WEST VIRGINIA
DNR

Governor Jim Justice

Director Brett W. McMillion

NUMBER 2024.298

SCIENTIFIC COLLECTING PERMIT

Under Authority Conferred by Chapter 20, Article 2, Section 50, Code of West Virginia, As Amended

Hunter Stuart
Skybax Ecological Services, LLC
107 Vanwinkle Grove
Berea, KY 40403

is hereby permitted to collect specimens according to the attached application and the Special Provisions on the reverse side of this permit.

This permit is not transferable and expires on August 16, 2024.

A complete list of all specimens collected will be kept and reported to the Director of the Division of Natural Resources of West Virginia no later than 45 days after the expiration date of this permit.

PERMIT PROVISIONS

I understand that (1) The privileges granted under this permit are not transferable, and to allow anyone other than myself to use my permit is unlawful and will be considered cause for revocation of said permit; (2) A Federal Scientific Collection Permit issued by the U.S. Department of Interior must be obtained before any migratory birds, or their nests or eggs, are collected or held in captivity; (3) The Federal Permit does not extend the privileges of the permittee beyond those granted by the Division of Natural Resources; (4) Permission must be obtained from either the owner or the custodian of any fenced or posted land before entering same for the purpose of collecting scientific specimens; (5) It is unlawful to sell, offer for sale, barter, or offer to barter any wildlife collected; (6) When traps or nets or other devices are used UNATTENDED while exercising the privileges of this permit, said traps, nets, or devices must have attached thereto a tag bearing the name, address and number of the Scientific Collecting Permit; (7) It is unlawful to take or attempt to take any wildlife under said permit except for scientific and propagation purposes; (8) A hunting or fishing license must be obtained before specimens may be taken for sport; (9) Only those species or classes of wildlife listed below, and in the numbers stated, may be lawfully taken under said permit; and (10) I am required by law to carry my Scientific Collecting Permit, on my person while exercising the privileges granted thereunder, and to exhibit the permit to anyone requesting to see the same.

Must be signed before valid.

B. Hunter Stuart

Signature

Signature of permittee

Director, WVDNR

Date of issue 7/11/2024

WEST VIRGINIA DIVISION OF NATURAL RESOURCES | BRETT W. MCMILLION | DIRECTOR
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Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 1	Project/Firm: Elkins Airport	Date: 7/30/24
Location: ridgetop dirt road through woods		
County: Randolph WV	State: ~~WV~~ Quad:	Quadrant:
Lat/Long (DMS): N 38.90477	W 79.84236 Zone:	Observers: Gary Libby, Hunter Stuart

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2040	EPFU	A	M	TD	46	16.45	B/6'	—	0	—
2	2030	LABO	—	—	—	—	—	B/6'	—	—	—
3	2035	EPFU	—	—	—	—	—	B/8'	—	—	—
4	2045	EPFU	A	F	NR	47	17.0	B/8'	—	0	—
5	2037	EPFU	—	—	—	—	—	B/6'	—	—	—
6	2115	EPFU	A	F	NR	48	18.6	C/15'	—	0	—
7	2145	EPFU	A	F	PL	48	17.5	B/6'	—	0	—
8	2230	EPFU	A	F	NR	49	18.0	A/4'	—	0	—
9	2235	EPFU	A	M	TD	45	17.0	B/10'	—	0	—
10	2240	EPFU	A	F	NR	44	19.0	C/4'	—	0	—
11	000	EPFU	A	m	TD	45	16.5	B/8'	—	0	—
12											
13											
14											
15											
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*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: waning Crescent		% 19.4
	Rise	Set
Moon:	1:02 am	4:51 pm
Sun:	5:46 am	8:46 pm

Time	Temp	Sky	Wind	# Bats
2000	76	1	0	5
2100	72	2	0	2
2200	68	1	0	3
2300	67	1	0	0
000	66	1	0	1
100	65	1	0	0
200	64	1	0	0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 1	**Project/Firm:** Elkins Airport		**Date:** 7/31/24
Location: ridgetop dirt road through woods			
County: Randolph Co, WV	**State:** WV	**Quad:**	**Quadrant:**
Lat/Long (DMS): N 38.90477	W 79.84236	**Zone:**	**Observers:** Gary Libby, A. Cambridge

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2040	LABO	J	F	NR	41	12.1	B/6'	—	0	—
2	2240	LABO	A	M	NR	39	10.8	C/6'	—	0	—
3	120	EPFU	J	F	NR	40	15.3	B/4'	—	0	—
4											
5											
6											
7											
8											
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29											
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*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: Waning Crescent **%** 11.8

	Rise	Set
Moon:	1:21 am	6:44 pm
Sun:	5:47 am	8:44 pm

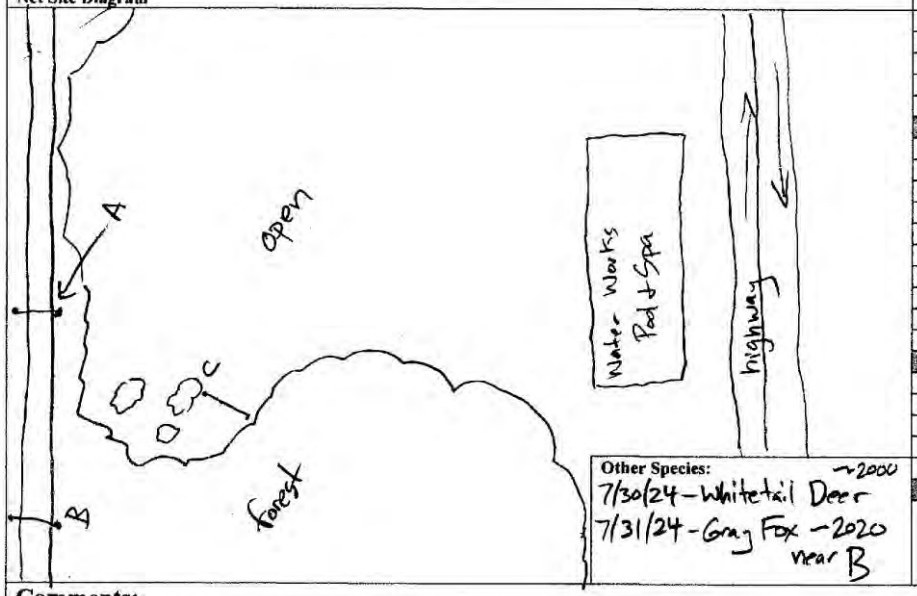
Time	Temp	Sky	Wind	# Bats
2000	78	0	0	1
2100	76	0	0	0
2200	70	0	0	1
2300	68	0	0	0
000	64	0	0	0
100	63	0	0	1
200	62	0	0	0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Site 1 7/30/2024 + 7/31/2024

Net Site Diagram



Other Species: ~2000
7/30/24 - Whitetail Deer
7/31/24 - Gray Fox - 2020 near B

Dominant Vegetation

1	pignut hickory
2	sugar maple
3	black gum
4	black oak
5	red maple

Net Site(s) by Habitat

Habitat	A	B	C	
River				
Stream				
Pond				
Road Rut				
Corridor	✓	✓	✓	
Cave/mine				
Total				

No. of Poles X Net length

A	=	2	X	6 M
B	=	2	X	6 M
C	=	2	X	4 M
D	=		X	

Comments:

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 2	Project/Firm: Elkins Airport		Date: 7/28/2024
Location: Paved road ← ATV trail			
County: Randolph WV	State: WV	Quad:	Quadrant:
Lat/Long (DMS): N 38°54'12.2"	W 79°50'49"	Zone:	Observers: Gary Libby, Hunter Stuart

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2045	EPFU	J	M	NR	47	13.7	B/10'	—	OP	—
2	2110	LABO	A	M	TD	41	11.2	B/10'	—	0	—
3	2200	EPFU	A	M	NR	45	16.25	B/12'	—	0	—
4	2240	EPFU	A	M	NR	47	17.9	B/5'	—	0	—
5	2250	LABO	A	F	NR	42	13.5	B/8'	—	0	—
6	2250	EPFU	A	M	TD	46	17.25	B/6'	—	0	—
7	2305	EPFU	A	M	TD	46	15.2	C/6'	—	0	—
8	2315	EPFU	A	M	TD	45	15.1	B/6'	—	0	—
9	2350	EPFU	A	F	NR	47	17.5	B/16'	—	0	—
10	040	EPFU	A	M	NR	47	16.2	B/8'	—	0	—
11	040	EPFU	A	M	NR	47	15.0	B/6'	—	0	—
12	130	LABO	A	F	NR	39	13.5	B/10'	—	0	—
13	200	EPFU	A	M	NR	45	15.0	B/10'	—	0	—
14											
15											
16											
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28											
29											
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*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: waning crescent — % 39.2

	Rise	Set
Moon:	12:46 am	2:42 pm
Sun:	5:43 am	8:40 pm

Time	Temp	Sky	Wind	# Bats
2100	76	0	0	1
2200	73	0	0	1
2300	72	0	0	4
000	70	0	0	3
100	67	0	0	1
200	66	0	0	1
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 2	Project/Firm: Elkins Airport		Date: 7/29/24
Location: paved road + ATV trail			
County: Randolph WV	State: WV	Quad:	Quadrant:
Lat/Long (DMS): N 38° 54' 12.2"	W 79° 50' 49"	Zone:	Observers: Gary Libby, Hunter Stuart

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2050	EPFU	A	F	NR	46	17.2	B/10'	—	0	—
2	2100	LABO	A	M	TD	40	11.75	B/8'	—	0	—
3	2120	LABO	J	F	NR	39	10.6	A/12'	—	0	—
4	2130	EPFU	A	M	NR	46	14.75	B/8'	—	0	—
5	2145	EPFU	A	M	NR	45	16.25	B/12'	—	0	—
6	2245	EPFU	A	M	NR	48	14.8	A/12'	—	0	—
7	2340	EPFU	A	M	TD	45	15.9	C/22'	—	0	—
8											
9											
10											
11											
12											
13											
14											
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29											
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*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: Waning Crescent % 29.2

	Rise	Set
Moon:	23:54	16:16
Sun:	5:45	8:47

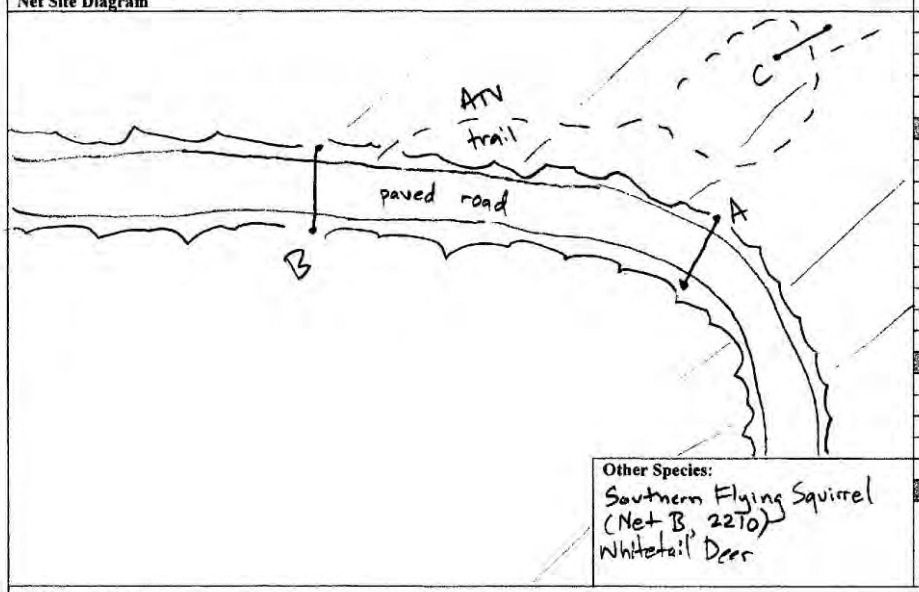
Time	Temp	Sky	Wind	# Bats
2000	72	1	0	1
2100	69	1	0	4
2200	68	1	0	1
2300	66	1	0	1
000	65	1	0	0
100	65	1	0	0
200	64	1	0	0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Site 2: 7/28/24 & 7/29/24

Net Site Diagram



Other Species:
Southern Flying Squirrel (Net B, 22TO)
Whitetail Deer

Dominant Vegetation
1 white oak
2 beech
3 Sugar maple
4
5

Net Site(s) by Habitat			
Habitat	**A**	**B**	**C**
River			
Stream			
Pond			
Road Rut			
Corridor	✓	✓	✓
Cave/mine			
Total			

No. of Poles X Net length				
A	=	3	X	6M
B	=	2	X	9M
C	=	2	X	6M
D	=		X	

Comments:

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 3	**Project/Firm:** Elkins Airport	**Date:** 07/31/2024	
Location: Off the left of Oak Lane @ hilltop into two track thru woods			
County: Randolph Co. WV	**State:** ~~KY~~WV	**Quad:**	**Quadrant:**
Lat/Long (DMS): N 38° 54' 07"	W 79° 50' 48"	**Zone:**	**Observers:** Hunter Stuart & Kaitlin Combs

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2105	EPFU	A	M	TD	46	16.0	A/2'	–	0	–
2	2125	EPFU	A	M	TD	45	17.0	A/8'	–	0	–
3	2130	EPFU	A	M	TD	47	17.5	A/10'	–	0	–
4	2130	LABO	A	F	NR	36	10.0	A/6'	–	0	–
5											
6											
7											
8											
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11											
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27											
28											
29											
30											

Moon Phase: WANING CRESENT **%** 11.8

	Rise	Set
Moon:	0131	1844
Sun:	0547	2044

Time	Temp	Sky	Wind	# Bats
2000	79	0	0	0
2100	77			4
2200	71			0
2300	68			0
0000	64			0
0100	63			0
0200	62			0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 3	**Project/Firm:** Elkins Airport		**Date:** 08/01/2024
Location: Oak, drive out two track @ first hilltop			
County: Randolph Co.	**State:** ~~KY~~ WV	**Quad:**	**Quadrant:**
Lat/Long (DMS): N 38° 54' 07"	W 79° 50' 48"	**Zone:**	**Observers:** Hunter Stuart & Gary Libby

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1	2355	LABO		Escape	@ net	–	–	B/L	–	–	–
2											
3											
4											
5											
6											
7											
8											
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28											
29											
30											

Moon Phase: **%**

	Rise	Set
Moon:	0405	1951
Sun:	0622	2030

Time	Temp	Sky	Wind	# Bats
2000	79°F	0	0	0
2100	76°F			0
2200	74°F			0
2300	70°F			0
0000	69°F			1
0100	68°F			0
0200	67°F			0
Ave				

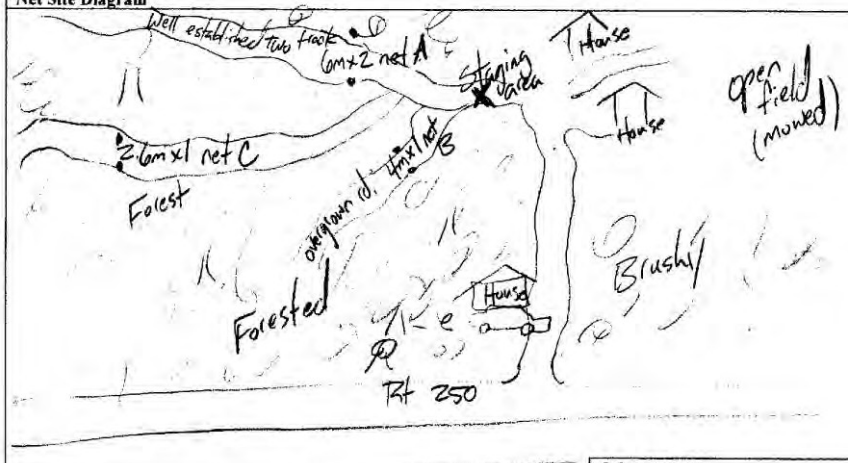
Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Site 3 07/31/24 & 08/01/24

Net Site Diagram



Other Species:

