D

Appendix D - Field Notes

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5/17

Russellville SRC

Common wildlife: bobwhites

Birds: prothonotary warbler; red winged blackbird; vulture; eastern towhee; cardinal; Pileated woodpecker; deer track; raccoon track; blue grosebeak; America Robin; eastern cottontail; morning dove; Carpenter bees; Am toad ?; savannah sparrow; eastern phoebe; mallard; common grackle; bluebird; female wood duck; indigo bunting; turkey - seen at edge of forest; Great blue heron - flying over site; eastern pee-wee

Insects: swallow tail

Amphi: cricket frog; bull frog; spring peepers

downy woodpecker; tufted titmouse

snapping turtle

Stand 1 ✓

Deciduous forest — Lacy Locust

hackberry, walnut, hickory, locust

→ a few large snags (GPS'd)

Stagnant water source

understory:

Solidago

see sheet notes

Stand 2 ✓ % exfoliating — 10%; Size cap — 10% small, 40 med, 50 large

Deciduous forest along intermittent channel

standwater along wetland (runny N/S)

holes in trees

Dominant Trees → Hackberry, 85; cottonwood, 10; locust, 5;

Stream is muddy but good drink source

surrounded by winter wheat

Closure canopy - 5, midstory - 1, understory - 6

Stand 3 ✓

Deciduous forest — thick herbaceous understory

Seasonal wetlands adjacent

No streams

Remnant trees: coralberry honeysuckle (invasive), persicaria gallica, hackberry, hickories, cherry, locust

Canopy Closure 6, midstory 3, understory 6

% exfoliating: 10%

Size cap: small — 40, large — 30, med — 30

Snags @ 10

Yes, Trident + NLEB

Rite in the Rain

Stand 4 ✓
→ Home site / cemetery area
Adjacent low area but no open water
Forest resources
Canopy – 3, Midstory – 0, Understory – 1
Dominant trees – Maples, tulip poplar, hickory
% exfoliating → 0%
Size composition:
small – 10%, med – 40, large – 50
No snags
Yes for Indiana bat / NLEB
home site   low quality – yard

Stand 5 ✓
Hedgerow
No water source
Forest resources:
Canopy – 0 Midstory – 1, Understory – 3
Dominant trees Hackberry, Cherry, oak, redcedar
% exfoliating – 0%
Size composition
small – 10 med – 90 large – 0
~~No snags~~
Yes for NLEB / Indiana
low quality → No water
~~no snags~~

5/18   * invasive
Forest edge species
Herbs:
Ageratina altissima snakeroot
Packera glabella – butterweed
erigeron strigosus / fleabane
annus / philadelphia
Viola sp
Southern chervil Chaerophyllum tainturieri
Smilax sp tamnoides?
* Asiatic day flower
Phytolacca americana
* beefsteak plant
Galium aparine
Poa pratensis,
poison ivy
trifolium repens
wing stem
veronica arvensis
Oxalis dillenii wood sorrel
* honeysuckle
coral berry
lamium purpureum
* euonymus fortunei wintercreeper
Virginia wild rye (elymus)
Persicaria longiseta ?
Sweet annie Artemisia
horse weed, pigweed

corn salad
* multiflora rose
orchard grass
agrostis acuminatis
* johnson grass
* morning glory vine

Stand 6 ✓ relabel GPS point

Dominant trees: Black Walnut, cottonwood, Hackberry, white ash, green ash, honey locust, cherry, sycamore (few), postoak (few)

Stream → intermittent / perennial

no ponds

low wet areas.

Closure / Density

Canopy	Midstory	Understory
6	3	3

% Exfoliating bark

50% on dead cottonwood

Snag Flagged, on edge of SA, >40" DBH

Composition

small	Med	large
20%	30%	50%

Understory: Sambucus, Coralberry (Dense), herbaceous, Samicula sp., hackberry, gallium aparine, & a prickly

Structure #3 → old barn

Stand 6, 2 locations

Stand 7 ✓

(Undulating - dominant)

Persimmon

Dominant trees: Quercus palustris, Sloppa America, sugar maple, Cherry, elm, chinquapin oak, blackgum, tulip poplar

