

**Appendix N-3: Evaluation of Bird and Bat Occurrence  
and Potential Development Impacts at Seneca Wind Farm**

SENF005

SENFPG305

FORM WD02 OHIO DEPARTMENT OF NATURAL RESOURCES  
6/27/08 DIVISION OF WILDLIFE

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## BIRD SURVEY FORM

Project Name: SENECA W/F Survey type: PASS MIG Date: 09-16-09Observer: HKO Start time: 740 (military time) Stop time: 750 + 5 MIN  
FOR INTERRUPTIONPoint number: 05 Temp (°C): 18 Wind speed (m/s): 5 KN Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	75	N	2	FLYING
RBWO	50	W	1	
AMRO	50	N	1	
DOWO	40	E	1	
WBNW	150	E	1	
BCCH	40	E	2	
BLJA	130	E	4	
AMRO	75	E	1	
CAGO	50	E	48	FLYOVERS
AMRO	80	E	13	
GRCA	60	E	1	
BLPW	60	E	1	BLACKPOLL
* STONE DELIVERY FOR FIELD ENTRANCE INTERRUPTED COUNT.				
UNPA#1	75	N	1	POSSIBLE CHSP
CHSP	125	N	1	
LIBNU	10	W	1	
BCCH	10	W	3	
EAWP	40	W	1	
EAWP	50	SW	1	
NOFL	20	S	1	FLYING
UNPA#2	50	E	1	HOFI??
CEDW	40	S	1	

FALL  
WEEK 5

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-16-09

Observer: HKO Start time: 718 (military time) Stop time: 728

Point number: 04 Temp (°C): 16 Wind speed (m/s): 0 Cloud cover 0 %

[illegible]



## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-09Observer: HRO Start time: 926 (military time) Stop time: 936Point number: 13 Temp (°C): 19 Wind speed (m/s): 6 Cloud cover 10%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
GRCA	70/100	NW	2	
EAWP	80	W	2	
UNPA#1	40	NW	1	LARGER THAN WARBER, FLYCATCHER BARELY SEEN
INBU	45	NW	4	
WBNU	40	SW	1	
AMGO	30	NW	2	
DOWO	70	NW	1	
UNFL	80	NW	1	EMPIDONAX, LEFL?
AMRO	60	N	1	
AMRO	80	NW	1	
WITU	70	W	1	BURBLING
BCCH	75/100	NW	3	
UNWD	90	NW	1	UNID WOODPECKER? RBWD OR RHWD.
AMRO	100	N	2	FLYING
AMGO	80	NW	2	
GRCA	100	NW	1	
LEFL	100	NW	2	
UNFL	40	SW	1	EMPIDONAX FLYCATCHER PROBABLE LEFL
MAWA	40	W	1	
INBU	90	SW	1	

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-09

Observer: HKO Start time: 845 (military time) Stop time: 855

Point number: 11 Temp (°C): 17 Wind speed (m/s): 4 Cloud cover 5%

[illegible]

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Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-09

Observer: H/KO Start time: 909 (military time) Stop time: 919

Point number: 12 Temp (°C): 19 Wind speed (m/s): 8 Cloud cover 5%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG. Date: 09-14-09

Observer: HKO Start time: 716 (military time) Stop time: 726

Point number: 07 Temp (°C): 14 Wind speed (m/s): 5KN Cloud cover 5 %

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-09

Observer: HKO Start time: 729 (military time) Stop time: 739

Point number: 08 Temp (°C): 15 Wind speed (m/s): 5 KN Cloud cover 5%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-16-09

Observer: HKO Start time: 832 (military time) Stop time: 842

Point number: 17 Temp (°C): 18 Wind speed (m/s): 12 Cloud cover 15%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
UNPA#1	20	N	1	UNID WARBLED
BLJA	50	S	1	
AMGO	40	E	1	
BAW/W	35	S	1	BLACK & WHITE WARBLER
DO WO	75	SE	1	
WBNU	100	SW	1	
UNPA#1	40	S	1	VERY GREEN BIRD RCKI? VIRED? COUDN'T GET CLEA
BCCH	75	S	2	
TUTI	80	S	1	
DUMP TRUCKS CAME THROUGH TWICE INTERRUPTING ACTIVITY,				

LARGE

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-16-09

Observer: HKO Start time: 928 (military time) Stop time: 938

Point number: 03 Temp (°C): 17° Wind speed (m/s): 25<sup>E</sup> km/h Cloud cover 20 %

[illegible]



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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG. Date: 07-16-09

Observer: HKO Start time: 1010 (military time) Stop time: 1020

Point number: 02 Temp (°C): 22 Wind speed (m/s): 5.4 Cloud cover 40%

[illegible]

**BIRD SURVEY FORM**

Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-04

Observer: HKO Start time: 826 (military time) Stop time: 836

Point number: 18 Temp (°C): 18 Wind speed (m/s): 5 Cloud cover 10 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
HAWO	20	SE	1	
SO SP	200	NE	1	
SASP	200	NE	1	
HOSP	200	NE	3	
UNSP	200	NE	6	FLYING IN, LANDING DEEP IN SOY BEANS
WAVI	100	NNE	1	
AMRO	50	W	1	
EUST	200	SW	5	
HOSP	200	SW	4	
BLJA	150	N	1	
AMRO	100	NE	4	FLYOVERS
CHSP	200	NW	3	
UNPA#1	150	S	1	SPARROW? AMGO?
AMCR	200	W	1	
WBNU	80	SW	1	
AMCR	200	SW	5	



SENF006

SENFPG319

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-14-09Observer: HKO Start time: 1035 (military time) Stop time: 1045Point number: 06 Temp (°C): 19 Wind speed (m/s): 8 Cloud cover 45%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	100	NE	2	
TUVU	150	NW	1	
GRCA	40	NE	1	
AMGO	75	E	1	
AMRO	100	NW	1	
BLJA	60	W	1	
BCCH	50	W	1	
AMGO	150	W	1	
AMRO	75	E	27	
AMRO	75	E	3	
BGGN	60	E	1	
AMRO	50-150	E	15	
BLJA	100	ESE	2	
TUTI	70	ENE	2	
CEDW	85	E	5	
COGR	70	E	3	FLYOVERS
GRCA	100	E	1	
AMRO	85	E	10	
RTHA	50	E	1	FLYOVER

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Fall  
Week 6

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-24-09

Observer: HKO Start time: 924 (military time) Stop time: 934

Point number: 05 Temp (°C): 22° Wind speed (m/s): 4 KN Cloud cover 99%

[illegible]

SEWFPG322

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SENF007

SENFPG323

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09.24.09Observer: HKO Start time: 836 (military time) Stop time: 846Point number: 07 Temp (°C): 21 Wind speed (m/s): 2 KN Cloud cover 99%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	40	E	1	
HOSP	150	SE	6	
AMRO	80	E	2	
EUST	150	SE	5	
BLJA	120	SE	1	
NOFL	140	E	1	
TUTI	150	E	2	
WBNU	150	E	1	
KILL	200	SE	1	WHEET
AMRO	80	NE	3	FLYOVERS
MAWA	150	E	2	MAGNOLIA WARBLER
* KILL	300	E	4	> 200M
* AMRO	300	E	13	> 200M
RWBL	150	E	8	FLYOVER
MODD	150	SE	5	
AMRO	150	SE	1	
CAGO	150	E	2	
DOWD	200	E	1	
UNPA#7	150	E	1	PROBABLE RCK1

SEWFO03

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09.24.09Observer: L/KO Start time: 802 (military time) Stop time: 812Point number: 03 Temp (°C): 20 Wind speed (m/s): 0 Cloud cover: high fog 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
RWBL	25	NE	8	
FISP	10	NE	2	
BHCO	15	NE	1	
EUST	15	NE	5	
UNSP	20	NE	2	UNID SPARROWS
AMGO	10	E	2	
BLJA	25	E	1	
AMRO	20	SE	3	
AMRO	30	E	4	
AMGO	60	NW	2	
AMGO	40	S	4	
AMGO	0	—	1	
AMRO	15	SE	3	
AMRO	15	SE	5	
AMGO	15	NE	5	
AMGO	30	W	3	
DOWD	10	E	1	
AMGO	20	N	4	
AMGO	15	E	1	
MODD	20	W	1	
UNSP	40	NE	2	UNID SPARROWS
HOLA	30	N	1	

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-23-09

Observer: HKO Start time: 925 (military time) Stop time: 935

Point number: 18 Temp (°C): 24° Wind speed (m/s): 3 Cloud cover 100%

[illegible]



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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-23-09

Observer: HKO Start time: 848 (military time) Stop time: 858

Point number: 12 Temp (°C): 23 Wind speed (m/s): 8 KN Cloud cover/20%

[illegible]

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SENF-PG328

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASSMIG Date: 09-23-09Observer: HKO Start time: 908 (military time) Stop time: 918Point number: 11 Temp (°C): 22 Wind speed (m/s): 10 Cloud cover: 00%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
EUST	60	SW	2	FLYING
GRCA	85	SW	1	
BLJA	90	SW	2	
AMCR	50	E	4	FLYING
AMCR	60	E	2	
RBWD	100	S	1	
AMGO	80	S	1	
AMRD	90	SW	2	
RBWD	100	NE	1	
AMCR	50	SW	1	FLYING
* RTHA	>200M	SE	1	*OUTSIDE 200M

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-23-09Observer: HKO Start time: 825 (military time) Stop time: 815Point number: 16 Temp (°C): 21 Wind speed (m/s): 2 Cloud cover: 00%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	200	NE	1	
BLJA	200	NW	1	
AMRO	25	N	3	FLYOVER
AMGO	25	E	1	
EAWP	35	S	1	
AMRO	30	S	1	
AMGO	35	S	1	
EUST	100	W	2	FLYOVERS
AMRO	110	W	1	"
UNPA <sup>#1</sup>	150	NW	3	SPARROW? / INBU? CHIP NOTES - UNSTEN
EUST	80	NW	25	FLYOVERS
EUST	120	NW	2	
AMGO	40	N	1	
BLJA	200	S	1	
AMGO	100	E	2	
NOCA	25	E	2	
AMGO	60	E	1	
GRCA	20	E	1	

