

# KENTUCKY HERITAGE LAND CONSERVATION FUND BOARD

## BIOLOGICAL INVENTORY GUIDELINES FOR GRANT APPLICANTS

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The Kentucky Heritage Land Conservation Fund Board (KHLCFB) requires a biological inventory be conducted on approved projects; the site Final Resource Management Plan must be based on information gathered from this inventory. The Board can consider a supplemental funding request to assure adequate management of biological resources if the inventory provides information that would drastically change management proposed in the Preliminary Resource Management Plan. Such inventories shall be conducted prior to implementation of any management activities in order to properly account for the biological resources of the site, e.g. trail design and recreational use shall be based on the results of any inventories. Applicants are encouraged to include costs of inventory as a management expense and as part of the budget submitted with the Preliminary Resource Management Plan. Initial site information is available from the Kentucky State Nature Preserves Commission (KSPNC) and the Kentucky Department of Fish and Wildlife Resources (KDFWR).

**After an application is received the KHLCF Project Review Committee will conduct an initial site visit and the applicant will be provided a site-specific biological assessment to guide the inventory process.** This assessment will assign the minimum level of inventory requested by the KHLCF on the site. A “Level I” inventory is very complete and typically reserved for high quality sites that are significant ecologically or are likely to possess rare species or vegetative communities. A “Level II” inventory will be required on sites with a combination of natural areas and lower quality area. A “Level III” inventory is reserved for the lowest quality sites; these are typically “buffer” areas that protect preexisting high quality sites. All inventory levels require standardized reporting and mapping.

**KHLCF biological inventories require on-the-ground site inventories.** Although information gathered at the county or ecoregion level is important supporting documentation, it is insufficient for site management. Therefore “Level I” and “Level II” inventories must contain site-specific data gathered by professional biologists using standard methodology. The KHLCF does not explicitly require particular sampling methods, with exceptions noted within this document.

**These inventory guidelines represent the minimum amount of biological information needed to adequately manage a KHLCF site in perpetuity.** The KHLCF further encourages applicants to conduct more intensive biological inventories where the site significance and/or complexity warrant this work. Lists of plants and animals based on a full growing season and more detailed information on natural communities are frequently desirable. The KHLCF can assist fund recipients develop resource management plans to insure that inventories are used to address the conservation of Kentucky’s biological diversity.

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### **Level I sites as identified by the KHLCF Project Review Committee:**

#### **Species and community information:**

- A species list of vascular plants and terrestrial vertebrate animals (birds, reptiles, amphibians, mammals) based on an on-location survey conducted during one calendar year (generally March 15 - October 1; April 15 - June 5 is recommended as an optimal period for inventory) with particular emphasis on state and federally listed species. If rare or listed species are reasonably likely multiple site visits may be needed.

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- A minimum of one night of acoustic monitoring for all bat species shall be conducted for each 100 acres of suitable habitat. Where potential site development may impact habitat, surveys shall include the most recent methods for rare bat surveys approved by the US Fish and Wildlife Service, including acoustic monitoring and netting as appropriate. Contact the USFWS Kentucky Field Office for more information.
- Database information for all species from both the Kentucky State Nature Preserves Commission (KSNPC) and the Kentucky Department of Fish and Wildlife Resources (KDFWR) shall be referenced.
- Aquatic habitat assessments and species inventories shall be conducted in areas where water quality is likely to be impacted by site management, or where listed species (including invertebrates such as mussels) are reasonably likely to occur, or as requested by the KHLCF Project Review Committee. For suggested protocol see Kentucky Division of Water documents “Methods for Assessing Habitat in Wadeable Waters”, “Methods for Sampling Benthic Macroinvertebrate Communities in Wadeable Waters”, and “SOP Collection Methods for Fish in Wadeable Streams”.
- Development of a vegetation map and appropriate photographic documentation that identifies and delineates the major vegetation types is required. Such a task requires a working knowledge of the current KSNPC community classification system. A detailed vegetation survey will include multiple survey points/tracks (e.g. a 500 acre site may involve more than five days of ground visits) and a complete vegetation map of the property will be completed. All land within the property boundaries will be classified by a vegetation cover type (cover types are derived from KSNPC’s natural and anthropogenic community classification). Each cover type will be described in a report and a list of the dominant and characteristic plants of the community/cover type as well as information on soils, topography, bedrock, etc. will be included (if known). Contact the KSNPC for more information.

