

PART 2: FOREST PRIORITY AREAS

A. Introduction

The Cooperative Forestry Assistance Act (CFAA) provides the authorities for a broad range of state and private forestry programs. As amended by the 2008 Farm Bill, the CFAA requires each state forestry agency to develop a “Statewide Assessment and Strategies for Forest Resources,” collectively referred to as State Forest Action Plan (SFAP), to be eligible to receive funds under the authorities of the Act. State forest assessments and strategies are updated every ten years based on requirements outlined in the CFAA.

Part 1 of this document evaluated the forest resources according to the five most important forestland issues for Kentuckians. This second part of the *Kentucky Statewide Assessment of Forest Resources* seeks to satisfy the CFFA.

The goal of identifying priority areas is to allow programs within Kentucky Division of Forestry (KDF) to focus implementation efforts where the need is the greatest. Defining the geographic extent of priority areas is not intended to restrict the implementation of strategies in non-priority forest areas. Rather, priority areas identify the most important regions for particular forest issues and the strategies that address these issues.

B. Priority Area Methodology

A modelling approach based on the framework developed by the Southern Forest Land Assessment (SFLA) was used for identifying forest priority areas.⁷⁷ The SFLA was a cooperative project of the Southern Group of State Foresters that identified priority landscapes for future forestry assistance. Through the SFLA project, a model based on 13 spatial data sets was created to generate the priority landscapes. The data sets included ten layers that were considered characteristics of resource richness and three layers representing threats to the forest resource.

The 13 layers developed for the original SFLA model are listed below. Descriptions of these layers are found in original SFLA report.⁷⁷

Richness

Forestland
Riparian Areas
Public Drinking Water
Priority Watersheds
Forest Patches
Site Productivity
Forested Wetlands
Threatened and Endangered Species
Proximity to Public Land
Slope

Threat

Development Level
Wildfire Risk
Forest Health

In an effort to standardize the methodology by which each state generated their Forest Action Plan Priority Areas, the 13 layers from the original SFLA assessment were updated in 2016. These updated layers were

used in the SFLA's weighted model for the priority area analysis. The framework of the model allowed each state to weigh the level of importance of each of the 13 layers as it relates to their forestry priorities.

The Analytic Hierarchy Process (AHP) was used to generate the layer weights for Kentucky's model.⁷⁸ Using the AHP methodology, KDF program experts assessed each layer in pairs and then decided which of the two layers was more important in determining where future efforts in forestry assistance should be focused. After each of the 13 layers was compared against each other in this manner, the final layer weights of importance were calculated.

The 13 weighted layers generated from the AHP methodology were run through the SFLA model to generate a composite score index map of Kentucky. In order to create distinct management units across the state, the composite scores were totaled based on HUC 10 Level Watershed boundaries. Watersheds with the highest scores were deemed priority, and any federal property within these units were removed to produce Kentucky's Priority Areas (Figure 29).

