

**APPENDIX D – TERRESTRIAL ECOLOGY INFORMATION**



## APPENDIX D.

Vascular plant species observed on the proposed project lands during 2002 field surveys.

<b>Common name</b>	<b>Scientific name</b>
Adam's-needle	<i>Yucca filamentosa</i>
Alabama lip-fern	<i>Cheilanthes alabamensis</i>
Allegheny-chinkapin	<i>Castanea pumila</i>
American alumroot	<i>Heuchera americana</i>
American beech	<i>Fagus grandifolia</i>
American bittersweet	<i>Celastrus scandens</i>
American burnweed	<i>Erechtites hieraciifolia</i>
American elm	<i>Ulmus americana</i>
American hazelnut	<i>Corylus americana</i>
American hog-peanut	<i>Amphicarpaea bracteata</i>
American holly	<i>Ilex opaca</i>
American hornbeam	<i>Carpinus caroliniana</i>
American lopseed	<i>Phryma leptostachya</i>
American plum	<i>Prunus americana</i>
American pokeweed	<i>Phytolacca americana</i>
American squawroot	<i>Conopholis americana</i>
American strawberry-bush	<i>Euonymus americana</i>
Amur honeysuckle	<i>Lonicera maackii</i>
Angular-fruit milkvine	<i>Matelea gonocarpos</i>
Anise-scented goldenrod	<i>Solidago odora</i>
Annual ragweed	<i>Ambrosia artemisiifolia</i>
Arrow-leaf tearthumb	<i>Polygonum sagittatum</i>
Ashleaf maple (Boxelder)	<i>Acer negundo</i>
Asian bittersweet	<i>Celastrus orbiculatus</i>
Atlantic-pigeonwings	<i>Clitoria mariana</i>
Autumn goldenrod	<i>Solidago sphacelata</i>
Autumn olive	<i>Elaeagnus umbellata</i>
Barren strawberry	<i>Waldsteinia fragarioides</i>
Beaked panic grass	<i>Panicum anceps</i>
Bearded beggarticks	<i>Bidens polylepis</i>
Beardtongue	<i>Penstemon sp.</i>
Bear's-foot	<i>Smallanthus uvedalius</i>
Bitter dock	<i>Rumex obtusifolius</i>
Bitternut hickory	<i>Carya cordiformis</i>
Black cherry	<i>Prunus serotina</i>
Black locust	<i>Robinia pseudoacacia</i>
Black medick	<i>Medicago lupulina</i>
Black oak	<i>Quercus velutina</i>
Black raspberry	<i>Rubus occidentalis</i>
Black tupelo	<i>Nyssa sylvatica</i>
Black walnut	<i>Juglans nigra</i>
Black willow	<i>Salix nigra</i>
black-eyed-susan	<i>Rudbeckia hirta</i>
Black-seed plantain	<i>Plantago rugellii</i>
Black-stem spleenwort	<i>Asplenium resiliens</i>

*Rarity Pointe Commercial Recreation and Residential Development on Tellico Reservoir*

<b>Common name</b>	<b>Scientific name</b>
Bloodroot	<i>Sanguinaria canadensis</i>
Blunt broom sedge	<i>Carex tribuloides</i>
Blunt spike-rush	<i>Eleocharis obtusa</i>
Blunt-leaf rabbit-tobacco	<i>Gnaphalium obtusum</i>
Bosc's rosette grass	<i>Dichanthelium boscii</i>
Bracken fern	<i>Pteridium aquilinum</i> var. <i>latiusculum</i>
Bristle grass	<i>Setaria parviflora</i>
Broad beech fern	<i>Phegopteris hexagonaptera</i>
Broad-leaf enchanter's-nightshade	<i>Circaea lutetiana</i> ssp. <i>canadensis</i>
Brookside alder	<i>Alnus serrulata</i>
Broom rosette grass	<i>Dichanthelium scoparium</i>
Broom-sedge	<i>Andropogon virginicus</i>
Bull thistle	<i>Cirsium vulgare</i>
Butterfly milkweed	<i>Asclepias tuberosa</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Canadian black-snakeroot	<i>Sanicula canadensis</i>
Canadian goldenrod	<i>Solidago canadensis</i>
Canadian white violet	<i>Viola canadensis</i>
Carolina coralbeed	<i>Cocculus carolinus</i>
Carolina elephant's-foot	<i>Elephantopus carolinianus</i>
Carolina false-buckthorn	<i>Frangula caroliniana</i>
Carolina holly	<i>Ilex ambigua</i> var. <i>ambigua</i>
Carolina horse-nettle	<i>Solanum carolinense</i>
Carolina silverbell	<i>Halesia carolina</i>
Carolina vetch	<i>Vicia caroliniana</i>
Carolina wild petunia	<i>Ruellia caroliniensis</i>
Chestnut oak	<i>Quercus prinus</i>
Chickasaw plum	<i>Prunus angustifolia</i>
Chinaroot	<i>Smilax tamnoides</i>
Chinese bush-clover	<i>Lespedeza cuneata</i>
Chinese privet	<i>Ligustrum sinense</i>
Chinkapin oak	<i>Quercus muehlenbergii</i>
Christmas fern	<i>Polystichum acrostichoides</i>
Christmas honeysuckle	<i>Lonicera fragrantissima</i>
Common duckweed	<i>Lemna minor</i>
Common fescue	<i>Festuca arundinacea</i>
Common morning-glory	<i>Ipomoea purpurea</i>
Common selfheal	<i>Prunella vulgaris</i>
Cottongrass bulrush	<i>Scirpus cyperinus</i>
Cranefly orchid	<i>Tipularia discolor</i>
Creeping bush-clover	<i>Lespedeza repens</i>
Crossvine	<i>Bignonia capreolata</i>
Crown grass	<i>Paspalum</i> sp.
Curly dock	<i>Rumex crispus</i>
Cut-leaf grape fern	<i>Botrychium dissectum</i>
Cypress rosette grass	<i>Dichanthelium dichotomum</i>

