

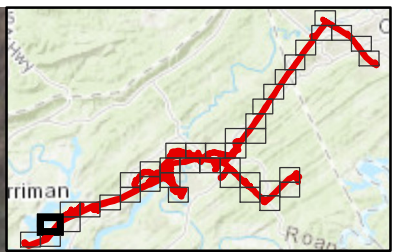
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community**
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



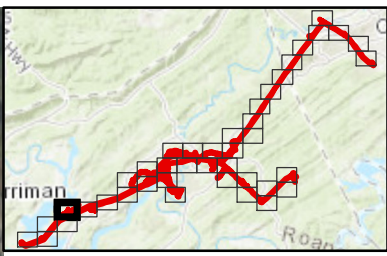
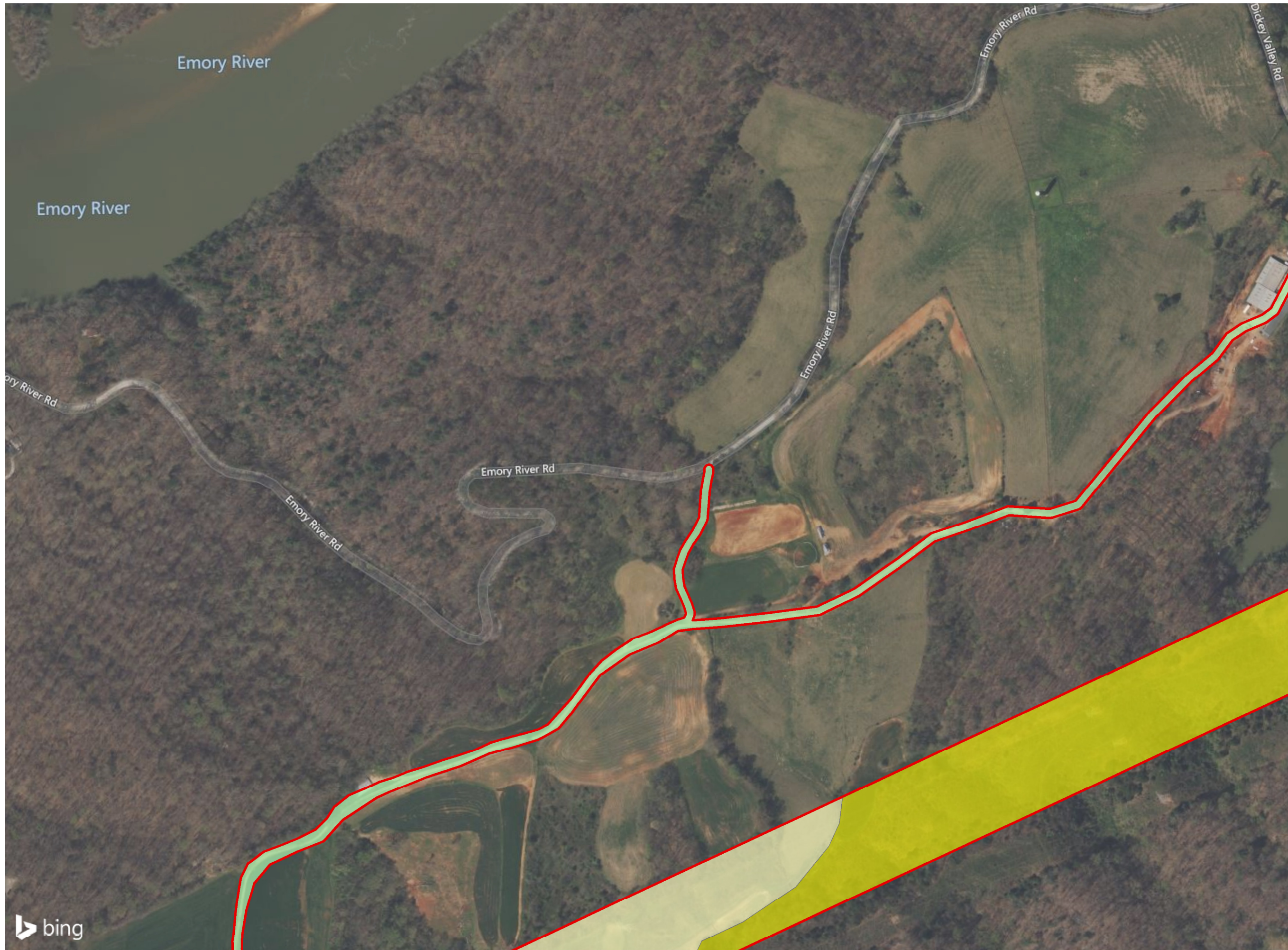
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



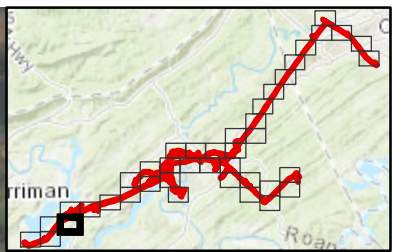
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



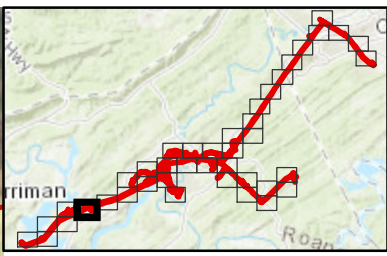
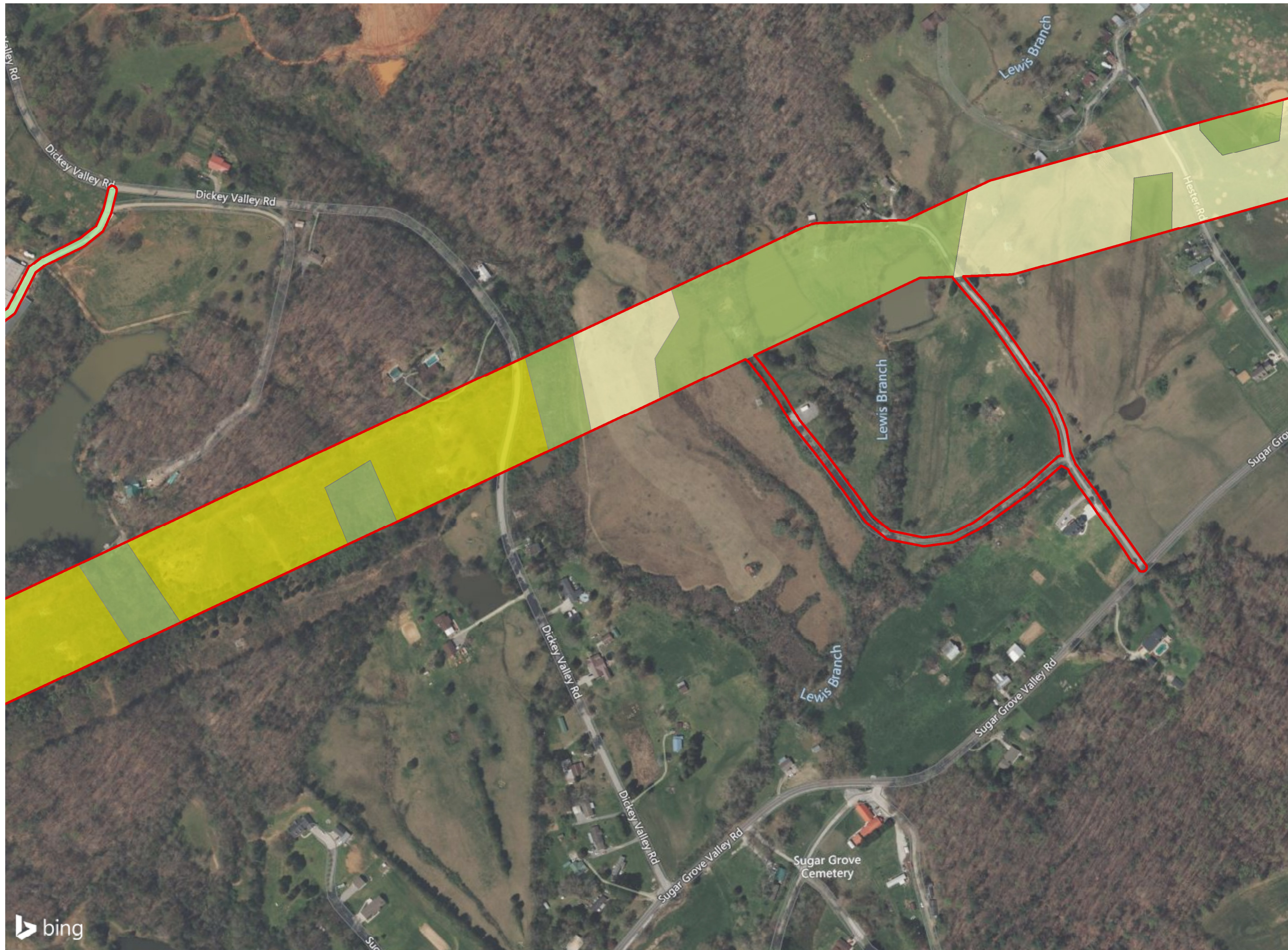
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



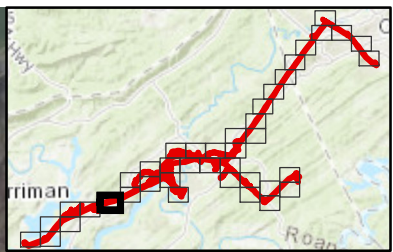
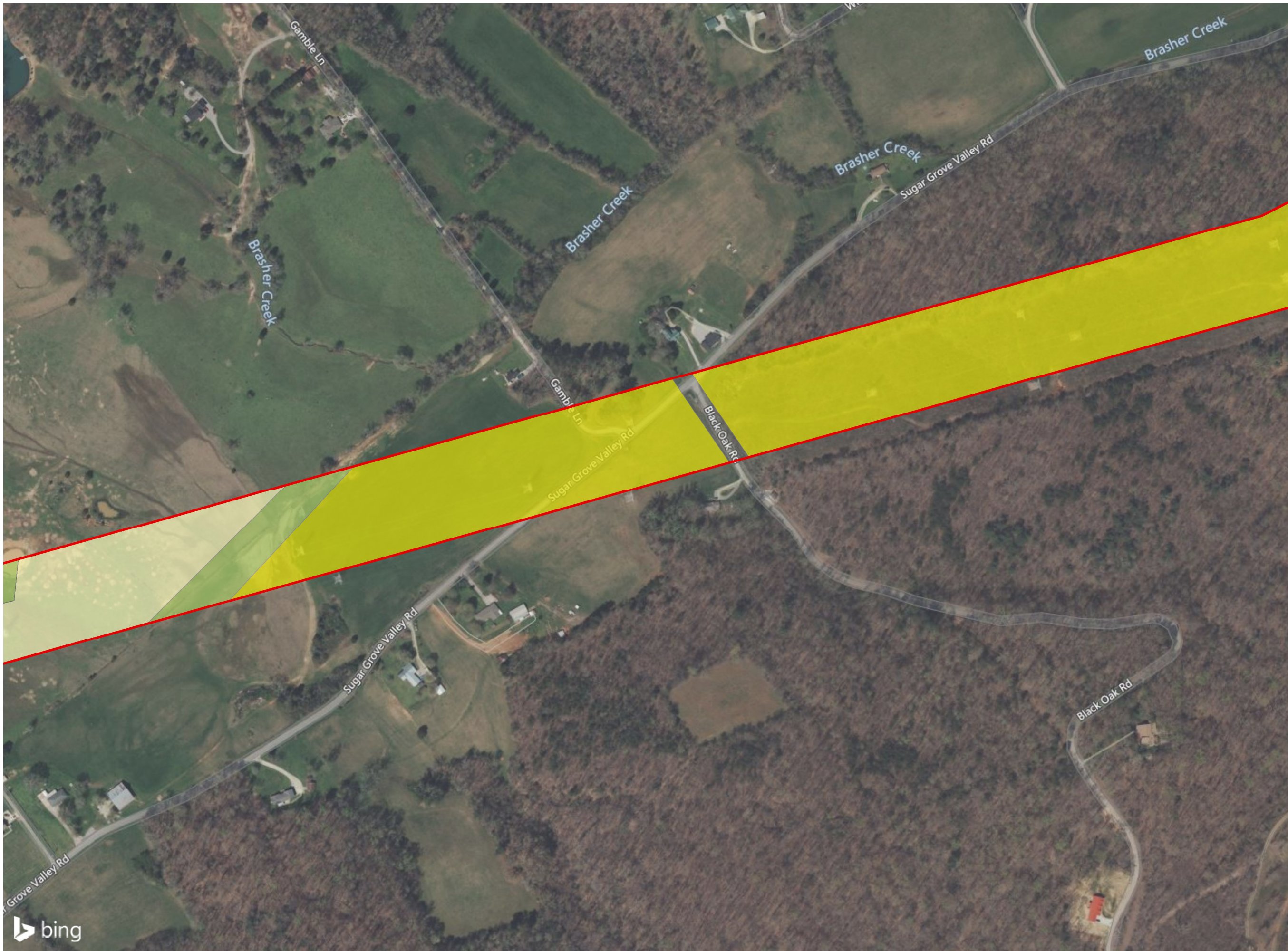
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



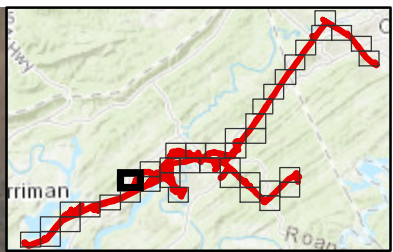
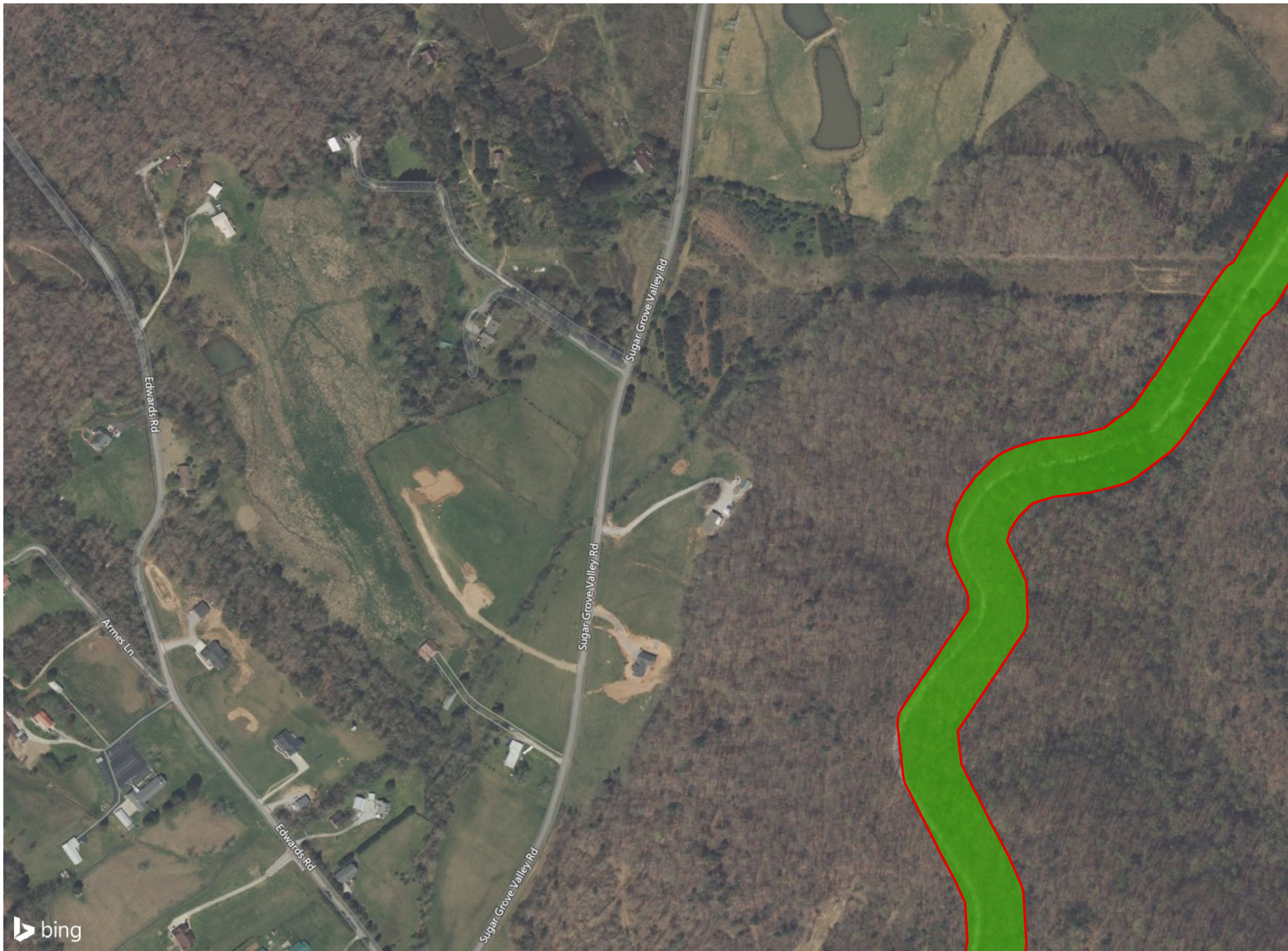
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



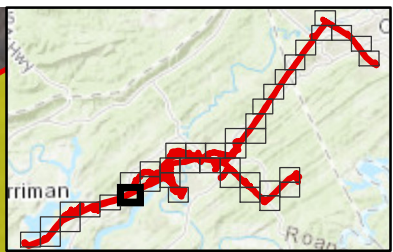
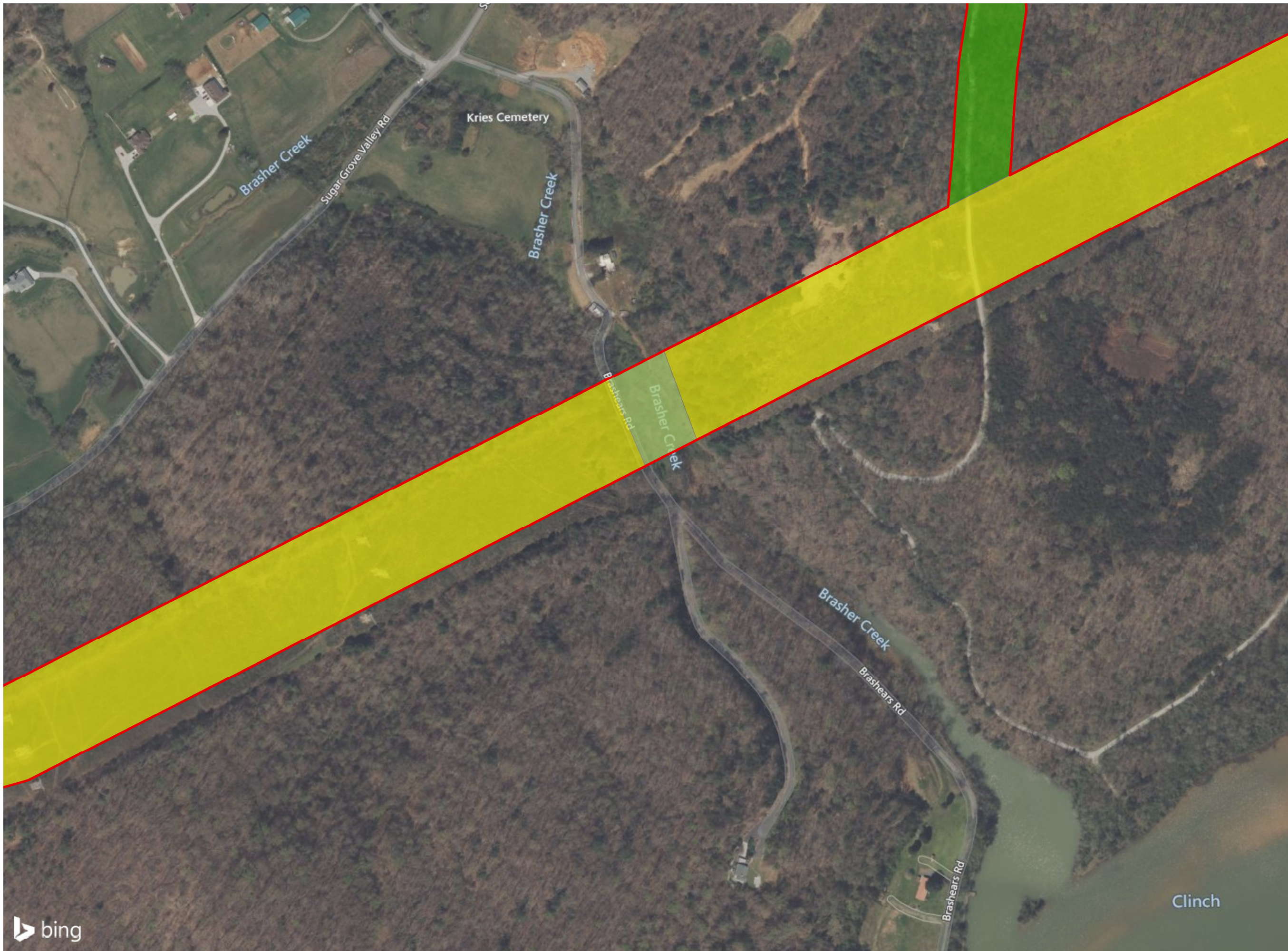
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



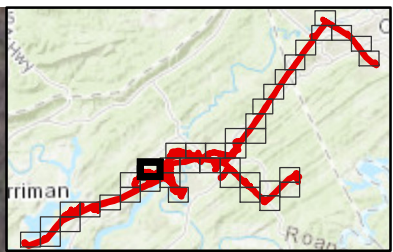
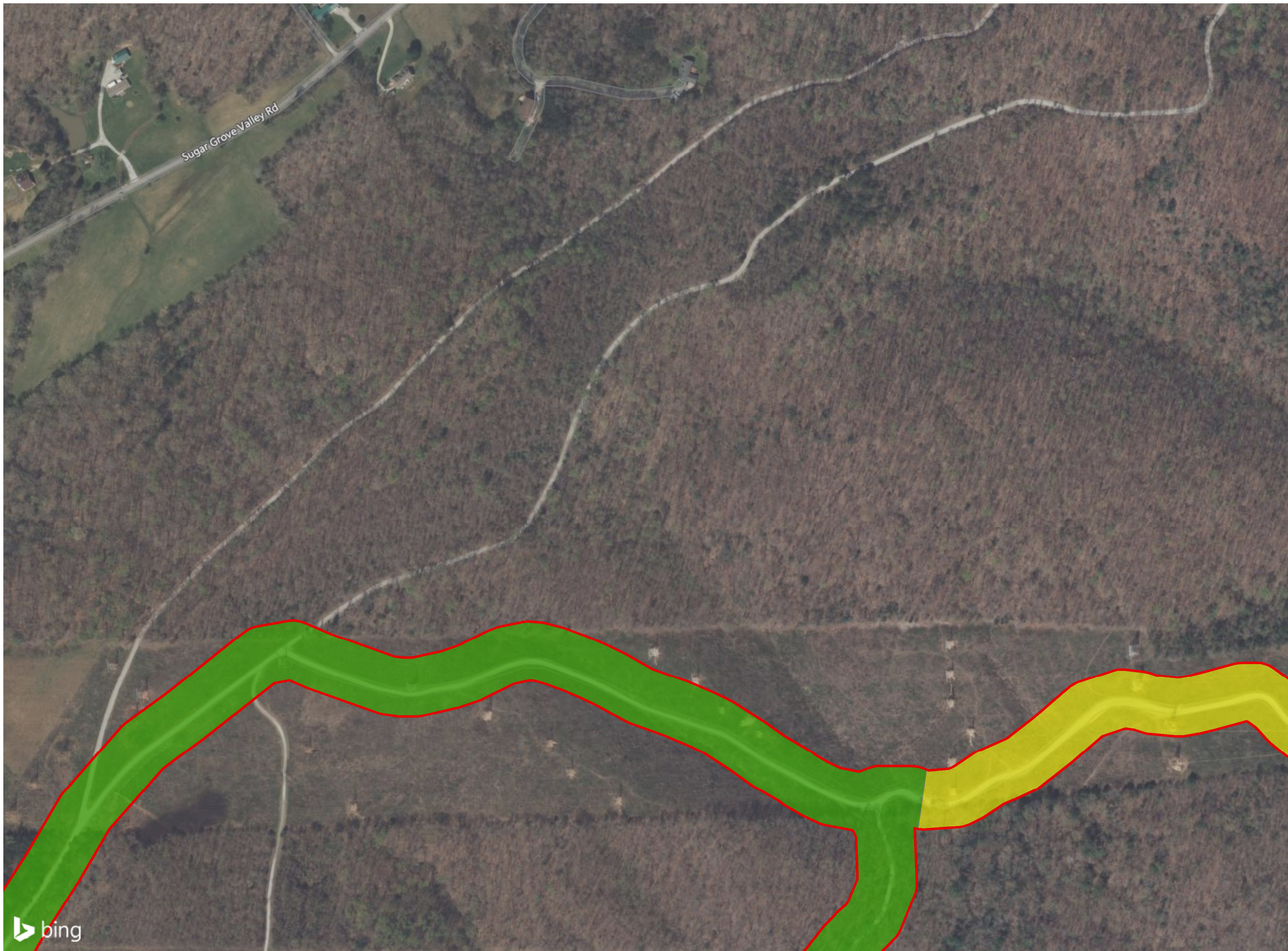
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



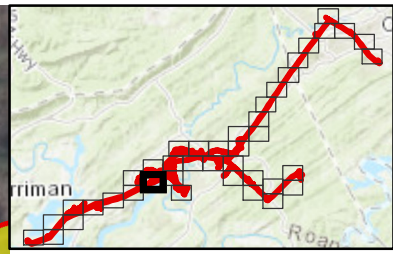
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

-  Study Area
- Vegetation Community
-  Dry Deciduous
-  Dry Herbaceous
-  Kudzu Infested
-  Maintained Access Road
-  Maintained Lawn
-  Open Water
-  Pasture/Hay
-  Pasture/Maintained Lawn
-  Wet Deciduous
-  Wet Herbaceous



