

Detroit River International Wildlife Refuge – Raptor Monitoring

Compilation and Analysis of Hawk Watch Data

Lake Erie Metropark and Pointe Mouillee

1991 – 2008

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Description of Methods

Data for Lake Erie Metropark and Pointe Mouillee were grouped, sorted by date and time, and totaled. Site data and species data were then generated. Site data includes coverage by days and hours, and a summary table, with grand totals for all hawks. Analysis for each of 16 species includes Seasonal Occurrence, 3-Day Running Average, Day Statistics, Yearly Trends, and Trend Analysis.

Site Data

Coverage. The site data includes the number of days and the number of hours of coverage, presented by season in Figures 1 and 2 and by year in Figures 3 and 4. For each day from September 1 to November 30 the number of times that day was covered from 1991 to 2008 is indicated on [Figure 1](#), and the total number of hours in [Figure 2](#). For each year from 1991 to 2008, the number of days covered is indicated in [Figure 3](#) and the number of hours in [Figure 4](#). While coverage for the first 5 years shows no consistency, the coverage for 1996 to 2008 is consistent.

Summary Table. [Table 1](#) provides a concise summary of the combined data for Lake Erie Metropark and Pointe Mouillee. It includes annual data, grand totals, a comparison of the 2008 data to the 10 year average for 1998 to 2007, and a comparison of the 2009 data to the 10 year average for 1999 to 2008. Table 1 summarizes the annual counts for the 16 regularly occurring species, plus Black Vulture, which is gradually increasing in recent years. Also included are total hawks without Turkey Vultures, and total hawks without Turkey Vultures and without Broad-winged Hawks. This permits an overview of the total hawk movement past Detroit River without being overwhelmed by the very large numbers of Turkey Vultures and Broad-winged Hawks. (See [Figures 53](#) to 55 for graphs of these totals.) Table 1 also tabulates annual totals for the number of hours and days of coverage.

Species Data

Seasonal Occurrence. Seasonal Occurrence, computed separately for each of 16 species, includes a graph of the average number of that species seen on each day of the season for the years 1991 to 2008. The overall daily average number of hawks is noted as a horizontal line. The median date represents the middle of the flight period. On average, half the hawks are counted by this date. Since most species of hawks have flight periods that span fewer than the 91 days of coverage, the 90% passage was computed to better define that flight period. The period of 90% passage begins when 5% of the hawks have passed and ends when 95% have passed.

3-Day Running Average. The 3-Day Running Average, computed separately for each species, reduces the impact of factors other than the date that contribute to the count on a particular day. Since large flights often occur on days of ideal weather, the daily averages plotted in the Seasonal Occurrence are influenced by those large numbers. However, it is unlikely that any date is more likely to have optimal conditions than the two adjacent dates. The 3-Day Running Average documents the number of hawks, while reducing the impact of single ideal days. The result is a smoother curve that more clearly shows the period when counts are consistently above average.

Day statistics. For each species, the Day Statistics are tabulated by date, 9/1 to 11/30, including the number of years that day was covered and the average, cumulative average, cumulative percent, and maximum number of hawks on that date. The cumulative average represents the average total number of hawks for the season, up to that date. The cumulative percent represents the average proportion of total hawks for the season, up to that date.

Yearly Trend. For each species, yearly totals are graphed for 1991 to 2008. Since coverage for 1996 through 2008 was comparable (Figures 3 and 4), linear regression for these years was computed for a 13 year trend. The regression coefficient on x can be interpreted as the annual increase (if positive) or decrease (if negative) in the number of hawks. R^2 is the coefficient of determination and can be loosely interpreted as the proportion of the variation in data that can be attributed to the passage of time. For example, there has been an increase of 12 Bald Eagles per year, with 0.69 or 69% of the variation explained by advancing years ([Figure 13](#)). This linear regression provides an overview of the observed trend. Specifics regarding significance of the regression are included in the trend analysis.

Trend Analysis

[Table 18](#) summarizes the linear regression analysis for the yearly trends of the 16 species of hawks. Regression analysis assumes a normal distribution about the resulting curve. Regarding normality, the table indicates the distribution for the data alone and also for the data about the regression line. Also included on this table is the regression coefficient on x and R^2 , as [described above](#), and the p value. The p value is the probability of being wrong in concluding that there is a significant trend: the smaller the p value, the greater the probability that there is a trend. A p value less than 0.05 is considered significant, offering a 95% confidence that the distribution did not occur purely by chance. For species for which data is not normally distributed about the regression line, the Spearman Rank Correlation was computed to assess the strength of a positive or negative relationship between the count and the passage of years. A correlation value close to one indicates a strong relationship, whereas a value close to zero indicates no relationship.

Detroit River Coverage 1991-2008 by Day

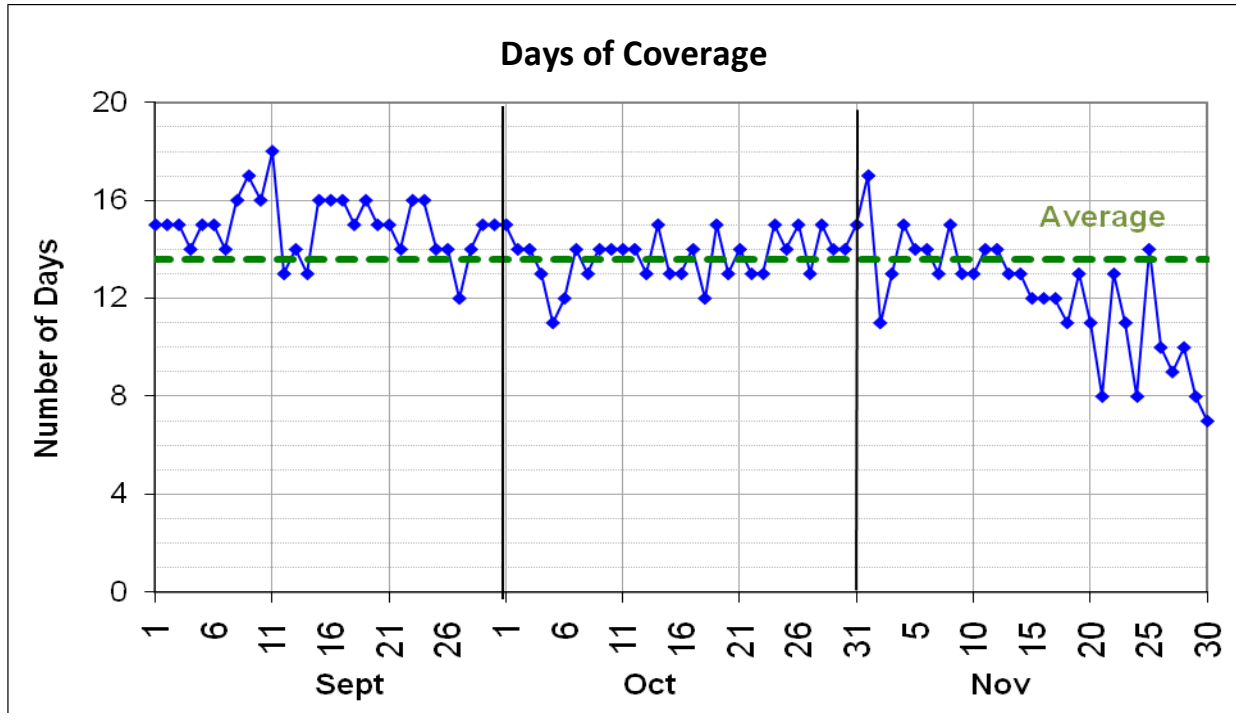


Figure 1. Days of Coverage by Date, 1991-2008

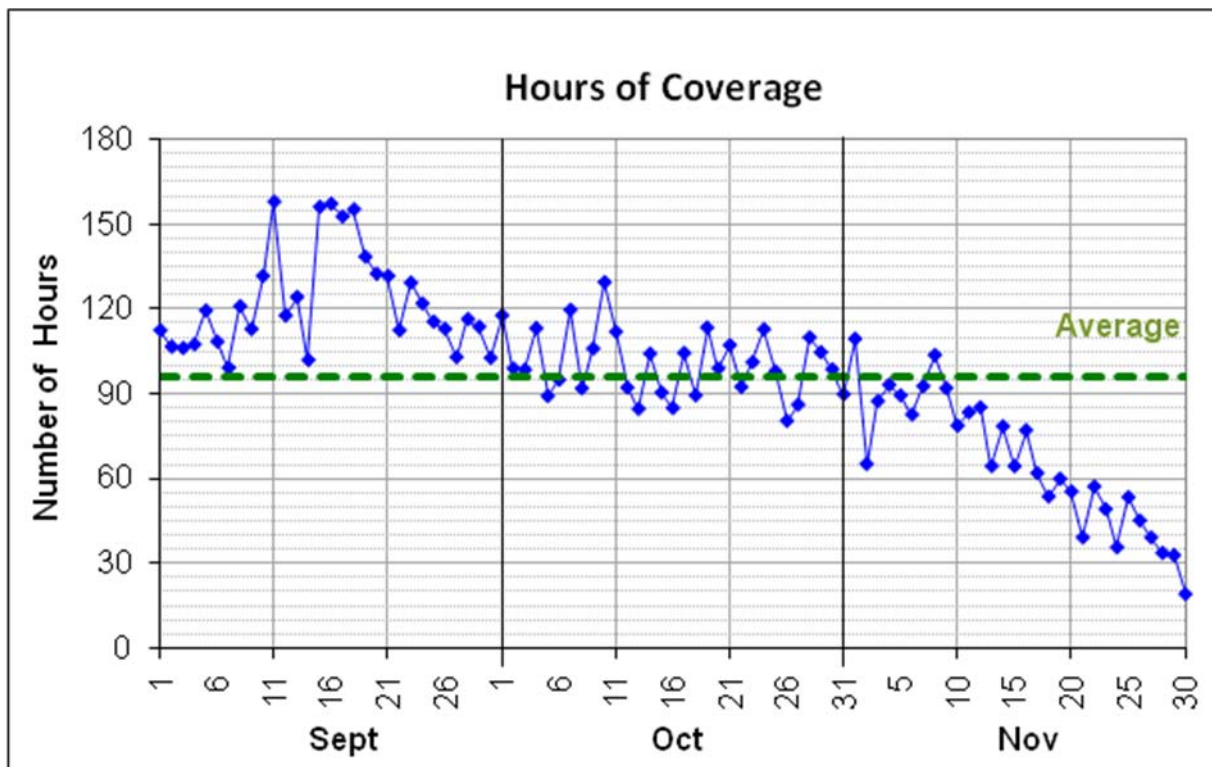


Figure 2. Hours of Coverage by Date, 1991-2008

Detroit River Coverage 1991-2008 by Year

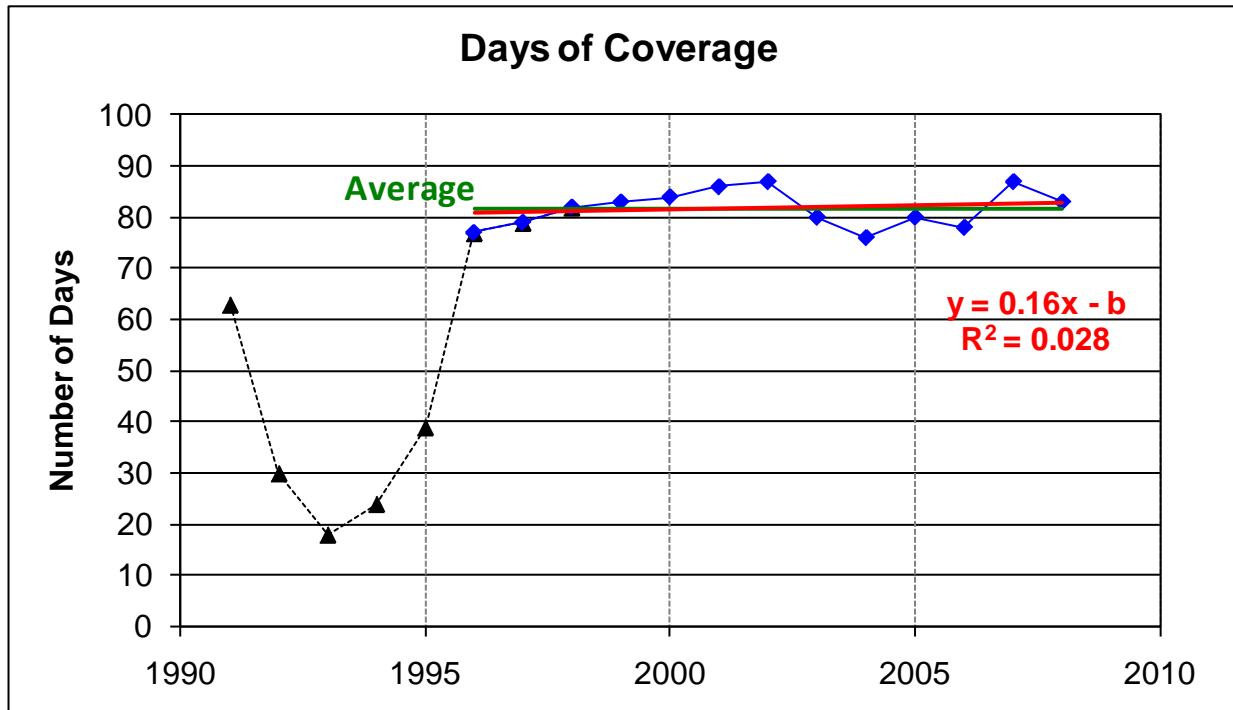


Figure 3. Days of Coverage by Year, 1991-2008

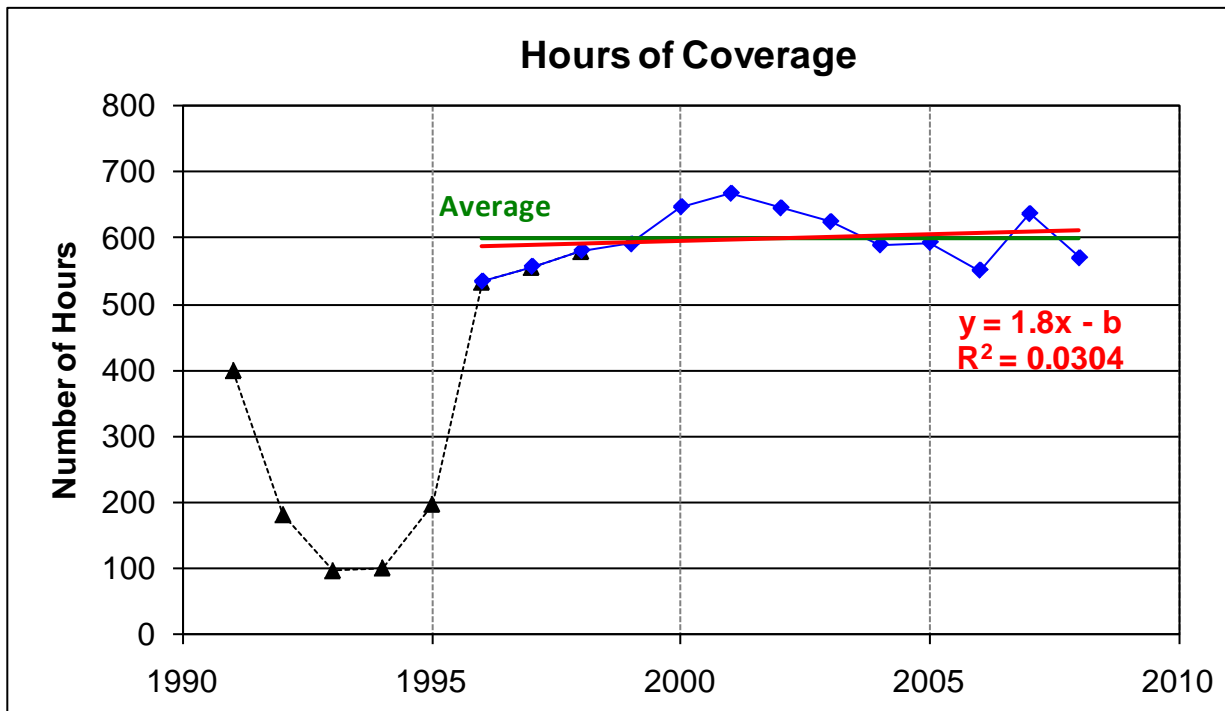


Figure 4. Hours of Coverage by Year, 1991-2008

Detroit River Hawk Watch Summary: 1991-2008

YEAR	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	SW	RT	RL	GE	AK	ML	PG	TH: Total Hawks	Maximum		Notable high	
																			HRS	days	TH w/o TV	TH w/o TV&BW
1991	0	4563	81	64	284	3225	320	16	541	23188	0	3227	224	52	716	9	12	36858	400	63	32295	9107
1992	0	4321	31	32	134	1553	130	3	273	22107	0	1680	24	30	185	5	3	30634	181	30	26313	4206
1993	0	6699	26	15	143	1194	261	9	137	32421	3	1772	11	13	419	1	7	43141	96	18	36442	4021
1994	0	3907	19	22	262	2952	64	7	77	145926	4	1125	20	18	496	5	8	154913	101	24	151006	5080
1995	0	10719	18	28	202	4438	368	28	429	135334	1	9433	88	35	821	11	24	161988	197	39	151269	15935
1996	0	24232	67	62	182	7147	329	14	429	239741	5	5253	47	68	777	14	38	278425	535	77	254193	14452
1997	0	20786	149	101	739	8487	409	11	348	69040	7	3513	40	36	1849	56	30	105659	557	79	84873	15833
1998	0	28164	164	142	1232	8260	767	34	954	87926	10	8024	29	53	1526	115	84	137576	581	82	109412	21486
1999	0	28900	73	109	1146	11501	389	32	733	612442	14	5431	92	245	1487	45	87	662801	591	83	633901	21459
2000	0	33183	161	111	243	9253	592	63	1100	110204	12	8210	78	251	1086	57	41	164691	648	84	131508	21304
2001	0	37184	267	176	1158	19887	897	70	1134	82732	6	10638	70	174	1860	75	94	156477	668	86	119293	36561
2002	0	49404	282	232	935	9055	668	24	1109	106417	4	8074	68	110	3248	77	67	179791	646	87	130387	23970
2003	1	73886	246	199	1372	12080	882	50	874	87359	14	12161	100	124	2380	83	87	191903	625	80	118017	30658
2004	2	56655	256	200	384	6783	721	58	1065	185382	2	8689	125	108	1008	54	36	261529	590	76	204874	19492
2005	0	104538	241	178	571	8513	854	37	956	91089	10	7711	67	90	1745	74	51	216725	593	80	112187	21098
2006	0	73146	225	200	1004	8404	745	7	1044	67956	9	6530	29	125	1861	45	47	161377	551	78	88231	20275
2007	0	69703	209	254	929	10745	771	6	1045	127167	3	9676	29	124	1391	47	73	222180	637	87	152477	25310
2008	2	69676	151	195	292	4728	458	12	328	321762	5	4003	30	148	795	28	37	402654	570	83	332978	11216
	BV	TV	OS	BE	NH	SS	CH	NG	RS	BW	SW	RT	RL	GE	AK	ML	PG	TH	HRS	days	TH w/o TV	TH w/o TV&BW
Total	5	699,666	2,666	2,320	11,212	138,205	9,625	481	12,576	2,548,193	109	115,150	1,171	1,804	23,650	801	826	3,569,322	8,766	1,236	2,869,656	321,463
Avg:'91-'08	0.3	38,870.3	148.1	128.9	622.9	7,678.1	534.7	26.7	698.7	141,566.3	6.1	6,397.2	65.1	100.2	1,313.9	44.5	45.9	198,295.7	487.0	68.7	159,425.3	17,859.1
Comparison of 2008 to 10 Year Average for 1998 - 2007																						
10YrAvg:																						
1998-2007	0.3	55,476	212.4	180.1	897.4	10,448	728.6	38.1	1,001	155,867	8.4	8,514.4	68.7	140.4	1,759.2	67.2	66.7	235,505	612.9	82.3	180,029	24,161
%Dev 2008	+567%	+ 26%	- 29%	+ 8.3%	-68%	- 55%	- 37%	- 69%	- 67%	+ 106%	- 41%	- 53%	- 56%	+ 5.4%	- 55%	- 58%	- 45%	+ 71%	- 7.0%	+ 0.9%	+ 0.9%	+ 0.9%
Comparison of 2009 to 10 Year Average: 1999 - 2008																						
2009	0	55,055	62	126	189	3,597	359	24	615	35,274	5	2,536	13	117	509	43	38	98,577	542	83	43,522	8,248
GrandTotal	5	754,721	2,728	2,446	11,401	141,802	9,984	505	13,191	2,583,467	114	117,686	1,184	1,921	24,159	844	864	3,667,899	9,308	1,319	2,913,178	329,711
10YrAvg:																						
1999-2008	0.5	59,628	211.1	185.4	803.4	10,095	697.7	35.9	939	179,251	7.9	8,112.3	68.8	149.9	1,686.1	58.5	62.0	262,013	611.8	82.4	202,385	23,134
%Dev 2009	-100%	- 7.8%	- 71%	- 32%	- 77%	- 64%	- 49%	- 33%	- 35%	- 80%	- 37%	- 69%	- 81%	- 22%	- 70%	- 27%	- 39%	- 62%	- 11%	+ 0.7%	- 79%	- 64%