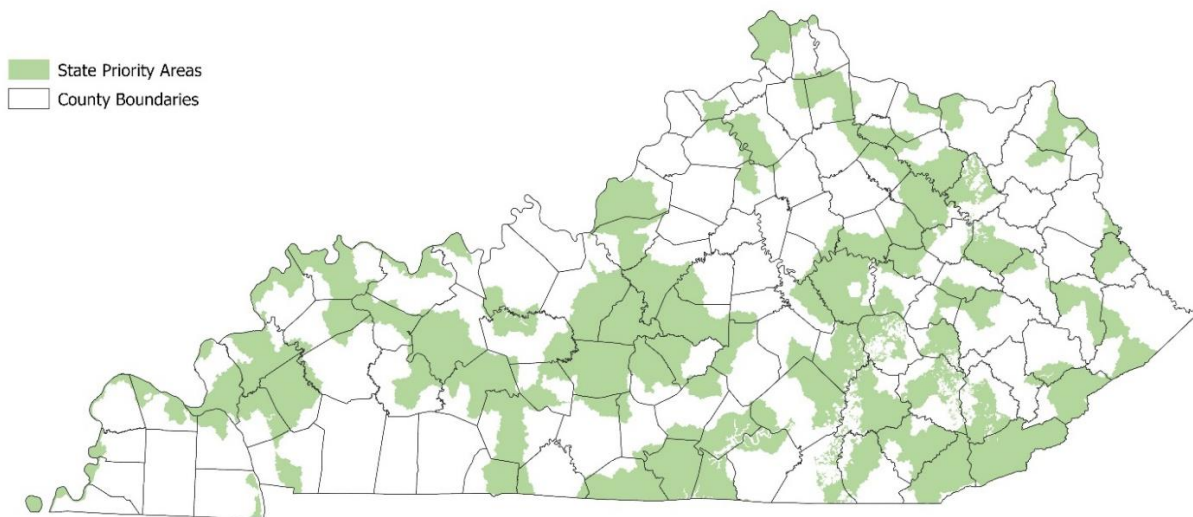


FIGURE 29 – KENTUCKY FOREST PRIORITY AREAS

C. Forest Stewardship Priority Areas

The Forest Stewardship Program, as the primary private forest landowner assistance program in the U.S., serves as a “gateway” through which landowners can gain access to a variety of assistance and programs including USDA cost-share, state tax abatement, and forest certification.

States were to develop and identify forest stewardship priority areas in order to deliver landowner assistance. Strategically, Kentucky will utilize federal assistance to address the following critical issues via the forest stewardship priority areas:

- Reducing wildfire risk to communities
- Protecting water resources
- Enhancing wildlife habitat
- Supporting jobs in the woods

Various geodatabases and other attribute tables were adopted, weighted and ranked to develop the final comprehensive forest stewardship priority layer represented in Figure 30. The white areas within the forest stewardship priority layer are public lands that are masked out. Figure 31 combines Kentucky’s Forest Priority Areas with the Forest Stewardship Priority Areas. The following raster data layers and point data were normalized, summarized and grouped within census block group boundaries.

- Kentucky Division of Forestry - Fire Occurrence SQL database, population density and forest cover types
- Source Water Assessment and Protection Program (SWAPP) and Drinking Water Zones
- Wildlife Species Richness - Birds, Amphibians, Reptiles, Fish/lampreys, Mussels, and Mammals
- National Landcover Classification
- Current and Past Forest Stewardship Activities and Implementation on the Ground
- Primary and Secondary Wood Industry and Master Logger Program Data

