants foot	<i>Elephantopus carolinianus</i>
Flowering dogwood	<i>Cornus florida</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Hackberry	<i>Celtis laevigata</i>
Hairy bedstraw	<i>Galium pilosum</i>
Hairy skullcap	<i>Scutellaria elliptica</i>
Harvest lice	<i>Agrimonia parviflora</i>
Heal-all	<i>Prunella vulgaris</i>
Heart-leaf skullcap	<i>Scutellaria ovata</i>
Hound's tongue	<i>Cynoglossum virginicum</i>
Indian tobacco	<i>Lobelia inflata</i>
Japanese honeysuckle**	<i>Lonicera japonica</i>
Japanese Stilt grass**	<i>Microstegium venimum</i>

Common Name	Scientific Name
Jewel weed	<i>Impatiens capensis</i>
Jumpseed	<i>Polygonum virginicum</i>
Lizard's tail	<i>Saururus cernuus</i>
Loblolly pine	<i>Pinus taeda</i>
Mayapple	<i>Podophyllum peltatum</i>
Mockernut hickory	<i>Carya tomentosa</i>
Muscadine grape	<i>Vitis rotundifolia</i>
Naked tick treefoil	<i>Desmodium nudiflorum</i>
Northern red oak	<i>Quercus rubra</i>
Pawpaw	<i>Asimina triloba</i>
Persimmon	<i>Diospyros virginiana</i>
Poison ivy	<i>Toxicodendron radicans</i>
Rattan vine	<i>Berchemia scandens</i>
Rattlesnake fern	<i>Botrychium virginianum</i>
Red bud	<i>Cercis canadensis</i>
Red maple	<i>Acer rubrum</i>
Red mulberry	<i>Morus rubrus</i>
Resurrection fern	<i>Pleopeltis polypodioides var michauxii</i>
Roundleaf greenbrier	<i>Smilax rotundifolium</i>
Sassafras	<i>Sassafras albidum</i>
Shagbark hickory	<i>Carya ovata</i>
Silky dogwood	<i>Cornus amoenum</i>
Silver maple	<i>Acer saccharinum</i>
Slender lespedeza	<i>Lespedeza virginica</i>
Slender woodoats	<i>Chasmanthium laxum</i>
Slippery elm	<i>Ulmus rubra</i>
Smart weed	<i>Persicaria pennsylvannica</i>
Smooth sumac	<i>Rhus glabra</i>
Snowberry	<i>Symphoricarpos orbiculatus</i>
Solomon's plume	<i>Smilicina racemosa</i>
Southern lady fern	<i>Athyrium filix-femina var asplenoides</i>
Southern red oak	<i>Quercus falcata</i>
Spotted wintergreen	<i>Chimaphila maculata</i>
Strawberry bush	<i>Euonymus americanus</i>
Summer grape	<i>Vitis aestivalis</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Tall goldenrod	<i>Solidago altissima</i>
Tulip poplar	<i>Lireodendron tulipifera</i>
Velvetleaf tick tree foil	<i>Desmodium viridiflorum</i>

Proposed Elk River Resort

Common Name	Scientific Name
Virginia pine	<i>Pinus virginiana</i>
Virginia creeper	<i>Parthenocissus quiquefolius</i>
White ash	<i>Fraxinus americana</i>
White oak	<i>Quercus alba</i>
White vervain	<i>Verbena urticifolia</i>
Wild black cherry	<i>Prunus serotina</i>
Wild hydrangea	<i>Hydrangea arborescens</i>
Wild yam	<i>Dioscorea villosa</i>
Willow oak	<i>Quercus phellos</i>
Winged elm	<i>Ulmus alata</i>
Winged sumac	<i>Rhus copalina</i>

* Species not observed by TVA botanist, but reported from the site

** Denotes nonnative exotic species

TVA VISUAL RESOURCES

SCENIC VALUE CRITERIA FOR SCENERY INVENTORY AND MANAGEMENT

The criteria for classifying the quality and value of scenery has been adapted from a scenic management system developed by the U.S. Forest Service and integrated with current planning methods used by the Tennessee Valley Authority. The classification process is also based on fundamental methodology and descriptions adapted from Landscape Aesthetics, A Handbook for Scenery Management, Agriculture Handbook Number 701, U.S. Forest Service, U.S.D.A. 1995.

The process and criteria are used to compare the value of scenery to other resource values during inventory and land planning tasks. They are also used to evaluate the extent and magnitude of visual changes that could result from proposed projects, as part of the environmental review required under NEPA. In addition they can be useful to help establish management objectives for improving or maintaining the scenic quality of managed lands.

Scenic Attractiveness - 3 levels

Attractiveness is a measure of scenic quality based on human perceptions of intrinsic beauty as expressed in the forms, colors, textures, and visual composition of each landscape. The combination of rock outcrops, water bodies, landforms, vegetation patterns, and other natural features that shape landscape character also help define scenic importance. The presence or absence of these features, along with valued attributes such as variety, uniqueness, mystery, pattern, order, vividness, harmony, and balance are used to classify the scenic attractiveness of a landscape.

- Category 1:** Distinctive - Areas where the variety of land forms, rock, vegetation patterns, water, and other features have outstanding or unique visual quality. These areas have strong, positive attributes that are relatively uncommon in the characteristic landscape. This category also includes areas in visually strategic locations that have somewhat more common attributes.
- Category 2:** Common - Areas where the land forms, rock, vegetation patterns, water, and other features have ordinary or common visual quality. These areas have generally positive but typical attributes, with a basic variety of forms, colors, and textures that are normally seen throughout the characteristic landscape.
- Category 3:** Minimal - Areas where the natural features have little change in form, line, color or texture resulting in low visual quality. Rock forms and vegetation patterns of any consequence are often not present, and these areas generally have weak or missing attributes. All areas not classified as 1 or 2 are included in this category.