Table 1. Summary of Hawk Counts, 1991 to 2008

Detroit River Turkey Vulture - Seasonal Occurrence

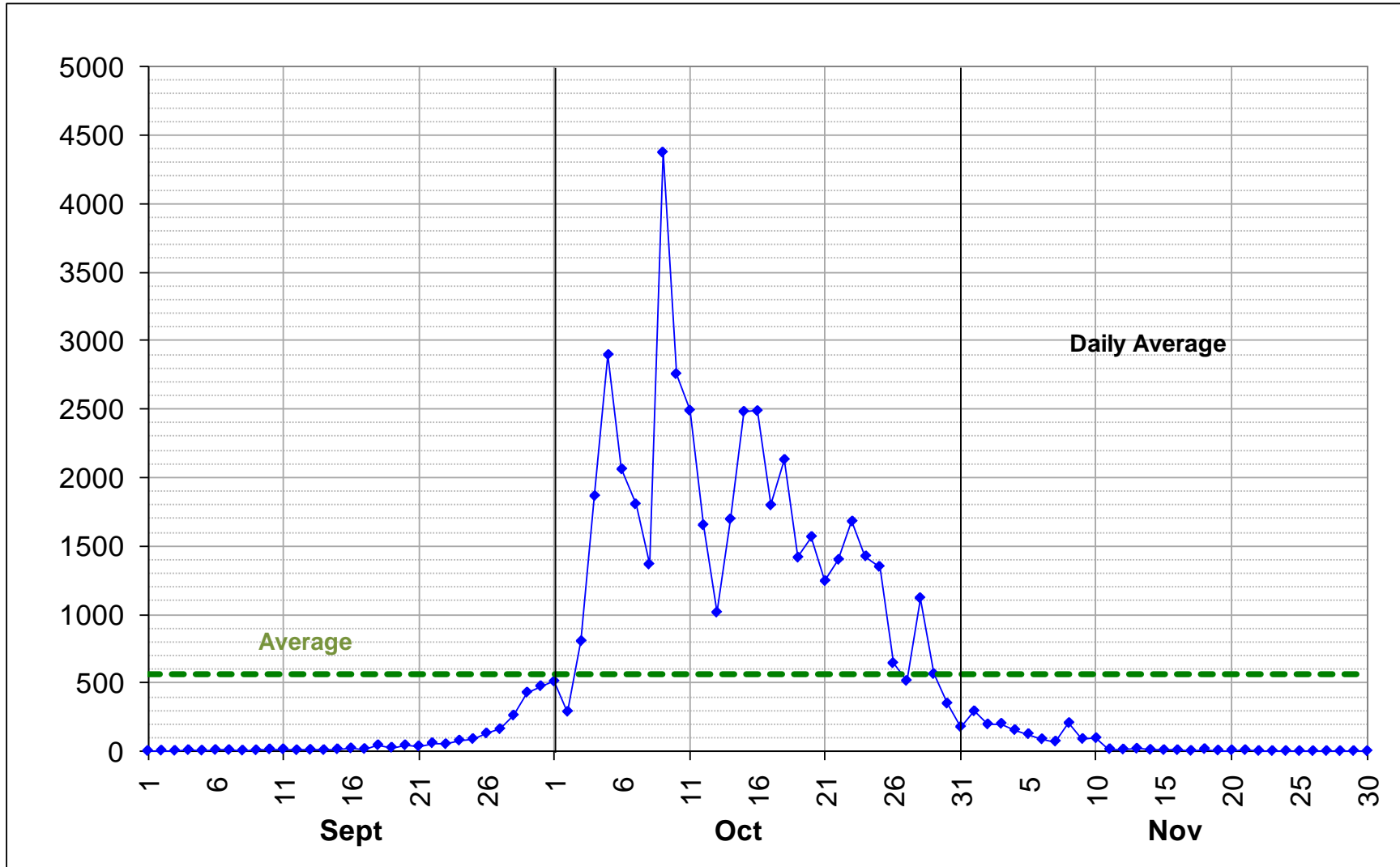


Figure 5. Turkey Vulture, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 13

90% Passage: Oct 1 – Oct 28

Detroit River Turkey Vulture – 3 Day Running Average

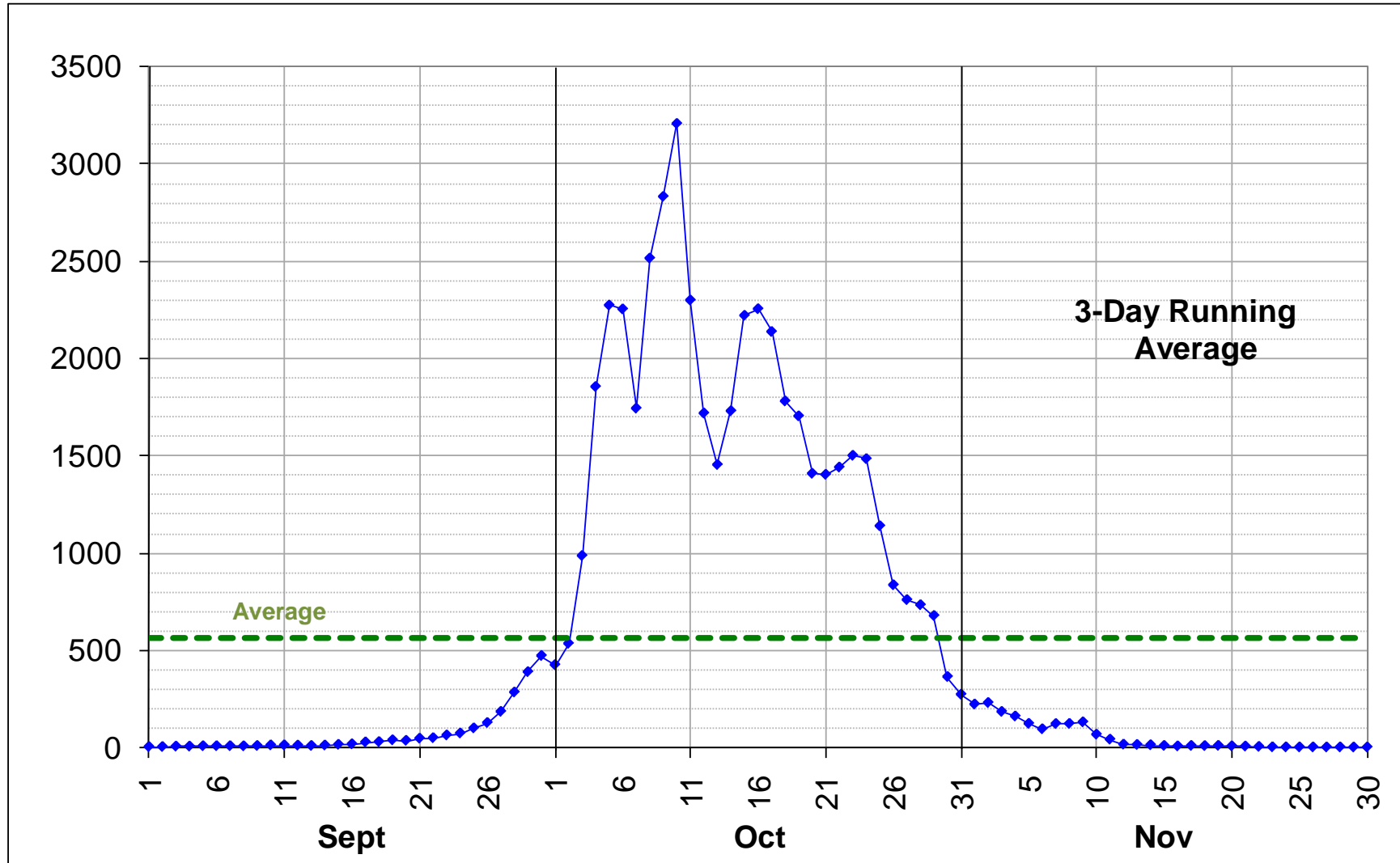


Figure 6. Turkey Vulture, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 13

90% Passage: Oct 1 – Oct 28

Detroit River Turkey Vulture – Day Statistics

DAY	# Yrs	avg	Cumul Avg	Cumul %	MAX
9/1	15	2	3	0	13
9/2	15	5	8	0	46
9/3	15	3	11	0	32
9/4	14	8	20	0	22
9/5	15	5	24	0	13
9/6	15	9	34	0	84
9/7	14	9	42	0	70
9/8	16	5	47	0	20
9/9	17	7	55	0	35
9/10	16	14	69	0	57
9/11	18	14	83	0	79
9/12	13	8	90	0	25
9/13	14	11	101	0	60
9/14	13	8	109	0	64
9/15	16	15	124	0	68
9/16	16	21	145	0	108
9/17	16	16	162	0	76
9/18	15	44	206	0	313
9/19	16	26	232	1	167
9/20	15	44	276	1	161
9/21	15	36	312	1	113
9/22	14	59	371	1	175
9/23	16	52	422	1	163
9/24	16	78	500	1	363
9/25	14	89	589	1	354
9/26	14	130	720	2	647
9/27	12	161	881	2	439
9/28	14	261	1,142	2	1,274
9/29	15	429	1,572	3	1,933
9/30	15	476	2,047	4	2,582

DAY	# Yrs	avg	Cumul Avg	Cumul %	MAX
10/1	15	510	2,558	5	3,236
10/2	14	289	2,846	6	1,487
10/3	14	804	3,651	8	3,314
10/4	13	1,866	5,516	11	8,953
10/5	11	2,898	8,414	16	9,426
10/6	12	2,062	10,476	19	8,796
10/7	14	1,806	12,282	23	4,768
10/8	13	1,366	13,648	25	4,906
10/9	14	4,379	18,027	34	43,280
10/10	14	2,758	20,785	40	12,131
10/11	14	2,492	23,277	45	5,236
10/12	14	1,653	24,930	48	8,988
10/13	13	1,014	25,944	50	5,042
10/14	15	1,696	27,641	53	8,062
10/15	13	2,483	30,123	58	9,141
10/16	13	2,488	32,611	63	11,402
10/17	14	1,798	34,409	66	10,829
10/18	12	2,131	36,541	70	6,825
10/19	15	1,416	37,957	73	5,246
10/20	13	1,568	39,524	76	4,813
10/21	14	1,244	40,768	78	3,098
10/22	13	1,400	42,169	81	2,827
10/23	13	1,680	43,849	84	7,276
10/24	15	1,426	45,274	87	8,571
10/25	14	1,349	46,623	90	7,734
10/26	15	644	47,267	91	5,059
10/27	13	515	47,782	92	2,900
10/28	15	1,120	48,901	95	3,621
10/29	14	565	49,466	96	2,374
10/30	14	349	49,815	96	2,543
10/31	15	177	49,992	97	693

DAY	# Yrs	avg	Cumul Avg	Cumul %	MAX
11/1	17	292	50,285	97	1,326
11/2	11	196	50,481	98	1,106
11/3	13	201	50,682	98	599
11/4	15	155	50,837	98	932
11/5	14	125	50,962	99	621
11/6	14	88	51,050	99	519
11/7	13	71	51,121	99	272
11/8	15	206	51,327	99	2,105
11/9	13	90	51,417	100	638
11/10	13	96	51,512	100	341
11/11	14	15	51,528	100	37
11/12	14	13	51,541	100	59
11/13	13	19	51,559	100	101
11/14	13	10	51,570	100	48
11/15	12	9	51,578	100	50
11/16	12	8	51,586	100	48
11/17	12	3	51,590	100	26
11/18	11	16	51,605	100	100
11/19	13	6	51,611	100	37
11/20	11	7	51,618	100	49
11/21	8	8	51,626	100	55
11/22	13	2	51,629	100	12
11/23	11	2	51,630	100	12
11/24	8	2	51,632	100	11
11/25	14	1	51,634	100	7
11/26	10	1	51,635	100	6
11/27	9	2	51,636	100	15
11/28	10	1	51,637	100	9
11/29	8	2	51,639	100	9
11/30	7	1	51,639	100	4

Table 2. Turkey Vulture, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Turkey Vulture – Yearly Trend

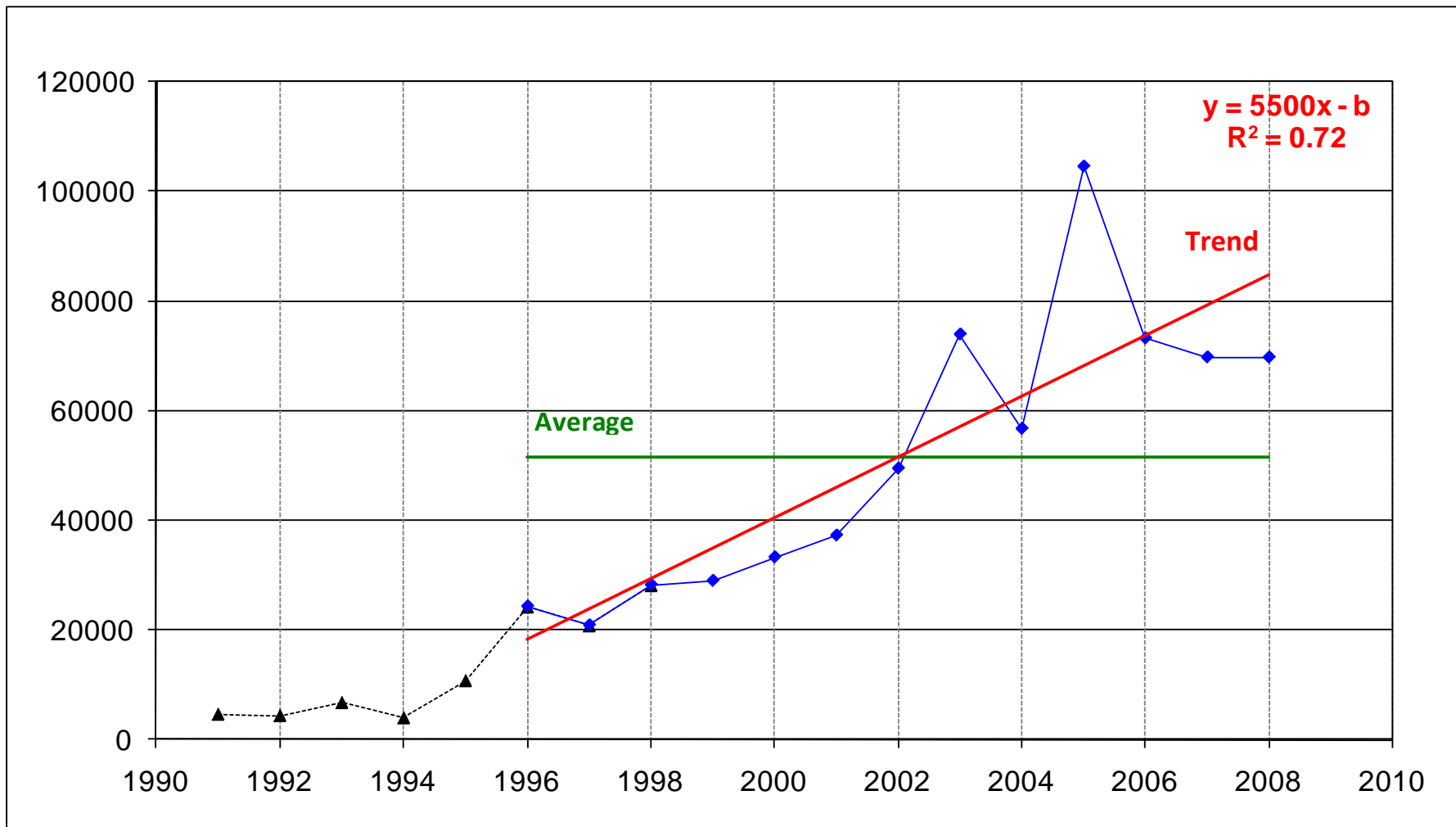


Figure 7. Turkey Vultures, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Osprey - Seasonal Occurrence