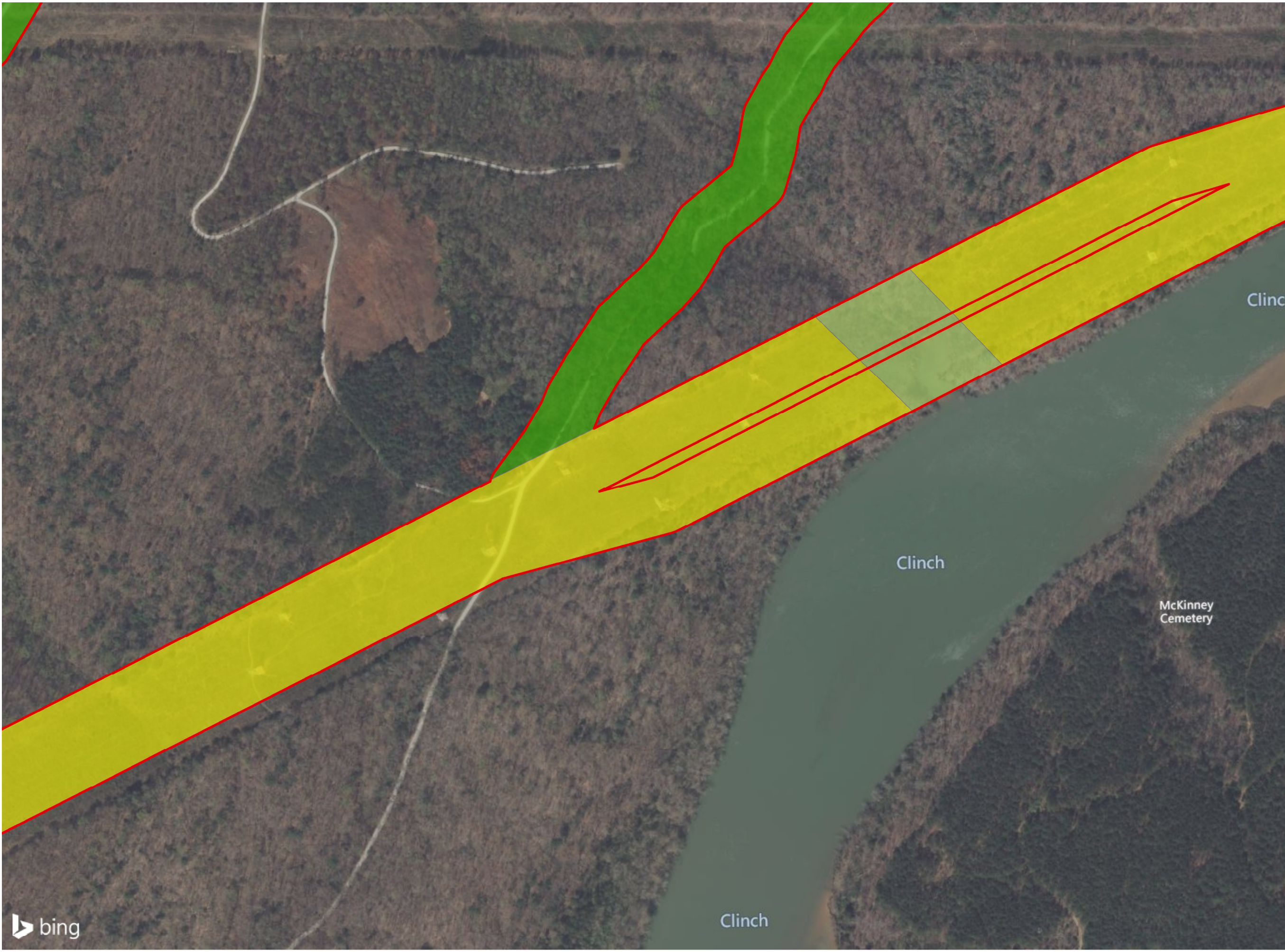
DATA SOURCE: Bing Hybrid Aerial Imagery

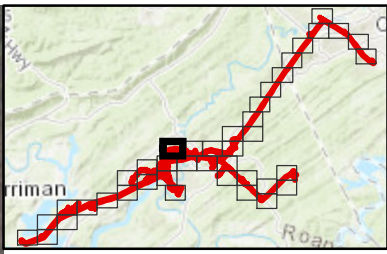
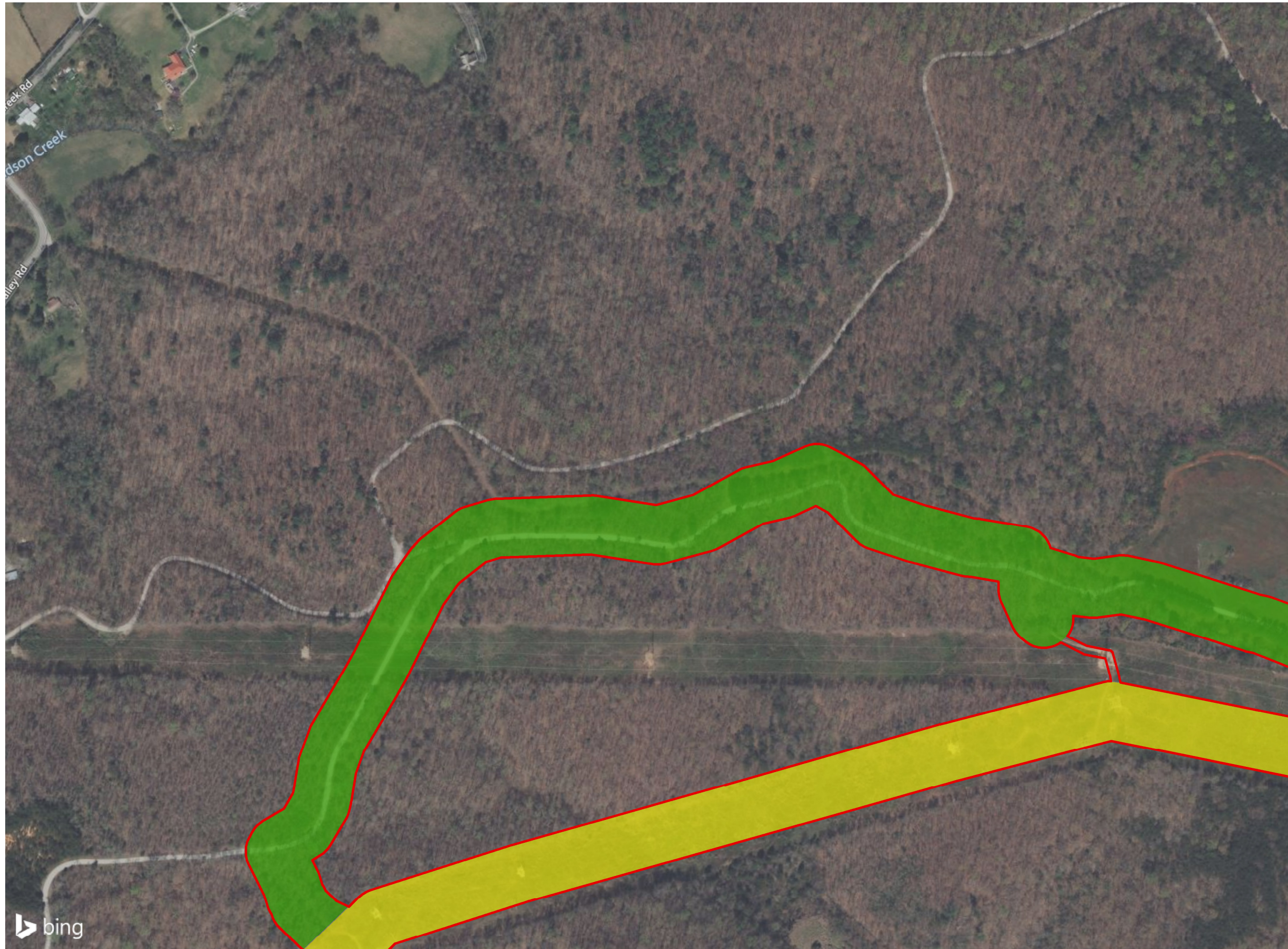


**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous





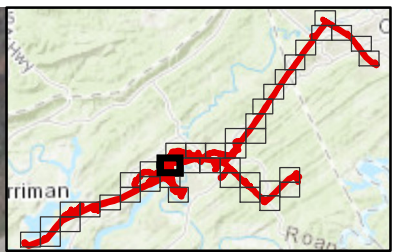
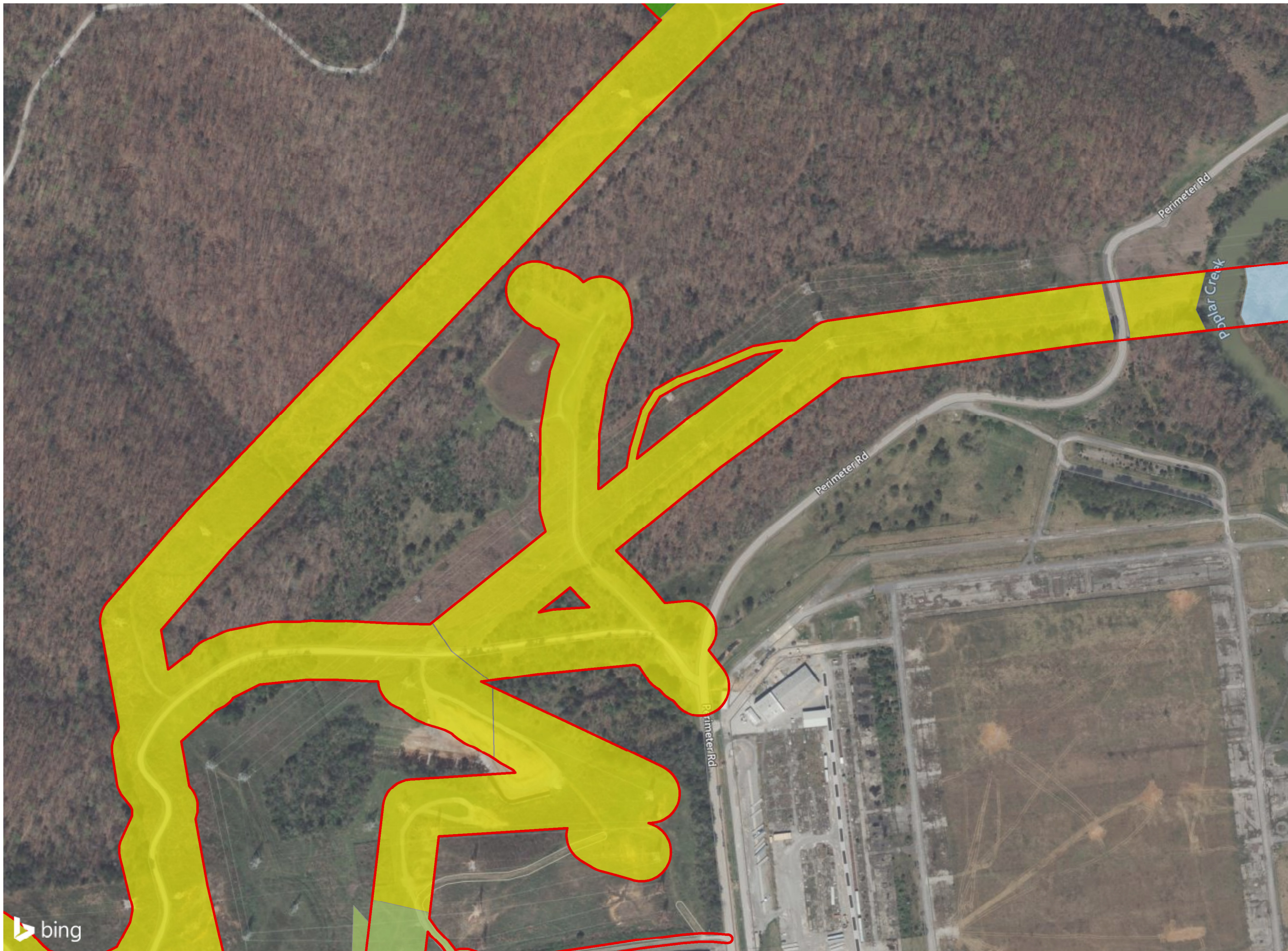
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



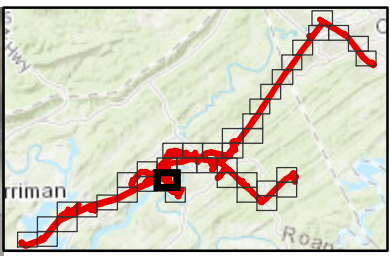
**KINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



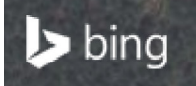
**KIINGSTON TRANSMISSION
LINE - EAST**

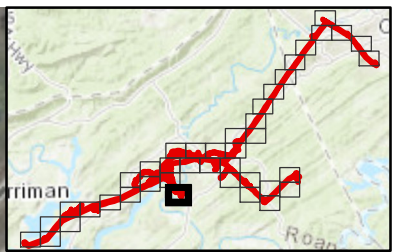
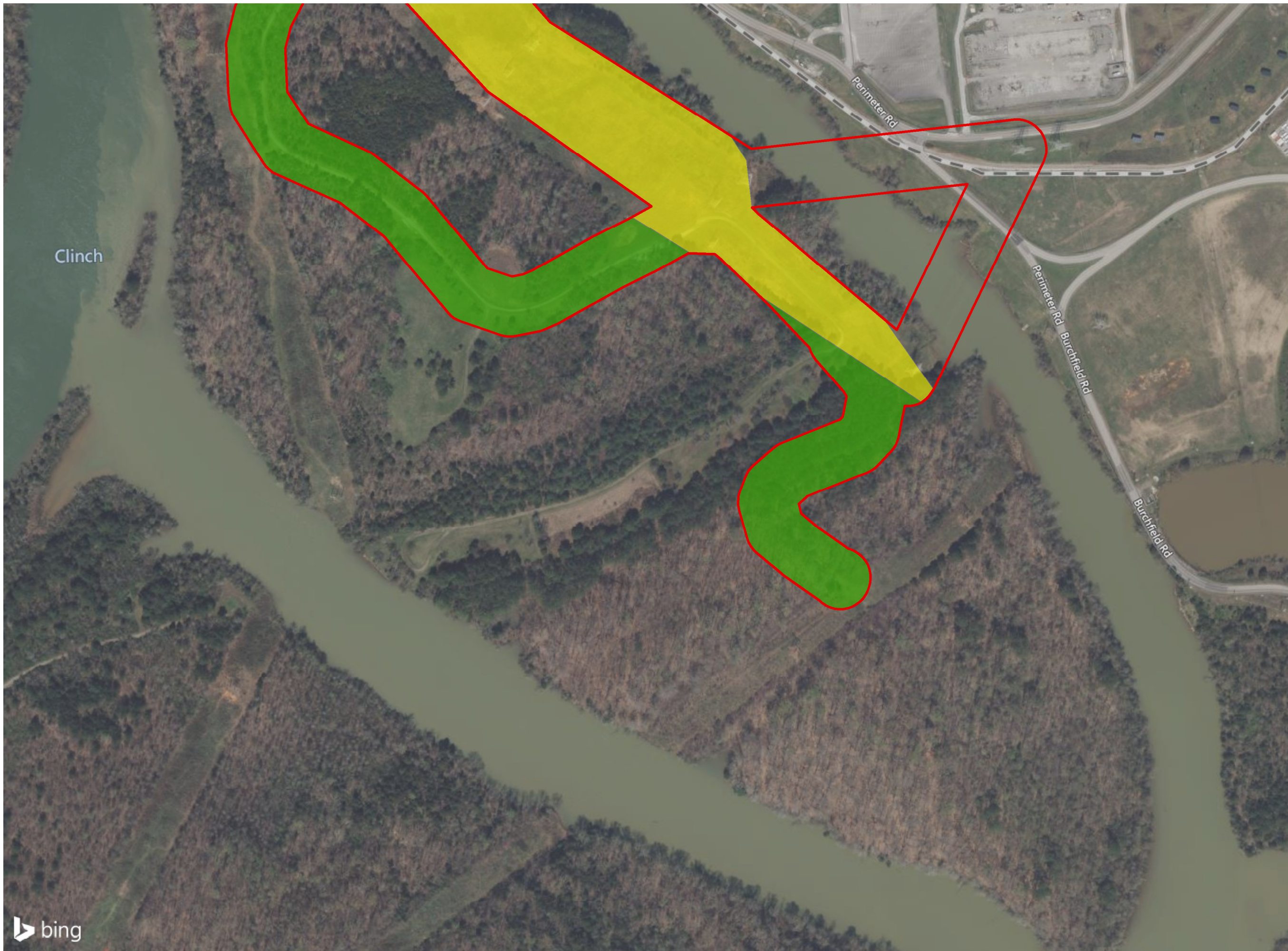
LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery





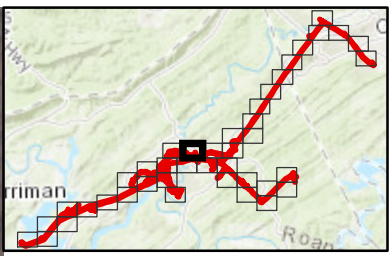
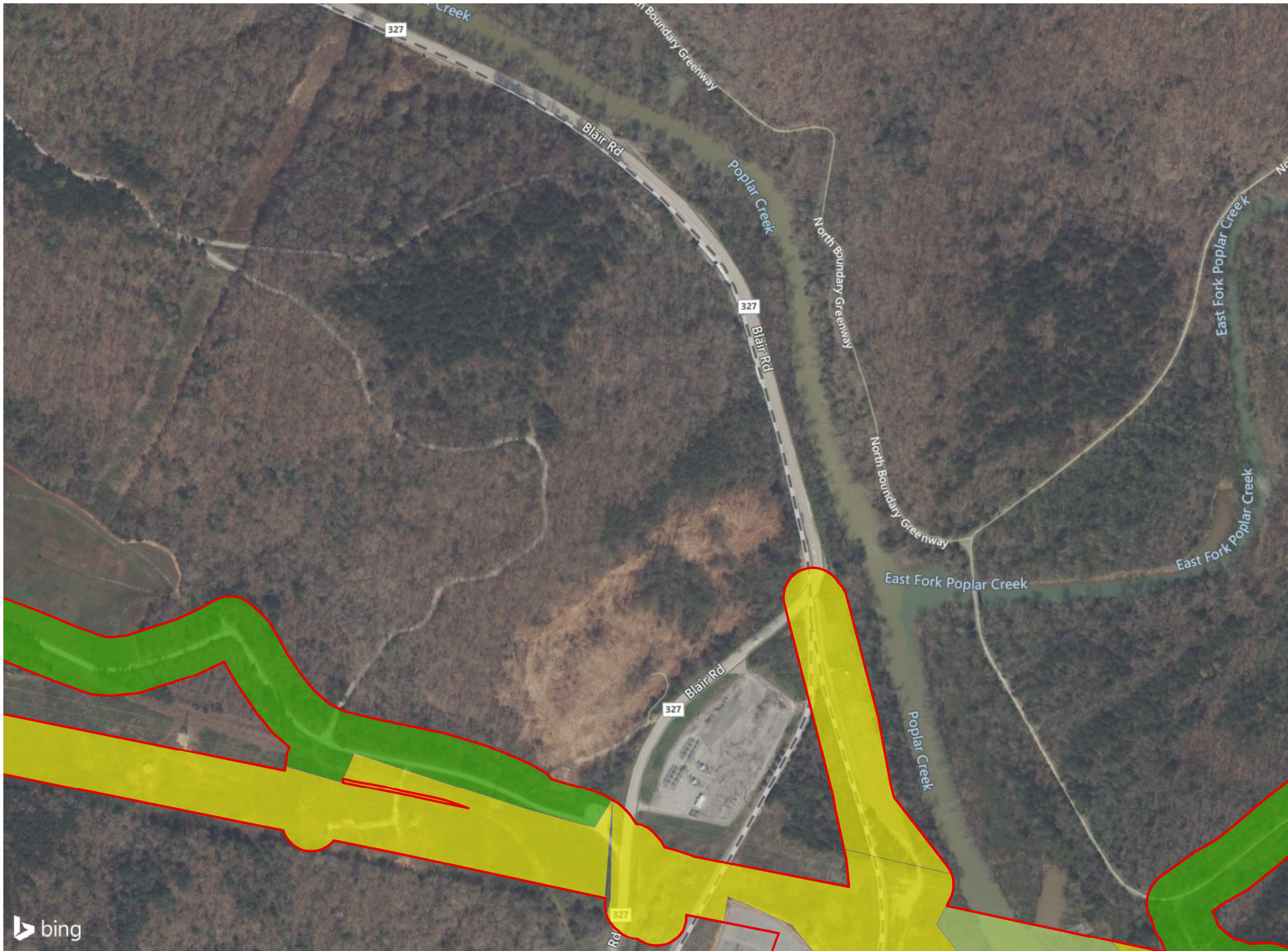
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



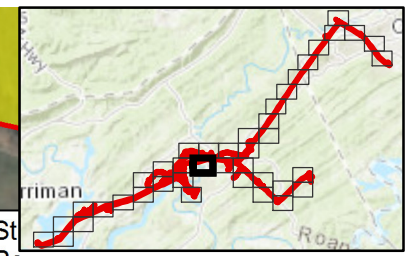
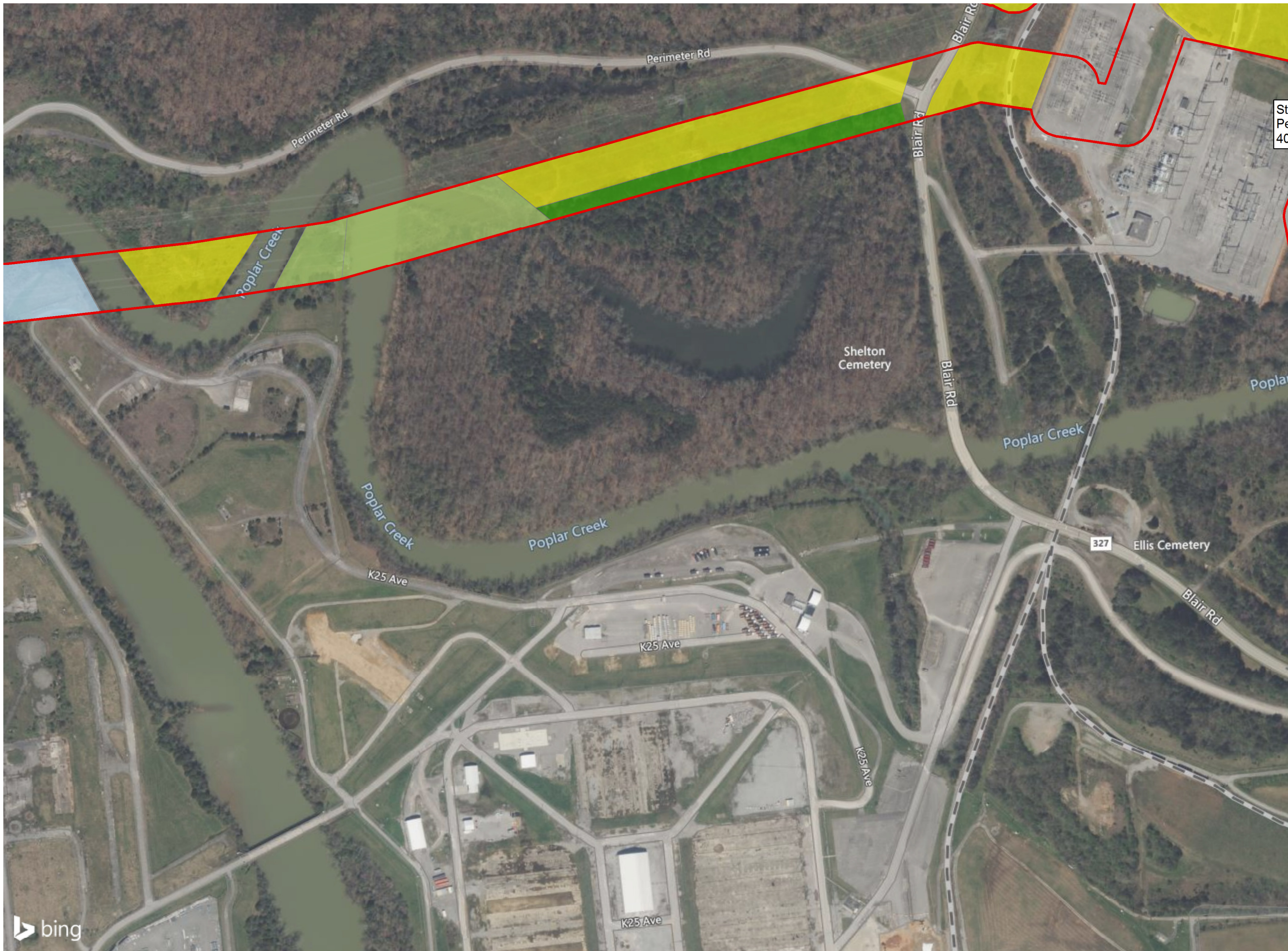
KINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