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Project Name: SENECA WF Survey type: PASS MIG Date: 07-23-09

Observer: HKO Start time: 828 (military time) Stop time: 838

Point number: 13 Temp (°C): 23 Wind speed (m/s): 1 KN Cloud cover 99%

[illegible]

## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-23-09Observer: HKO Start time: 720 (military time) Stop time: 730Point number: 06 Temp (°C): 20 Wind speed (m/s): 0 Cloud cover 99%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	30	SW	2	
AMRO	40	WNW	1	
UNPAH	25	S	1	
AMRO	40	S	1	
AMCR	150	NW	1	
HDWR	45	W	1	
AMRO	50-100	W	4	
AMGO	75	N	1	FLYING
BLJA	125	WSW	2	
AMGO	0	—	1	FLYING
CEDW	40	NW	2	
AMRO	30	N	2	
RBWD	50	NE	1	
AMRO	60	SE	1	
GRCA	100	ESE	1	
GRCA	75	ENE	2	
PIWO	200	NE	1	
SWTH	60	NW	1	SWAINSON'S THRUSH

SEWFPL933Z

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-24-09

Observer: HKO Start time: 735 (military time) Stop time: 745

Point number: 01 Temp (°C): 20 Wind speed (m/s): 0 Cloud cover 20%

[illegible]

SEWFPG334

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Point number: 02 Temp (°C): 20 Wind speed (m/s): 0 Cloud cover 100% <sup>High fog</sup>

[illegible]

SENF012

SENFPL335

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-01-09Observer: HKO Start time: 912 (military time) Stop time: 922Point number: 12 Temp (°C): 6 Wind speed (m/s): 4 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
NOFL	60	SE	1	
AMRO	70	SE	1	
MODD	30	S	1	FLYING
UNWD	80	ESE	1	UNID WOODPECKER RBWD?
AMRO	150	SW	1	
AMRO	150	E	1	
AMGO	50	W	2	
NOFL	100	SW	1	
NOFL	30	SE	1	
BLJA	150	SW	1	
WBNU	25	NE	1	
BLJA	100	N	1	
NOFL	150	SE	1	
TUTI	40	E	3	
AMRO	50	E	1	
NOFL	125	NE	1	
AMRO	10	E	7	FLYING TO S
WTSP	20	NIE	1	

FALL  
WEEK 7

SENF6336

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Point number: 08 Temp (°C): 12 Wind speed (m/s): 15 KN Cloud cover: 100%

[illegible]

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SENFPG337

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-01-09Observer: HKO Start time: 1002 (military time) Stop time: 1012Point number: 18 Temp (°C): 12 Wind speed (m/s): 15 Cloud cover 0%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
WBNU	35	W	1	
WBNU	40	SW	1	
BLJA	70	W	1	
UNSP	60	NE	2	UNID SPARROWS
EAFL	100	SE	2	
AMGO	80	N	1	
BCCH	100	NW	1	
EUST	200	SW	4	
BLJA	40	W	3	
DOWD	25	N	1	
TUVU	35	N	1	
AMCR	200	W	1	
UNPA#1	80	N	1	NOCA??
UNSP	150	NE	2	FLEW DOWN INTO CORN
RBWD	100	NNW	1	
HOSP	150	SW	1	

SENECA WF

SENECA WF 3380

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-30-09Observer: HKO Start time: 915 (military time) Stop time: 925Point number: 07 Temp (°C): 11 Wind speed (m/s): 4KN Cloud cover: 01 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	30	NE	1	
WBNU	50	NE	2	
KILL	30	S	2	
KILL	75	SE	8	
EUST	150	SE	31	
KILL	90	SE	1	
BLJA	150	E	3	
HOSP	150	E	5	
BLJA	150	E	2	
RBWO	125	E	1	
TUVU	200	E	1	
AMRO	150	SE	1	
TUVU	175	E	3	
MODO	125	E	2	
BLJA	150	E	6	
WBNU	125	E	1	
DOWD	100	E	2	
TUTI	90	E	1	
BHCO	150	E	1	
}	}			
}	}			

SEWFPL9339

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Point number: 06 Temp (°C): 9 Wind speed (m/s): 20 Cloud cover 100 %

[illegible]

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SENEFPL9340

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-01-09Observer: HKO Start time: 940 (military time) Stop time: 950Point number: 11 Temp (°C): 6 Wind speed (m/s): 4 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
EUST	75	SW	3	
AMPO	90	SW	1	
AMGO	90	SW	2	
NOFL	50	N	1	FLYING
WBNV	50	E	1	
UNSP	35	W	3	UNID SPARROWS HIDDEN IN HAY FIELD
EUST	40	S	3	
NOFL	115	S	1	
RBWO	40	SE	1	
AMRO	75	S	2	
WBNV	125	S	2	
EUST	150	S	5	
AMGO	40	S	2	
UNPA#1	70	S	1	COYE??
BLJA	150	S	1	
UNPA#2	70	S	1	
AMGO	50	S	1	

SENFPL 9341

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Project Name: SENECA WF Survey type: PASS MIG Date: 09-30-09  
Observer: HKO Start time: 1048 (military time) Stop time: 1058  
Point number: 03 Temp (°C): 11 Wind speed (m/s): 15 KN Cloud cover 100%

[illegible]

BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-01-09

Observer: HKO Start time: 845 (military time) Stop time: 855

Point number: 13 Temp (°C): 4 Wind speed (m/s): 0 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	40	W	1	
GRCA	30	SW	1	
TUVU	50	WNW	2	
NOCA	30	NW	2	
SO SP	40	WSW	1	
AMRO	120	N	1	
UNPAH	50	N	1	FLYING E INBU?
AMRO	40	NW	1	
INBU	40	N	2	
AMRO	40	S	1	
AMRO	5	E	1	FLYING
MODO	150	S	1	
DOWNO	35	W	1	
AMGO	75	W	1	
BLJA	100	S	1	
LEDW	50	S	5	
AMGO	80	S	7	
AMRO	80	S	3	
EUST	125	S	2	FLYING
CHSP	75	S	2	
4	5			

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-01-09

Point number: 16 Temp (°C): 2 Wind speed (m/s): 0 Cloud cover 0 %

[illegible]

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Project Name: SENECA WF Survey type: PASS MIG Date: 09-30-09

Point number: 09 Temp (°C): 11 Wind speed (m/s): 12 KN Cloud cover 100 %

[illegible]

SENF017

SENFPG345

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DIVISION OF WILDLIFE

## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 09-30-09Observer: HRD Start time: 1020 (military time) Stop time: 1030Point number: 17 Temp (°C): 11 Wind speed (m/s): 6 KN Cloud cover 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	50	SW	1	
BLJA	100	W	1	
WBNU	150	NW	1	
				IDED BELOW
BLJA	50	SW	2	
DOWO	75	SW	1	
DOWO	150	S	1	
SOSP	150	S	2	
AMRO	150	S	3	
WBNU	150	S	1	
AMGO	150	S	3	
BPWA	150	S	1	line thru eye
NAWA	150	S	1	complete eyering
EAPH	150	S	1	
NAWA	150	S	1	2 TOTAL
SOSP	175	S	2	ADDITIONAL





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[illegible]

SENFPLG349

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## DIVISION OF WILDLIFE

Project Name: SENECA W/F Survey type: PASS MIG Date: 09-30-09

Point number: 02 Temp (°C): 10 Wind speed (m/s): 3 KN Cloud cover 100%

[illegible]

SENF013

SENFPG350

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09Observer: HKO Start time: 1005 (military time) Stop time: 1015Point number: 13 Temp (°C): 9 Wind speed (m/s): 5 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMGO	25	E	1	
WBNU	100	W	1	
BLJA	15	S	1	FLYING
NOCA	30	S	1	
AMRO	70	NNW	2	
INBU	60	SSW	2	
AMGO	60	SSW	2	
AMRO	80	SW	1	
UNPA#1	15	NW	1	
GRCA	40	NW	1	
UNPA#2	25	NE	1	IN CORN
GCKI	10	S	1	?
INBU	60	NNW	2	
BLJA	0	-	2	FLYING
AMGO	0	-	2	"
KILL	10	E	1	"
INBU	75	NNE	1	
SOSP	25	SSW	1	
TUTI	25	SSW	1	

Fall  
Week 8

SEWFP6351

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09  
Observer: AKO Start time: 943 (military time) Stop time: 953  
Point number: 16 Temp (°C): 6° Wind speed (m/s): 5 Cloud cover 0%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09

Observer: HKO Start time: 1041 (military time) Stop time: 1051

Point number: 11 Temp (°C): 12 Wind speed (m/s): 8 Cloud cover 1 %

[illegible]

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Point number: 12 Temp (°C): 12 Wind speed (m/s): 12 <sup>km/h</sup> Cloud cover 0%

[illegible]

SEWFP69354

# BIRD SURVEY FORM

Point number: 01 Temp (°C): 7 Wind speed (m/s): 6 km Cloud cover 70%

[illegible]

SENFPLG355

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-08-09

Point number: 02 Temp (°C): 7° Wind speed (m/s): 8 KN Cloud cover 60%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA W/F Survey type: PASS MIG Date: 10-08-09

Observer: HKO Start time: 9.11 (military time) Stop time: 9.21

Point number: 17 Temp (°C): 11 Wind speed (m/s): 6 Cloud cover 20%

[illegible]

SEWFPLG357

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-08-09  
Observer: HKO Start time: 850 (military time) Stop time: 900  
Point number: 03 Temp (°C): 8 Wind speed (m/s): 10 <sup>SW</sup> ~~km~~ Cloud cover 60%

[illegible]