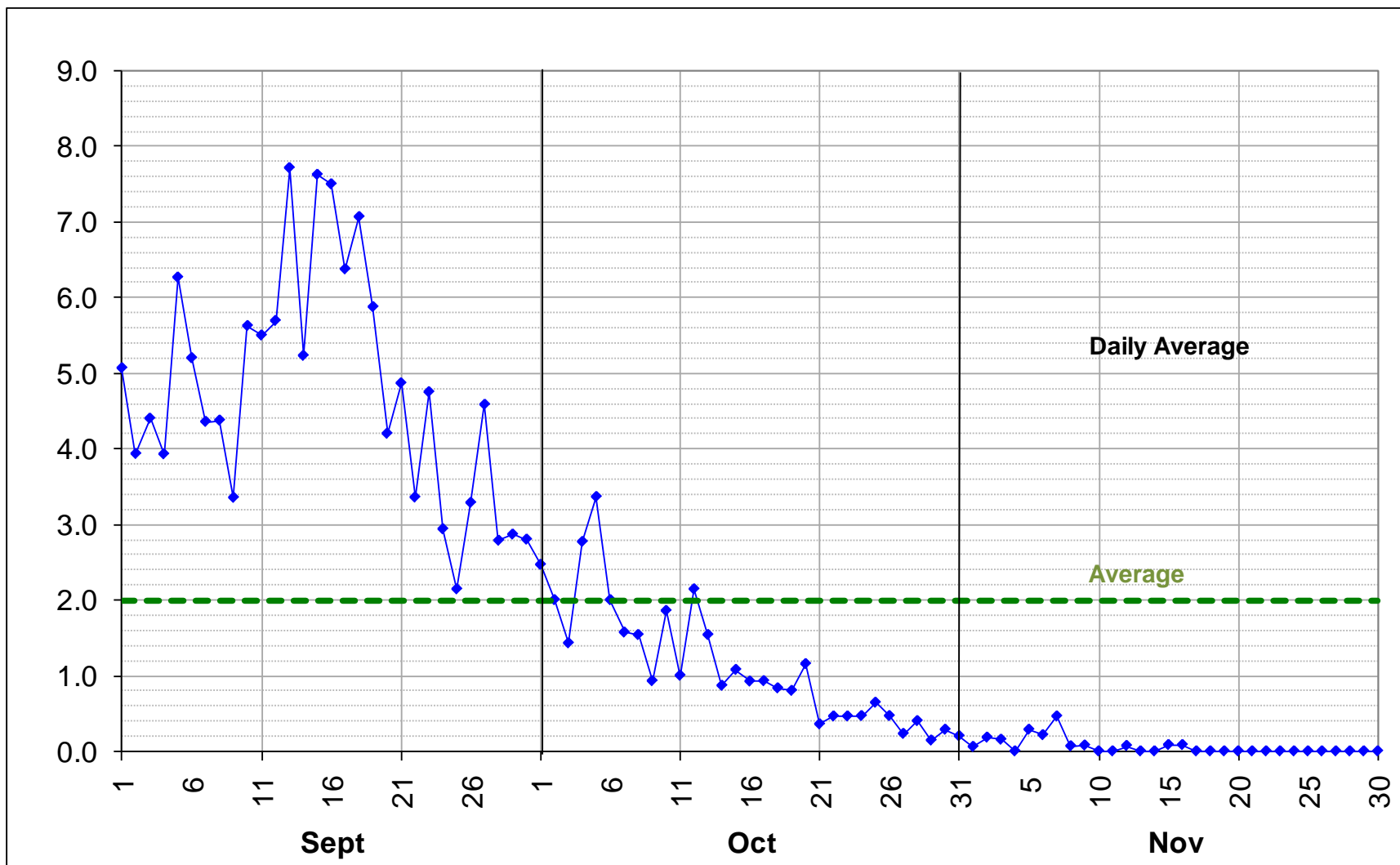


Figure 8. Osprey, Seasonal Occurrence - LEMP & Pt Mouilliee combined, 1991–2008

Median Date: Sep 16

90% Passage: Sep 2 – Oct 16

Detroit River Osprey - 3 Day Running Average

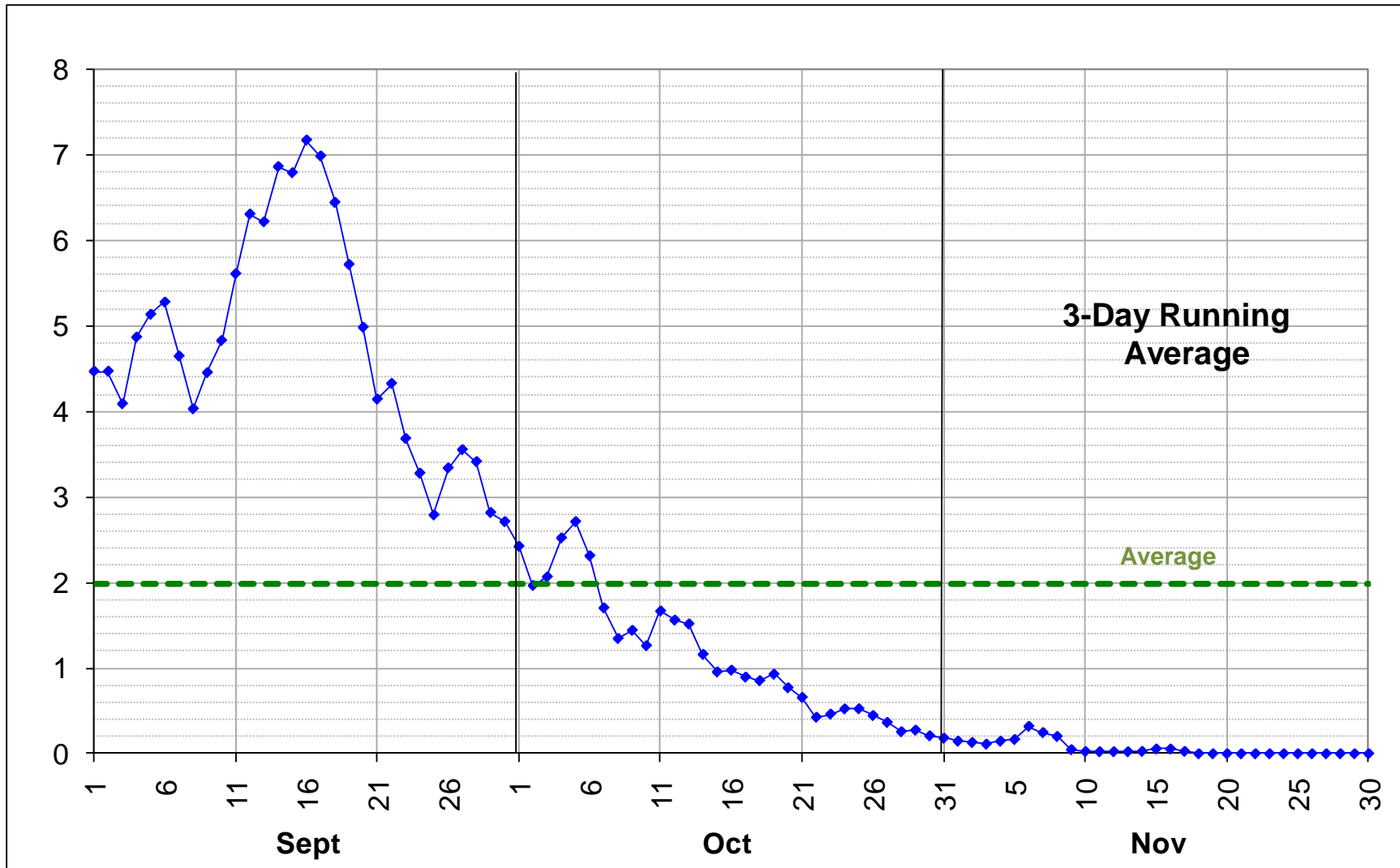


Figure 9. Osprey, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 16

90% Passage: Sep 2 – Oct 16

Detroit River Osprey – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	5	14	3	15
9/2	15	4	18	5	17
9/3	15	4	22	8	27
9/4	14	4	26	10	12
9/5	15	6	33	13	20
9/6	15	5	38	16	17
9/7	14	4	42	19	13
9/8	16	4	47	21	12
9/9	17	3	50	23	9
9/10	16	6	56	27	24
9/11	18	6	61	31	10
9/12	13	6	67	33	14
9/13	14	8	74	37	15
9/14	13	5	80	40	17
9/15	16	8	87	44	40
9/16	16	8	95	49	30
9/17	16	6	101	53	27
9/18	15	7	108	57	21
9/19	16	6	114	60	16
9/20	15	4	118	63	15
9/21	15	5	123	65	14
9/22	14	3	127	67	12
9/23	16	5	131	70	15
9/24	16	3	134	72	15
9/25	14	2	136	73	9
9/26	14	3	140	75	10
9/27	12	5	144	77	12
9/28	14	3	147	78	6
9/29	15	3	150	80	9
9/30	15	3	153	81	10

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	2	155	83	7
10/2	14	2	157	84	10
10/3	14	1	159	85	9
10/4	13	3	161	86	10
10/5	11	3	165	87	25
10/6	12	2	167	88	10
10/7	14	2	168	89	9
10/8	13	2	170	90	9
10/9	14	1	171	90	4
10/10	14	2	173	91	5
10/11	14	1	174	92	5
10/12	14	2	176	93	7
10/13	13	2	177	94	12
10/14	15	1	178	94	4
10/15	13	1	179	95	5
10/16	13	1	180	95	3
10/17	14	1	181	96	2
10/18	12	1	182	96	4
10/19	15	1	183	96	4
10/20	13	1	184	97	6
10/21	14	0	184	97	3
10/22	13	0	185	97	4
10/23	13	0	185	98	2
10/24	15	0	186	98	2
10/25	14	1	186	98	2
10/26	15	0	187	98	3
10/27	13	0	187	99	1
10/28	15	0	187	99	2
10/29	14	0	187	99	1
10/30	14	0	188	99	2
10/31	15	0	188	99	2

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	0	188	99	1
11/2	11	0	188	99	1
11/3	13	0	188	99	1
11/4	15	0	188	99	0
11/5	14	0	189	99	3
11/6	14	0	189	100	2
11/7	13	0	189	100	4
11/8	15	0	189	100	1
11/9	13	0	189	100	1
11/10	13	0	189	100	0
11/11	14	0	189	100	0
11/12	14	0	190	100	1
11/13	13	0	190	100	0
11/14	13	0	190	100	0
11/15	12	0	190	100	1
11/16	12	0	190	100	1
11/17	12	0	190	100	0
11/18	11	0	190	100	0
11/19	13	0	190	100	0
11/20	11	0	190	100	0
11/21	8	0	190	100	0
11/22	13	0	190	100	0
11/23	11	0	190	100	0
11/24	8	0	190	100	0
11/25	14	0	190	100	0
11/26	10	0	190	100	0
11/27	9	0	190	100	0
11/28	10	0	190	100	0
11/29	8	0	190	100	0
11/30	7	0	190	100	0

Table 3. Osprey, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Osprey – Yearly Trend

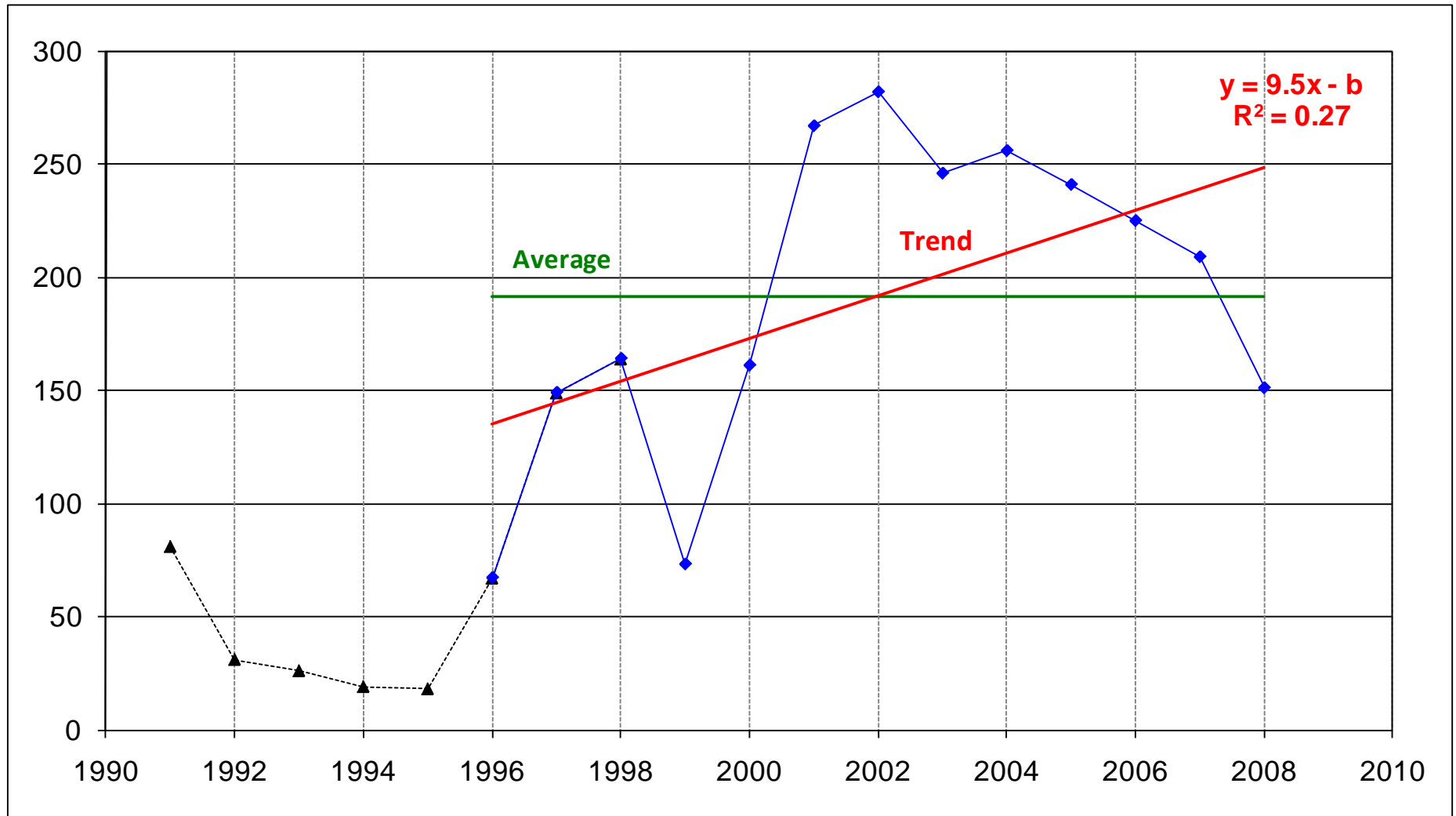


Figure 10. Osprey, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Bald Eagle - Seasonal Occurrence

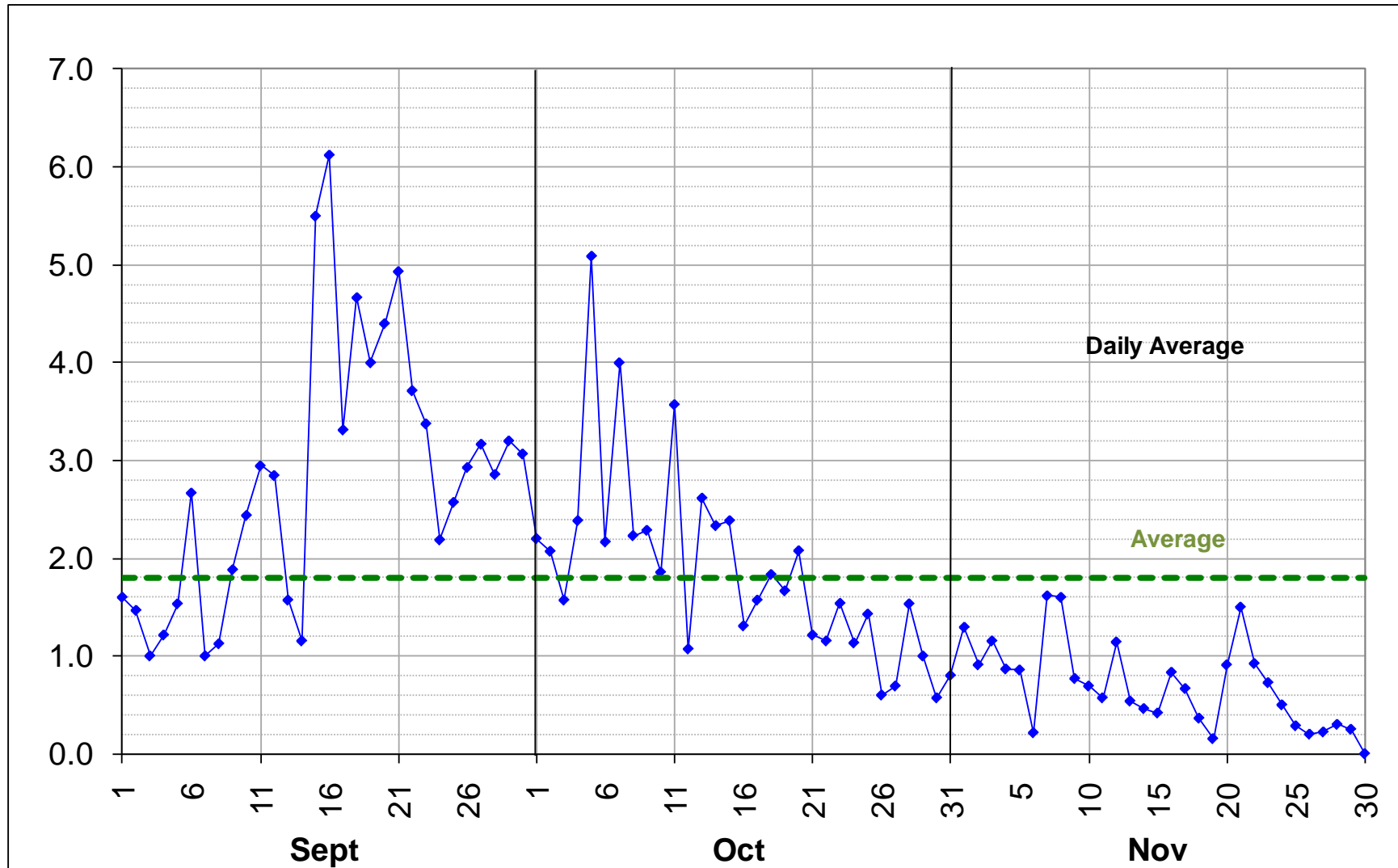


Figure 11. Bald Eagle, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 28

90% Passage: Sep 6 – Nov 10

Detroit River Bald Eagle – 3 Day Running Average

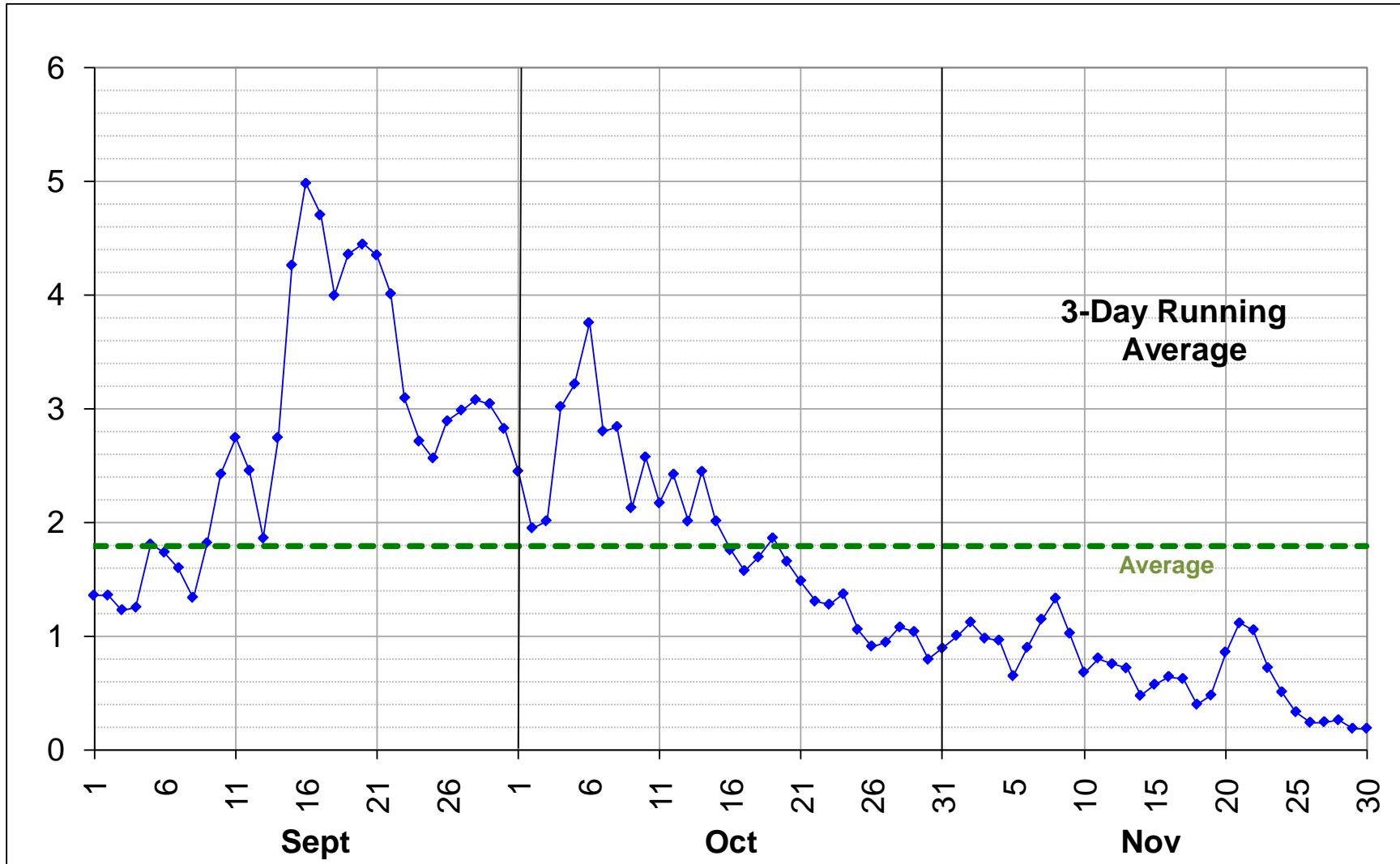


Figure 12. Bald Eagle, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 28

90% Passage: Sep 6 – Nov 10

Detroit River Bald Eagle – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	2	2	1	4
9/2	15	1	3	2	6
9/3	15	1	4	3	7
9/4	14	1	5	3	7
9/5	15	2	7	4	5
9/6	15	3	9	6	11
9/7	14	1	10	7	4
9/8	16	1	12	7	5
9/9	17	2	13	9	7
9/10	16	2	16	11	9
9/11	18	3	19	13	15
9/12	13	3	22	14	7
9/13	14	2	23	15	6
9/14	13	1	24	16	3
9/15	16	6	30	20	25
9/16	16	6	36	24	19
9/17	16	3	39	26	10
9/18	15	5	44	29	32
9/19	16	4	48	32	17
9/20	15	4	52	35	18
9/21	15	5	57	38	22
9/22	14	4	61	40	19
9/23	16	3	64	43	10
9/24	16	2	67	44	6
9/25	14	3	69	46	9
9/26	14	3	72	48	13
9/27	12	3	75	49	9
9/28	14	3	78	51	12
9/29	15	3	81	53	16
9/30	15	3	84	55	10

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	2	87	56	8
10/2	14	2	89	58	14
10/3	14	2	90	59	6
10/4	13	2	93	60	8
10/5	11	5	98	62	23
10/6	12	2	100	63	8
10/7	14	4	104	66	14
10/8	13	2	106	67	7
10/9	14	2	108	68	7
10/10	14	2	110	70	8
10/11	14	4	114	72	24
10/12	14	1	115	72	5
10/13	13	3	118	74	17
10/14	15	2	120	75	11
10/15	13	2	122	77	10
10/16	13	1	124	77	6
10/17	14	2	125	78	7
10/18	12	2	127	79	5
10/19	15	2	129	80	10
10/20	13	2	131	82	7
10/21	14	1	132	82	6
10/22	13	1	133	83	4
10/23	13	2	135	84	11
10/24	15	1	136	85	10
10/25	14	1	137	85	5
10/26	15	1	138	86	4
10/27	13	1	138	86	3
10/28	15	2	140	87	4
10/29	14	1	141	88	3
10/30	14	1	142	88	4
10/31	15	1	142	89	4

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	1	144	90	4
11/2	11	1	145	90	3
11/3	13	1	146	91	9
11/4	15	1	147	91	4
11/5	14	1	147	92	3
11/6	14	0	148	92	1
11/7	13	2	149	93	13
11/8	15	2	151	94	3
11/9	13	1	152	94	6
11/10	13	1	152	95	3
11/11	14	1	153	95	4
11/12	14	1	154	96	7
11/13	13	1	155	96	3
11/14	13	0	155	96	4
11/15	12	0	156	96	3
11/16	12	1	156	97	4
11/17	12	1	157	97	4
11/18	11	0	157	97	3
11/19	13	0	158	97	1
11/20	11	1	158	98	6
11/21	8	2	160	98	8
11/22	13	1	161	99	8
11/23	11	1	162	99	4
11/24	8	1	162	99	2
11/25	14	0	162	100	1
11/26	10	0	163	100	1
11/27	9	0	163	100	1
11/28	10	0	163	100	3
11/29	8	0	163	100	1
11/30	7	0	163	100	0