Dominant Vegetation

1	White oak
2	Pignut Hick
3	Sugar Maple
4	Yellow poplar
5	

Net Site(s) by Habitat

Habitat	A	B	C	
River				
Stream				
Pond				
Road Rut				
Corridor	✓	✓	✓	
Cave/mine				
Total				

No. of Poles X Net length

A	=	6m	X	2
B	=	4m	X	1
C	=	2.6m	X	
D	=		X	

Comments:

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 4	**Project/Firm:** Elkins Airport		**Date:** 8/02/2024 Night 1 of 2
Location: Buck Cupp farm forest block accessed by Sarlwind Jumpstreet			
County: Randolph, WV	**State:** ~~KS~~ WV **Quad:** 38° 53' 5.4"		**Quadrant:** 79° 51' 52.4"
Lat/Long (DMS): N	W	**Zone:**	**Observers:** Hunter Stuart & Tim Eaton

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1		no bats captured									
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
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24											
25											
26											
27											
28											
29											
30											

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: %

	Rise	Set
Moon:	0511	2023
Sun:	0623	2029

Time	Temp	Sky	Wind	# Bats
2000	76°F	0	0	0
2100	74°F	0		
2200	72°F	0		
2300	70°F	1		
0000	69°F	1		
0100	68°F	0		
0200	67°F	0		
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 4	**Project/Firm:** Elkins Airport	**Date:** 6/03/2024 night 2 of 2	
Location: Corner road off between Topsoil Farm property & campground			
County: Randolph Co.	**State:** WV **Quad:**	**Quadrant:**	
Lat/Long (DMS): N	W	**Zone:**	**Observers:** Hunter Stuart & Zay Eaton

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1		No bats captured									
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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23											
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26											
27											
28											
29											
30											

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: %

	Rise	Set
Moon:	0515	2032
Sun:	0622	2027

Time	Temp	Sky	Wind	# Bats
2000	74°F	1	0	0
2100	73°F	1		
2200	70°F	1		
2300	67°F	1		
0000	66°F	1		
0100	66°F	1		
0200	65°F	1		
Ave				

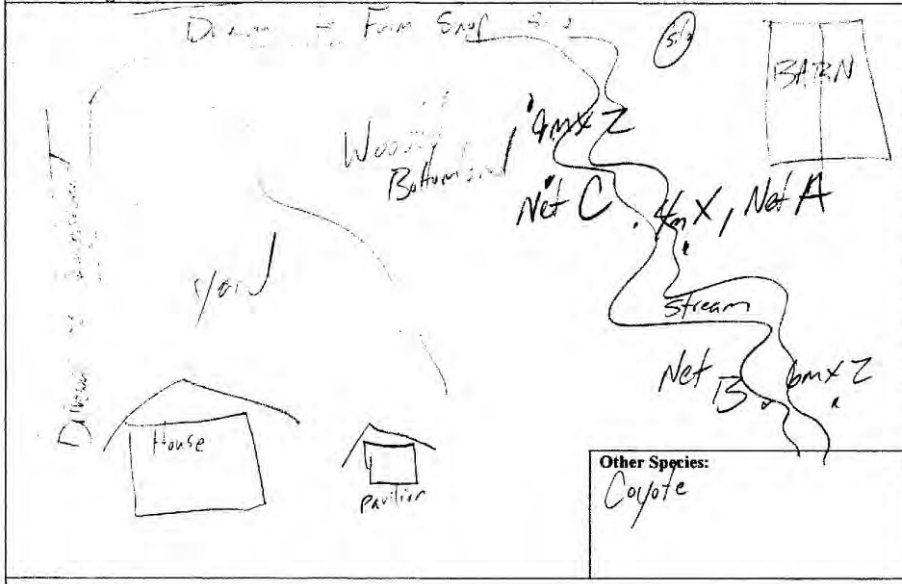
Sky Code

0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code

0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Net Site Diagram



Dominant Vegetation

1	
2	Poplar
3	White Oak
4	Black cherry
5	

Net Site(s) by Habitat

Habitat	A	B	C	
River				
Stream	✓	✓	✓	
Pond				
Road Rut				
Corridor				
Cave/mine				
Total				

No. of Poles X Net length

A	=		**X**	
B	=		**X**	
C	=		**X**	
D	=		**X**	

Comments:

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 5	**Project/Firm:** Elkins Airport		**Date:** 8/2/24
Location: bottomland forest along Arnold Hill Road			
County: Randolph WV	**State:** WV	**Quad:**	**Quadrant:**
Lat/Long (DMS): N38.88349	W79.86214	**Zone:**	**Observers:** Gary Libby, J. Harrison

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1		No bats captured									
2											
3											
4											
5											
6											
7											
8											
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*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: Waning crescent — % 1.9 Mo

	Rise	Set
Moon:	3:17 am	7:39 pm
Sun:	5:50 am	8:42 pm

Time	Temp	Sky	Wind	# Bats
2000	78	1	0	0
2100	75	1	0	0
2200	73	1	0	0
2300	69	1	0	0
000	68	1	0	0
100	67	1	0	0
200	66	1	0	0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Appendix 3. Sample Data Sheets for Indiana Bat Surveys

Site No. 5	Project/Firm: Elkins Airport		Date: 8/3/24
Location: bottomland forest along Arnold Hill Road			
County: Randolph WV	State: WV	Quad:	Quadrant:
Lat/Long (DMS): N 38.88349	W 79.86214	Zone:	Observers: Gary Libby, J. Harrison

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Ht	Guano/ Hair	Wing Score	Band # Type
1		No bats captured									
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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30											

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase: new moon	% 0.1 %	
	Rise	Set
Moon:	4:28 am	8:50 pm
Sun:	5:51 am	8:40 pm

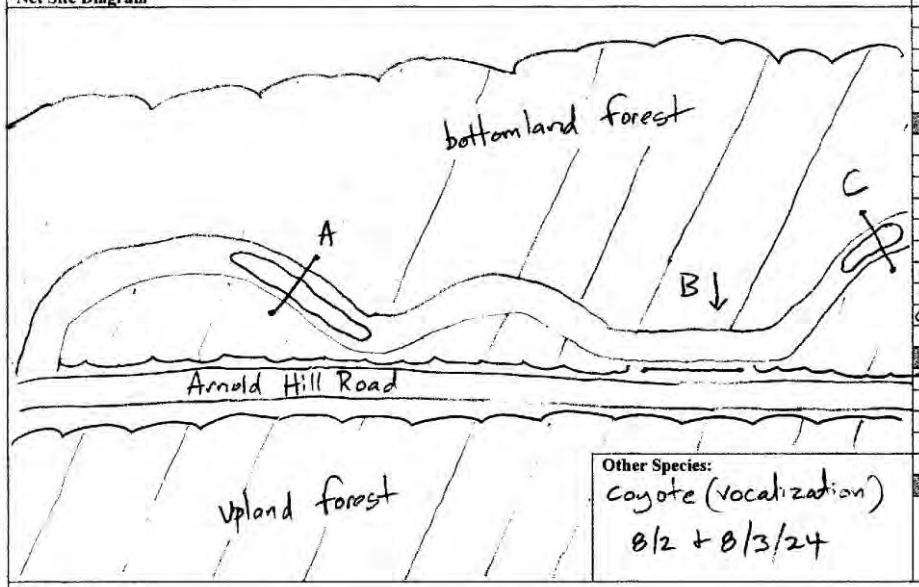
Time	Temp	Sky	Wind	# Bats
2000	72	1	0	0
2100	70	1	0	0
2200	69	1	0	0
2300	68	1	0	0
000	66	1	0	0
100	65	1	0	0
200	64	1	0	0
Ave				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

Site 5 - 8/2/24 + 8/3/24

Net Site Diagram



Other Species:
Coyote (vocalization)
8/2 + 8/3/24

Dominant Vegetation

1	red maple
2	beech
3	ironwood
4	red elm
5	

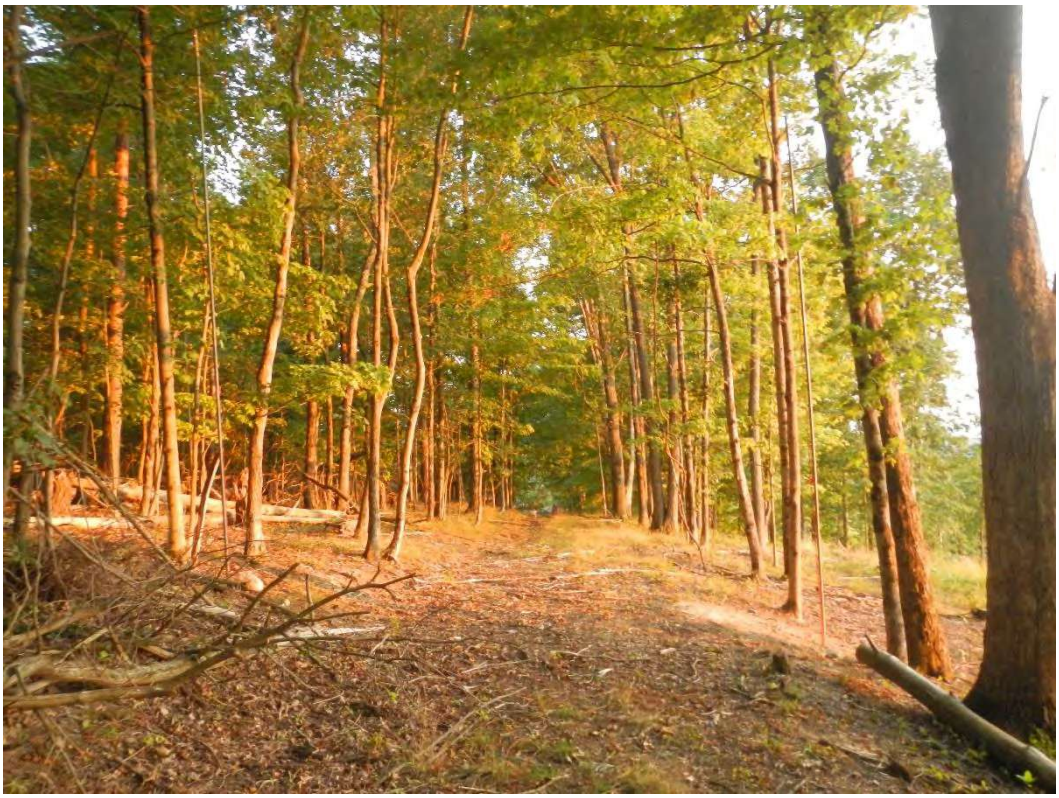
Net Site(s) by Habitat

Habitat	A	B	C
River			✓
Stream	✓		
Pond			
Road Rut			
Corridor			
Cave/mine			
Gap		✓	
Total			

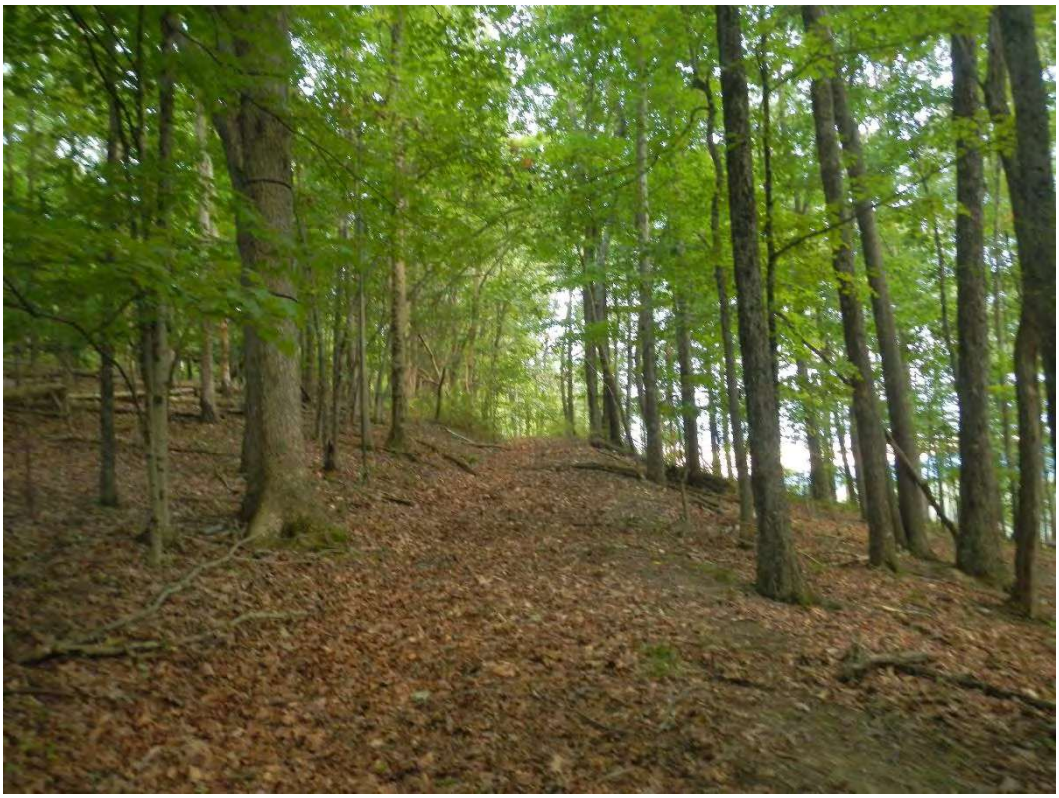
No. of Poles X Net length

A	=	2	X	6M
B	=	2	X	6M
C	=	1	X	9M
D	=		X	

Comments:



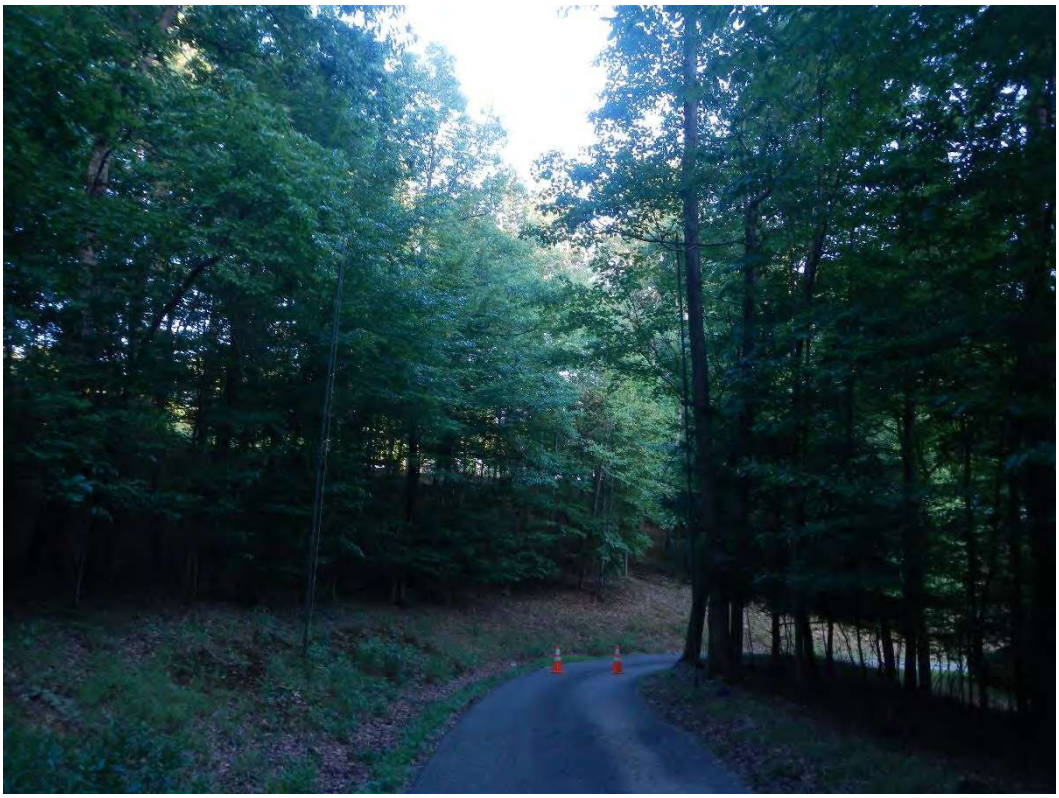
Site 1, Net A



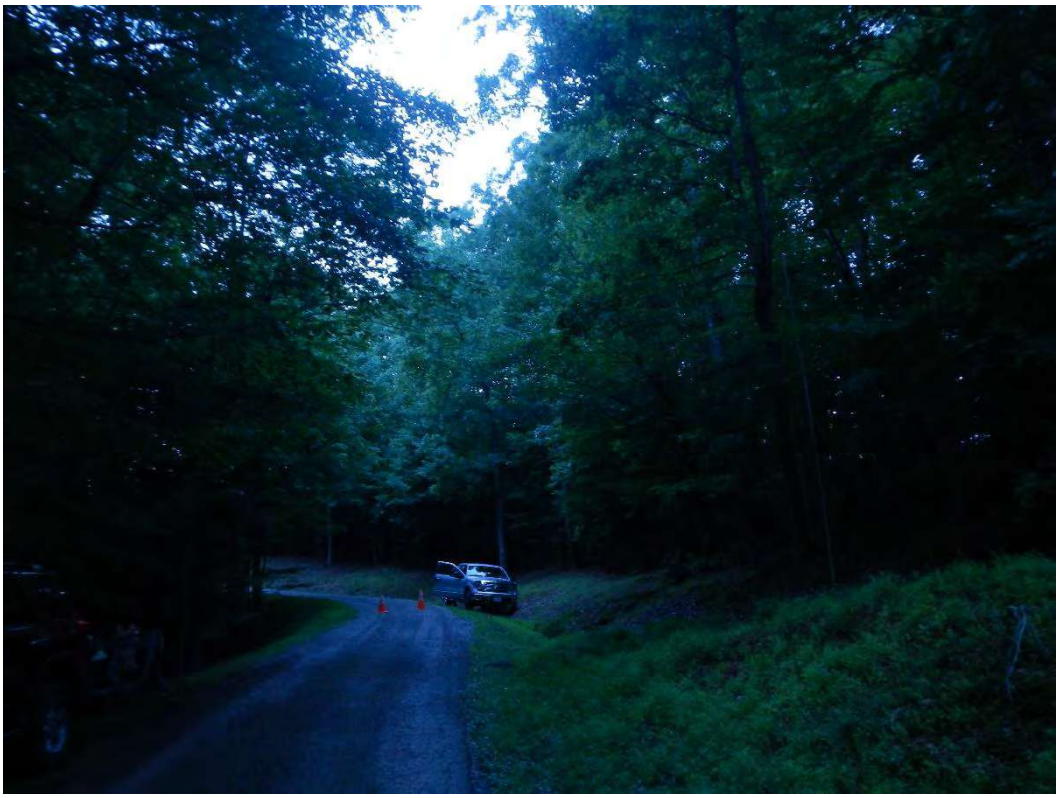
Site 1, Net B



Site 1, Net C



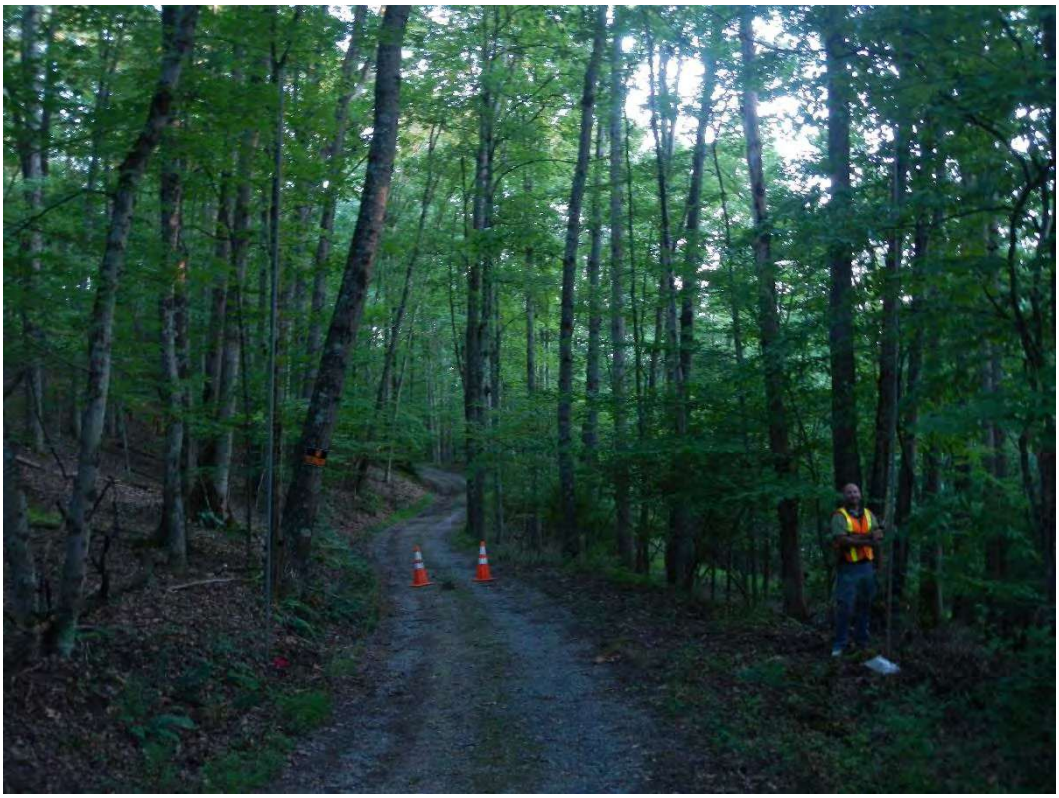
Site 2, Net A



Site 2, Net B



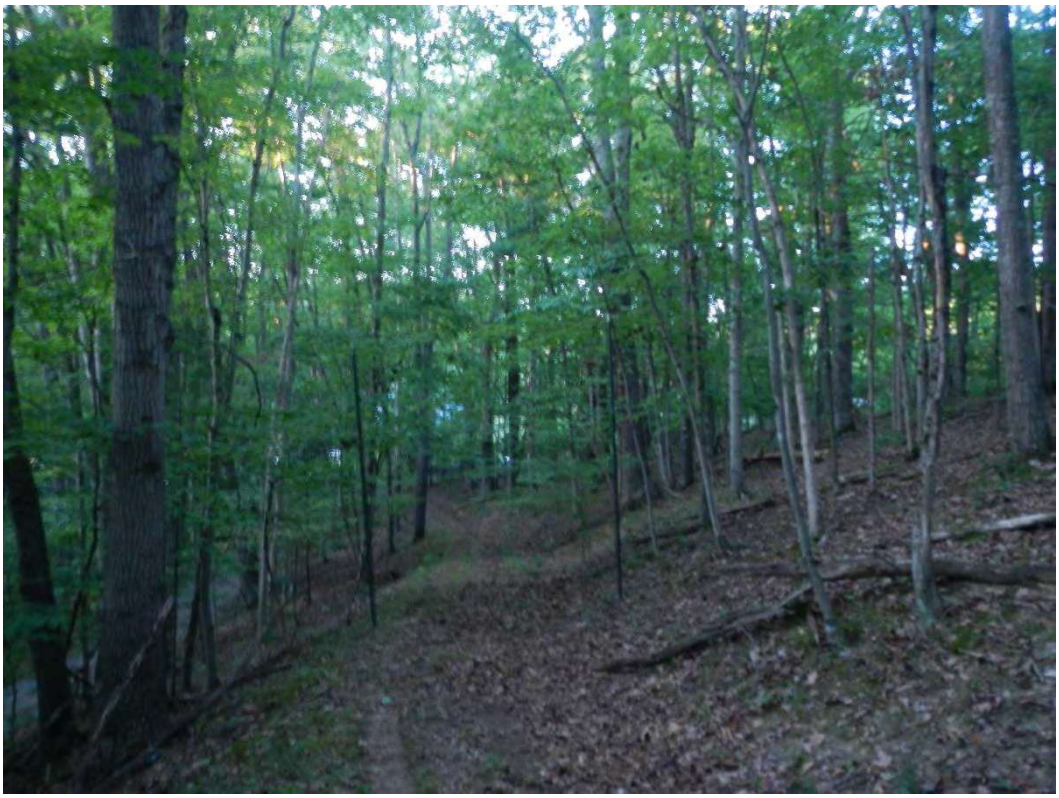
Site 2, Net C



Site 3, Net A



Site 3, Net B



Site 3, Net C



Site 4, Net A



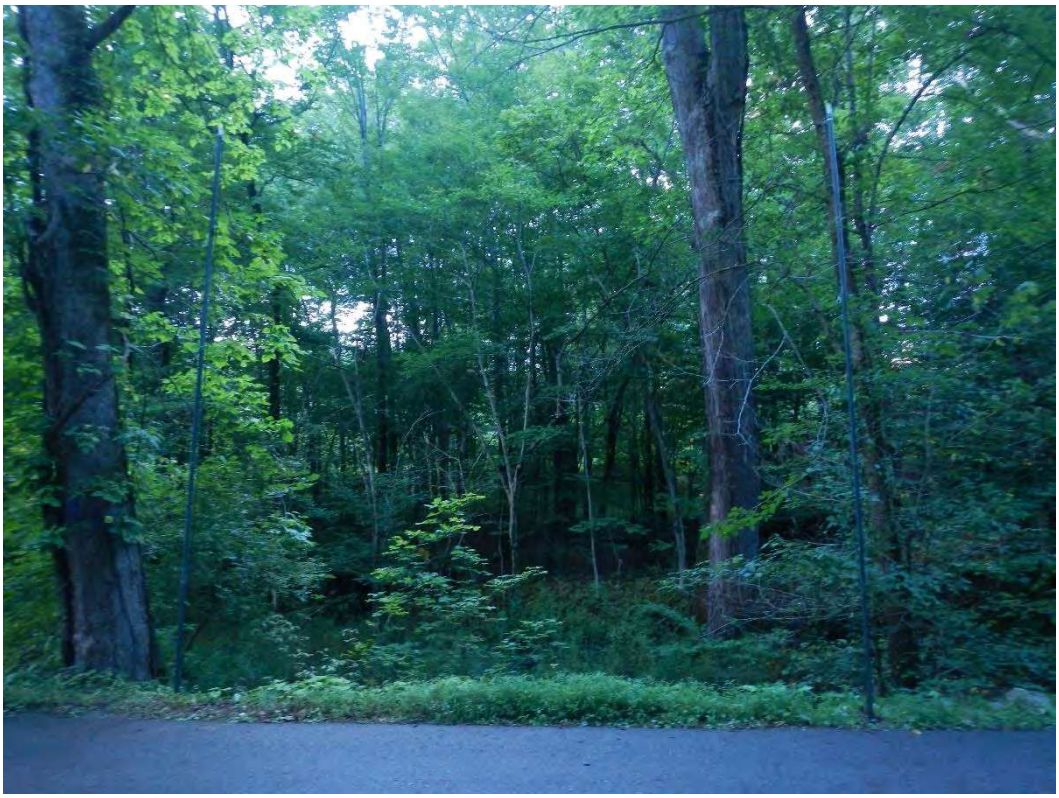
Site 4, Net B



Site 4, Net C



Site 5, Net A



Site 5, Net B



Site 5, Net C



Big Brown Bat (*Eptesicus fuscus*) captured at Site 2



Big Brown Bat (*Eptesicus fuscus*) captured at Site 2



Eastern Red Bat (*Lasiurus borealis*) captured at Site 2



Eastern Red Bat (*Lasiurus borealis*) captured at Site 2



Eastern Red Bat (*Lasiurus borealis*) captured at Site 2

From: Tammy L Sherwin
To: Kelly L Eismont; Lee Garner
Subject: FW: [EXTERNAL] Elkins-Randolph County Regional Airport
Date: Friday, August 9, 2024 11:15:18 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png

USFWS response to Bat Survey.

From: Runner, Anna H <anna_runner@fws.gov>
Sent: Friday, August 9, 2024 10:46 AM
To: Melissa A Defibaugh <madefibaugh@transystems.com>
Cc: Tammy L Sherwin <tlsherwin@transystems.com>; West Virginia FO, FW5 <FW5_WVFO@fws.gov>
Subject: RE: [EXTERNAL] Elkins-Randolph County Regional Airport

Melissa,

The U.S. Fish and Wildlife Service, West Virginia Field Office (WVFO), has received the results of your August 2024 survey report for the above referenced project. These comments are provided pursuant to the Endangered Species Act (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

It is the WVFO's understanding that no federally listed bats were observed during the survey effort. Survey results are considered valid for 5 years from the date of completion. If the project is not completed before that time, additional survey efforts may be requested.

This email provides technical assistance only and does not serve as a completed Section 7 consultation document. If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no project construction activities on any portion of the parcel should occur until consultation under Section 7 of the ESA, between the U.S. Fish and Wildlife Service (Service) and the federal action agency, is completed. Section 7 consultation is not complete until the federal action agency submits a determination of effects to this office, and the WVFO concurs with the federal action agency's determination. If there is no federal nexus associated with this project, then no further coordination with this office is required.

Please note that if any federally listed species are found during any future survey, this technical assistance may no longer be applicable. You should immediately contact the Service and reinitiate consultation before proceeding with any further project efforts. If the project plans change or amendments be proposed that we have not considered in your proposed action, or if additional information on listed and proposed species becomes available, or if new species become listed or critical habitat is designated, this technical assistance may be reconsidered.

If you have any questions regarding this email, please contact the biologist listed below at *anna_runner@fws.gov*.

Thank you,

Anna H. Runner
Supervisory Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6263 Appalachian Highway
Davis, West Virginia 26260
304-866-3858

From: Melissa A Defibaugh <madefibaugh@transystems.com>
Sent: Thursday, August 8, 2024 3:55 PM
To: Runner, Anna H <anna_runner@fws.gov>
Cc: Tammy L Sherwin <tlsherwin@transystems.com>
Subject: [EXTERNAL] Elkins-Randolph County Regional Airport

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Anna-

Good afternoon! Please find attached the report of the bat mist net survey completed August 3 for the Elkins-Randolph County Regional Airport.

The small whorled pogonia survey is scheduled to start on August 19.

Please let us know for any comments, questions or concerns.

Thanks so much!

Melissa

Melissa A Defibaugh, PE
Project Manager

c: 304-481-6136 | o: 814-472-7700
Gannett Fleming TranSystems
Ebensburg, PA 15931
www.transystems.com



Note: The information contained in this transmission as well as all documents transmitted herewith are privileged and confidential information. This information is intended only for the use of the individual or entity to whom it was sent, and the recipient is obliged to protect this information as appropriate. If the recipient of the e-mail, and/or the documents attached is not the intended recipient, you are hereby notified that any dissemination, distribution or reproduction, copy, or storage of this communication is strictly prohibited. Thank you.

APPENDIX E
SMALL WHORLED POGONIA SURVEY REPORT (2024)

Work Plan for Federally Listed Small Whorled Pogonia Survey

Elkins-Randolph County Regional Airport - Obstruction Removal (Runway 5-23) Project

Project Name	Elkins-Randolph County Regional Airport - Obstruction Removal (Runway 5-23) Project
IPaC Project Code	2024-0053235
Submitted to	U.S. Fish and Wildlife Service (USFWS) West Virginia Division of Natural Resources (WVDNR)
Attn:	Anna H. Runner, Supervisory Fish and Wildlife Biologist (USFWS) John Q, Burkhart, Natural Heritage Botanist (WVDNR)
Date Submitted	July 19, 2024
Proposed Survey Method	Procedures for Conducting Surveys for Federally Threatened or Endangered Plants in West Virginia located at https://www.fws.gov/media/west-virginia-plant-survey-guidelines
Proposed Survey Dates	July 2024 thru September 2024 or May 2025 thru September 2025
Proposed by	Tammy L. Sherwin Environmental Manager TranSystems 437 Grant Street, Suite 812 Pittsburgh, PA 15219 cell: 724-759-3662 d: 412-430-4081 tlsherwin@transystems.com

TranSystems has been contracted to permit and perform obstruction removal at the Elkins-Randolph County Regional Airport. Obstruction removal will entail the removal of tree, silo and tower obstructions to Runway 5 and Runway 23 approaches. The limits of disturbance total approximately 30.64 acres and are located within a mix of residential properties and wooded areas south of the City of Elkins. Approximately 30.64 acres of trees will be removed or trimmed. The Survey Area is presented in Figure 1.