SENF005

SENFPG358

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09Observer: HKO Start time: 800 (military time) Stop time: 810Point number: 05 Temp (°C): 8 Wind speed (m/s): 3KN Cloud cover 0%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BCCH	25	W	8	
WBNU	20	W	1	
AMRO	70	SW	9	
NOCA	40	NW	2	
UNPA#1	30	W	2	FLYING
DOWO	30	W	1	
BLJA	75	E	1	
RTHA	30	N	1	FLYING, THEN PERCHED
EUST	20	E	3	
SOSP	30	SW	3	
AMRO	100	NW	1	
AMRO	100	WNW	1	
WBNU	70	NNE	1	
SOSP	50	S	1	
SOSP	30	N	1	
DOWO	40	SW	1	
CMWA	75	SW	1	CAPE MAY WARBLER
NANA	75	SW	2	YELLOW, EYERING
WBNU	125	SW	1	
}	}			

SEWFLG359

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Project Name: SENECA W/F Survey type: PASS MIG Date: 10-5-09

Observer: HKO Start time: 746 (military time) Stop time: 756

Point number: 04 Temp (°C): 8 Wind speed (m/s): 0 Cloud cover 0%

[illegible]

SEWFP6360

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-08-09

Observer: HKO Start time: 939 (military time) Stop time: 949

Point number: 18 Temp (°C): 13° Wind speed (m/s): 8 KN Cloud cover 80 % HAZE

[illegible]

SENF006

SENF PL 301

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## BIRD SURVEY FORM

Project Name: SENECA G/K Survey type: PASS M10 Date: 10-05-09Observer: HKO Start time: 822 (military time) Stop time: 832Point number: 06 Temp (°C): 5 Wind speed (m/s): 0 Cloud cover 0%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	15-100	SSE	15	
BLJA	100	N	1	
WBNU	70	NE	1	
NOCA	75	E	2	
GRCA	100	E	1	
BCCH	80	NE	4	
RHWO	80	E	1	
TUTI	75	E	1	
UNWO	75	ENE	1	RHWO?
AMRO	100	E	4	
BCCH	10	NW	2	
AMRO	80	NW	1	
AMRE	80	ENE	1	
NOFL	90	E	1	
UNPA#1	85	NE	2	
UNPA#2	150	NE	4	EABL?
AMRO	10-100	E	9	FLYING
BLJA	50	S	1	
BLJA	50	W	2	FLYING
}	}			
}	}			

SENF007

SENFPG362

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09Observer: HKO Start time: 838 (military time) Stop time: 848Point number: 07 Temp (°C): 8 Wind speed (m/s): 5 KN Cloud cover 1 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	90	NE	2	
WBNU	70	E	1	
MODO	125	SW	1	
HO SP	125	SE	4	
KILL	100-200	S	10	
TUVU	150	W	1	
TUVU	75	W	1	
HO LA	100-200	S	25	
TUVU	125	SE	3	
RBWO	60	ENE	1	
EUST	125	SE	7	
AMRO	140	SE	1	
TUTI	100	E	4	
TUVU	80	ENE	1	PERCHED
BLJA	75	E	2	
MODO	120	E	1	
TUVU	40	S	2	

SENFP6363

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-05-09

Observer: HKO Start time: 900 (military time) Stop time: 910

Point number: 08 Temp (°C): 9 Wind speed (m/s): 5 Cloud cover 1 %

[illegible]

SENF009

SENFPG364

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS M16 Date: 10-05-09Observer: HKO Start time: 918 (military time) Stop time: 928Point number: 09 Temp (°C): 10 Wind speed (m/s): 8KN Cloud cover 2 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
DOGW	5	N	3	
EUST	60	NE	4	
TUTI	40	E	1	
AMCR	100	NW	1	
AMCR	125	S	1	
AMCR	80	SE	1	
UNWO	75	E	1	RHOW?
DOGW	85	E	1	
UNPA#1	150	E	1	FLYING TO S
RHOW	60	N	1	
GRCA	70	SE	1	
WBNU	30	NW	2	
WBNU	20	N	1	
EUST	50	WSW	3	
TUTI	30	SE	1	
EUST	40	N	2	
EUST	80	SW	1	
TUTI	50	SW	1	
AMGO	150	W	2	
}	}			

~~SEN~~FPLG365

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Project Name: SENECAWF Survey type: PASS MIG Date: 10-13-09

Observer: HKO Start time: 817 (military time) Stop time: 827

Point number: 17 Temp (°C): 10 Wind speed (m/s): 8 KN Cloud cover 100%

[illegible]

## Fall Week 9

SEINF PL9366

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-13-09  
Observer: HKO Start time: 802 (military time) Stop time: 812  
Point number: 05 Temp (°C): 46.5 Wind speed (m/s): 15 KN Cloud cover: 100%

[illegible]

SENFPG367

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SENF006

SENF006 368

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-12-09

Observer: HKO Start time: 1020 (military time) Stop time: 1030

Point number: 06 Temp (°C): 8 Wind speed (m/s): 12 Cloud cover: 00%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	20	E	3	
BLJA	30	S	1	
AMRO	VARIOUS	E	50	FLYING S TO N
EUST	80	W	20	FLYING
AMRO	60	W	20	"
AMRO	VARIOUS	E	93	FLYING S TO N
BLJA	60	E	1	
EUST	75	W	50	FLYING TO S
AMCR	100	W	2	
BCCH	50	WNW	1	
BCCH	60	W	1	
AMRO	VARIOUS	S	50	ESTIMATED ADDL
WBNU	50	NW	1	
* LARGE POD OF SPARROWS (SOSP IDENT), YRWA, AM60 (100 BIRDS) 1/4 MILE WEST OF POINT 6 ON SAME ROAD.				



SENF012

SENF pg 370

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-12-09Observer: HKO Start time: 829 (military time) Stop time: 839Point number: 12 Temp (°C): 7 Wind speed (m/s): 6 Cloud cover 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	75	S	1	FLYING
AMCR	150	SW	1	
AMRO	150	SW	1	
DOWO	50	SE	1	
CAGO	150	S	4	
RBWO	100	SW	1	
AMCR	20	S	1	FLYING
AMGO	50	S	2	
EUST	30	W	15	FLYOVERS
UNPA#1	20	E	2	" (TUT1 -SIZED)
UNPA#2	40	E	1	
EUST	50	W	18	FLYOVERS
WBNU	40	N	1	
UNSP	30	N	2	WTSP?
BLJA	40	N	2	FLYOVER
AMRO	35	N	2	"
EUST	40	N	1	"
AMGO	100	SW	1	

SEWFP61371

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-12-09  
Observer: HKO Start time: 813 (military time) Stop time: 823  
Point number: 13 Temp (°C): 6 Wind speed (m/s): 6 Cloud cover 80%

[illegible]

SENF016

SENFPG372

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## BIRD SURVEY FORM

Project Name: SENECAWF Survey type: PASS MIG Date: 10-12-09Observer: HKO Start time: 747 (military time) Stop time: 757Point number: 16 Temp (°C): 5 Wind speed (m/s): 3 KN Cloud cover 65%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	100	NW	1	
DOWO	70	SSW	1	
AMRO	100	W	5	FLYING 5
RSHA	50	E	1	
AMRO	50	SE	3	FLYING
MODD	10	S	1	"
RBWO	75	W	1	
GBHE	200	NW	1	
TUVU	50	E	1	
TUVU	80	NW	1	
TUVU	20	N	1	
UNSP	60	NW	1	UNID SPARROW
AMGO	30	N	1	
AMGO	75	W	1	
NOCA	50	W	1	
WBNU	50	S	1	



SEVFP6374

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Point number: 09 Temp (°C): 7 Wind speed (m/s): 15 km Cloud cover 100%

[illegible]

SEWFPL 375

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Project Name: SENECAWF Survey type: PASS M/G Date: 10-12-09  
Observer: HKO Start time: 933 (military time) Stop time: 943  
Point number: 07 Temp (°C): 8 Wind speed (m/s): 15 KM Cloud cover: 100%

[illegible]

SEWFPG376

Page / of /

Project Name: SENECA W/F Survey type: PASS MIG Date: 10-12-09

Observer: HKO Start time: 952 (military time) Stop time: 1002

Point number: 18 Temp (°C): 9 Wind speed (m/s): 10 KN Cloud cover 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
CHSP	200	NE	1	
HOSP	200	SW	5	
UNPA#1	40	NW	1	CHIPNOTES
EUST	200	SW	1	
WBNU	40	W	1	
AMGO	70	S	1	
RBWO	80	SW	1	
*RTHA	500M	SW	1	>200M SW*

SENF 61377

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-13-09  
Observer: HKO Start time: 848 (military time) Stop time: 858  
Point number: 03 Temp (°C): 9 Wind speed (m/s): 10 Cloud cover 99%

[illegible]

SENF001

SENF09378

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-13-2009Observer: HKO Start time: 911 (military time) Stop time: 921Point number: 01 Temp (°C): 9 Wind speed (m/s): 15 K Cloud cover 99%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	15	E	5	FLYING N
BLJA	75	S	1	
AMCR	150	E	1	" N
BLJA	20	E	1	" N
RTHA	75	W	1	
AMCR	50	E	1	" N
AMCR	125	E	1	" N
AMCR	70	S	1	" N
BLJA	75	E	1	"
AMCR	100	E	3	" N
AMCR	110	E	2	" N
DDWO	80	E	1	
RBWO	125	NE	1	
BLJA	30	W	1	
NACA	100	E	2	
GRCA	150	E	1	
DOWO	125	ESE	1	
GCKI	40	W	5	
WBNU	20	W	1	
}	}			
}	}			

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-13-09  
Observer: AXD Start time: 928 (military time) Stop time: 938  
Point number: 02 Temp (°C): 11 Wind speed (m/s): 10 Cloud cover 100%

[illegible]