<b>Common name</b>	<b>Scientific name</b>
Dandelion	<i>Taraxacum officinale</i>
Deerberry	<i>Vaccinium stamineum</i>
Deer-tongue rosette grass	<i>Dichanthelium clandestinum</i>
Deptford pink	<i>Dianthus armeria</i>
Devil's-darning-needles	<i>Clematis virginiana</i>
Devil's-grandmother	<i>Elephantopus tomentosus</i>
Downy milk-pea	<i>Galactia volubulis</i>
Downy rattlesnake-plantain	<i>Goodyera pubescens</i>
Downy serviceberry	<i>Amelanchier arborea</i>
Downy yellow false-foxglove	<i>Aureolaria virginica</i>
Duck-potato (Arrowhead)	<i>Sagittaria latifolia</i>
Dwarf cinquefoil	<i>Potentilla canadensis</i>
Dwarf crested iris	<i>Iris cristata</i>
Early blue violet	<i>Viola palmata</i>
Early lowbush blueberry	<i>Vaccinium pallidum</i>
Eastern black nightshade	<i>Solanum ptychanthum</i>
Eastern daisy fleabane	<i>Erigeron annuus</i>
Eastern hemlock	<i>Tsuga canadensis</i>
Eastern hop-hornbeam	<i>Ostrya virginiana</i>
Eastern red-cedar	<i>Juniperus virginiana</i>
Eastern white pine	<i>Pinus strobus</i>
Ebony spleenwort	<i>Asplenium platyneuron</i>
Elm-leaf goldenrod	<i>Solidago ulmifolia</i>
English plantain	<i>Plantago lanceolata</i>
Eyebane	<i>Chamaesyce nutans</i>
Fall sneezeweed	<i>Helenium autumnale</i>
False aloe	<i>Manfreda virginica</i>
False nettle	<i>Boehmeria cylindrica</i>
False solomon's-seal	<i>Smilacina racemosa</i>
Fan ground-pine	<i>Lycopodium digitatum</i>
Farewell-summer	<i>Aster lateriflorus</i>
Fescue sedge	<i>Carex festucacea</i>
Field thistle	<i>Cirsium discolor</i>
Flowering dogwood	<i>Cornus florida</i>
Flowering spurge	<i>Euphorbia corollata</i>
Four-leaf yam	<i>Dioscorea quaternata</i>
Fragrant bedstraw	<i>Galium triflorum</i>
Fringed greenbrier	<i>Smilax bona-nox</i>
Fringed sedge	<i>Carex crinita</i>
Frost grape	<i>Vitis vulpina</i>
Giant ironweed	<i>Vernonia gigantea</i>
Giant ragweed	<i>Ambrosia trifida</i>
Goat's-rue	<i>Tephrosia virginiana</i>
Gray goldenrod	<i>Solidago nemoralis</i>
Gray-bark grape	<i>Vitis cinerea</i> var. <i>baileyana</i>
Great mullein	<i>Verbascum thapsus</i>
Greater tickseed	<i>Coreopsis major</i>

*Rarity Pointe Commercial Recreation and Residential Development on Tellico Reservoir*