Table 4. Bald Eagle, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Bald Eagle – Yearly Trend

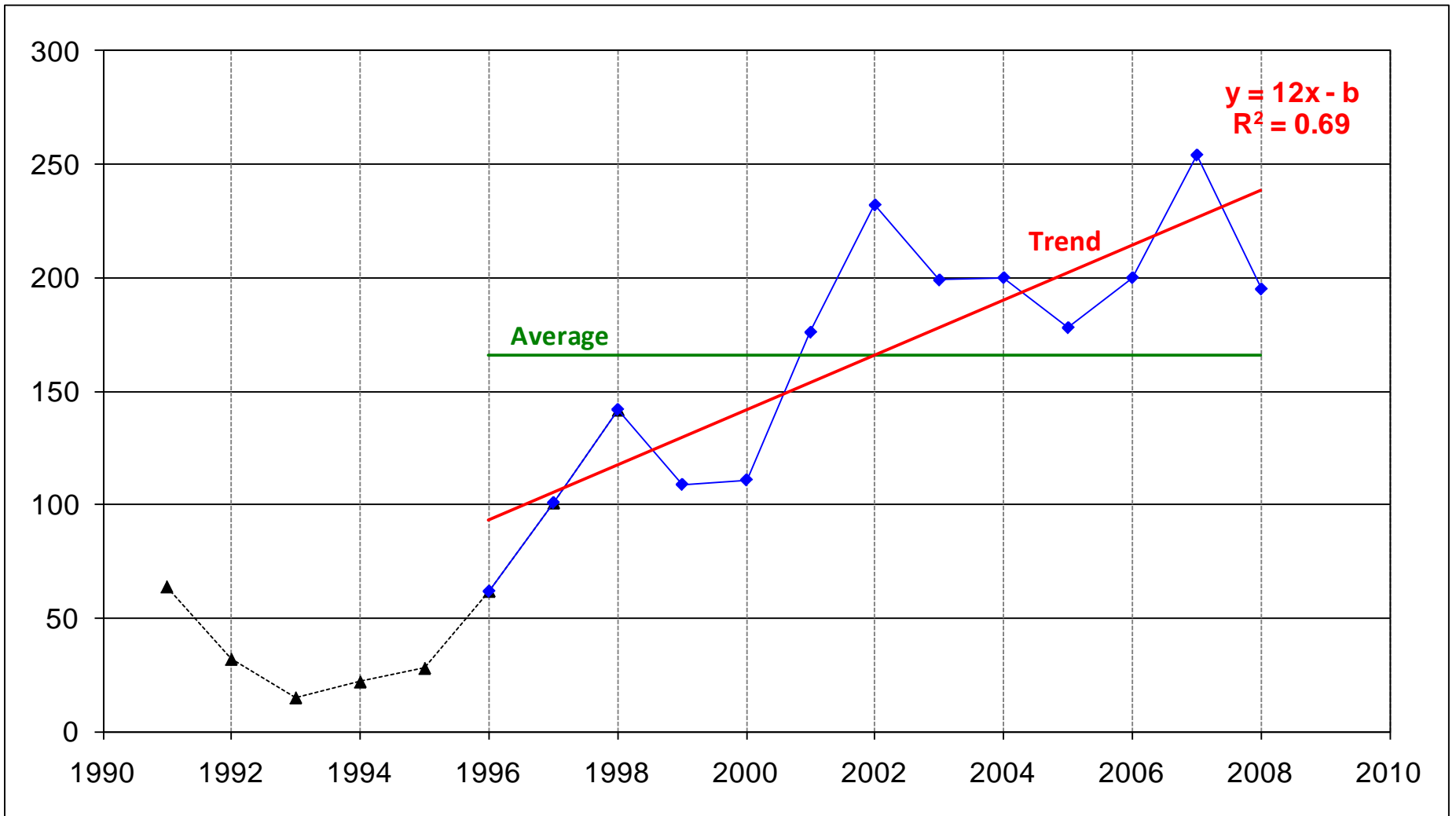


Figure 13. Bald Eagle, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Northern Harrier - Seasonal Occurrence

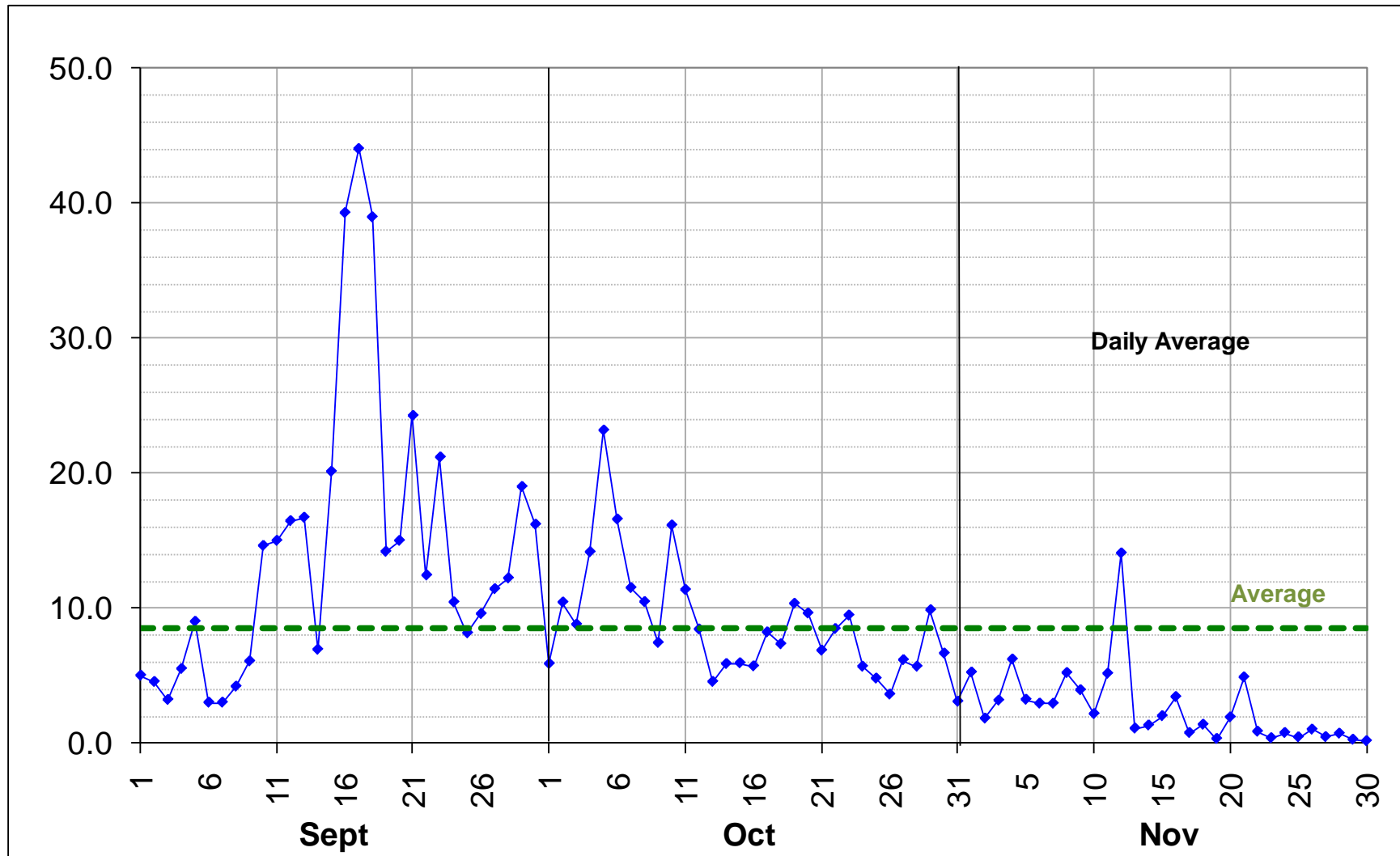


Figure 14. Northern Harrier, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 25

90% Passage: Sep 8 – Nov 8

Detroit River Northern Harrier – 3 Day Running Average

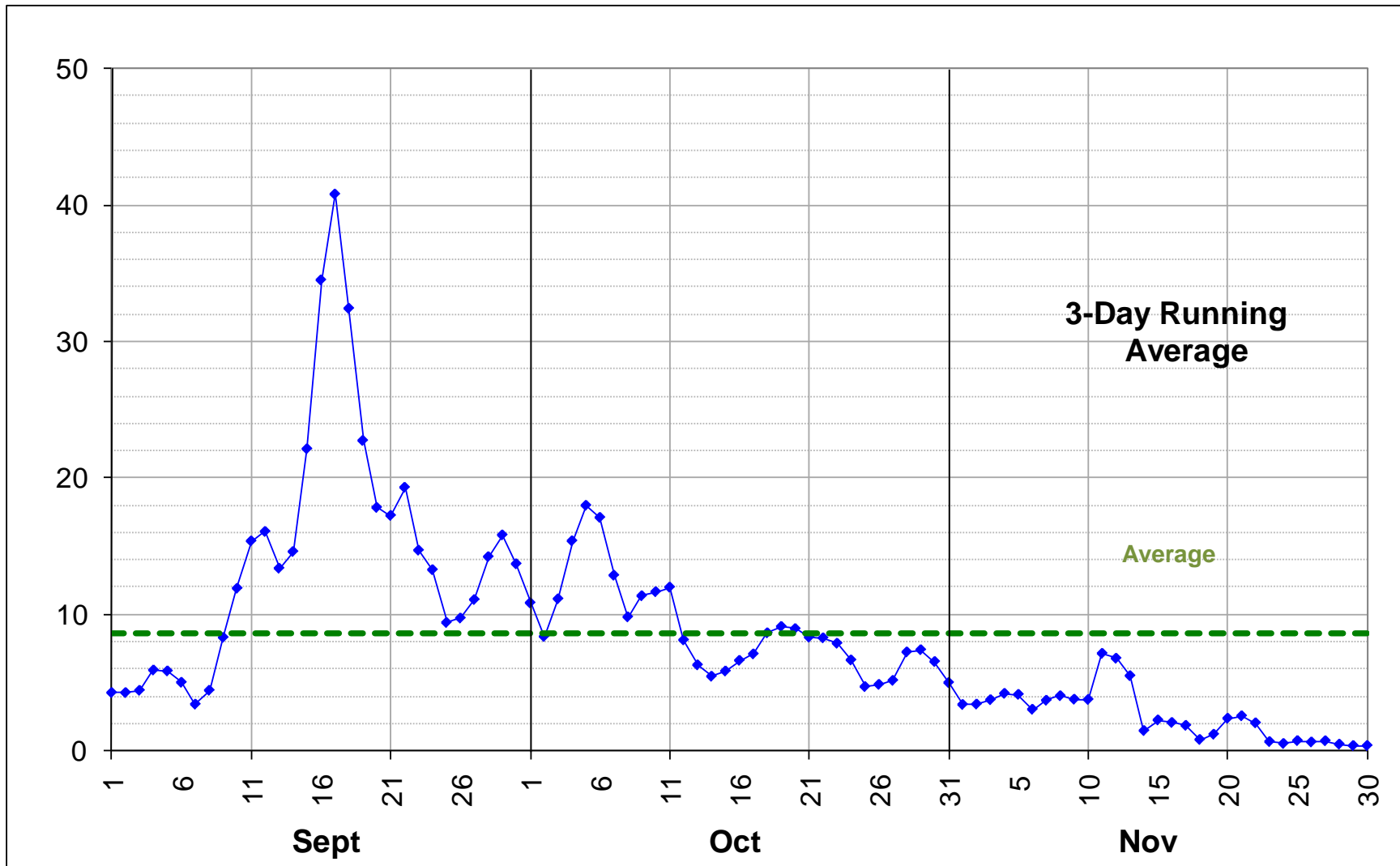


Figure 15. Northern Harrier, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 25

90% Passage: Sep 8 – Nov 8

Detroit River Northern Harrier – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	5	9	1	15
9/2	15	5	14	1	15
9/3	15	3	17	2	29
9/4	14	6	22	2	26
9/5	15	9	31	4	21
9/6	15	3	34	4	12
9/7	14	3	37	4	25
9/8	16	4	41	5	15
9/9	17	6	47	6	22
9/10	16	15	62	8	77
9/11	18	15	77	10	101
9/12	13	16	94	12	66
9/13	14	17	110	14	72
9/14	13	7	117	15	23
9/15	16	20	137	18	163
9/16	16	39	177	24	187
9/17	16	44	221	30	324
9/18	15	39	260	35	136
9/19	16	14	274	37	41
9/20	15	15	289	39	75
9/21	15	24	313	42	109
9/22	14	12	326	44	34
9/23	16	21	347	47	117
9/24	16	10	357	49	42
9/25	14	8	365	50	21
9/26	14	10	375	51	29
9/27	12	11	386	52	46
9/28	14	12	399	54	45
9/29	15	19	418	56	78
9/30	15	16	434	58	121

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	6	440	59	20
10/2	14	10	450	60	47
10/3	14	9	459	61	32
10/4	13	14	473	63	61
10/5	11	23	496	65	144
10/6	12	17	513	67	71
10/7	14	12	524	69	40
10/8	13	10	535	70	36
10/9	14	7	542	71	30
10/10	14	16	558	73	80
10/11	14	11	570	74	43
10/12	14	8	578	75	46
10/13	13	5	583	76	29
10/14	15	6	588	76	28
10/15	13	6	594	77	13
10/16	13	6	600	78	34
10/17	14	8	608	79	66
10/18	12	7	616	80	16
10/19	15	10	626	81	96
10/20	13	10	636	82	59
10/21	14	7	642	83	21
10/22	13	8	651	84	24
10/23	13	9	660	85	46
10/24	15	6	666	86	16
10/25	14	5	671	86	14
10/26	15	4	674	87	18
10/27	13	6	681	88	29
10/28	15	6	686	88	29
10/29	14	10	696	90	45
10/30	14	7	703	90	28
10/31	15	3	706	91	12

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	5	711	92	23
11/2	11	2	713	92	10
11/3	13	3	716	92	13
11/4	15	6	722	93	58
11/5	14	3	725	93	14
11/6	14	3	728	94	11
11/7	13	3	731	94	10
11/8	15	5	736	95	38
11/9	13	4	740	95	17
11/10	13	2	743	96	8
11/11	14	5	748	96	25
11/12	14	14	762	98	152
11/13	13	1	763	98	4
11/14	13	1	764	98	3
11/15	12	2	766	98	11
11/16	12	3	770	99	10
11/17	12	1	770	99	3
11/18	11	1	772	99	3
11/19	13	0	772	99	1
11/20	11	2	774	99	8
11/21	8	5	779	100	38
11/22	13	1	780	100	4
11/23	11	0	780	100	1
11/24	8	1	781	100	2
11/25	14	0	781	100	3
11/26	10	1	782	100	4
11/27	9	0	783	100	2
11/28	10	1	783	100	4
11/29	8	0	784	100	2
11/30	7	0	784	100	1

Table 5. Northern Harrier, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Northern Harrier - Yearly Trend

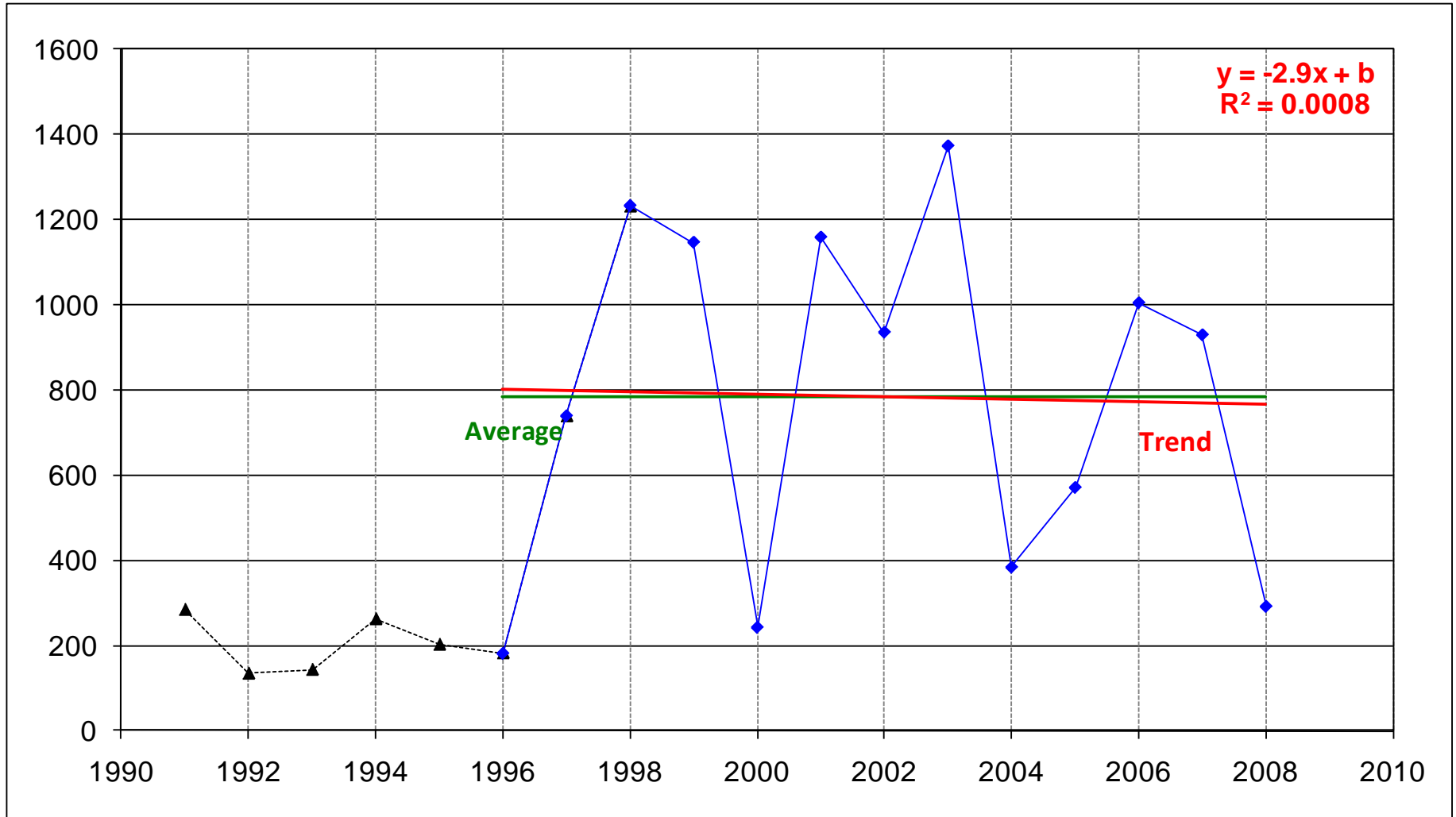


Figure 16. Northern Harrier, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Sharp-shinned Hawk - Seasonal Occurrence