SENF004

SENFPL380

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-21-09Observer: HKO Start time: 931 (military time) Stop time: 941Point number: 04 Temp (°C): 9 Wind speed (m/s): 5 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	60	N	2	
EABL	100	E	1	
AMRO	20	E	2	FLYOVERS
AMRO	50	S	2	
NOFL	60	SW	2	
AMCR	175	W	1	
BLJA	150	SE	1	
EUST	60	E	2	FLYOVERS
NOFL	100	SE	1	
BCCH	70	E	3	
HOSP	125	E	2	
AMRO	150	NE	1	
DOWN	100	ESE	1	
WBNU	70	ENE	1	
RBWO	80	ESC	2	
AMGO	120	E	1	

Fall Week 10

SENF003

SENF-PL9381

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+1 @ BOTTOM

## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-21-09Observer: HKO Start time: 746 (military time) Stop time: 956Point number: 03 Temp (°C): 10° Wind speed (m/s): 6 Cloud cover 5%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRU	75	W	37	FLYOVERS
BLJA	75	SE	1	
BCCH	50	W	2	
RWBL	40	W	4	
WBNU	35	SE	1	
NOFL	10	E	1	
BCCH	20	S	2	
TUTI	25	SE	2	
DOWO	30	SE	1	
RCKI	20	E	1	
AMRO	5	E	18	FLYOVERS
WTSP	20	SE	2	
NOCA	20	NE	2	
YRWA	20	E	4	
AMGO	25	E	2	
UNPA#1	10	E	4	FLYOVERS
AMCR	200	SW	1	
AMGO	50	NE	2	
YRWA	50	E	5	
WTSP	50	E	6	
GCKI	50	E	1	

KILL 30 N 1 FLYING

SENF005

SENF06302

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-21-09Observer: HKO Start time: 913 (military time) Stop time: 923Point number: 05 Temp (°C): 11° Wind speed (m/s): 5 Cloud cover 3 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
WBNU	5	N	2	
TUTI	5	N	2	
AMRO	20	S	7	FLYOVERS
BCCH	30	SW	5	
BCCIT	20	W	2	
BLJA	60	NW	1	
CHSP	10	W	1	
AMGO	20	WSW	1	
PLWO	100	W	1	
BCCH	20	NE	2	
NDFL	30	W	1	
BLJA	150	E	2	
AMRO	20	W	2	FLYOVERS
GCKI	20	N	1	
DOWO	50	N	1	
RBWO	100	SW	1	
WBNU	100	SSW	1	
EUST	40	S	1	FLYOVER
BLJA	100	W	1	
AMRO	15	S	4	
AMRO	15	W	3	

SENFPLG 303

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-21-09  
Observer: HKO Start time: 805 (military time) Stop time: 815  
Point number: 02 Temp (°C): 8° Wind speed (m/s): 6 KN Cloud cover 15%

[illegible]

SENFPG 384

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Project Name: SENECA W/F Survey type: PASS MIG Date: 10-21-09  
Observer: HKO Start time: 823 (military time) Stop time: 833  
Point number: 01 Temp (°C): 10° Wind speed (m/s): 5 Cloud cover 15 %

[illegible]

SENFP6385

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-19-09  
Observer: HKO Start time: 800 (military time) Stop time: 810  
Point number: 09 Temp (°C): 0 Wind speed (m/s): 7 Cloud cover 10 %

[illegible]

SENFPG 386

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Project Name: SENECAWF Survey type: PRF MIG Date: 10-19-09  
Observer: HKO Start time: 817 (military time) Stop time: 827  
Point number: 18 Temp (°C): 0 Wind speed (m/s): 10 Cloud cover 5 %

[illegible]

SEWFP6387

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Project Name: SENECA W/F Survey type: PASS MIG Date: 10-19-09

Observer: HKO Start time: 911 (military time) Stop time: 921

Point number: 13 Temp (°C): 3 Wind speed (m/s): 7 Cloud cover 15%

[illegible]

SENF016

SENF016 308

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-19-09Observer: HKO Start time: 937 (military time) Stop time: 947Point number: 16 Temp (°C): 6 Wind speed (m/s): 8 Cloud cover 15%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	100	S	1	
BCCH	20	SE	3	
AMGO	30	S	4	
YRWA	10	N	3	
YRWA	20	E	4	
WBNV	40	SE	1	
RCKI	20	SE	1	
SOSP	25	NE	1	
RBWD	40	S	1	
YRWA	70	ESE	3	
DOWO	40	ESE	1	
AMRO	70	E	4	
BCCH	30	N	1	
GCKI	25	S	1	
YRWA	30	N	2	
YRWA	40	NW	3	

SENFPL6389

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-19-09

Observer: HKO Start time: 833 (military time) Stop time: 843

Point number: 11 Temp (°C): 4 Wind speed (m/s): 8 Cloud cover 5%

[illegible]

SENFPL 390

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-19-09

Point number: 12 Temp (°C): 4 Wind speed (m/s): 5 Cloud cover 25%

[illegible]

SENFPLG 391

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Project Name: SENECA WF Survey type: PASS M16 Date: 10-19-09  
Observer: HKO Start time: 1016 (military time) Stop time: 1026  
Point number: 07 Temp (°C): 10 Wind speed (m/s): <sup>SW</sup>18 Cloud cover 10 %

[illegible]

SENF PL 3912

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS M16 Date: 10-19-09

Observer: HKO Start time: 958 (military time) Stop time: 1008

Point number: 17 Temp (°C): 9 Wind speed (m/s): 15 Cloud cover 10 %

[illegible]

SENF PG 393

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Project Name: SENECA W/F Survey type: PASS MIG Date: 10-19-09  
Observer: HKO Start time: 1048 (military time) Stop time: 1058  
Point number: 06 Temp (°C): 8 Wind speed (m/s): 15 Cloud cover 15 %

[illegible]

SENI-76394

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Point number: 08 Temp (°C): 11 Wind speed (m/s): 18 km Cloud cover 10 %

[illegible]

SENF-005

SENF 69395

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-29-09Observer: HRD Start time: 934 (military time) Stop time: 944Point number: 05 Temp (°C): 12° Wind speed (m/s): 3 Cloud cover 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMRO	30	SW	3	
WBNU	60	SW	1	
SOSP	50	N	1	
DOWO	10	W	2	
AMCR	125	SE	1	
WBNU	50	W	1	
BLJA	200	N	1	
AMGO	60	SE	3	
RBWO	15	W	2	
RWBL	0-25	N/S	60	FLYOVERS - TO E
DEJU	25	N	2	
NOFL	20	NE	2	
BLJA	70	N	1	
DEJU	50	NNE	2	
BCCH	30	NNE	3	
TUTI	30	NNW	3	
AMRO	40	NE	1	
YRWA	10	NE	1	
GCKI	35	N	1	
BLJA	50	NE	1	
}	}			

WEEK 11

SENF018

SENFPG396

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## BIRD SURVEY FORM

Project Name: SENECA WIF Survey type: PASS MIG. Date: 10-26-09Observer: HKO Start time: 818 (military time) Stop time: 828Point number: 18 Temp (°C): 5 Wind speed (m/s): 2 Cloud cover 5 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
DOWO	10	S	1	
NOCA	5	SW	1	
CEDW	30	W	6	FLYOVERS
AMRO	10	W	1	
RWBL	25	NW	2	FLYOVERS
AMRO	20	W	2	
AMRO	20	W	2	
XRWA	20	W	1	
WBNU	50	NW	1	
RBWO	20	S	1	
AMRO	20	SE	23	FLYING ADDITIONAL
RBWO	30	W	1	
HOSP	200	SW	5	
EABL	80	SE	2	
PIWO	100	N	1	FLYING
RWBL	200	SW	3	

SENFPL61397

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Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09

Point number: 09 Temp (°C): 4° Wind speed (m/s): 3 Cloud cover 15%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09

Observer: HKO Start time: 833 (military time) Stop time: 843

Point number: 11 Temp (°C): 5 Wind speed (m/s): 3 Cloud cover 15 %

[illegible]

SENF012

SENF012399

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09Observer: HKO Start time: 852 (military time) Stop time: 902Point number: 12 Temp (°C): 6° Wind speed (m/s): 3 Cloud cover 5 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
RTHA	80	S	1	
TUTI	40	W	2	
AMPO	150	SW	1	
UNSP	15	W	1	FLYING
WBNH	40	W	1	
NOCA	50	W	1	
GCKI	30	W	3	
AMGO	40	W	1	
TUTI	150	W	5	
NOFL	70	W	1	
YRWA	70	W	1	
UNSP	75	WSW	1	
MODD	100	W	3	
NOCA	65	W	2	
BLJA	100	SW	1	
WTSP	50	W	1	
RCKI	70	W	2	
BCCH	50	W	3	

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-07Observer: HKO Start time: 910 (military time) Stop time: 920Point number: 13 Temp (°C): 5 Wind speed (m/s): 3 Cloud cover 15%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
NOCA	0	—	1	
AMPS	5	N	1	
WBNU	50	NW	2	
AMRO	50-100	NW	9	
EABL	50	NW	1	
GCKI	30	WNW	1	
TU TI	60	NW	1	
AMCR	70	W	1	
BLJA	20	W	1	
EUST	50	W	30	FLYOVERS
RCKI	50	NW	2	
YRWA	70	NW	2	
YRWA	90	NW	1	
NOFL	80	NW	1	
SOSP	70	NNW	1	
WCSP	70	NNW	1	
RWBL	200	S	1	

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09Observer: HKO Start time: 833 (military time) Stop time: 843Point number: 16 Temp (°C): 5 Wind speed (m/s): 3 Cloud cover 10 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	150	SW	1	
TUTI	60	W	1	
AMGO	50	NW	2	
RTHA	200	NE	1	
EUST	175	NW	5	
BLJA	60	W	1	
RBWO	150	W	1	
BLJA	70	S	1	
EUST	200	NE	1	
AMGO	70	SE	2	
AMGO	150	ENE	1	
RWBL	200	E	12	FLYOVERS
WBNH	50	S	2	
RBWO	100	SE	1	
EUST	175	E	8	
RWBL	125	E	3	
EUST	0	+	12	FLYOVERS
RWBL	0	—	15	FLYOVERS
NOFL	75	W	1	