A survey for federally listed plant species Small Whorled Pogonia (*Isotria medeoloides*) and Running Buffalo Clover (*Trifolium stoloniferum*) was previously conducted in the Survey Area on July 16, July 17 and September 9, 2019, by Skybax Ecological Services, LLC. The federally listed plant species were not observed in the course of that survey; negative surveys, however, are only considered valid for two full survey periods from the year of the survey. The West Virginia Field Office of the United States Fish and Wildlife Service (USFWS) requests that an additional survey be completed for Small Whorled Pogonia. The USFWS removed Running Buffalo Clover from the list of endangered and threatened plants in 2021.

Survey Methods

Botanist Loree Speedy of TranSystems will perform the survey and will be present in the field at all times during the surveys. Lee Garner, Environmental Scientist, and William Zemaitis, Environmental Specialist, will assist in the survey.

Ms. Speedy is on the list of Individuals Qualified to Conduct Surveys for Federally Listed Plant Species in West Virginia, Updated December 2020, for Small Whorled Pogonia, Running Buffalo Clover and Virginia Spiraea. She has over twenty years of experience in conducting surveys for rare, threatened and endangered plants in Pennsylvania and West Virginia. She has observed three separate populations of Small Whorled Pogonia, and has been part of a team involved in the discovery and documentation of two of those populations in Tucker County, WV.

Within the Survey Areas presented in Figure 1, a meander-style botanical survey method will be conducted by walking the Survey Areas in continuous, yet targeted transects. Small Whorled Pogonia occurs in a variety of forested habitat types in West Virginia, and is currently known from mixed-deciduous or mixed-deciduous/coniferous forests that are generally in second- or third-growth successional stages. It is likely all or most forested habitats within the Survey Area will be considered potential habitat.

TranSystem's surveyors will describe habitats present within the Survey Areas and will take representative photographs of each habitat type. They will also record all plant species observed in the course of the survey.

Survey Periods

The survey will occur in the July 2024 through September 2024 or May 2025 through September 2025 survey seasons depending on timing of approval of the work plan and available funds. The acceptable survey period for identifying Small Whorled Pogonia within West Virginia is May 1 through September 30.

Procedures for Reporting Results and Potential Detections of Federally Listed Species

If Small Whorled Pogonia or any other federally Threatened or Endangered Plant species is encountered within the project area during the survey, TranSystem's surveyors will map the centroid of a population (or sub-population) with a point, and delineate the boundaries of each population or sub-population with a polygon. Populations will be mapped with a Trimble Geo XH Explorer, a handheld GPS unit that delivers sub-foot accuracy.

The populations will be photo-documented with photographs sufficient to confirm species identification. Photographs of the immediate habitat will also be included.

Using the standard form for gathering rare plant element field data found at the West Virginia Division of Natural Resources website, the following will be described in writing:

1. habitat conditions;
2. the number of reproductive and non-reproductive individual stems of each population or sub-population; and
3. the areal extent of each population or sub-population.

Representatives from the WVDNR and WVFO will be contacted within 48 hours. TranSystems will coordinate with the project proponent and the State and Federal Wildlife agencies to determine if additional areas should be surveyed and to address alternatives and avoidance measures.

TranSystems will submit a written report of the survey results (even if no federally listed species are located) that provides

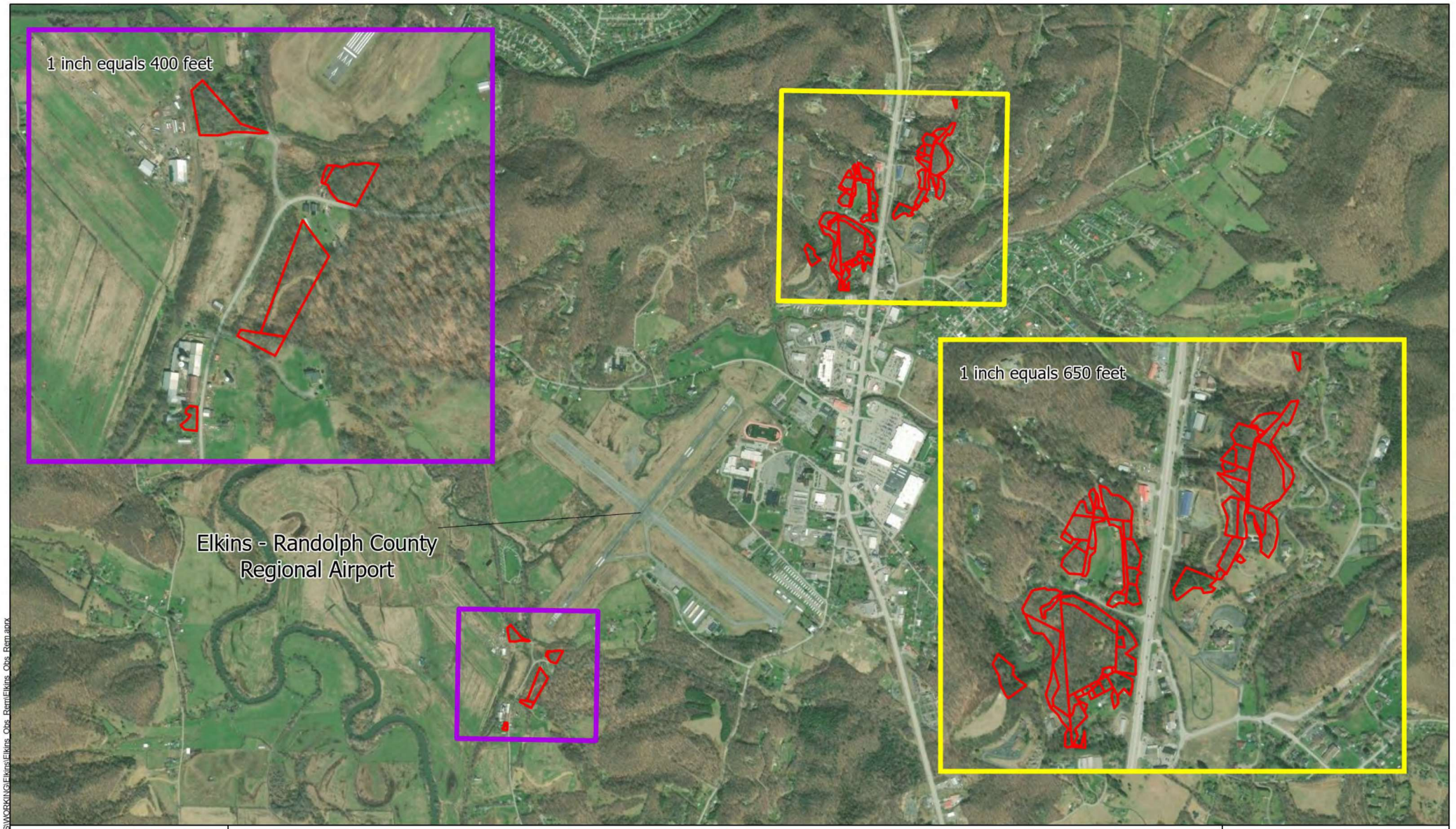
1. a description of the proposed project;

2. map and geographical shapefiles of all areas within the project covered by the survey (including high probability areas for Small Whorled Pogonia);
3. dates that the surveys were conducted;
4. TranSystems personnel who conducted the surveys;
5. methods used to conduct the survey;
6. descriptions of habitats present on the site;
7. photo documentation of each habitat type encountered during the survey;
8. a list of plant species encountered in the course of the survey;
9. photo documentation of "look-alikes" or plant species that look similar to Small Whorled Pogonia (e.g., Large Whorled Pogonia (*Isotria verticillata*) and Indian Cucumber Root (*Medeola virginiana*); and
10. if Small Whorled Pogonia or any other federal listed plant species is observed, habitat descriptions, population numbers and areal extents as described above. GIS shapefiles and printed maps of the populations will be included.

Digital and written reports will be sent to WVDNR and WVFO at:

WVDNR
John Q. Burkhart
Natural Heritage Botanist
Elkins Operation Center
P.O. Box 67
738 Ware Road
Elkins, WV 26241
(304) 637-0245; john.q.burkhart@wv.gov

USFWS, WVFO
Anna H. Runner
Supervisory Fish and Wildlife Biologist
6263 Appalachian Highway
Davis, WV 262601
(304) 866-3858; anna_runner@fws.gov



Elkins-Randolph County Regional Airport
Obstruction Removal Project
Elkins, West Virginia
Figure 1 - Project Overview Map (Aerial)

N
0 500 1,000 1,500 2,000 2,500 Feet

Tree Obstruction Removal Area

TRANSYSTEMS

July 2024

Source: ESRI

C:\Users\jparnell\Desktop\GIS\WORKING\Elkins\Elkins_Obs_Rem\Elkins_Obs_Rem.aprx

SMALL WHORLED POGONIA SURVEY REPORT

For the proposed:

Elkins-Randolph County Regional Airport
Obstruction Removal (Runway 5-23) Project
Elkins, West Virginia

Prepared By:

TranSystems
615 West Highland Avenue
PO Box 1000
Ebensburg, PA 15931

September 2024

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FIGURES

Figure 1 – Study Areas Map
Figure 2A – Habitat Types Observed in Botanical Survey Map
Figure 2B – Habitat Types Observed in Botanical Survey Map

APPENDICES

Appendix A – Photograph Log

Introduction

TranSystems environmental staff conducted a Botanical Survey for Federally Listed Small Whorled Pogonia for the proposed Elkins-Randolph County Regional Airport - Obstruction Removal (Runway 5-23) Project in wooded and treed areas surrounding the Elkins-Randolph County Regional Airport in Randolph County, West Virginia. A Technical Assistance letter dated February 23, 2024, from the West Virginia Ecological Services Field Office of the U.S. Fish & Wildlife Service (USFWS) indicates that the Project may affect the Federally Threatened plant species, Small Whorled Pogonia (*Isotria medeoloides*). Subsequent consultation with the USFWS requested a botanical survey for Small Whorled Pogonia be conducted in accordance with Procedures for Conducting Surveys for Federally Threatened or Endangered Plants in West Virginia located at https://www.fws.gov/media/west-virginia-plant-survey-guidelines.

A work plan was prepared by TranSystems and approved by the USFWS via email dated August 5, 2024. The botanical survey for SWP was conducted on August 19, 20 and 21, 2024, by TranSystems. The federally listed Small Whorled Pogonia plant species was not observed in the Study Area in the course of the botanical survey.

Project Background

TranSystems has been contracted to perform obstruction removal at the Elkins-Randolph County Regional Airport. Obstruction removal will entail the removal of tree, silo and tower obstructions to Runway 5 and Runway 23 approaches. The areas of tree removal include approximately 30 acres and are located within a mix of residential properties and wooded areas south of the City of Elkins. The Survey Area is presented in Figure 1.

A survey for federally listed plant species Small Whorled Pogonia (*Isotria medeoloides*) and Running Buffalo Clover (*Trifolium stoloniferum*) was previously conducted in the Survey Area on July 16, July 17 and September 9, 2019, by Skybax Ecological Services, LLC. The federally listed plant species were not observed in the course of that survey; negative surveys, however, are only considered valid for two full survey periods from the year of the survey. The West Virginia Field Office of the USFWS requested that an additional survey be completed for Small Whorled Pogonia. The USFWS removed Running Buffalo Clover from the list of endangered and threatened plants in 2021.

The Study Area is comprised of nine separate polygons north and south of the Elkins-Randolph County Regional Airport. Removal of silos and power poles south of the airport within farmyard is also a component of the Project. Elevations in the study area range from 1960 to 2080 feet. Tributaries of Chenoweth Creek drain the polygons south of the airport; polygons to the north of the airport are within the headwaters of Chenoweth Creek (a tributary of Tygart Valley River).

The Study Area is in the upper slopes and ridges of the hills south of the city of Elkins, West Virginia, in the valley of the Tygart Valley River. It lies within the Northern Shale Valleys Level IV ecoregion in the Ridge and Valley. The Northern Shale Valleys ecoregion is characterized by rolling valleys and low hills and is underlain mostly by shale, siltstone, and fine-grained sandstone.

Survey Methods

Botanist Loree Speedy and Environmental Specialist William Zemaitis of TranSystems conducted the botanical survey on August 19, 20 and 21, 2024. These dates are within the acceptable survey periods (May 1 – September 30) for identifying Small Whorled Pogonia in West Virginia as indicated in Procedures for Conducting Surveys for Federally Threatened or Endangered Plants in West Virginia located at https://www.fws.gov/media/west-virginia-plant-survey-guidelines. Ms. Speedy is on the list of Individuals Qualified to Conduct Surveys for Federally Listed Plant Species in West Virginia for Small Whorled Pogonia. She has over twenty years of experience in conducting surveys for rare, threatened and endangered plants in Pennsylvania and West Virginia. She has observed three separate populations of Small Whorled Pogonia and has been part of a team involved in the discovery and documentation of two of those populations in Tucker County, WV.

Within the Survey Areas presented in Figure 1, a meander-style botanical survey method was conducted by walking the Survey Areas in continuous, yet targeted transects. Small Whorled Pogonia occurs in a variety of forested habitat types in West Virginia and is currently known from mixed-deciduous or mixed-deciduous/coniferous forests that are generally in second- or third-growth successional stages. The surveyors assessed habitat types present within the Survey Areas and took representative photographs of each habitat type. They recorded all plant species encountered.

Two habitat types described below were deemed somewhat to moderately high probability areas for SWP; those areas were searched thoroughly. They are labeled FLOODPLAIN (0.7 acres) and OAK (9.3 acres) on Figures 2A and 2B.

"Look-alike" plant species such as Large Whorled Pogonia (*Isotria verticillata*) and Indian Cucumber Root (*Medeola virginiana*) were not observed.

The TranSystems surveyors were prohibited from entering the property parcel labeled NO ACCESS on Figure 2A. The parcel was observed and photographed from a logging road just outside the northwestern boundary of the parcel. The habitat appeared to be an oak forest impacted by residential development. See Photographs 14 through 17 in Appendix A.

Survey Results

During the botanical survey, the federally listed Small Whorled Pogonia plant species was not observed in the Study Area.

Habitat Types and Plant Species Encountered

Habitat types encountered in the course of the survey are mapped on Figures 2A and 2B.

OAK – Oak Forest (9.20 acres)

Habitat areas labeled OAK (Sites A. B and C) comprise a habitat type with minimal impact from agricultural, industrial, or residential development. Logging has occurred at least once in the past. This forest habitat type is a closed canopy forest in the region's moderately sloped upland hills and is often attached to a larger forested block. The presence of white pine and a variety of oak and hickory species with patches of heath shrubs can be described as a Northeastern Interior Dry-Mesic Oak Forest as classified by NatureServe. This ecosystem likely extended throughout the mid-elevation hills north and south of Elkins pre-settlement.

White pine (*Pinus strobus*), white and red oaks (*Quercus alba* and *Q. rubra*), mockernut hickory (*Carya tomentosa*) and red maple (*Acer rubrum*) are common trees in the canopy, and range in size from 9 inches dbh (diameter-breast-height) to 1.5 feet dbh. Chestnut oak (*Quercus montana*), shagbark hickory (*Carya ovata*) and black gum (*Nyssa sylvatica*) are occasional. The past logging regimes appear less disruptive, and the forest trees fall in diverse size classes. Many oaks have sprouted from stumps.