**Mapping and reporting:**

- A digital version of all species lists shall be provided to both the KHLCF and the entity that owns the property in Microsoft Excel using the attached format example.
- Suitable (usually existing) aerial photographs, topographic maps (1:24,000 or as the site size dictates for legibility), soil maps, and geologic maps of the area shall be included.
- Identification of any areas that are a part of any “official” designation, i.e. KDFWR Species Conservation Areas, Audubon Society Important Bird Area, KSNPC Registered Natural Area, etc.
- Identification and mapping of any notable features such as wildlife habitat types, natural features such as rock outcrops, caves, springs, periodic or standing or running water, particular wildlife cover that shall be recognized and maintained and any other significant natural features such as a tiny remnant of old-growth forest, a champion tree, or large population(s) of showy wildflowers.

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- If present, identification and mapping of species that are listed as endangered or threatened by federal or state law, and also species otherwise listed by the KSNPC, KDFWR, or US Fish and Wildlife Service. Species that are under consideration for these lists or their occurrence unusual for the site shall also be mapped.
  - Identification and mapping of populations of invasive plants.
  - Identification and mapping of areas of significant human alteration such as roads, buildings, recently logged areas, etc.
  - All mapping shall be done in ArcGIS 9.2 or later and shapefiles transformed into stateplane singlezone shall be provided to both the KHLCF and the entity that owns the property.
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**Level II sites as identified by the KHLCF Project Review Committee:**

Level II sites inventories follow the same general standards as Level I, but are limited to areas of the site with the highest habitat quality as identified by the KHLCF Project Review Committee. Disturbed/low quality areas at the site will be excluded from the species/community inventory but shall still require mapping and any supporting materials. The KHLCF Project Review Committee will identify areas of the site that require the highest level of inventory.

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**Level III sites as identified by the KHLCF Project Review Committee:**

Complete biological inventories may not be recommended on some sites due to past land use. In these cases the site may be too depauperate to function as a natural area but may still have potential for passive recreation or as buffer. Site mapping may still be warranted; the KHLCF Project Review Committee will identify mapping needs.

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**BIOLOGICAL INVENTORY CHECKLIST**

**Site Name:**

**Date:**

**Baseline information:**

- Contact the Kentucky Heritage Land Conservation Fund for guidance and supplemental information.
- Contact the Kentucky State Nature Preserves Commission for rare species and community information.
- Contact the Kentucky Department of Fish and Wildlife – Information Systems for species and habitat information.
- Contact the US Fish and Wildlife Service – Kentucky Field Office for rare species information.
- Contact the Kentucky Division of Water for identification of significant aquatic resources such as Wild & Scenic Rivers, Outstanding Resource Waters, Municipal Water Intakes, groundwater recharge areas, karst aquifers, toxic pollutants, and water quality information.
- Contact the Kentucky Division of Forestry for identification of state and national champion trees.
- Climate information- length of growing season, average annual precipitation, average temperatures, etc.
- Physiographical information - physiographic regions/ecoregions of the site according to the Kentucky Geological Survey, et al.
- Identification of special designations – KDFWR Species Conservation Area, KSNPC Registered Natural Area, etc.
- Topographical information - elevation ranges above sea level, general description of the site (i.e. steep slopes, narrow ridges, broad bottoms, etc.).
- Geological information – general geology of the site and significant geologic features such as caves, karst plains, coal reserves, acid-yielding geology, cryptoexplosive structures, etc., according to the Kentucky Geological Survey.
- Soil information- general description of soils occurring on the site according to the Natural Resource Conservation Service.
- Watershed information- the watershed or watersheds of the site broken into eight (8) digit and eleven (11) digit Hydrologic Unit Codes (HUC) according to the Kentucky Division of Water.
- Land use information- current and historic land use of the site (i.e. agricultural, forested, cropland, pastureland, etc.) with estimated percentage of each land use on the site; current usage also will be referenced in the mapping section.