Scenic Integrity - 4 levels

Integrity is a measure of scenic importance based on the degree of visual unity and wholeness of the natural landscape character. Human alteration can sometimes raise integrity, such as an impounded water body that unifies the landscape while adding variety, mystery, harmony, and balance. Most often scenic integrity is lowered by human alteration and the addition of visually disruptive elements. The presence and degree of discordant alteration is used to classify the scenic integrity of a landscape.

High: Areas where the valued landscape character appears to be intact and unaltered, with very minor deviation. Any deviation present must repeat the form, line, color, texture and pattern of the landscape so closely and at such a scale that they are not evident.

Moderate: Areas where the valued landscape character appears to be slightly altered. Noticeable deviations must be visually subordinate to the landscape being viewed, and borrow much of the natural form, line, color, texture and pattern.

Low: Areas where the valued landscape character appears to be modestly altered. Deviations begin to dominate the landscape being viewed, but the alterations should share natural color, shape, edge pattern, and vegetation characteristics in order to remain compatible or complimentary.

Very Low: Areas where the valued landscape character appears to be heavily altered. Deviations strongly dominate the landscape and may not share any of the visual attributes. The alterations may be visually disruptive and provide significant negative contrast to the natural landscape characteristics.

Scenic Visibility - 2 parts, 3 levels each

Landscape visibility is a measure of scenic importance based on several essential interrelated considerations which include viewer context and sensitivity, number of viewers, frequency and duration of view, level of detail seen, and seasonal variation. A large number of highly concerned viewers who view the landscape for a long time period may raise the scenic importance significantly. The importance may be much lower when only a few viewers with low concern see the landscape for a brief period. These considerations are combined in two parts which are used to classify the scenic visibility of a landscape.

Sensitivity : The level of scenic importance based on expressed human concern for the scenic quality of land areas viewed. Sensitivity may be derived/confirmed by resident and visitor surveys.

Level 1: Areas seen from the reservoir, lake shore residents, and lake view residents, where the number of viewers and concern for scenic quality are normally quite high.

Level 2: Areas seen from principle roadways, use areas, and other public viewing areas. Concern for scenic quality is generally high while the number of viewers, view frequency and duration are moderate.

Level 3: Areas seen from secondary travel routes, use areas, and any not included in the other levels. Concern may be high in some areas, but number of viewers is generally low.

View Distance: A principal indicator of scenic importance based on the distance an area can be seen by observers, and the degree of visible detail within that zone.

Foreground: From 0 feet to ½ mile. A distance zone where the individual details of specific objects are important and easily distinguished. Details are most significant within the immediate foreground, 0 - 300 feet.

Middleground: From ½ mile to 4 miles. The zone where most object characteristics are distinguishable, but their details are weak and they tend to merge into larger patterns. When landscapes are viewed in this zone they are seen in broader context. Human alteration may contrast strongly with the larger patterns and make some middleground landscapes more sensitive than the foreground.

Background: From 4 miles to the horizon. The distant landscape, where specific features are not normally discernible unless they are especially large, standing alone, or have a substantial color contrast. Details are generally not visible and colors are lighter.

Scenic Value Class - 4 levels

The value class of a landscape is determined by combining the levels of scenic attractiveness, scenic integrity and visibility. The table below shows the various combinations and the resulting scenic class. It is a general guide, and is intended to complement both a thorough field analysis and careful review of the visual absorption capacity.

Excellent: Areas with outstanding natural features that appear unaltered. Very minor deviations may be present but are generally unnoticeable even in the foreground. These areas are highly visible in the foreground and middleground from both land and water. Unaltered areas that may be less outstanding but are in a visually strategic location also have excellent scenic value.

Good: Areas with attractive but common scenic quality and no distinctive natural features. Minor human alteration may be seen in the foreground but is barely noticeable in the middleground. These areas have relatively high visibility from both land and water.

Fair: Areas of common or minimal scenic quality with little or no interesting features. Moderate human alteration is seen in the foreground but is less distinct in the middleground due to compatible form and color. These areas have relatively high visibility from both land and water.

Poor: Areas that have very little scenic importance and/or visually significant disturbances resulting from human activity. The alterations provide discordant contrast in the natural landscape due to incompatible size, shape, color, and material. The areas are clearly visible in the foreground and middleground, and have relatively high visibility from both land and water.

Scenic Value Class Selection Table													
Visibility Levels:	Sensitivity View Distance	1 foreground			1 midground			2 foreground			2 midground		
		1	2	3	1	2	3	1	2	3	1	2	3
Scenic Attractiveness Categories		1	2	3	1	2	3	1	2	3	1	2	3
Scenic Integrity Levels	High	E	G	F	E	E	G	E	G	F	E	E	G
	Moderate	G	G	F	E	G	F	G	G	F	E	G	F
	Low	F	F	P	F	F	P	F	F	P	F	F	P
	Very low	P	P	P	F	P	P	P	P	P	F	P	P
		Scenic Value Class: E = Excellent; G = Good; F = Fair; P = Poor											

Visual Absorption Capacity

Absorption capacity indicates the relative ability of a landscape to accept human alteration with the least loss of landscape character and scenic value. These indicators are useful to help predict potential difficulty or success with proposed development and scenic management. They are based on characteristics of the physical factors found in a landscape. Each characteristic has a capacity range from less to more, and the primary ones are shown in the list below. Visual absorption is also affected by the variety of landscape patterns, and the amount of screening provided by landforms, rock, water bodies, and vegetation.

Factor	Least Capacity to Absorb Change	Greatest Capacity to Absorb Change
Slope	Steep Unstable geology	Level Stable geology
Vegetation	Sparse cover Low cover, grasses and shrubs Few species, little or no pattern	Dense cover Tall cover, trees Multiple species, diverse pattern
Landforms	Simple shape	Diverse shapes, heavily dissected
Soils	Easily eroded Poor, slow revegetation	Erosion resistant Rich, fast revegetation
Shoreline	Simple line, little or no interruption	multiple interruptions, diverse features
Color	Narrow range of indigenous colors	Broad range of indigenous colors

Desired Landscape Character

Scenic attractiveness and the existing level of scenic integrity serve as the foundation for selecting the preferred landscape character. Lake adjacency and ecosystem trends should be considered along with the historic visual character to help any changes be more complete, attractive, and sustainable. Several types of landscape character and the related long range objectives for scenic integrity are described below.