Shagbark hickory, white ash, hackberry

stream → intermittent / ephemeral

pools of stagnant water

Closure / Density

Canopy - 6 midstory - 3 Understory - 3

% exfoliating bark → 20%

Snags flagged → white ash ~25 DBH

Composition

small - 20, med - 50 large - 30

Understory - coralberry, Sanicula sp.

stagnant pond / wetland,

Rite in the Rain

Stand 8 ✓

snag #5, hackberry

Dominant white ash, hackberry, osage orange, sycamore, persimmon, cedars, sugar maple

Closure/Density

Canopy - 6 Midstory - 3 Understory 3

% Exfoliating bark — 5%

Composition

small	med	large
10	50	40

water source → pond PUBF .29ac

Fissure → hole in ground (bat habitat)

depauperate area old field wetland)

* merostegium vimineum invasive

→ herbaceous → penstemon calicosis

mesic limestone areas

Poa sylvestris – forest grass

carex cardinimanos – forest open sedge

Helianthus mollis

H. microcephalus

Stand 9

Dominant: cherry, sugar maple, Pignut, Shagbark hickory, tulip poplar, eastern red cedar, Black oak, post oak, southern red oak, mockernut

Understory

Ilex decidua – whorled

small beech

Canopy:

30	40	30

Closure

6	3	3

Snags

5/19 ✓

Stand 10

CPS'd snag = 6, few small snags

Dominant trees maclura, persimmon, cottonwood, sassafras, e red cedar, hackberry

white ash, s red oak, am elm, honey locust, shingle oak, cherry, black oak, white oak, long, wide leaves

Density

Canopy – 6, midstory – 2, understory – 4

% exfoliating bark – 5

Composition small – 10 med – 20 large – 70

water source – N/A

old fence row of sassafras, large s r oak, shingle oak, sassafras > 25 DBH

trumpet creeper, coralberry, gallium aparine, honeysuckle, poison ivy, smilax

large Stand 11 ✓

Island of trees – with slope

snag # 8/19

Dom trees:

black walnut, black locust, sassafras, hackberry, shingle oak, cherry, eredcedar, honey locust, → river woods → a bass wood

Density

Canopy – 6 midstory – 2 understory – 2

% exfoliating – 0

Composition small – 20 med – 60 large – 20

water source – N/A

understory paw-paw, coralberry, privet, hackberry

Rite in the Rain

Stand 12 - ✓

e red cedar, cherry

Trees: honey locust, hackberry, e r. cedar,

Dom: low tree diversity, small trees

Density can - 50 mid - 40 mel/sap - 10

Composition small - 40 med - 40 large 20

90% Exfoliating Bark

Suitable snags → ~8 - 10

No stem, wetland, pods

Stand B - ✓

Dom trees: hackberry, black walnut, cherry

box elder, sycamore, honey locust

younger stand

Comp small - 40 med - 40 large - 10

exfoliate bark - 5%

water source - N/A

flat area - almost wetland

Snag #10, large trees along field

Russell's work hours

M - 5am - 6pm 13 hrs

T - 6:30 - 8:00 13.5 hrs

W - 6:30 - 5 11.5

T - 4 hours

3 deer in stand

Stand 14 - ✓

Trees

Black gum, hackberry, cherry (ciliate hairs on leaf teeth), maple, sugar maple, shagbark, hickory, tulip poplar, sassafras, basswood, black walnut

small snags throughout

Exfoliating bark - 10%

Density 6, 5, 3

90% exfoliate

10, 5, 0

Comp 20, 40, 30

Rite in the Rain

10/25 Russellville

Forested stand #7

- Hackberry
- black walnut
- basswood
- blackgum
- black cherry
- dogwood
- sassafras

Chinese privet

coral berry bush winged sumac

jumpseed

greenbrier

invasive → wintercreeper

microstegium

multiflora rose

Rite in the Rain.