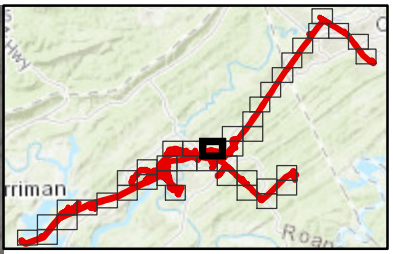
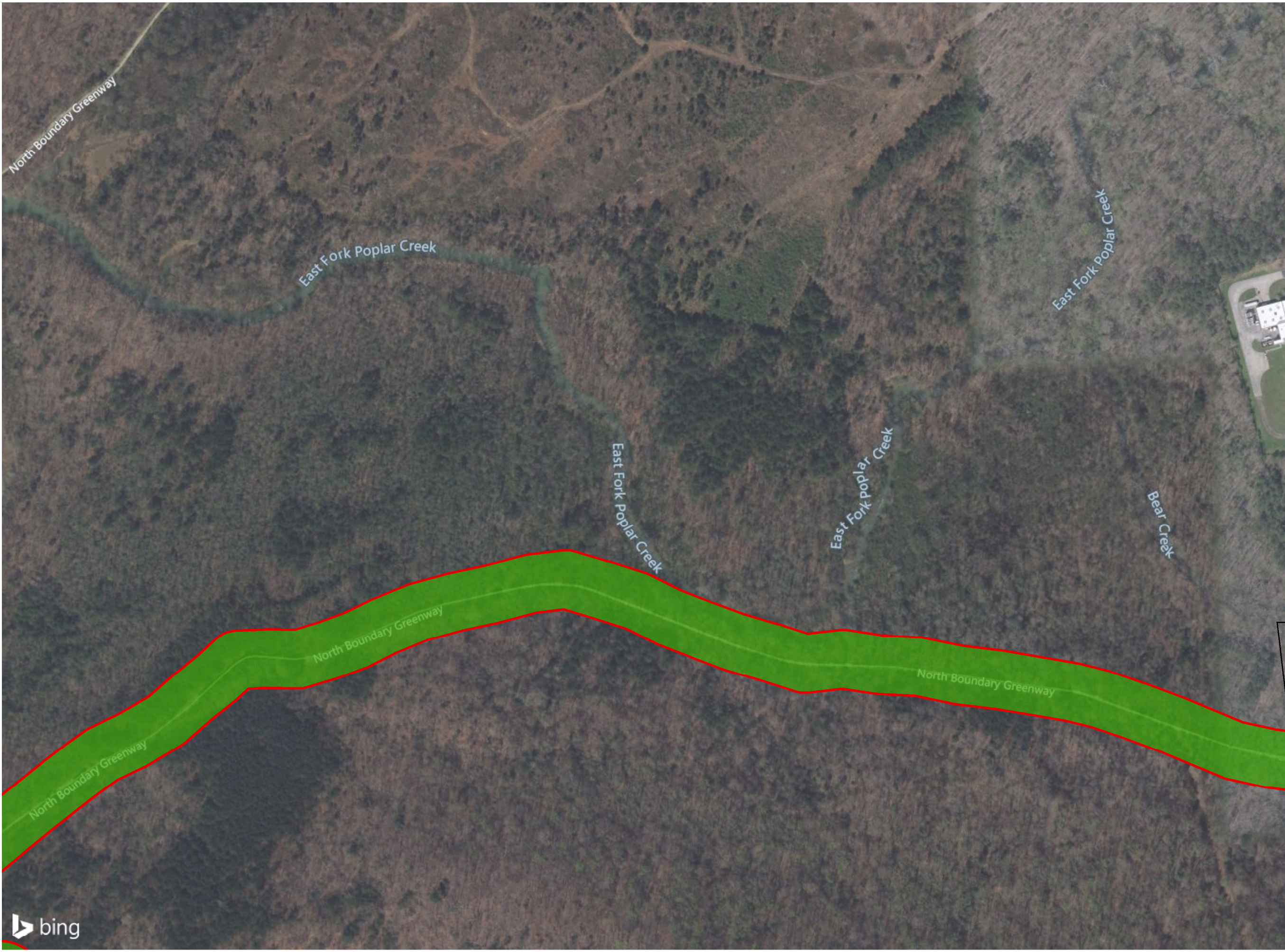
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



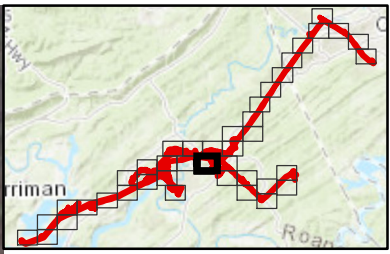
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



Stream 25 (Poplar Creek)
Perennial
406 linear feet



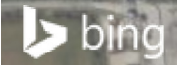
**KINGSTON TRANSMISSION
LINE - EAST**

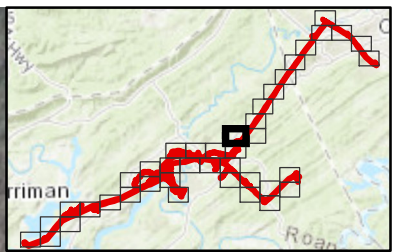
LEGEND

- Study Area
- Vegetation Community
 - Dry Deciduous
 - Dry Herbaceous
 - Kudzu Infested
 - Maintained Access Road
 - Maintained Lawn
 - Open Water
 - Pasture/Hay
 - Pasture/Maintained Lawn
 - Wet Deciduous
 - Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery





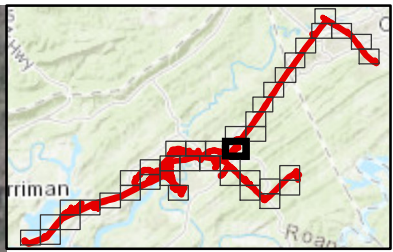
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



**KIINGSTON TRANSMISSION
LINE - EAST**

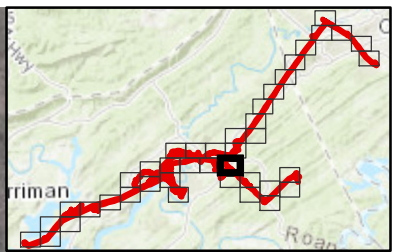
LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous

Stream 28
(East Fork Poplar Creek)
Perennial
203 linear feet



DATA SOURCE: Bing Hybrid Aerial Imagery



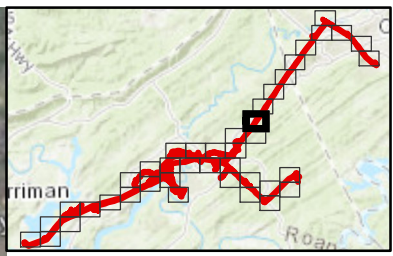
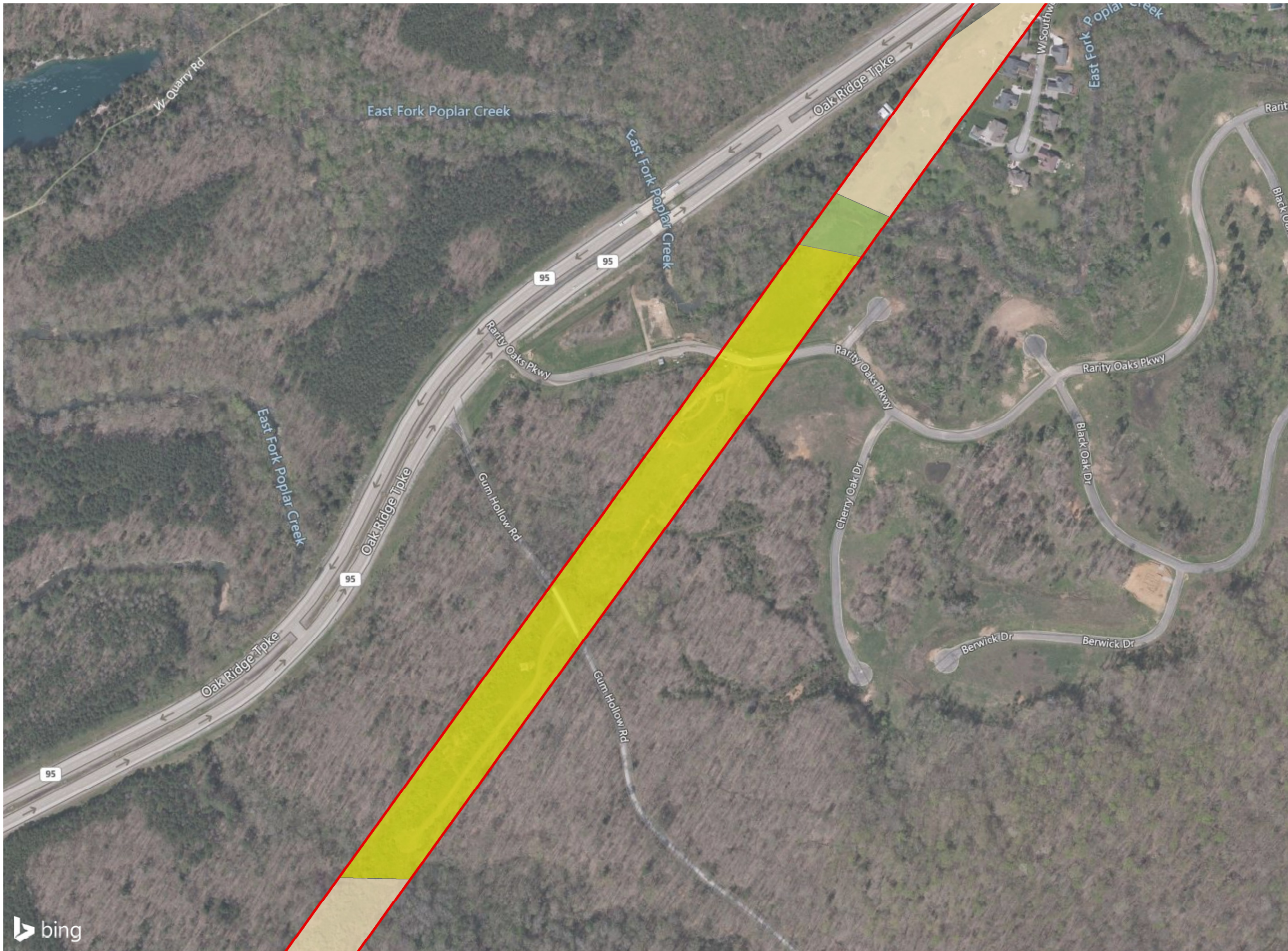
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



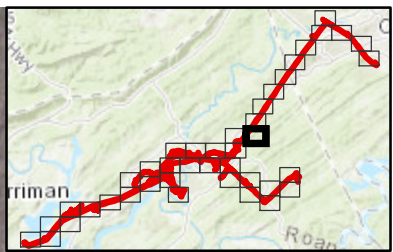
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



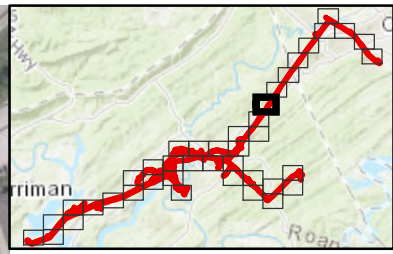
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

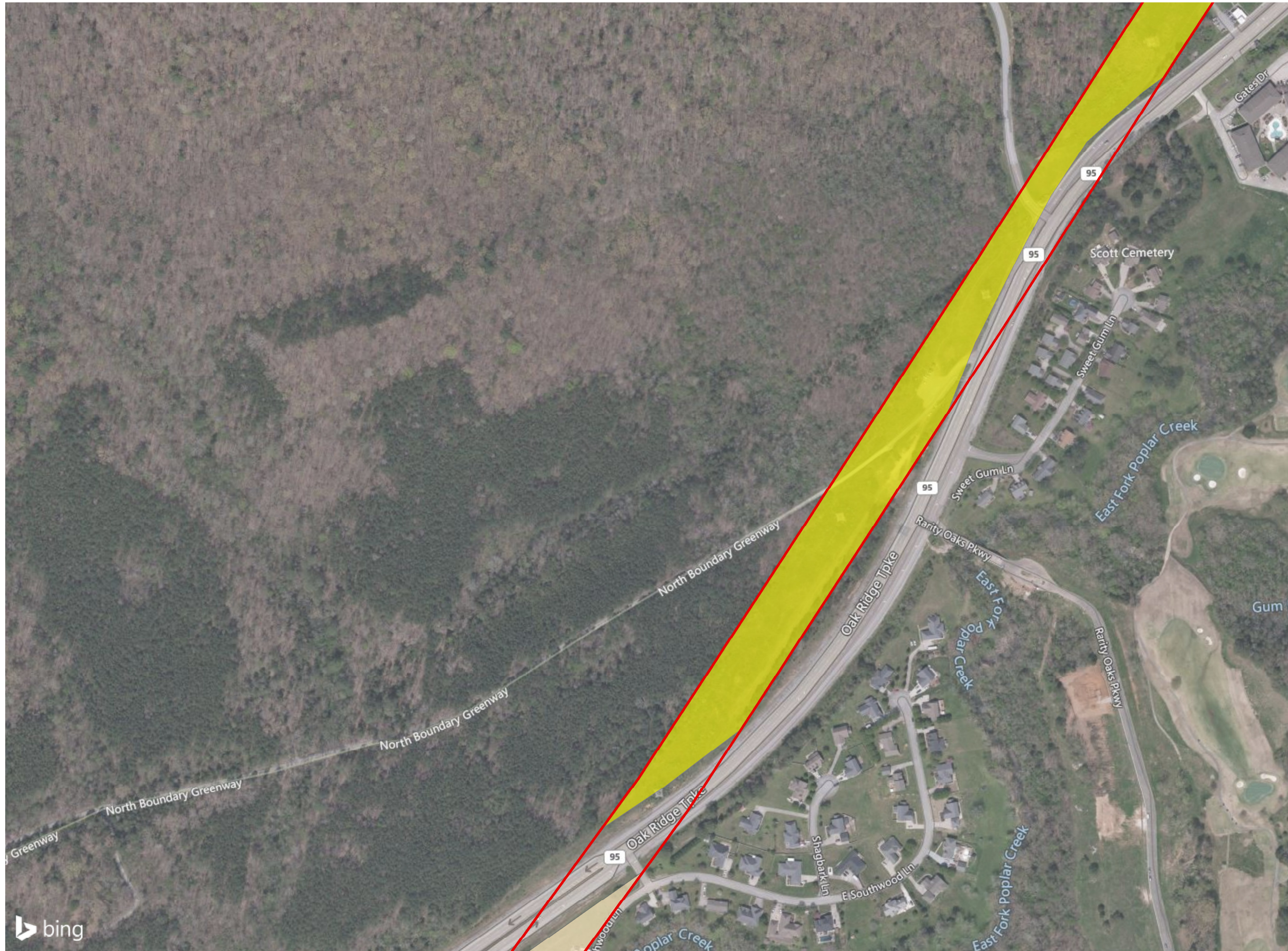
- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



KIINGSTON TRANSMISSION LINE - EAST

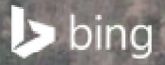


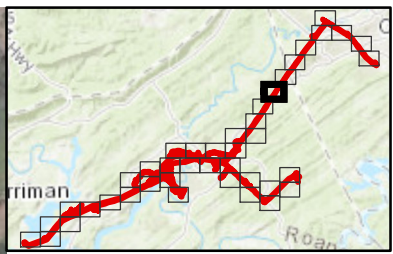
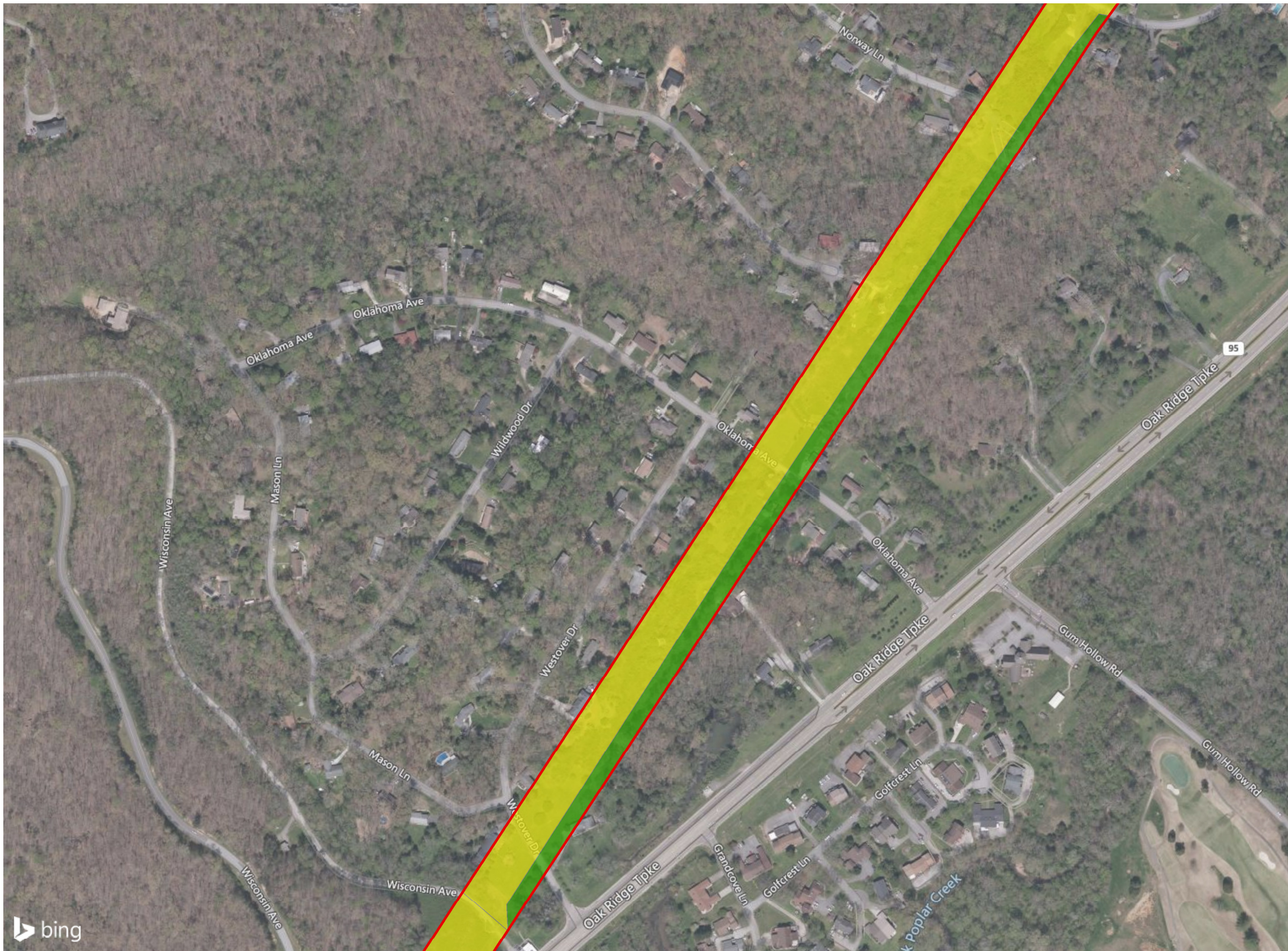
LEGEND

-  Study Area
- Vegetation Community
 -  Dry Deciduous
 -  Dry Herbaceous
 -  Kudzu Infested
 -  Maintained Access Road
 -  Maintained Lawn
 -  Open Water
 -  Pasture/Hay
 -  Pasture/Maintained Lawn
 -  Wet Deciduous
 -  Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery





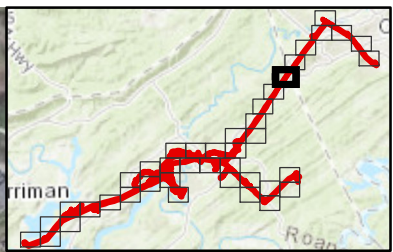
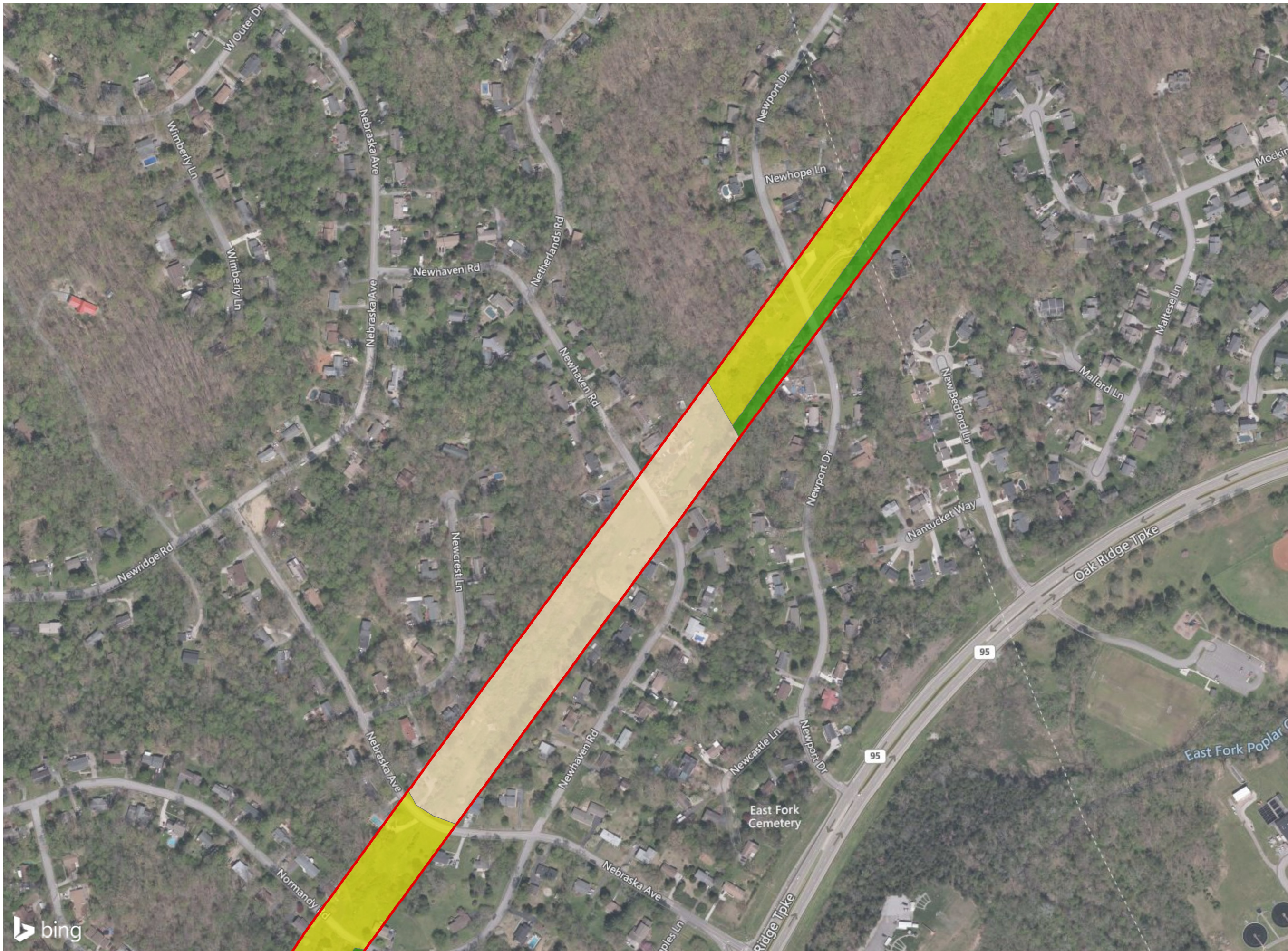
KIINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



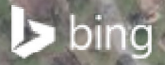
KIINGSTON TRANSMISSION LINE - EAST

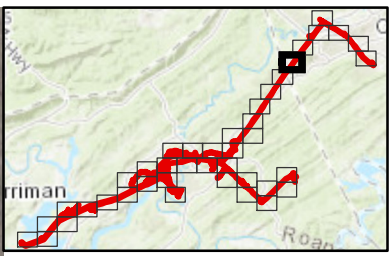
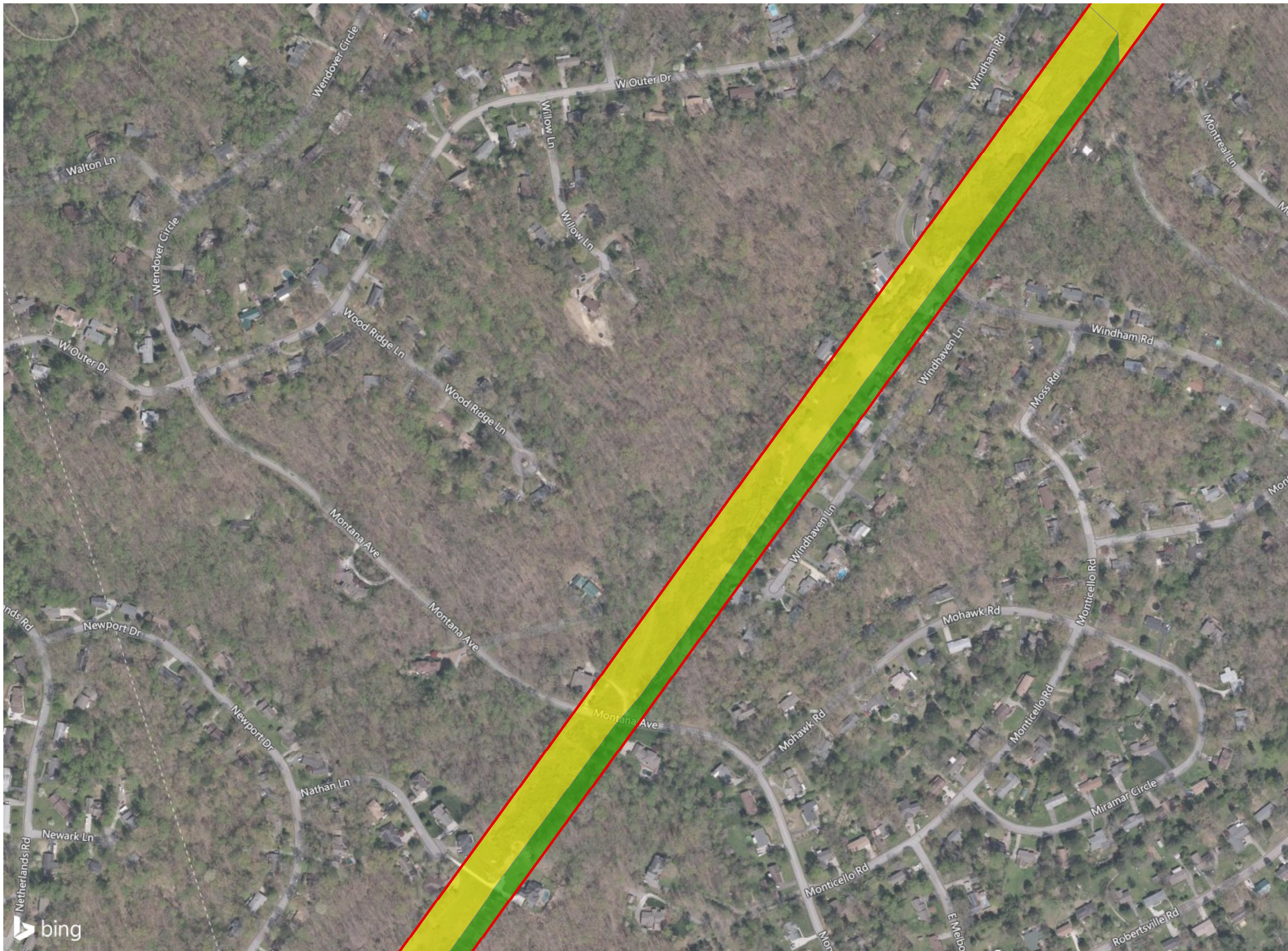
LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery





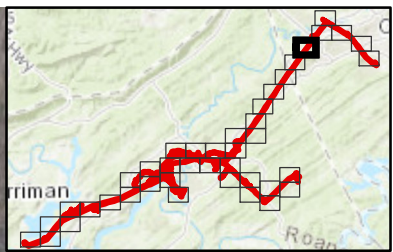
KINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



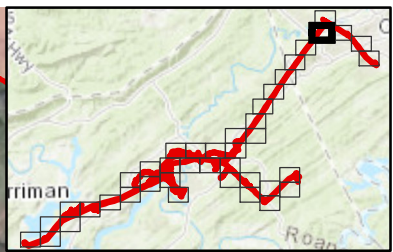
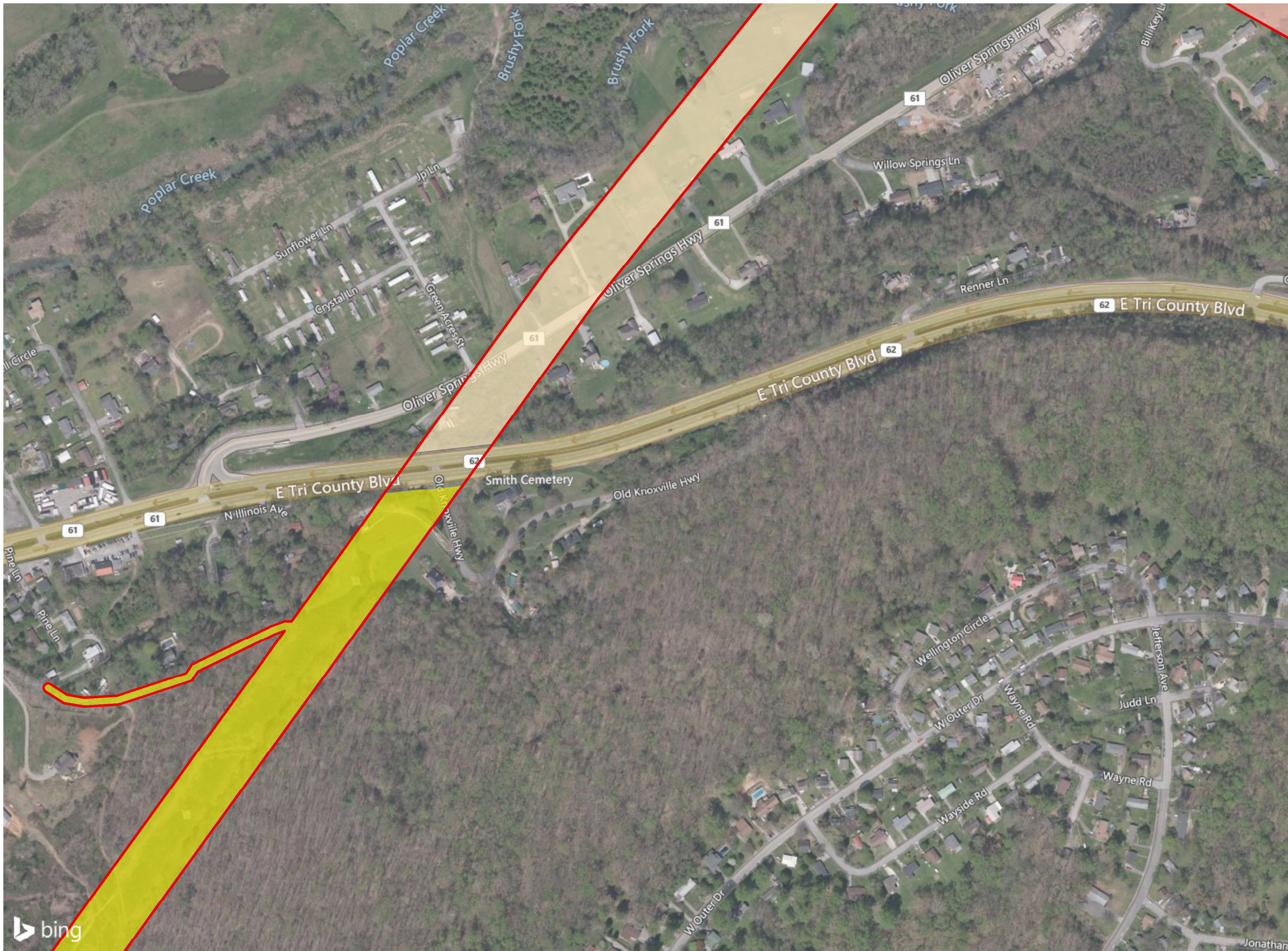
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



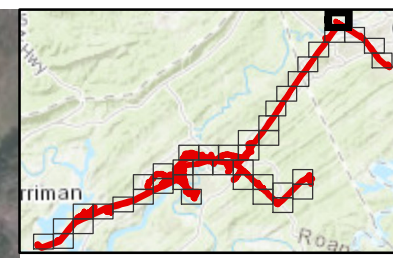
KINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



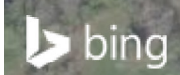
KINGSTON TRANSMISSION LINE - EAST

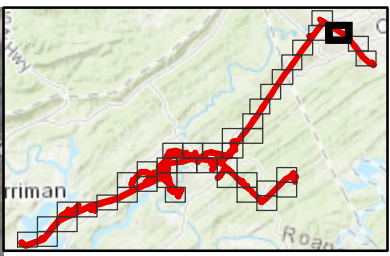
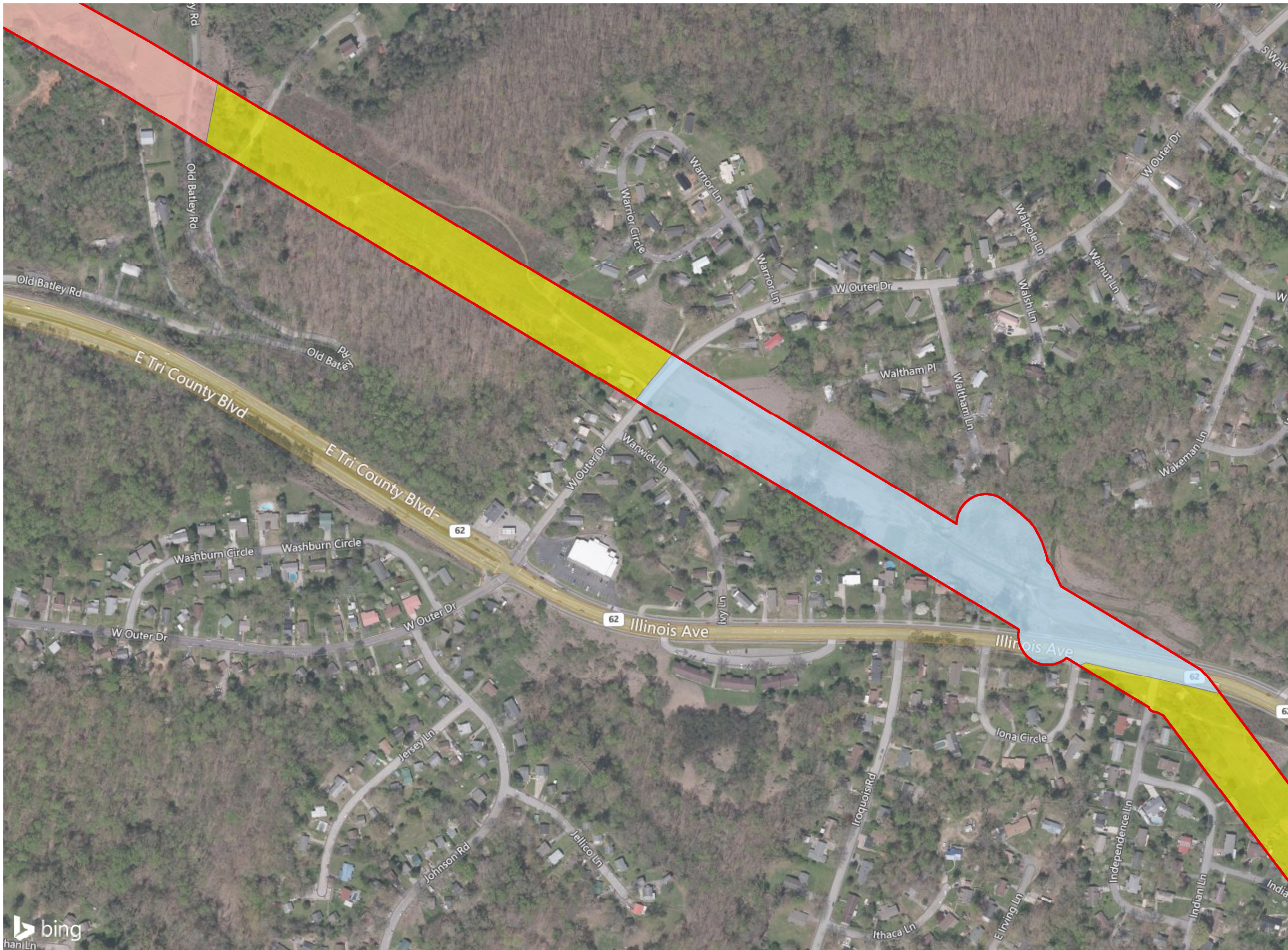
LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery





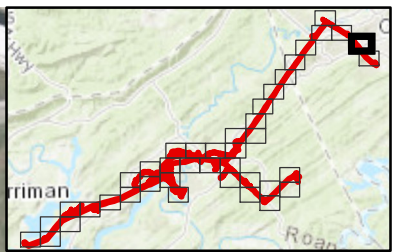
KINGSTON TRANSMISSION LINE - EAST

LEGEND

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- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



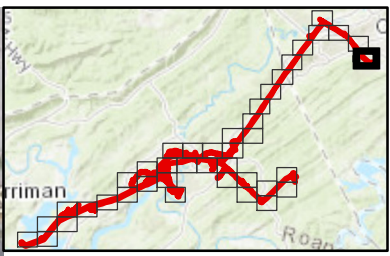
KINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
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 - Dry Deciduous
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 - Kudzu Infested
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 - Maintained Lawn
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DATA SOURCE: Bing Hybrid Aerial Imagery



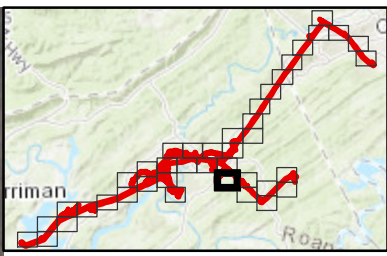
KINGSTON TRANSMISSION LINE - EAST

LEGEND

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- Dry Deciduous
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- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



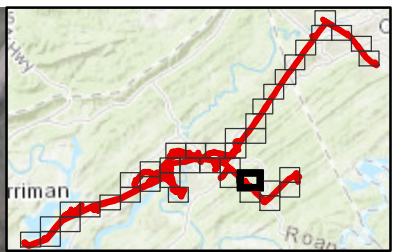
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

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- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
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- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



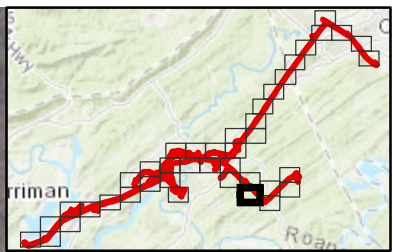
**KIINGSTON TRANSMISSION
LINE - EAST**

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- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous



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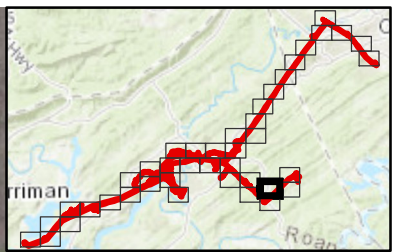
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

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DATA SOURCE: Bing Hybrid Aerial Imagery



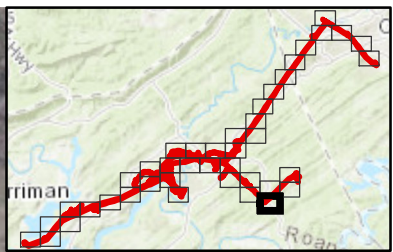
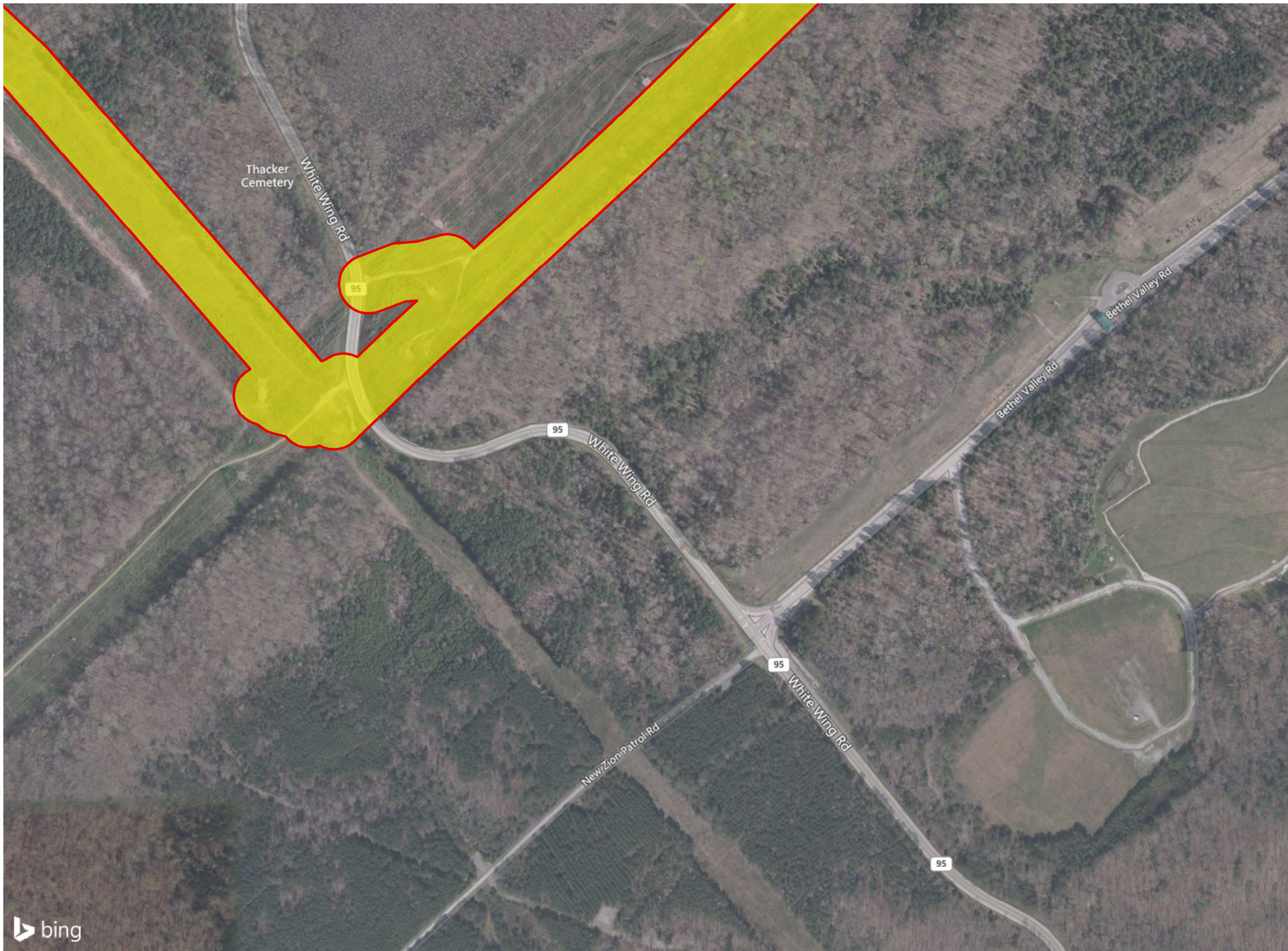
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
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- Pasture/Hay
- Pasture/Maintained Lawn
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- Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



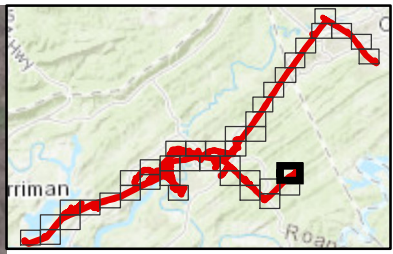
KINGSTON TRANSMISSION LINE - EAST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Kudzu Infested
- Maintained Access Road
- Maintained Lawn
- Open Water
- Pasture/Hay
- Pasture/Maintained Lawn
- Wet Deciduous
- Wet Herbaceous














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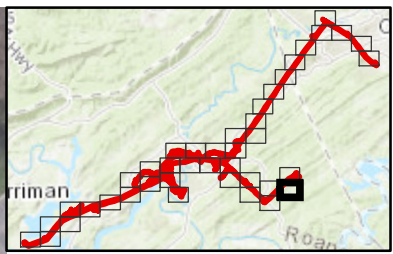
**KIINGSTON TRANSMISSION
LINE - EAST**

LEGEND

-  Study Area
- Vegetation Community
 -  Dry Deciduous
 -  Dry Herbaceous
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 -  Maintained Access Road
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 -  Open Water
 -  Pasture/Hay
 -  Pasture/Maintained Lawn
 -  Wet Deciduous
 -  Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



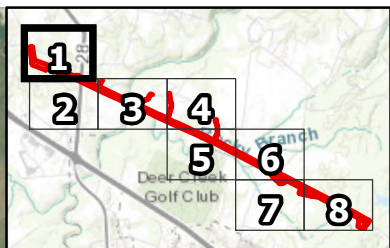
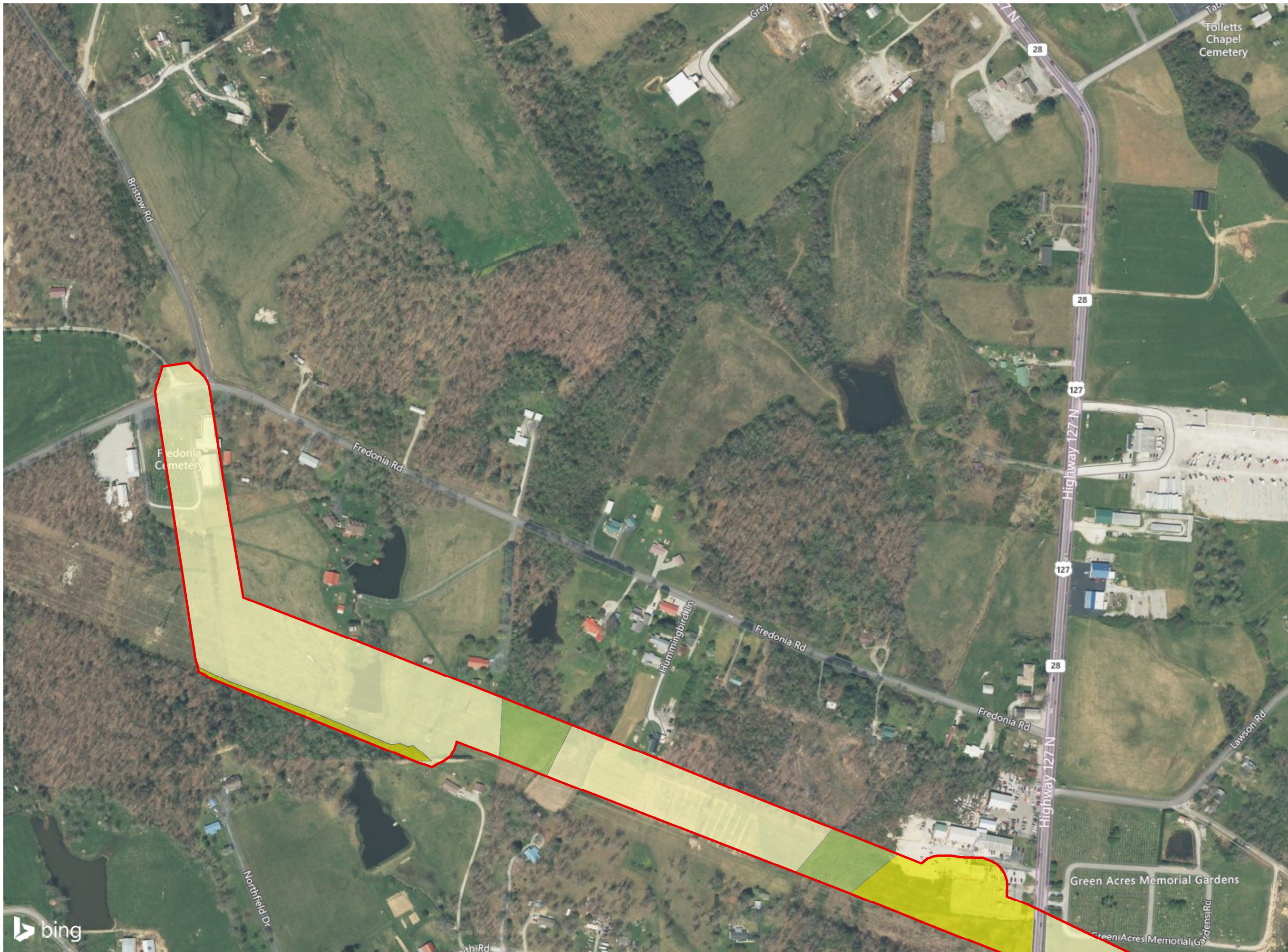
KIINGSTON TRANSMISSION LINE - EAST

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- Pasture/Maintained Lawn
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DATA SOURCE: Bing Hybrid Aerial Imagery



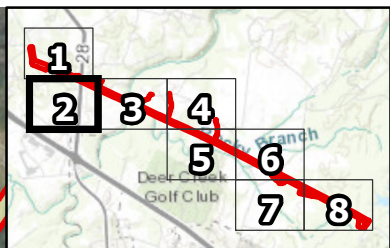
KINGSTON TRANSMISSION LINE - WEST

LEGEND

- Study Area
- Vegetation Community**
- Dry Deciduous
- Dry Herbaceous
- Maintained Lawn
- Open Water
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DATA SOURCE: Bing Hybrid Aerial Imagery



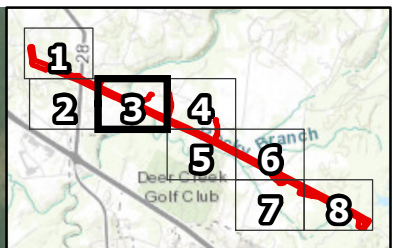
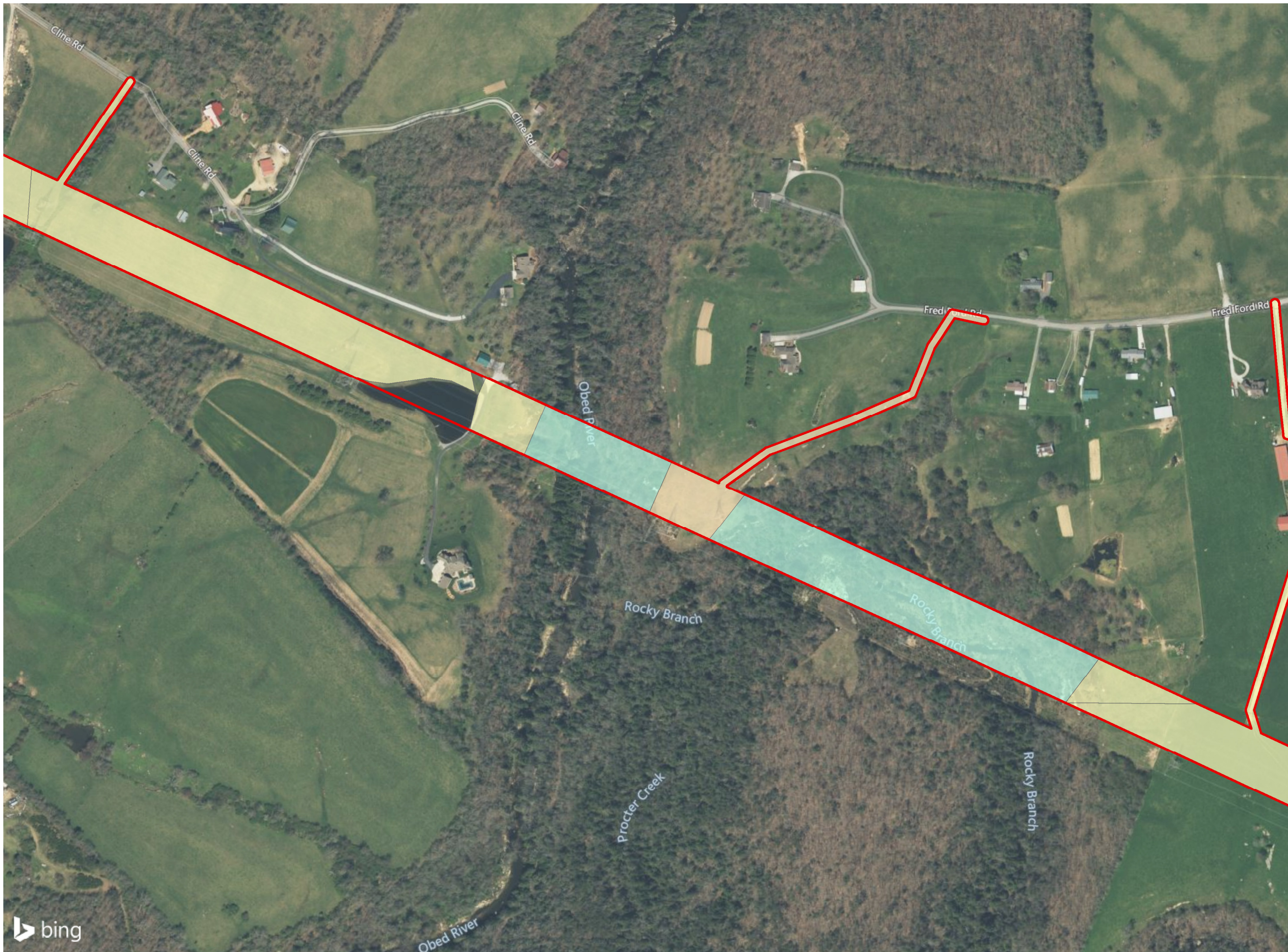
KINGSTON TRANSMISSION LINE - WEST

