Indiana Department of Natural Resources
Division of State Parks

Resource Management Guide
McCormick's Creek State Park – Tornado Management Unit 1
30-day Public Comment Period (July 3 - August 1, 2023)

The properties under the management of the Indiana DNR Division of State Parks include approximately 184,836 acres of land, consisting primarily of forested habitats, but also of grassland, wetland, and lake habitats. Management focus and philosophy differs between property types, such as reservoirs, state recreation areas, and state parks. State parks strive to offer quality outdoor recreational experiences while maintaining the ecological integrity of the natural resources. Ecologically, the goal is to mimic pre-European conditions, where appropriate. Assistance in forest management activities is provided by the Indiana DNR Division of Forestry and such activities follow their standards and practices in regards to best management practices, sustainability, and conservation of resources for the future.

Under the Division of Forestry, state forests are divided into a system of compartments and tracts. Compartments are 300-1,000 acres in size and their subunits (tracts) are 10-300 acres in size. Resource Management Guides (RMGs) are then developed for each compartment or tract to guide their management through a 15-25 year management period. Unlike properties under the management of the Division of Forestry, state parks are not broken into a system of compartments and tracts on a widespread basis. Rather, management units are created on an as-needed basis as forest management activities become necessary. This RMG will address the needs for forest management activities in a defined management unit of a state park, rather than a compartment and tract.

The RMG contained in this document was developed to address the need for forest management at McCormick's Creek State Park following a catastrophic tornado and is under review.

Tornado Management Unit 1

To submit a comment on this document, go to:

https://www.in.gov/dnr/forestry/state-forest-management/public-comment/submit/

You must indicate the State Forest or State Park name, Compartment number and Tract Number, or Management Unit name, in the "subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered and review posted at:

https://www.in.gov/dnr/forestry/state-forest-management/public-comment/

McCormick's Creek State Park Tornado Management Unit 1
Natural Resources Manager – Anthony Sipes Date – **06/02/2023** Acres **70.65**
Management Cycle End Year – **2033** Management Cycle Length – **10 years**

Location
The management unit hereto referred to as Tornado Management Unit 1, resides within Washington Township in Owen County, approximately 2 miles east of Spencer, Indiana. Specifically, Tornado Management Unit 1is located within Sections 14, 15, 22, and 23, Township 10N, Range 3W.

General Description
The management unit, consisting of 70.65 acres, contains the campground facilities for McCormick's Creek State Park. The campground was heavily forested prior to the tornado which struck the area in the spring of 2023. In addition to the campground and forest, there are several trails in the area and a shelter. The forest was primarily a mature, mixed hardwood species, with smaller sections of plantation pines.

History
- 1917 to 1965 – Management unit establishment was through four land acquisitions from different landowners
- 2023 – EF3 tornado tracks across the park, heavily impacting the campground
- 2023 – Resource Management Guide (RMG) written by natural resources manager Anthony Sipes

Landscape Context
The landscape directly adjacent to the management unit is the forested land of the state park. Beyond the state park lands there are forested private lands, along with some residential and agricultural area. Within a short distance to the north is the rally camp field, an area of early successional habitat which served as a log landing for the early logs extracted from the road clearing immediately following the tornado. To the west, the park boundary reaches the West Fork of the White River, approximately 0.5 miles from Tornado Management Unit 1. Approximately 1 mile east of Tornado Management Unit 1, the park boundary is adjacent to privately owned row-crop agriculture fields.

Topography, Geology, and Hydrology
Tornado Management Unit 1 is within an area of the state containing karst features such as caves and sinkholes. The upland areas of the management unit are largely flat and adjacent to several sinkhole plains. In all cardinal directions away from the main body of Tornado Management Unit 1, the topography shows a pattern of unglaciated ridges and slopes. The wastewater treatment access road loses elevation as it goes downslope to the treatment plant. The underlying bedrock is largely limestone, although within the park there are small areas showing a more acidic bedrock influence. Slopes within the management unit are generally mild, but to the west are areas of locally steep topography. The area is primarily upland and lacks waterways. There are

several small (< 0.10 acre) vernal pools within the campground in Tornado Management Unit 1. During any management activities, best management practices (BMPs) will be followed per the Indiana Division of Forestry's 2022 BMP Field Guide to protect riparian and other aquatic resources.