<b>Common name</b>	<b>Scientific name</b>
Ground-cherry	<i>Physalis</i> sp.
Hairy alumroot	<i>Heuchera villosa</i>
Hairy bedstraw	<i>Galium pilosum</i>
Hairy bush-clover	<i>Lespedeza hirta</i>
Hairy goldenrod	<i>Solidago hispida</i>
Hairy skullcap	<i>Scutellaria elliptica</i> var. <i>hirsuta</i>
Hairy small-leaf tick-trefoil	<i>Desmodium ciliare</i>
Heart-leaf foamflower	<i>Tiarella cordifolia</i>
Hirsute sedge	<i>Carex complanata</i>
Hogwort	<i>Croton capitatus</i>
Honey-locust	<i>Gleditsea triacanthos</i>
Hooded blue violet	<i>Viola sororia</i>
Hooked buttercup	<i>Ranunculus recurvatus</i>
Horsebrier	<i>Smilax rotundifolia</i>
Huger's carrion-flower	<i>Smilax hugeri</i>
Hyssop-leaf thoroughwort	<i>Eupatorium hyssopifolium</i>
Indian-strawberry	<i>Duchesnea indica</i>
Indian-tobacco	<i>Lobelia inflata</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese-clover	<i>Kummerowia striata</i>
Jimsonweed	<i>Datura stramonium</i>
Johnson grass	<i>Sorghum halapense</i>
Jumpseed	<i>Polygonum virginianum</i>
Korean-clover	<i>Kummerowia stipulacea</i>
Lamb's-quarters	<i>Chenopodium album</i>
Lamp rush	<i>Juncus effusus</i>
Large-bract plantain	<i>Plantago aristata</i>
Late goldenrod	<i>Solidago gigantea</i>
Late-flowering thoroughwort	<i>Eupatorium serotinum</i>
Licorice bedstraw	<i>Galium circaezans</i>
Limestone wild petunia	<i>Ruellia strepens</i>
Little bluestem	<i>Schizachyrium scoparium</i>
Little-brown-jug	<i>Hexastylis arifolia</i>
Little-sweet-betsy	<i>Trillium cuneatum</i>
Liverwort	<i>Hepatica acutiloba</i>
Liverwort	<i>Hepatica americana</i>
Loblolly pine	<i>Pinus taeda</i>
Long-leaf summer bluet	<i>Houstonia longifolia</i>
Loomis' mountain-mint	<i>Pycnanthemum loomisii</i>
Lyre-leaf sage	<i>Salvia lyrata</i>
Man-of-the-earth	<i>Ipomoea pandurata</i>
May-apple	<i>Podophyllum peltatum</i>
Meadow garlic	<i>Allium canadense</i>
Mercury spurge	<i>Euphorbia mercurialina</i>
Mockernut hickory	<i>Carya alba</i>
Moutain stewartia	<i>Stewartia ovata</i>
Multiflora rose	<i>Rosa multiflora</i>

<b>Common name</b>	<b>Scientific name</b>
Muscadine	<i>Vitis rotundifolia</i>
Naked-flower tick-trefoil	<i>Desmodium nudiflorum</i>
Narrow-leaf mountain-mint	<i>Pycnanthemum tenuifolium</i>
Narrow-leaf vervain	<i>Verbena simplex</i>
Narrow-leaf white-top-aster	<i>Sericocarpus linifolius</i>
Nepalese browntop	<i>Microstegium vimineus</i>
New Jersey-tea	<i>Ceanothus americanus</i>
Nightcaps	<i>Anemone quinquefolia</i>
Nodding plumeless-thistle	<i>Carduus nutans</i>
Nodding wild rye	<i>Elymus canadensis</i>
Northern dewberry	<i>Rubus flagellaris</i>
Northern hackberry	<i>Celtis occidentalis</i>
Northern red oak	<i>Quercus rubra</i>
Oat	<i>Avena sativa</i>
Orchard grass	<i>Dactylis glomerata</i>
Osage-orange	<i>Maclura pomifera</i>
Oswego-tea	<i>Monarda fistulosa</i>
Ox-eye daisy	<i>Leucanthemum vulgare</i>
Panicled-leaf tick-trefoil	<i>Desmodium paniculatum</i>
Partridge-pea	<i>Chamaecrista fasciculata</i>
Path rush	<i>Juncus tenuis</i>
Pawpaw	<i>Asimina triloba</i>
Pennsylvania sedge	<i>Carex pennsylvanica</i>
Perennial rye grass	<i>Lolium multiflorum</i>
Perennial rye grass	<i>Lolium perenne</i>
Perfoliate bellwort	<i>Uvularia perfoliata</i>
Perplexed tick-trefoil	<i>Desmodium perplexum</i>
Persimmon	<i>Diospyros virginiana</i>
Pignut hickory	<i>Carya glabra</i>
Pink azalea	<i>Rhododendron periclymenoides</i>
Pink slender-thoroughwort	<i>Fleischmannia incarnata</i>
Plume grass	<i>Erianthus sp.</i>
Poison ivy	<i>Toxicodendron radicans</i>
Poorjoe	<i>Diodia teres</i>
Post oak	<i>Quercus stellata</i>
Poverty wild oat grass	<i>Danthonia spicata</i>
Prairie fleabane	<i>Erigeron strigosus</i>
Prickly fanpetals	<i>Sida spinosa</i>
Princesstree	<i>Paulownia tomentosa</i>
Prostrate tick-trefoil	<i>Desmodium rotundifolium</i>
Purple cliff-brake	<i>Pellaea atropurpurea</i>
Purple passion-flower	<i>Passiflora incarnata</i>
Queen Anne's-lace	<i>Daucus carota</i>
Queendevil	<i>Hieracium gronovii</i>
Rattlesnake fern	<i>Botrychium virginianum</i>
Red clover	<i>Trifolium pratense</i>
Red hickory	<i>Carya ovalis</i>