LEGEND

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- Dry Deciduous
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DATA SOURCE: Bing Hybrid Aerial Imagery



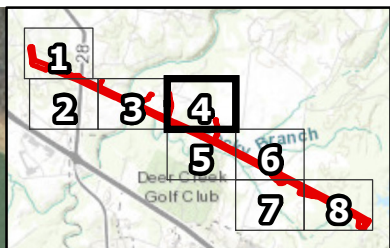
KINGSTON TRANSMISSION LINE - WEST

LEGEND

- Study Area
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- Dry Deciduous
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- Maintained Lawn
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DATA SOURCE: Bing Hybrid Aerial Imagery



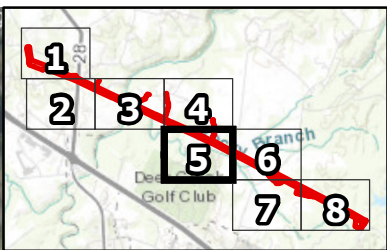
**KINGSTON TRANSMISSION
LINE - WEST**

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
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DATA SOURCE: Bing Hybrid Aerial Imagery



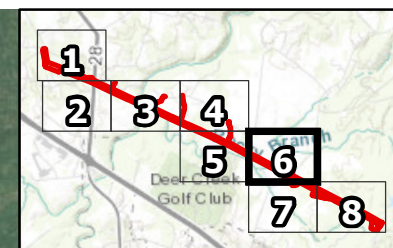
KIINGSTON TRANSMISSION LINE - WEST

LEGEND

- Study Area
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- Dry Deciduous
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DATA SOURCE: Bing Hybrid Aerial Imagery



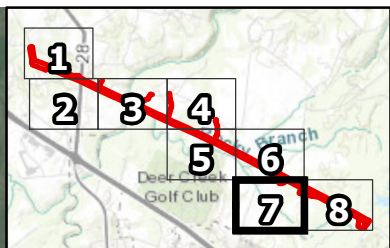
KINGSTON TRANSMISSION LINE - WEST

LEGEND

- Study Area
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- Dry Deciduous
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- Maintained Lawn
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DATA SOURCE: Bing Hybrid Aerial Imagery



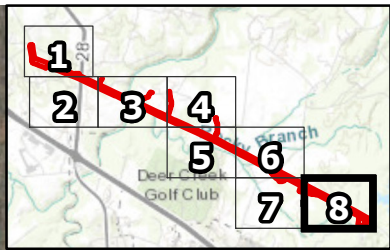
KIINGSTON TRANSMISSION LINE - WEST

LEGEND

- Study Area
- Vegetation Community
- Dry Deciduous
- Dry Herbaceous
- Maintained Lawn
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- Pasture/Hay
- Wet Deciduous
- Wet Herbaceous



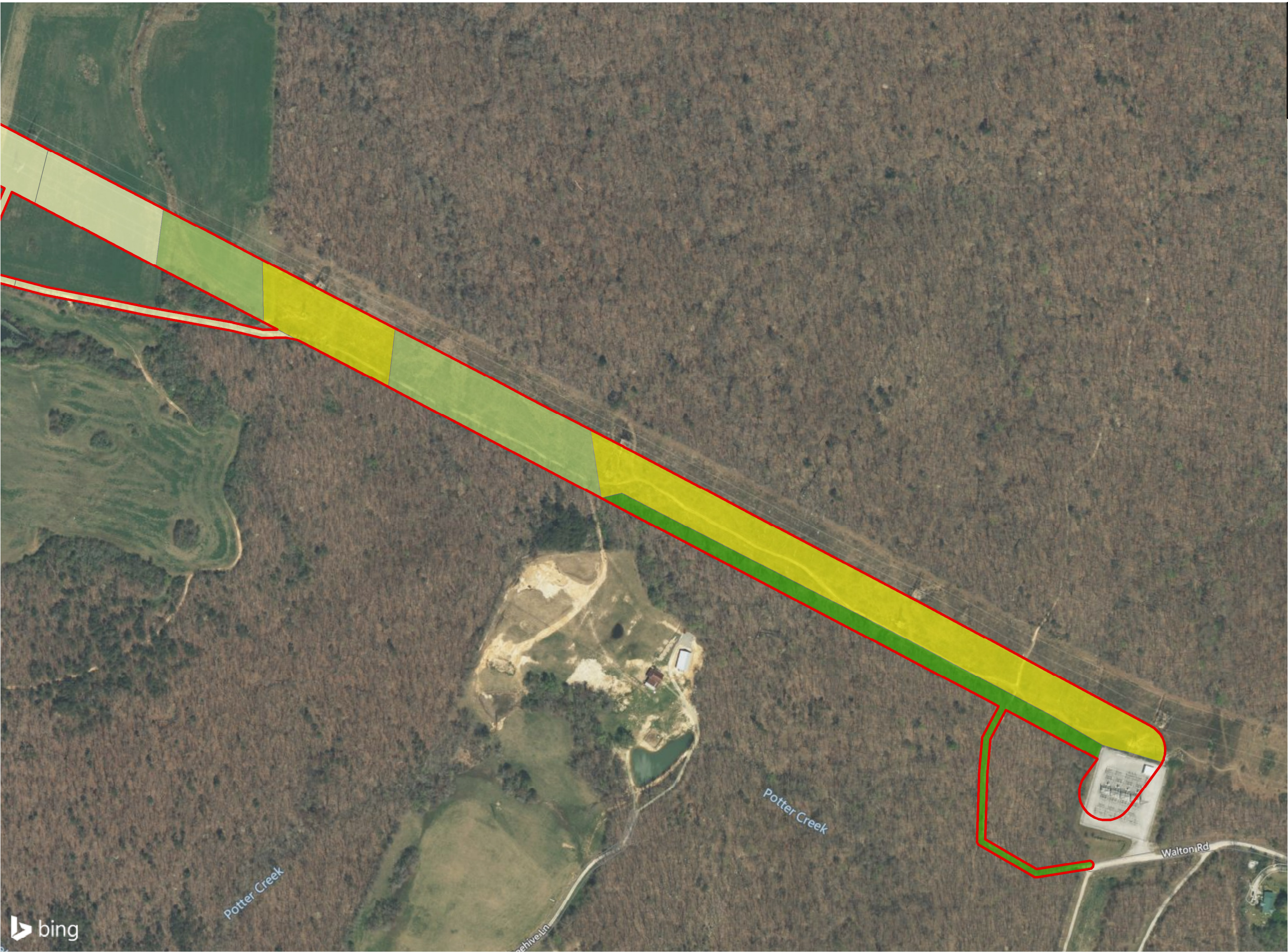
DATA SOURCE: Bing Hybrid Aerial Imagery



**KIINGSTON TRANSMISSION
LINE - WEST**

LEGEND

- Study Area
- Vegetation Community
 - Dry Deciduous
 - Dry Herbaceous
 - Maintained Lawn
 - Open Water
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 - Wet Herbaceous



DATA SOURCE: Bing Hybrid Aerial Imagery



Appendix B

USFWS IPaC, TVA RHND,
TDEC Rare Species Data
Viewer Results

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

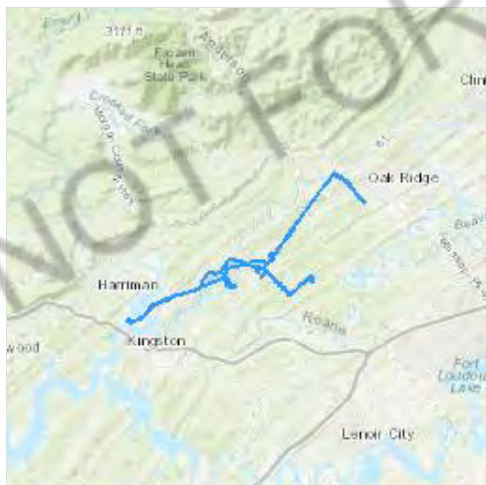
Project information

NAME

Kingston_TransLine_East

LOCATION

Anderson and Roane counties, Tennessee




DESCRIPTION

None

Local office

Tennessee Ecological Services Field Office

☎ (931) 528-6481

 (931) 528-7075

446 Neal Street

Cookeville, TN 38501-4027

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
------	--------

Gray Bat *Myotis grisescens* Endangered
 Wherever found
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6329>

Indiana Bat *Myotis sodalis* Endangered
 Wherever found
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/5949>

Northern Long-eared Bat *Myotis septentrionalis* Threatened
 Wherever found
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Fishes

NAME

STATUS

Slender Chub *Erimystax cahni* Threatened
 Wherever found
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/6637>

Spotfin Chub *Erimonax monachus* Threatened
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/1521>

Yellowfin Madtom *Noturus flavipinnis* Threatened
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/8565>

Clams

NAME

STATUS

Alabama Lampmussel *Lampsilis virescens* Endangered
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/916>

Birdwing Pearlymussel *Lemiox rimosus* EXPN
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6636>

Cracking Pearlymussel <i>Hemistena lata</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4130	
Cumberland Bean (pearlymussel) <i>Villosa trabalis</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6061	
Dromedary Pearlymussel <i>Dromus dromas</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6377	
Fanshell <i>Cyprogenia stegaria</i>	Endangered
Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4822	
Finerayed Pigtoe <i>Fusconaia cuneolus</i>	Endangered
No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3038	
Orangefoot Pimpleback (pearlymussel) <i>Plethobasus cooperianus</i>	Endangered
Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1132	
Pink Mucket (pearlymussel) <i>Lampsilis abrupta</i>	Endangered
Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7829	
Purple Bean <i>Villosa perpurpurea</i>	Endangered
Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4125	
Ring Pink (mussel) <i>Obovaria retusa</i>	Endangered
Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4128	

Rough Pigtoe *Pleurobema plenum* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6894>

Rough Rabbitsfoot *Quadrula cylindrica strigillata* Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/5629>

Sheepnose Mussel *Plethobasus cyphus* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6903>

Shiny Pigtoe *Fusconaia cor* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2573>

Spectaclecase (mussel) *Cumberlandia monodonta* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7867>

Turgid Blossom (pearlymussel) *Epioblasma turgidula* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7659>

Snails

NAME

STATUS

Anthony's Riversnail *Athearnia anthonyi*

EXPN

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4827>

Anthony's Riversnail *Athearnia anthonyi*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4827>

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus*

Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME

STATUS

Virginia Spiraea *Spiraea virginiana*

Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1728>

White Fringeless Orchid *Platanthera integrilabia*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1889>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>

- Nationwide conservation measures for birds

<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

Breeds Sep 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Bobolink *Dolichonyx oryzivorus*

Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Canada Warbler *Cardellina canadensis*

Breeds May 20 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cerulean Warbler <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 27 to Jul 20
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be

used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
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To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

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Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

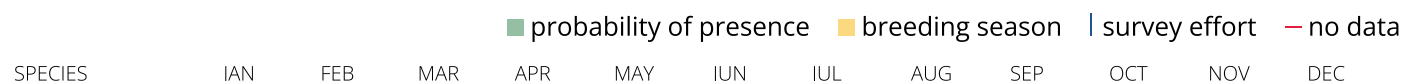
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

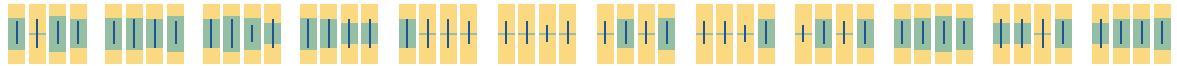
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Survey Timeframe

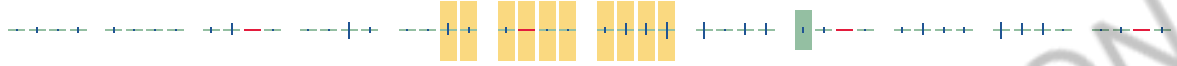
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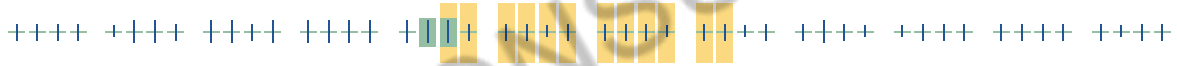
Bald Eagle
 Non-BCC
 Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



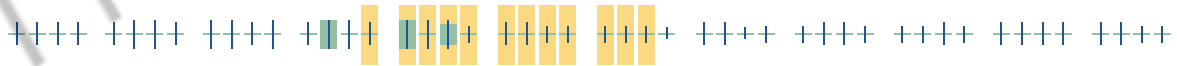
Bobolink
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Canada Warbler
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Cerulean Warbler
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Eastern Whip-poor-will
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





Wood Thrush
BCC Rangewide
(CON) (This is a
Bird of
Conservation
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throughout its
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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds](#)

[guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid

or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted.

Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Kingston_TransLine_West

LOCATION

Cumberland County, Tennessee




DESCRIPTION

None

Local office

Tennessee Ecological Services Field Office

☎ (931) 528-6481

 (931) 528-7075

446 Neal Street
Cookeville, TN 38501-4027

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
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Gray Bat *Myotis grisescens* Endangered
 Wherever found
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6329>

Indiana Bat *Myotis sodalis* Endangered
 Wherever found
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/5949>

Northern Long-eared Bat *Myotis septentrionalis* Threatened
 Wherever found
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Fishes

NAME

STATUS

Spotfin Chub *Erimonax monachus* Threatened
 There is **final** critical habitat for this species. Your location overlaps the critical habitat.
<https://ecos.fws.gov/ecp/species/1521>

Clams

NAME

STATUS

Cumberland Bean (pearlymussel) *Villosa trabalis* Endangered
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6061>

Purple Bean *Villosa perpurpurea* Endangered
 Wherever found
 There is **final** critical habitat for this species. The location of the critical habitat is not available.
<https://ecos.fws.gov/ecp/species/4125>

Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus* Candidate
 Wherever found
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME	STATUS
Cumberland Rosemary <i>Conradina verticillata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3677	Threatened
Virginia Spiraea <i>Spiraea virginiana</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1728	Threatened
White Fringeless Orchid <i>Platanthera integrilabia</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1889	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Spotfin Chub <i>Erimonax monachus</i> https://ecos.fws.gov/ecp/species/1521#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds
<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

Breeds Sep 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Bobolink *Dolichonyx oryzivorus*

Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Eastern Whip-poor-will *Antrastomus vociferus*

Breeds May 1 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler *Dendroica discolor*

Breeds May 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

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Wood Thrush *Hylocichla mustelina*

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Probability of Presence Summary

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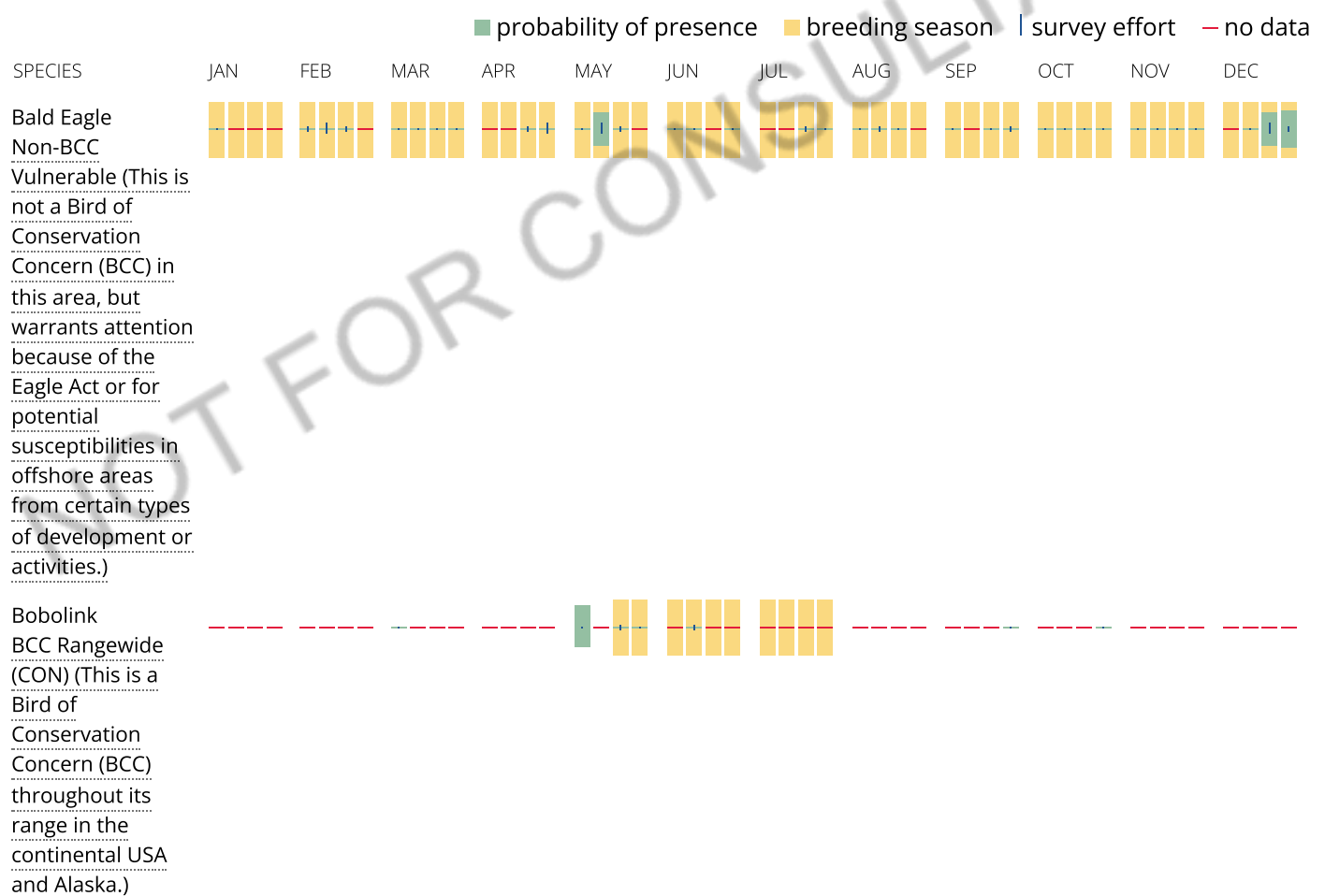
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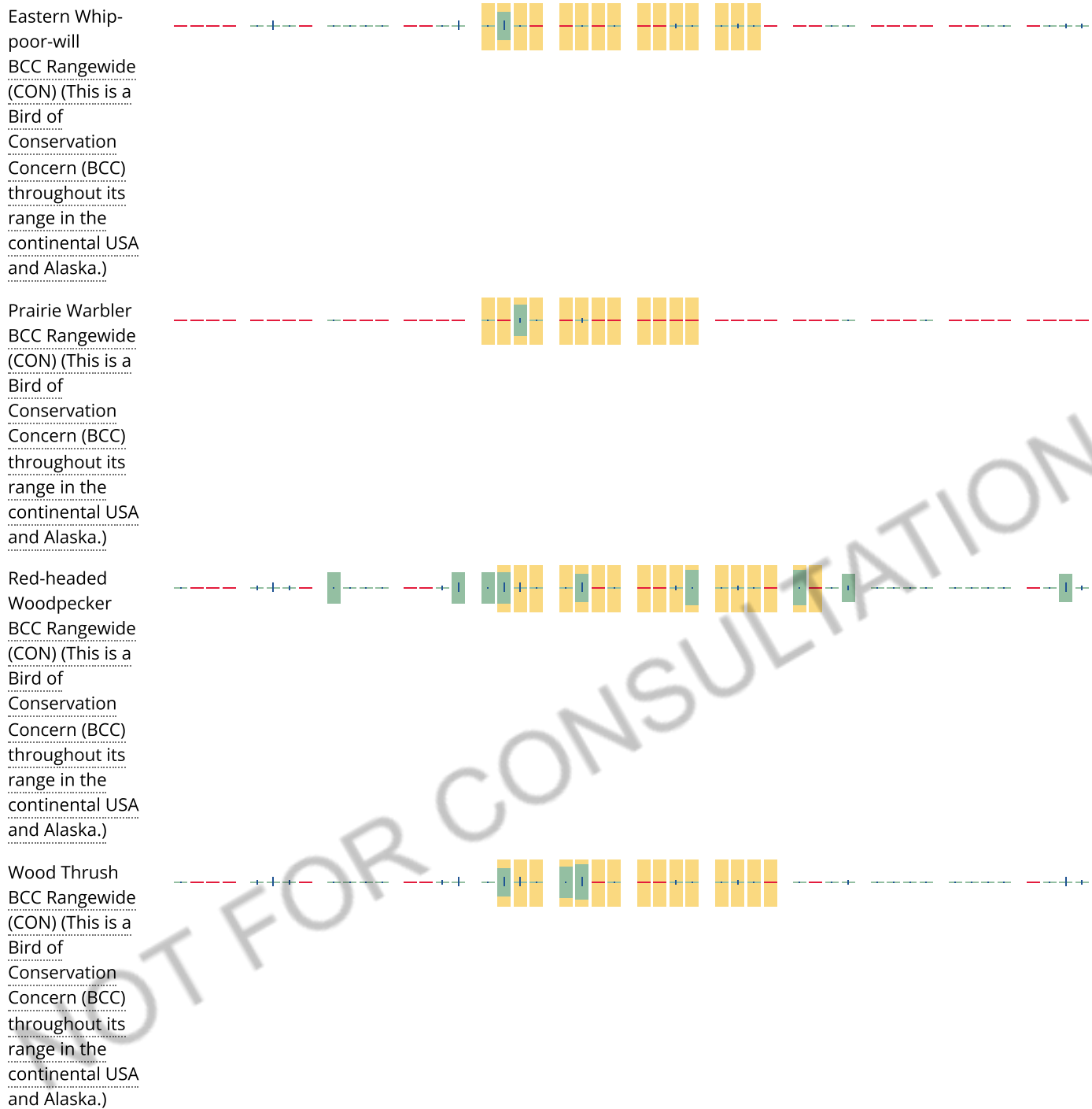
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

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What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in

activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



Rare Species by Watershed **Rare Species by County** Rare Species by Quadrangle Stormwater Programs

Help • [Download Status and Ranks](#)

Key to Status and Ranks

Rare Species by County

Data is refreshed on or around January and July each year.