Soils

Soil Unit Symbol	Soil Unit Name	Description
StfB2	Stinesville silt loam, 2 to 6 percent slopes, eroded	This is the dominant soil type for the management unit. This is a fertile soil rated for prime farmland, found on the summit, shoulder, and side of slopes. The parent material is loess and the soil is deep and well drained. This is soil type commonly found in local sinkhole areas.
StfC2	Stinesville silt loam, 6 to 12 percent slopes, eroded	This is a common soil type in the management unit. This well drained soil is found on side slopes and shoulders of slopes with a loess parent material. It is well drained and very deep.
StgD2	Stinesville-Ryker-Grayford silt loams, karst, hilly, eroded	This is another common soil type in the management unit. It is also found around sinkhole plains and has a loess parent material. It is well drained and very deep.
HeoE	Hickory silt loam, 18 to 25 percent slopes	This is a minor soil type for the management unit. It is a loess formed, well drained soil with a deep profile, found on side slopes.
HesG	Hickory-Chetwynd loams, 35 to 70 percent slopes	This is a minor soil type for the management unit. It is formed over glacial till and is well drained. The soil has a deep profile and is found on steep side slopes which limit its development potential.
HeoG	Hickory silt loam, 25 to 70 percent slopes	This is a minor soil type for the management unit. It is a loess formed, well drained soil with a deep profile found on steep side slopes which limit its development potential. Some of

		these soils are formed over glacial outwash.
RpzG	Romona-Corydon-Rock outcrop complex, 35 to 60 percent slopes	This is a minor soil type for the management unit. This soil type is found on steeper slopes that may contain areas of limestone outcroppings. Soil is well drained but relatively shallow given the bedrock outcroppings.
SupAh	Stonelick sandy loam, 0 to 2 percent slopes, frequently flooded	This soil type occurs only in one small area of the management unit. This is a very deep, well drained soil within the alluvial flood plain. The soil is calcareous.

Access
Access to the management unit is through the main campground entrance road. The state park entrance is located on State Road 46. Internal access is through paved campground roads, which are currently cleared of downed debris. Access between paved road sections is very challenging due to the high volume of downed woody material.

Boundary
The boundary of the management unit lacks landscape boundaries in most areas due to its following of a 200-foot buffer from the campsites and recreational infrastructure. In some areas the boundary follows the edge of the tornado canopy disturbance area. In the trail 8 area, the boundary follows a 200-foot buffer from the trail until its intersection with trail 5. To the west, there is an extension of the management unit along the wastewater treatment access road that includes the road, the area surrounding the treatment plant, and a 20-foot buffer.

Ecological Observations
Common wildlife present in and around the management unit include species such as white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), raccoon (*Procyon lotor*), gray squirrels (*Sciurus carolinensis*), and a variety of songbird species.

Snags were present within the unit, primarily composed of standing stems of white ash killed by emerald ash borer. While some of these remain standing within Tornado Management Unit 1, the safety hazard they pose for park staff and visitors in this high-use recreation area prevent their retention within the harvest area. However, within the larger tornado impact area, there will be dozens of newly created snags from storm damaged and weakened trees, along with remnant snags that did not fall during the storm, and these will remain in place where safety hazards are minimal.

The overstory was composed primarily of tulip-poplar (*Liriodendron tulipifera*). Plantations of eastern white pine (*Pinus strobus*) were also present. The midstory and understory were dominated by American beech, sugar maple, sassafras, and white ash. The woods surrounding the campground have a relatively rich, diverse herbaceous layer with an excellent spring

ephemeral wildflower showing. Much of the herbaceous and seedling layer remain intact. Native shrubs such as spicebush and elderberry were also relatively common.

Invasive plant species are lacking in much of the management unit, but multiflora rose (*Rosa multiflora*) is present in variable densities, generally increasing at the northern end of the management unit.

Two nature preserves lie within close proximity to the management unit, including Wolf Cave Nature Preserve (dedicated 1972), and McCormick's Cove Nature Preserve (dedicated 2002).

There are no known occurrences of threatened or endangered species within Tornado Management Unit 1. There are nearby records of eastern box turtle (*Terrapene carolina carolina*) just beyond the Tornado Management Unit 1 boundary. A Natural Heritage Database review is part of the management planning process. If Rare, Threatened, or Endangered communities were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The management unit was a late seral stage forest, transitioning from an oak-hickory overstory to that of beech-maple. The canopy disturbance from the storm will disrupt this successional trajectory and increase the early successional woody species canopy component, primarily in the form of tulip-poplar. Species depending on mature forest conditions will see a reduction in habitat quality, although directly adjacent to the storm impact area are vast stands of mature forest. Species dependent on younger forest conditions will see improved habitat conditions brought on by the dense regeneration and increased soft mast.