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<b>Common name</b>	<b>Scientific name</b>
Red maple	<i>Acer rubrum</i>
Red mulberry	<i>Morus rubra</i>
Redbud	<i>Cercis canadensis</i>
Resurrection fern	<i>Pleopeltis polypodioides</i>
Rice button american-aster	<i>Aster dumosus</i>
Richweed	<i>Collinsonia canadensis</i>
Rose	<i>Rosa</i> sp. (cultivated)
Round-leaf thoroughwort	<i>Eupatorium rotundifolium</i>
Round-seed rosette grass	<i>Dichanthelium sphaerocarpon</i>
Rusty blackhaw	<i>Viburnum rufidulum</i>
Sallow sedge	<i>Carex lurida</i>
Sassafras	<i>Sassafras albidum</i>
Sawbrier	<i>Smilax glauca</i>
Saw-tooth blackberry	<i>Rubus argutus</i>
Scarlet oak	<i>Quercus coccinea</i>
Sensitive brier	<i>Mimosa microphylla</i>
Shag-bark hickory	<i>Carya ovata</i>
Sharp dock	<i>Rumex conglomeratus</i>
Short-leaf pine	<i>Pinus echinata</i>
Showy goldenrod	<i>Solidago speciosa</i>
Shrubby bush-clover	<i>Lespedeza intermedia</i>
Sicklepod	<i>Senna obtusifolia</i>
Silktree	<i>Albizia julibrissin</i>
Silky dogwood	<i>Cornus amomum</i>
Slippery elm	<i>Ulmus rubra</i>
Small woodland sunflower	<i>Helianthus microcephalus</i>
Small's black-snakeroot	<i>Sanicula smallii</i>
Small's groundsel	<i>Senecio anonymous</i>
Smooth rockcress	<i>Arabis laevigata</i>
Smooth sumac	<i>Rhus glabra</i>
Soft grooveburr	<i>Agrimonia pubescens</i>
Solomon's-seal	<i>Polygonatum biflorum</i>
Sourwood	<i>Oxydendrum arboreum</i>
Southern adder's-tongue	<i>Ophioglossum vulgatum</i>
Southern crab grass	<i>Digitaria ciliaris</i>
Southern hackberry	<i>Celtis laevigata</i>
Southern red oak	<i>Quercus falcata</i>
Southern shag-bark hickory	<i>Carya carolinae-septentrionalis</i>
Southern woodland violet	<i>Viola hirsutula</i>
Spiny amaranth	<i>Amaranthus spinosa</i>
Spoon-leaf purple-everlasting	<i>Gnaphalium purpureum</i>
Spotted St. John's-wort	<i>Hypericum punctatum</i>
Spotted wintergreen	<i>Chimaphila maculata</i>
Spreading bent grass	<i>Agrostis stolonifera</i>
St. Andrew's-cross	<i>Hypericum hypericoides</i>
Starved rosette grass	<i>Dichanthelium depauperatum</i>
Stiff marsh bedstraw	<i>Galium tinctorium</i>

<b>Common name</b>	<b>Scientific name</b>
Stragglng St. Andrew's-cross	<i>Hypericum stragalum</i>
Straw-color flat-sedge	<i>Cyperus strigosus</i>
Sugar maple	<i>Acer saccharum</i>
Sulphur cinquefoil	<i>Potentilla recta</i>
Tall rattlesnake-root	<i>Prenanthes altissima</i>
Tall redbtop	<i>Tridens flavus</i>
Tall thimbleweed	<i>Anemone virginiana</i>
Tapered rosette grass	<i>Dichantheium acuminatum</i>
Three-part violet	<i>Viola tripartita</i> var. <i>glaberimma</i>
Timothy	<i>Phleum pratense</i>
Toothed spurge	<i>Euphorbia dentata</i>
Trailing arbutus	<i>Epigaea repens</i>
Trailing bush-clover	<i>Lespedeza procumbens</i>
Tree sparkle-berry	<i>Vaccinium arboreum</i>
Tree-of-heaven	<i>Ailanthus altissima</i>
Trumpet-creeper	<i>Campsis radicans</i>
Tuberous gromwell	<i>Lithospermum tuberosum</i>
Tuliptree	<i>Liriodendron tulipifera</i>
Umbrella magnolia	<i>Magnolia tripetala</i>
Upright yellow wood-sorrel	<i>Oxalis stricta</i>
Velvet-leaf tick-trefoil	<i>Desmodium viridiflorum</i>
Venus's-pride	<i>Houstonia purpurea</i>
Virginia pine	<i>Pinus virginiana</i>
Virginia strawberry	<i>Fragaria virginiana</i>
Virginia three-seed-mercury	<i>Acalyphya virginica</i>
Virginia wild rye	<i>Elymus virginicus</i>
Virginia-creeper	<i>Parthenocissus quinquefolia</i>
Virginia-snakeroot	<i>Aristolochia serpentaria</i>
Waterthread	<i>Potamogeton diversifolius</i>
Wavy-leaf american-aster	<i>Aster undulatus</i>
Waxy-leaf meadow-rue	<i>Thalictrum revolutum</i>
White ash	<i>Fraxinus americana</i>
White avens	<i>Geum canadense</i>
White clover	<i>Trifolium repens</i>
White crownbeard	<i>Verbesina virginica</i>
White milkweed	<i>Asclepias variegata</i>
White oak	<i>Quercus alba</i>
White oldfield american-aster	<i>Aster pilosus</i>
White snakeroot	<i>Ageratina altissima</i>
White sweet-clover	<i>Melilotus alba</i>
White vervain	<i>Verbena urticifolia</i>
Wild comfrey	<i>Cynoglossum virginianum</i>
Wild geranium	<i>Geranium maculatum</i>
Wild hydrangea	<i>Hydrangea arborescens</i>
Wild lettuce	<i>Lactuca canadensis</i>
Winged elm	<i>Ulmus alata</i>
Winged sumac	<i>Rhus copallinum</i>