Snag A → black walnut

Cavity opening

20" DBH

Animals / Birds

vulture

eastern cottontail

eastern towhee

blue jay

Rite in the Rain

E

Appendix E - Photographs

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Photograph 3 – Forest Stand 8 (Central hardwood swamp forest), high quality for bats, facing east

Photograph 4 – Forest Stand 1 (Appalachian-interior northeast mesic forest), high quality for bats, facing east

Photograph 5 – Forest Stand 11 (Ruderal forest), low quality foraging bat habitat, facing south

Photograph 6 – Road culvert, bat habitat, facing southeast

Photograph 7 – Forest stand 7 (Appalachian-interior northeast mesic forest), high quality foraging bat habitat, facing northeast

Photograph 8 – Forest stand 2 (Ruderal forest) along pasture, moderate quality bat foraging habitat, facing south

Photograph 9 – Forest stand 10 (Ruderal forest), low quality bat foraging habitat, facing east

Photograph 10 – Pasture and small forested area, facing southwest

Photograph 11– Active pasture, northwest quadrant, facing northwest

Photograph 12 – Sinkhole wetland fringe (Central hardwood swamp forest), forest stand 9, rare cypress-knee sedge, facing southeast

Photograph 13 – Forest stand 9, rare cypress knee sedge (*Carex decomposita*)

Photograph 14 – Forest stand 8, invasive wintercreeper in ephemeral channel, facing northeast

Photograph 15 – Edge of forest stand 1, poison hemlock in forefront, moderate quality bat habitat southeast facing

Photograph 16 – Forest stand 1, example bat habitat snag, facing south

Photograph 17 – Forest stand 2, pasture surrounding, moderate quality bat habitat, facing southwest

Photograph 18 – Forest stand 3, moderate quality bat foraging habitat, facing southeast

Photograph 19 – Forested fence line, forest stand 4, low quality bat foraging habitat, facing southeast

Photograph 20 – Forest stand 4, old home site, low quality bat foraging habitat, facing southeast

Photograph 21 – Agricultural pond, low quality foraging bat foraging habitat, facing northeast

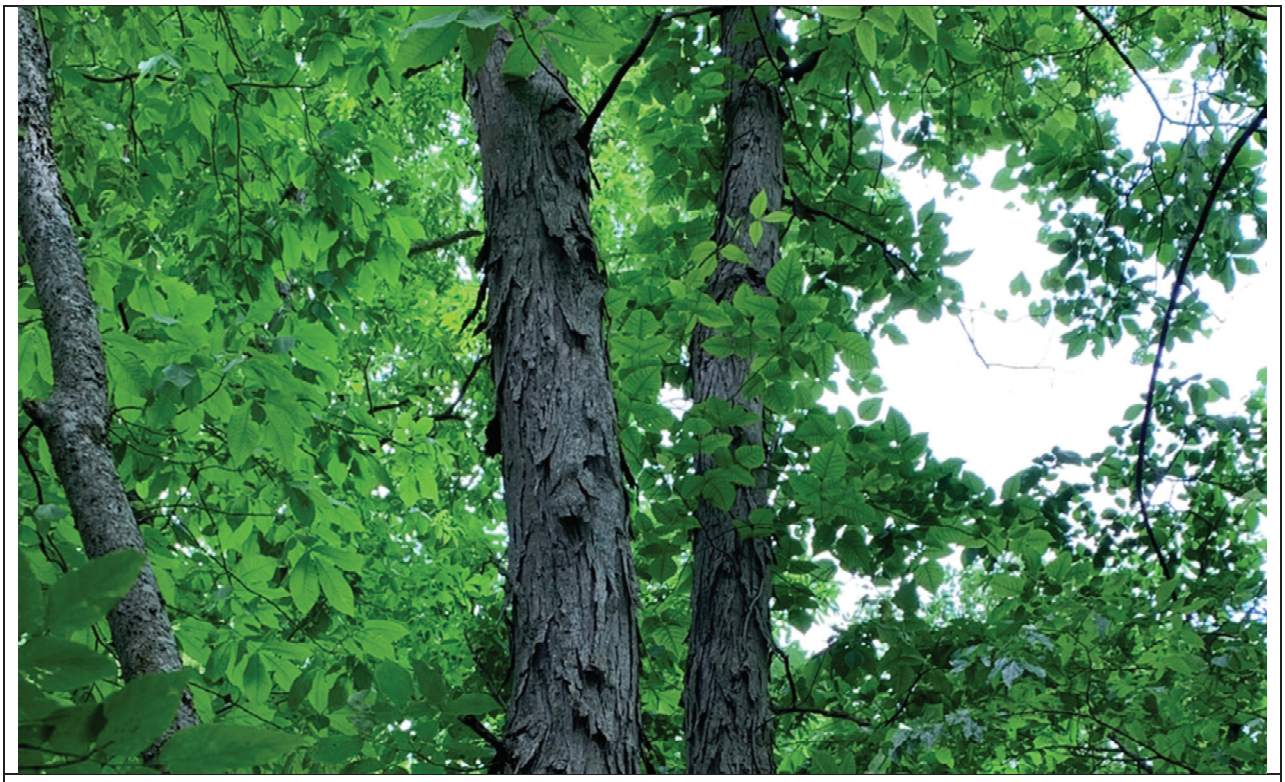
Photograph 22 – Forest stand 5, overgrown fence row, low quality bat foraging habitat, facing southwest