Forest Stewardship Priority Areas

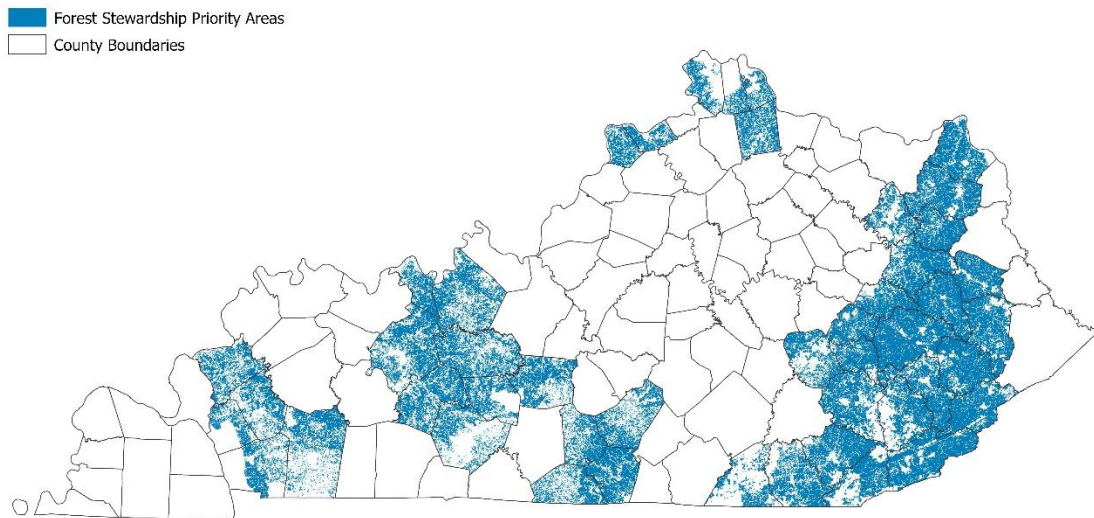


FIGURE 30 – FOREST STEWARDSHIP PRIORITY AREAS

Forest Stewardship Appendix Maps and Descriptions (Appendix 2)

- A. **Wildfire Risk Map** – For reducing wildfire risk to communities, several factors were considered: Historical forest fire locations, population density, forest cover types, and the Kentucky Division of Forestry’s Fire Occurrence SQL database.
- B. **Source Water Protection Areas Map** – The Division of Water layer for Source Water Assessment and Protection Program (SWAPP) was used for drinking water protection areas. SWAPP areas were prioritized based on the zones 1-3.
- C. **Wildlife Species Richness Map** – Wildlife Species Richness was used based on awareness of habitat needs and a species richness factor. These were birds, amphibians, reptiles, fish/lampreys, mussels, and mammals. Each layer was normalized and combined into a single layer.
- D. **Forest Cover Map** – Forest Cover was determined using the 2016 National Landcover Classification. Woody vegetation included deciduous forest, evergreen forest, mixed forest, scrub/shrub, and woody wetlands. Normalization consisted of calculating the percent of pixels that were within the woody cover types.
- E. **Forest Cover Map** – For supporting jobs in the woods, the spreadsheet contained columns including, latitude, longitude, and number of employees by the forestry industry type. This dataset described job locations, numbers of jobs in the primary and secondary wood industry and the master logger program.
- F. **Forest Industry Job Density Map** – The forest stewardship activities and implementation on-the-ground accomplishments was queried from the Kentucky Division of Forestry stewardship geodatabases.
- G. **Forest Stewardship Combined Priority Score Map** – The final analysis layer was a combination of the six normalized contributing layers described above.

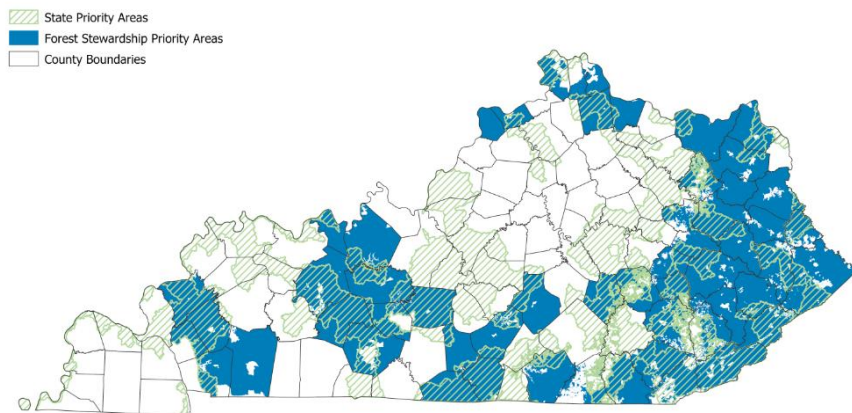


FIGURE 31 – STATE PRIORITY AREAS & FOREST STEWARDSHIP PRIORITY AREAS

D. Forest Legacy Areas

The Forest Legacy Areas (FLAs) are subsets within Kentucky's larger priority areas to provide a comprehensive identification of key forest resources in Kentucky. The FLAs were first developed in conjunction with the Forest Legacy Assessment of Need in 2003 to identify environmentally important forests for protection from conversion to non-forest uses. These legacy priority areas were narrowed and renamed in 2010 based on rare species abundance, threats to conversion, and connectivity to existing protected lands. The FLAs identified are located within ecologically significant areas of the state (Figure 32). In these areas, forestlands have a likely or imminent threat of being converted to non-forested uses, are part of a larger conservation effort by multiple state, federal, and private agencies, and/or have a large concentration of existing protected lands that would either be directly or indirectly enhanced by the protection of additional forestlands.

