



## **Detroit River Hawk Watch 2009 Season Summary**

### **Reported Submitted by:**

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### **Introduction**

The 2009 count represented the 27th year of continuous monitoring of diurnal raptors at the mouth of the Detroit River and the 12<sup>th</sup> year of consistent coverage at Lake Erie Metropark (LEMP; N 42.07918, W 83.19369) and Pointe Mouillee State Game Area (PMSGGA; N 42.03791, W 83.19829), Wayne County, Michigan. This was the tenth year in which a full-time paid counter was hired.

542.2 hours were logged with counts conducted on 83 days between 1 September and 30 November. The 519.4 hours at LEMP is very near the 1998-2008 average of 504.5. A total of 98,577 raptors of 17 species were recorded at both sites. Turkey vulture and golden eagle had strong years; bald eagle, northern goshawk, red-shouldered hawk, merlin, peregrine falcon, and Swainson's hawk were average; and osprey, northern harrier, sharp-shinned, Cooper's, broad-winged, red-tailed, rough-legged hawk, and American kestrel had low totals in 2009.

### **Results (Lake Erie Metropark, unless otherwise noted)**

#### *September*

The fall passage of broad-winged hawks was detected in significantly low numbers in 2009 (Tables 2, 3, and 4). Generally, their seasonal passage rate in this corridor steadily increases by a few thousand per day starting during the second week of September, with a pronounced peak during the third week of the month and usually reaches over 100,000 individuals at both sites combined (Table 3). In 2009, the first pulse of migration occurred on 10 September when 495 raptors (367 broad-winged hawks) were counted.

Numbers steadily increased on 13 September with 1,155 raptors counted (1,003 broad-winged hawks) and reached 10,729 (10,486 broad-winged hawks) by the 15<sup>th</sup>. However, the peak of broad-winged hawk migration during the third week of the month was not observed.

The jet stream remained at higher latitudes preventing any cold fronts or weather systems from reaching southeastern Michigan during the first half of September. Winds had either a west or south component on 13, 14, and 15 September. North and east winds dominated 16, 17, 18, 19, and 20 September. A low-pressure system finally passed through the region, causing rain and fog from 21–23 September. Although the weather system was followed by light to moderate north to east-northeast winds on 24 and 25 September, which can funnel birds over the count area, few broad-winged hawks were observed. South winds prevailed from 26–28 September and westerly winds during the rest of the month, which are not conducive to sizable broad-winged hawk flights through this corridor.

Three general explanations have been proposed to account for the low number of broad-winged hawks detected at LEMP in 2009. The first is that the broad-winged hawk flight preceded the 21 September low-pressure system and significantly more birds crossed the lower Detroit River than were detected because they were too distant and at too great of an altitude to be observed (J. Schultz pers. commun.). This may have occurred anytime between 17 and 20 September. High migration volume could also have occurred for a few days after this low-pressure system had cleared out by the 23<sup>rd</sup>, although birds were too high and distant to be detected.

The second explanation is that birds moved from Ontario into Michigan well north of the count sites and even north of Lake St. Clair, possibly a result of the sustained westerly winds from 13-15 September (A. Chartier pers. commun.).

The third explanation is that a large percentage of broad-winged hawks took a very different trajectory through the Great Lakes. An unusually large flight of 24,000 broad-

winged hawks was noted on 15 September at Manistique, MI (45.946 N 86.235 W) by Ron Annelin, suggesting that a significant number of birds travelled north of Lake Huron and proceeded south through Wisconsin (A. Chartier pers. commun.).

The month ended with 35,192 broad-winged hawks between the two sites (19,934 at LEMP; 15,258 at PMSGGA). The 35,274 in 2009 between the two count sites is 79% below the previous 11-year average of 170,950. The season's first influx of turkey vultures occurred on 27 September with 124. Northern harriers and American kestrels were well below their typical September numbers, which resulted in a second low year (Table 1).

**Table 1.** A display of high and low years for two cyclical species, northern harrier and American kestrel, at LEMP and PMSGGA from 1998– 2009. The asterisk indicates the only year in which they did not match high and low years.