The shrub layer is present but not dense and includes witchhazel (*Hamamelis virginiana*), American hornbeam (*Carpinus caroliniana*), American beech (*Fagus grandifolia*), with deerberry (*Vaccinium stamineum*) and Blue Ridge blueberry (*V. pallidum*) as subshrubs.

The herb layer is sparse with coverage ranging from 10% to 30% but well-vegetated patches are occasional. Herbaceous plants characteristic of the acidic infertile soils include teaberry (*Gaultheria procumbens*), partridgeberry (*Mitchella repens*), downy rattlesnake plantain (*Goodyera pubescens*), cat greenbrier (*Smilax glauca*), fan clubmoss (*Lycopodium digitatum*) and Swan's sedge (*Carex swanii*). The lack of a herbaceous layer may be due to several factors; soil acidity, prior logging practices and heavy deer browse. Roundleaf greenbrier (*Smilax rotundifolia*), a preferred deer food, was often browsed. Any tree seedlings present were often less than 6 inches tall. Forest herbs like bellworts (*Uvularia* spp.), Canada mayflower (*Maianthemum canadense*), false solomon's seal (*M. racemosum*), and Jack in the pulpit (*Arisaema triphyllum*) were observed infrequently; they had not produced fruits and appear stunted. Some unique herbs observed in the OAK habitat type include pinesap (*Monotropa hypopitys*), Canadian lousewort (*Pedicularis canadensis*), and arrowleaf violet (*Viola sagittata*).

This habitat type was deemed a somewhat to moderately high probability for the presence of Small Whorled Pogonia. The relatively sparse herbaceous layer was searched thoroughly. The Oak Forests habitat is represented in Photographs 1 through 7 in Appendix A.

OAK-RES and OAK-CUT: Oak Forest impacted by residences and timbering (9.68 acres total)

Areas labeled OAK-RES (5.58 acres) and OAK-CUT (4.12 acres) are areas of the dry-mesic oak forest habitat with more anthropogenic impact. The OAK-RES habitats are within fragmented woodlots and adjacent to large lot home sites. The tree canopy is intact and similar in size to the OAK habitat described above, but the shrub and herbaceous layers are depauperate in the interior; forbs include poverty rush (*Juncus tenuis*) and Indian-tobacco (*Lobelia inflata*) along with browsed or stunted native herbs of the OAK habitat above. Woody debris is usually absent, and ATV trails and walking paths are throughout. The light-filled edges of lawns, utility rights-of-way, and roads include Japanese meadowsweet (*Spiraea japonica*),

autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), white snakeroot (*Ageratina altissima*) and common periwinkle (*Vinca minor*).

The NO ACCESS property parcel that was observed from the logging road along its northwestern boundary appeared to be a continuation of this habitat type surveyed just south of the parcel. Woodpiles and residential debris were observed; significant light entered from the edge habitat along a residential lawn. The herbaceous layer was sparse beneath woody debris. See photographs 14 through 17 in Appendix A.

The Oak Forest habitat impacted by residences is represented in Photographs 12 through 18 in Appendix A.

Areas labeled OAK-CUT have been recently clear-cut or heavily timbered. Bare shaly soils are exposed in the logging roads. The remnant canopy includes red maples, black gum and red oak. The opening of the canopy has allowed a dense cover of Pennsylvania and Allegheny blackberries (*Rubus pensylvanica* and *R. allegheniensis*), with devil's walkingstick (*Aralia spinosa*), Japanese barberry (*Berberis thunbergiii*) and pokeweed (*Phytolacca americana*). The herbaceous layer is a diverse collection of abundant weedy natives and non-natives: wrinkleleaf goldenrod (*Solidago rugosa*), deertongue (*Dichanthelium clandestinum*), cypress panicgrass (*D. dichotomum*), common cinquefoil (*Potentilla simplex*), burnweed (*Erechtities hieracifolia*), and many others.

The southern-most OAK-CUT Site D polygon has a number of emergent wetlands dominated by rice cutgrass (*Leersia oryzoides*) and ruderal wetland species such as jewelweed (*Impatiens capensis*), bulrushes (*Scirpus atrovirens* and *S. polyphyllus*) and fowl mannagrass (*Glyceria striata*). The wetlands lie along drainages below the moderate slope and appear to be groundwater-fed.

The Oak Forest habitat impacted by recent timbering is represented in Photographs 19 through 23 in Appendix A.

RUDERAL: Ruderal Forest (10.06 acres)

Portions of the Study Area mapped as RUDERAL were once subjected to heavy human disturbance to the soils, likely by cattle grazing, and have succeeded spontaneously with a mix of weedy and generalist native and exotic tree species. Oaks and hickories are missing from the canopy. This tree-dominated stage of agricultural succession is invaded by privet (*Ligustrum vulgare*), Morrow's honeysuckle (*Lonicera morrowii*) and Japanese barberry in the understory.

RUDERAL Sites A and B are almost completely dominated by white pine in the overstory that measure one to 1.5 foot dbh. Red maple and other hardwoods are interspersed in the subcanopy. Sassafras (*Sassafras albidum*), American holly (*Ilex opaca*) and flowering dogwood (*Cornus florida*) are present. In spite of their invasiveness, privet and shrub honeysuckle shrubs remain short beneath a shaded continuous conifer canopy. The dominance of white pine leaves a thin layer of pine duff over very compacted soils. The sparse herbaceous layer includes non-native species like wild basil (*Clinopodium vulgare*) and orchard grass (*Dactylis glomerata*), as well as native species like wild licorice (*Galium circaezens*) and partridgeberry.

RUDERAL Sites C and D are dominated by generalist hardwood trees like black cherry (*Prunus serotina*), black locust (*Robinia pseudoacacia*), boxelder (*Acer negundo*), and black walnut (*Juglans nigra*), as well as conifers like white pine and exotic Norway spruce (*Picea abies*). Light from the deciduous canopy and edge and hedgerow habitat along the highway and residences allow for a dense exotic shrub understory of autumn olive and Morrow's honeysuckle. Patches of Japanese stiltgrass (*Microstegium vimineum*) and common bugle (*Ajuga reptans*) are common. Where the canopy was more open; weedy native species such as wingstem (*Verbesina alternifolia*) and hairy wildrye (*Elymus villosus*) thrived in the partial light.

The Ruderal Forest habitat is represented in Photographs 24 through 29 in Appendix A.

FLOODPLAIN - Floodplain Forest (0.74 acres)

A first-order perennial stream tributary of Chenoweth Creek flowed through a polygon of the Study Area south of the airport labeled FLOODPLAIN. The wooded floodplain is dominated by mature American beech and white oak measuring 1.5 to 2 feet dbh and seventy to eighty feet tall. Sugar maple (*Acer saccharum*), mockernut hickory, and American elm (*Ulmus americana*) are codominant. A shrub layer of boxelder, American hornbeam and black birch (*Betula lenta*) provides deep shade. A less shaded streamside buffer supports full herbaceous cover of sweet woodreed (*Cinna arundinacea*), clearweed (*Pilea pumila*) and golden ragwort (*Packera aurea*). Coverage of the interior herbaceous layer ranges from 20 to 40 percent and is diverse: New *York fern (Thelypteris noveboracensis*), golden ragwort, seedlings of white ash (*Fraxinus americana*), and white wood aster (*Eurybia divaricata*).

This habitat of maturing mixed hardwoods with a diverse understory was deemed to have a somewhat to moderately high probability for the presence of Small Whorled Pogonia; the herbaceous layer was searched thoroughly. The Floodplain Forest habitat is represented in Photographs 8 through 9 in Appendix A.

MESIC - Mesic Forest (0.83 acres)

The Study Acre polygon labeled MESIC is a steep, northeast-facing mesic forested slope that lies between a residential man-made pond, and old field and a forested slope to the north. The moister soils harbor a canopy of scattered tall and 2-foot dbh sugar maple, tuliptree (*Liriodendron tulipifera*), and eastern hemlock (*Tsuga canadensis*). Spicebush (*Lindera benzoin*) and Japanese barberry are abundant in the shrub layer, and the herbaceous layer includes intermediate woodfern (*Dryopteris intermedia*), Christmas fern (*Polystichum acrosticoides*) and bristly dewberry (*Rubus hispidus*), with coverage ranging from 40 to 75%. Summer grape (*Vitis aestivalis*) and oriental bittersweet (*Celastrus orbiculatus*) cover the trees in the edge habitat. The vegetation was more diverse in this slope; but generalist herbs like white snakeroot and common blue violet (*Viola sororia*) are more prevalent than rich herb species like Jack in the pulpit.

The Mesic Forest habitat is represented in Photographs 10 through 11 in Appendix A.

<u>Other Habitats</u> (0.37 acres)

South of the Elkins-Randolph County Regional Airport, within a farm and residence along Arnold Hill Road, the habitat within a farmyard and surrounding two silos site and a power pole are within highly disturbed soils that do not support native herbaceous vegetation. These ruderal areas are currently managed for farming operations or lawns. See Photographs 30 through 33 in Appendix A.

Table 1 provides a complete list of 188 plant species encountered in the course of the botanical survey and habitat assessment on August 19, 20 and 21, 2024.

Table 1: Plant Species Observed in Study Area on August 19, 20 and 21, 2024.

Scientific Name	Common Name	Growth Habit	Nativity
Acer negundo	boxelder	Tree	Native
Acer nigrum	black maple	Tree	Native
Acer pensylvanicum	striped maple	Tree	Native
Acer rubrum	red maple	Tree	Native
Acer saccharinum	silver maple	Tree	Native
Ageratina altissima	white snakeroot	Forb/herb	Native
Agrostis gigantea	redtop	Graminoid	Introduced
Agrostis perennans	upland bentgrass	Graminoid	Native
Agrostis scabra	rough bentgrass	Graminoid	Native
Ajuga reptans	common bugle	Forb/herb	Introduced
Alisma subcordatum	American water plantain	Forb/herb	Native
Allium tricoccum	ramp	Forb/herb	Native
Amelanchier arborea	common serviceberry	Tree	Native
Amphicarpaea bracteata	American hogpeanut	Forb/herb	Native
Andropogon virginicus	broomsedge bluestem	Graminoid	Native
Antennaria sp.	pussytoes	Forb/herb	Native
Anthoxanthum odoratum	sweet vernalgrass	Graminoid	Introduced
Aralia spinosa	devil's walkingstick	Tree	Native
Arctium sp.	burdock	Forb/herb	Introduced
Arisaema triphyllum	Jack in the pulpit	Forb/herb	Native
Arundinaria sp. (vegetative)	giant cane	Graminoid	Introduced
Asplenium platyneuron	ebony spleenwort	Forb/herb	Native
Berberis thunbergii	Japanese barberry	Shrub	Introduced
Betula lenta	sweet birch	Tree	Native
Botrychium virginianum	rattlesnake fern	Forb/herb	Native
Carex crinita	fringed sedge	Graminoid	Native
Carex digitalis	slender woodland sedge	Graminoid	Native
Carex laxiculmis var. laxiculmis	spreading sedge	Graminoid	Native
Carex laxiflora	broad looseflower sedge	Graminoid	Native
Carex lurida	shallow sedge	Graminoid	Native
Carex swanii	Swan's sedge	Graminoid	Native
Carpinus caroliniana	American hornbeam	Tree	Native
Carya sp.	hickory	Tree	Native
Carya ovata	shagbark hickory	Tree	Native
Carya tomentosa	mockernut hickory	Tree	Native
Caulophyllum thalictroides	blue cohosh	Forb/herb	Native
Celastrus orbiculatus	Oriental bittersweet	Vine	Introduced
Cercis canadensis	eastern redbud	Tree	Native
Cichorium intybus	chicory	Forb/herb	Introduced
Cinna arundinacea	sweet woodreed	Graminoid	Native
Clematis virginiana	devil's darning needles	Vine	Native

Scientific Name	Common Name	Growth Habit	Nativity
Clinopodium vulgare	wild basil	Forb/herb	Native
Conopholis americana	American cancer-root	Forb/herb	Native
Cornus amomum	silky dogwood	Shrub	Native
Cornus florida	flowering dogwood	Tree	Native
Cornus racemosa	gray dogwood	Shrub	Native
Crataegus sp.	hawthorn	Tree	Native
Cryptotaenia canadensis	Canadian honewort	Forb/herb	Native
Cuscuta gronovii	scaldweed	Forb/herb	Native
Dactylis glomerata	orchardgrass	Graminoid	Introduced
Danthonia compressa	flattened oatgrass	Graminoid	Native
Dennstaedtia punctilobula	eastern hayscented fern	Forb/herb	Native
Dichanthelium clandestinum	deertongue	Graminoid	Native
Dichanthelium dichotomum	cypress panicgrass	Graminoid	Native
Dioscorea quaternata	fourleaf yam	Forb/herb	Native
Dryopteris carthusiana	spinulose woodfern	Forb/herb	Native
Dryopteris intermedia	intermediate woodfern	Forb/herb	Native
Echinochloa sp.	cockspur grass	Graminoid	Introduced
Elaeagnus umbellata	autumn olive	Shrub	Introduced
Elymus villosus	hairy wildrye	Graminoid	Native
Epifagus virginiana	beechdrops	Forb/herb	Native
Erechtites hieraciifolius	American burnweed	Forb/herb	Native
Erigeron strigosus	prairie fleabane	Forb/herb	Native
Eurybia divaricata	white wood aster	Forb/herb	Native
Euthamia graminifolia	flat-top goldentop	Forb/herb	Native
Eutrochium fistulosum	trumpetweed	Forb/herb	Native
Fagus grandifolia	American beech	Tree	Native
Fraxinus americana	white ash	Tree	Native
Galium circaezans	licorice bedstraw	Forb/herb	Native
Galium odoratum	sweetscented bedstraw	Forb/herb	Introduced
Galium triflorum	fragrant bedstraw	Forb/herb	Native
Gaultheria procumbens	teaberry	Forb/herb	Native
Geum canadense	white avens	Forb/herb	Native
Glyceria striata	fowl mannagrass	Graminoid	Native
Goodyera pubescens	downy rattlesnake plantain	Forb/herb	Native
Hamamelis virginiana	witchhazel	Tree	Native
Hemerocallis sp.	daylily	Forb/herb	Introduced
Hieracium sp.	hawkweed	Forb/herb	Native
Hypericum hypericoides ssp. multicaule	St. Andrew's cross	Shrub	Native
Hypericum mutilum	dwarf St. Johnswort	Forb/herb	Native
Hypericum perforatum	common St. Johnswort	Forb/herb	Introduced
Hypericum prolificum	shrubby St. Johnswort	Shrub	Native
Hypericum punctatum	spotted St. Johnswort	Forb/herb	Native
Hypochaeris radicata	hairy cat's ear	Forb/herb	Introduced
Ilex opaca	American holly	Tree	Native
Impatiens capensis	jewelweed	Forb/herb	Native
Juglans nigra	black walnut	Tree	Native