Photograph 23 – Forest stand 6, moderate quality bat foraging habitat, facing northwest

Photograph 24 – Forest stand 6, old shed, bat roosting habitat, facing southeast

Photograph 25 – Forest stand 6, moderate bat foraging habitat, facing south

Photograph 26 – Forest stand 6, bat snag, facing south



Photograph 27 –Forest stand 7, high quality bat foraging/roosting habitat, exfoliating shagbark, facing northwest

Photograph 28 – Forest stand 8, freshwater pond, high quality foraging/roosting bat habitat, facing east

Photograph 29 – Forest stand 9, forested wetland, high quality foraging/roosting bat habitat, facing east

Photograph 30 – Forest stand 10 (Ruderal forest), facing north

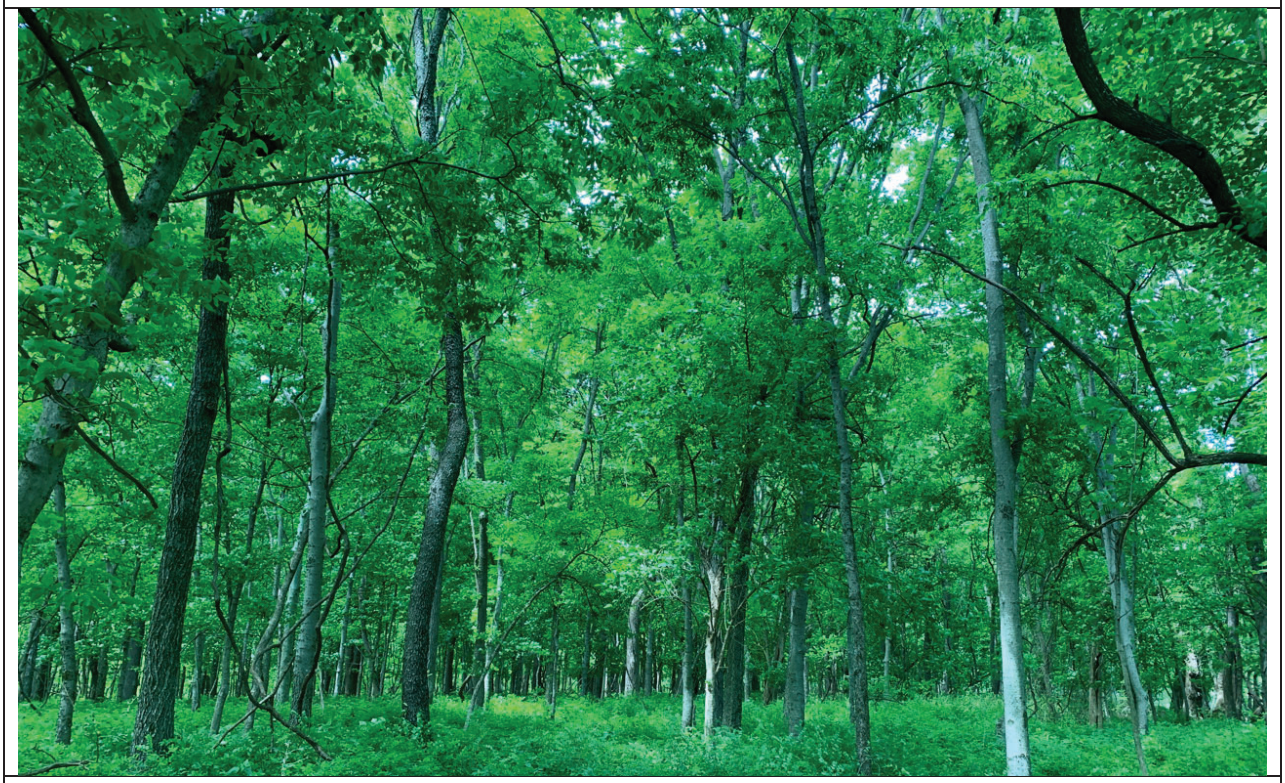
Photograph 31 – Forest 10 (Ruderal forest), low quality roosting/foraging bat habitat, facing southeast