Year	Northern Harrier	American Kestrel
1998	↑	↑
1999	↑	↑
2000	↓	↓
2001	↑	↑
2002	↑	↑
2003	↑	↑
2004	↓	↓
2005	↓*	↑*
2006	↑	↑
2007	↑	↑
2008	↓	↓
2009	↓	↓

## *October*

The first significant movement of turkey vultures occurred on 1 October. A total of 1,244 individuals were recorded, along with the season's first golden eagle.

On 10 and 11 October, a total of 24,101 turkey vultures were counted. The 10<sup>th</sup> and 11<sup>th</sup> were also the only days when all 16 of the common raptor species were seen. Three of the season's five Swainson's hawks (including PMSGAs) were seen during these two days. Following several days of west and northwest winds on 15 October, Buteo movement began in earnest with 45 red-shouldered hawks and 89 red-tailed hawks. It continued to increase through 17 October with 116 red-shouldered hawks and 282 red-tailed hawks. A total of 14 and 18 golden eagles were counted on 17 and 18 October, respectively. This was the earliest push of golden eagles ever recorded at the Detroit River watch sites. Turkey vulture, bald eagle, northern goshawk, golden eagle, merlin, and peregrine falcon had high October totals, while rough-legged hawk and osprey had the second lowest and lowest, respectively, since full coverage began in 1998.

## *November*

November temperatures were above normal for most of the month. Winds were light and from the west, southwest, or east with few periods of ideal weather conditions for migration at the lower Detroit River. There were 986 red-tailed hawks in November, which resulted in the weakest passage of that species since regular coverage at LEMP. The 263 red-shouldered hawks in November was significantly more than in 2008 (71), resulting in a season total of 615, which approaches the previous 11-year average of 700. There were 54 golden eagles recorded in November which made the species 12% above the 1998-2008 average for the season. There were few periods with northerly winds, which are historically productive at this site. Speculatively, the mild weather may have induced more Buteos to attempt to winter in Canada.

### **Species Accounts (Lake Erie Metropark, unless otherwise noted)**

**The Number of Hours:** The 519.42 hours logged at LEMP in 2009 is very close to the previous 11-year average of 504.5.

**Turkey Vulture:** 54,989 between 1 September and 21 November was 48% above the previous 11-year average and 4% below for LEMP and PMSGGA combined. Over 50,000 individuals continue to be counted annually at the two sites since 2003. High Count: (16,292) 11 October.

**Osprey:** 46 between 1 September and 11 October was 74% below the previous 11-year average and was the lowest since full coverage began in 1998. This species has declined each year since 2005. High Count: (10) 15 September (14 on 18 September at PMSGGA).

**Bald Eagle:** 118 between 3 September and 28 November was 11% below the previous 11-year average and is the lowest combining LEMP and PMSGGA since full coverage began in 1998. High Count: (13) 10 September.

**Northern Harrier:** 169 between 1 September and 22 November was 69% below the previous 11-year average. A cyclical species, northern harriers were above 550 in 1998 and 1999, 2001–2003, and 2006 and 2007, and were under 300 all other years. High Count: (12) 1 September.

**Sharp-shinned Hawk:** 3,259 between 1 September and 29 November was 64% below the previous 11-year average and was the lowest since full coverage began in 1998. 2009 was 57% below the previous 11-year average combining LEMP and PMSGGA. High Count: (212) 10 October.

**Cooper's Hawk:** 335 between 1 September and 28 November was 34% below the previous 11-year average. High Count: (24) 11 October.

**Northern Goshawk:** 24 between 10 October and 18 November was 4% below the previous 11-year average and was the highest since 2004. High Count: (3) 18 October.

**Red-shouldered Hawk:** 615 between 12 September and 27 November was 12% below the previous 11-year average, but significantly higher than the 185 in 2008. The species appears cyclical in our dataset, with high years 2000–2002, 2004, and 2006 and 2007, with 2009 near the 12-year median of 736.5 (mean: 693). High Count: (116) 17 October.

**Broad-winged Hawk:** 20,016 between 1 September and 18 October was 79% below the previous 11-year average and was attributed to poor detectability or significant numbers taking alternate routes through the Great Lakes. High Count: (10,486) 15 September.

**Red-tailed Hawk:** 2,474 between 1 September and 30 November was 55% below the previous 11-year average and is the lowest since full coverage began in 1998. High Count: (282) 17 October.

**Rough-legged Hawk:** 13 between 7 October and 12 November was 72% below the previous 11-year average and is the lowest since full coverage began in 1998. High Count: (2) 29 October, 6 November, and 10 November.