Scientific Name	Common Name	Growth Habit	Nativity
Juncus effusus	common rush	Graminoid	Native
Juncus tenuis	poverty rush	Graminoid	Native
Juniperus communis	common juniper	Shrub	Native
Lechea racemulosa	Illinois pinweed	Forb/herb	Native
Leersia oryzoides	rice cutgrass	Graminoid	Native
Leersia virginica	whitegrass	Graminoid	Native
Lemna minor	common duckweed	Forb/herb	Native
Lespedeza violacea	violet lespedeza	Forb/herb	Native
Ligustrum vulgare	privet	Shrub	Introduced
Lindera benzoin	northern spicebush	Shrub	Native
Liriodendron tulipifera	tuliptree	Tree	Native
Lobelia cardinalis	cardinalflower	Forb/herb	Native
Lobelia inflata	Indian-tobacco	Forb/herb	Native
Lonicera morrowii	Morrow's honeysuckle	Shrub	Introduced
Lotus corniculatus	bird's-foot trefoil	Forb/herb	Introduced
Ludwigia palustris	marsh seedbox	Forb/herb	Native
Luzula sp.	woodrush	Graminoid	Native
Lycopodium digitatum	fan clubmoss	Forb/herb	Native
Lycopus virginicus	waterhorehound	Forb/herb	Native
Magnolia acuminata	cucumber tree	Tree	Native
Maianthemum canadense	Canada mayflower	Forb/herb	Native
Maianthemum racemosum	false solomons seal	Forb/herb	Native
Microstegium vimineum	Japanese stiltgrass	Graminoid	Introduced
Mimulus ringens	Allegheny monkeyflower	Forb/herb	Native
Mitchella repens	partridgeberry	Forb/herb	Native
Monotropa hypopitys	pinesap	Forb/herb	Native
Monotropa uniflora	Indianpipe	Forb/herb	Native
Nyssa sylvatica	blackgum	Tree	Native
Onoclea sensibilis	sensitive fern	Forb/herb	Native
Ostrya virginiana	hophornbeam	Tree	Native
Oxydendrum arboreum	sourwood	Tree	Native
Packera aurea	golden ragwort	Forb/herb	Native
Parthenocissus quinquefolia	Virginia creeper	Vine	Native
Pedicularis canadensis	Canadian lousewort	Forb/herb	Native
Phytolacca americana	pokeweed	Forb/herb	Native
Picea abies	Norway spruce	Tree	Introduced
Pilea pumila	Canadian clearweed	Forb/herb	Native
Pinus strobus	white pine	Tree	Native
Platanus occidentalis	American sycamore	Tree	Native
Polygonum cespitosum var. longisetum	Oriental lady's thumb	Forb/herb	Introduced
Polygonum pensylvanicum	Pennsylvania smartweed	Forb/herb	Native
Polygonum punctatum	dotted smartweed	Forb/herb	Native
Polygonum sagittatum	arrowleaf tearthumb	Vine	Native
Polygonum virginianum	jumpseed	Forb/herb	Native
Polystichum acrostichoides	Christmas fern	Forb/herb	Native
Potentilla simplex	common cinquefoil	Forb/herb	Native

Scientific Name	Common Name	Growth Habit	Nativity
Prenanthes trifoliolata	gall of the earth	Forb/herb	Native
Prunus serotina	black cherry	Tree	Native
Pseudognaphalium obtusifolium	rabbit-tobacco	Forb/herb	Native
Quercus alba	white oak	Tree	Native
Quercus montana	chestnut oak	Tree	Native
Quercus rubra	northern red oak	Tree	Native
Quercus velutina	black oak	Tree	Native
Ranunculus hispidus var. nitidus	bristly buttercup	Forb/herb	Native
Robinia pseudoacacia	black locust	Tree	Native
Rosa multiflora	multiflora rose	Shrub	Introduced
Rubus allegheniensis	Allegheny blackberry	Shrub	Native
Rubus hispidus	bristly dewberry	Shrub	Native
Rubus occidentalis	black raspberry	Shrub	Native
Rubus pensilvanicus	Pennsylvania blackberry	Shrub	Native
Rudbeckia laciniata	cutleaf coneflower	Forb/herb	Native
Sambucus nigra ssp. canadensis	American black elderberry	Shrub	Native
Sanicula canadensis	Canadian blacksnakeroot	Forb/herb	Native
Sassafras albidum	sassafras	Tree	Native
Scirpus atrovirens	green bulrush	Graminoid	Native
Scirpus cyperinus	woolgrass	Graminoid	Native
Scirpus polyphyllus	leafy bulrush	Graminoid	Native
Sedum ternatum	woodland stonecrop	Forb/herb	Native
Smilax glauca	cat greenbrier	Vine	Native
Smilax rotundifolia	roundleaf greenbrier	Vine	Native
Solanum carolinense	Carolina horsenettle	Forb/herb	Native
Solidago altissima	Canada goldenrod	Forb/herb	Native
Solidago bicolor	white goldenrod	Forb/herb	Native
Solidago canadensis	Canada goldenrod	Forb/herb	Native
Solidago rugosa	wrinkleleaf goldenrod	Forb/herb	Native
Spiraea japonica	Japanese meadowsweet	Shrub	Introduced
Symphoricarpos orbiculatus	coralberry	Shrub	Native
Symphyotrichum lanceolatum	white panicle aster	Forb/herb	Native
Symphyotrichum lateriflorum	calico aster	Forb/herb	Native
Symphyotrichum pilosum	hairy white oldfield aster	Forb/herb	Native
Symphyotrichum prenanthoides	crookedstem aster	Forb/herb	Native
Thalictrum dioicum	early meadow-rue	Forb/herb	Native
Thelypteris noveboracensis	New York fern	Forb/herb	Native
Toxicodendron radicans	eastern poison ivy	Vine	Native
Trifolium repens	white clover	Forb/herb	Introduced
Tsuga canadensis	eastern hemlock	Tree	Native
Ulmus americana	American elm	Tree	Native
Uvularia puberula	mountain bellwort	Forb/herb	Native
Uvularia sessilifolia	sessileleaf bellwort	Forb/herb	Native
Vaccinium pallidum	Blue Ridge blueberry	Shrub	Native
Vaccinium stamineum	deerberry	Shrub	Native
Verbena urticifolia	white vervain	Forb/herb	Native

Scientific Name	Common Name	Growth Habit	Nativity
Verbesina alternifolia	wingstem	Forb/herb	Native
Vernonia noveboracensis	New York ironweed	Forb/herb	Native
Viburnum acerifolium	mapleleaf viburnum	Shrub	Native
Viburnum prunifolium	blackhaw	Shrub	Native
Vinca minor	common periwinkle	Forb/herb	Introduced
Viola sagittata	arrowleaf violet	Forb/herb	Native
Viola sororia	common blue violet	Forb/herb	Native
Viola striata	striped cream violet	Forb/herb	Native
Vitis aestivalis	summer grape	Vine	Native

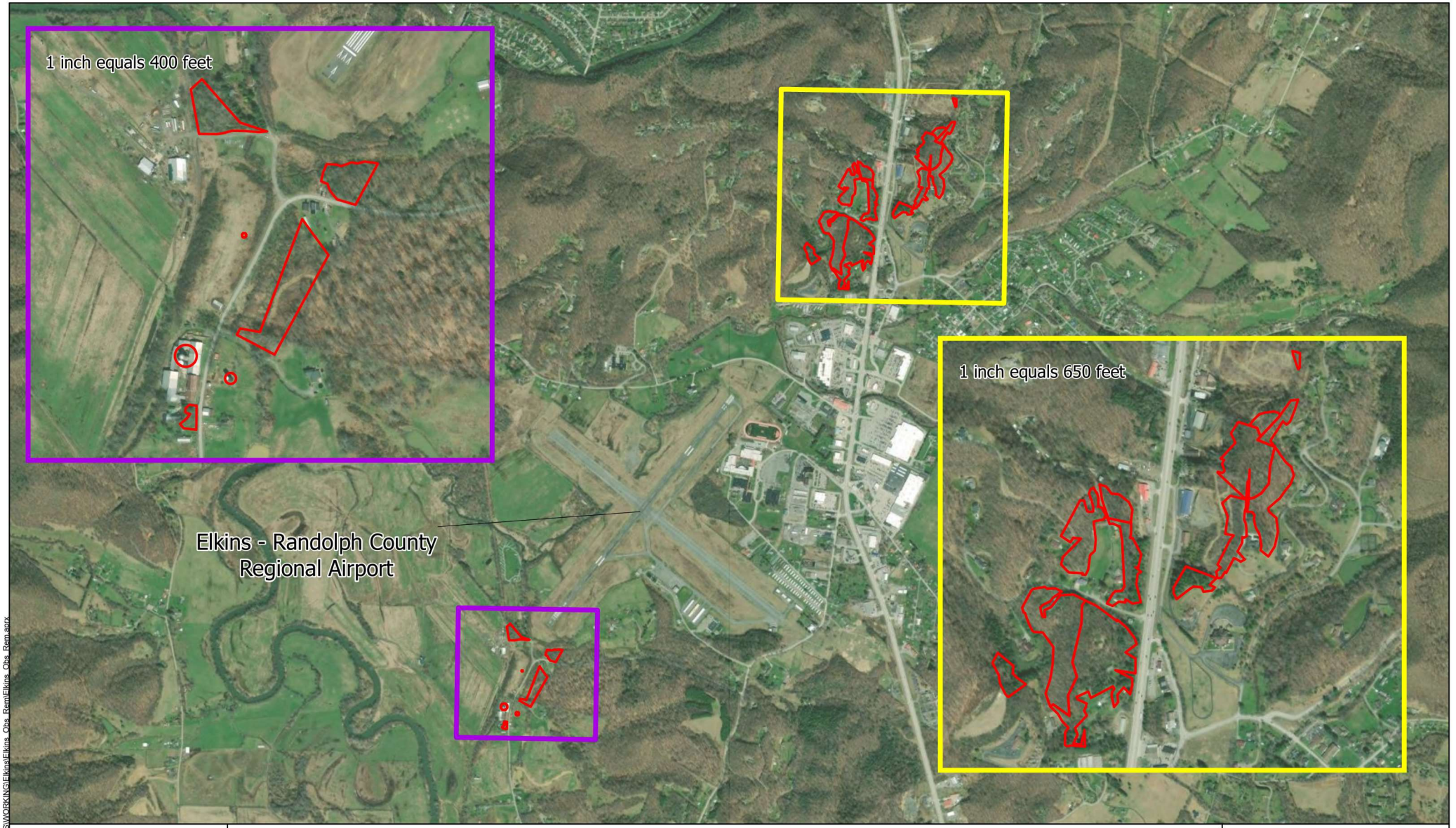
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FIGURES



Elkins-Randolph County Regional Airport
Obstruction Removal Project
Elkins, West Virginia

Figure 1 - Study Areas

N
0 500 1,000 1,500 2,000 2,500 Feet

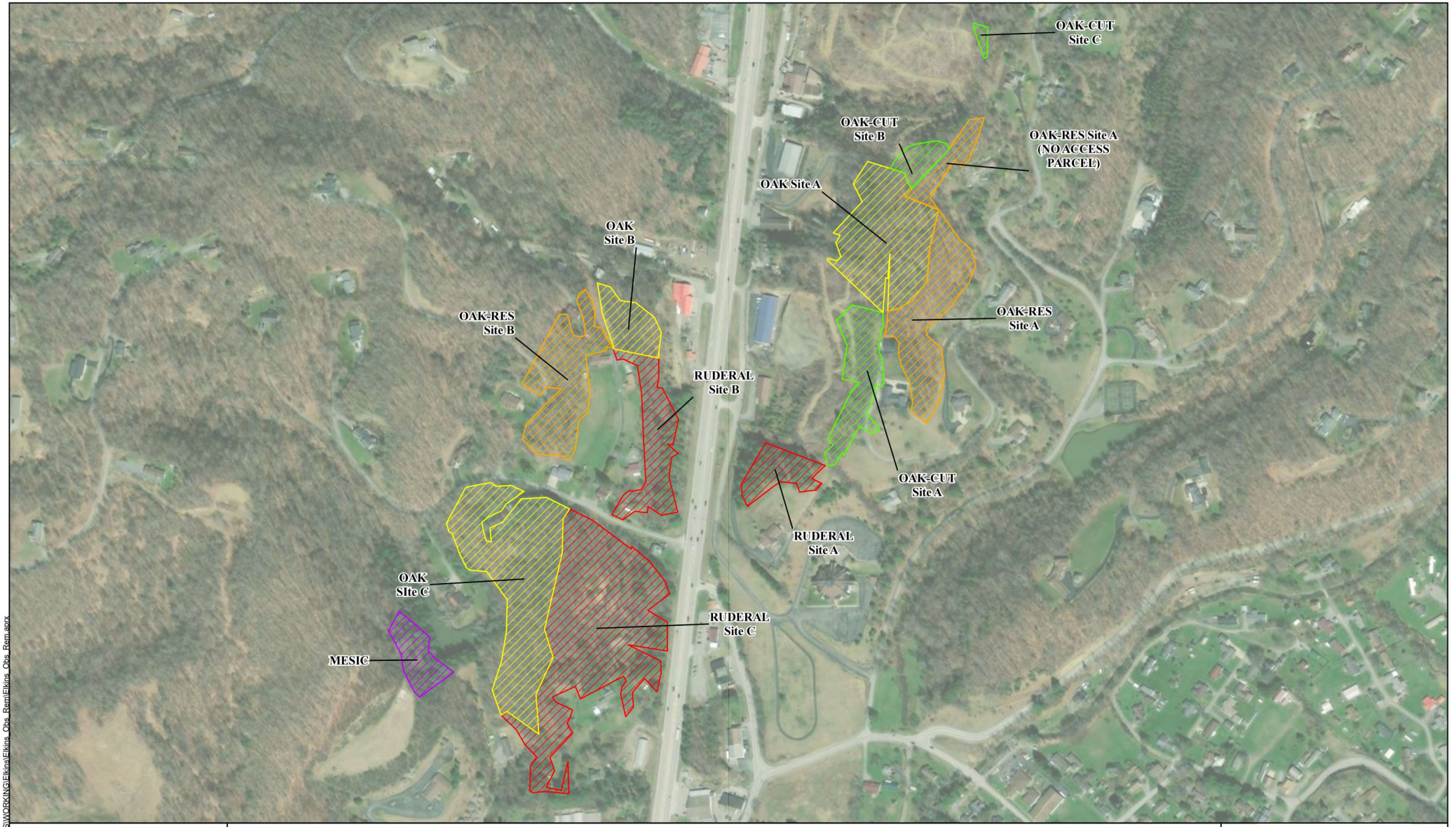
Tree Obstruction Removal Areas (Study Areas)

TRANSYSTEMS

September 2024

Source: ESRI

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Elkins-Randolph County Regional Airport
Obstruction Removal Project
Elkins, West Virginia
Figure 2A - Habitat Types Observed in Botanical Survey

N
0 125 250 375 500 625 Feet

Habitat Types

- Dry-Mesic Oak Forest
- Dry-Mesic Oak Forest, recently timbered
- Dry-Mesic Oak Forest, residential impacts
- Floodplain Forest of Mixed Hardwoods
- Mesic Forested Slope
- Ruderal Forest, Field, Farm, Lawn

TRANSYSTEMS

September 2024

Source: ESRI

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Elkins-Randolph County Regional Airport
Obstruction Removal Project
Elkins, West Virginia
Figure 2B - Habitat Types Observed in Botanical Survey

N
0 75 150 225 300 375 Feet

Habitat Types

- Dry-Mesic Oak Forest
- Dry-Mesic Oak Forest, recently timbered
- Dry-Mesic Oak Forest, residential impacts
- Floodplain Forest of Mixed Hardwoods
- Mesic Forested Slope
- Ruderal Forest, Field, Farm, Lawn

TRANSYSTEMS

September 2024

Source: ESRI

APPENDIX A
PHOTOGRAPH LOG



Photograph 1 – OAK Site A: Large red oak (*Quercus rubra*) and white pine (*Pinus strobus*) on a moderately sloping west-facing oak forest.



Photograph 2 – OAK Site A: Patches of vegetation in the oak forest includes fantail clubmoss (*Lycopodium digitatum*).



Photograph 3 – OAK Site B: Mature red oak and hickory (*Carya* spp.) trees with a variety of size classes.



Photograph 4 – OAK Site B: Shrub layer of witchhazel (*Hamamelis virginiana)* in the oak forest.



Photograph 5 – OAK Site C: Tree stumps as evidence of a past partial timber cut in maturing oak forest.



Photograph 6 – OAK Site C: Sparse herbaceous layer in maturing oak forest.



Photograph 7 – OAK Site C: Stump-sprouting of red oaks and diverse tree size classes in oak forest.



Photograph 8- FLOODPLAIN: Native herbaceous layer in maturing floodplain forest.



Photograph 9 – FLOODPLAIN: A variety of native herbs in the floodplain forest: woodland stonecrop (*Sedum ternatum*), Virginia creeper (*Parthenocissus quinquefolia*), and golden ragwort (*Packera aurea*).



Photograph 10 – MESIC: Conifers, hardwoods and shrub layer at base of mesic forested slope.



Photograph 11 – MESIC: Sugar maple, eastern hemlock, and spicebush in the mesic forested slope.