Natural Evolving landscape character expressing the natural change in

ecological features and processes with very limited human intervention.

Natural Appearing landscape character that expresses predominantly natural qualities but includes minor human interaction along with cultural features and processes that are relatively unobtrusive.

Pastoral landscape character expressing dominant human developed pasture, range, and meadow, along with associated structures, reflecting historic land uses, values, and lifestyles.

Rural landscape character that expresses sparse but dominant human residential and recreational development, along with associated structures and roadways that reflect current lifestyles.

Urban landscape character expressing concentrations of human activity in the form of commercial, residential, cultural, and transportation, facilities, along with supporting infrastructure.

Visual Management Objectives

Based on the scenic value class, management objectives may be developed to accomplish or maintain the visual character desired for each area.

Preservation:

Areas classified Excellent, and managed for a natural evolving landscape character. Only very low impact recreational and scientific activities are allowed, and no facilities are permitted.

Retention:

Areas classified Good, and managed for a natural appearing landscape character. Permitted activity or minor development should repeat the natural form, line, color, and texture of the area and remain visually subordinate to the surrounding landscape. Changes in the size, intensity, direction and pattern of activity should be unobtrusive and not readily evident.

Modification: Areas classified Good or Fair, and managed for pastoral or rural landscape character. Permitted activity and development may dominate the original character but should remain visually compatible with the remaining natural landscape. Vegetation and landform alterations should repeat the natural edges, forms, color, and texture of the surrounding area. The scale and character of structures, roads, and other features should borrow naturally established forms, lines, lines, colors and patterns to provide the greatest possible visual harmony.

Maximum Modification: Areas classified Fair or Poor, and managed for urban landscape character. Permitted activity and development generally dominates the original visual character. Vegetation and landform alterations should remain visually harmonious with the adjacent landscape. When seen In the foreground and middleground, they may not fully borrow the surrounding natural forms, lines, colors and textures. Likewise, development features seen from the same distances may be out of

scale and have significant details that are discordant with the natural landscape character. Overall development should be directed toward achieving the greatest possible visual harmony.

Enhancement: Any area classified less than Excellent, with a relatively short term management objective intended to restore and/or improve the desired scenic quality. Rehabilitation activities may include alteration, concealment, or removal of obtrusive and discordant elements. Enhancement activities may include addition or modification of natural elements and man-made features to increase the variety and attractiveness of spaces, edges, forms, colors, textures, and patterns.

Wetland Descriptors

Sample ID: B-3		Photo ID(s):						
Flagging Description:								
Drawing:								
Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations								
<p>UPLAND TEST PLOT.</p>								
Obvious Connections to Waters of the US/State?		Yes	<input checked="" type="checkbox"/>	No	Waterbody/Watershed:			
Primary Water Source (if other, note in comments)		Cap. Fringe		Overbanking	Sheet Flow	Groundwater	Precipitation	Other
TVARAM SCORE:		TVARAM CATEGORY:						
Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)								

Proposed Elk River Resort

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID: Wetland A: Plot 1 (A-1)
County: Lauderdale	Date: 8/25/05	Atypical Situation: <input type="checkbox"/>	Station/Structure #(s):
State: Alabama		Problem Area: <input type="checkbox"/>	Cowardin Code: PEM/PSS/PFO1Ch

Vegetation

Plant Species	Stratum	Indicator	Plant Species	Stratum	Indicator
1. <i>Salix nigra</i>	Tree	Obl	9. <i>Ludwigia leptocarpa</i>	Herb	Obl
2. <i>Acer saccharinum</i>	Tree	Facw	10. <i>Ludwigia unguayensis</i>	Herb	Obl
3. <i>Acer rubrum</i>	Tree	Fac	11. <i>Triadenum walteri</i>	Herb	Obl
4. <i>Cephalanthus occidentalis</i>	Shrub	Obl	12. <i>Boehmeria cylindrica</i>	Herb	Facw+
5. <i>Cornus amomum</i>	Shrub	Facw+	13. <i>Aternanthera philoxeroides</i>	Herb	Obl
6. <i>Ailus serrulata</i>	Shrub	Facw+	14. <i>Saururus cernuus</i>	Herb	Obl
7. <i>Brunnichia cirtiosa</i>	Vine	Facw	15. <i>Polygonum punctatum</i>	Herb	Facw+
8. <i>Murdannia keisak</i>	Herb	Obl	16. <i>Carex lupulina</i>	Herb	Obl

Percent of Dominant Species That are OBL, FACW, or FAC: 16/16 = 100%

Hydrology

Field Observations:		Wetland Hydrology Indicators:			
Depth of Surface Water: _____ (in.)		Primary Indicators		Secondary Indicators	
Depth to Free Water in Pit: 0 (in.)		<input type="checkbox"/> Inundated	<input checked="" type="checkbox"/> Drift Lines	<input type="checkbox"/> Oxidized Root Channels	
Depth to Saturated Soil: 0 (in.)		<input checked="" type="checkbox"/> Saturated in Upper 12 in.	<input type="checkbox"/> Water Marks	<input checked="" type="checkbox"/> Water Stained Leaves	
		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Drainage Patterns		

Remarks: Hydrology is controlled principally by reservoir level.

Soils

Soil Unit:	Drainage class:	Listed hydric soil?	Yes	No
Profile Description:				
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture
0-5	10YR 5/2	10YR 4/2	<10	silt loam
5-10+	10YR 5/3	10YR 5/4	<10	silty clay loam
Hydric Soil Indicators:				
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Aquic Moisture Regime		
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Cont. Surf. Layer Sandy Soils	<input type="checkbox"/> Reducing Conditions		
<input type="checkbox"/> Concretions	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (Explain in Remarks)		

Remarks: Despite other strong wetland indicators, soils appear weakly converted.