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09

Observer: HKO Start time: 955 (military time) Stop time: 1005

Point number: 08 Temp (°C): 10<sup>2</sup> Wind speed (m/s): 10 cloud cover 5 %

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Point number: 03 Temp (°C): 10 Wind speed (m/s): 2 Cloud cover 97%

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-29-09Observer: HKO Start time: 812 (military time) Stop time: 822Point number: 02 Temp (°C): 9 Wind speed (m/s): 3 KN Cloud cover 98%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	200	W	1	
AMRO	100	S	1	
BLJA	75	N	1	
AMRO	50	W	6	
AMGO	40	E	2	
AMRO	60	E	1	
BLJA	50	WNW	1	
BLJA	200	SW	1	
AMCR	150	W	3	FLYING
UNSP	150	W	2	UNIT SPARROWS
HOSP	175	WSW	2	
AMGO	50	S	1	
RWBL	100	S	4	FLYING
RWBL	150	S	1	
RWBL	200	SSE	2	
AMGO	100	SE	1	
RBWD	100	N	1	
RWBL	200	SW	8	FLYING
ROPI	200	SW	1	
AMGO	30	E	11	FLYING
}	}			

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-29-09Observer: HKO Start time: 828 (military time) Stop time: 838Point number: 01 Temp (°C): 10 Wind speed (m/s): 1 Cloud cover 90%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
NOCA	75	SE	1	
WBNU	100	ESE	1	
NOCA	60	W	1	
RWBL	10	W	7	FLYOVERS - TO S
BLJA	20	W	1	"
RWBL	30	W	5	" TO S
BLJA	10	W	1	"
RWBL	0-50	E/W	15	"
RWBL	0-40	E/W	12	" TO S
AMGO	40	N	1	TO S
BLJA	100	W	1	
RWBL	0-50	E/W	15	FLYOVERS
DOWD	100	W	1	
DOWD	40	N	1	
BLJA	125	E	1	
RWBL	0-30	E/W	15	FLYOVERS TO S
AMRO	125	E	14	
AMCR	125	N	1	
RWBL	125	E	13	FLYOVERS TO S
BCCA	100	E	1	
WBNU	100	ENE	1	
TUTI	90	ESE	1	

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# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09

Observer: HKO Start time: 1048 (military time) Stop time: 1058

Point number: 17 Temp (°C): 14 Wind speed (m/s): 10 Cloud cover 5%

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 10-26-09Observer: HKO Start time: 1030 (military time) Stop time: 1040Point number: 06 Temp (°C): 11 Wind speed (m/s): 5 Cloud cover: 5 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	50	E	1	
AMRO	0-100	E+W	15	ON ROAD
BLJA	50	W	1	
AMRO	70	W	50	
BCCH	50	NE	1	
RWBL	40	SE	10	
NOFL	30	E	1	
AMRO	0-200	S+E	150	
CEDW	60	E	5	
YRWA	50	NE	4	
UNWA	50	NE	1	(YELLOW THROAT) UNID WARBLER
BLJA	70	N	1	
NOFL	80	E	2	
WTSP	75	E	4	
CEDW	75	E	16	
CEDW	110	NE	6	

### BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 734 (military time) Stop time: 744

Point number: 05 Temp (°C): 2 Wind speed (m/s): 0 Cloud cover 20%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	125	SSW	1	
WBNH	40	W	1	
EUST	25	E	4	FLYOVERS
CEDW	50	SW	2	
AMRO	0	—	40	FLYOVERS
AMCR	0	—	2	"
AMRO	50	SW	1	
AMRO	100	SSW	1	
AMRO	30	W	2	FLYOVERS
AMRO	20	W	1	"
RWBL	30	E	6	
RWBL	50	E	70	"
RWBL	30	E	45	"
PIWD	100	W	1	
RWBL	20	E	5	"
AMRO	20	W	2	"
RWBL	10 → 100	W → E	70	"

Fall Week 12

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-2-09

Observer: HKU Start time: 715 (military time) Stop time: 725

Point number: 04 Temp (°C): 1° Wind speed (m/s): 0 Cloud cover 20%

[illegible]

[illegible]

BIRD SURVEY FORM

Project Name: SENECA WLF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 740 (military time) Stop time: 750

Point number: 06 Temp (°C): 2° Wind speed (m/s): 0 Cloud cover 15%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
EUST	90	W	50	
BLJA	75	W	2	
AMRO	20	S	5	
NOFL	10	S	1	
WBNU	40	N	1	
AMRO	80	W	5	
BCCH	25	W	1	
BCCH	30	NW	1	
AMRO	40	N	1	
RWBL	100	W	10	
AMRO	15-75	SW	8	
BLJA	70	WNW	1	
WTSP	80	W	1	
EUST	125	W	50	FLYING
EUST	100	W	2	
NOCA	75	WNW	1	
RTHA	125	NNW	1	



# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 843 (military time) Stop time: 953

Point number: 17 Temp (°C): 2° Wind speed (m/s): 7 Cloud cover 60%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
WBNU	30	SW	1	
RWBL	10	W	1	FLYOVER
DOWD	40	SW	1	
RTHA	70	S	1	
DOWD	75	S	1	
GCKI	20	E	1	
UNPA#1	60	S	1	
MOWING BERM		AT END OF SURVEY PERIOD.		
RE-COUNTED		11-03-09		

BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 924 (military time) Stop time: 934

Point number: 01 Temp (°C): 8° Wind speed (m/s): 4 Cloud cover 90%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BLJA	40	NW	1	FLYING
RBWD	35	N	2	
AMCR	100	N	3	
BLJA	20	N	1	FLYING
AMGO	60	W	1	FLYOVER
NOFL	50	W	1	
AMRO	35	WSW	2	
NOFL	50	SE	1	
BLJA	100	W	2	
RTHA	125	NW	1	
AMRO	80	SW	2	
AMRO	100	NW	4	
RWBL	30	W	80	FLYOVERS
WBNU	50	N	1	
RWBL	100	E	60	FLYOVERS
AMGO	70	E	2	
BCCH	25	E	2	

Project Name: SENECA WF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 900 (military time) Stop time: 910

Point number: 03 Temp (°C): 4° Wind speed (m/s): 5 Cloud cover 85%

[illegible]





## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-03-09Observer: HKO Start time: 825 (military time) Stop time: 835Point number: 12 Temp (°C): 3° Wind speed (m/s): 7 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
AMCR	200	S	1	
BLJA	150	NNE	1	
WBNU	60	NE	1	
WBNU	75	NW	1	
WBNU	180	SW	1	
TUTI	35	NW	1	
EUST	200	WSW	2	
DEJU	80	E	1	
EUST	150	E	4	
RBGU	70	E	1	RING-BILLED GULL FLYOVER
RBWO	100	ESE	1	
RWBL	80	E	4	FLYOVERS
EUST	70	E	1	"
NOFL	100	E	1	
WBNU	170	E	2	
RBWO	100	SE	1	
NOCA	100	ESE	1	
WTSP	150	E	2	
PIWO	150	E	1	FLYING
GCKI	40	E	2	
)	1			

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## BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-03-09Observer: HKO Start time: 810 (military time) Stop time: 820Point number: 13 Temp (°C): 2° Wind speed (m/s): 2 Cloud cover 0%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
MODO	20	SW	3	
DOWO	30	SW	1	
MODO	40	NW	10	
DOWO	50	NW	1	
CEDW	75	N	2	FLYING
AMRO	50	NW	2	
RWBL	40	N	6	FLYOVERS
RBWD	45	NW	1	
HAWO	60	SW	1	
HOLA	40	SE	1	
AMGO	35	SE	3	FLYOVERS
AMGO	60	SW	1	
AMRO	50	W	1	
WBNU	75	WNW	1	
BLJA	100	W	1	
RWBL	5	E	15	FLYOVERS

[illegible]

Project Name: SENECA WF Survey type: PASS MIG Date: 11-03-09  
Observer: HKO Start time: 905 (military time) Stop time: 915  
Point number: 18 Temp (°C): 7° Wind speed (m/s): 6 Cloud cover 0 %

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-02-09

Observer: HKO Start time: 940 (military time) Stop time: 950

Point number: 02 Temp (°C): 11° Wind speed (m/s): 6 km Cloud cover 85%

[illegible]

[illegible]



[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-09-09

Observer: HKO Start time: 924 (military time) Stop time: 934

Point number: 07 Temp (°C):            Wind speed (m/s): 6 Cloud cover 100%

[illegible]

# BIRD SURVEY FORM

BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-09-09

Observer: HKO Start time: 715 (military time) Stop time: 725

Point number: 16 Temp (°C): 8° Wind speed (m/s): / Cloud cover 40%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
BCCH	10	SW	1	
TUTI	15	N	1	
WBNU	50	SE	1	
RTHA	0	—	1	
BCCH	15	N	1	
AMCR	200	S	1	
DDWO	60	S	1	
SOSP	25	N	2	
WBNU	50	SE	1	
DDWO	30	SE	1	
AMCR	150	NE	1	FLYOVER
AMCR	200	NE	1	"
AMRO	0	—	10	"
AMCR	100	NW	2	
AMCR	60	N	7	
BLJA	150	W	2	
AMRO	35	SW	2	
BLJA	40	S	1	
AMGO	30	N	1	
SOSP	25	NW	2	
}	}			



# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-09-09

Observer: HKO Start time: 945 (military time) Stop time: 955

Point number: 06 Temp (°C): 14 Wind speed (m/s): 5 Cloud cover: 100%

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
DEJU	65	W	1	
BCCH	55	WNW	2	
BCCH	75	WSW	2	
TUTI	90	W	1	
EUST	100	WSW	3	
RBWD	80	WSW	1	
TUTI	70	W	3	
AMRO	150	W	3	
NOFL	75	WSW	1	
DEJU	75	W	2	
WBNU	80	WSW	1	
DEJU	60	W	8	FORAGING IN CORN
DOWO	75	W	2	
NOCA	80	W	2	
BLJA	90	W	1	
NOCA	70	WSW	1	
DEJU	100	W	5	

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-12-09

Observer: HKO Start time: 728 (military time) Stop time: 738

Point number: 02 Temp (°C): -3° Wind speed (m/s): / Cloud cover / %

[illegible]



# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS, MIG Date: 11-12-09

Observer: HKO Start time: 827 (military time) Stop time: 837

Point number: 17 Temp (°C): 2° Wind speed (m/s): 5 km Cloud cover / %

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-12-09

Observer: HKO Start time: 808 (military time) Stop time: 818

Point number: 03 Temp (°C): -2° Wind speed (m/s): 1 Cloud cover 0%

[illegible]

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-12-09

Observer: HKO Start time: 845 (military time) Stop time: 855

Point number: 05 Temp (°C): 3° Wind speed (m/s): 3 Cloud cover 0 %

Species	Estimated distance (m)	Direction (bearing)	Flyover # in flock	Behavior/notes
WBNH	25	NW	1	
DOWN	20	NW	1	
TUTI	30	NE	1	
BLJA	80	NNE	1	
WBNH	75	E	1	
BOCH	50	E	1	
AMCR	100	E	1	
AMCR	125	NE	1	
DOWN	75	E	1	
BLJA	200	ESE	1	
DEJU	70	E	1	
AMGO	30	N	1	
BLJA	70	W	1	
AMRO	125	E	17	FLYOVERS
AMRO	100	E	1	
WBNH	100	SE	1	

# BIRD SURVEY FORM

Project Name: SENECA WF Survey type: PASS MIG Date: 11-12-09

Observer: HKO Start time: 902 (military time) Stop time: 912

Point number: 04 Temp (°C): 2° Wind speed (m/s): 7 Cloud cover 0%

[illegible]

[illegible]

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## **APPENDIX 11. BAT MIST-NETTING STUDY**



**INDIANA BAT (*Myotis sodalis*) SURVEY REPORT**

**SENECA WIND FARM  
SENECA COUNTY, OHIO**

**Prepared for:**

**RMT, INC.  
3754 RANCHERO DRIVE  
ANN ARBOR, MICHIGAN 48108**

**Prepared by:**

**CIVIL & ENVIRONMENTAL CONSULTANTS, INC.  
333 BALDWIN ROAD  
PITTSBURGH, PA 15205**

**CEC Project 090-568**

**November, 2009**

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## FIGURES

Figure 1 – Site Location Map  
Figure 2 – Mist Net Site Location Map  
Figure 3 – Telemetry Map  
Figure 4 – Karst Information Map

## APPENDICES

Appendix A – Agency Correspondence  
Appendix B – Scientific Collection Permit  
Appendix C – Bat Survey Data Forms  
Appendix D – Photographs

## 1.0 INTRODUCTION

This report presents the findings of an Indiana bat (*Myotis sodalis*) presence/probable absence mist net survey conducted for RMT, Inc. (RMT) by Civil & Environmental Consultants, Inc. (CEC). The survey was completed for the proposed Seneca Wind Farm project located within Seneca County, Ohio (Figure 1).

The proposed project site is located on the Watson, Fireside, Flat Rock, Tiffin South, Bloomville, Attica, Centerton, Sycamore, Lykens, and Chatfield, Ohio 7.5' U.S.G.S. Quadrangle maps in the southeastern portion of Seneca County, OH. The proposed project site consists of an approximate 200 mile<sup>2</sup> land tract (Figure 1). The approximate 200 mile<sup>2</sup> project site consists of agricultural fields, and approximately 2,000 acres of forested habitat. For the most part, the forested habitat is located along the creeks and streams within the project area as well as isolated woodlots. Figure 2 provides an aerial view of the project area and also shows the location of the mist-net sites.

The purpose of the study was to confirm the presence or probable absence of the Indiana bat within the project area and to determine species composition. The survey was based on CEC's professional judgment and interpretation of the technical criteria outlined in the U.S. Fish and Wildlife Service (USF&WS) (Region 3) agency draft document titled *Indiana bat (Myotis sodalis) Draft Revised Recovery Plan: First Revision*, dated April 2007. CEC also adhered to the guidance provided in the Ohio Department of Natural Resources (Ohio DNR) *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*.

## 2.0 METHODOLOGY

CEC biologists traversed the project area by vehicle and on foot to identify potential bat habitat (roosting areas, feeding areas, drinking pools, and flight corridors). Initially field reconnaissance trips were completed in order to establish mist net sites that would maximize the success of the mist net survey. In addition, CEC conducted the reconnaissance in order to determine if there were any open portals within the project area. Given the size, shape, and amount of forested habitat within the project area, a total of 15 mist net sites were completed for the site. Refer to Appendix A for USF&WS and Ohio DNR correspondence relating to the number of proposed mist net sites and proposed net nights.

CEC identified 15 mist net sites within the project area that contained at least two of the following bat habitats: roosting areas, feeding areas, drinking pools, and/or flight corridors. The sites identified during the reconnaissance had the highest potential to capture an Indiana bat (Figure 2).

The mist net sites selected by CEC included at least four mist net sets, placed a minimum of 30 meters apart. All mist nets used during the survey were brand new Avinet - USA made 75/2 38mm mesh, polyester, reduced "bag" for bats (Avinet Inc. - Dryden, New York). The mist nets measure 2.6 meters high, contain four shelves, and are various lengths ranging from 3 meters to 18 meters. CEC used Avinet stackable poles for single high net sets and custom built net poles that allow up to three nets to be stacked on top of each other (triple high). These custom-built net poles reach a maximum of 30 feet into the canopy. The custom-built net poles and CEC mist net surveying techniques are based upon Gardner, et al. 1989, and Nagorsen, et al. 1980.

The Indiana bat mist net survey was completed under strict adherence to the USF&WS *Indiana bat (Myotis sodalis) Draft Revised Recovery Plan: First Revision*, dated April 2007, and the Ohio DNR *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. The survey was authorized by the USF&WS under Federal Fish and Wildlife Permit - TE118259 and by the Ohio Department of Natural Resources,

Wildlife Division, Wild Animal Permit – 12-44 (Appendix B). All captured bats were identified by an authorized Collection Permit holder. All collections made during the survey were recorded on field data sheets, which are presented in Appendix C. Photographs of each mist net site and representative species of bats captured during the survey are presented in Appendix D.

For bat telemetry work, CEC used Holohil System radio transmitters within the 172 MHz range (Holohil Systems Ltd. – Carp, Ontario Canada). The Holohil LB-2N transmitter weighs 0.35 grams and has a 12-day battery life. These transmitters are activated by twisting two small external power leads and then soldering them together. Lastly, the protective wax used to encase the radio transmitter is softened with a soldering iron and the soldered power leads are embedded in the wax to ensure the transmitter remains active and has a weatherproof seal. Once the transmitter was activated, the telemetry receivers, antennae, and transmitter were tested from a distance of at least 500 meters. This test was performed to ensure that the activated transmitter was working properly and that the radio receivers and antennas were receiving the signal properly.

Prior to the affixing the activated transmitter to the bat, a small amount of hair was trimmed from the mid-dorsal region of the bat. This was done to ensure that the transmitter was securely attached to the hair and skin of the bat. The transmitter was then affixed to the bat using surgical glue as specified by the manufacture. The transmitter was located on the bats' mid-dorsal region to minimize disturbance to the bat during flight and roosting activities.

Tracking of the bats was accomplished by using up to three tracking crews and public access points. During the tracking, several different receivers/antenna set-ups were utilized. Model TRX-1000S telemetry receivers with 3-element Yagi directional antennas (Wildlife Materials, Inc., Murphysboro, Illinois), Model LA12-Q telemetry receivers with 3-element Yagi directional antennas (AVM Instrument Company Ltd., Colfax, California - Wildlife Materials, Inc., Murphysboro, Illinois). These receiver and antenna combinations were used as hand-held units. The telemetry crews were equipped with GPS units with real-time feed into laptop computers

loaded with digital topographic maps for location information or handheld GPS units with mapping backgrounds and hard copy field maps.

### 3.0 RESULTS

#### 3.1 Mist Net Survey Results

CEC sampled a total of 120 net nights (15 locations x 4 nights per survey site x 2 net sets per site = 120 net nights) from July 6 to July 29, 2009. The survey sites were sampled starting at sunset and lasted for a minimum of five hours. No severe weather (precipitation, strong winds, and/or temperatures below 50 degrees Fahrenheit) was encountered during the surveys.

The following section provides a detailed description of the mist net sites and presents the results of the trapping effort at each site. A table summarizing the survey results follows the site descriptions.

##### Site 1

Mist net Site 1 was sampled over a 2 day period from July 6 to July 8, 2009. On the initial survey night, one mist net set (one 18-meter long, triple high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over an unimproved road, and one mist net set (one 9-meter long, double high net) was erected in a foraging area in a pasture field. A total of 17 Little Brown bats (*Myotis lucifugus*) and three Big Brown bats (*Eptesicus fuscus*) were collected during the first survey night.

On the second survey night, one mist net set (one 18-meter long, triple high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over an unimproved road, and one mist net set (one 12-meter long, single high net) was erected in a foraging area in a pasture field. One Eastern Red bat (*Lasiurus borealis*), two Northern Myotis bats (*Myotis septentrionalis*), two Big Brown bats, and eight Little Brown bats were collected during the second survey night at Site 1.