Forest Legacy Areas

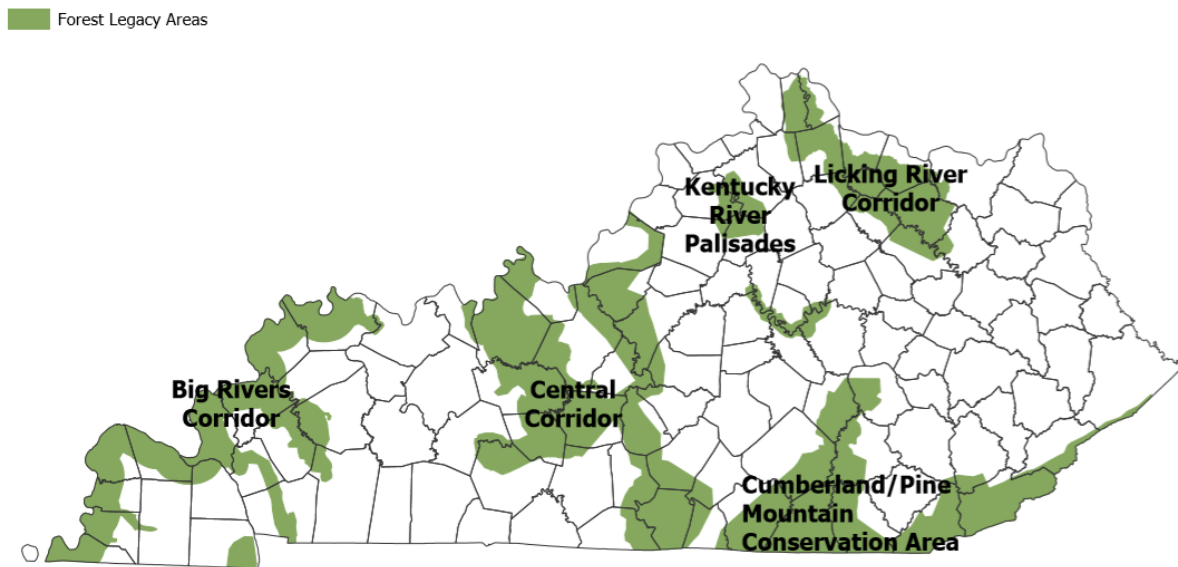


FIGURE 32 – FOREST LEGACY AREAS

1. Licking River Corridor
 - Mississippi River Initiative Focus Watershed.
 - Large number of mussel species, some of which are endangered.
 - Other threatened or endangered species including the Indiana bat, gray bat, and Short's goldenrod.
 - Contains unique archeological resources such as Blue Licks, Blue Licks Battlefield, and Indian Old Fields.
 - Threats and impairments caused primarily agriculture and urban land use.

2. Kentucky River Palisades
 - Last remaining large forested remnant in the Bluegrass area.
 - Large concentration of rare plants including the federally listed running buffalo clover and two other candidates for federal listing as threatened or endangered species.
 - Existing nature preserves, WMAs, Raven Run Nature Sanctuary, and Shakertown of Pleasant Hill.
 - Includes unique archaeological sites such as Big Bone Lick, Indian Old Fields, and buffalo hunting grounds.
 - Threat from urban expansion.