Q Go Rows All Actions ▾

County = 'Roane'

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County	Type	Category	Scientific Name	Common Name	Global Rank	State Rank	Fed. Status	State Status	Habitat	Wet Habitat Flag
Roane	Vertebrate Animal	Mammal	Spilogale putorius	Eastern Spotted Skunk	G4	S3	--	Rare, Not State Listed	Rocky outcrops, open prairies, brushy areas, cultivated fields, and barnyards; more common in east Tennessee; reclusive.	Upland
Roane	Invertebrate Animal	Crustacean	Caecidotea incurva	Incurved Cave Isopod	G2G4	S1	--	Rare, Not State Listed	Aquatic cave obligate; known from two wet caves in east Tennessee.	Aquatic
Roane	Animal Assemblage	No Data	Rookery	Heron Rookery	G5	SNR	--	Rare, Not State Listed	No Data	No Data
Roane	Vertebrate Animal	Fish	Percina aurantiaca	Tangerine Darter	G4	S3	--	D	Large-moderate size headwater tribs to Tennessee River, in clear, fairly deep, rocky pools, usually below riffles.	Aquatic
Roane	Vascular Plant	Flowering Plant	Helianthus occidentalis	Naked-stem Sunflower	G5	S2	--	S	Limestone Glades And Barrens	Upland
Roane	Vascular Plant	Flowering Plant	Diervilla sessilifolia var. rivularis	Mountain Bush-honeysuckle	G3	S2	--	T	Dry Cliffs And Bluffs	Upland
Roane	Vascular Plant	Flowering Plant	Elodea nuttallii	Nuttall's Waterweed	G5	S2	--	S	Aquatic; Streams And Ponds	Aquatic
Roane	Vertebrate Animal	Fish	Erimonax monachus	Spotfin Chub	G2	S2	LT,XN	T	Clear upland rivers with swift currents & boulder substrates; portions of the Tennessee River watershed.	Aquatic
Roane	Vertebrate Animal	Fish	Cycleptus elongatus	Blue Sucker	G3G4	S2	--	T	Swift waters over firm substrates in big rivers.	Aquatic
Roane	Vertebrate Animal	Bird	Peucaea aestivalis	Bachman's Sparrow	G3	S1B	--	E	Dry open pine or oak woods; nests on the ground in dense cover.	Upland
Roane	Vascular Plant	Flowering Plant	Platanthera integrilabia	White Fringeless Orchid	G2G3	S2S3	LT	E	Acidic Seeps And Stream Heads	Possible
Roane	Vascular Plant	Flowering Plant	Platanthera flava var. herbiola	Tuberclad Rein-orchid	G4?T4Q	S2	--	T	Swamps And Floodplains	Possible
Roane	Vascular Plant	Flowering Plant	Agalinis auriculata	Earleaved False-foxtglove	G3	S2	--	E	Barrens	Upland
Roane	Vascular Plant	Flowering Plant	Delphinium exaltatum	Tall Larkspur	G3	S2	--	E	Glades And Barrens	Upland
Roane	Vascular Plant	Flowering Plant	Bolboschoenus fluviatilis	River Bulrush	G5	S1	--	S	Marshes	Possible
Roane	Vascular Plant	Fern and Fern Ally	Asplenium scolopendrium var. americanum	Hart's-tongue Fern	G4T3	S1	LT	E	Sinks	Possible
Roane	Vascular Plant	Flowering Plant	Juncus brachycephalus	Small-headed Rush	G5	S2	--	S	Seeps And Wet Bluffs	Possible
Roane	Invertebrate Animal	Mollusc	Lampsisilis abrupta	Pink Mucket	G1G2	S2	LE	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents; Tennessee & Cumberland river systems.	Aquatic

Roane	Vertebrate Animal	Mammal	<u>Myotis grisescens</u>	Gray Myotis	G4	S2	LE	E	Cave obligate year-round; frequents forested areas; migratory.	Upland
Roane	Invertebrate Animal	Mollusc	<u>Plethobasus cyphyus</u>	Sheepnose	G3	S2S3	LE	E	Large to medium-sized rivers, in riffles and coarse sand/gravel subst; TN & Cumb river systems incl KY Reservoir; W Uplands & Rim.	Aquatic
Roane	Invertebrate Animal	Mollusc	<u>Cumberlandia monodonta</u>	Spectaclecase	G3	S2S3	LE	E	Medium to large rivers; in substrates from mud and sand to gravel, cobble, and boulders; Cumberland and Tennessee river systems.	Aquatic
Roane	Vascular Plant	Flowering Plant	<u>Draba ramosissima</u>	Branching Whitlow-grass	G4	S2	--	S	Calcareous Bluffs	Upland
Roane	Vascular Plant	Flowering Plant	<u>Erysimum capitatum</u>	Western Wallflower	G5	S1S2	--	E	Rocky Bluffs	Upland
Roane	Vascular Plant	Flowering Plant	<u>Pseudognaphalium helleri</u>	Heller's Catfoot	G4G5	S2	--	S	Dry Sandy Woods	Upland
Roane	Vascular Plant	Flowering Plant	<u>Ribes missouriense</u>	Missouri Gooseberry	G5	S2	--	S	Rocky Woods	Upland
Roane	Nonvascular Plant	Non-Vascular Plant	<u>Preissia quadrata</u>	A Liverwort	G5	S1	--	T	Seepy Limestone Cliffs And Bluffs	Possible
Roane	Vascular Plant	Flowering Plant	<u>Juglans cinerea</u>	Butternut	G3	S3	--	T	Rich Woods And Hollows	Possible
Roane	Vertebrate Animal	Amphibian	<u>Hemidactylium scutatum</u>	Four-toed Salamander	G5	S3	--	D	Woodland swamps, shallow depressions, & sphagnum mats on acidic soils; middle & east Tennessee.	Possible
Roane	Vascular Plant	Flowering Plant	<u>Marshallia grandiflora</u>	Large-fl. Barbara's-buttons	GNR	S2	--	E	Rocky River Bars	Possible
Roane	Vascular Plant	Flowering Plant	<u>Liatris cylindracea</u>	Slender Blazing-star	G5	S2	--	T	Barrens	Upland
Roane	Vertebrate Animal	Fish	<u>Chrosomus tennesseensis</u>	Tennessee Dace	G3	S3	--	D	First order spring-fed streams of woodlands in Ridge and Valley limestone region; Tennessee River watershed.	Aquatic
Roane	Vascular Plant	Flowering Plant	<u>Diervilla lonicera</u>	Northern Bush-honeysuckle	G5	S2	--	T	Rocky Woodlands And Bluffs	Upland
Roane	Vertebrate Animal	Reptile	<u>Pituophis melanoleucus melanoleucus</u>	Northern Pinesnake	G4T4	S3	--	T	Well-drained sandy soils in pine/pine-oak woods; dry mountain ridges; E portions of west TN, E to lower elev of the Appalachians.	Upland
Roane	Vascular Plant	Flowering Plant	<u>Leucothoe racemosa</u>	Fetter-bush	G5	S2	--	T	Acidic Wetlands And Swamps	Possible
Roane	Vertebrate Animal	Amphibian	<u>Aneides aeneus</u>	Green Salamander	G3G4	S3S4	--	Rare, Not State Listed	Damp crevices in shaded rock outcrops and ledges; beneath loose bark and cracks of trees and sometimes in/or under logs.	Upland
Roane	Invertebrate Animal	Mollusc	<u>Obovaria retusa</u>	Ring Pink	G1	S1	LE,XN	E	Large rivers in gravel and sand bars; Tennessee & Cumberland river watersheds; many historic locations currently inundated.	Aquatic
Roane	Invertebrate Animal	Mollusc	<u>Venustaconcha trabalis</u>	Tennessee Bean	G1	S1	LE, XN	E	Riffle areas of small rivers & streams in sand, gravel, & cobble substrates with swift current; upper Cumb. & upper Tenn. river systems.	Aquatic
Roane	Invertebrate Animal	Mollusc	<u>Plethobasus cooperianus</u>	Orangefoot Pimpleback	G1	S1	LE, XN	E	Large rivers in sand-gravel-cobble substrates in riffles and shoals in deep flowing water; Cumberland & Tennessee river systems.	Aquatic
Roane	Vertebrate Animal	Amphibian	<u>Gyrinophilus gulolineatus</u>	Berry Cave Salamander	G1Q	S1	C	T	Aquatic cave obligate; Ridge & Valley; formerly	Aquatic

Roane	Vertebrate Animal	Mammal	Perimyotis subflavus	Tri-colored bat	G2G3	S2S3	--	T	included with <i>G. pallaucus</i> . Generally associated with forested landscapes but may roost near openings.	No Data
Roane	Vascular Plant	Flowering Plant	Spiranthes lucida	Shining Ladies'-tresses	G4	S1S2	--	T	Alluvial Woods And Moist Slopes	Possible
Roane	Vascular Plant	Flowering Plant	Panax quinquefolius	American Ginseng	G3G4	S3S4	--	S-CE	Rich Woods	Possible
Roane	Invertebrate Animal	Mollusc	Fusconaia cuneolus	Finerayed Pigtoe	G1	S1	LE, XN	E	Riffles of fords and shoals of mod gradient streams in firm cobble and gravel substrates; middle & upper Tennessee River watershed.	Aquatic
Roane	Vascular Plant	Flowering Plant	Aureolaria patula	Spreading False-foxglove	G3	S3	--	S	Oak Woods And Edges	Upland
Roane	Vascular Plant	Flowering Plant	Oligoneuron album	Prairie Goldenrod	G5	S1S2	--	E	Barrens	Upland
Roane	Invertebrate Animal	Mollusc	Lampsilis virescens	Alabama Lampmussel	G1	S1	LE	E	Found in sand and gravel substrates in shoal areas of small-medium size rivers; middle and upper TN R system; recently rediscovered in Emory River.	Aquatic
Roane	Invertebrate Animal	Crustacean	Cambarus deweesae	Valley Flame Crayfish	G4	S1	--	E	Primary burrower; open areas with high water tables; northern Ridge & Valley.	Aquatic
Roane	Invertebrate Animal	Mollusc	Fusconaia cor	Shiny Pigtoe	G1	S1	LE, XN	E	Shoals and riffles of small-medium sized rivers with mod-fast current over sand-cobble substrates; upper Tennessee River watershed.	Aquatic
Roane	Invertebrate Animal	Mollusc	Theliderma cylindrica strigillata	Rough Rabbitsfoot	G3G4T2	S2	LE	E	Small-medium sized rivers, in clear, shallow riffles with sand-gravel substrates; Tenn. & Cumb. river systems; upland form.	Aquatic
Roane	Vascular Plant	Flowering Plant	Liparis loeselii	Fen Orchis	G5	S1	--	T	Calcareous Seeps	Possible
Roane	Vascular Plant	Flowering Plant	Pedicularis lanceolata	Swamp Lousewort	G5	S1S2	--	S	Wet Acidic Barrens And Seeps	Possible
Roane	Vertebrate Animal	Mammal	Sorex dispar	Long-tailed Shrew	G4	S2	--	D	Mountainous, forested areas with loose talus; east Tennessee.	Upland
Roane	Vascular Plant	Flowering Plant	Symphyotrichum pratense	Barrens Silky Aster	G4?	S1	--	E	Barrens	Upland
Roane	Nonvascular Plant	Non-Vascular Plant	Myurella julacea	A Moss	G5	SH	--	S-P	Shale Bluffs	Possible
Roane	Vertebrate Animal	Fish	Hemitremia flammea	Flame Chub	G3	S3	--	D	Springs and spring-fed streams with lush aquatic vegetation; Tennessee & middle Cumberland river watersheds.	Aquatic
Roane	Vertebrate Animal	Amphibian	Cryptobranchus alleganiensis	Hellbender	G3	S3	No Status	E	Rocky, clear creeks and rivers with large shelter rocks.	Aquatic
Roane	Vascular Plant	Flowering Plant	Spiraea virginiana	Virginia Spiraea	G2	S2	LT	E	Stream Bars And Ledges	Possible
Roane	Invertebrate Animal	Mollusc	Io fluviialis	Spiny Riversnail	G1G2	S2	--	Rare, Not State Listed	Shallow waters of shoals that are rapid to moderate and well-oxygenated; Tennessee River & main tributaries; E Tennessee.	Aquatic
Roane	Vascular Plant	Flowering Plant	Loniceria dioica	Mountain Honeysuckle	G5	S2	--	S	Mountain Woods And Thickets	Possible
Roane	Vertebrate Animal	Mammal	Synaptomys cooperi	Southern Bog Lemming	G5	S4	--	D	Marshy meadows, wet balds, & rich upland forests.	Possible
Roane	Invertebrate Animal	Mollusc	Pleurobema rubrum	Pyramid Pigtoe	G2G3	S1S2	--	Rare, Not State Listed	Rivers with strong current and firm sand/gravel substrates; TN & Cumb river systems incl KY Reservoir; W Uplands & W Highland Rim.	Aquatic

Rare Species by County

Roane	Vertebrate Animal	Mammal	<u>Myotis septentrionalis</u>	Northern Myotis	G1G2	S1S2	LT	T	A forest bat whose summer roosts may include caves, mines, live trees and snags; hibernates in caves and mines, often using small cracks and fissures. Notably susceptible to White-Nose Syndrome.	No Data
Roane	Vascular Plant	Flowering Plant	<u>Eurybia schreberi</u>	Schreber's Aster	G4	S1	--	S	Mesic Woods & Seepage Slopes	Upland
Roane	Vertebrate Animal	Reptile	<u>Ophisaurus attenuatus longicaudus</u>	Eastern Slender Glass Lizard	G5T5	S3	--	D	Dry upland areas including brushy, cut-over woodlands and grassy fields; nearly statewide but obscure; fossorial.	Upland
Roane	Vertebrate Animal	Bird	<u>Limnothlypis swainsonii</u>	Swainson's Warbler	G4	S3	--	D	Mature, rich, damp, deciduous floodplain and swamp forests.	Possible
Roane	Invertebrate Animal	Mollusc	<u>Cyprogenia stegaria</u>	Fanshell	G1	S1	LE, XN	E	Medium to large streams and rivers with coarse sand and gravel substrates; Cumberland and Tennessee river systems.	Aquatic

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If you have any questions or comments, Email ask.tdec@tn.gov or call at (888) 891-TDEC (8332).





Rare Species by Watershed Rare Species by County Rare Species by Quadrangle Stormwater Programs

Help • Download Status and Ranks

Key to Status and Ranks

Rare Species by County

Data is refreshed on or around January and July each year.

Q Go Rows All Actions ▾

☑ Row text contains 'Anderson' X

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County	Type	Category	Scientific Name	Common Name	Global Rank	State Rank	Fed. Status	State Status	Habitat	Wet Habitat Flag
Anderson	Vertebrate Animal	Mammal	Neotoma magister	Allegheny Woodrat	G3G4	S3	--	D	Outcrops, cliffs, talus slopes, crevices, sinkholes, caves & karst.	Upland
Anderson	Vertebrate Animal	Reptile	Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	G5T5	S3	--	D	Dry upland areas including brushy, cut-over woodlands and grassy fields; nearly statewide but obscure; fossorial.	Upland
Anderson	Invertebrate Animal	Mollusc	Pleurobema plenum	Rough Pigtoe	G1	S1	LE, XN	E	Medium to large rivers in sand, gravel, and cobble substrates of shoals; Tennessee & Cumberland river systems.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Lampsilis abrupta	Pink Mucket	G1G2	S2	LE	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents; Tennessee & Cumberland river systems.	Aquatic
Anderson	Nonvascular Plant	Non-Vascular Plant	Lejeunea sharpii	Sharp's Lejeunea	G2G3	S1S2	--	E	Calcareous Bluffs, Rock & Logs Of Wet Sinks	Possible
Anderson	Invertebrate Animal	Crustacean	Caecidotea recurvata	Southwestern Virginia Cave Isopod	G5	S2	--	Rare, Not State Listed	Aquatic cave obligate; northernmost Ridge & Valley; reported from Campbell, Claiborne, & Hancock counties.	Aquatic
Anderson	Invertebrate Animal	Crustacean	Cambarus deweesae	Valley Flame Crayfish	G4	S1	--	E	Primary burrower; open areas with high water tables; northern Ridge & Valley.	Aquatic
Anderson	Vertebrate Animal	Amphibian	Cryptobranchus alleganiensis	Hellbender	G3	S3	--	E	Rocky, clear creeks and rivers with large shelter rocks.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Margaritifera monodonta	Spectaclecase	G3	S2S3	LE	E	Medium to large rivers; in substrates from mud and sand to gravel, cobble, and boulders; Cumberland and Tennessee river systems.	Aquatic
Anderson	Invertebrate Animal	Crustacean	Amerigoniscus nicholasi	A Cave Obligate Isopod	G1G2	S1S2	--	Rare, Not State Listed	Terrestrial cave obligate; known from two caves; Western Highland Rim and Ridge & Valley.	Upland
Anderson	Vertebrate Animal	Mammal	Myotis lucifugus	Little Brown Myotis	G3G4	S3	--	T	Often uses human-made structures for resting and maternity sites; they also use caves and hollow trees. Typically feed over water.	No Data

Anderson	Invertebrate Animal	Mollusc	Plethobasus cooperianus	Orangefoot Pimpleback	G1	S1	LE, XN	E	Large rivers in sand-gravel-cobble substrates in riffles and shoals in deep flowing water; Cumberland & Tennessee river systems.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Lampsilis virescens	Alabama Lampmussel	G1	S1	LE	E	Found in sand and gravel substrates in shoal areas of small-medium size rivers; middle and upper TN R system; recently rediscovered in Emory River.	Aquatic
Anderson	Vertebrate Animal	Fish	Erimonax monachus	Spotfin Chub	G2	S2	LT,XN	T	Clear upland rivers with swift currents & boulder substrates; portions of the Tennessee River watershed.	Aquatic
Anderson	Invertebrate Animal	Insect	Pseudanophthalmus wallacei	Wallace's Cave Beetle	G1	S1	--	Rare, Not State Listed	Terrestrial cave obligate; Ridge & Valley; Anderson County.	Upland
Anderson	Vascular Plant	Flowering Plant	Pycnanthemum torrei	Torrey's Mountain-mint	G2	S1	--	E	Barrens	Upland
Anderson	Vertebrate Animal	Fish	Erimystax cahni	Slender Chub	G1	S1	LT, XN	T	Major headwater tribs to TN River with small gravel substrates & swift-moderate currents.	Aquatic
Anderson	Vascular Plant	Flowering Plant	Aureolaria patula	Spreading False-foxtglove	G3	S3	--	S	Oak Woods And Edges	Upland
Anderson	Vertebrate Animal	Fish	Cycleptus elongatus	Blue Sucker	G3G4	S2	--	T	Swift waters over firm substrates in big rivers.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Cyprogenia stegaria	Fanshell	G1	S1	LE, XN	E	Medium to large streams and rivers with coarse sand and gravel substrates; Cumberland and Tennessee river systems.	Aquatic
Anderson	Vascular Plant	Flowering Plant	Platanthera flava var. herbiola	Tubercled Rein-orchid	G4?T4Q	S2	--	T	Swamps And Floodplains	Possible
Anderson	Invertebrate Animal	Insect	Pseudanophthalmus pusillus	Tiny Cave Beetle	G1	S1	--	Rare, Not State Listed	Terrestrial cave obligate; northern Ridge & Valley.	Upland
Anderson	Vascular Plant	Flowering Plant	Helianthus occidentalis	Naked-stem Sunflower	G5	S2	--	S	Limestone Glades And Barrens	Upland
Anderson	Invertebrate Animal	Arachnid	Hesperochernes mirabilis	Southeastern Cave Pseudoscorpion	G5	S3	--	Rare, Not State Listed	Terrestrial cave obligate; woodrat debris in caves; middle Tennessee.	Upland
Anderson	Vascular Plant	Flowering Plant	Juglans cinerea	Butternut	G3	S3	--	T	Rich Woods And Hollows	Possible
Anderson	Vascular Plant	Flowering Plant	Parnassia grandifolia	Large-leaved Grass-of-parnassus	G3	S3	--	S	Calcareous Seeps	Possible
Anderson	Vertebrate Animal	Reptile	Pituophis melanoleucus melanoleucus	Northern Pinesnake	G4T4	S3	--	T	Well-drained sandy soils in pine/pine-oak woods; dry mountain ridges; E portions of west TN, E to lower elev of the Appalachians.	Upland
Anderson	Vascular Plant	Flowering Plant	Meehania cordata	Heartleaf Meehania	G5	S2	--	T	Wooded Mountain Slopes	Upland
Anderson	Vertebrate Animal	Fish	Etheostoma baileyi	Emerald Darter	G4G5	S2	--	D	Creeks and small rivers with riffles containing gravel or rubble; upper Cumberland drainage.	Aquatic
Anderson	Vascular Plant	Flowering Plant	Sullivantia sullivantii	Sullivantia	G4	S1	--	E	Moist Shaded Cliffs	Upland
Anderson	Vertebrate Animal	Mammal	Synaptomys cooperi	Southern Bog Lemming	G5	S4	--	D	Marshy meadows, wet balds, & rich upland forests.	Possible
Anderson	Vascular Plant	Flowering Plant	Draba ramosissima	Branching Whitlow-grass	G4	S2	--	S	Calcareous Bluffs	Upland
Anderson	Invertebrate Animal	Mollusc	Atheurina anthonyi	Anthony's Riversnail	G1	S1	LE,XN	E	Larger rivers and downstream stretches	Aquatic

										of lg creeks, on cobble/boulder substrates adj. riffles; portions of upper TN River basin.	
Anderson	Invertebrate Animal	Mollusc	Fusconaia cor	Shiny Pigtoe	G1	S1	LE, XN	E		Shoals and riffles of small-medium sized rivers with mod-fast current over sand-cobble substrates; upper Tennessee River watershed.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Io fluviialis	Spiny Riversnail	G1G2	S2	--	Rare, Not State Listed		Shallow waters of shoals that are rapid to moderate and well-oxygenated; Tennessee River & main tributaries; E Tennessee.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Lemiox rimosus	Birdwing Pearlymussel	G1	S1	LE, XN	E		Small-medium size rivers in riffle areas with sand and gravel substrates in mod-fast currents; Tennessee River system.	Aquatic
Anderson	Vertebrate Animal	Bird	Limnothlypis swainsonii	Swainson's Warbler	G4	S3	--	D		Mature, rich, damp, deciduous floodplain and swamp forests.	Possible
Anderson	Invertebrate Animal	Mollusc	Carychium stygium	Cave Thorn	G3	S2	--	Rare, Not State Listed		Cave obligate; feeds on cricket guano; Highland Rim & escarpment of Cumberland Plateau.	Upland
Anderson	Vertebrate Animal	Amphibian	Aneides aeneus	Green Salamander	G3G4	S3S4	--	Rare, Not State Listed		Damp crevices in shaded rock outcrops and ledges; beneath loose bark and cracks of trees and sometimes in/or under logs.	Upland
Anderson	Nonvascular Plant	Non-Vascular Plant	Palamocladium leskeoides	A Moss	G3G5	S1	--	T		Seepy Limestone Cliffs And Bluffs	Possible
Anderson	Vertebrate Animal	Mammal	Perimyotis subflavus	Tri-colored bat	G3G4	S2S3	--	T		Generally associated with forested landscapes but may roost near openings.	No Data
Anderson	Invertebrate Animal	Mollusc	Plethobasus cicatricosus	White Wartyback	G1	S1	LE, XN	E		Presumed to inhabit shoals and riffles in large rivers; Tennessee & Cumberland river systems. Very rare & poss extirpated in TN.	Aquatic
Anderson	Invertebrate Animal	Mollusc	Hemistena lata	Cracking Pearlymussel	G1	S1	LE, XN	E		Medium-sized rivers of mod current, deeply buried in mud, sand, gravel, and cobble substrates; Tennessee & Cumb. river systems.	Aquatic
Anderson	Vascular Plant	Flowering Plant	Elodea nuttallii	Nuttall's Waterweed	G5	S2	--	S		Aquatic; Streams And Ponds	Aquatic
Anderson	Invertebrate Animal	Insect	Pseudanophthalmus paynei	Payne's Cave Beetle	G1	S1	--	Rare, Not State Listed		Terrestrial cave obligate; northern Ridge & Valley; reported from Anderson County.	Upland
Anderson	Vertebrate Animal	Amphibian	Hemidactylium scutatum	Four-toed Salamander	G5	S3	--	D		Woodland swamps, shallow depressions, & sphagnum mats on acidic soils; middle & east Tennessee.	Possible
Anderson	Nonvascular Plant	Non-Vascular Plant	Homaliadelphus sharpii	Sharp's Homaliadelphus	G3?	S1	--	E		Calcareous Or Dolomite Bluffs	Upland
Anderson	Vertebrate Animal	Bird	Vermivora chrysoptera	Golden-winged Warbler	G4	S3B	--	T		Early successional habitats in foothill regions of Appalachians.	Upland
Anderson	Vascular Plant	Flowering Plant	Oligoneuron album	Prairie Goldenrod	G5	S1S2	--	E		Barrens	Upland
Anderson	Vertebrate Animal	Fish	Etheostoma maydeni	Redlips Darter	GNR	S2	--	T		Found in slow-moving large creeks and rivers in pools along the banks strewn with	No Data

									boulders and woody debris.	
Anderson	Animal Assemblage	No Data	<u>Rookery</u>	Heron Rookery	G5	SNR	--	Rare, Not State Listed	No Data	No Data
Anderson	Vertebrate Animal	Fish	<u>Chrosomus tennesseensis</u>	Tennessee Dace	G3	S3	--	D	First order spring-fed streams of woodlands in Ridge and Valley limestone region; Tennessee River watershed.	Aquatic
Anderson	Vascular Plant	Flowering Plant	<u>Diervilla lonicera</u>	Northern Bush-honeysuckle	G5	S2	--	T	Rocky Woodlands And Bluffs	Upland
Anderson	Vascular Plant	Flowering Plant	<u>Fothergilla major</u>	Mountain Witch-alder	G3	S2	--	T	Rocky Slopes And River Banks	Possible
Anderson	Invertebrate Animal	Mollusc	<u>Fusconaia cuneolus</u>	Finerayed Pigtoe	G1	S1	LE, XN	E	Riffles of fords and shoals of mod gradient streams in firm cobble and gravel substrates; middle & upper Tennessee River watershed.	Aquatic
Anderson	Vertebrate Animal	Mammal	<u>Myotis grisescens</u>	Gray Myotis	G3G4	S2	LE	E	Cave obligate year-round; frequents forested areas; migratory.	Upland
Anderson	Vertebrate Animal	Fish	<u>Noturus flavipinnis</u>	Yellowfin Madtom	G1	S1	LT,XN	T	Medium size to large creeks and small rivers that are unpolluted & relatively unsilted; upper Tennessee River watershed.	Aquatic
Anderson	Vertebrate Animal	Fish	<u>Percina aurantiaca</u>	Tangerine Darter	G4	S3	--	D	Large-moderate size headwater tribs to Tennessee River, in clear, fairly deep, rocky pools, usually below riffles.	Aquatic
Anderson	Vascular Plant	Flowering Plant	<u>Delphinium exaltatum</u>	Tall Larkspur	G3	S2	--	E	Glades And Barrens	Upland
Anderson	Vertebrate Animal	Amphibian	<u>Desmognathus welteri</u>	Black Mountain Salamander	G4	S3	--	D	Spring runs and permanent streams in wooded mountainous terrain; northern Cumberlands.	Aquatic
Anderson	Invertebrate Animal	Mollusc	<u>Dromus dromas</u>	Dromedary Pearlymussel	G1	S1	LE, XN	E	Medium-large rivers with riffles and shoals w/ relatively firm rubble, gravel, and stable substrates; Tennessee & Cumberland systems.	Aquatic
Anderson	Invertebrate Animal	Arachnid	<u>Nesticus paynei</u>	A Cave Spider	G3G4	S3	--	Rare, Not State Listed	Terrestrial cave associate; also may be found on surface; northern Ridge & Valley.	Upland
Anderson	Vascular Plant	Flowering Plant	<u>Iris fulva</u>	Copper Iris	G5	S2	--	T	Bottomlands	Possible
Anderson	Vascular Plant	Flowering Plant	<u>Epilobium ciliatum</u>	Hairy Willow-herb	G5	S1	--	T	Mountain Balds	Possible
Anderson	Vertebrate Animal	Bird	<u>Setophaga cerulea</u>	Cerulean Warbler	G4	S3B	--	D	Mature deciduous forest, particularly in floodplains or mesic conditions.	Upland
Anderson	Vertebrate Animal	Bird	<u>Thryomanes bewickii</u>	Bewick's Wren	G5	S1	--	D	Brushy areas, thickets and scrub in open country, open and riparian woodland.	Upland





Rare Species by Watershed Rare Species by County Rare Species by Quadrangle Stormwater Programs

Help • Download Status and Ranks

Key to Status and Ranks

Rare Species by County

Data is refreshed on or around January and July each year.