Wetland Determination

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is this Sampling Point Within a USACE Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Does area only meet USFWS wetland definition?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is wetland mapped on NWI?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Estimated size: ± 4 acres.

Wetland Descriptors

Sample ID: A-1	Photo ID(s): Photos 1-4.											
Flagging Description: Outside perimeter of wetland has been flagged. These are to be located by a licensed surveyor.												
Drawing:												
Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations												
<p style="text-align: center;">WETLAND "A"</p>												
Obvious Connections to Waters of the US/State?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	Waterbody/Watershed: Elk River/Wheeler Reservoir							
Primary Water Source (if other, note in comments)	<input checked="" type="checkbox"/>	Cap. Fringe	<input type="checkbox"/>	Overbanking	<input type="checkbox"/>	Sheet Flow	<input type="checkbox"/>	Groundwater	<input type="checkbox"/>	Precipitation	<input type="checkbox"/>	Other
TVARAM SCORE:	60		TVARAM CATEGORY:									
Description of Wetland and Other Comments: (I.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)												
<p>This wetland is driven primarily from periodic flooding of the area by the adjoining reservoir. Wetlands associated with intermittent drainages generally lack hydric soils and are weakly delimited by "Facultative" vegetation (See Plot A-3). The wetland complex is estimated at ca. 4+ acres. This includes 35% PEM, 25% PFO, 10% PSS, and 30% non-USACE (lacks hydric soils)</p>												

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID:	Wetland A, Plot 2 (A-2)
County: Lauderdale	Date: 8/25/05	Atypical Situation: <input type="checkbox"/>	Station/Structure #(s):	
State: Alabama		Problem Area: <input type="checkbox"/>	Cowardin Code:	non-USACE PFO

Vegetation

Plant Species		Stratum	Indicator	Plant Species		Stratum	Indicator
1.	<i>Pinus taeda</i>	Tree	Fac	9.	<i>Sambucus canadensis</i>	Shrub	Fac-
2.	<i>Celtis laevigata</i>	Tree	Facw	10.	<i>Parthenocissus quinquefolia</i>	Vine	Fac
3.	<i>Liriodendron tulipifera</i>	Tree	Fac	11.	<i>Toxicodendron radicans</i>	Vine	Fac
4.	<i>Acer negundo</i>	Tree	Facw	12.	<i>Microstegium vimineum</i>	Herb	Fac+
5.	<i>Morus rubra</i>	Tree	Fac	13.	<i>Impatiens capensis</i>	Herb	Facw
6.	<i>Ulmus americana</i>	Sapling	Facw	14.	<i>Polygonum cespitosum</i>	Herb	Fac-
7.	<i>Celtis laevigata</i>	Sapling	Facw	15.			
8.	<i>Ligustrum sinense</i>	Shrub	Fac	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 14/14 = 100%

Hydrology

Field Observations:		Wetland Hydrology Indicators:			
Depth of Surface Water: _____ (in.)	Primary Indicators	Secondary Indicators			
Depth to Free Water in Pit: _____ (in.)	<input type="checkbox"/> Inundated	<input type="checkbox"/> Drift Lines	<input type="checkbox"/> Oxidized Root Channels		
Depth to Saturated Soil: _____ (in.)	<input type="checkbox"/> Saturated in Upper 12 in.	<input type="checkbox"/> Water Marks	<input type="checkbox"/> Water Stained Leaves		
	<input type="checkbox"/> Sediment Deposits	<input checked="" type="checkbox"/> Drainage Patterns			

Remarks: Hydrology is provided by occasional overbanking of a nearby intermittent creek and drainage from adjoining side slopes.

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes	No
Profile Description:						
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture		
0-3	10YR 3/3			silt loam		
3-10+	7.5YR 4/6	10YR 3/3	<5	sandy loam		

Hydric Soil Indicators:

<input type="checkbox"/> Gleyed or Low Chroma Colors	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Aquic Moisture Regime
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Cont. Surf. Layer Sandy Soils	<input type="checkbox"/> Reducing Conditions
<input type="checkbox"/> Concretions	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Soils do not meet USACE hydric soil parameters. Some ATV impacts were noted near photo points 5 and 6.

Wetland Determination

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is this Sampling Point Within a USACE Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Does area only meet USFWS wetland definition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is wetland mapped on NW?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Estimated size: ± 1.25 acres.

Wetland Descriptors

Sample ID: A-2	Photo ID(s): Photos 5-7.						
Flagging Description: Outside perimeter of wetland has been flagged. These are to be located by a licensed surveyor.							
Drawing:							
Please include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations							
<p>SEE DRAWING FOR WETLAND A-1.</p>							
Obvious Connections to Waters of the US/State?	x	Yes	No	Waterbody/Watershed: Elk River (Wheeler Reservoir)			
Primary Water Source (if other, note in comments)	X	Cap. Fringe	Overbanking	Sheet Flow	Groundwater	Precipitation	Other
TVARAM SCORE:	TVARAM CATEGORY:						
Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)							
<p>This level area near the embayment with the Elk River meets the USFWS wetland definition only. Soils are generally too sandy and porous to support hydric soil formation. The area contains some braided channels which support intermittent or ephemeral flow. ATV damage to these channels is moderate. The overstory is strongly dominated, in some areas, by large loblolly pines which exceed 2.5 ft in diameter. Most trees also appear to be > 100 ft tall.</p>							

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID: Wetland A, Plot 3 (A-3)
County: Lauderdale	Date: 8/25/05	Atypical Situation:	Station/Structure #(s):
State: Alabama		Problem Area:	Cowardin Code: Upland Test