<b>Common name</b>	<b>Scientific name</b>
Witch-hazel	<i>Hamamelis virginiana</i>
Woodland lettuce	<i>Lactuca floridana</i>
Woodland pinkroot	<i>Spigelia marilandica</i>
Yarrow	<i>Achillea millefolium</i>
Yellow crownbeard	<i>Verbesina occidentalis</i>
Yellow passion-flower	<i>Passiflora lutea</i>
Yellowdicks	<i>Helenium amarum</i>
Yellow-fruit sedge	<i>Carex annectens</i>
Yellow-seed false-pimpernell	<i>Lindernia dubia</i>

### **Terrestrial Ecology Comparison of TVA Lands to Mitigation Lands**

Terrestrial Plants - Alternatives C and E include provisions to mitigate for the loss of public land through a land exchange in which additional properties would be purchased by the applicant and transferred to public ownership. Although these alternatives differ in the total acreage and quality of mitigation lands to be acquired, both propose to acquire a portion of an area known as the Wildcat Rock site. This site was surveyed for botanical resources in early January 2003 along with the Morganton Cemetery Site which is considered unsuitable for use as terrestrial plant mitigation.

The Wildcat Rock site is located on the eastern shoreline of Tellico Reservoir near the Loudoun-Monroe County line. The general area consists of a narrow embayment bordered on the north by a steep narrow-backed ridge and to the south by a comparably low ridgeline. The parcel consists of a mixture of pasture, old fields, shrub lands, and pine and hardwood forests. Low-lying areas at the head of the cove and along the lower slopes have been heavily impacted by cattle access. In contrast, the slopes and ridge tops support forests of higher habitat quality.

In terms of species diversity and age structure, the best-developed forests at the Wildcat Rock site are located along the upper slopes and ridgeline that forms the northern boundary of the proposed mitigation site. The slope forests consist of various species of oaks and hickories with a strong Virginia pine component. Other species of some importance include red maple, sourwood, and shortleaf pine. On lower slopes particularly along the cove, invasive exotic plant species such as Chinese privet, Japanese honeysuckle, and multiflora rose are present. Some stands of Virginia pine are also present, however some tree damage and mortality from the southern pine beetle is evident.

Karst features and rock outcrops were noted on the forested slopes, with woody vegetation consisting of species such as chinkapin oak, white oak, eastern red cedar, hop hornbeam, and buckthorn bumelia. Herbs such as purple phacelia and wild columbine are frequent on exposed rock faces, as are ferns such as black-stem spleenwort, resurrection fern, and purple cliff brake. Chinese privet is also associated with the thin soils over these rock outcrops.

The requested TVA parcels and these proposed mitigation lands are described in terms of five major vegetation categories in Table D-1 and compared in terms of several indicators of habitat quality in Table D-2. Descriptions of land cover for the proposed mitigation lands were obtained from field surveys and supplemented by examination of aerial photography.

<b>Table D-1. Land Cover Types Present on the TVA Lands and Mitigation Lands</b>			
<b>Land Cover</b>	<b>TVA lands (parcels 8 &amp; 9)</b>	<b>Mitigation Lands</b>	
		<b>Wildcat Rock 60 Acres (Alt. C)</b>	<b>Wildcat Rock 256 Acres (Alt. E)</b>
Pasture/grassland	0	15	7
Shrub land	5	20	5
Hardwood Forest <sup>1</sup>	45	40	71
Pine Forest <sup>1</sup>	30	25	15
Dead pine	20	0	2
<b>Total</b>	100	100	100

<sup>1</sup> Forests include pole-sized trees and larger. Mixed pine-hardwood is not broken out, but is included in the separated figures.

Hardwood forest is the most predominant land cover type on the requested TVA lands, as well as both of the tracts proposed as mitigation (Table D-1). While the 60-acre Wildcat Rock tract proposed as mitigation under Alternative C has a similar proportion of land in hardwood forests relative to the TVA lands requested by the applicant, the Wildcat Rock site proposed as mitigation under Alternative E actually has a greater proportion of this vegetation type than the TVA lands requested by the applicant.