Q Go Rows 25 Actions ▾

▾ County = 'Cumberland' X

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County	Type	Category	Scientific Name	Common Name	Global Rank	State Rank	Fed. Status	State Status	Habitat	Wet Habitat Flag
Cumberland	Vertebrate Animal	Mammal	Myotis leibii	Eastern Small-footed Myotis	G4	S2S3	--	D	Hibernates in caves & mines; also uses abandoned buildings, bridges, and barns seasonally.	Upland
Cumberland	Vertebrate Animal	Mammal	Neotoma magister	Allegheny Woodrat	G3G4	S3	--	D	Outcrops, cliffs, talus slopes, crevices, sinkholes, caves & karst.	Upland
Cumberland	Vertebrate Animal	Reptile	Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	G5T5	S3	--	D	Dry upland areas including brushy, cut-over woodlands and grassy fields; nearly statewide but obscure; fossorial.	Upland
Cumberland	Vascular Plant	Flowering Plant	Lilium philadelphicum	Wood Lily	G5	S1	--	E	Dry Openings, Powerlines	Possible
Cumberland	Invertebrate Animal	Crustacean	Cambarus hamulatus	Prickly Cave Crayfish	G3G4	S3	--	D	Aquatic cave obligate; Sequatchie Valley & southern Cumberlands.	Aquatic
Cumberland	Vascular Plant	Flowering Plant	Conradina verticillata	Cumberland Rosemary	G3	S3	LT	T	Sandy, Rocky River Banks And Bars	Possible
Cumberland	Vertebrate Animal	Amphibian	Cryptobranchus alleganiensis	Hellbender	G3	S3	--	E	Rocky, clear creeks and rivers with large shelter rocks.	Aquatic
Cumberland	Vertebrate Animal	Fish	Erimonax monachus	Spotfin Chub	G2	S2	LT,XN	T	Clear upland rivers with swift currents & boulder substrates; portions of the Tennessee River watershed.	Aquatic
Cumberland	Vascular Plant	Flowering Plant	Ribes curvatum	Granite Gooseberry	G4	S1	--	T	Rocky Woods	Upland
Cumberland	Vascular Plant	Flowering Plant	Sagittaria platyphylla	Ovate-leaved Arrowhead	G5	S2S3	--	S	Swamps, Emergent	Possible
Cumberland	Vascular Plant	Flowering Plant	Spiranthes ochroleuca	Yellow Nodding Ladies'-tresses	G4	S1	--	E	Moist Mountain Woods	Possible
Cumberland	International Terrestrial Ecological System Classification	Plant Community	Cumberland Sandstone Glade and Barrens	Cumberland Sandstone Glade and Barrens	GNR	S2S3	--	Rare, Not State Listed	No Data	No Data
Cumberland	Invertebrate Animal	Mollusc	Venustaconcha trabalis	Tennessee Bean	G1	S1	LE, XN	E	Riffle areas of small rivers & streams in sand, gravel, & cobble substrates with swift current; upper Cumb. & upper Tenn. river systems.	Aquatic
Cumberland	Vascular Plant	Flowering Plant	Rhynchospora chalarocephala	Loose-headed Beakrush	G5	S1	--	T	Wet Barrens	Possible
Cumberland	Vascular Plant	Flowering	Gratiola	Sticky Hedge-	G4	S1	--	S	Wet Barrens And	Possible

		Plant	<u>brevifolia</u>	hyssop					Marshes	
Cumberland	Vascular Plant	Flowering Plant	<u>Diamorpha smallii</u>	Small's Stonecrop	G4	S1S2	--	E	Sandstone Outcrops	Upland
Cumberland	Vascular Plant	Flowering Plant	<u>Marshallia grandiflora</u>	Large-fl. Barbara's-buttons	GNR	S2	--	E	Rocky River Bars	Possible
Cumberland	Invertebrate Animal	Insect	<u>Ophiogomphus alleghaniensis</u>	Allegheny Snaketail	G3T2T3Q	S1	--	Rare, Not State Listed	Riffle areas of spring-fed streams; Cumberland Plateau, Ridge & Valley, & Blue Ridge; not watershed specific.	Aquatic
Cumberland	Vascular Plant	Flowering Plant	<u>Pogonia ophioglossoides</u>	Rose Pogonia	G5	S2	--	E	Wet Acidic Barrens	Possible
Cumberland	Vascular Plant	Flowering Plant	<u>Potamogeton amplifolius</u>	Large-leaf Pondweed	G5	S1	--	T	Lakes And Streams	Aquatic
Cumberland	Vascular Plant	Flowering Plant	<u>Helianthus occidentalis</u>	Naked-stem Sunflower	G5	S2	--	S	Limestone Glades And Barrens	Upland
Cumberland	Vascular Plant	Flowering Plant	<u>Utricularia subulata</u>	Zigzag Bladderwort	G5	S1	--	T	Wet Barrens, Ecotones	Possible
Cumberland	Vascular Plant	Flowering Plant	<u>Spiraea virginiana</u>	Virginia Spiraea	G2?	S2	LT	E	Stream Bars And Ledges	Possible
Cumberland	Vertebrate Animal	Amphibian	<u>Desmognathus abditus</u>	Cumberland Dusky Salamander	G2G3	S2S3	--	D	Assoc. with streams of Cumberland Plateau; under rocks along small streams or adj. cover; Morgan & Grundy counties.	Aquatic
Cumberland	Vascular Plant	Flowering Plant	<u>Amelanchier sanguinea</u>	Roundleaf Shadbush	G5	S2	--	T	Rocky Slopes And River Banks	Upland

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If you have any questions or comments, Email ask.tdec@tn.gov or call at (888) 891-TDEC (8332).





Appendix C

Photographs



Photograph 1- Representative of pasture/hay field within the Project Area, facing west.



Photograph 2- Representative of dry deciduous forest within the Project Area, facing east.



Photograph 3- Representative of wet deciduous forest within the Project Area, facing northeast.



Photograph 4- Representative of dry herbaceous within the Project Area, facing northwest.



Photograph 5- Representative of wet herbaceous within the Project Area, facing northwest.



Photograph 6- Representative of Kudzu infestation within the Project Area, facing east.



Photograph 7- Forest Stand 1 high quality bat habitat, facing south.



Photograph 8- Forest Stand 1 high quality bat foraging habitat, facing north.



Photograph 9- Forest Stand 2 moderate quality foraging bat habitat, facing north.



Photograph 10- Forest stand 2 moderate bat habitat, facing west.



Photograph 11- Forest Stand 3 low quality bat habitat, facing north.



Photograph 12- Forest stand 4 low quality bat habitat, facing northeast.



Photograph 13- Forest Stand 5 moderate bat habitat, facing northeast.



Photograph 14- Forest Stand 5 moderate quality foraging habitat, facing north.



Photograph 15- Forest Stand 6 low quality bat habitat, facing west.



Photograph 16- Forest Stand 7 moderate foraging bat habitat, facing south.



Photograph 17- Forest Stand 7 moderate quality bat habitat, facing north.



Photograph 18- Forest Stand 8 moderate quality bat habitat, facing north.



Photograph 19- Forest Stand 8 and 9 foraging bat habitat, facing southeast.



Photograph 20- Forest Stand 9 low quality bat habitat, facing south.



Photograph 21- Forest Stand 10 moderate quality bat habitat, facing south.



Photograph 22- Forest Stand 10 moderate quality bat habitat, facing southeast.



Photograph 23- Forest Stand 11 low quality bat habitat, facing west.



Photograph 24- Forest Stand 12 low quality habitat for bats, facing southwest.



Photograph 25- Forest Stand 13 low quality bat habitat, facing northeast.



Photograph 26- Forest Stand 13, 14, and 15 foraging habitat, facing northeast.



Photograph 27- Forest Stand 14 low quality bat habitat, facing south.



Photograph 28- Forest Stand 15 moderate quality bat habitat, facing southwest.



Photograph 29- Forest Stand 16 low quality bat habitat, facing northeast.



Photograph 30- Forest Stand 17 foraging habitat, facing west.



Photograph 31- Forest Stand 18 moderate quality bat habitat, facing northeast.



Photograph 32- Forest Stand 18 foraging habitat, facing east.



Photograph 33- Forest Stand 19 low quality bat habitat, facing west.



Photograph 34- Forest Stand 19 foraging habitat, facing east.



Photograph 35- Forest Stand 20 low quality bat habitat, facing south.



Photograph 36- Forest Stand 20 box culvert and water resource within stand, facing west.



Photograph 37- Forest Stand 21 moderate quality bat habitat, facing southeast.



Photograph 38- Forest Stand 22 low quality bat habitat, facing northeast



Photograph 39- Forest Stand 23 moderate quality bat habitat, facing north.



Photograph 40- Forest Stand 23 foraging bat habitat, facing north



Photograph 41- Forest Stand 24 low quality bat habitat, facing southeast.



Photograph 42- Forest Stand 25 low quality bat habitat, facing northeast



Photograph 43- Forest Stand 26 low quality bat habitat, facing southeast.



Photograph 44- Forest Stand 27 moderate quality bat habitat, facing south



Photograph 45- Forest Stand 27 Intermittent Stream, facing northwest.



Photograph 46- Forest Stand 28 low quality bat habitat, facing northeast.



Photograph 47- Forest Stand 29 moderate quality bat habitat (snag), facing north



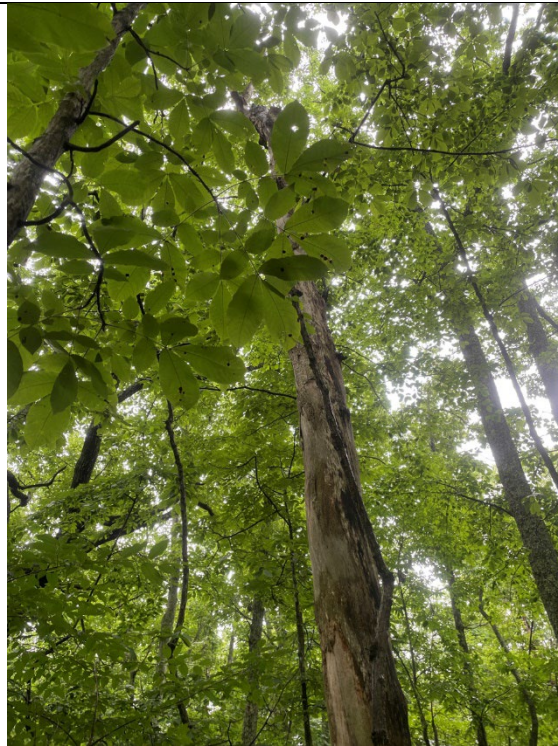
Photograph 48- Forest Stand 29 Intermittent stream, facing north.



Photograph 49- Forest Stand 30 and 31 low quality bat habitat, facing northeast



Photograph 50- Forest Stand 32 and Forest Stand 33 moderate quality bat habitat, facing northeast.



Photograph 51- Forest Stand 32 representative snag, facing northeast



Photograph 52- Forest Stand 34 low quality bat habitat, facing southwest.



Photograph 53- Forest Stand 35 moderate quality bat habitat, facing west.



Photograph 54- Forest Stand 36 moderate quality bat habitat, facing southwest.



Photograph 55- Forest Stand 36 Perennial Stream, facing southwest.



Photograph 56- Forest Stand 37 low quality bat habitat, facing northeast.



Photograph 57- Forest Stand 38 low quality bat habitat, facing east.



Photograph 58- Forest Stand 38 Intermittent Stream within Stand 38, facing northwest.



Photograph 59- Forest Stand 39 low quality bat habitat, facing south.



Photograph 60- Forest Stand 40, low quality bat habitat, facing east.



Appendix D

Botany Report



Kingston Fossil Plant (KIF) Botanical Survey Memo

Roane, Cumberland, and Anderson Counties, TN
November 30, 2022



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Attachment A- List of Botanical Species Observed during Kingston TL Botanical Field Survey

Attachment B- Photographs of Botanical Survey

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Project Background

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units, and construction and operation of approximately 1,500 megawatts (MW) of replacement generation requiring extensive regional transmission system upgrades to be completed and operational prior to coal unit retirement. Upgrades may include upgrading, reconductoring, or rebuilding transmission lines (TLs) as well as replacing terminal equipment, bus work, or jumpers.

HDR Engineering, Inc (HDR) conducted an environmental site assessment of the Project Area which consisted of three TLs: (1) the Eastern Segment TLs (L5108 and L5302) located north of the city of Kingston and west of the city of Oak Ridge, in Anderson and Roane Counties, Tennessee; and (2) the Western Segment TL (L5383) located north of the city of Crossville, in Cumberland County, Tennessee, and associated access roads (Project Area) proposed for upgrades under Alternative A of the KIF Retirement EIS Project. Under Alternative A, TVA would make improvements to existing transmission lines within the Kingston Reservation, including new TL connections to the proposed combined cycle gas facilities and switch station. As part of the environmental site assessment, HDR was tasked with surveying the Project for threatened and endangered plant species. From August 15 to 18, 2022, the Project Area was surveyed for the presence of federally and state-listed threatened or endangered plant species throughout the various habitat types within the Project limits.

Habitat Overview

The Project Area lies within the Central Plateau (CU) – Cumberland Co. and Ridge and Valley (RV), in Roane, Cumberland, and Anderson Counties, Tennessee. A variety of vegetative communities are known to exist within these physiographic regions and were divided into 10 habitat type categories through a desktop review for the purposes of this study.

Category 1. Wetlands (i.e., swamps and floodplains, acidic wetlands and swamps, acidic seeps wet meadows, marshes, emergent herbaceous wetlands, bogs, acidic open wetlands)

Category 2. Acidic and calcareous seeps

Category 3. Wet and dry barrens (i.e., limestone glades and barrens, wet acidic barrens)

Category 4. Outcrops (i.e., dry sandstone, granite outcrops, sandstone outcrops)

Category 5. Stream, ponds, and lakes (i.e., lakes (margins), streams (margins), ponds (margins), slow acidic streams, stream bars and ledges, stream heads, sandy/rocky river bars, Rocky sand stream sides)

Category 6. Rocky woods, rock slopes, riverbanks, and river bars

Category 7. Bluffs, cliffs, and mountain balds (i.e., calcareous bluffs/seepy limestone cliffs/bluffs/shale bluffs, dolomite bluffs, wet bluffs, moist shaded cliffs, rocky bluffs)

Category 8. Wooded areas (i.e., rich woods/hollows, rich oak woods, dry woods, wooded mt. slopes and mt. thickets, dry sandy woods, Mesic woods and seepage slopes, mesic woods and seepage slopes, oak woods and edges [maintained row], alluvial/moist ravines in dry ridges, bottomland hardwoods [*could include wetlands])

Category 9. Sinks

Category 10. Dry openings, powerlines

The species on the targeted threatened and endangered list can all be categorized as being found in one (or more) of these ten generalized habitat types. A list of state and federal protected species with potential to exist within the various broad habitat types in the Project Area is provided in the Kingston Wetlands and Streams Survey Report and is based on resources provided in Appendix B of that report.

Methodology

A desktop review was performed to identify general vegetation communities and habitat types with potential to occur within the Project survey area. In June 2022, HDR field biologists then performed a field verification of the information compiled during the desktop assessment. Based on the results of desktop review and field habitat and vegetation characterizations, approximately 30 botanical survey locations were identified for follow-up with a focused field assessment. The objective of the survey was to determine the suitability of the Project Area habitat for any threatened or endangered species and document the presence/absence of federal and state listed species during the field assessment. At the time of the survey, there were 70 state-listed protected species, three of which were also listed as federally threatened: white fringeless orchid (*Platanthera integrilabia*), Cumberland rosemary (*Conradina verticillata*), and Virginia spirea (*Spirea virginiana*). HDR staff, including a botanist, surveyed for federal and state listed species at approximately 30 locations along the TL alignment and associated access roads in the Project Area that were previously identified as having habitat conditions potentially supportive of the listed species.

Observational Data

Areas surveyed along the western Project alignment near Crossville, Tennessee (L5383), contained higher diversity than the more urbanized eastern Project TLs (L5108 and L5302). Land use along the western alignment was primarily agricultural land with some scattered pond/open water wetlands, where most of the increased biodiversity was observed during the botanical survey. Invasive and opportunistic species were more abundant along the eastern alignment near Oak Ridge, Tennessee, which can be correlated to the high density of urbanization.

The federally listed white fringeless orchid flowers from June to September in Tennessee and generally prefers wet, flat, boggy areas in acidic muck or sand, and partially shaded areas at the head of streams or seepage slopes. Although several locations with potentially suitable habitat were identified along the Project alignment during the June 2022 field botany survey, no individuals of white fringeless orchid were found to be present at the time of the survey.

The federally listed Virginia spirea and Cumberland Rosemary prefer stream bars and stream ledges, as well as gravel bars, sandy riverbanks, and riparian areas with seasonal flooding. Riverbank and river bar habitat were present along the Obed River, Clinch River, Poplar Creek, East Fork Poplar Creek, and several unnamed tributaries; however, no state or federally listed species were observed to be present. Boat surveys were not implemented at these locations due to time and budget constraints and on the premise that the Project would not be associated with any riverbank or stream bar activity.

Remnants of sandstone, shallow bedrock, glade and barren like habitat, and chert rock habitat were observed throughout the Project Area. These rocky habitat types have the potential to support state listed species including (but not limited to) branching whitlow-grass (*Draba ramosissima*), mountain bush-honeysuckle (*Diervilla sessilifolia* var. *rivularis*), myurella moss (*Myurella julacea*), naked-stem sunflower (*Helianthus occidentalis*), prairie goldenrod (*Oligoneuron album*), roundleaf shadbush (*Amelanchier sanguinea*), Sharp's homaliadelphus (*Homaliadelphus sharpi*), Sharp's lejeunea (*Lejeunea sharpii*), silverling (*Paronychia agryrocoma*), slender blazing-star (*Liatris cylindracea*), Small's stonecrop (*Diamorphia smallii*), tall larkspur (*Delphinium exaltatum*), Torrey's mountain-mint (*Pycnanthemum torrei*), western wallflower (*Erysimum capitatum*), and zigzag bladderwort (*Utricularia subulate*); however, none of these species were observed during the field botanical survey.

Dry powerline openings, bog and wet meadows, and disturbed prairie habitat were found throughout the Project alignment. State listed species with the potential to occur in these habitats include (but are not limited to) early St. John's wort (*Hypericum nudiflorum*), Muhlenberg's nutrush (*Scleria muehlenbergii*), ovate-leaved arrowhead (*Sagittaria platyphylla*), spoonleaf sundew (*Drosera intermedia*), sticky hedge-hyssop (*Gratiola brevifolia*), swamp lousewort (*Pedicularis lanceolata*), tawny cotton-grass (*Eriophorum virginicum*), tubercled rein-orchid (*Platanthera flava* var. *herbioloa*), and wood lily (*Lilium philadelphicum*). Several forested areas associated with planned access roads were also surveyed and included both younger successional woodlands of old fencerows and abandoned agricultural lots, and mature, upland, oak-hardwood communities. These forested areas were comprised largely of common and abundant woody species and no state or federally listed species were observed during the time of the field botanical survey.

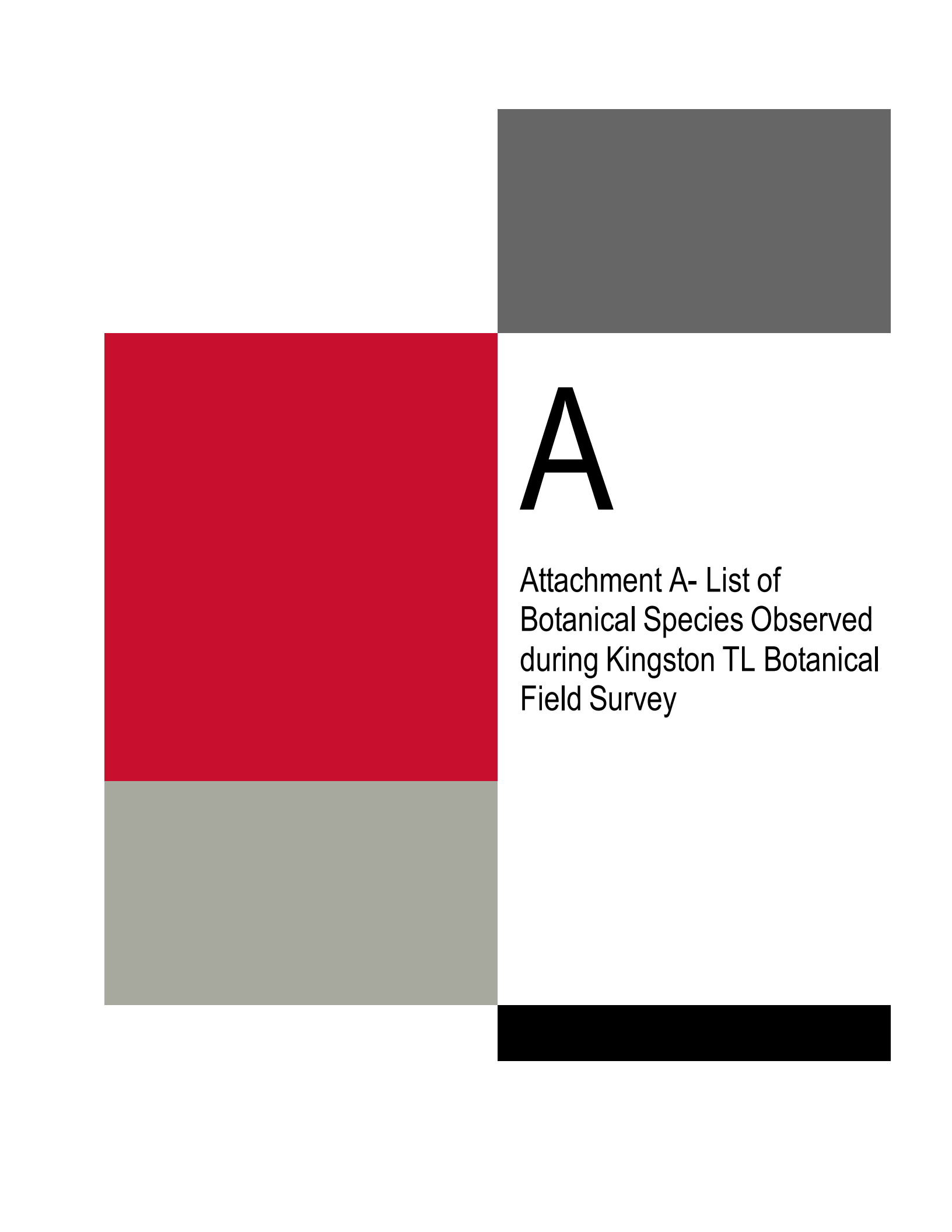
Agricultural fields and ponds, and urbanized locations where invasives were plentiful were surveyed but deemed as areas of low ecological value with no suitable habitat for any of the state or federally listed species identified during the desktop review. Invasive species such as kudzu (*Pueraria montana*) and Johnson grass (*Sorghum halepense*) were plentiful in the Project area near Oak Ridge, and herbicide use was evident at many of the locations in the western alignment. A list of notable, but unlisted/protected plants observed during the survey can be found in Attachment A. Photos taken during the botanical survey are provided in Attachment B.

Survey Results

In June 2022 a field botanical survey of 30 areas identified as having potentially suitable habitat for federal and state listed species was evaluated by HDR biologists and botanist. Although

potentially suitable habitat was identified within the Kingston TL Project area, no federal or state listed botanical species were observed occupying those habitats at the time of the survey.

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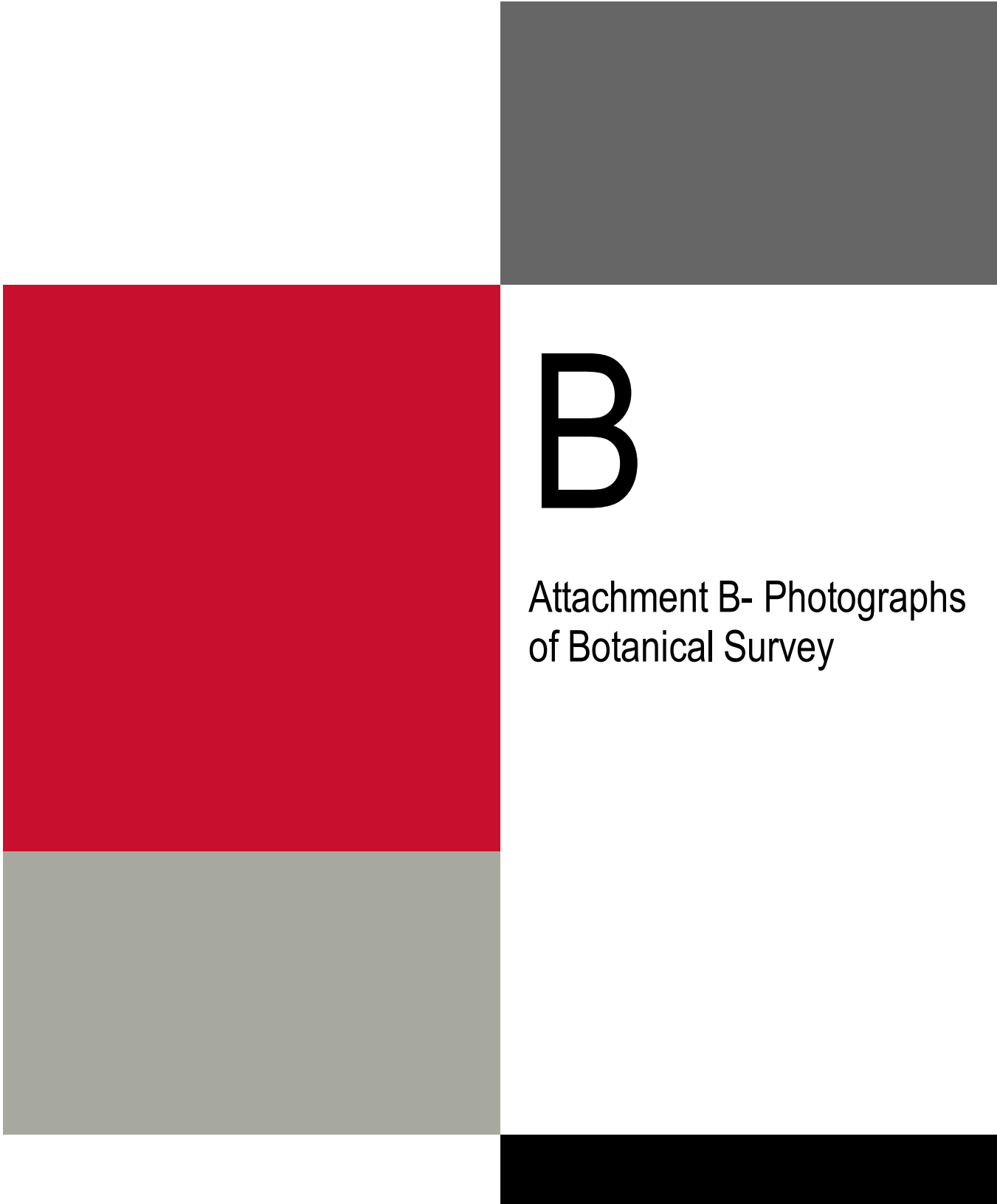
A

Attachment A- List of
Botanical Species Observed
during Kingston TL Botanical
Field Survey