Vegetation

Plant Species		Stratum	Indicator	Plant Species		Stratum	Indicator
1.	<i>Pinus taeda</i>	Tree	Fac	9.	<i>Cornus florida</i>	Shrub	Facu
2.	<i>Quercus stellata</i>	Tree	Facu	10.	<i>Fagus grandifolia</i>	Shrub	Facu
3.	<i>Liriodendron tulipifera</i>	Tree	Fac	11.	<i>Lonicera japonica</i>	Vine	Fac-
4.	<i>Prunus serotina</i>	Sapling	Facu	12.	<i>Berchemia scandens</i>	Vine	Facw
5.	<i>Carya ovalis</i>	Sapling	Facu	13.	<i>Toxicodendron radicans</i>	Vine	Fac
6.	<i>Liriodendron tulipifera</i>	Sapling	Fac	14.	<i>Parthenocissus quinquefolia</i>	Herb	Fac
7.	<i>Carya tomentosa</i>	Sapling	Upl	15.	<i>Vitis rotundifolia</i>	Herb	Fac
8.	<i>Carya ovalis</i>	Shrub	Facu	16.	<i>Sanicula canadensis</i>	Herb	Facu

Percent of Dominant Species That are OBL, FACW, or FAC: 7/16 = 43.8%

Hydrology

Field Observations:		Wetland Hydrology Indicators:	
Depth of Surface Water: _____ (in.)		Primary Indicators	Secondary Indicators
Depth to Free Water in Pit: _____ (in.)		<input type="checkbox"/> Inundated	<input type="checkbox"/> Drift Lines
Depth to Saturated Soil: _____ (in.)		<input type="checkbox"/> Saturated in Upper 12 in.	<input type="checkbox"/> Water Marks
		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Drainage Patterns
Remarks: No hydrology indicators present.			

Soils

Soil Unit:	Drainage class:	Listed hydric soil?	Yes	No
Profile Description:				
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture
0-3	10YR 3/3			loam
3-10+	7.5YR 4/3	10YR 3/3	<5	silt loam
Hydric Soil Indicators:				
<input type="checkbox"/> Gleyed or Low Chroma Colors	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Aquic Moisture Regime		
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Cont. Surf. Layer Sandy Soils	<input type="checkbox"/> Reducing Conditions		
<input type="checkbox"/> Concretions	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: No hydric soil indicators present.				

Wetland Determination

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is this Sampling Point Within a USACE Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	Does area only meet USFWS wetland definition?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes _____ No <input checked="" type="checkbox"/>	Is wetland mapped on NWI?	Yes _____ No <input checked="" type="checkbox"/>
Estimated size: Upland test plot.			

Wetland Descriptors

Sample ID: A-3	Photo ID(s):											
Flagging Description:												
Drawing:												
Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations												
Obvious Connections to Waters of the US/State?	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">Yes</td> <td style="padding: 2px 5px; text-align: center;"><input checked="" type="checkbox"/></td> <td style="padding: 2px 5px;">No</td> </tr> </table>	Yes	<input checked="" type="checkbox"/>	No								
Yes	<input checked="" type="checkbox"/>	No										
Waterbody/Watershed:												
Primary Water Source (If other, note in comments)	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">Cap. Fringe</td> <td style="padding: 2px 5px;"></td> <td style="padding: 2px 5px;">Overbanking</td> <td style="padding: 2px 5px;"></td> <td style="padding: 2px 5px;">Sheet Flow</td> <td style="padding: 2px 5px;"></td> <td style="padding: 2px 5px;">Groundwater</td> <td style="padding: 2px 5px;"></td> <td style="padding: 2px 5px;">Precipitation</td> <td style="padding: 2px 5px;"></td> <td style="padding: 2px 5px;">Other</td> </tr> </table>	Cap. Fringe		Overbanking		Sheet Flow		Groundwater		Precipitation		Other
Cap. Fringe		Overbanking		Sheet Flow		Groundwater		Precipitation		Other		
TVARAM SCORE:	TVARAM CATEGORY:											
Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)												
UPLAND TEST PLOT.												

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID: Wetland B, Plot 1 (B-1)
County: Lauderdale	Date: 8/25/05	Atypical Situation: <input type="checkbox"/>	Station/Structure #(s):
State: Alabama		Problem Area: <input type="checkbox"/>	Cowardin Code: PEM PSS/PFO1Ch

Vegetation

Plant Species	Stratum	Indicator	Plant Species	Stratum	Indicator
1. Liquidambar styraciflua	Tree	Fac+	9. Berchemia scandens	Vine	Facw
2. Liriodendron tulipifera	Tree	Fac	10. Ludwigia leptocarpa	Herb	Obl
3. Liriodendron tulipifera	Sapling	Fac	11. Triadenum walteri	Herb	Obl
4. Acer rubrum	Sapling	Fac	12. Alternanthera philoxeroides	Herb	Obl
5. Liquidambar styraciflua	Sapling	Fac+	13. Eclipta alba	Herb	Facw-
6. Cephalanthus occidentalis	Shrub	Obl	14. Boehmeria cylindrica	Herb	Facw+
7. Cornus amomum	Shrub	Facw+	15. Hydrocotyle sp.	Herb	---
8. Smilax rotundifolia	Vine	Fac	16. Bidens sp.	Herb	---

Percent of Dominant Species That are OBL, FACW, or FAC: 14/14 = 100%

Hydrology

Field Observations:		Wetland Hydrology Indicators:			
Depth of Surface Water: _____ (in.)		Primary Indicators		Secondary Indicators	
Depth to Free Water in Pit: 0 (in.)		<input type="checkbox"/> Inundated	<input checked="" type="checkbox"/> Drift Lines	<input type="checkbox"/> Oxidized Root Channels	
Depth to Saturated Soil: 0 (in.)		<input checked="" type="checkbox"/> Saturated in Upper 12 in.	<input type="checkbox"/> Water Marks	<input checked="" type="checkbox"/> Water Stained Leaves	
		<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Drainage Patterns		

Remarks: Hydrology is controlled principally by reservoir level.