**Golden Eagle:** 117 between 1 October and 18 November was 12% above the previous 11-year average, but 19% below when combining LEMP and PMSGGA. High Count: (18) 18 October.

**American Kestrel:** 441 between 1 September and 17 November was 61% below the previous 11-year average. A species known to be cyclical, American kestrels have shown peaks in 1998, 2001–2003, and 2005–2007 averaging 1,441 during those years. 1999, 2000, 2004, 2008, and 2009 were low and averaged 554. High Count: (69) 15 September.

**Merlin:** 39 between 1 September and 31 October was 20% below the previous 11-year average and well above the 19 in 2008. High Count: (7) 10 October.

**Peregrine Falcon:** 35 between 4 September and 29 November was 22% below the previous 11-year average. It is well above last year's 23, although when combining the two count sites, 2008 and 2009 were 37 and 38, respectively. High Count: (9) 10 October.

**Mississippi Kite:** 1 on 20 September was the first since regular coverage at LEMP. There is one other record from 5 September 1997.

**Swainson's Hawk:** 4 between 19 September and 11 October was 50% below the previous 11-year average of 8. 1 Swainson's hawk was seen at PMSGGA on 18 September. High Count: (2) 11 October.

*Table 2. 2004–2009 monthly data from Lake Erie Metropark with the 2009 percent deviation from the previous 5-year mean.*

	September																				
	Hours	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	MK	SW	Total
<b>2004</b>	202.0	0	2,106	166	72	150	2,992	115	0	15	27,376	362	0	0	386	29	9	0	0	0	33,778
<b>2005</b>	220.0	0	1,264	192	72	244	4,238	128	2	0	56,217	245	0	0	965	40	15	0	0	8	63,630
<b>2006</b>	185.5	0	1,608	162	87	321	3,237	105	0	2	48,612	144	0	1	1,115	23	22	0	0	2	55,441
<b>2007</b>	240.3	0	1,785	147	139	500	6,705	173	0	8	69,535	363	0	0	1,062	26	35	8	0	2	80,488
<b>2008</b>	186.3	0	1,383	111	64	87	2,292	120	0	3	36,199	123	0	0	309	11	11	0	0	0	40,713
<b>2009</b>	195.9	0	746	43	48	75	1,572	87	0	1	19,934	116	0	0	305	22	14	0	1	1	22,965
<b>Average</b>	205.0	0	1,482	137	80	230	3,506	121	0	5	42,979	226	0	0	690	25	18	1	0	2	49,503
<b>2009 mean deviation</b>	-0.053		-0.542	-0.724	-0.447	-0.712	-0.596	-0.321			-0.581	-0.531			-0.603	-0.147	-0.239			-0.583	-0.581
	October																				
	Hours	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	MK	SW	Total
<b>2004</b>	188.5	0	33,187	29	30	51	1,918	249	19	534	5	3,742	61	29	83	8	10	0	0	0	39,955
<b>2005</b>	136.5	0	27,435	24	38	29	1,317	196	9	218	12	1,518	19	22	49	12	18	0	0	0	30,916
<b>2006</b>	158.5	0	46,254	33	56	166	3,501	366	6	226	2,106	1,615	7	18	191	14	10	0	0	6	54,575
<b>2007</b>	194.5	0	57,621	44	56	248	3,034	334	2	416	39	2,341	4	34	210	12	26	0	0	0	64,421
<b>2008</b>	164.8	2	33,533	29	38	50	1,222	129	3	111	17	1,417	8	53	92	5	7	0	0	0	36,716
<b>2009</b>	181.6	0	53,401	3	49	71	1,632	193	16	351	82	1,372	5	63	133	17	18	12	0	3	57,421
<b>Average</b>	171.0	0	41,905	27	45	103	2,104	245	9	309	377	2,001	17	37	126	11	15	2	0	2	47,334
<b>2009 mean deviation</b>	0.077		0.348	-0.906	0.124	-0.347	-0.258	-0.243	1.051	0.166	-0.812	-0.355	-0.747	1.019	0.064	0.667	0.268				0.267
	November																				
	Hours	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	RT	RL	GE	AK	ML	PG	UR	MK	SW	Total
<b>2004</b>	88.3	0	1,600	6	16	13	117	97	30	320	0	2,051	40	50	1	1	1	0	0	0	4,343
<b>2005</b>	99.8	0	1,000	2	6	18	68	108	7	81	0	856	11	23	4	3	4	0	0	0	2,191
<b>2006</b>	132.0	0	3,860	1	19	129	275	157	1	791	0	4,266	20	105	8	3	6	0	0	0	9,641
<b>2007</b>	163.0	0	3,476	4	16	70	170	217	4	602	0	6,702	25	90	3	3	6	0	0	0	11,388
<b>2008</b>	113.9	0	257	0	39	12	79	45	7	71	0	967	10	36	3	3	5	0	0	0	1,534
<b>2009</b>	142.0	0	842	0	21	23	55	55	8	263	0	986	8	54	3	0	3	2	0	0	2,323
<b>Average</b>	123.0	0	1,839	2	20	44	127	113	10	355	0	2,638	19	60	4	2	4	0	0	0	5,237
<b>2009 mean deviation</b>	0.189		-0.587		0.094	-0.525	-0.612	-0.559	-0.184	-0.295		-0.668	-0.623	-0.112	-0.211	-1.000	-0.318				-0.601