**Species and Community Information:**

- Specific dates and personnel shall be documented.
- Project area walked and visually surveyed for plant and animal species during one calendar year (generally March 15 - October 1; April 15 - June 5 is recommended as an optimal period for inventory).
  - Surveys conducted by recording all plant/animal species observed and/or collected within the project area during field surveys.
  - Methods include, but are not limited to: overturning rocks, logs and other debris for evidence of amphibians, reptiles, snails and small mammals. Observing evidence such as roadkills, scat, tracks or bedding places. Search discarded bottles for small mammal remains.
  - Identify all plants, terrestrial animals, fishes, and mussels to species. Identify aquatic macroinvertebrates to species if possible; if not, genera identification is sufficient.
- Bird inventory – describe methods and results
- Reptile inventory – describe methods and results
- Amphibian inventory – describe methods and results
- Mammal inventory – describe methods and results
  - Bat surveys include acoustic monitoring – one night for each 100 acres.
- Plant inventory – describe methods and results
  - Identify invasive plant species on the Kentucky Exotic Pest Plant Council list of threats.
- Aquatic sampling (if requested by KHLCF Project Review) – describe methods and results
  - Methods for collecting aquatic species for KHLCF projects will follow KDOW most current publications
  - Sample all stream crossings and possible channel changes. Sampling will include fish, mussels, macroinvertebrates, water quality, and physical characteristics of the stream.
  - Identify aquatic macroinvertebrates to species if possible. Otherwise, genera identification is sufficient.
  - Sample all wetlands with suitable aquatic habitat. Areas may include, but are not limited to temporarily flooded wetlands, seasonally flooded wetlands, permanently flood wetlands, semipermanently flooded wetlands, emergent wetlands, oxbows, swamps, sloughs, etc.

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Vegetation community inventory – describe methods and results.

Methods for collecting vegetation community will follow KSNPC most current classification system.

State/Federal listed species inventory – describe methods and results

Evaluate habitat for state and federally threatened/endangered species.

Sampling for federally listed threatened/endangered species completed according to guidelines established by USFWS within the “Recovery Plan” for each species listed.

Sampling for state listed threatened/endangered species completed according to recommendations made by KDFWR and/or KSNPC.

**Reporting and Mapping:**

Species/Community list in correct Excel format provided electronically to the KHLCF.

Example with required columns:

County	Site Name	Site Owner	Date Sampled	Species Group	Species Name	Common Name	Sampling Method	State or Federally Listed (L)?	Invasive?	Comments (general abundance, habitat, condition, location, etc.)
Hardin	County Nature Park	Hardin County Fiscal Court	10/01/11	Mammal	<i>Vulpes vulpes</i>	Red fox	Tracks	n/a	n	tracks around pond
Hardin	County Nature Park	Hardin County Fiscal Court	10/1/2011	Plant	<i>Sedum telephioides</i>	Allegheny Stonecrop	Visual	Threatened	n	Multiple stems at top of ridge

Topographic, soil, and geologic maps – 1:24,000 or as the site size dictates for legibility

Map of vegetation communities

Map of notable features (outcrops, caves, springs, rock shelters, wildflower displays, etc)

Map of rare species if present

Map of invasive plants

Map of areas with significant human alteration – roads, buildings, recently logged areas, etc.

All mapping done in ArcGIS 9.2 or later and shapefiles transformed into stateplane singlezone provided electronically to the KHLCF.