Soils

Soil Unit:	Drainage class:	Listed hydric soil?	Yes	No
Profile Description:				
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture
0-7	10YR 3/2			silt
7-10+	10YR 5/2	10YR 3/2	5	silty clay
Hydric Soil Indicators:				
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Aquic Moisture Regime		
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Cont. Surf. Layer Sandy Soils	<input type="checkbox"/> Reducing Conditions		
<input type="checkbox"/> Concretions	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (Explain in Remarks)		

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is this Sampling Point Within a USACE Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Does area only meet USFWS wetland definition?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is wetland mapped on NWI?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Estimated size: ±1.25 acres.

Wetland Descriptors

Sample ID: B-1	Photo ID(s): 8-10.
Flagging Description: Outside perimeter of wetland has been flagged. These are to be located by a licensed surveyor.	
Drawing:	
Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations	
Obvious Connections to Waters of the US/State?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Waterbody/Watershed: Elk River (Wheeler Reservoir)
Primary Water Source (If other, note in comments)	<input checked="" type="checkbox"/> Cap. Fringe <input type="checkbox"/> Overbanking <input type="checkbox"/> Sheet Flow <input type="checkbox"/> Groundwater <input type="checkbox"/> Precipitation <input type="checkbox"/> Other
TVARAM SCORE:	61 TVARAM CATEGORY:
Description of Wetland and Other Comments: (I.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)	
<p>Similar in most respects to Wetland "A", but only about 1/3 the size. <i>Ludwigia leptocarpa</i> is a very strong dominant in the emergent zone. Numerous turtles, green frogs, and green herons were observed. A dirt access road at the top of the wetland drainage is a moderate source of siltation.</p>	

Proposed Elk River Resort

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID: Wetland B, Plot 2 (B-2)
County: Lauderdale	Date: 8/25/05	Atypical Situation: <input type="checkbox"/>	Station/Structure #(s):
State: Alabama		Problem Area: <input type="checkbox"/>	Cowardin Code: non-USACE PFO

Vegetation

Plant Species	Stratum	Indicator	Plant Species	Stratum	Indicator
1. <i>Liquidambar styraciflua</i>	Tree	Fac+	9. <i>Berchemia scandens</i>	Vine	Facw
2. <i>Liriodendron tulipifera</i>	Tree	Fac	10. <i>Impatiens capensis</i>	Herb	Facw
3. <i>Acer saccharinum</i>	Tree	Facw	11. <i>Microstegium vimineum</i>	Herb	Fac+
4. <i>Liriodendron tulipifera</i>	Sapling	Fac	12. <i>Boehmeria cylindrica</i>	Herb	Facw+
5. <i>Acer negundo</i>	Shrub	Facw	13. <i>Polygonum cespitosum</i>	Herb	Facw
6. <i>Ligustrum sinense</i>	Shrub	Fac	14.		
7. <i>Lonicera japonica</i>	Vine	Fac-	15.		
8. <i>Parthenocissus quinquefolia</i>	Vine	Fac	16.		

Percent of Dominant Species That are OBL, FACW, or FAC: 12/13 = 92.3%

Hydrology

Field Observations:	Wetland Hydrology Indicators:
Depth of Surface Water: _____ (in.)	Primary Indicators
Depth to Free Water in Pit: _____ (in.)	_____ Inundated
Depth to Saturated Soil: _____ (in.)	_____ Saturated in Upper 12 in.
	_____ Sediment Deposits
	_____ Drift Lines
	_____ Water Marks
	_____ Drainage Patterns
	Secondary Indicators
	_____ Oxidized Root Channels
	<input checked="" type="checkbox"/> Water Stained Leaves

Remarks: This area receives periodic overbank flow from a nearby intermittent creek.

Soils

Soil Unit:	Drainage class:	Listed hydric soil?	Yes	No
Profile Description:				
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture
0-4	10YR 4/2			silt loam
4-7	10YR 3/3	7.5YR 4/4	25	silt loam
7-10+	7.5YR 5/4	7.5YR 4/3	25	silty clay loam
Hydric Soil Indicators:				
_____ Gleyed or Low Chroma Colors	_____ Histic Epipedon	_____ Aquic Moisture Regime		
_____ Sulfidic Odor	_____ High Organic Cont. Surf. Layer Sandy Soils	_____ Reducing Conditions		
_____ Concretions	_____ Organic Streaking in Sandy Soils	_____ Other (Explain in Remarks)		

Remarks: No hydric soil indicators present.

Wetland Determination

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is this Sampling Point Within a USACE Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	Does area only meet USFWS wetland definition?	Yes <input checked="" type="checkbox"/>	No _____
Hydric Soils Present?	Yes _____	No <input checked="" type="checkbox"/>	Is wetland mapped on NWI?	Yes _____	No <input checked="" type="checkbox"/>

Estimated size:

Wetland Descriptors

Sample ID:	Photo ID(s): Photo 11.						
Flagging Description:							
Drawing:							
Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations							
<p>SEE DRAWING FOR WETLAND B-1.</p>							
Obvious Connections to Waters of the US/State?	x	Yes	No	Waterbody/Watershed: Elk River (Wheeler Reservoir)			
Primary Water Source (If other, note in comments)	x	Cap. Fringe	Overbanking	Sheet Flow	Groundwater	Precipitation	Other
TVARAM SCORE:	TVARAM CATEGORY:						
<p>Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)</p> <p>This area meets the USFWS wetland definition only since it lacks hydric soils. The area contains some braided channels which support intermittent or ephemeral flow. ATV damage to these channels is moderate and has resulted in some siltation into down-gradient portions of the wetland.</p>							

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Elk River Resort (Doss)	Investigator: P.C. Durr	Normal Circumstances: <input checked="" type="checkbox"/>	Sample ID: Wetland B, Plot 3 (B-3)
County: Lauderdale	Date: 8/25/05	Atypical Situation: <input type="checkbox"/>	Station/Structure #(s):
State: Alabama		Problem Area: <input type="checkbox"/>	Cowardin Code: Upland Test