Recreation

The center of Tornado Management Unit 1 is composed of the electrical and primitive campgrounds of the park. Additionally, there is a reservable shelter just outside of the Tornado Management Unit 1 boundary. Trails 5, 6, 7, and 8 intersect portions of the management unit. Nearby to the northeast is Wolf Cave, which lies within Wolf Cave Nature Preserve. At the time of writing, all trails intersecting Tornado Management Unit 1 are closed due to safety concerns and impassability from the storm damage. The campground also remains closed for the immediate future. The remainder of the park will be open and will provide recreational access and opportunities. The Tornado Management Unit 1 area will remain off-limits to the public during any harvest and the follow-up reconstruction activities.

Cultural

Cultural resources may be present, but their location is protected. Adverse impacts to significant cultural resources will be avoided during any activity.

Management Unit Subdivision Description and Silvicultural Prescription

No current forest resource inventory exists for the management unit, thus no tree summary data is available. Given the current conditions of the site following the storm event and tornado, it is not feasible to conduct a complete inventory of the forest resources present onsite.

The management unit can be divided into the following cover types.

Mixed Hardwoods – 58.06 acres
Tornado Management Unit 1 is dominated by a mixed hardwoods cover type. Tulip-poplar, sugar maple, American beech, and white oak are the most common canopy tree species. The overall tree density varies as there is a high degree of recreational development in the management unit, resulting in canopy gaps and areas of low to no stocking. Beyond the dominant species mentioned, northern red oak, pignut hickory, sassafras, black walnut, black locust, hackberry, and boxelder are present in lower quantities throughout the mixed hardwoods cover type. Eastern white pines can be found sparingly within this cover type, although not in the dominant fashion seen in the softwoods cover type.

Softwoods – 12.59 acres
The secondary cover type of Tornado Management Unit 1 is a softwoods cover type wherein eastern white pine dominates the canopy. These are primarily of plantation origin. Pine regeneration is largely lacking and the subcanopy is composed of a variety of hardwood species, such as boxelder, sugar maple, American beech, and sassafras. As in the mixed hardwoods cover type, there are highly developed recreation areas within this cover type which results in vegetation disruptions.

Summary Management Unit Silvicultural Prescription and Proposed Activities
To facilitate cleanup and repairs to the campground and to mitigate risk from weakened and damaged remnant trees, a salvage timber harvest is recommended. For the following silvicultural prescriptions, all downed trees over 12” diameter at breast height (DBH) will be included in the harvest. All standing trees over 12” DBH, including leaning, damaged, or current or future hazard, will be included in the harvest. Most standing residual trees will be removed due to increased susceptibility to windthrow, disease, and storm-related mortality, which will create future risks for park guests. Potential timber buyers would have the option to remove smaller materials, if desired.

Timber marking within the campground and an approximate 200-foot buffer would designate a salvage harvest to remove all downed trees and all standing trees that pose a potential risk to future park guests and staff. This area consists of the main campground harvest area (64.15 acres) and a smaller isolated section in the primitive campground (0.7 acres) and would total 64.85 acres. Along the trail 8 corridor to its intersection with trail 5, all downed trees intersecting the trail would be marked, as well as standing trees within an approximate 200-foot buffer. The trail 8 harvest area is 4 acres. Additionally, damaged, risk trees along the access road to the wastewater treatment plant and within a 20-foot buffer will be marked to mitigate roadside risks and restore access to damaged, buried utilities. The access road buffer zone totals 1.8 acres.

During and after completion of the proposed salvage harvest, BMPs will be implemented to minimize soil erosion and protect water quality per the Indiana Division of Forestry’s 2022 BMP Field Guide.

Although invasive species are absent from much of the management unit, the canopy and soil disturbance from the tornado, cleanup efforts, and harvest increase the likelihood for spread of existing invasive species and colonization of the management unit by new invasive species. Monitoring of invasive plant species will be critical for ensuring early detection and rapid response of control efforts. Early treatment efforts will likely focus on cut-stump and foliar application targeting multiflora rose. The primary species of concern given the soil disturbance will be Japanese stiltgrass, although garlic mustard may also take advantage of the disturbance window.