Photograph 12 – OAK RES Site A: A fragmented oak woodlot bordered by lawn.



Photograph 13 – OAK RES Site A: Piles of firewood in a recently timbered woodlot impacted by residential development.



Photograph 14 – OAK RES Site A: Depauperate herbaceous layer in the NO ACCESS parcel photographed from just outside the parcel's northwestern boundary.



Photograph 15 – OAK RES Site A: Residential edge habitat in the NO ACCESS parcel photographed from just outside the parcel's northwestern boundary.



Photograph 16 – OAK RES Site A: Residential edge habitat in the NO ACCESS parcel photographed from just outside the parcel's northwestern boundary.



Photograph 17 – OAK RES Site A: Depauperate herbaceous layer and residential edge habitat in the NO ACCESS parcel photographed from just outside the parcel's northwestern boundary.



Photograph 18 – OAK RES Site B: Lack of woody debris and residential edge habitat in the oak forest impacted by residential development.



Photograph 19 – OAK CUT Site A: A clearcut oak forest. RUDERAL Site B is visible across the highway.



Photograph 20 – OAK CUT Site B: A recently clearcut oak forest.



Photograph 21 – OAK CUT Site C: A recently clearcut oak forest.



Photograph 22 – OAK CUT Site D: A recently clearcut oak forest.



Photograph 23 – OAK CUT Site D: An emergent wetland dominated by rice cutgrass (*Leersia oryzoides*) in a clearcut oak forest.



Photograph 24 – RUDERAL Site A: White pine (*Quercus rubra*) dominating a deeply shaded native ruderal forest.



Photograph 25 – RUDERAL Site B: Invasive privet (*Ligustrum vulgaris*) and bush honeysuckle (*Lonicera morrowii*) shrub layer in a former pasture now forested with black cherry, white pine and red maple.



Photograph 26 – RUDERAL Site B: Layer of pine duff on compacted soils in a former pasture now forested with white pine.



Photograph 27 – RUDERAL Site C: Sparse herbaceous layer beneath invasive autumn olive (*Elaeagnus umbellata*) and bush honeysuckle shrubs.



Photograph 28 – RUDERAL Site C: Japanese Stiltgrass (*Microstegium vimineum*) in an opening within a ruderal forest of native and exotic trees.



Photograph 29 – RUDERAL Site D: Exotic and weedy native vegetation within a ruderal forest along a floodplain.



Photograph 30 – FARMYARD: Farmyard in the village of Arnold Hill south of the Elkins-Randolph County Regional Airport. Managed lawn does not support native herbaceous plants.



Photograph 31 – SILOS: Silos east of Arnold Hill Road. Disturbed soils do not support native herbaceous plants.



Photograph 32 – SILOS: Silos west of Arnold Hill Road. Disturbed soils do not support native herbaceous plants.



Photograph 33 – Aerial imagery of power poles. Disturbed soils do not support native herbaceous plants.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

West Virginia Field Office
6263 Appalachian Highway
Davis, West Virginia 26260

August 6, 2026

Susan Stafford
Federal Aviation Administration
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813

Re: Obstruction Removal (Runway 5-23 Approaches) Project, Randolph County, West Virginia (Service File Number: 2024-0053235)

Dear Susan Stafford:

Thank you for the opportunity to review the Federal Aviation Administration's (FAA) biological assessment (TranSystems 2026; known hereafter as BA) for the proposed Obstruction Removal (Runway 5-23 Approaches) Project, hereafter referred to as the Project, located in Randolph County, West Virginia. The U.S. Fish and Wildlife Service's (Service) West Virginia Field Office's (WVFO) biological opinion (Opinion) is based on our review of the complete project submission, received May 13, 2026, for the referenced project. This project has been assigned the Service File number 2024-0053235; all future correspondence should reference this file number.

Additionally, the Service notes, that on March 30, 2026, in *Center for Biological Diversity v. U.S. Department of the Interior*, No. 24-cv-4651, 2026 U.S. Dist. LEXIS 68386 (N.D. Cal. Mar. 30, 2026), the U.S. District Court for the Northern District of California vacated aspects of four provisions from the 50 CFR part 402 regulations, which interpret and implement Section 7 of the Endangered Species Act (16 U.S.C. § 1531-1544; ESA) and reinstated the provisions that were previously in effect. Given that the BA and certain analyses were prepared before this ruling, the Service considered whether the effects analysis and incidental take statement in this Opinion would be different under either regulatory scheme and concluded that the analysis and incidental take statement would be the same under either version of the applicable regulations. Further, the Service did not identify any additional effects to the listed species not already appropriately considered in this Opinion.

In accordance with Section 7 of the Endangered Species Act (ESA; 16 U.S.C. 1531–1544, 87 Stat. 884), as amended, the FAA has made effect determinations for five federally listed species. The BA requests the Service's concurrence with the FAA's "likely to adversely affect" determinations for the federally endangered rusty patched bumble bee (*Bombus affinis*). Additionally, the FAA requested the Service's concurrence with "may affect, not likely to adversely affect" determinations for the endangered Indiana bat (*Myotis sodalis*), northern long-

eared bat (*Myotis septentrionalis*), and Virginia big-eared bat (*Corynorhinus townsendii virginianus*), as well as the federally threatened small whorled pogonia (*Isotria medeoloides*).

When evaluating potential effects on listed species, the WVFO considers the species' biological requirements, the project's location, and the extent of anticipated impacts. The proposed project includes impacts to forested habitat (i.e., tree removal), which may provide suitable foraging and roosting habitat for the Indiana bat and northern long-eared bat. However, survey efforts indicate that the potential for impacts to the species has been minimized or avoided.

Skybax Ecological Services, LLC conducted presence/probable absence mist-net surveys within the Action Area. No federally listed bats were captured during these surveys, establishing probable absence within the Action Area for the Indiana bat and northern long-eared bat. For the Virginia big-eared bat, impacts to known or potential hibernaculum (i.e., caves and mine portals) could impact roosting, breeding, and hibernating sites. However, surveys conducted within the Action Area did not detect any caves or abandoned mine portals. Impacts to forested habitat from the proposed project may alter suitable foraging habitat. Foraging areas are generally located within a few miles of roost sites (Service 2019). In West Virginia radio telemetry studies, Virginia big-eared bats have been documented foraging up to six miles from cave entrances (Stihler 1995). Virginia big-eared bat buffers within West Virginia are individually set to a six-mile radius to account for foraging activity. The BA indicates that the project does not occur within any buffers for the Virginia big-eared bat. Considering that no known roosting sites are present within the Action Area, Virginia big-eared bat foraging activity is not expected to occur within the Action Area.

Consequently, potential impacts to these species are expected to be discountable, as presence within the Action Area is not expected. As such, the WVFO concurs with the FAA's determinations that this project is not likely to adversely affect Indiana bat, northern long-eared bat, and Virginia big-eared bat.

Additionally, the WVFO concurs with the FAA's determination that the project is not likely to adversely affect small whorled pogonia. This concurrence is based on the fact that the Action Area was evaluated by TranSystems, and all suitable habitat was surveyed for the species. No small whorled pogonia were detected during these surveys, establishing probable absence within the Action Area. Consequently, potential impacts to the species are expected to be discountable, as its presence within the Action Area is not expected. These species will not be discussed further within this Opinion.

This Opinion addresses the potential effects of the Project on the rusty patched bumble bee. This Opinion is based on information from the BA submittal dated May 13, 2026, telephone conversations, email communication, and other sources of information (Appendix A). A complete administrative record of this project is on file with WVFO.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

As defined in the Endangered Species Act (ESA) Section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." The following is a summary of the Project purpose and the proposed action; full details may be found in the BA.

The project proposes to remove obstructions to Runway 5-23 approaches in nine separate areas totaling 30.69 acres. These areas include five separate areas (Area 1 through Area 5) to the northeast of the Airport (Runway 23 end), and four separate areas (Area 6 through Area 9) to the southwest of the Airport (Runway 5 end). Obstruction removal in these areas will consist of the removal of selected trees within 16.75 acres and the trimming of selected trees within 13.94 acres (Table 1). This includes 573 trees to be removed and 519 trees to be trimmed in total.

Table 1. Obstruction Removal Area Locations.

Area No.	Acreage	Select Removal/ Select Trimming	Estimated Ground Disturbance*	Runway Approach	Latitude	Longitude
1	0.84	0.84 Acres Removal	0.67 acres	Runway 23	38° 54' 02"	79° 50' 55"
2	11.63	5.76 Acres Removal 5.87 Acres Trimming	9.89 acres	Runway 23	38° 54' 04"	79° 50' 48"
3	5.07	1.39 Acres Removal 3.68 Acres Trimming	4.06 acres	Runway 23	38° 54' 11"	79° 50' 45"
4	9.45	5.98 Acres Removal 3.47 Acres Trimming	7.56 acres	Runway 23	38° 54' 15"	79° 50' 32"
5	0.10	0.10 Acres Trimming	0.05 acres	Runway 23	38° 54' 25"	79° 50' 29"
6	0.82	0.82 Acres Removal	0.62 acres	Runway 5	38° 53' 05"	79° 51' 53"
7	0.74	0.05 Acres Removal 0.69 Acres Trimming	0.56 acres	Runway 5	38° 53' 01"	79° 51' 45"
8	1.91	1.91 Acres Removal	0.57 acres	Runway 5	38° 52' 56"	79° 51' 49"
9	0.13	0.13 Acres Trimming	0.07 acres	Runway 5	38° 52' 51"	79° 51' 54"

There will also be four structures removed to the southwest of the Runway 5 end. This includes one light structure (aluminum frangible air mast), two metal silos, and one concrete silo. One additional light structure, also located to the southwest of Runway 5, will be relocated by the power company so as not to be a future obstruction to airport operations. In total, the Project will result in approximately 24.05 acres of ground disturbance. These impacts will be temporary as no permanent land conversion is expected. All nine of these areas, the silos, and light structures

are located on private property outside of Airport owned property, but within the approach surfaces of Runway 5-23. Activities are divided between each runway approach as:

Runway 5 Approach Surface

- Removing approximately 55 trees within 2.82 acres;
- Trimming approximately 38 trees within 0.82 acres;
- Removal of one obstruction light structure;
- Relocation of one obstruction light structure; and
- Removal of three silos

Runway 23 Approach Surface

- Removing approximately 518 trees within 13.93 acres; and
- Trimming of approximately 481 trees within 13.12 acres

Conservation Measures

The Services' Consultation Handbook (Service and National Marine Fisheries Service [NMFS] 1998) defines "Conservation Measures" (CMs) as "actions to benefit or promote the recovery of listed species that are included by a Federal agency as an integral part of a proposed action under ESA consultation. These actions will be taken by the Federal agency or applicant and serve to minimize or compensate for project effects on the species under review." CMs may include actions that the Federal agency or applicant have committed to complete in a biological assessment or similar document.

To avoid, minimize, or compensate for project effects on the rusty patched bumble bee, the FAA will include the CMs listed below, which are more fully detailed in the BA.

- The proposed cutting and trimming of selected trees will occur between May 1 and September 31 to avoid impacts to overwintering queens.
- Stumps remaining after tree cutting in non-maintained areas will be left in place to reduce ground disturbance.
- Stumps remaining after tree cutting in areas to be maintained as lawn will be ground to a point minimum of 4" below the existing ground surface. Upon completion of the grinding process, the stumps shall be covered with a minimum of 4" of suitable topsoil material. The Contractor will not be permitted to remove the stumps through grading with dozers or graders.
- As a component of the Proposed Action, best management practices developed by the West Virginia Division of Forestry and the West Virginia Department of Environmental Project will be adhered to, including seeding all obstruction removal areas to establish adequate vegetation cover to help stabilize the surface soils. In all areas permitted by property owners, areas will be seeded with a wildflower mix and mulched to provide nectar sources for the RPBB.

- Upon completion of obstruction removal activities, disturbed areas will be restored. This includes filling ruts and depressions created by construction activities to be filled with topsoil or smoothed over and removal of slash generated from tree removal for disposal at an off-site location.
- The use of herbicides and pesticides will be prohibited on the project.

ACTION AREA

The Action Area is defined (50 CFR § 402.02) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." Plainly, the Action Area is not confined to the "footprint" (i.e., the limits of construction) or the immediate effects of the action within the project area. It also encompasses the broader geographic scope of expected environmental changes (i.e., physical, chemical, and biological effects) that may arise from the proposed action. These changes have the potential to impact listed species, either directly or indirectly. Therefore, the Action Area is defined by the farthest geographic extent over which we expect project stressors to cause anticipated environmental changes that may affect listed species and their habitats, either directly or indirectly.

The Elkins-Randolph County Regional Airport is located approximately two miles south of the City of Elkins within Randolph County, West Virginia. The airport is approximately located at 38° 53' 11.67" latitude and 79° 51' 25.20" longitude. The Service's WVFO has determined that the Action Area consists of all lands within the Project's limits of disturbance (30.69 acres). In addition, the Action Area extends 104.7 feet beyond the limits of disturbance in all directions due to noise generated by heavy equipment (i.e., a tracked feller-buncher) used to remove and trim trees. Feller-buncher activities (cutting, tree bunching, loaded travel, and unloaded travel) generate approximately 80.4 decibels during operation (Seixas et al. 1999). Additional heavy equipment needed for project implementation is expected to produce similar noise levels due to comparable machine size and operational characteristics. Typical outdoor background noise levels are approximately 40 decibels (Drolet et al. 2016), and sound attenuates over distance (Radtke 2016), particularly in forested environments (Yip et al. 2017). Using the inverse square law to estimate sound attenuation (Radtke 2016), sound is expected to return to background levels at roughly 104.7 feet from the source. Therefore, the Action Area is expanded to include an additional 39.76 acres surrounding the 30.69-acre limits of disturbance. Conversely, vibrations are not expected to extend beyond the limits of disturbance. Magnitude of vibration experienced by tracked feller-buncher operators, expressed as acceleration, was equivalent to 1.12 m/s^2 (Almeida et al. 2014) or 44.1 in/s^2. Using a potential frequency of 8 Hz for heavy equipment seat vibration (Sharma 2021), and acceleration of 44.1 in/s^2, the vibration velocity experienced by a tracked feller-buncher operator is estimated at 0.88 inches per second. Use of a tracked feller-buncher will distribute machine weight more evenly to reduce ground pressure and tree stump removal will be avoided to reduce ground disturbance and subsequent vibrations. Additionally, as ground vibrations attenuate rapidly with distance (De Silva et al. 2002), it is expected that vibration levels emanating from a tracked feller-buncher will be less than 0.88 inches per second throughout the surrounding environment. Similarly, erosion and sedimentation effects are not anticipated to extend beyond the disturbance limits due to the implementation of erosion and sediment control measures. Therefore, the Action Area comprises a 70.45-acre area.