**Table 3.** 1998–2009 data from Lake Erie Metropark with the 2009 percent deviation from the previous 11-year mean.

	<b>Hours</b>	<b>BV</b>	<b>TV</b>	<b>OS</b>	<b>BE</b>	<b>NH</b>	<b>SS</b>	<b>CH</b>	<b>NG</b>	<b>RS</b>	<b>BW</b>	<b>RT</b>
<b>1998</b>	451.3	0	19,743	135	111	807	4,968	378	17	517	63,689	3,782
<b>1999</b>	481.0	0	17,559	58	69	556	6,534	299	23	556	45,711	3,504
<b>2000</b>	510.2	0	29,421	133	83	138	7,132	408	49	875	57,585	5,754
<b>2001</b>	526.0	0	28,237	213	115	757	14,715	693	46	858	19,386	8,153
<b>2002</b>	561.5	0	42,644	238	185	696	7,307	572	22	962	91,499	6,565
<b>2003</b>	545.3	0	54,975	234	147	1,005	10,643	709	28	533	84,085	5,789
<b>2004</b>	478.8	0	36,893	201	118	214	5,027	461	49	869	27,381	6,155
<b>2005</b>	456.3	0	29,699	218	116	291	5,623	432	18	299	56,229	2,619
<b>2006</b>	475.8	0	51,722	196	162	616	7,013	628	7	1,019	50,718	6,025
<b>2007</b>	598.5	0	62,882	195	211	818	9,909	724	6	1,026	69,574	9,406
<b>2008</b>	464.9	2	35,173	140	141	149	3,593	294	10	185	36,216	2,507
<b>2009</b>	519.4	0	54,989	46	118	169	3,259	335	24	615	20,016	2,474
<b>Average</b>	505.7		38,661	167	131	518	7,143	494	25	693	51,841	5,228
<b>2009 Mean Dev.</b>	0.030		0.479	-0.742	-0.110	-0.693	-0.565	-0.342	-0.040	-0.121	-0.634	-0.548

	<b>RL</b>	<b>GE</b>	<b>AK</b>	<b>ML</b>	<b>PG</b>	<b>UR</b>	<b>MK</b>	<b>SW</b>	<b>GY</b>	<b>WE</b>	<b>SEOW</b>	<b>SNOW</b>	<b>TOTAL</b>
<b>1998</b>	17	33	1,046	95	52	86	0	5	0	0	1	0	95,482
<b>1999</b>	76	208	664	30	49	47	0	8	1	0	0	0	75,952
<b>2000</b>	55	188	790	34	24	37	0	5	0	0	2	1	102,714
<b>2001</b>	55	120	1,026	50	48	45	0	3	0	0	1	1	74,522
<b>2002</b>	63	79	2,277	64	52	15	0	0	0	1	1	0	153,242
<b>2003</b>	31	60	2,128	72	82	0	0	12	0	0	0	0	160,533
<b>2004</b>	101	79	470	38	20	0	0	0	0	0	0	0	78,076
<b>2005</b>	30	45	1,018	55	37	0	0	8	0	0	0	0	96,737
<b>2006</b>	27	124	1,314	40	38	0	0	8	0	0	0	0	119,657
<b>2007</b>	29	124	1,275	41	67	8	0	2	0	0	0	0	156,297
<b>2008</b>	18	89	404	19	23	0	0	0	0	0	0	0	78,963
<b>2009</b>	13	117	441	39	35	14	1	4	0	0	0	0	82,709
<b>Average</b>	43	106	1,071	48	44	21		5					106,238
<b>2009 Mean Dev.</b>	-0.715	0.120	-0.609	-0.203	-0.217			-0.137					-0.237