Upon completion of the harvest, materials such as tops, stumps, and rootwads will need to be removed to allow for campground reconstruction. Within the campground and its 200-foot buffer, and the wastewater treatment plant access road corridor, these materials will be removed. Within the trail 8 corridor, unsalvaged, non-merchantable materials will only be removed from within the trail bed itself, not the 200-foot buffer.

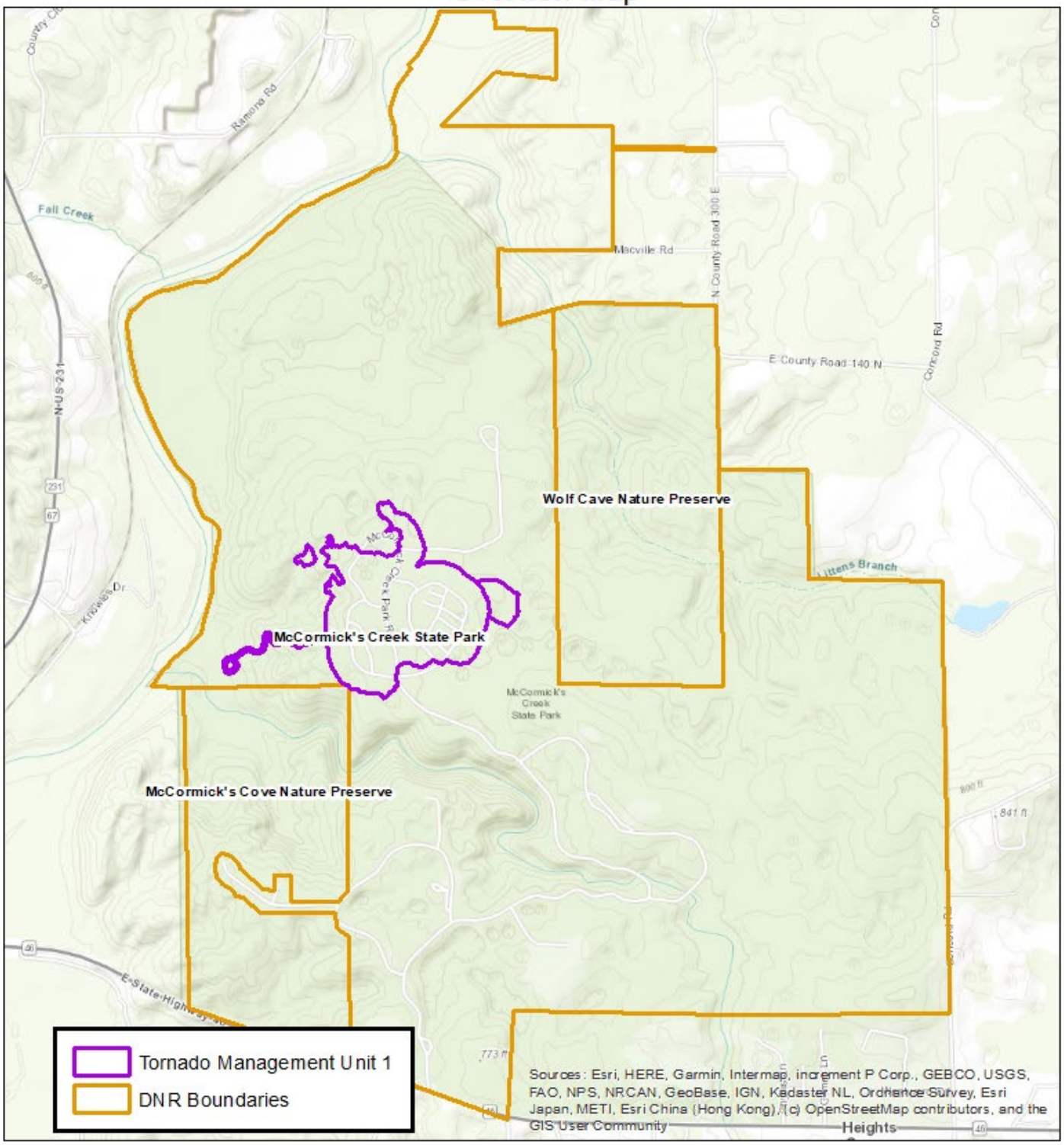
In areas of regenerating forest, should the species composition, structure, and growth rates not meet expectations, timber stand improvement (TSI) may be implemented to remove undesirable competing vegetation. This may include targeted removal of shade tolerant species such as sugar maple and American beech to improve growth conditions for oaks, hickories, and tulip-poplars.