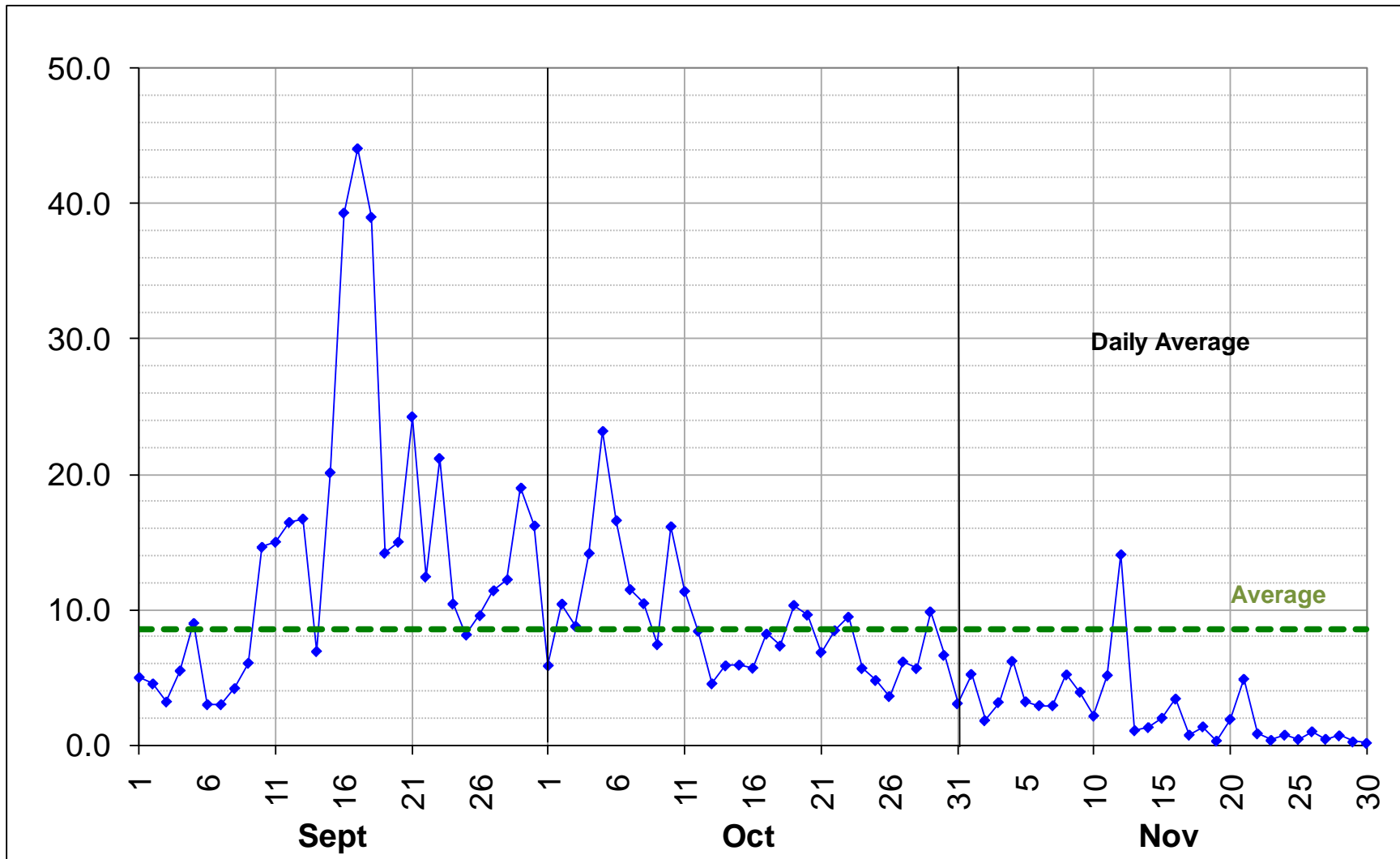


Figure 17. Sharp-shinned Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 25

90% Passage: Sep 8 – Oct 22

Detroit River Sharp-shinned Hawk – 3 Day Running Average

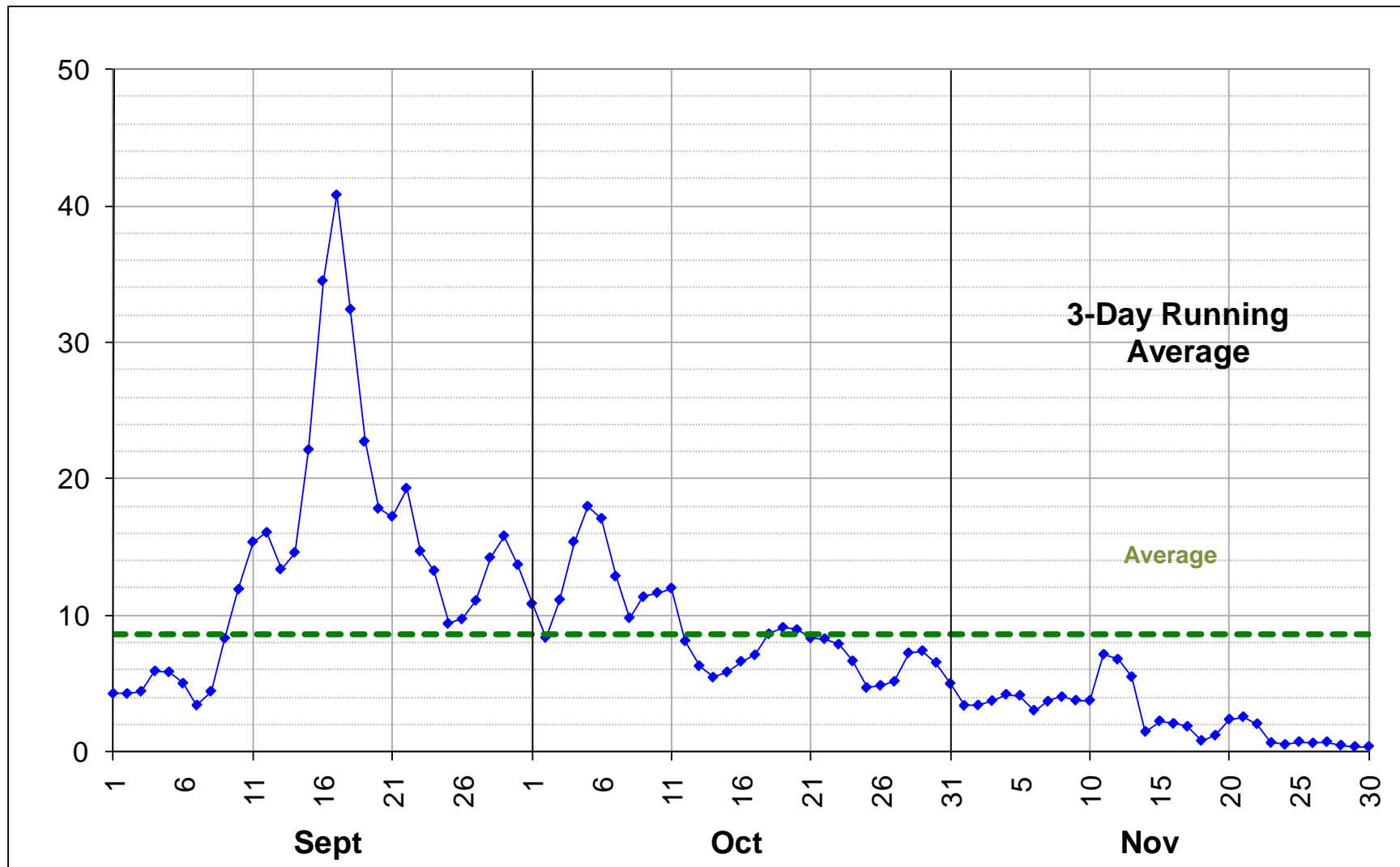


Figure 18. Sharp-shinned Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 25

90% Passage: Sep 8 – Oct 22

Detroit River Sharp-shinned Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	16	16	0	70
9/2	15	29	44	0	200
9/3	15	23	67	1	130
9/4	14	47	115	1	233
9/5	15	109	224	2	475
9/6	15	69	292	3	266
9/7	14	57	349	4	239
9/8	16	55	405	4	203
9/9	17	63	468	5	227
9/10	16	111	579	6	344
9/11	18	223	801	9	533
9/12	13	190	992	11	462
9/13	14	238	1,229	14	624
9/14	13	195	1,424	15	603
9/15	16	202	1,626	18	1,260
9/16	16	412	2,037	22	2,197
9/17	16	517	2,554	28	3,782
9/18	15	493	3,047	34	1,088
9/19	16	282	3,329	37	962
9/20	15	260	3,589	40	1,273
9/21	15	278	3,867	43	1,011
9/22	14	224	4,091	45	611
9/23	16	220	4,310	48	955
9/24	16	167	4,478	50	351
9/25	14	182	4,659	51	934
9/26	14	126	4,785	53	350
9/27	12	140	4,925	54	352
9/28	14	172	5,097	56	499
9/29	15	282	5,378	59	1,837
9/30	15	248	5,627	61	1,723

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	156	5,783	63	387
10/2	14	112	5,895	64	378
10/3	14	80	5,975	65	278
10/4	13	131	6,106	66	586
10/5	11	140	6,246	67	608
10/6	12	207	6,453	69	901
10/7	14	175	6,629	71	535
10/8	13	161	6,789	73	449
10/9	14	193	6,982	74	670
10/10	14	223	7,205	77	1,133
10/11	14	171	7,376	78	715
10/12	14	129	7,505	80	495
10/13	13	129	7,634	81	367
10/14	15	111	7,745	82	452
10/15	13	148	7,894	84	824
10/16	13	69	7,963	84	243
10/17	14	147	8,110	86	1,158
10/18	12	126	8,236	87	548
10/19	15	161	8,398	89	955
10/20	13	308	8,706	91	2,489
10/21	14	162	8,868	93	550
10/22	13	106	8,974	94	378
10/23	13	149	9,122	96	509
10/24	15	86	9,208	96	401
10/25	14	47	9,255	97	293
10/26	15	40	9,295	97	126
10/27	13	29	9,324	98	96
10/28	15	38	9,362	98	301
10/29	14	44	9,406	98	254
10/30	14	24	9,429	99	79
10/31	15	15	9,444	99	41

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	9	9,454	99	39
11/2	11	13	9,467	99	70
11/3	13	10	9,477	99	42
11/4	15	10	9,487	99	39
11/5	14	7	9,494	99	23
11/6	14	5	9,499	99	27
11/7	13	6	9,505	99	16
11/8	15	6	9,510	100	18
11/9	13	9	9,520	100	41
11/10	13	4	9,523	100	8
11/11	14	4	9,527	100	14
11/12	14	5	9,532	100	15
11/13	13	3	9,535	100	17
11/14	13	4	9,539	100	12
11/15	12	2	9,540	100	5
11/16	12	2	9,542	100	6
11/17	12	1	9,543	100	8
11/18	11	2	9,545	100	13
11/19	13	2	9,547	100	6
11/20	11	4	9,551	100	18
11/21	8	2	9,553	100	6
11/22	13	1	9,554	100	8
11/23	11	1	9,555	100	4
11/24	8	3	9,558	100	16
11/25	14	1	9,559	100	5
11/26	10	1	9,560	100	4
11/27	9	1	9,561	100	5
11/28	10	0	9,561	100	2
11/29	8	1	9,562	100	1
11/30	7	0	9,562	100	2

Table 6. Sharp-shinned Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Sharp-shinned Hawk - Yearly Trend

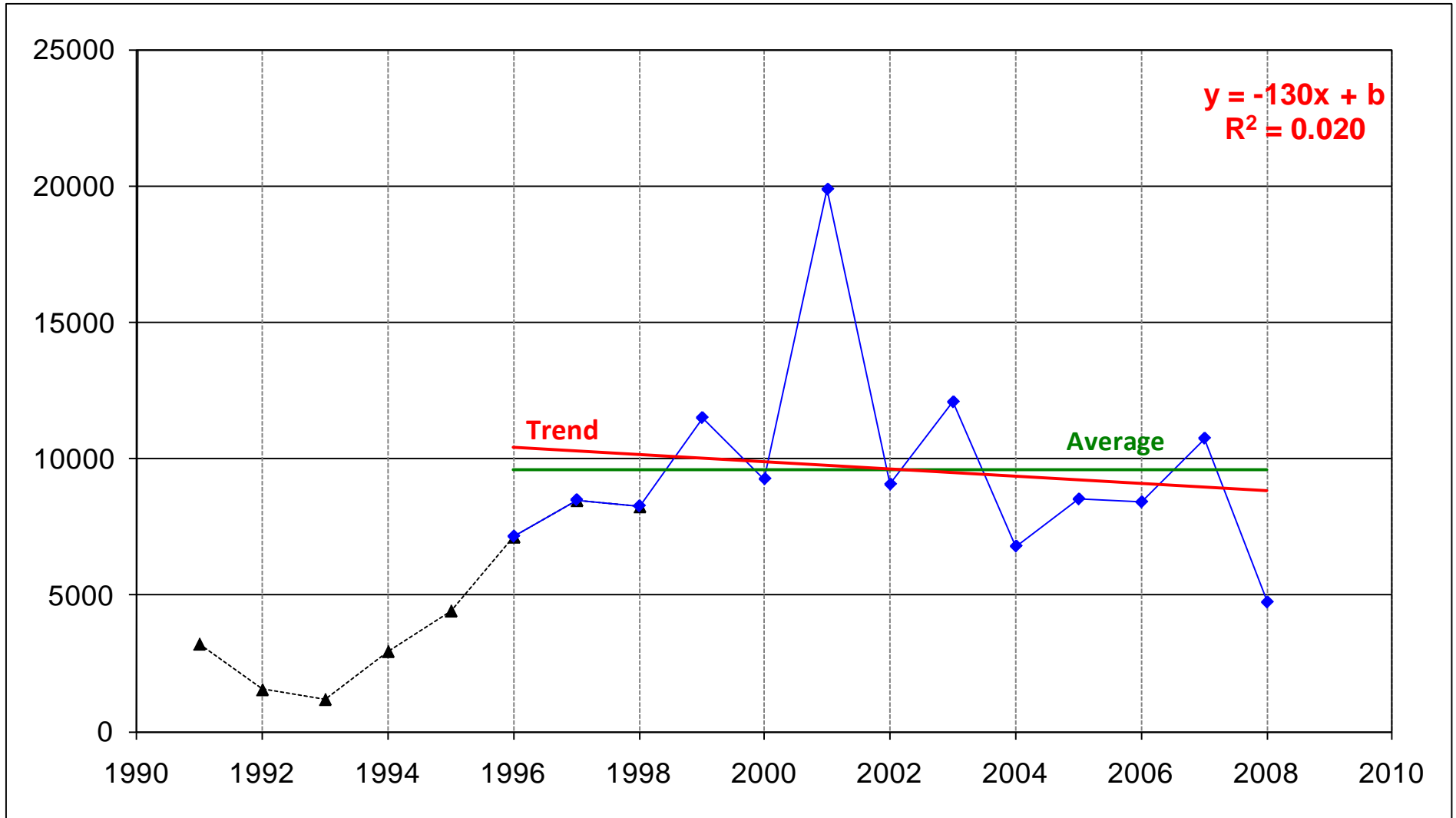


Figure 19. Sharp-shinned Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991-2008

Detroit River Cooper's Hawk - Seasonal Occurrence

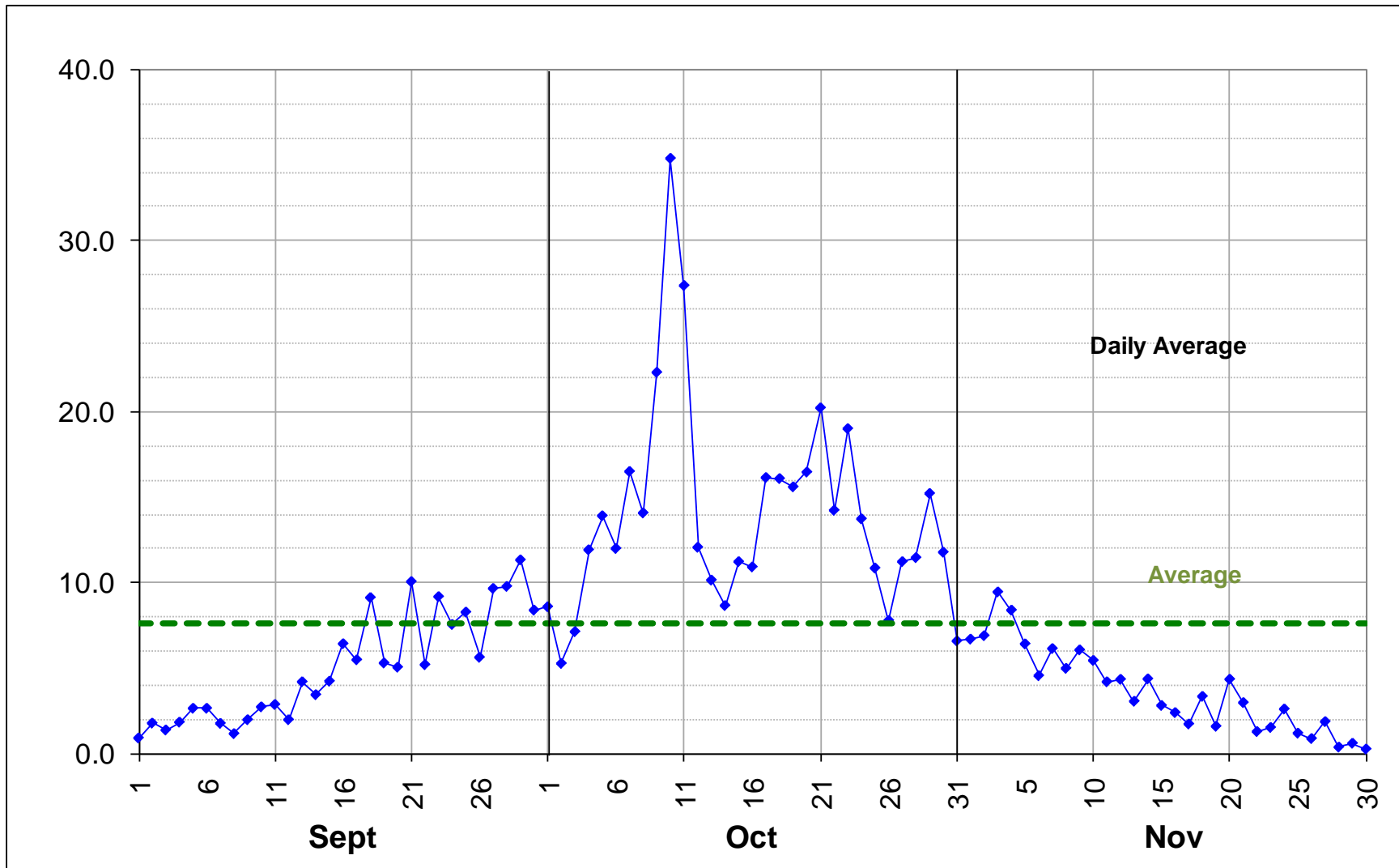


Figure 20. Coopers Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 12

90% Passage: Sep 14 – Nov 11

Detroit River Cooper's Hawk – 3 Day Running Average

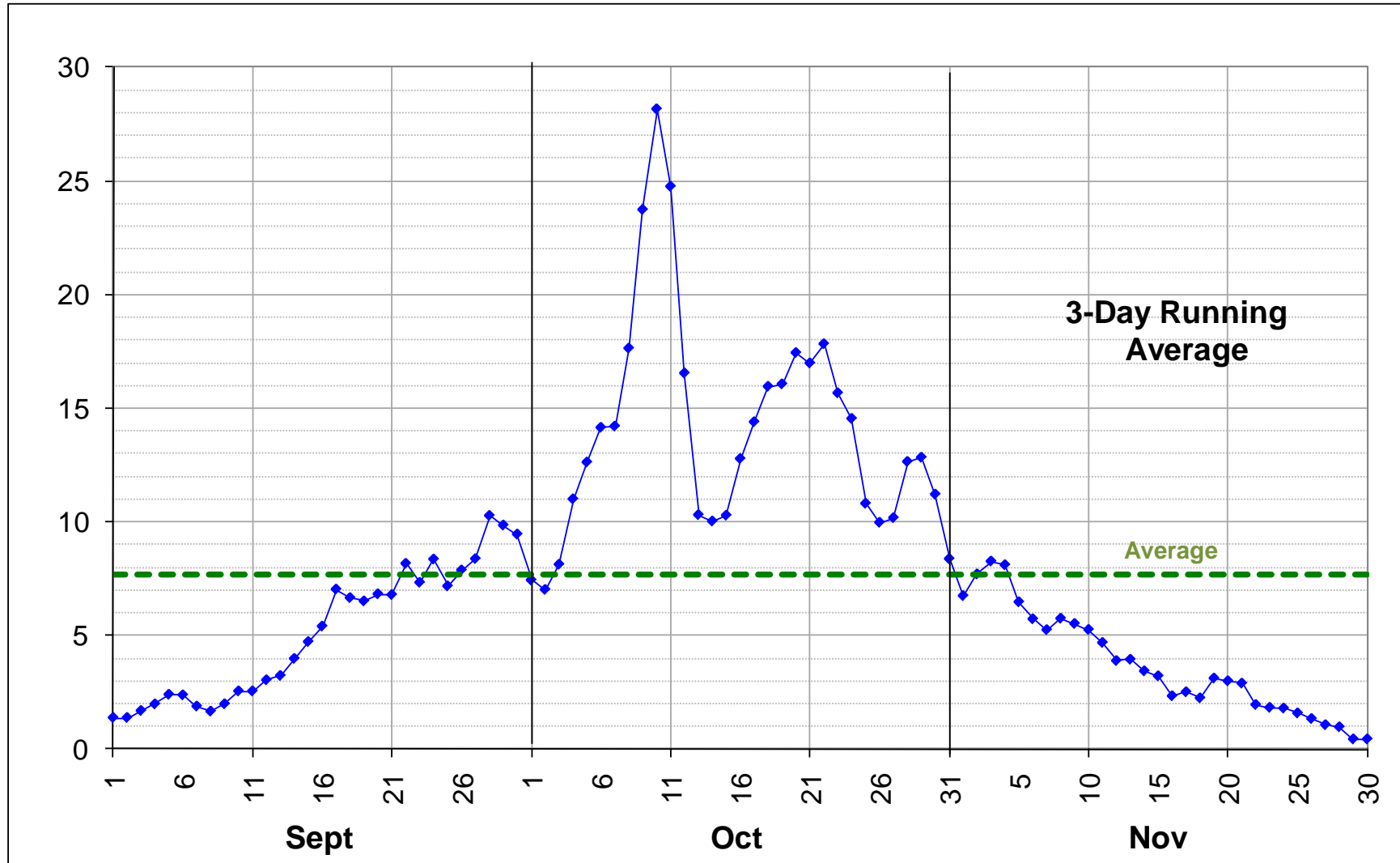


Figure 21. Coopers Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 12

90% Passage: Sep 14 – Nov 11

Detroit River Cooper's Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	1	1	0	3
9/2	15	2	3	0	9
9/3	15	1	4	1	8
9/4	14	2	6	1	5
9/5	15	3	9	1	15
9/6	15	3	11	2	10
9/7	14	2	13	2	9
9/8	16	1	14	2	4
9/9	17	2	16	3	19
9/10	16	3	19	3	11
9/11	18	3	22	4	9
9/12	13	2	24	4	8
9/13	14	4	28	4	14
9/14	13	3	32	5	16
9/15	16	4	36	6	15
9/16	16	6	42	7	23
9/17	16	6	48	8	18
9/18	15	9	57	9	30
9/19	16	5	62	10	18
9/20	15	5	67	11	20
9/21	15	10	77	12	33
9/22	14	5	83	13	16
9/23	16	9	92	15	34
9/24	16	8	99	16	33
9/25	14	8	108	17	41
9/26	14	6	113	18	19
9/27	12	10	123	19	27
9/28	14	10	133	20	22
9/29	15	11	144	22	54
9/30	15	8	152	24	26