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	<i>Carya ovata</i>	Tree	Facu	9.	<i>Aralia spinosa</i>	Shrub	Fac
2.	<i>Prunus serotina</i>	Tree	Facu	10.	<i>Ulmus americana</i>	Shrub	Facw
3.	<i>Quercus alba</i>	Tree	Facu	11.	<i>Ligustrum sinense</i>	Shrub	Fac
4.	<i>Ulmus alata</i>	Sapling	Facu+	12.	<i>Berchemia scandens</i>	Vine	Facw
5.	<i>Carya ovata</i>	Sapling	Facu	13.	<i>Rubus argutus</i>	Herb	Facu+
6.	<i>Cercis canadensis</i>	Sapling	Facu	14.	<i>Asplenium platyneuron</i>	Herb	Facu
7.	<i>Cercis canadensis</i>	Shrub	Facu	15.	<i>Polygonum virginianum</i>	Herb	Fac
8.	<i>Quercus alba</i>	Shrub	Facu	16.	<i>Geum sp.</i>	Herb	---

Percent of Dominant Species That are OBL, FACW, or FAC: 5/15 = 33.3%

Hydrology

Field Observations:		Wetland Hydrology Indicators:	
Depth of Surface Water: _____ (in.)	Primary Indicators	Secondary Indicators	
Depth to Free Water in Pit: _____ (in.)	<input type="checkbox"/> Inundated	<input type="checkbox"/> Drift Lines	<input type="checkbox"/> Oxidized Root Channels
Depth to Saturated Soil: _____ (in.)	<input type="checkbox"/> Saturated in Upper 12 in.	<input type="checkbox"/> Water Marks	<input type="checkbox"/> Water Stained Leaves
	<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Drainage Patterns	
Remarks: No hydrology indicators present.			

Soils

Soil Unit:	Drainage class:	Listed hydric soil?	Yes	No
Profile Description:				
Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance (%)	Texture
0-7	10YR 4/3			silt loam, rock fragments
stopper @ 7				rock
Hydric Soil Indicators:				
<input type="checkbox"/> Gleyed or Low Chroma Colors	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Aquic Moisture Regime		
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Cont. Surf. Layer Sandy Soils	<input type="checkbox"/> Reducing Conditions		
<input type="checkbox"/> Concretions	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (Explain in Remarks)		
Remarks: No hydric soil indicators present.				

Wetland Determination

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is this Sampling Point Within a USACE Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Does area only meet USFWS wetland definition?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soils Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is wetland mapped on NW?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Estimated size:					

Site: Elk River Resort (Doss), Wetland "B" Rater(s): Paul Durr/PTRL Date: 8/25/05

53
submit previous page

0 53
max 10 pts submit
raw score*

Metric 5. Special Wetlands

- *If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.
- Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).
- Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
 - Assoc. forest (wet. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
 - Sensitive geologic feature such as spring/leap, sink, losing/underground stream, cave, waterfall, rock outcrop/split (3)
 - Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
 - Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (3)
 - Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
 - Grass morph. adapt. in >5 trees >10 in. (25 cm) dbh; buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
 - Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [Use higher rank where mixed rank or qualifier]
 - Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [Use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
 - Superior/enhanced habitat/use: migratory songbird/waterfowl (5); in-reservoir buttonbush (4); other fish/wildlife management/designation (3)
 - Cat. 1 (very low quality) : <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated or mined/excavated land (-10)

6 61
max 20 pts submit

Metric 6. Plant Communities, Interspersion, Microtopography

- 6a. Wetland vegetation communities. Score all present using 0 to 3 scale.
- Aquatic bed
 - Emergent
 - Shrub
 - Forest
 - Mudflats
 - Open water <20 acres (8 ha)
 - Moss/lichen. Other _____

- Vegetation Community Cover Scale**
- 0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
- 1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
- 2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
- 3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

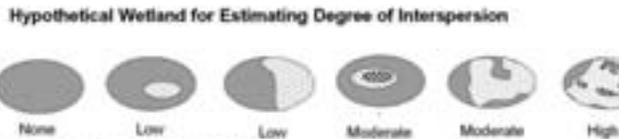
- 6b. Horizontal (plan view) interspersion. Select only one.
- High (5)
 - Moderately high (4) [BR/CM (5)]
 - Moderate (3) [BR/CM (5)]
 - Moderately low (2) [BR/CM (3)]
 - Low (1) [BR/CM (2)]
 - None (0)

- Narrative Description of Vegetation Quality**
- low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
- mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
- high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species.

- 6c. Coverage of invasive plants. Add or deduct points for coverage.
- Extensive >75% cover (-5)
 - Moderate 25-75% cover (-3)
 - Sparse 5-25% cover (-1)
 - Nearly absent <5% cover (0)
 - Absent (1)

- Mudflat and Open Water Class Quality**
- 0 = Absent <0.1 ha (0.25 acres) [or BR/CM <0.04 ha (0.1 acre)]
- 1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acres)]
- 2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acres)]
- 3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

- 6d. Microtopography. Score all present using 0 to 3 scale.
- Vegetated hummocks/mussocks
 - Coarse woody debris >15 cm (6 in.)
 - Standing dead >25 cm (10 in.) dbh
 - Amphibian breeding pools



- Microtopography Cover Scale**
- 0 = Absent
- 1 = Present in very small amounts or if more common of marginal quality
- 2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
- 3 = Present in moderate or greater amounts and of highest quality

61

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.or.us/bwr/01/001.html>
Last revised 2005-04-29

Proposed Elk River Resort

TVARAM Field Form Quantitative Rating

Site: Elk River Resort (Doss), Wetland "A"

Rater(s): Paul Durr/PTRL

Date: 8/25/05

3

max 6 pts.

3

subtotal

Metric 1. Wetland Area (size)

Select one size class and assign score.

- >50 acres (>20.2 ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- <0.1 acre (0.04 ha) (0)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Sources /assumptions for size estimate (list):

14

max 14 pts.