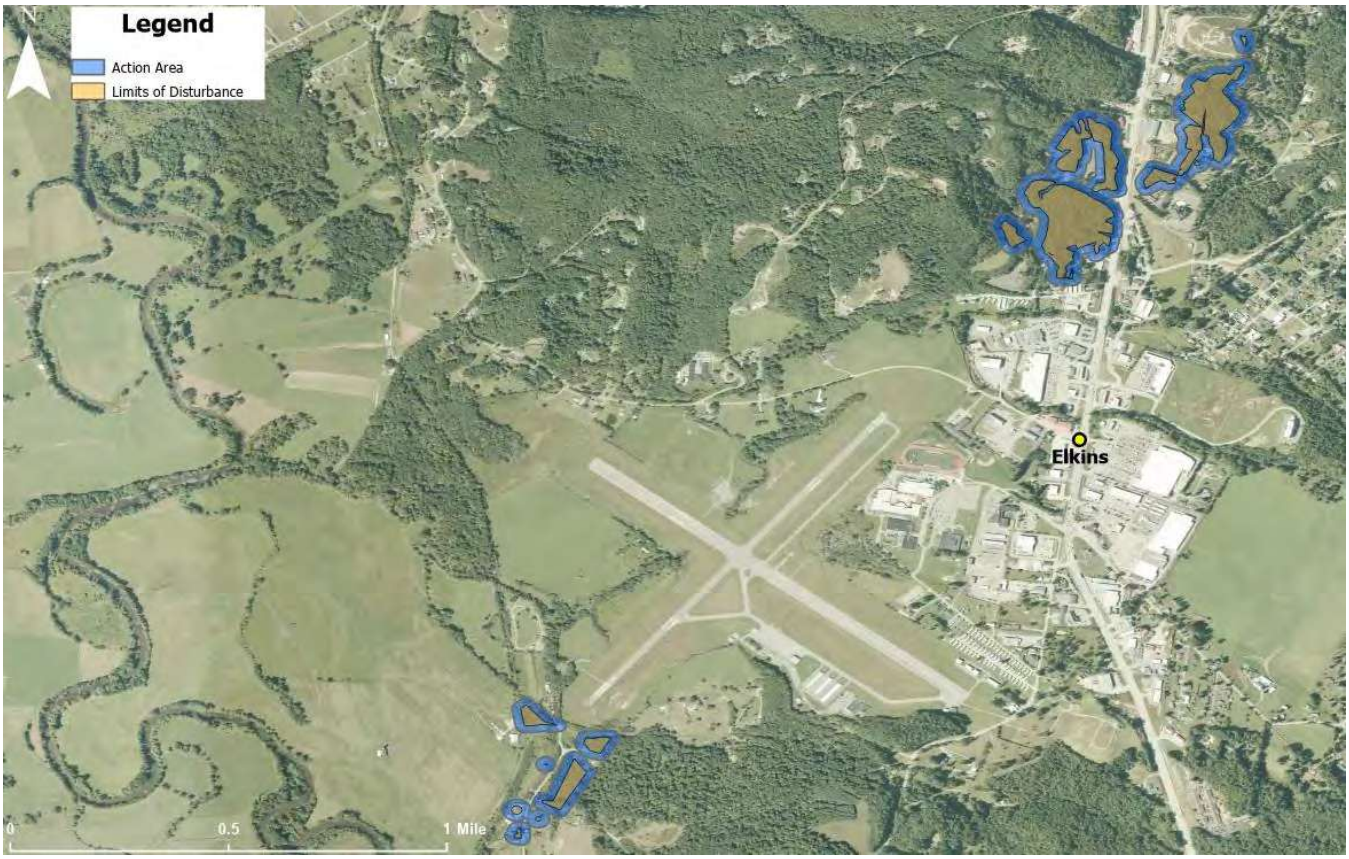


Figure 1. Action Area and limits of disturbance Obstruction Removal (Runway 5-23 Approaches) Project, Randolph County, West Virginia.

STATUS OF THE SPECIES

Per 50 CFR 402.14(g)(2), the Service must "evaluate the current status and environmental baseline of the listed species or critical habitat." The following summarizes the general life history, threats, demographics and population trends, and recovery strategy for the rusty patched bumble bee drawn primarily from Service assessment, listing, and recovery documents.

Rusty Patched Bumble Bee

The rusty patched bumble bee was listed as endangered on March 21, 2017, and the overall status of rusty patched bumble bee is declining. (82 FR 3186). The primary threats to the species are pathogens, negative genetic effects of small populations, the effects of stochastic weather events, pesticides, and habitat degradation or loss (Service 2016). These threats continue to impact the species in the same manner as they did at the time of listing, although the imminence and severity of stochastic weather event impacts may be increasing. Historical records (2000-2015) indicate that the rusty patched bumble bee range has declined, down 60 percent in occupied ecoregions, 68 percent in the number of occupied states, and 89 percent in occupied counties (Service 2016). For additional information regarding rusty patched bumble bee please see Appendix B.

STATUS OF CRITICAL HABITAT

Rusty Patched Bumble Bee

Critical habitat for this species has been designated in 14 units across Minnesota, Wisconsin, Illinois, Iowa, Virginia and West Virginia (91 FR 32516); however, this action does not affect that area. Therefore, critical habitat for this species is not considered in this Opinion.

ENVIRONMENTAL BASELINE

In accordance with 50 CFR 402.02, the "environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone completed formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from Federal agency activities or existing Federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline."

Rusty Patched Bumble Bee

The Service has adapted a habitat connectivity model to evaluate the likelihood of rusty patched bumble bee movement across the landscape. This model incorporates the most recent National Land Cover Database (NLCD) maps and is updated annually with known species occurrence data from 2007 to the present (Service 2023). Unlike traditional buffer-based methods, this approach uses empirical data and scientific inference to predict where the species may occur and how it may move through various land cover types. The model identifies areas with the highest potential for species presence based on typical foraging distances and habitat suitability. These areas are designated as High Potential Zones (HPZs). The HPZs are modeled by evaluating the likelihood of movement across vegetation cover classes, as informed by expert opinion and

literature on bumble bee dispersal (Service 2023). Each HPZ represents areas where individuals are likely to forage, nest, and overwinter. Surrounding each HPZ is a Low Potential Zone (LPZ), which reflects areas where dispersal and establishment of new home ranges may occur. Taken together, these model outputs provide a landscape scale context for evaluating habitat availability and species use within specific project areas.

Building on this landscape scale understanding, the three pillars of rusty patched bumble bee recovery include: adequate nesting habitat, overwintering sites, and diverse floral resources (Service 2018). Habitat types associated with such needs include forests, open areas, woodland and woodland edges for overwintering and nesting, and diverse floral resources throughout spring, summer, and fall (Service 2018). In the heavily forested central Appalachian Mountains portion of its range, rusty patched bumble bees are thought to rely on spring ephemeral species during the nest-founding stage. They transition to foraging mainly on blueberry and cranberry species (*Vaccinium* spp.), mountain laurel (*Kalmia* spp.), and rhododendron and azalea species (*Rhododendron* spp.) from early to mid-summer. They are observed moving to more open habitats to forage from late summer into early fall. This behavior has been termed "following the bloom" and may be unique to the Appalachian population of rusty patched bumble bees (M. Hepner, Metamorphic Ecological, pers. comm. to Service, January 2022). These habitat requirements and seasonal foraging patterns serve as the basis for evaluating suitable cover types within the Action Area.

Within the Action Area, available habitat includes dry-mesic oak forest, floodplain forest, mesic forest, and ruderal forest. The habitat assessment within the 70.45-acre Action Area determined that approximately 11.12 acres of suitable foraging and nesting habitat for the rusty patched bumble bee will be temporarily impacted. Of this acreage, 7.61 acres consist of suitable overwintering habitat that will also be temporarily affected. The Service assumes that the rusty patched bumble bee may be present in nesting habitat between March 15 and October 10 and in wintering habitat from October 11 to March 14.

Consistent with both the connectivity model results and the species' habitat needs, the entirety of the Action Area lies within a single High Potential Zone (HPZ), totaling 21,758.91 acres, which contains two documented rusty patched bumble bee capture points. A botanical survey and habitat assessment were completed in August 2024, within the Action Area, including the limits of disturbance. This resulted in a 30.90-acre study area. Foraging, nesting, and overwintering habitat were identified within the Action Area. Within the overall 30.90-acre study area, the highest-quality foraging and nesting habitats (14.89 acres) occurred within the following cover types: dry-mesic oak forest, floodplain forest, and mesic forest (BA). Similarly, within the 30.69-acre limits of disturbance, high-quality foraging and nesting habitat totaled 11.12 acres and occurred within the same habitat types listed above (BA). High-quality overwintering habitat within the overall study area totaled 9.20 acres and was also located within dry-mesic oak forest (BA). Within the limits of disturbance, overwintering habitat totaled 7.61 acres and occurred in these same habitat types (BA). A portion of the study area (16.01 acres) consisted of ruderal forests and dry-mesic oak forest with anthropogenic impacts. These heavily disturbed areas contained poor-quality foraging habitat characterized by limited floral resources and lacked suitable nesting or overwintering sites due to soil compaction and lack of plant diversity. Within the limits of disturbance, 16.01 acres consisted of these same low-quality habitat types (BA). The

Action Area lies within a High Potential Zone (HPZ) characterized primarily by urban landscapes, including scattered residential development and agricultural lands.

Workers typically forage within approximately 0.6 miles of their nest (Osborne et al. 1999; Knight et al. 2005; Wolf and Moritz 2008; Rao and Strange 2012), while dispersing individuals have been documented traveling up to 6.1 miles (Kraus et al. 2009; Lepais et al. 2010). Most available ecological information for the species originates from studies conducted in the Midwest, where habitat composition differs substantially from that of the Appalachian Mountains. Because rusty patched bumble bees in the Appalachian region occupy habitat types that are markedly different from those used by populations in the Midwest (Hepner et al. 2023), the applicability of Midwestern-derived ecological parameters to Appalachian populations remains uncertain. Given these uncertainties and the lack of surveys within the limits of disturbance for this project, we assume the potential presence of undocumented overwintering queens, along with queens, workers, and males associated with active nests wherever suitable habitat occurs within the disturbance footprint. These individuals may be affected by project implementation. However, we expect the number of rusty patched bumble bees present within the limits of disturbance to be low. Although detections have increased in recent years, the species remains rare across the landscape. For example, from 2014 to 2022, more than 2,000 surveys across the Central Appalachians (West Virginia, Virginia, Maryland, and Pennsylvania) yielded only 274 individuals (Hepner et al. 2023). Additionally, rusty patched bumble bees exhibit lower colony numbers relative to other Bombus species (Mola et al. 2024).

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, “effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.”

Rusty Patched Bumble Bee

The project proposes to remove obstructions to Runway 5-23 approaches in nine separate Areas, as described above. Obstruction removal activities will result in approximately 24.05 acres of ground disturbance, of which 11.12 acres of ground disturbance will occur within suitable habitat for the rusty patched bumble bee. Given the impacts to suitable habitat (i.e., foraging, nesting, and overwintering), these activities are expected to result in adverse effects on the rusty patched bumble bee. Briefly, direct adverse effects expected include crushing and displacement. Indirect adverse effects on individual bee fitness and reduced reproductive capacity of colonies near the project area are also expected. However, these impacts are anticipated to be temporary, as no permanent land conversion is expected. Additionally, not all activities are expected to result in adverse effects. Impacts to areas determined to be unsuitable

for the rusty patched bumble bee (i.e., Mowed Lawn, Developed Land, Woodlots, and Other [farmlands]; 16.01 acres) are not anticipated to result in adverse effects to the species because the species is not expected to be present in these areas.

Vibrations generated during equipment operation and excavation are estimated to be less than 0.88 inches per second, which is well below the reported 9.8 inches per second threshold that elicited a response in a comparable species, the honeybee (*Apis mellifera*; Chehaimi and Kirchner 2024). Similarly, noise generated by heavy equipment operation is not anticipated to adversely affect the species. Although noise levels may reach approximately 80.4 decibels—exceeding the 69-decibel threshold shown to alter foraging behavior in the buff-tailed bumblebee (*Bombus terrestris*; Varga-Szilay et al. 2025)—several factors indicate that project-related noise will not rise to the level of causing adverse effects. Noise associated with tree removal and trimming will occur in multiple, dispersed locations throughout the Action Area, limiting exposure at any one site. Additionally, unlike the polytunnel conditions in Varga-Szilay et al. (2025), where bees were restricted to foraging on specific floral resources, rusty patched bumble bees in the Action Area have access to a variety of alternative foraging patches and can readily shift to other floral resources when localized noise temporarily reduces habitat suitability. Indeed, additional foraging resources were documented outside the limits of disturbance. Moreover, because sound attenuates with distance (Radtke 2016), the spatial footprint of potentially disruptive noise levels will be limited at any given time. Collectively, these factors indicate that noise-related impacts will be insignificant and/or discountable.

Removal of the three silos, one light structure, and relocation of one additional light structure are not expected to result in adverse effects because these activities occur in areas of previously disturbed habitat within highly disturbed soils that do not support native herbaceous vegetation. Although the structure removals and relocation involve ground disturbance, this activity will occur entirely within previously disturbed areas. Because these areas have already been impacted and no suitable undisturbed habitat remains, we do not expect the bee to be present there anymore. Therefore, we do not anticipate adverse effects from removal of the silo and light structures.

Overwintering queens and overwintering habitat
Queens may be present within the 7.61 acres identified as suitable overwintering habitat within the limits of disturbance. Queens are particularly vulnerable to tree removal and ground disturbance during the winter, as low temperatures preclude their ability to rouse and escape activities that could result in crushing them. Additionally, the removal of leaf litter and duff that acts as thermal cover and insulates overwintering queens in their burrows could also increase exposure to winter temperatures, lowering the overwintering queen survival rate. Loss of any overwintering queens would represent the loss of a future colony and loss of the collective reproductive capacity of the affected HPZ population. However, overwintering queens are not anticipated to be directly affected (crushed) due to the FAA's commitment to conduct tree removal and trimming between May 1st and September 31st. Additionally, multiple overwintering queens are likely to be present elsewhere within suitable habitat in the HPZ, as well as in portions of the Action Area that lie outside the limits of disturbance and therefore will remain unaffected by the proposed action. These queens will emerge in the spring following tree removal and trimming to start colonies elsewhere in the HPZ.

Foraging bees and foraging habitat
Within the limits of disturbance, 11.12-acres is within a High Potential Zone (HPZ) and is considered suitable foraging habitat for the rusty patched bumble bee throughout its active period, including spring, summer, and fall. Due to tree trimming and removal, the loss and degradation of floral resources is anticipated. This may adversely affect rusty patched bumble bees by reducing the availability of foraging resources during critical life stages. In particular, the loss of ephemeral and early-blooming canopy tree species is expected to disproportionately impact overwintering queens, which rely on these resources after emerging in early spring when few other flowers are available (Colla and Dumesh 2010; Requier et al. 2020; Mola et al. 2021). Further, because queens must both forage and tend their nests until workers are ready to begin foraging, they have limited mobility making nearby floral resources vital to their survival and reproductive success (Lanterman et al. 2019). Similarly, the loss of late spring and summer foraging habitat may reduce the fitness and survival of workers and males, as longer foraging distances require greater energy expenditure and may reduce colony productivity (Pelletier and McNeil 2003; Burns 2004; Samuelson et al. 2018; Crowther et al. 2019; Timberlake et al. 2021). Fall impacts may also affect new queens as they disperse to feed and mate before overwintering.

However, the majority of floral resource loss will be temporary. Project activities will temporarily impact approximately 11.12 acres of potential foraging habitat. Additionally, the 11.12-acre area of impact represents just 0.05 percent of the HPZ. Given the limited extent and temporary nature of most impacts, adverse effects to foraging rusty patched bumble bees are expected to be minimal.

Nesting queens and nesting habitat
The entire Action Area is within an HPZ, and because of the habitat within the limits of disturbance, 11.12 acres is considered suitable nesting habitat. The use of heavy machinery during tree removal and trimming can lead to rutting, scraping, ground disturbance, and soil compaction. These actions may result in the direct mortality of nesting queens and the destruction of colonies in suitable nesting habitats. In areas where machinery tracks, tires, or other components compact the soil or block burrow openings, colony members may be crushed or unable to enter or exit their nests. Such impacts could lead to the loss of most or all individuals in the affected colonies. Nest destruction could also impact newly established foundress queens, reducing the number of new colonies and ultimately affecting the population's reproductive success.

Conclusion of Effects of the Action
Tree removal and trimming, along with ground disturbance associated with the proposed action, will temporarily impact 7.61 acres of suitable overwintering rusty patched bumble bee habitat. The impacts to this habitat type will result in the loss of soft, loose soil and litter material for insulation of overwintering queens, and the loss of important ephemeral floral resources. However, as mentioned above, multiple overwintering queens are likely to be present elsewhere within suitable habitat in the HPZ and therefore will remain unaffected by the proposed action. These queens will emerge in the spring following tree removal and trimming to start colonies elsewhere in the HPZ. Impacts will be further reduced by conducting tree removal and trimming activities between May 1st and September 31st to avoid crushing of overwintering queens.