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	9	161	25	29
10/2	14	5	166	26	29
10/3	14	7	173	27	22
10/4	13	12	185	28	53
10/5	11	14	199	30	49
10/6	12	12	211	31	34
10/7	14	17	228	34	33
10/8	13	14	242	36	33
10/9	14	22	264	39	116
10/10	14	35	299	44	179
10/11	14	27	326	48	95
10/12	14	12	338	50	30
10/13	13	10	349	51	43
10/14	15	9	357	52	35
10/15	13	11	368	54	31
10/16	13	11	379	55	62
10/17	14	16	396	58	58
10/18	12	16	412	60	46
10/19	15	16	427	62	47
10/20	13	16	444	64	41
10/21	14	20	464	67	67
10/22	13	14	478	69	36
10/23	13	19	497	72	65
10/24	15	14	511	74	50
10/25	14	11	522	76	47
10/26	15	8	529	77	32
10/27	13	11	541	78	31
10/28	15	11	552	80	42
10/29	14	15	567	82	48
10/30	14	12	579	84	41
10/31	15	7	586	85	20

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	7	592	86	24
11/2	11	7	599	87	27
11/3	13	9	609	88	37
11/4	15	8	617	90	49
11/5	14	6	624	91	35
11/6	14	5	628	91	16
11/7	13	6	634	92	16
11/8	15	5	639	93	13
11/9	13	6	645	94	18
11/10	13	5	651	94	22
11/11	14	4	655	95	22
11/12	14	4	660	96	9
11/13	13	3	663	96	16
11/14	13	4	667	97	19
11/15	12	3	670	97	13
11/16	12	2	672	97	6
11/17	12	2	674	98	9
11/18	11	3	677	98	20
11/19	13	2	679	98	11
11/20	11	4	683	99	16
11/21	8	3	686	99	10
11/22	13	1	688	99	6
11/23	11	2	689	99	7
11/24	8	3	692	99	10
11/25	14	1	693	100	4
11/26	10	1	694	100	6
11/27	9	2	696	100	5
11/28	10	0	696	100	3
11/29	8	1	697	100	2
11/30	7	0	697	100	2

Table 7. Cooper's Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Cooper's Hawk - Yearly Trend

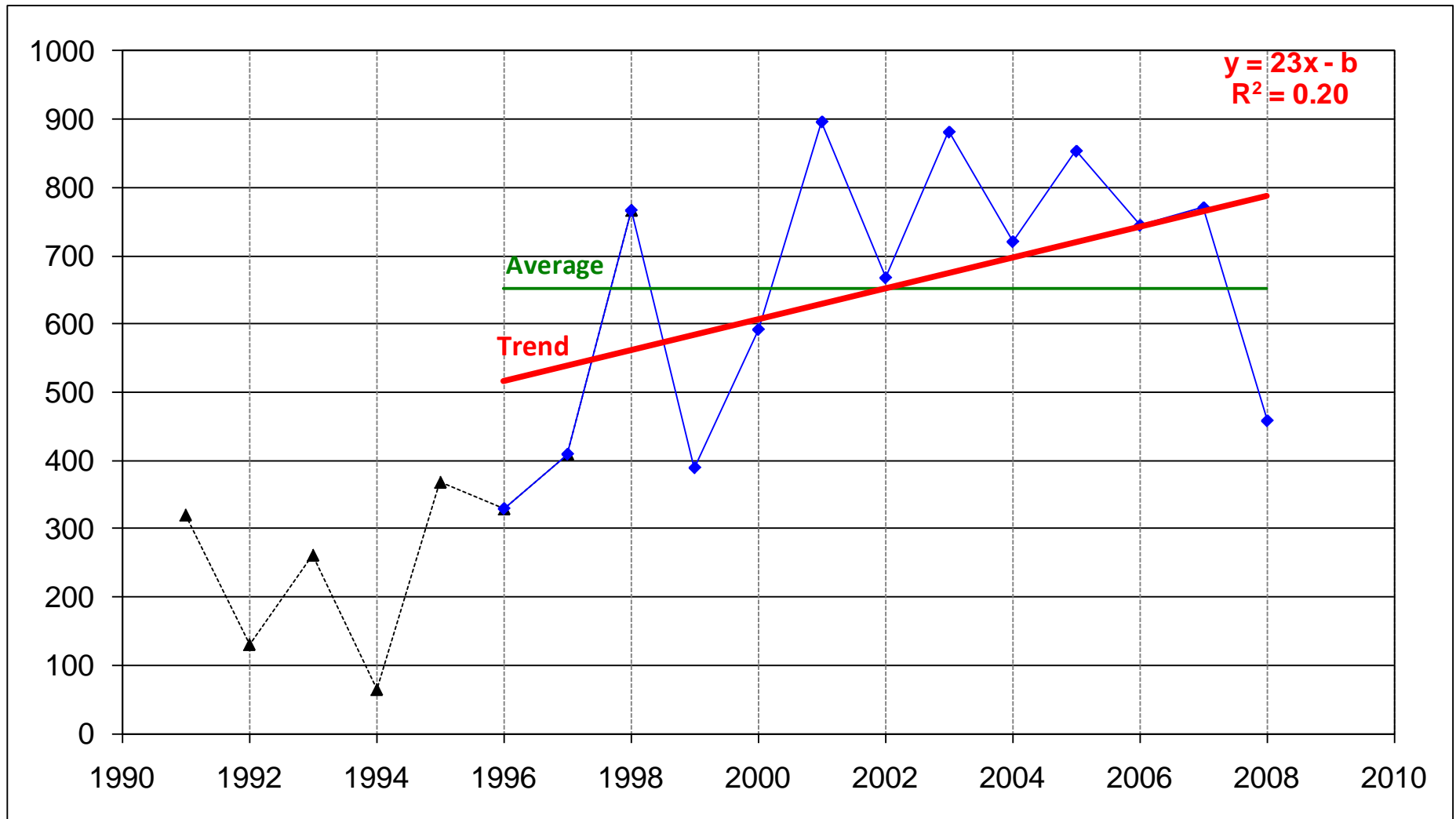


Figure 22. Coopers Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Northern Goshawk - Seasonal Occurrence

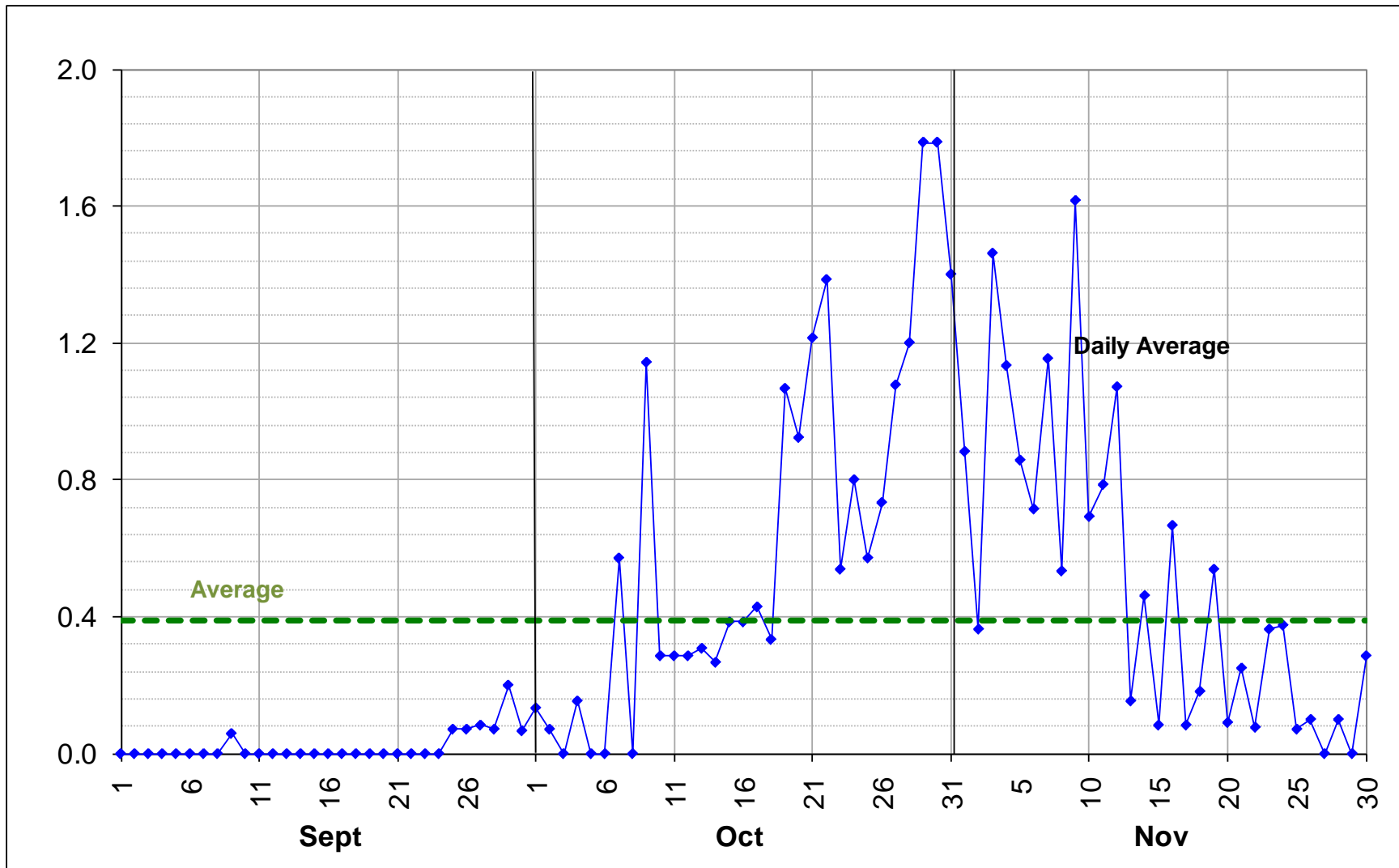


Figure 23. Northern Goshawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 29

90% Passage: Oct 8 – Nov 18

Detroit River Northern Goshawk – 3 Day Running Average

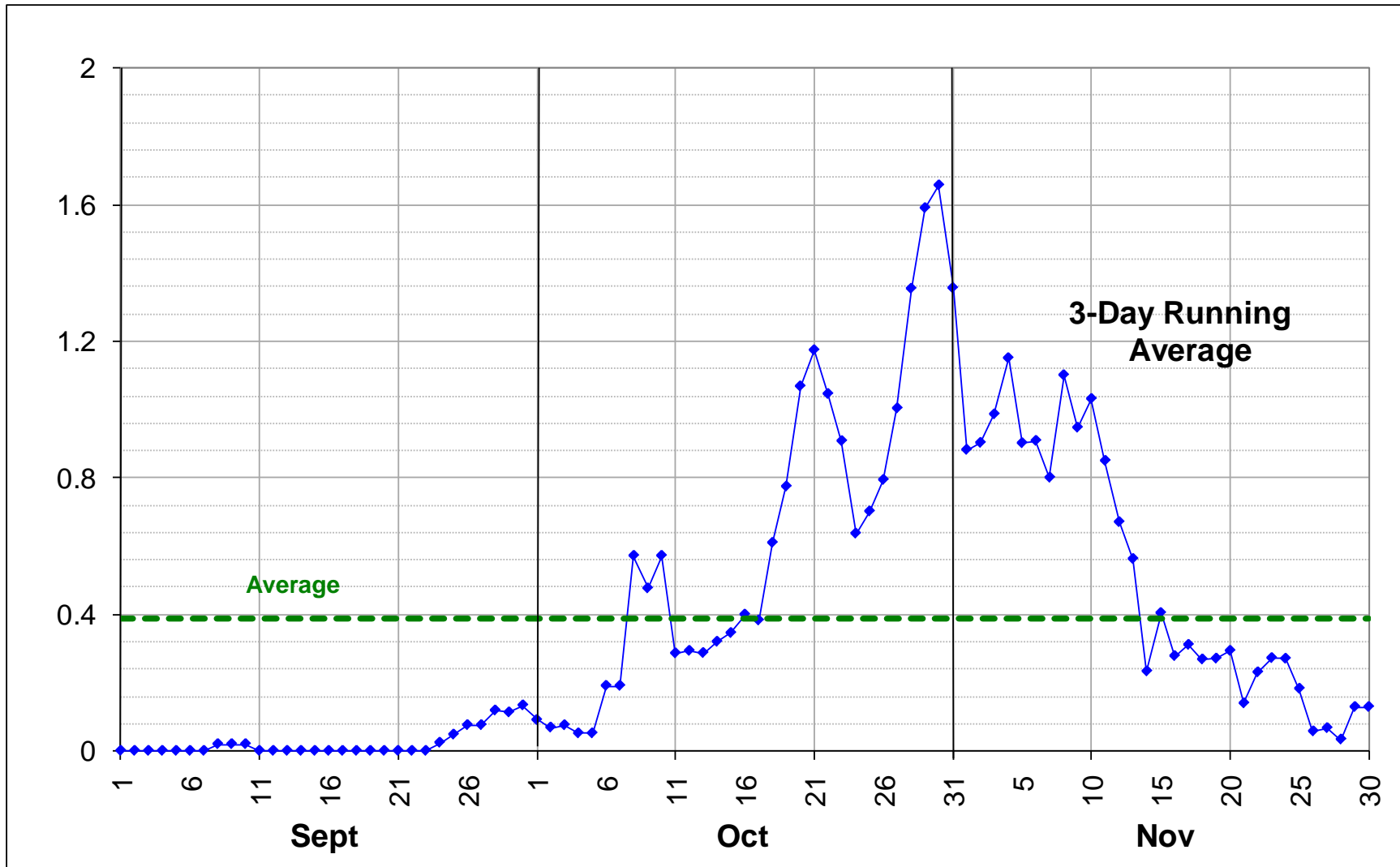


Figure 24. Northern Goshawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 29

90% Passage: Oct 8 – Nov 18

Detroit River Northern Goshawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	0
9/2	15	0	0	0	0
9/3	15	0	0	0	0
9/4	14	0	0	0	0
9/5	15	0	0	0	0
9/6	15	0	0	0	0
9/7	14	0	0	0	0
9/8	16	0	0	0	0
9/9	17	0	0	0	1
9/10	16	0	0	0	0
9/11	18	0	0	0	0
9/12	13	0	0	0	0
9/13	14	0	0	0	0
9/14	13	0	0	0	0
9/15	16	0	0	0	0
9/16	16	0	0	0	0
9/17	16	0	0	0	0
9/18	15	0	0	0	0
9/19	16	0	0	0	0
9/20	15	0	0	0	0
9/21	15	0	0	0	0
9/22	14	0	0	0	0
9/23	16	0	0	0	0
9/24	16	0	0	0	0
9/25	14	0	0	0	1
9/26	14	0	0	1	1
9/27	12	0	0	1	1
9/28	14	0	0	1	1
9/29	15	0	1	2	3
9/30	15	0	1	2	1

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	0	1	2	1
10/2	14	0	1	2	1
10/3	14	0	1	2	0
10/4	13	0	1	3	1
10/5	11	0	1	3	0
10/6	12	0	1	3	0
10/7	14	1	2	5	2
10/8	13	0	2	5	0
10/9	14	1	3	8	10
10/10	14	0	3	9	3
10/11	14	0	3	10	2
10/12	14	0	4	10	2
10/13	13	0	4	11	2
10/14	15	0	4	12	2
10/15	13	0	5	13	1
10/16	13	0	5	14	2
10/17	14	0	5	15	2
10/18	12	0	6	16	3
10/19	15	1	7	20	6
10/20	13	1	8	22	4
10/21	14	1	9	26	8
10/22	13	1	10	29	10
10/23	13	1	11	31	2
10/24	15	1	12	33	6
10/25	14	1	12	35	2
10/26	15	1	13	37	2
10/27	13	1	14	40	4
10/28	15	1	15	44	5
10/29	14	2	17	49	10
10/30	14	2	19	54	13
10/31	15	1	20	59	8

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	1	21	62	7
11/2	11	0	21	63	1
11/3	13	1	23	67	8
11/4	15	1	24	70	8
11/5	14	1	25	73	5
11/6	14	1	26	75	3
11/7	13	1	27	78	11
11/8	15	1	27	79	2
11/9	13	2	29	84	10
11/10	13	1	30	86	3
11/11	14	1	30	88	3
11/12	14	1	31	91	4
11/13	13	0	32	91	2
11/14	13	0	32	93	2
11/15	12	0	32	93	1
11/16	12	1	33	95	4
11/17	12	0	33	95	1
11/18	11	0	33	95	2
11/19	13	1	34	97	2
11/20	11	0	34	97	1
11/21	8	0	34	97	1
11/22	13	0	34	98	1
11/23	11	0	34	98	2
11/24	8	0	35	99	2
11/25	14	0	35	99	1
11/26	10	0	35	99	1
11/27	9	0	35	99	0
11/28	10	0	35	100	1
11/29	8	0	35	100	0
11/30	7	0	35	100	2

Table 8. Northern Goshawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Northern Goshawk - Yearly Trend

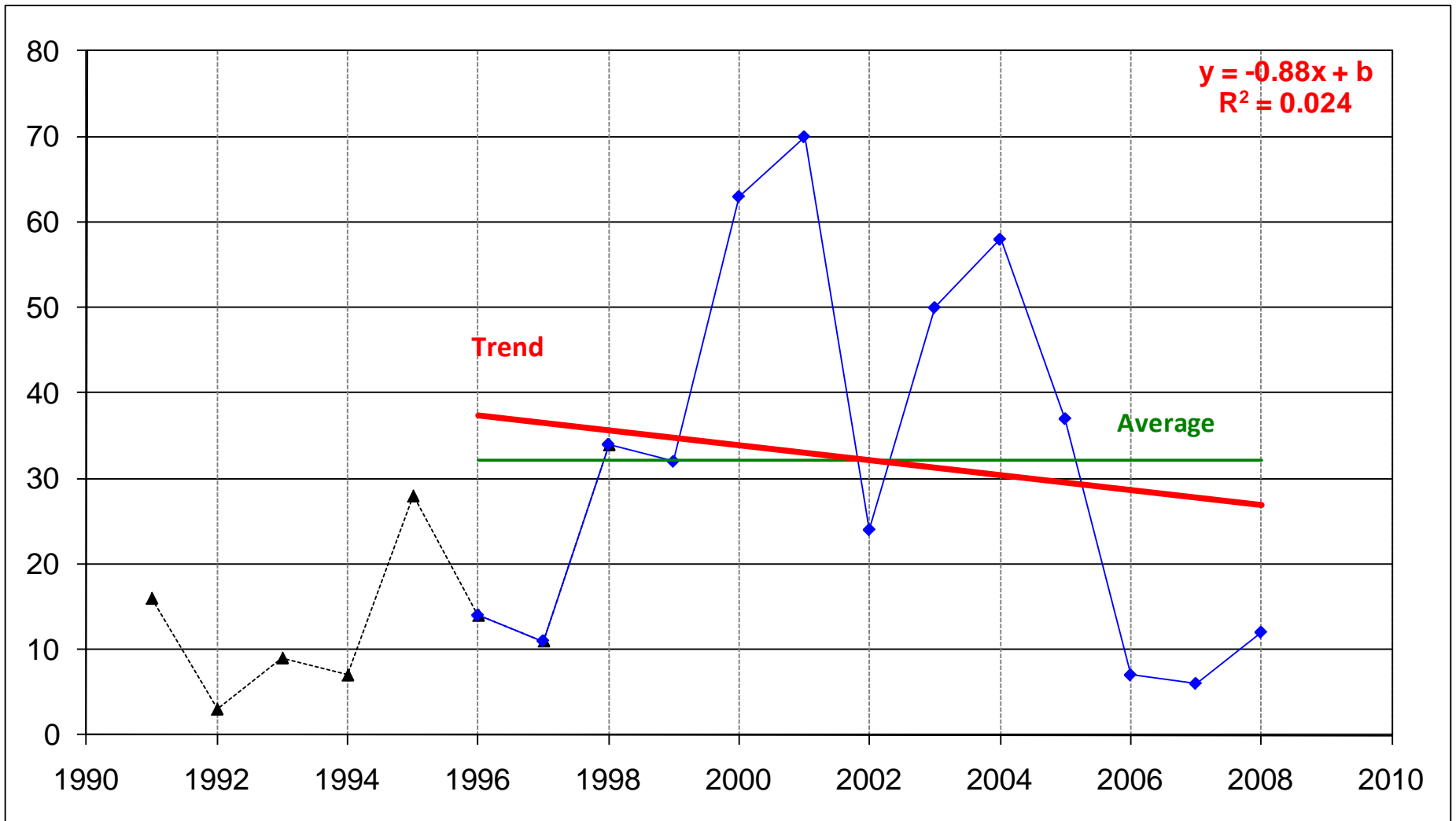


Figure 25. Northern Goshawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991-2008