Photograph 32 – Forest stand 11 (Ruderal forest, low quality roosting/foraging bat habitat, facing east

Photograph 33 – Forest stand 12, low quality foraging/roosting bat habitat, facing east

Photograph 34 – Forest stand 13, low quality foraging/roosting bat habitat, facing northeast

Photograph 35 – Forest stand 13, bat snag, facing southwest



Photograph 36 – Forest stand 14, high quality foraging/nesting bat habitat, facing northwest

Photograph 37 – Forest stand 14, high quality foraging/nesting bat habitat, facing north

Photograph 38 – Old tobacco barn, bat roosting habitat, forest stand 14, facing southeast

Photograph 39 – Small forest stand 15, island in cropland, low quality for bats, facing southeast

Photograph 40 – Forest stand 16, abandoned home site, facing northwest

Photograph 41 – Forest stand 16, old shed, bat roosting habitat, facing southwest

Photograph 42 – Old home site concrete pump site, forest stand 16, gray bat roosting habitat, facing northeast

Photograph 43 – Forest stand 8, sinkhole karst fissure with limestone rock opening

Photograph 44- Forest Stand 17, low quality foraging/roosting bat habitat, facing north

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F

Appendix F - Bat Habitat Assessment Data Sheets

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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): 1

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	1, ~190 ft	0	0	Stagnant agricultural pond next to deciduous forest with a non-JD wetland. Pond appears to dry up in summer months.
Pools/Ponds (# and size)	1, <1.0 acre	Open and accessible to bats?		
		Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	1		

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	3	
Dominant Species of Mature Trees	Hackberry, black walnut, honey locust, & black locust.			
% Trees w/ Exfoliating Bark	5	5	5	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	30	40	30	
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:

Stand 1 characteristics are for two forest stands. Two large snags (#1, #2) were GPS'd in the southwest quadrant off Watermelon Road and the other forest stand is located off of A.P. Miller Road. Both stands have agricultural ponds with ephemeral stream channels and seasonal wetlands. Quality of stand is considered moderate for 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

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): 2

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Deciduous forest along ephemeral channel. Stream is muddy but a good drinking source during wet months. Stream is surrounded by winter wheat. Standing water within wetland to south of stand.
	1	0	0	
Pools/Ponds (# and size)	1, 0.92 ac	Open and accessible to bats?		
		1		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	0.95 ac		

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%
	5	1	6	
Dominant Species of Mature Trees	Hackberry, cottonwood, honey locust, & black locust.			
% Trees w/ Exfoliating Bark	10	0	0	
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 2 is located in two stands along the ephemeral channel that flows south off the project area. There were no noted snags. Quality of stand is considered moderate for 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

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): 3

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Deciduous forest with a thick herbaceous understory. What appears as a seasonal borderline wetland adjacent but not noted in AJD. No streams within stand.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats?		
		NA		
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%
	6	3	6	
Dominant Species of Mature Trees	Hackberry, cherry, hickory, locust, honeysuckle (invasive).			
% Trees w/ Exfoliating Bark	10	10	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	40	30	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:
Many small snags (<5-8 DBH) noted. Quality of stand is considered moderate for 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

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
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Sample Site Description