Within the campground itself, the loss of shade and aesthetics provided by the former forest canopy will be mitigated by the planting of large landscape trees. Species will include a mix of native hardwoods adapted to the soil, moisture, and light conditions. Timing of such plantings will depend on and coincide with the larger campground reconstruction activities.

Proposed Activities Listing

Proposed Management Activities	*Proposed Date*
Timber marking	2023
Timber harvest	2023-2024
Invasive plant monitoring	Directly following harvest
Invasive plant control	Directly following harvest, as needed
Removal of tops and stumps	2023-2024
Post-harvest TSI	1-2 years after harvest, as needed
Planting of landscape trees	2024-2025 (estimated)
Inventory and management guide	2033

McCormick's Creek State Park
Tornado Management Unit 1
Overview Map



Created by Anthony Sipes, June 27, 2023
Projected Coordinate System: NAD83 Zone 16N

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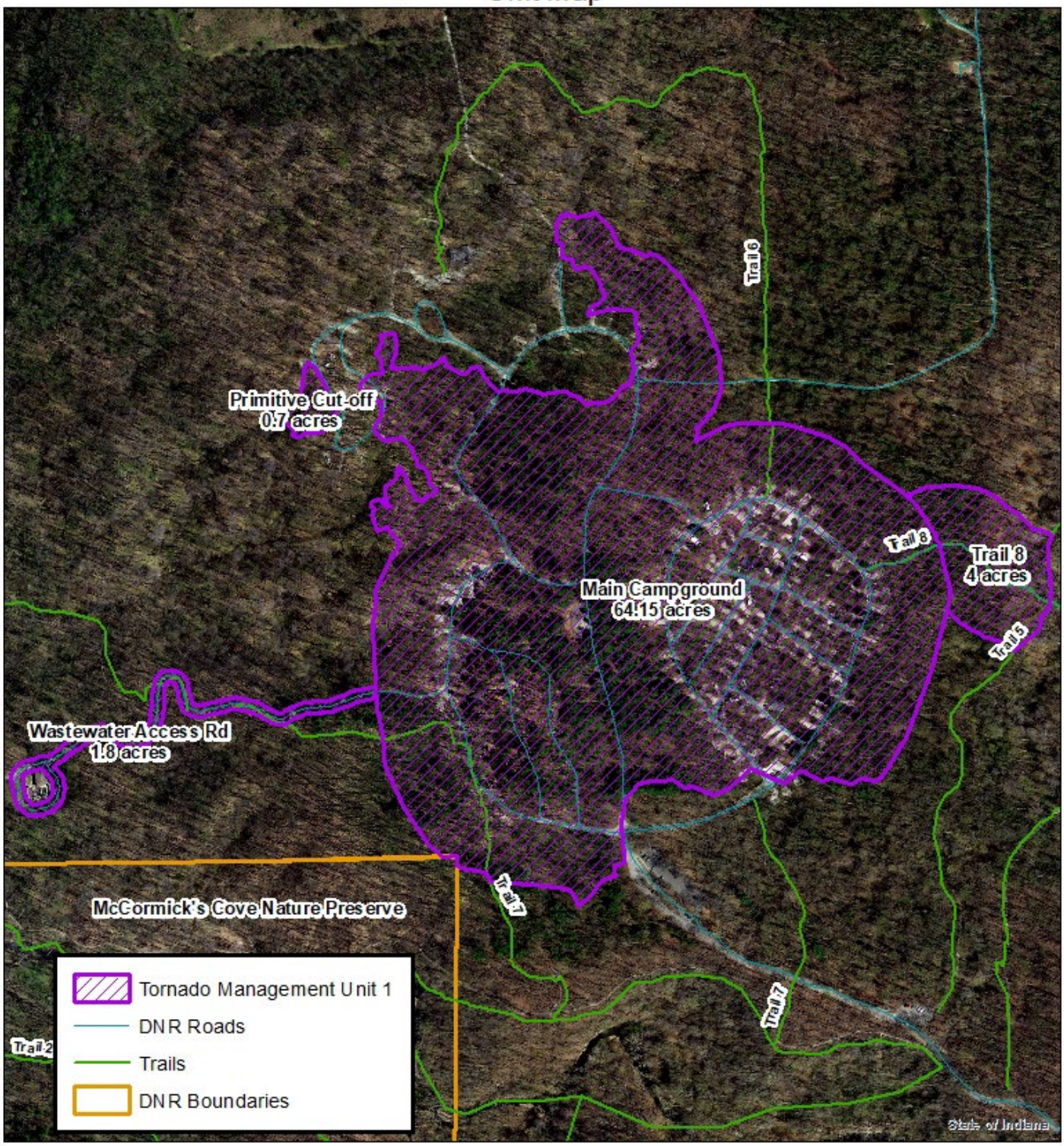
McCormick's Creek State Park
Tornado Management Unit 1
Unit Map