Detroit River Red-shouldered Hawk - Seasonal Occurrence

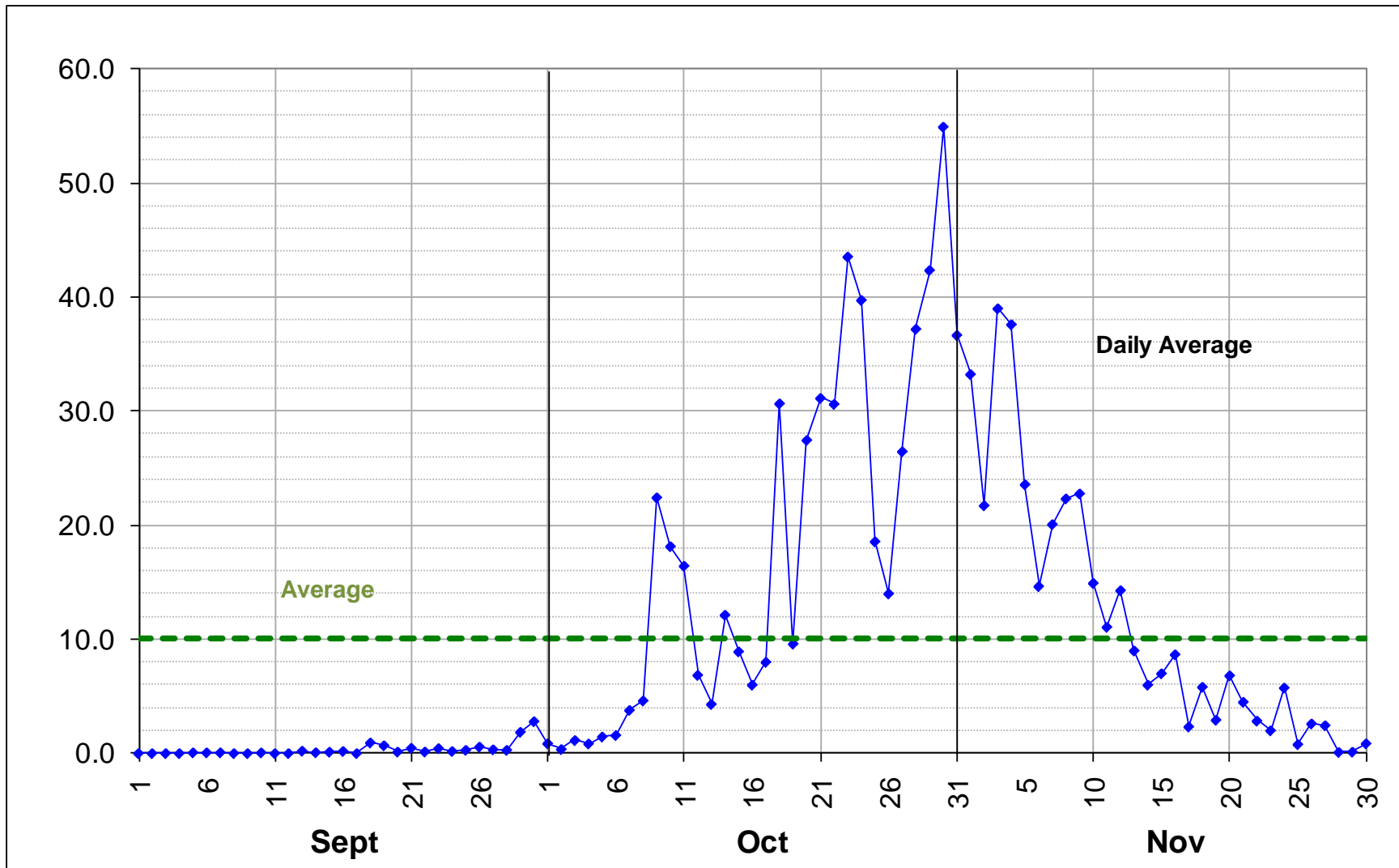


Figure 26. Red-shouldered Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 28

90% Passage: Oct 9 – Nov 14

Detroit River Red-shouldered Hawk – 3 Day Running Average

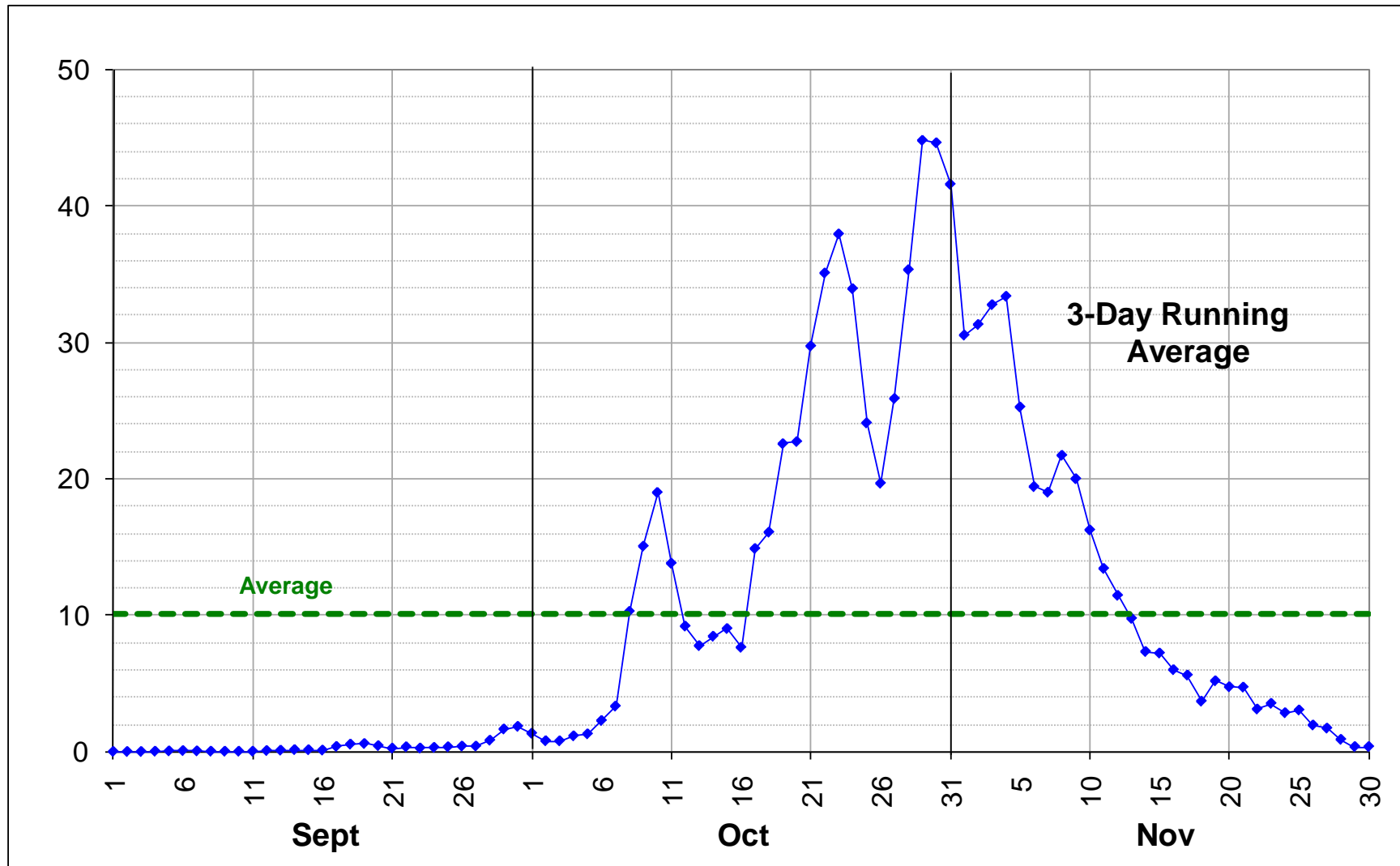


Figure 27. Red-shouldered Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008e

Median Date: Oct 28

90% Passage: Oct 9 – Nov 14

Detroit River Red-shouldered Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	0
9/2	15	0	0	0	0
9/3	15	0	0	0	0
9/4	14	0	0	0	0
9/5	15	0	0	0	1
9/6	15	0	0	0	1
9/7	14	0	0	0	1
9/8	16	0	0	0	0
9/9	17	0	0	0	0
9/10	16	0	0	0	1
9/11	18	0	0	0	0
9/12	13	0	0	0	0
9/13	14	0	0	0	1
9/14	13	0	1	0	1
9/15	16	0	1	0	1
9/16	16	0	1	0	3
9/17	16	0	1	0	0
9/18	15	1	2	0	13
9/19	16	1	2	0	8
9/20	15	0	3	0	1
9/21	15	0	3	0	4
9/22	14	0	3	0	1
9/23	16	0	4	0	2
9/24	16	0	4	0	2
9/25	14	0	4	1	3
9/26	14	1	5	1	3
9/27	12	0	5	1	2
9/28	14	0	5	1	1
9/29	15	2	7	1	10
9/30	15	3	10	1	16

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	1	11	1	5
10/2	14	0	11	1	3
10/3	14	1	12	1	7
10/4	13	1	13	2	3
10/5	11	1	15	2	7
10/6	12	2	16	2	7
10/7	14	4	20	2	14
10/8	13	5	25	3	27
10/9	14	22	47	5	243
10/10	14	18	65	7	117
10/11	14	16	82	9	51
10/12	14	7	89	10	44
10/13	13	4	93	10	23
10/14	15	12	105	12	58
10/15	13	9	114	13	61
10/16	13	6	120	13	25
10/17	14	8	128	14	30
10/18	12	31	159	17	138
10/19	15	10	168	18	47
10/20	13	27	196	21	159
10/21	14	31	227	25	145
10/22	13	31	257	28	141
10/23	13	44	301	32	252
10/24	15	40	341	37	230
10/25	14	19	359	39	126
10/26	15	14	373	41	69
10/27	13	26	400	43	116
10/28	15	37	437	48	98
10/29	14	42	479	53	315
10/30	14	55	534	59	248
10/31	15	37	571	63	276

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	33	604	68	138
11/2	11	22	626	69	127
11/3	13	39	665	73	217
11/4	15	38	702	78	188
11/5	14	24	726	81	114
11/6	14	15	741	82	58
11/7	13	20	761	84	108
11/8	15	22	783	87	108
11/9	13	23	806	89	67
11/10	13	15	821	91	37
11/11	14	11	832	92	56
11/12	14	14	846	94	45
11/13	13	9	855	95	74
11/14	13	6	861	95	36
11/15	12	7	868	96	56
11/16	12	9	877	97	42
11/17	12	2	879	97	10
11/18	11	6	885	97	32
11/19	13	3	888	98	30
11/20	11	7	895	98	53
11/21	8	5	899	99	18
11/22	13	3	902	99	14
11/23	11	2	904	99	16
11/24	8	6	910	99	31
11/25	14	1	910	100	5
11/26	10	3	913	100	13
11/27	9	2	916	100	10
11/28	10	0	916	100	1
11/29	8	0	916	100	1
11/30	7	1	917	100	6

Table 9. Red-shouldered Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Red-shouldered Hawk - Yearly Trend

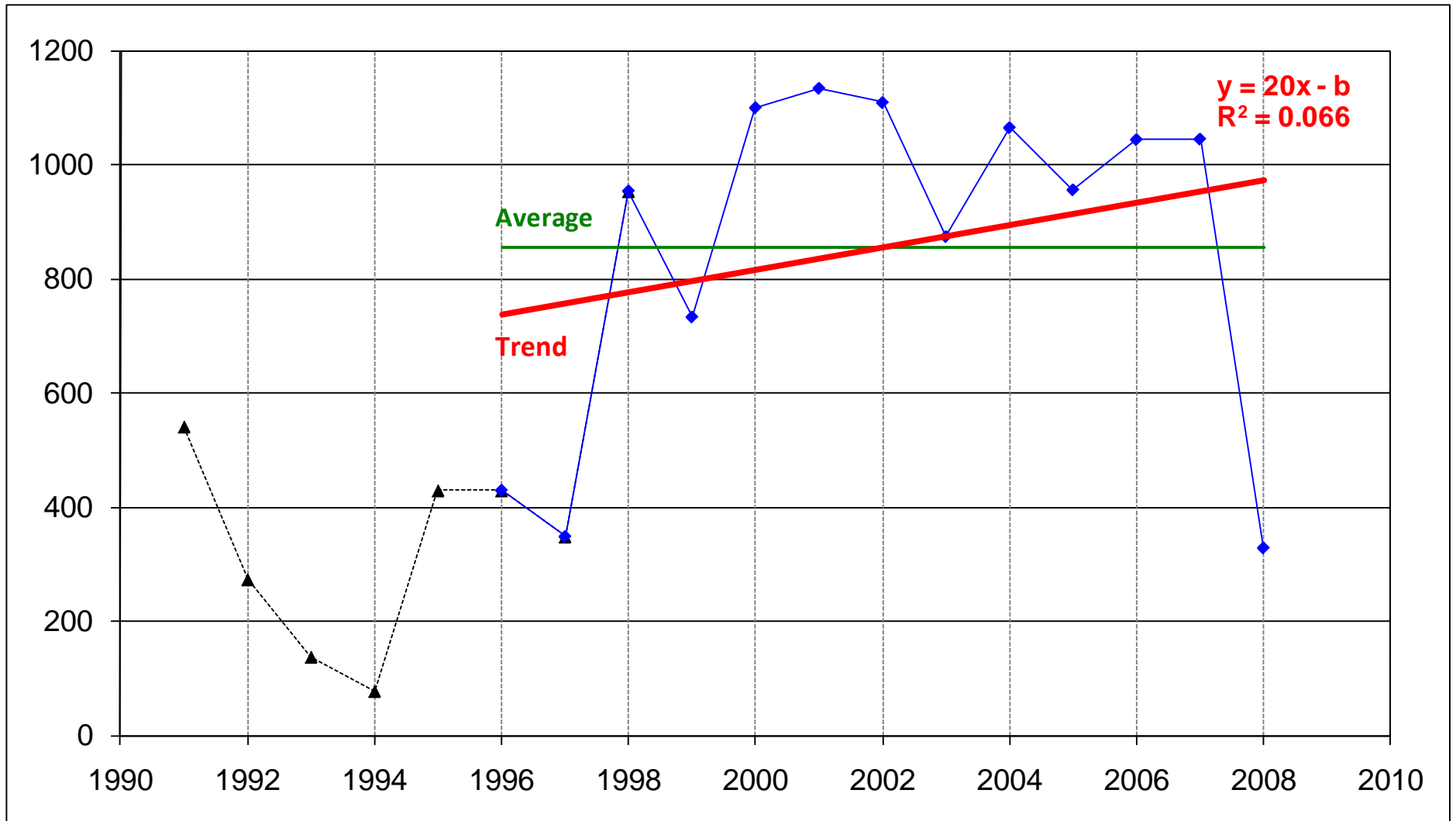


Figure 28. Red-shouldered Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Broad-winged Hawk - Seasonal Occurrence