However, these three sites are not comparable in terms of overall forest quality (Table D-2). The TVA lands that would be transferred under Alternatives C and E consist of a relatively large, nearly contiguous tract of forest land. In contrast, the 60-acre Wildcat Rock tract associated with Alternative C contains linear segments of shoreline forest situated on either side of an embayment. At the mouth and head of the cove, this shoreline forest is interrupted by pasture and old fields that are subject to grazing and disturbance by cattle. The larger Wildcat Rock tract associated with Alternative E contains this shoreline forest as well as forests located on the south and north facing slopes leading up to an adjacent narrow-backed ridge. Although the lower slopes of this ridge have been subject to some disturbance from cattle, the higher slopes and prominent ridgeline contain a diversity of plant species in the canopy and understory, as well as several karst features and rock outcrops (described above). In this regard, the habitat and species diversity encompassed by the larger Wildcat Rock site is greater than that observed on the requested TVA lands (Table D-2).

<b>Table D-2. Relative Quality of Terrestrial Ecology Resources Present on TVA Lands and Mitigation Lands</b>			
<b>Indicator</b>	<b>Relative Occurrence</b>		
	<b>Low</b>	<b>Intermediate</b>	<b>High</b>
<b>Invasive Terrestrial Plants</b>	Wildcat Rock (Alternative E)	Wildcat Rock (Alternative C)	TVA lands (parcels 8 and 9)
<b>Average Forest Stand Age</b>	Wildcat Rock (Alternative C)	Wildcat Rock (Alternative E)	TVA lands (parcels 8 and 9)
<b>Interior Forest</b>	Wildcat Rock (Alternative C); TVA lands (Parcels 8 and 9) <sup>1</sup>		Wildcat Rock (Alternative E)
<b>Understory Diversity</b>	Wildcat Rock (Alternative C)	TVA lands (parcels 8 and 9)	Wildcat Rock (Alternative E)

<sup>1</sup> See Terrestrial Animals section for a definition of interior forest, and a discussion of this indicator's relevance to wildlife.

**Terrestrial Animals** - TVA Parcels 8 and 9 and the Wildcat Rock site contain some similar habitat types (Table D-1). For the most part, the differences in the sites are related to the density of exotic and invasive plants, the amount of interior forest, forest age, understory diversity and structure (Table D-2), and the special habitat features of each site.

*Wildcat Rock* – The eastern and southern portion of this 256-acre site currently supports cattle grazing. The highest quality wildlife habitat on this site involves the hardwood forest on the ridge top, along the slopes, and along the shoreline. Special habitat features on this site include springs and associated wetland habitats, a small creek, interspersed pine forests, and limestone outcrops that contain fractures suitable as habitat for bats, salamanders, small mammals, and other species that prefer small openings. A few larger trees have been harvested from the site. Numerous tree cavities provide habitat for cavity nesting birds and mammals, and trees containing loose bark provide potential habitat for roosting bats. Overall, wildlife known or expected to inhabit this site is very similar to those listed for the project area. However, due to the special habitat features found on the site, wildlife diversity here may be slightly higher.

Table 4-2 compares relative indicators on this site with the TVA lands. This site contains a relatively low density of invasive plant species, some open-land habitat with grassland habitat development potential, approximately 18 acres of interior forest, and the best overall structure and diversity of understory habitat. Although the TVA tract has the oldest overall stand age, the Wildcat Rock site contains a variety of trees at various levels of maturity. The north slope of the property is comprised of mature deciduous woodlands and contains a small pond surrounded by woodlands. The ridge top and side slopes contain several species of hard mast producing trees including American beech, oaks, and hickories. Overall, the upland areas and the forested shoreline provide some of the best habitat

among properties considered for mitigation, especially for forest-dwelling birds not requiring extensive forest tracts.

*TVA (Parcels 8 and 9)* – A large portion of Parcel 9, under consideration, contains standing southern pine beetle killed pines. The remaining lands on Parcel 8 and 9 are middle-aged to mature deciduous woodlands and mixed pine-hardwood forests. The shoreline is forested and very limited open habitats exist on the Parcels. Table D-2 compares relative indicators of this site with the Wildcat Rock site. This site contains some exotic invasive plants that are expected to increase substantially within areas affected by pine beetles. There are no interior forests on the site, the site has the highest average stand age of the three properties, and it provides a fairly developed structure and diversity of habitat in the understory. Overall, this site provides continuity to the shoreline habitat along the reservoir, and is somewhat similar to the Wildcat Rock site.