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Projected Coordinate System: NAD83 Zone 16N

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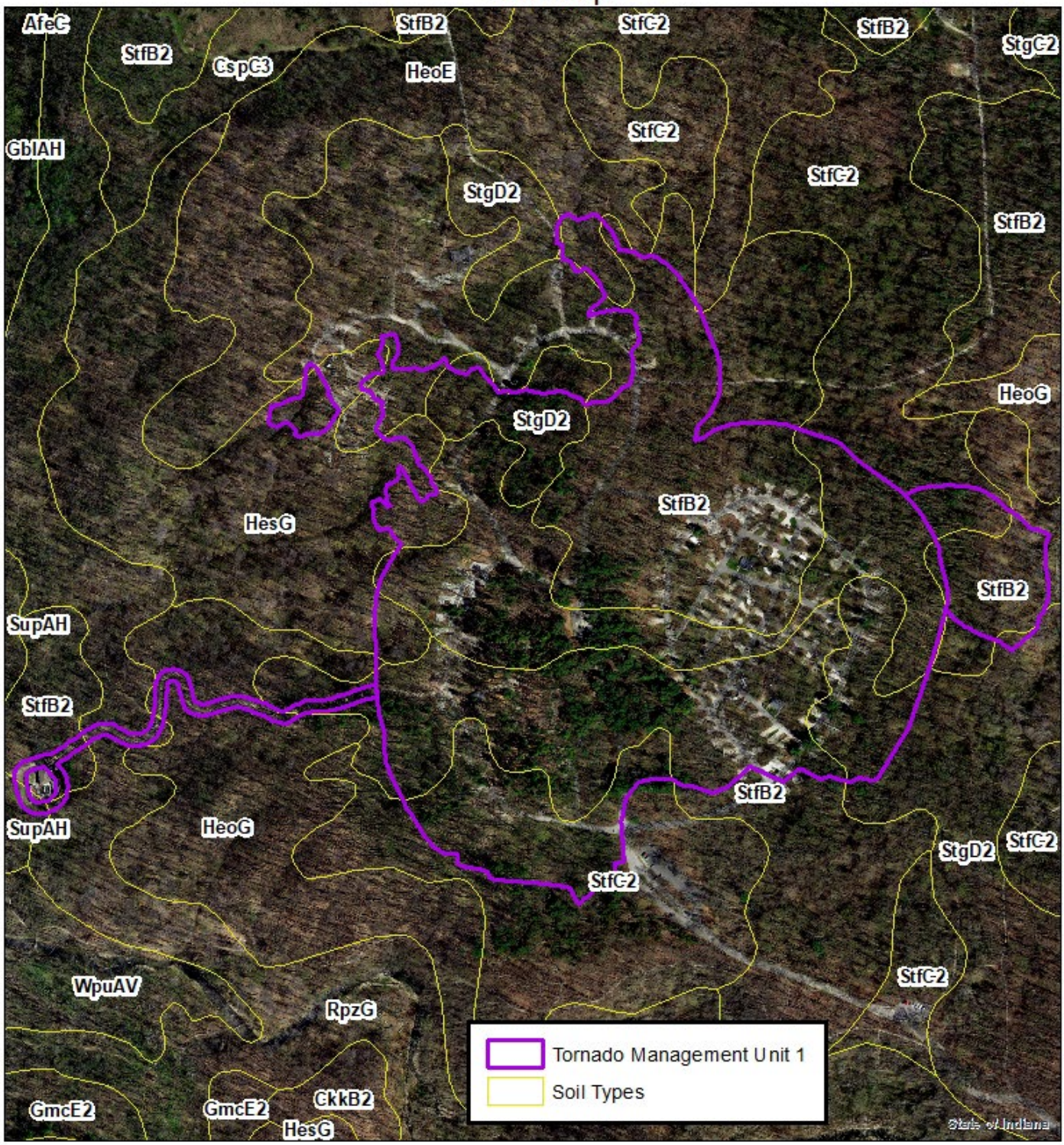
McCormick's Creek State Park
Tornado Management Unit 1
Soils Map