Scientific Name	Common Name
<i>Agave virginica</i>	false aloe
<i>Agrimonia parviflora</i>	harvestlice
<i>Alisma plantago-aquatica</i>	common water plantain
<i>Apocynum cannabinum</i>	Indian hemp
<i>Arisaema dracontium</i>	green dragon
<i>Aronia arbutifolia</i>	red chokeberry
<i>Asclepias tuberosa</i>	butterfly milkweed
<i>Asclepias verticillata</i>	whorled milkweed
<i>Bidens aristosa</i>	bearded beggarticks
<i>Bignonia capreolata</i>	crossvine
<i>Boehmeria cylindrica</i>	false nettle
<i>Carex crinita</i>	fringed sedge
<i>Cichorium intybus</i>	chicory
<i>Cirsium discolor</i>	field thistle
<i>Clinopodium vulgare</i>	wild basil
<i>Conocephalum conicum</i>	great scented liverwort
<i>Conoclinium coelestinum</i>	blue mistflower
<i>Coreopsis major</i>	greater Tickseed
<i>Cryptotaenia canadensis</i>	honewort
<i>Dichanthelium clandestinum</i>	deertongue
<i>Dichanthelium oligosanthes</i>	Heller's rosette grass
<i>Diodia teres</i>	rough buttonweed
<i>Dulichium arundinaceum</i>	threeway sedge
<i>Elymus virginicus</i>	Virginia wild-rye
<i>Erigeron strigosus</i>	prairie fleabane
<i>Euonymus fortunei</i>	winter creeper euonymus
<i>Eupatorium altissimum</i>	tall boneset
<i>Frangula caroliniana</i>	Carolina buckthorn
<i>Gaylussacia baccata</i>	black huckleberry
<i>Lactuca floridana</i>	woodland lettuce
<i>Lespedeza hirta</i>	hairy lespedeza
<i>Lindernia dubia</i>	yellowseed false pimpernel
<i>Lobelia spicata</i>	pale spiked lobelia
<i>Lonicera maackii</i>	Amur honeysuckle
<i>Ludwigia alternifolia</i>	seedbox
<i>Lycopus americanus</i>	American bugleweed

Scientific Name	Common Name
<i>Mimulus alatus</i>	sharpwing moonkeyflower
<i>Mimulus ringens</i>	Allegheny monkeyflower
<i>Monarda fistulosa</i>	wild bergamot
<i>Nabalus albus</i>	white lettuce
<i>Nabalus albus</i>	white rattlesnakeroot
<i>Oenothera biennis</i>	evening-primrose
<i>Oenothera guara</i>	biennial gaura
<i>Panicum oligosanthos</i>	Fewanther obscuregrass
<i>Parthenium integrifolium</i>	wild quinine
<i>Penthorum sedoides</i>	ditch stonecrop
<i>Phlox maculata</i>	wild sweetwilliam
<i>Phlox paniculata</i>	garden phlox
<i>Phyla lanceolata</i>	fogfruit
<i>Pinus virginiana</i>	Virginia pine
<i>Platanther ciliaris</i>	orange-fringed orchid
<i>Polygala curtissii</i>	Curtis's milkwort
<i>Polygala sanguinea</i>	purple milkwort
<i>Potamogeton natans</i>	floating pondweed
<i>Prunella vulgaris</i>	common selfheal
<i>Pycnanthemum albescens</i>	whiteleaf mountainmint
<i>Pycnanthemum muticum</i>	blunt mountainmint
<i>Pycnanthemum tenuifolium</i>	narrow-leaf mountainmint
<i>Ranunculus hispidus</i>	bristly buttercup
<i>Ratibida pinnata</i>	praria coneflower
<i>Rudbeckia laciniata</i>	cutleaf coneflower
<i>Rudbeckia trilobia</i>	brown-eyed susan
<i>Sabata stellans</i>	marsh pink
<i>Sagittaria latifolia</i>	broadleaf arrowhead
<i>Salvia lyrata</i>	lyreleaf sage
<i>Scutellaria incana</i>	hoary skullcap
<i>Scutellaria integrifolia</i>	helmet skullcap
<i>Sedum ternatum</i>	woodland stonecrop
<i>Senna marylandica</i>	Maryland sena
<i>Silphium integrifolium</i>	wholeleaf rosinweed
<i>Silphium perfoliatum</i>	cup plant
<i>Sparganium americanum</i>	American bur-reed

Scientific Name	Common Name
<i>Spiraea tomentosa</i>	steeplebush
<i>Tripsacum dactyloides</i>	Eastern gamagrass
<i>Verbesena alternifolia</i>	common wingstem
<i>Verbesena virginica</i>	frostweed
<i>Vernonia noveboracensis</i>	ironweed
<i>Vitis labrusca</i>	fox grape



B

Attachment B- Photographs
of Botanical Survey



Photo 1. Wet opening with *Boehmeria cylindrica*.



Photo 2. Sprayed portion along Clinch River with *Solidago* spp. and *Rubus* spp.



Photo 3. *Hypericum* spp. determined not to be state listed.



Photo 4. Upland transitional edge with *Solidago* spp.



Photo 5. Orange crested orchid, a non-listed species.



Photo 6. Nabalus spp, a non-listed species.



Photo 7. Dry powerline opening with Solidago spp.



Photo 8. Lillium spp. determined not to be state-listed.



Photo 9. River bar surveyed and had no listed species.



Photo 10. Rocky cliff surveyed and had no state-listed species.

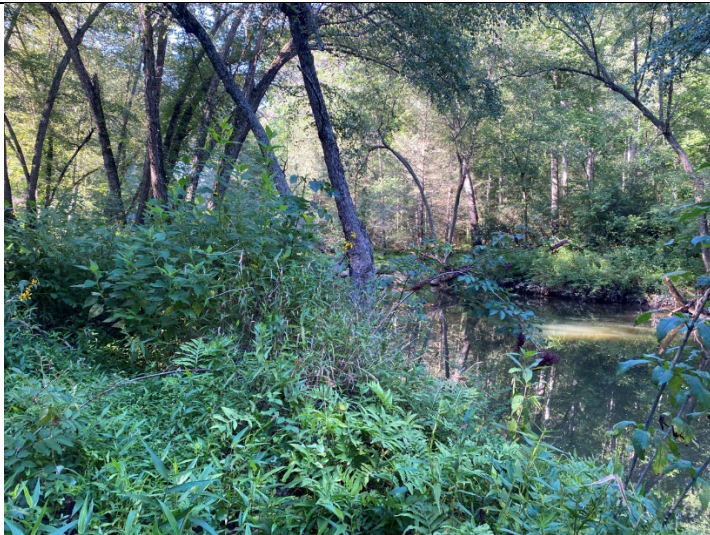


Photo 11. Riparian area with wingstem and other non-listed species.



Photo 12. Small mudflat lacking vegetation.



Photo 13. Survey site with submerged aquatic vegetation (SAV).



Photo 14. SAVs present but no listed species observed.



Photo 15. Dry ridge with small seep containing woolgrass.



Photo 16. Pond on Oak ridge property with mostly *Rubus* spp. on banks.



Photo 17. Pond on Oak Ridge property. No visual observance of any listed species.



Photo 18. A dry opening containing *Rubus* spp., *Solidago* spp., and other non-listed species.



Photo 19. Pond with emergent edge containing woolgrass and *Boehmeria cylindrica*.



Photo 20. Mature forested area along access road with oaks and other non-listed hardwoods



Photo 21. An agricultural pond containing *Wolffia* spp. Emergent fringe containing *Ludwigia* spp.



Photo 22. An abandoned agricultural field containing an assortment of non-listed grasses and weedy species.



Photo 23. Regularly mowed section of the transmission line.



Photo 24. A Dry opening containing *Solidago* spp. and other non-listed species.



Photo 25. Stream draining off-site pond with emergent wetland edge. No observance of listed species.



Photo 26. Large patch of *Rubus* spp. and *Smilax* spp.



Photo 27. Close-up of SAV, determined not to be state listed species.



Photo 28. Johnsongrass and pokeweed growing along powerline.



Appendix E

Bat Habitat Assessment Data
Sheets

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/14/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 34.768784/ -90.267322 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u> 1 </u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial Obed River: 260 ft
Pools/Ponds (# and size)	1- 0.75 acres	Open and accessible to bats? Yes	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: A large freshwater river (obed river) exists within the middle of the stand and a freshwater agricultural pond exists just outside the stand. They both act a good water source for bats			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
Dominant Species of Mature Trees	Eastern red cedar, red oak, white oak, sweetgum, tulip poplar		
% Trees w/ Exfoliating Bark	5	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 30	Med (9-15 in) 60	Large (>15 in) 10
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Stand 1 had several trees with exfoliating bark, moderate diversity in portions of the stand (Right Bank of the Obed River) and had connection to a larger forest stand. No snags were observed within the stand at the time of the survey. Quality of the stand is considered high for the NLEB and Indiana Bat.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/16/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 34.768784/ -90.267322 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
Project	Total Acres	Forest Acres		Open Acres
	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

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A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u> 2 </u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 2- 1,003 feet
Pools/Ponds (# and size)	1- 0.84 acres	Open and accessible to bats? Yes	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: An agricultural field with a large open water and Rocky Branch and its associated tributaries provide year round water. Rocky Branch ranges from 10-20 feet wide and is flows into two forested areas and a non forested area			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
Dominant Species of Mature Trees	Eastern red cedar, red oak, white oak, sweetgum, tulip poplar		
% Trees w/ Exfoliating Bark	0	5	4
Size Composition of Live Trees (%)	Small (3-8 in) 10	Med (9-15 in) 45	Large (>15 in) 45
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%,
5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Stand 2 had some trees with exfoliating bark, moderate diversity in portions of the stand and had connection to a larger forest stand. No snags were observed within the stand at the time of the survey. Quality of the stand is considered moderate for the NLEB and Indiana Bat.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/16/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.990926/-84.988344 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

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Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u> 3 </u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	Open and accessible to bats?		
	Yes		
Wetlands (approx. ac.)	Permanent	Seasonal	
	0	0	
Describe existing condition of water sources: NA			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%			
Dominant Species of Mature Trees	White oak, red oak, sweet gum, virginia pine, red maple, mockernut hickory, sugar maple		
% Trees w/ Exfoliating Bark	0	5	4
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	10	40	50
No. of Suitable Snags	0		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Stand 3 had some trees with exfoliating bark, moderate diversity in portions of the stand and had connection to a larger forest stand. No snags were observed within the stand at the time of the survey. Quality of the stand is considered moderate for the NLEB and Indiana Bat.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 34.768784/ -90.267322 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>4</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Only one small ephemeral acts as a water source for this stand. It only flows during rain events
	1-775 feet	0	0	
Pools/Ponds (# and size)	Open and accessible to bats?			
0				
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	1	2	5	
Dominant Species of Mature Trees	Eastern red cedar, red oak, white oak, and bush honeysuck;e			
% Trees w/ Exfoliating Bark	0	1	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	60	30	10	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Stand 4 contained very dense understory with little to no trees with exfoliating bark . No snags were observed in the stand. One ephemeral acts as a water source but does not provide water year round.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.915765/-84.475226 Surveyor: Lyranda Thiem

Brief Project Description
Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; padding: 5px;">Pre-Project</th> <th style="width: 50%; padding: 5px;">Post-Project</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px; vertical-align: top;"> Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns </td> <td style="padding: 5px; vertical-align: top;"> Plans are not set yet </td> </tr> </tbody> </table>	Pre-Project	Post-Project	Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet
Pre-Project	Post-Project			
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet			

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources) Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)? The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>5</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	1-0.02 acres	Open and accessible to bats?	
		Yes	
Wetlands (approx. ac.)	Permanent	Seasonal	
	1-0.02 acres	0	
Describe existing condition of water sources: One small fresh water pond near a maintained lawn with an abutting freshwater emergent wetland			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 3	Midstory (20-50') 5	Understory (<20') 3
1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%			
Dominant Species of Mature Trees	Eastern red cedar, red oak, white oak, pignut hickory, bush honeysuckle, mimosa tree		
% Trees w/ Exfoliating Bark	0	4	5
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	30	30	40
No. of Suitable Snags	0		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Stand 5 at first had a thick, dense understory but opened up more towards the north and south of the forested stand. Stand 5 was considered to have moderate habitat quality due to presence of a water source and open field for foraging, lack of snags, and was connected to a larger forested stand.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.916648/ -84.478334 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>6</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: N/A- no water source exists within this stand that occurs within the TL Upgrade Area			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
Dominant Species of Mature Trees	Pignut hickory, white oak, southern red oak, common hackberry, red cherry, and chinese privet.		
% Trees w/ Exfoliating Bark	0	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 60	Large (>15 in) 30
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 6 is part of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.922630/ -84.449057 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>7</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1-354 feet	Describe existing condition of water sources: One large perennial stream with open canopy and a Scrub-shrub wetland is located within the middle of the stand and acts as a water source.
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 1-0.38 acres	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 4	Understory (<20') 3	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	Common hackberry, white oak, black walnut, pignut hickory, and eastern red cedar			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 60	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 7 is part of a larger forested stand. No snags were observed within the forested stand that occurred within the TL Upgrade Area. One large perennial stream with open canopy and a Scrub-shrub wetland is located within the middle of the stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.934956/-84.422271 Surveyor: Lyranda Thiem

Brief Project Description
Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>8</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: Clinch River and tributaries off of the Clinch River. The Clinch River is just south of the stand			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
Dominant Species of Mature Trees	Pignut hickory, white oak, southern red oak, common hackberry, red cherry, and chinese privet.		
% Trees w/ Exfoliating Bark	0	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 60	Large (>15 in) 30
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 9 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.934956/-84.422271 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>9</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: Clinch River and tributaries off of the Clinch River. The Clinch River is just south of the stand			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1
Dominant Species of Mature Trees	Pignut hickory, white oak, southern red oak, common hackberry, red cherry, and chinese privet.		
% Trees w/ Exfoliating Bark	0	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 60	Large (>15 in) 30
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 9 is part of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.950314/ -84.405378 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>10</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: N/A however the Clinch River is nearby
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 1	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	Pignut hickory, white oak, southern red oak, common hackberry, red cherry, and chinese privet.			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 40	Large (>15 in) 40	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: <small>Forest stand 10 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand but the Clinch River is located nearby.</small>

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.940508/ -84.414154 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>11</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: N/A			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 3	Understory (<20') 4
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, common hackberry, and white oak		
% Trees w/ Exfoliating Bark	0	2	0
Size Composition of Live Trees (%)	Small (3-8 in) 50	Med (9-15 in) 30	Large (>15 in) 20
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 11 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/21/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.937187/ -84.415078 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>12</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: N/A			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 3	Understory (<20') 4
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, common hackberry, and white oak		
% Trees w/ Exfoliating Bark	0	2	0
Size Composition of Live Trees (%)	Small (3-8 in) 50	Med (9-15 in) 30	Large (>15 in) 20
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 12 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.932594/-84.407687 Surveyor: Lyranda Thiem

Brief Project Description
Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Pre-Project</th> <th style="text-align: left; padding: 2px;">Post-Project</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px; vertical-align: top;">Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns</td> <td style="padding: 5px; vertical-align: top;">Plans are not set yet</td> </tr> </tbody> </table>	Pre-Project	Post-Project	Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet
Pre-Project	Post-Project			
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet			

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>13</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1- 433 feet	Describe existing condition of water sources: Poplar Creek (20-40 feet width) acts as a good water source within the project area
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, common hackberry, and white oak			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 13 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water is within this stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.927665/ -84.407214 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>14</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Poplar Creek (20-40 feet width) acts as a good water source within the project area. The Clinch River is also nearby
	0	0	1- 433 feet	
Pools/Ponds (# and size)	Open and accessible to bats?			
	0	0		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	3	2	
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, common hackberry, and white oak			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	30	50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: <small>Forest stand 14 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. Two large water bodies exist nearby this stand.</small>

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone 35.924796/ -84.401315 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project Area	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>15</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1- 433 feet	Describe existing condition of water sources: Poplar Creek (20-40 feet width) acts as a good water source within the project area. The Clinch River is also nearby
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, red oak, virginia pine common hackberry, and white oak			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: <small>Forest stand 15 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. Two large water bodies exist nearby this stand.</small>

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.949170/ -84.395105 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>16</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: N/A			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2
Dominant Species of Mature Trees	eastern red cedar, bush honeysuckle, red oak, virginia pine common hackberry, and white oak		
% Trees w/ Exfoliating Bark	5	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 16 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. No water source was observed within the stand.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.949183/ -84.378707 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

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A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>17</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1- 709 feet	Describe existing condition of water sources: East Fork Poplar Creek (15-20 feet width) acts as a good water source
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 4- 2.79	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	shagbark hickory, white oak, ironwood-musclewood, tulip poplar, sugar maple, common hackberry, Virginia pine			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 17 is apart of a larger forested stand. No snags were observed within the area within the TL Upgrade area. East Fork Poplar Creek acts as a water source

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.949183/ -84.378707 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
Project	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>18</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1- 709 feet
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 4- 2.79	Seasonal 0	
Describe existing condition of water sources: East Fork Poplar Creek (15-20 feet width) acts as a good water source			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2
Dominant Species of Mature Trees	shagbark hickory, white oak, ironwood-musclewood, tulip poplar, sugar maple, common hackberry, Virginia pine		
% Trees w/ Exfoliating Bark	5	10	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 18 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area. East Fork Poplar Creek acts as a water source

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022

Township/Range/Section: _____

Lat Long/UTM/ Zone: 35.944966/-84.382177

Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>19</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1- 709 feet
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: East Fork Poplar Creek (15-20 feet width) acts as a good water source			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2
Dominant Species of Mature Trees	white oak, tulip poplar, sugar maple, common hackberry, Virginia pine		
% Trees w/ Exfoliating Bark	0	5	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30
No. of Suitable Snags	0		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 19 is apart of a larger forested stand. No snags were observed within the area within the TL Upgrade area. No water source was observed within the stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.942018/ -84.376232 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): 20

Water Resources at Sample Site				Describe existing condition of water sources: N/A
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	white oak, tulip poplar, sugar maple, common hackberry, Virginia pine			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 20 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.956628 /-84.356102 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>21</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1-229 feet	Describe existing condition of water sources: One Perennial Stream occurs near the end of this forested stand
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	white oak, tulip poplar, sugar maple, common hackberry, Virginia pine			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 21 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.948882/-84.362221 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>22</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: N/A
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	white oak, tulip poplar, sugar maple, common hackberry, Virginia pine			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 22 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.947141/-84.365307 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project Area	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>23</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1-287 feet	Describe existing condition of water sources: One Perennial Stream occurs near the end of this forested stand and a permanent wetland surrounds the stream
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 1- 2.64	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 23 is apart of a larger forested start. No snags were observed within the stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.938436/ -84.363627 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>24</u>

Water Resources at Sample Site				Describe existing condition of water sources: NA
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 24 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.937729/-84.368646 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>25</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: NA
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 25 is apart of a larger forested stand, however the section that occurs within the TL Upgrade Area contains a gravel path that is utilized by vehicles. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.983584/ -84.332082 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>26</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: NA
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Forest Stand 26 lies northwest of Old Ridge TKPE and residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.987148/ -84.329146 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>27</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Several intermittent streams cross the forested stand
	0	2-460 feet	0	
Pools/Ponds (# and size)	Open and accessible to bats?			
	0	0		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	3	2	
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	50	30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Forest stand 27 lies northwest of Oak Ridge TKPE and residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.987148/ -84.329146 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>28</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: NA
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest Stand 28 is surrounded by residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022

Township/Range/Section: _____

Lat Long/UTM/ Zone: 35.986649/-84.329538

Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
 A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>29</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Two ephemeral channels occur within this channel
	2- 330 feet	0	0	
Pools/Ponds (# and size)	Open and accessible to bats?			
	0	0		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	3	2	
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	50	30	
No. of Suitable Snags	1			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest Stand 29 contains one small snag (10 dbh) with no holes and approximately 12 feet tall. The stand is also surrounded by residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 36.009954/-84.308059 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>30</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: NA
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 30 is surrounded by residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 36.000274/ -84.317089 Surveyor: Lyranda Thiem

Brief Project Description
 Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area				
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
 Flight corridors to other forested areas?
 Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
 What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>31</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	Describe existing condition of water sources: NA
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest Stand 31 is surrounded by residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 36.008213/ -84.309671 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>32</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Two very week ephemeral streams act as a water source
	2- 330 feet	0	0	
Pools/Ponds (# and size)	Open and accessible to bats?			
	0	0		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	3	2	
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	5	10	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	30	50	
No. of Suitable Snags	1			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest Stand 32 is surrounded by residential neighborhoods and near the edge of the TVA ROW

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 36.009814/ -84.308119 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project Area	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>33</u>

Water Resources at Sample Site				Describe existing condition of water sources: NA
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	ironwood- muscle wood, common hackberry, black walnut, and black cherry			
% Trees w/ Exfoliating Bark	2	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	2			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest Stand 33 is surrounded by residential neighborhoods

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/22/2022

Township/Range/Section: _____

Lat Long/UTM/ Zone: 36.015743/ -84.302719

Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>34</u>

Water Resources at Sample Site				Describe existing condition of water sources: NA
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Closure/Density	Canopy (> 50') 4	Midstory (20-50') 3	Understory (<20') 2	
Dominant Species of Mature Trees	sugar maple, common hackberry, sweet gum, Virginia pine, and eastern red cedar			
% Trees w/ Exfoliating Bark	2	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 34 is apart of a larger forested stand, however the section that occurs just out side the TVA ROW Powerline areas. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/8/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 36.022019/ -84.287523 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
 The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>35</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1-212 feet	Describe existing condition of water sources: A perennial stream acts as a water source for this stand Kudzu infestations makes the stream not as accessible
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 3	Midstory (20-50') 4	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	pignut hickory, oak species, sugar maple, common hackberry, and shagbark hickory			
% Trees w/ Exfoliating Bark	5	10	10	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 36 is apart of a larger forested stand that exists outside of the TVA ROW. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.935442/-84.317449 Surveyor: Lyranda Thiem

Brief Project Description
Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area	Project Area			
	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types	
Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius
Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>36</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 1-212 feet	Describe existing condition of water sources: A perennial stream acts as a water source for this stand Kudzu infestations makes the stream not as accessible
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 3	Midstory (20-50') 4	Understory (<20') 2	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	pignut hickory, oak species, sugar maple, common hackberry, and shagbark hickory			
% Trees w/ Exfoliating Bark	5	10	10	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 30	Large (>15 in) 50	
No. of Suitable Snags	1			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 36 is apart of a larger forested stand that exists outside of the TVA ROW. No snags were observed within the area within the TL Upgrade area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.923122/ -84.344308 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

Project	Total Acres	Forest Acres		Open Acres
	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>37</u>

Water Resources at Sample Site				Describe existing condition of water sources: NA
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 4	Understory (<20') 3	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	white oak, common hackberry, Virginia pine, sugar maple, and eastern red cedar			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Forest stand 37 is alongside the edge of the TVA ROW. Stand 37 is apart of a larger forested stand that is not within the TL Upgrade Area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.928570/-84.328124 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

*Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same*

Sample Site Description
Sample Site No.(s): <u>38</u>

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Two intermittent streams and one ephemeral provide a seasonal water source
	1-185 feet	2-456 feet	0	
Pools/Ponds (# and size)	Open and accessible to bats?			
	0	0		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	2	4	3	
Dominant Species of Mature Trees	white oak, common hackberry, Virginia pine, sugar maple, and eastern red cedar			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	50	30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 38 is alongside the edge of the TVA ROW. Stand 39 is apart of a larger forested stand that is not within the TL Upgrade Area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022

Township/Range/Section: _____

Lat Long/UTM/ Zone: 35.933044/-84.322086

Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)

Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>39</u>

Water Resources at Sample Site				Describe existing condition of water sources: NA
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0	
Pools/Ponds (# and size)	0	Open and accessible to bats? 0		
Wetlands (approx. ac.)	Permanent 0	Seasonal 0		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 4	Understory (<20') 3	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
Dominant Species of Mature Trees	white oak, common hackberry, Virginia pine, sugar maple, and eastern red cedar			
% Trees w/ Exfoliating Bark	0	5	5	
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 50	Large (>15 in) 30	
No. of Suitable Snags	0			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments: Forest stand 39 is alongside the edge of the TVA ROW. Stand 39 is apart of a larger forested stand that is not within the TL Upgrade Area.

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Kingston TL Upgrade Area Date: 6/20/2022
 Township/Range/Section: _____
 Lat Long/UTM/ Zone: 35.935442/-84.317449 Surveyor: Lyranda Thiem

Brief Project Description

Tennessee Valley Authority (TVA) has proposed the retirement of the Kingston Fossil Plant (KIF), demolition of the coal units and construction and operation of a CC Gas Plant paired with a dual-fuel Aero CT Gas Plant on the KIF reservation. This alternative also includes construction and operation of a natural gas pipeline, a related action to be constructed, owned and operated by ETNG pending FERC approval.

Project Area

	Total Acres	Forest Acres		Open Acres
Project	1421.92	408.35		781.11
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	Plans not developed	Plans not developed	Plans not developed	

Vegetation Cover Types

Pre-Project	Post-Project
Mixed Deciduous pasture/hay Wet Herbaceous Dry Herbaceous Maintained lawns	Plans are not set yet

Landscape within 5 mile radius

Flight corridors to other forested areas?

Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
 Adjacent properties to the TL upgrade areas include mixed deciduous forest, industrial and commercial properties, residential neighborhoods, maintained areas, and streams/ freshwater ponds.

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

The TL upgrade area goes through the Black Oak Ridge Wildlife management area

APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): <u>40</u>

Water Resources at Sample Site			
Stream Type (# and length)	Ephemeral 0	Intermittent 0	Perennial 0
Pools/Ponds (# and size)	0	Open and accessible to bats? 0	
Wetlands (approx. ac.)	Permanent 0	Seasonal 0	
Describe existing condition of water sources: NA			

Forest Resources at Sample Site			
Closure/Density	Canopy (> 50') 2	Midstory (20-50') 4	Understory (<20') 3
Dominant Species of Mature Trees	Chestnut oak, white oak, common hackberry, Virginia pine, sugar maple, eastern red cedar		
% Trees w/ Exfoliating Bark	5	5	5
Size Composition of Live Trees (%)	Small (3-8 in) 20	Med (9-15 in) 40	Large (>15 in) 40
No. of Suitable Snags	1		

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes and NLEB

Additional Comments:
Forest stand 40 is apart of a larger forested stand that exists outside of the TVA ROW. The stand is adjacent to a paved road and is not connected to adjacent stands. One medium sized snag was observed within this stand

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

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