Sample Site No.(s): 4

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Adjacent low areas, one ag pond.
	0	0	0	
Pools/Ponds (# and size)	1	Open and accessible to bats?		
		Yes		
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%
	3	0	1	
Dominant Species of Mature Trees	Maple, tulip poplar, hickory.			
% Trees w/ Exfoliating Bark	0	0	0	
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 4 is representative of four small separate stands of trees. Two old home site/cemetery areas, one forested and one agricultural area with dispersed trees with an agricultural pond. Quality of the stand is considered low for 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

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): 5

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Hedgerows. No open water.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats?		
		NA		
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%
	0	1	3	
Dominant Species of Mature Trees	Hackberry, cherry, southern red oak, black oak, and eastern red cedar.			
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	10	90	0	
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:

Low quality bat habitat in the form of hedgerows across the project area. No water source, and no snags.

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

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): 6

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: One pond, intermittent stream and low wet areas noted.
	0	1	1	
Pools/Ponds (# and size)	0	Open and accessible to bats?		
		Yes		
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%
	6	3	3	
Dominant Species of Mature Trees	Black walnut, cottonwood, hackberry, honey locust, cherry, sycamore and post oak.			
% Trees w/ Exfoliating Bark	5	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	30	50	
No. of Suitable Snags		3		

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 6 represents three forested stands within vicinity of one another. There is one structure (old barn) located in the westerly stand and 3 GPS points/flags taken on snags (#3, #4, #5) with large cavities. There are sinkhole features along the intermittent stream near the barn. Each snag was flagged with green/white striped flagging tape for further investigation. Quality of the stand is considered high for 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

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): 7

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Intermittent and ephemeral streams had pools of stagnant water. Pond water was stagnant. A few sinkhole features noted in stands. Three separate wetland features totaling approx. 5 acres.
	1	1	0	
Pools/Ponds (# and size)	1, < 0.25 ac	Open and accessible to bats? Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	3	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%
	6	3	3	
Dominant Species of Mature Trees	Persimmon, blackgum, white ash, hackberry, sugar maple, oak, tulip poplar, willow oak, shagbark hickory, chinkapin oak, American elm.			
% Trees w/ Exfoliating Bark	20	20	10	
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:

The tree diversity is high in this large forested stands. There were small snags noted in both stands. Quality of the stands is considered high for 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

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): 8

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Pond water good source. There was an old field adjacent to the stand. A large seasonal wetland, 1.84 ac and a small seasonal wetland 0.18 ac are within forest stand.
	3, 722 LF total	0	0	
Pools/Ponds (# and size)	3, 0.81, .23, .05 acre	Open and accessible to bats? Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	2		

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%
	6	3	3	
Dominant Species of Mature Trees	Hackberry, white ash, sycamore, persimmon, red cedar, sugar maple, osage orange			
% Trees w/ Exfoliating Bark	5	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	10	50	40	
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:

This ~25 acre decidous forest stand was depauperate in understory species. GPS point/flag placed on snag (#6). This area has a few limestone sinkhole fissures in the ground that would be considered gray bat habitat. Two of three ponds would provide a good water source. Not many suitable snags identified in stand and no shagbark in this stand noted. Quality of the stands is considered moderate for 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

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): 9

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Natural sinkhole pond, and 3 wetlands are the primary source of water in this large stand.
	0	0	0	
Pools/Ponds (# and size)	1, 0.26 ac	Open and accessible to bats? Yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	0	3, 3.27, 0.3, 0.96 ac		

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%
	6	3	3	
Dominant Species of Mature Trees	Pignut hickory, shagbark hickory, cherry, tulip poplar, eastern red cedar, sugar maple, black oak, post oak, southern red oak, mockernut hickory and American beech			
% Trees w/ Exfoliating Bark	20	10	10	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	30	40	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:

A few small snags were located in this large deciduous forest of approximately 37 acres. The high percentage of exfoliating bark and diversity of trees shows it is one of the older stands in the project area. Carex decomposita, a rare plant, was discovered in the sinkhole natural pond. Quality of the stands is considered high for 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

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

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Sample Site Description

Sample Site No.(s): 10

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats? NA		
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%
	6	2	4	
Dominant Species of Mature Trees	Cottonwoody, sassafras, eastern red cedar, white ash, hackberry, white oak, southern red oak, American elm, cherry, black oak.			
% Trees w/ Exfoliating Bark	5	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	10	20	70	
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:

This deciduous forest stand is 10.3 acres and is barrier or old hedgerow between fields. GPS points/flags taken on two large snags (#7, #8) and a few smaller ones exist in the stand. Quality of the stands is considered low for 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

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): 11

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats? NA		
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%
	6	2	2	
Dominant Species of Mature Trees	Black walnut, black locust, sassafras, mulberry, shigle oak, cherry, honey locust, basswood.			
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	60	20	
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:

This stand is represented by a small deciduous forest stand, 5.1 acres in size, located inside an agricultural field. GPS points/flags taken on two large snags (#9, #10) and a few smaller ones exist in the stand. Quality of the stands is considered low for 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

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
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Sample Site Description

Sample Site No.(s): 12

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats? NA		
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	4	2	
Dominant Species of Mature Trees	Eastern red cedar, cherry, hackberry, honey locust.			
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	40	40	20	
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:

This stand is represented by a small deciduous forest stand, 1.2 acres in size, located inside an agricultural field. A few small snags noted. Quality of the stands is considered low for 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

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): 13

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
	0	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats? NA		
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%
	6	4	2	
Dominant Species of Mature Trees	Hackberry, black walnut, cherry, box elder, sycamore, honey locust.			
% Trees w/ Exfoliating Bark	5	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	40	40	10	
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:

GPS/flagged point taken on one large snag (#11) along field edge.
Quality of the stands is considered low for 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

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): 14

Water Resources at Sample Site				
Stream Type	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: Water sources are a pond, a seasonally wet wetland, and an ephemeral channel flowing southeast.
(# and length)	1	0	0	
Pools/Ponds	1, 0.7 ac	Open and accessible to bats?		
(# and size)		NA		
Wetlands	Permanent	Seasonal		
(approx. ac.)	0	1, 0.47 ac		

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%
	6	5	3	
Dominant Species of Mature Trees	Black gum, hackberry, cherry, sugar maple, shagbark hickory, mockernut hickory, tulip poplar, sassafras, basswood, black locust.			
% Trees w/ Exfoliating Bark	10	5	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	40	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:

This 34 acre deciduous forested stand is located west of Joe Montgomery Road between corn fields. Small snags were noted throughout the stand, but nothing significantly large. Good sized shagbarks are located through this stand. An old tobacco barn is located to the east within the stand. Quality of the stand is considered high for 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

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): 15

Water Resources at Sample Site				
Stream Type	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
(# and length)	0	0	0	
Pools/Ponds	0	Open and accessible to bats?		
(# and size)		NA		
Wetlands	Permanent	Seasonal		
(approx. ac.)	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	3	
Dominant Species of Mature Trees	Eastern red cedar, cherry, hackberry, honey locust.			
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	40	40	20	
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:

This stand is represented by a 0.44 acre small deciduous forest stand located inside an agricultural field. Quality of the stands is considered low for 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

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): 16

Water Resources at Sample Site				
Stream Type	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water source.
(# and length)	0	0	0	
Pools/Ponds	0	Open and accessible to bats?		
(# and size)		NA		
Wetlands	Permanent	Seasonal		
(approx. ac.)	0	1		

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%
	6	5	3	
Dominant Species of Mature Trees	Hackberry, cherry, sugar maple, shagbark hickory, mockernut hickory, tulip poplar, sassafras, black locust.			
% Trees w/ Exfoliating Bark	10	5	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	20	40	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:

This 2.2 acre deciduous forested stand is located at the end of Joe Montgomery Road. Three old buildings (old home and 2 sheds) exist within the forested stand. No significant stags were noted on site. Quality of the stand is considered moderate for 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

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): 17

Water Resources at Sample Site

Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: No water sources in the immediate vicinity of the forested stand, except for a ephemeral drainage with minimal to no water in the channel (rained in past 24 hours).
	1	0	0	
Pools/Ponds (# and size)	0	Open and accessible to bats?		
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	3	
Dominant Species of Mature Trees	Hackberry, black walnut, cherry, red maple and basswood.			
% Trees w/ Exfoliating Bark	0	0	0	
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	30	50	20	
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:

Two snags GPS'd here. This forested stand is considered low quality for both 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