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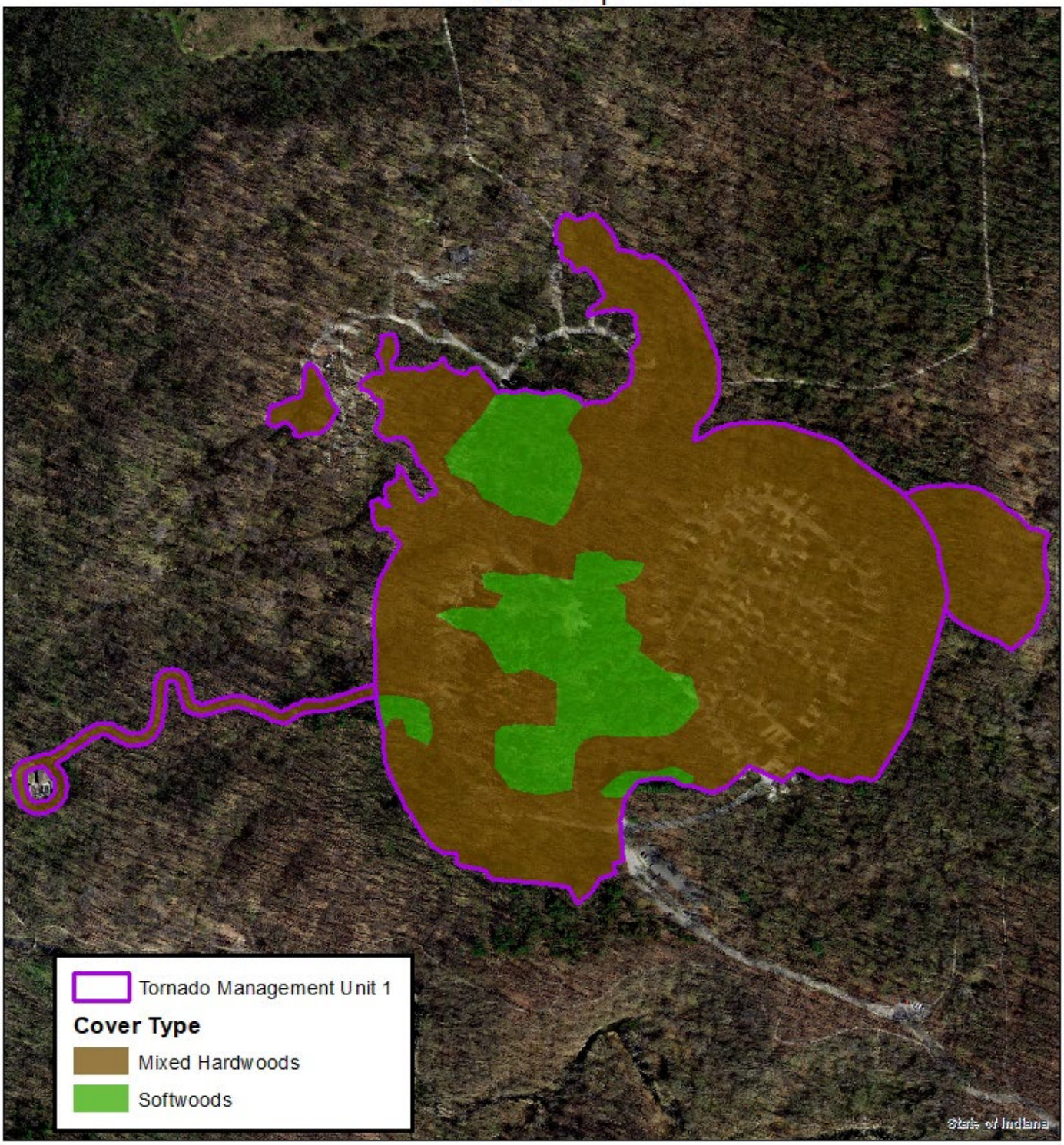
McCormick's Creek State Park
Tornado Management Unit 1
Cover Map