The Morganton Cemetery site was assessed for its suitability as a mitigation site for terrestrial ecology. The Southern Pine Bark Beetle has killed several stands of pine woodlands on the northeast portion of this site. Invasive Chinese privet dominates the understory in these pine stands. These areas are interspersed by small stands of hardwood trees. The southwest end of the site contains mature hardwood and pine forests. Much of the shoreline is forested. Most of the high quality timber was removed from this area in recent years, although some mature trees remain on the steeper slopes. In comparison to the wildcat rock and the TVA lands, this site ranked high among invasive species, contained no interior forest, had the lowest average stand age, and had the lowest understory diversity. Overall, the site offers moderate wildlife habitat and would not be provide suitable mitigation for impacts to terrestrial ecology.

**Invasive Exotic Pest Plants of Tennessee**

**Rank 1 — Severe Threat:** Exotic plant species that possess characteristics of invasive species and spread easily into native plant communities and displace native vegetation.

Scientific Nomenclature	Common Name
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree of heaven
<i>Albizia julibrissin</i> Durz.	Mimosa
<i>Alliaria petiolata</i> (Bieb.) Cavara & Grande	Garlic-mustard
<i>Celastrus orbiculata</i> Thunb.	Asian bittersweet
<i>Dioscorea oppositifolia</i> L.	Air-potato
<i>Elaeagnus umbellata</i> Thunb.	Autumn olive
<i>Elaeagnus pungens</i> Thunb.	Thorny-olive
<i>Euonymus fortunei</i> (Turcz.) Hand.-Mazz.	Winter creeper
<i>Hedera helix</i> L.	English ivy
<i>Lespedeza cuneata</i> (Dum.-Cours.) G. Don	Sericea lespedeza
<i>Ligustrum sinense</i> Lour.	Chinese privet
<i>Ligustrum vulgare</i> L.	Common privet
<i>Lonicera fragrantissima</i> Lindl. & Paxton	January jasmine
<i>Lonicera japonica</i> Thunb.	Japanese honeysuckle
<i>Lonicera maackii</i> (Rupr.) Maxim.	Amur bush honeysuckle
<i>Lonicera morrowii</i> A. Gray	Morrow's bush honeysuckle
<i>Lonicera tatarica</i> L.	Tartarian honeysuckle, twinsisters
<i>Lonicera x bella</i> Zabel	Bush honeysuckle
<i>Lythrum salicaria</i> L. [all varieties and cultivars]	Purple loosestrife
<i>Microstegium vimineum</i> (Trin.) A.	Camus Nepalgrass, Japanese grass
<i>Myriophyllum spicatum</i> L.	Eurasian water milfoil
<i>Paulownia tomentosa</i> (Thunb.) Sieb. & Zucc. ex Steud	Princess tree
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Common reed
<i>Polygonum cuspidatum</i> Seib. & Zucc	Japanese knotweed, Japanese bamboo
<i>Pueraria montana</i> (Lour.) Merr.	Kudzu
<i>Rosa multiflora</i> Thunb.	Multiflora rose
<i>Solanum viarum</i> Dunal	Tropical soda apple
<i>Sorghum halepense</i> (L.) Pers.	Johnson grass
<i>Spiraea japonica</i> L.f.	Japanese spiraea

**Rank 2 — Significant Threat:** Exotic plant species that possess characteristics of invasive species but are not presently considered to spread as easily into native plant communities as those species listed as **Rank 1— Severe Threat.**