17

subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- High. Urban, industrial, open pasture, row cropping, mining, construction (1)

25

max 30 pts.

42

subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3) [BR/CM (5)]
- Precipitation (1) [unless BR/CM primary source (5)]
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 m (27.6 in.) (3)
- 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100-year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g., forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3) [BR/CM (4)]
- Seasonally inundated (2) [BR/CM (4)]
- Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

Check all disturbances observed

- ditch
- tile (including culvert)
- dike
- weir
- stormwater input
- point source (nonstormwater)
- filling/grading
- road bed/R.R. track
- dredging
- other: **ATV Road**

13

max 20 pts.

55

subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed

- mowing
- grazing
- clearcutting
- selective cutting
- farming
- toxic pollutants
- shrub/sapling removal
- herbaceous/aquatic bed removal
- woody debris removal
- sedimentation
- dredging
- nutrient enrichment

55

subtotal this page

TVARAM Field Form Quantitative Rating

Site: Elk River Resort (Doss), Wetland "A"	Rater(s): Paul Durri/PTRL	Date: 8/25/05
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55

0	55
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Metric 5. Special Wetlands

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq.m, sphagnum or other moss (5); muck, organic soil layer (3)
- Assoc. forest (wet. &/or ad. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- Sensitive geologic feature such as spring/leep, sink, losing/underground stream, cave, waterfall, rock outcrop/bliff (5)
- Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland (1st order perennial or above) (3)
- Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh; buttress, multitrunk/stool, stilted, shallow roots/tp-up, or pneumatophores (3)
- Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- Known occurrence state/federal threatened/ endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- Superior/enhanced habitat/use: migratory songbird/waterfowl (5); in-reservoir buttonbush (4); other fish/wildlife management/designation (3)
- Cat. 1 (very low quality) < 1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated or mined/excavated land (-10)

5	60
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Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities. Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water <20 acres (8 ha)
- Moss/lichen, Other _____

Vegetation Community Cover Scale

- 0 = Absent or <0.1 ha (0.25 acres) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
- 1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
- 2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
- 3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion. Select only one.

- High (5)
- Moderately high (4) [BR/CM (5)]
- Moderate (3) [BR/CM (5)]
- Moderately low (2) [BR/CM (3)]
- Low (1) [BR/CM (2)]
- None (0)

Narrative Description of Vegetation Quality

- low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
- mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
- high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened or endangered species

6c. Coverage of invasive plants. Add or deduct points for coverage.

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

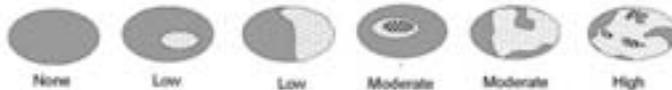
Mudflat and Open Water Class Quality

- 0 = Absent <0.1 ha (0.25 acres) [or BR/CM <0.04 ha (0.1 acre)]
- 1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
- 2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
- 3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.

- Score all present using 0 to 3 scale.
- Vegetated hummocks/tussocks
 - Coarse woody debris >15 cm (6 in.)
 - Standing dead >25 cm (10 in.) dbh
 - Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

- 0 = Absent
- 1 = Present in very small amounts or if more common of marginal quality
- 2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
- 3 = Present in moderate or greater amounts and of highest quality

60	GRAND TOTAL (max 100 pts)
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Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/ram/401401.html>

Proposed Elk River Resort

TVARAM Field Form Quantitative Rating

Site: Elk River Resort (Doss), Wetland "B"	Rater(s): Paul Durri/PTRL	Date: 8/25/05
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2	2	Metric 1. Wetland Area (size)
max 6 pts.	subtotal	

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

- Select one size class and assign score.
- >50 acres (>20.2 ha) (6 pts)
 - 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
 - 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
 - 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
 - 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
 - 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
 - <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

14	16	Metric 2. Upland Buffers and Surrounding Land Use
max 14 pts.	subtotal	

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- 7** WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
 - MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
 - NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
 - VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- 7** VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
 - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
 - High. Urban, industrial, open pasture, row cropping, mining, construction (1)

25	41	Metric 3. Hydrology
max 30 pts.	subtotal	

- 3a. Sources of water. Score all that apply.
- High pH groundwater (5)
 - Other groundwater (3) [BR/CM (5)]
 - 1** Precipitation (1) [unless BR/CM primary source (5)]
 - 3** Seasonal/intermittent surface water (3)
 - 5** Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 1** 100-year floodplain (1)
 - Between stream/lake and other human use (1)
 - 1** Part of wetland/upland (e.g., forest), complex (1)
 - 1** Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- 3** >0.7 m (27.6 in.) (3)
 - 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
 - <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]
- 3d. Duration inundation/saturation. Score one or dbl. check & avg.
- Semi- to permanently inundated/saturated (4)
 - 3** Regularly inundated/saturated (3) [BR/CM (4)]
 - Seasonally inundated (2) [BR/CM (4)]
 - Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
 - 7** Recovered (7)
 - Recovering (3)
 - Recent or no recovery (1)

- Check all disturbances observed
- | | |
|---|---|
| <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile (including culvert) | <input type="checkbox"/> filling/grading |
| <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir | <input type="checkbox"/> dredging |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other: ATV Road |

12	53	Metric 4. Habitat Alteration and Development
max 20 pts.	subtotal	

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
 - Recovered (3)
 - 2** Recovering (2)
 - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
 - Very good (6)
 - Good (5)
 - 4** Moderately good (4)
 - Fair (3)
 - Poor to fair (2)
 - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
 - 6** Recovered (6)
 - Recovering (3)
 - Recent or no recovery (1)

- Check all disturbances observed
- | | |
|--|---|
| <input type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> clearcutting | <input type="checkbox"/> woody debris removal |
| <input type="checkbox"/> selective cutting | <input type="checkbox"/> sedimentation |
| <input type="checkbox"/> farming | <input type="checkbox"/> dredging |
| <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |

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Last revised 2005-04-29