## **Site 2**

Mist net Site 2 was sampled over a 2 day period from July 6 to July 8, 2009. On the initial survey night, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 18-meter long, triple high net) was erected in a foraging/drinking area over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 12-meter long, double high net) was erected in a foraging/drinking area over a stream. A total of 15 Little Brown bats and five Big Brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 18-meter long, triple high net) was erected in a foraging/drinking area over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 12-meter long, double high net) was erected in a foraging/drinking area over a stream. One Eastern Red bat and 10 Little Brown bats were collected during the second survey night at Site 2.

## **Site 3**

Mist net Site 3 was sampled over a 2 day period from July 6 to July 8, 2009. On the initial survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 12-meter long, double high net) was erected in a flight corridor over a walking trail, one mist net set (one 6-meter long, single high net) was erected over a drinking area above a vernal pool, and one mist net set (one 6-meter long, single high net) was erected over a drinking area above a vernal pool. One Northern Myotis bat was collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 12-meter long, double high net) was

erected in a flight corridor over a walking trail, one mist net set (one 6-meter long, single high net) was erected over a drinking area above a vernal pool, and one mist net set (one 6-meter long, single high net) was erected over a drinking area above a vernal pool. One Northern Myotis bat was collected during the second survey night at Site 3.

#### **Site 4**

Mist net Site 4 was sampled over a 2 day period from July 7 to July 9, 2009. On the initial survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 12-meter long, single high net) was erected in a flight corridor over a logging road. A total of 38 Little Brown bats, two Big Brown bats, and one Tri-colored bat (*Perimyotis subflavus*) were collected during the first survey night. A total of 26 reproductively active female Little Brown bats were captured during the first night at Site 4. As required by the Ohio DNR protocol, one Little Brown bat was affix with a radio transmitter and released. Details of the radio telemetry are provided in Section 3.2 of this report.

On the second survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 12-meter long, single high net) was erected in a flight corridor over a logging road. One Eastern Red bat, one Tri-colored bat, one Northern Myotis bat, four Big Brown bats, and seven Little Brown bats were collected during the second survey night at Site 4. A total of four reproductively active female Little Brown bats were captured during the second night at Site 4, resulting in a total of 30 reproductively active females captured at this site. As required by the Ohio DNR protocol a second Little Brown bat was affix with a radio transmitter and released.

## **Site 5**

Mist net Site 5 was sampled over a 2 day period from July 7 to July 9, 2009. On the initial survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a dry stream. Nine Big Brown bats, six Northern Myotis bats, two Eastern Red bats, and one Little Brown bat were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a dry stream. One Eastern Red bat and one Big Brown bat were collected during the second survey night at Site 5.

## **Site 6**

Mist net Site 6 was sampled over a 2 day period from July 7 to July 9, 2009. On the initial survey night, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a walking trail, and one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road. Two Big Brown bats, two Eastern red bats, and one Northern Myotis bat were collected during the first survey night.

On the second survey night, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high

net) was erected in a flight corridor over a walking trail, and one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road. One Northern Myotis bat and five Big Brown bats were collected during the second survey night at Site 6.

### **Site 7**

Mist net Site 7 was sampled over a 2 day period from July 10 to July 12, 2009. On the initial survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected over a drinking area along a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road. Two Big Brown bats and one Northern Myotis bat were collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected over a drinking area along a stream, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected over a drinking area along a stream. No bats were collected during the second survey night at Site 7.

### **Site 8**

Mist net Site 8 was sampled over a 2 day period from July 10 to July 14, 2009. On the initial survey night, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road. One Big Brown bat and four Northern Myotis bat were collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road. No bats were collected during the second survey night at Site 8.

### **Site 9**

Mist net Site 9 was sampled over a 2 day period from July 10 to July 12, 2009. On the initial survey night, one mist net set (one 12-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a walking trail, and one mist net set (one 9-meter long, double high net) was erected in a flight corridor over a walking trail. Nine Northern Myotis bats, two Big Brown bats and one Eastern Red bat were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, triple high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a walking trail, and one mist net set (one 9-meter long, double high net) was erected in a flight corridor over a walking trail. Two Northern Myotis bats and two Little Brown bats were collected during the second survey night at Site 9.

### **Site 10**

Mist net Site 10 was sampled over a 3 day period from July 20 to July 29, 2009. The additional survey night was agreed to by the USF&WS in lieu of a second night at Site 13, where access was denied (see correspondence in Appendix A). On the initial survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over an unimproved road, one

mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 12-meter long, single high net) was erected over a drinking pool within a stream channel, and one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road. One Hoary bat (*Lasiurus cinereus*), one tri-colored bat, three Northern Myotis bats, four Little Brown bats, four Eastern Red bats, and 21 Big Brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over an unimproved road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 12-meter long, single high net) was erected over a drinking pool within a stream channel, and one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road. Two Hoary bats, three Eastern Red bats, four Little Brown bats, five Northern Myotis bats, and 31 Big Brown bats were collected during the second survey night at Site 10.

A third survey night was complete at Site 10 instead of the second night at mist net site 13. On this night one mist net set (one 9-meter long, triple high net) was erected in a flight corridor over an unimproved road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, one mist net set (one 12-meter long, single high net) was erected over a drinking pool within a stream channel, and one mist net set (one 9-meter long, single high net) was erected in a flight corridor over a logging road. Two Hoary bats, three Eastern Red bats, seven Little Brown bats, and 25 Big Brown bats were collected during the third survey night.

## **Site 11**

Mist net Site 11 was sampled over a 2 day period from July 11 to July 14, 2009. On the initial survey night, one mist net set (one 6-meter long, single high net) was erected over a drinking area along an intermittent stream channel, one mist net set (one 6-meter long, single high net) was erected over a drinking area along an intermittent stream channel, one mist net set (one 6-

meter long, double high net) was erected over a drinking area along an intermittent stream channel, and one mist net set (one 18-meter long, triple high net) was erected in a foraging area perpendicular to the tree line within a cultivated field. Two Northern Myotis bats, three Eastern Red bats, and 16 Big Brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 6-meter long, single high net) was erected over a drinking area along an intermittent stream channel, one mist net set (one 6-meter long, single high net) was erected over a drinking area along an intermittent stream channel, one mist net set (one 6-meter long, double high net) was erected over a drinking area along an intermittent stream channel, and one mist net set (one 18-meter long, triple high net) was erected in a foraging area perpendicular to the tree line within a cultivated field. Two Northern Myotis bats, two Eastern Red bats, and 15 Big Brown bats were collected during the second survey night at Site 11.

## **Site 12**

Mist net Site 12 was sampled over a 2 day period from July 11 to July 13, 2009. On the initial survey night, one mist net set (one 18-meter long, triple high net) was erected in a foraging area perpendicular to the tree line within a cultivated field, one mist net set (one 6-meter long, double high net) was erected over a drinking area along a stream channel, one mist net set (one 6-meter long, single high net) was erected over a drinking area along a stream channel, and one mist net set (one 3-meter long, single high net) was erected over a drinking area along a stream channel. One Little Brown bat, two Eastern Red bats, three Hoary bats, and three Big Brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 18-meter long, triple high net) was erected in a foraging area perpendicular to the tree line within a cultivated field, one mist net set (one 6-meter long, double high net) was erected over a drinking area along a stream channel, one mist net set (one 6-meter long, single high net) was erected over a drinking area along a stream channel, and one mist net set (one 3-meter long, single high net) was erected over a drinking area along a

stream channel. One Eastern Red bat, two Hoary bats, and six Big Brown bats were collected during the second survey night at Site 12.

### **Site 13**

Mist net Site 13 was sampled on July 15, 2009. On the initial survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor along an unimproved road, one mist net set (one 3-meter long, single high net) was erected over a drinking area above a vernal pool, one mist net set (one 6-meter long, double high net) was erected in a forested flight corridor between two pasture fields, and one mist net set (one 6-meter long, single high net) was erected in a forested flight corridor between two pasture fields. One Little Brown bat, two Northern Myotis bats, and three Big Brown bats were collected during the first survey night.

On the second survey night, the landowner denied CEC access to the property. After consultation with both the USF&WS and the Ohio DNR (see Appendix A) one additional night of netting was completed at mist net site 10. Mist net site 10 presented the highest likelihood of capturing an Indiana bat based both upon the surrounding habitat and the diversity of bat species previously captured at that site.

### **Site 14**

Mist net Site 14 was sampled over a 2 day period from July 15 to July 25, 2009. On the initial survey night, one mist net set (one 12-meter long, single high net) was erected in a flight corridor within a mature forested area, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor within a mature forested area, one mist net set (one 6-meter long, single high net) was erected in a foraging area over a wetland complex, and one mist net set (one 9-meter long, double high net) was erected in a flight corridor within a mature forested area. A total of eight Northern Myotis bats and one Big Brown bat were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, single high net) was erected in a flight corridor within a mature forested area, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor within a mature forested area, one mist net set (one 6-meter long, single high net) was erected in a foraging area over a wetland complex, and one mist net set (one 9-meter long, double high net) was erected in a flight corridor within a mature forested area. Seven Northern Myotis bats, one Eastern Red bat, and one Big Brown bat were collected during the second survey night at Site 14.

### **Site 15**

Mist net Site 15 was sampled over a 2 day period from July 11 to July 13, 2009. On the initial survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over an unimproved road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road. A total of two Northern Myotis bats, two Big Brown bats, and six Little Brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, triple high net) was erected in a flight corridor over an unimproved road, one mist net set (one 6-meter long, double high net) was erected in a flight corridor over a logging road, one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road, and one mist net set (one 6-meter long, single high net) was erected in a flight corridor over a logging road. A total of one Eastern Red bat, two Northern Myotis bats, and 12 Little Brown bats were collected during the second survey night at Site 15.