3. Cumberland / Pine Mountain Conservation Area
 - One of the major migratory corridors for neo-tropical birds including those federally listed threatened or endangered species.
 - Largest existing forest blocks in Kentucky.
 - Numerous threatened and endangered aquatic species.
 - Protected areas including Big South Fork National River and Recreational Area, Daniel Boone National Forest, WMAs, State Parks, Kentenia and Kentucky Ridge State Forests, Kentucky Natural Lands Trust protected areas, The Nature Conservancy protected areas, Cumberland Gap National Historic Park, Pine Mountain Trail.
 - Threats of mining and urban development along I-75 corridor.

4. Central Corridor
 - Unique barrens, caves, and knobs.
 - Numerous threatened and endangered species including Indiana bat, gray bat, and endemic cave species such as Kentucky cave shrimp.
 - Contains the most ecologically significant portion of the Green River, which is the most diverse region in the Ohio River basin including a significant number of mussels and threatened and endangered plants just in the Mammoth Cave region.
 - Existing protected areas including Mammoth Cave National Park, Fort Knox Military Reservation, Bernheim Arboretum and Research Forest, Jefferson Memorial Forest, Army Corp of Engineers property around Rough River, Nolin River Lake, and Dale Hollow.
 - Forest Legacy Projects at Knobs State Forest and WMA and at Marrowbone Creek State Forest and WMA.
 - Imminent threat to urban conversion in the Louisville metropolitan area and along the I-65 corridor.

5. Big Rivers Corridor
 - Numerous threatened and endangered species including Indiana bat, interior least tern, and copperbelly watersnake.
 - Kentucky's largest concentration of migratory waterfowl, shore, and wading birds.
 - Numerous protected areas including WMAs, Land Between the Lakes National Recreation Area, Shawnee National Forest, Fort Campbell Military Reservation, Clarks River National Wildlife Refuge, Reelfoot Lake National Wildlife Refuge, the proposed Green River National Wildlife Refuge, Pennyrile State Forest, and Green River State Forest.
 - Mississippi River Initiative Focus Watersheds.
 - Contains highest-quality remaining bottomland hardwood complexes in Kentucky.
 - Contains unique archeological resources such Wickliffe Mounds State Historic Site.

- Agricultural land use is the primary threat although some loss to urban and mining.

E. Urban Forest Priority Areas

To address urban forestry issues, an analysis of population and canopy cover was conducted. This analysis resulted in the identification of three priority areas: Urban Priority Area, Developing Interface Priority Area, and Rural Interface Priority Area (Figure 33).