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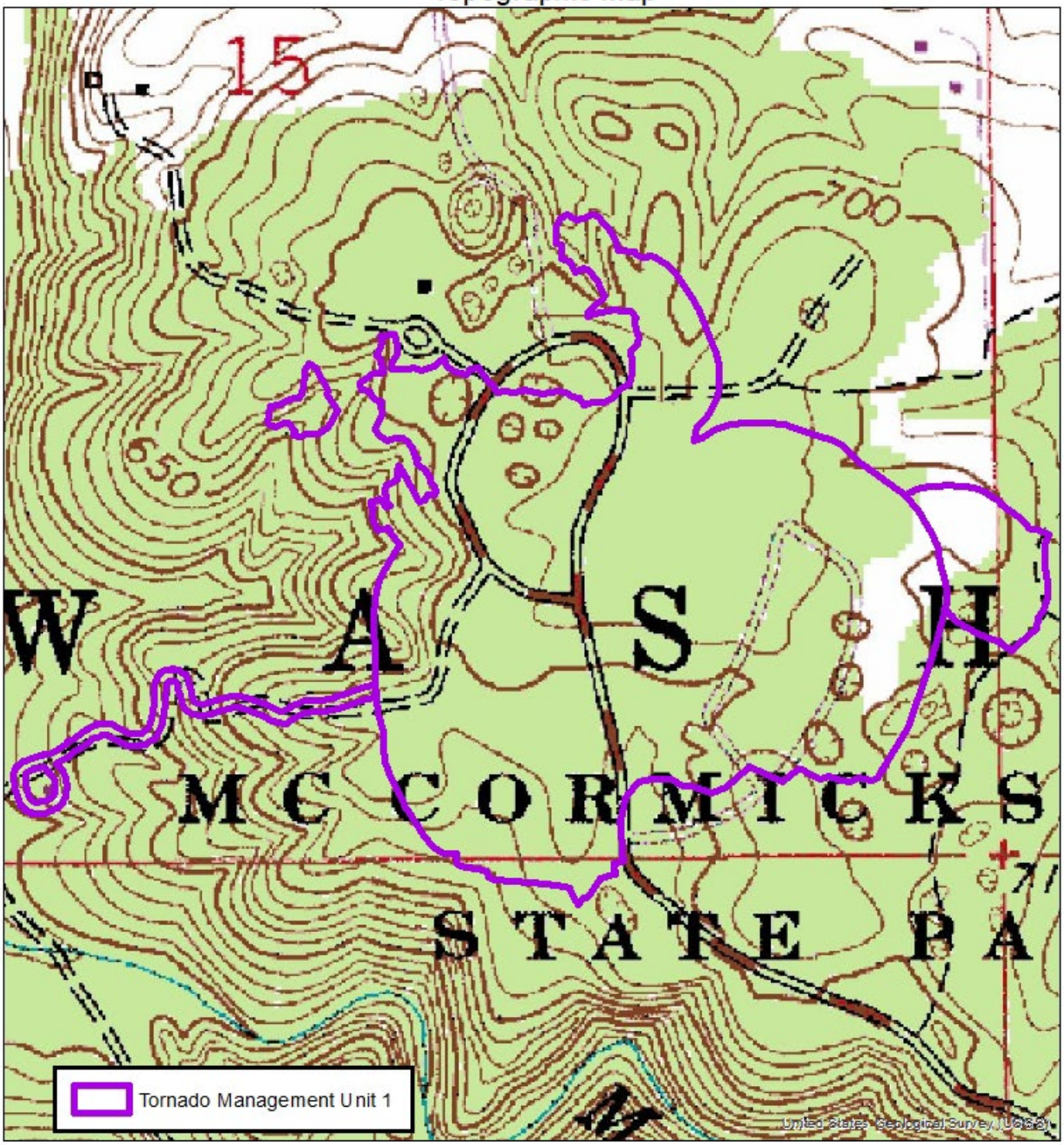
McCormick's Creek State Park
Tornado Management Unit 1
Topographic Map



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