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**Table 4.** 1998–2009 data from Lake Erie Metropark and Pointe Mouillee State Game Area with the 2009 percent deviation from the previous 11-year mean.

	Hours	BV	TV	OS	BE	WE	NH	SS	CH	NG	RS	BW
<b>1998</b>	578.9	0	31,257	164	144	0	1,304	8,360	786	36	980	87,926
<b>1999</b>	583.0	0	28,902	80	114	0	1,159	11,571	390	32	733	612,457
<b>2000</b>	646.1	0	33,183	161	111	0	243	9,253	592	63	1,100	110,204
<b>2001</b>	667.9	0	37,184	267	176	0	1,158	19,887	897	70	1,134	82,732
<b>2002</b>	646.3	0	49,404	282	232	1	935	9,055	668	24	1,109	106,417
<b>2003</b>	624.8	1	73,886	246	199	0	1,372	12,080	882	50	874	87,359
<b>2004</b>	589.0	0	56,655	256	200	0	384	6,783	721	58	1,065	185,382
<b>2005</b>	595.8	0	104,538	241	178	0	571	8,519	854	37	956	91,089
<b>2006</b>	551.3	0	73,146	225	200	0	1,004	8,404	745	7	1,044	67,956
<b>2007</b>	637.0	0	69,703	209	254	0	929	10,745	771	6	1,045	127,167
<b>2008</b>	570.0	2	69,676	151	195	0	292	4,728	458	12	328	321,762
<b>2009</b>	542.2	0	55,055	62	126	0	189	3,597	359	24	615	35,274
<b>Avg.</b>	603.0	0	56,882	195	177	0	795	9,415	677	35	915	159,644
<b>2009 Mean Dev.</b>	-0.109	-1.000	-0.035	-0.701	-0.308		-0.778	-0.638	-0.491	-0.332	-0.348	-0.794

	SW	RT	RL	GE	AK	ML	PG	SO	SE	MK	UNK	Total
<b>1998</b>	10	8,694	40	89	1,631	119	86	0	1	0	91	141,718
<b>1999</b>	14	5,445	94	246	1,529	45	90	0	0	0	80	662,981
<b>2000</b>	12	8,210	78	251	1,086	57	41	1	2	0	44	164,692
<b>2001</b>	6	10,638	70	174	1,860	75	94	1	1	0	54	156,478
<b>2002</b>	4	8,074	68	110	3,248	77	67	0	1	0	0	179,776
<b>2003</b>	14	12,161	100	124	2,380	83	87	0	2	0	12	191,912
<b>2004</b>	2	8,689	125	108	1,008	54	36	0	1	0	0	261,527
<b>2005</b>	10	7,711	67	90	1,745	74	51	0	0	0	0	216,732
<b>2006</b>	9	6,530	29	125	1,861	45	47	0	1	0	0	161,378
<b>2007</b>	3	9,676	29	124	1,391	47	73	0	0	0	0	222,172
<b>2008</b>	5	4,003	30	148	795	28	37	0	4	0	0	402,654
<b>2009</b>	5	2,536	13	117	509	43	38	0	0	1	14	98,577
<b>Avg.</b>	8	7,697	62	142	1,587	62	62	0	1	0	25	238,383
<b>2009 Mean Dev.</b>	-0.382	-0.689	-0.804	-0.190	-0.698	-0.328	-0.410				-0.452	-0.607

## **Acknowledgements**

2009 funding and support came from the U.S. Fish and Wildlife Service, Detroit River International Wildlife Refuge, and its Friends group, the International Wildlife Refuge Alliance. We especially thank Jeff Schultz and Josh Haas for continuing as swing counters and the scheduled spotters. The Detroit River Hawk Watch is advised by a committee who made significant contributions to this report.