Urban Forestry Priority Areas

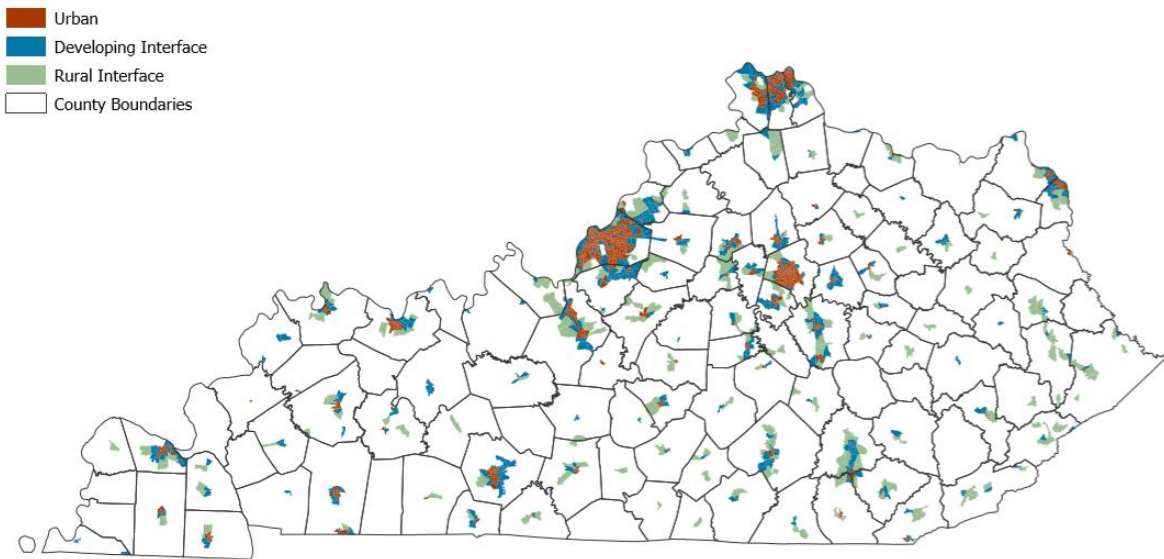


FIGURE 33 – URBAN FORESTRY PRIORITY AREAS

The **Urban Priority Area** is characterized by population greater than 1,000 residents per square mile. Average tree canopy cover is 18% in urban areas of Kentucky.

The **Developing Interface Priority Area** is characterized by population of 300 to 999 residents per square mile. These areas are typically located next to the Urban Priority Areas and are impacted by development pressures. Average tree canopy cover is 32% in these areas of Kentucky.

The **Rural Interface Priority Area** is characterized by population of 150 to 299 residents per square mile. These areas are typically located between the Developing Interface Priority Area and surrounding rural areas. Information about each of the three urban forestry priority areas is shown in Table 6 below.

Table 6 – Urban, Developing, and Rural Interface Priority Areas

Urban, Developing, and Rural Interface Priority Areas				
	Rural Interface	Developing Interface	Urban	State Totals
Population / sq. mi.*	150-299	300-999	>1,000	---
Area in Acres	1,003,888	754,771	431,481	2,190,140
Canopy Coverage (%)	42	32	18	---
State Area (%)	3.9	2.9	1.7	8.5
Population by Category *	317,439	602,819	1,818,949	2,739,207
State Population (%)*	7	13	41	61
*2018 census data				

F. Partner Focus Areas

Kentucky’s Priority Areas were overlaid with partner focus areas to demonstrate possible areas of future collaboration (Figure 34). The Division of Forestry’s Priority Areas display where future efforts in forestry assistance should be focused. The Daniel Boone National Forest has a number of project areas that were developed through their Integrated Resource Management Strategy. The Kentucky Division of Water Priority Watersheds represents the three top watersheds in each major river basin in which the division is prioritizing projects and resources. The Kentucky Department of Fish & Wildlife Resources’ Wildlife Action Plan created Tier 1 Conservation Areas for focusing their conservation efforts to areas of most need.⁷⁹ Focus areas from these four agencies overlap in numerous areas across the state and can be referenced for future collaborative project assessment.