**TABLE 1**  
**MIST NET SURVEY SUMMARY**

Common Name	Scientific Name	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Total Per Species
Eastern Red bat	<i>Lasiurus borealis</i>	1	1		1	3	2			1	10	5	3		1	1	29
Hoary bat	<i>Lasiurus cinereus</i>										5		5				10
Little Brown bat	<i>Myotis lucifugus</i>	25	25		45	1				2	15		1	1		18	133
Northern Myotis bat	<i>Myotis septentrionalis</i>	2		2	1	6	2	1	4	11	8	4		2	15	4	62
Big Brown bat	<i>Eptesicus fuscus</i>	5	5		6	10	7	2	1	2	77	31	9	3	2	2	162
Tri-colored bat	<i>Perimyotis subflavus</i>				2						1						3
Total Per Site		33	31	2	55	20	11	3	5	16	116	40	18	6	18	25	399

### 3.2 Common Bat Telemetry Results

As required by the Ohio DNR in their *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*, two reproductively active bats were radio tagged at mist net site 04. The first bat, tagged during the night of July 7, 2009 was a lactating Little Brown bat. As specified in the Ohio DNR protocol, radio telemetry was completed during the following 8 days in order to identify the location of the maternity colony. On July 8, the day after the bat was radio tagged and released, the female Little Brown bat was located approximately 100 feet from mist net Site 4 in a large sycamore tree (*Platanus occidentalis*). Refer to the photo pages in Appendix D for a picture of the roost tree. An emergence count was attempted on the night of July 8, 2009 but due to thick tree foliage and lack of access to the adjacent field, no bats were observed emerging from the tree.

On July 9, 2009 the Little Brown bat was located 0.92 miles from Site 04 in the direction of an old barn and several sheds. Refer to Figure 3 for a detailed map of mist net Site 04 and the identified roosts.

Additionally, on the night of July 9, 2009 a second lactating Little Brown bat was radio tagged at mist net Site 04 and released. On July 10, 2009 both bats were located in the direction of the previously identified roost in the vicinity of the old barn complex. CEC did not have access to the property where the radio signals were coming from. Based upon the radio signals, the bats were roosting in one of the far sheds. For the next seven days, both bats were located roosting back in the barn/shed complex area during the day. On several occasions the day roost was checked from the road during the night to see if the bats had left for foraging. On July 11, no signal was found in the area of the barn complex. On July 14 one signal was found. Figure 3 shows a detailed map of mist net site 04 and the barn/shed complex. Photographs of the identified roost tree and barn/shed complex are included in Appendix D.

### **3.3 Potential Winter Bat Habitat Results**

CEC completed an office review of potential winter bat habitat within the proposed project site prior to completing the field reconnaissance and mist net survey. CEC reviewed available public information including USGS mapping, abandoned mine maps, and karst area mapping. Figure 4 shows the mapped potential karst areas within the project site. Based upon the “Preliminary Map of Potentially Karstic Carbonate Rocks in the Central and Southern Appalachian States”, a large portion of the project site consists of gently folded and flat-lying carbonates rocks. Carbonate rocks can produce large complex cave systems when strongly deformed. The two potential karst areas mapped within the project site GC (gently folded and flat laying carbonate rocks) and GCG (gently folded and flat laying carbonate rocks with glacial cover) have not been strongly deformed. Surface karst features (cave openings) within the project site and surrounding area are typically not present or are only visible as sinkholes. This can be attributed to the overburden of glacial sediments which covers the carbonate rock layers.

CEC investigated properties where access granted during the field reconnaissance. CEC also spoke with properties owners to identify potential caves on their properties of known caves on adjacent properties. During the field reconnaissance and mist netting, no potential winter bat habitat areas or cave entrances were observed or noted by landowners we talked too.

## 4.0 CONCLUSIONS

From July 6 to July 29, 2009, CEC conducted an Indiana bat (*Myotis sodalis*) presence/probable absence mist net survey within the approximate 200 mile<sup>2</sup> Seneca Wind Farm Project area located in Seneca County, Ohio. A total of 399 bats representing six species were captured and identified at 15 mist net sites within the project area. The mist net survey effort at the 15 sites consisted of a total of 120 net nights. All bats captured were identified, weighed, measured, and released alive. No Indiana bats were captured during the survey.

Lastly, no open portals/caves were identified during the office data review and no open portals/caves were observed within the project site during the field reconnaissance. Additionally, based on conversations with RMT representatives and local landowners; none are known to exist within the site.

## 5.0 LEVEL OF CARE

The Indiana bat survey services performed by CEC were conducted in a manner consistent with the criteria outlined in the USF&WS, Region 3 agency draft document titled *Indiana bat (Myotis sodalis) Draft Revised Recovery Plan: First Revision*, dated April 2007, and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project.

## 6.0 REFERENCES

Gardner, J. E., J. D. Garner, and J. E. Hofmann. 1989. A Portable Mist-Netting System for Capturing Bats with Emphasis on *Myotis sodalis* (Indiana bat). Bat Research News 30:1-8.

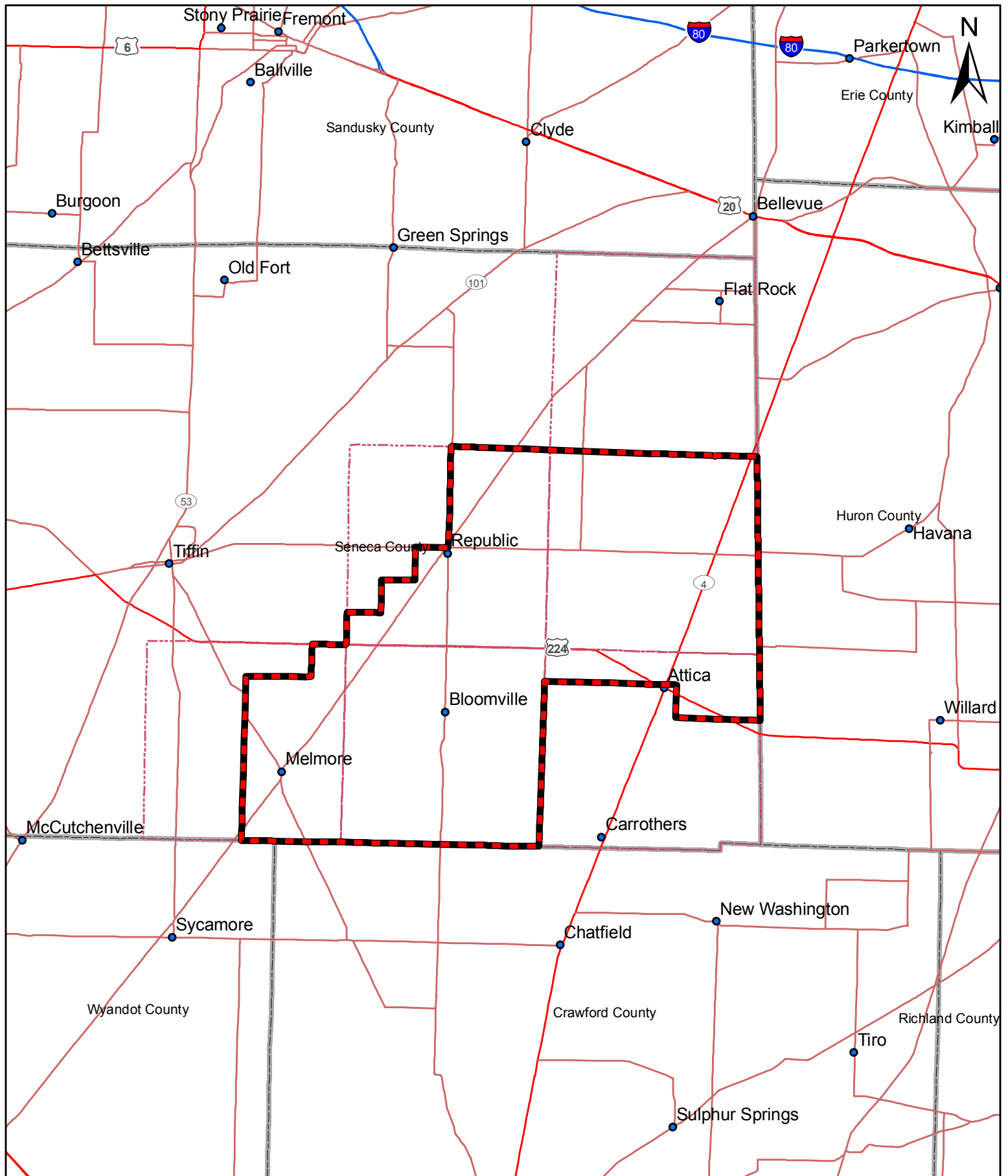
Nagorsen, D. W.; Peterson, R. L., 1980: Mammal Collectors Manual. A Guide for Collecting, Documenting, and Preparing Mammal Specimens For Scientific Research. Belonging to the unnumbered series: Life Sciences Miscellaneous Publications. Royal Ontario Museum, Toronto. ISBN: 0-88854-255-0 pa.

U.S. Fish and Wildlife Service. 2007. *Indiana bat (Myotis sodalis) Draft Revised Recovery Plan: First Revision*. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

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## **FIGURES**

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DRAWN BY: LKC	0 10,000 20,000 Feet	ISSUED FOR: RMT, INC.	<b>SITE LOCATION MAP</b> <b>SENECA WIND FARM PROJECT</b> <b>RMT, INC.</b> <b>SENECA COUNTY, OHIO</b>
CHECKED BY: NRB	<b>Legend</b>	ISSUED BY:	
APPROVED BY: DAM	PROJECT AREA TOWNSHIP LINE CITY COUNTY LINE	 CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 333 Baldwin Road Pittsburgh, PA 15205-9702 1-800-365-2324 <a href="http://www.cedinc.com">www.cedinc.com</a>	
SCALE: 1" = 20,000'			
DATE: 06/24/09			PROJECT NO.: 090-568    FIGURE: 1

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Summary: Application Appendix N Part 6 electronically filed by Teresa Orahood on behalf of Dylan F. Borchers