Scientific Nomenclature	Common Name
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Alligatorweed
<i>Artemisia vulgaris</i> L.	Mugwort, common wormwood
<i>Arthraxon hispidus</i> (Thunb.) Makino	Hairy jointgrass
<i>Berberis thunbergii</i> DC.	Japanese barberry
<i>Bromus commutatus</i> Schrad.	Meadow brome
<i>Bromus japonicus</i> Thunb. ex Murray	Japanese brome grass
<i>Bromus secalinus</i> L.	Rye brome
<i>Bromus tectorum</i> L.	Thatch brome grass, cheat grass
<i>Carduus nutans</i> L.	Musk thistle, nodding thistle
<i>Centaurea biebersteinii</i> DC.	Spotted knapweed
<i>Cirsium arvense</i> L. (Scop.)	Canada thistle
<i>Cirsium vulgare</i> (Savi) Ten.	Bull thistle
<i>Clematis ternifolia</i> DC.	Leatherleaf clematis
<i>Conium maculatum</i> L.	Poison hemlock
<i>Coronilla varia</i> L.	Crown vetch
<i>Daucus carota</i> L.	Wild carrot, Queen Anne's-lace
<i>Dipsacus fullonum</i> L.	Fuller's teasel
<i>Dipsacus laciniatus</i> L.	Cutleaf teasel
<i>Euonymus alata</i> (Thunb.) Sieb.	Burning bush
<i>Festuca arundinacea</i> Schreb.	Tall fescue
<i>Festuca pratensis</i> Huds.	Meadow fescue
<i>Hesperis matronalis</i> L.	Dame's rocket
<i>Hydrilla verticillata</i> (L.f.) Royle	Hydrilla, water thyme
<i>Lespedeza bicolor</i> Turcz.	Bicolor lespedeza, shrubby bushclover
<i>Ligustrum japonicum</i> Thunb.	Japanese privet
<i>Lysimachia nummularia</i> L.	Moneywort, creeping Jenny
<i>Mahonia bealei</i> (Fortune) Carriere	Oregon grape
<i>Melilotus alba</i> Medik.	White sweet clover
<i>Melilotus officinalis</i> (L.) Lam.	Yellow sweet clover
<i>Miscanthus sinensis</i> Andersson	Zebra grass, Chinese silver grass
<i>Murdannia keisak</i> (Hassk.) Hand.-Mazz.	Asian spiderwort
<i>Myriophyllum aquaticum</i> (Vell.) Verdc.	Parrot's feather, water milfoil
<i>Nandina domestica</i> Thunb.	Nandina, sacred-bamboo
<i>Rorippa nasturtium-aquaticum</i> (L.)	Hayek Watercress
<i>Polygonum caespitosum</i> Blume	Bunchy knotweed, oriental lady's-thumb
<i>Populus alba</i> L.	White poplar
<i>Potamogeton crispus</i> L.	Curly pondweed
<i>Setaria faberi</i> R.A.W. Herrm.	Nodding foxtail-grass, Japanese bristle-grass
<i>Setaria italica</i> (L.) P. Beauv.	Foxtail-millet
<i>Setaria pumila</i> (Poir.) Roem. & Schult.	Yellow foxtail, smooth millet
<i>Setaria viridis</i> (L.) P. Beauv.	Green millet
<i>Torilis arvensis</i> (Huds.) Link	Spreading hedge-parsley
<i>Tussilago farfara</i> L.	Coltsfoot
<i>Verbascum thapsus</i> L.	Common mullein
<i>Vicia sativa</i> L.	Garden vetch
<i>Vinca minor</i> L.	Common periwinkle
<i>Wisteria sinensis</i> (Sims) DC.	Chinese wisteria
<i>Wisteria floribunda</i> (Willd.) DC.	Wisteria
<i>Xanthium strumarium</i> L.	Common cocklebur, rough cocklebur

*Rarity Pointe Commercial Recreation and Residential Development on Tellico Reservoir*

**Rank 3 — Lesser Threat:** Exotic plant species that spread in or near disturbed areas and are not presently considered a threat to native plant communities.

Scientific Nomenclature	Common Name
<i>Allium vineale</i> L.	Field garlic
<i>Arundo donax</i> L.	Giant reed, elephant grass
<i>Bromus catharticus</i> Vahl	Brome grass, rescue grass
<i>Bromus inermis</i> Leyss.	Smooth brome grass
<i>Broussonetia papyrifera</i> (L.) L'Her. ex Vent.	Paper mulberry
<i>Lithospermum arvense</i> (L.) I. M. Johnston	Corn gromwell
<i>Cardiospermum halicacabum</i> L.	Balloonvine, love-in-a-puff
<i>Centaurea cyanus</i> L.	Bachelor's button, cornflower
<i>Chrysanthemum leucanthemum</i> L.	Ox-eye daisy
<i>Cichorium intybus</i> L.	Chicory
<i>Egeria densa</i> Planch.	Brazilian elodea, Brazilian water-weed
<i>Elaeagnus angustifolia</i> L.	Russian olive
<i>Eschscholzia californica</i> Cham.	California poppy
<i>Fatoua villosa</i> (Thunb.) Nakai	Hairy crabweed
<i>Glechoma hederacea</i> L.	Gill-over-the-ground, ground ivy
<i>Iris pseudacorus</i> L.	Pale-yellow iris
<i>Kummerowia stipulacea</i> (Maxim.) Makino	Korean clover
<i>Kummerowia striata</i> (Thunb.) Schindl.	Japanese clover
<i>Melia azedarach</i> L.	Chinaberry
<i>Ornithogalum umbellatum</i> L.	Star of Bethlehem
<i>Pastinaca sativa</i> L.	Wild parsnip
<i>Polygonum persicaria</i> L.	Lady's thumb
<i>Rubus phoenicolasius</i> Maxim.	Wineberry
<i>Senna obtusifolia</i> (L.) H. S. Irwin & Barneby	Sicklepod senna
<i>Tragopogon dubius</i> Scop.	Yellow goat's-beard
<i>Tribulus terrestris</i> L.	Puncturevine
<i>Urtica dioica</i> L.	Stinging nettle
<i>Xanthium spinosum</i> L.	Spiny cocklebur

**NON-NATIVE, NON-INVASIVE SPECIES SUITABLE FOR EROSION  
CONTROL/STABILIZATION ACTIVITIES**

**ANNUAL RYEGRASS**

**FOXTAIL, BROWNTOP AND JAPANESE MILLETS**

**WINTER WHEAT**

**OATS (spring variety)**

**ORCHARDGRASS**

**PERENNIAL RYEGRASS**

**REDTOP**

**RYE**

**TIMOTHY**

**WEEPING LOVEGRASS**

**CRIMSON, RED AND LADINO CLOVERS**