Partner Focus Areas

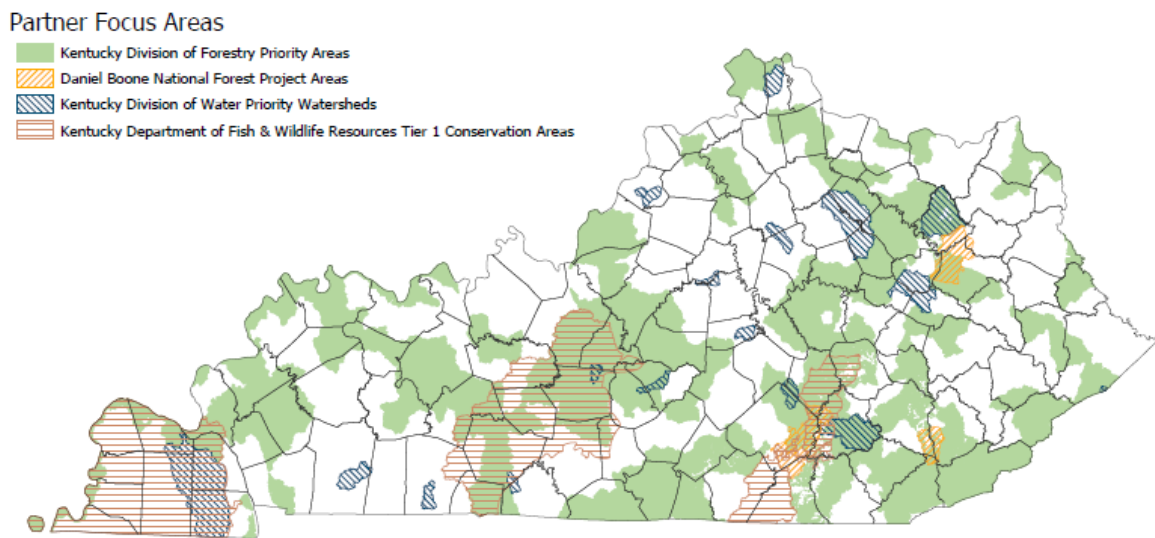


FIGURE 34 – PARTNER FOCUS AREAS

G. Multi-State Priority Areas

National guidance suggested states report priority areas that border or cross state lines. Figure 35 displays areas with neighboring states in which watersheds deemed priority by Kentucky cross state lines. These watersheds provide possible areas for collaboration in which Kentucky can work with neighboring states to compare priorities and implement projects that benefit both states.

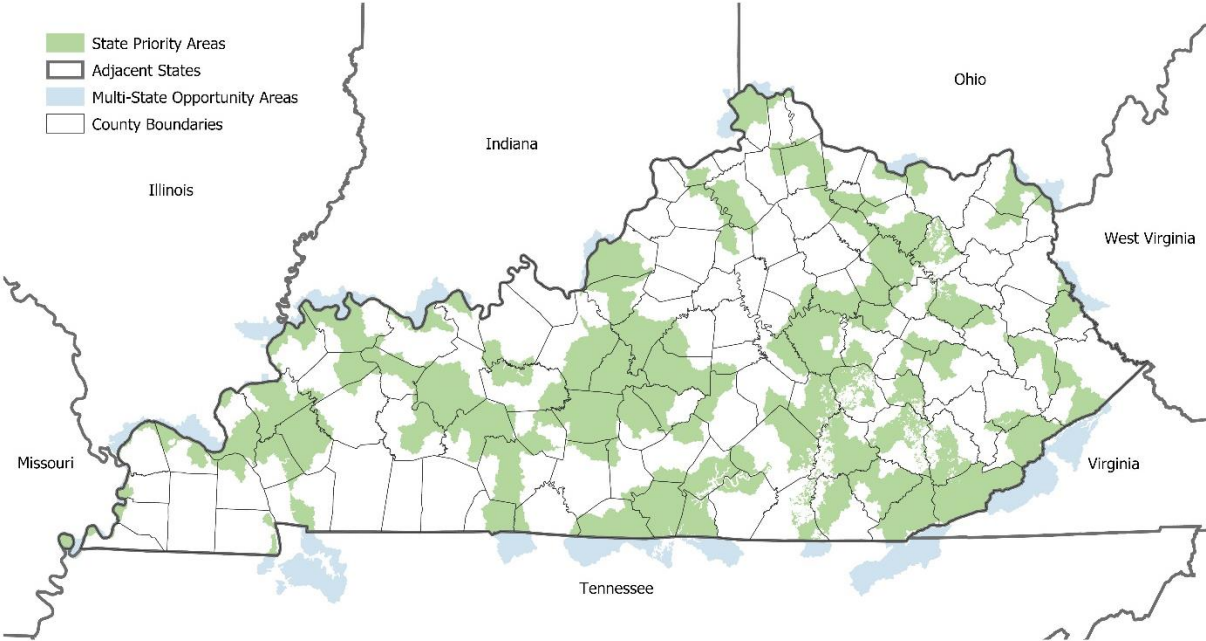


FIGURE 35 – MULTI-STATE PRIORITY AREAS