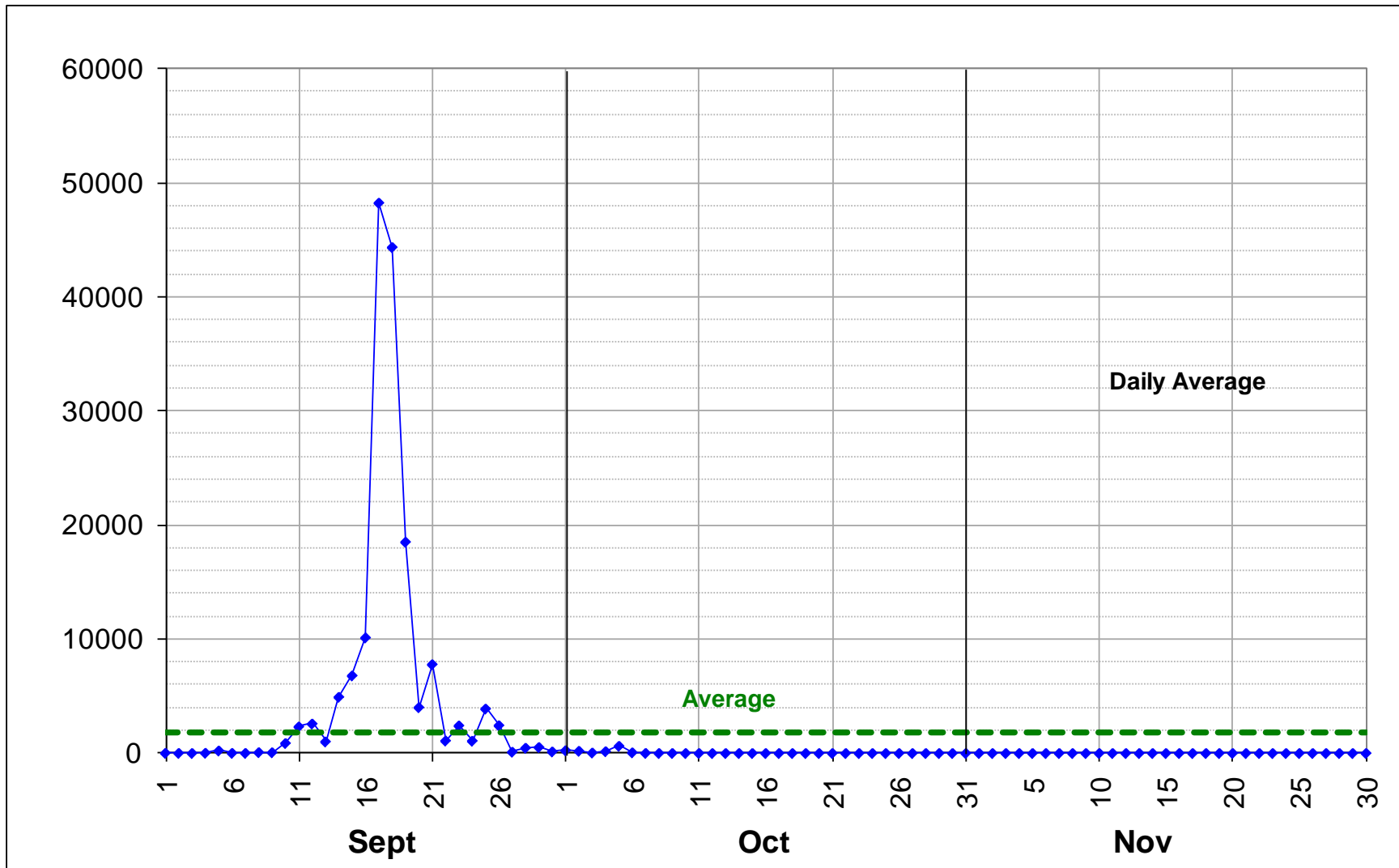


Figure 29. Broad-winged Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 17

90% Passage: Sep 13 – Sep 24

Detroit River Broad-winged Hawk – 3 Day Running Average

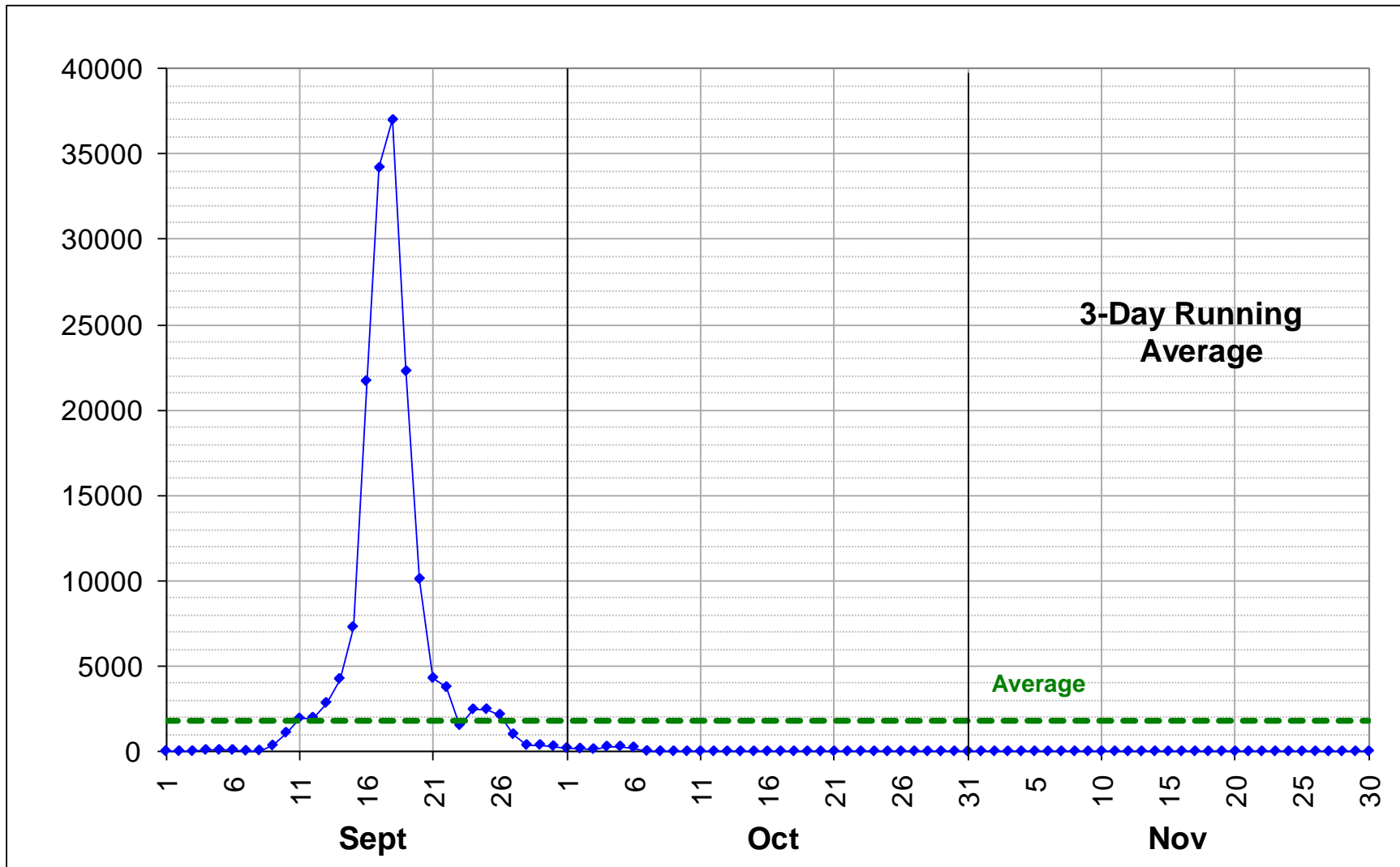


Figure 30. Broad-winged Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 17

90% Passage: Sep 13 – Sep 24

Detroit River Broad-winged Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	16	17	0	87
9/2	15	9	26	0	54
9/3	15	4	30	0	18
9/4	14	22	51	0	84
9/5	15	222	273	0	2,909
9/6	15	13	286	0	45
9/7	14	11	297	0	82
9/8	16	77	374	0	977
9/9	17	68	442	0	692
9/10	16	875	1,318	1	7,400
9/11	18	2,325	3,642	2	18,724
9/12	13	2,580	6,223	4	14,779
9/13	14	1,012	7,235	4	5,473
9/14	13	4,922	12,156	7	54,325
9/15	16	6,794	18,950	11	73,205
9/16	16	10,118	29,068	17	59,746
9/17	16	48,192	77,259	48	555,426
9/18	15	44,306	121,565	74	255,641
9/19	16	18,499	140,064	85	113,867
9/20	15	4,013	144,077	88	30,845
9/21	15	7,779	151,856	92	49,554
9/22	14	1,094	152,950	93	4,892
9/23	16	2,416	155,366	94	16,867
9/24	16	1,079	156,445	95	6,980
9/25	14	3,890	160,335	97	38,372
9/26	14	2,435	162,770	99	30,547
9/27	12	114	162,884	99	496
9/28	14	464	163,348	99	3,815
9/29	15	527	163,875	99	4,050
9/30	15	138	164,013	99	1,705

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	247	164,260	99	1,890
10/2	14	196	164,456	100	2,535
10/3	14	43	164,499	100	355
10/4	13	161	164,661	100	2,037
10/5	11	631	165,291	100	6,481
10/6	12	60	165,351	100	698
10/7	14	9	165,360	100	54
10/8	13	4	165,363	100	38
10/9	14	4	165,367	100	19
10/10	14	3	165,370	100	12
10/11	14	2	165,371	100	9
10/12	14	1	165,372	100	3
10/13	13	0	165,372	100	1
10/14	15	0	165,372	100	4
10/15	13	0	165,373	100	2
10/16	13	0	165,373	100	4
10/17	14	0	165,373	100	3
10/18	12	0	165,374	100	1
10/19	15	0	165,374	100	2
10/20	13	0	165,374	100	0
10/21	14	0	165,374	100	1
10/22	13	0	165,374	100	1
10/23	13	0	165,374	100	1
10/24	15	0	165,374	100	1
10/25	14	0	165,374	100	0
10/26	15	0	165,374	100	1
10/27	13	0	165,374	100	0
10/28	15	0	165,374	100	0
10/29	14	0	165,374	100	1
10/30	14	0	165,374	100	0
10/31	15	0	165,374	100	0

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	0	165,374	100	0
11/2	11	0	165,374	100	0
11/3	13	0	165,374	100	0
11/4	15	0	165,374	100	0
11/5	14	0	165,374	100	0
11/6	14	0	165,374	100	0
11/7	13	0	165,374	100	0
11/8	15	0	165,374	100	0
11/9	13	0	165,374	100	0
11/10	13	0	165,374	100	0
11/11	14	0	165,374	100	0
11/12	14	0	165,374	100	0
11/13	13	0	165,374	100	0
11/14	13	0	165,374	100	0
11/15	12	0	165,374	100	0
11/16	12	0	165,374	100	0
11/17	12	0	165,374	100	0
11/18	11	0	165,374	100	0
11/19	13	0	165,374	100	0
11/20	11	0	165,374	100	0
11/21	8	0	165,374	100	0
11/22	13	0	165,374	100	0
11/23	11	0	165,374	100	0
11/24	8	0	165,374	100	0
11/25	14	0	165,374	100	0
11/26	10	0	165,374	100	0
11/27	9	0	165,374	100	0
11/28	10	0	165,374	100	0
11/29	8	0	165,374	100	0
11/30	7	0	165,374	100	0

Table 10. Broad-winged Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in **Bold**

Detroit River Broad-winged Hawk - Yearly Trend

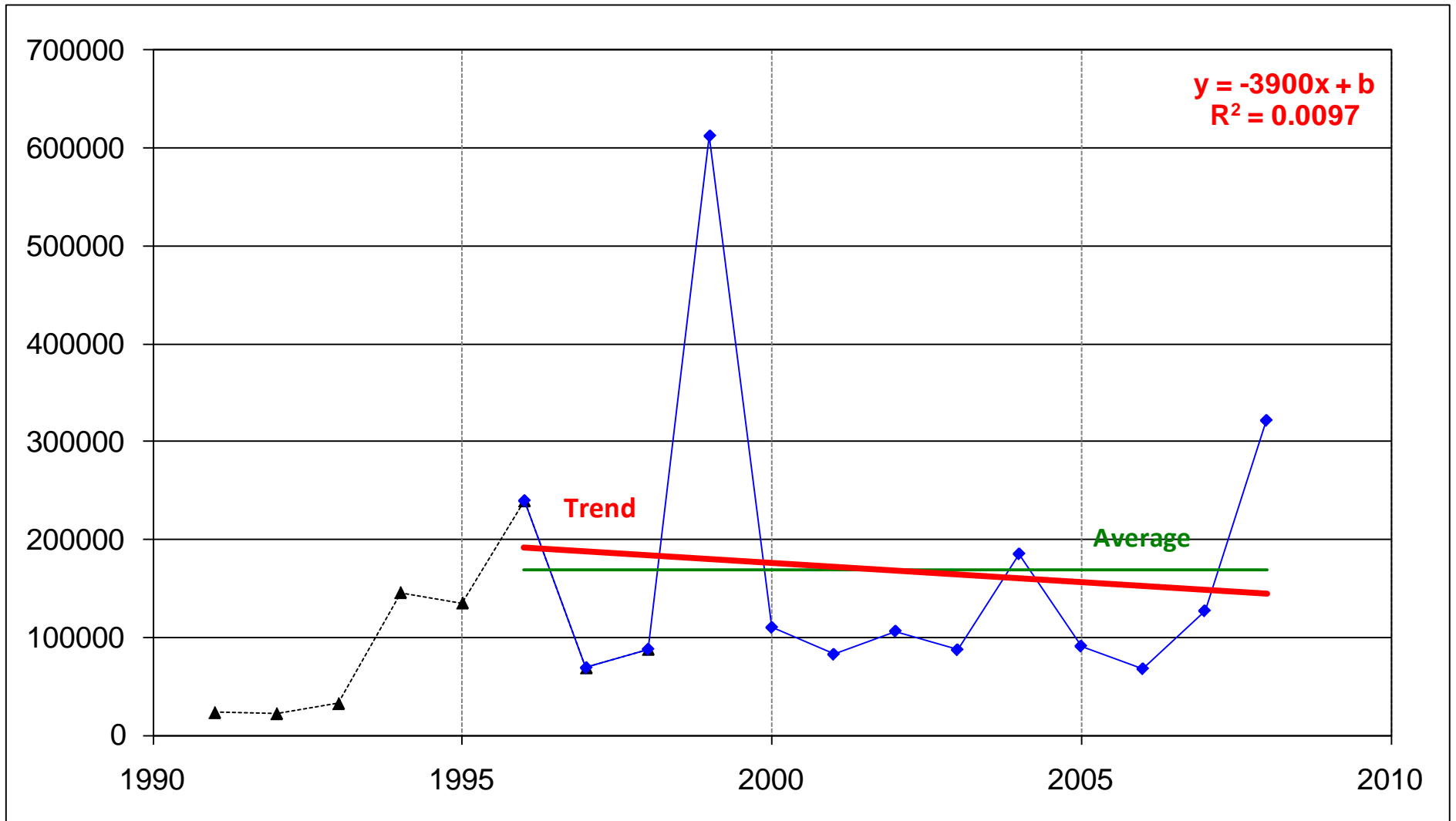


Figure 31. Broad-winged Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Swainson's Hawk - Seasonal Occurrence

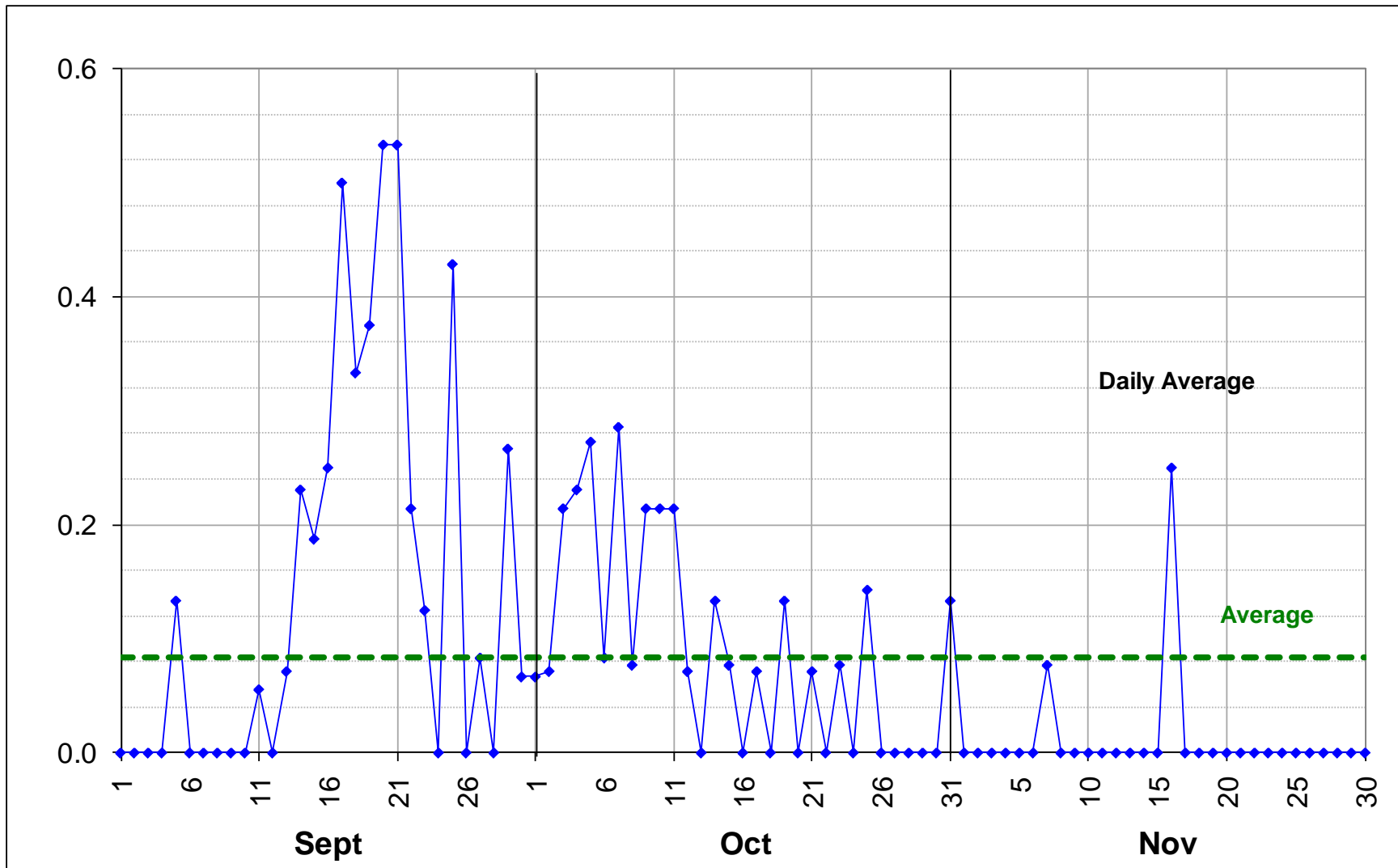


Figure 32. Swainson's Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991-2008

Median Date: Sep 24

90% Passage: Sep 13 - Oct 30

Detroit River Swainson's Hawk – 3 Day Running Average

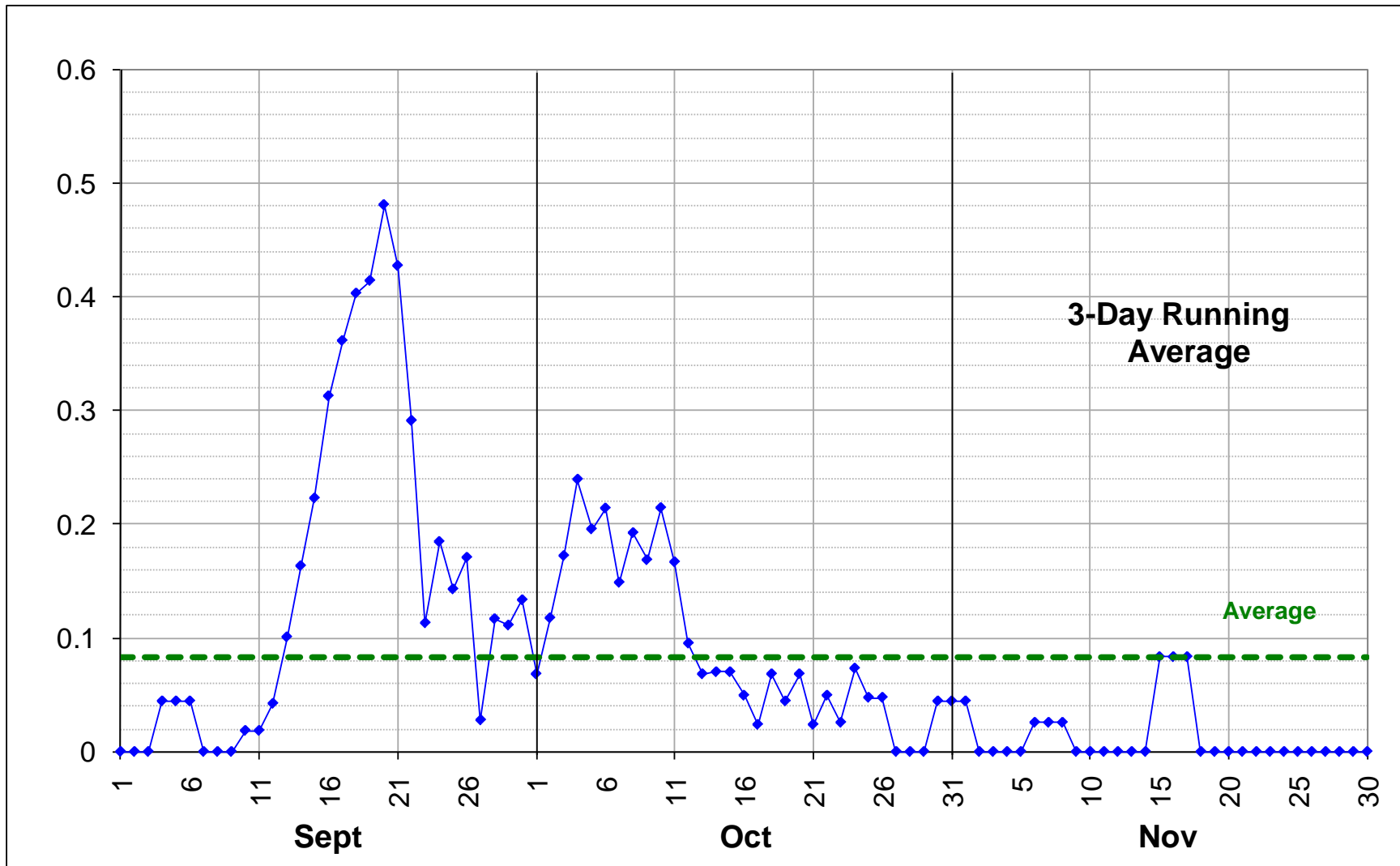


Figure 33. Swainson's Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 24

90% Passage: Sep 13 – Oct 30

Detroit River Swainson's Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	0
9/2	15	0	0	0	0
9/3	15	0	0	0	0
9/4	14	0	0	0	0
9/5	15	0	0	2	1
9/6	15	0	0	2	0
9/7	14	0	0	2	0
9/8	16	0	0	2	0
9/9	17	0	0	2	0
9/10	16	0	0	2	0
9/11	18	0	0	3	1
9/12	13	0	0	3	0
9/13	14	0	0	4	1
9/14	13	0	0	6	1
9/15	16	0	1	9	1
9/16	16	0	1	13	1
9/17	16	1	1	20	2
9/18	15	0	2	25	3
9/19	16	0	2	30	3
9/20	15	1	3	38	8
9/21	15	1	3	45	4
9/22	14	0	3	48	1
9/23	16	0	4	50	1
9/24	16	0	4	50	0
9/25	14	0	4	55	4
9/26	14	0	4	55	0
9/27	12	0	4	56	1
9/28	14	0	4	56	0
9/29	15	0	4	60	1
9/30	15	0	4	61	1

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	0	4	61	1
10/2	14	0	5	62	1
10/3	14	0	5	65	2
10/4	13	0	5	68	2
10/5	11	0	5	71	3
10/6	12	0	5	72	1
10/7	14	0	6	75	3
10/8	13	0	6	76	1
10/9	14	0	6	79	1
10/10	14	0	6	82	2
10/11	14	0	6	84	1
10/12	14	0	6	85	1
10/13	13	0	6	85	0
10/14	15	0	7	87	2
10/15	13	0	7	88	1
10/16	13	0	7	88	0
10/17	14	0	7	89	1
10/18	12	0	7	89	0
10/19	15	0	7	91	2
10/20	13	0	7	91	0
10/21	14	0	7	92	1
10/22	13	0	7	92	0
10/23	13	0	7	93	1
10/24	15	0	7	93	0
10/25	14	0	7	94	1
10/26	15	0	7	94	0
10/27	13	0	7	94	0
10/28	15	0	7	94	0
10/29	14	0	7	94	0
10/30	14	0	7	94	0
10/31	15	0	7	96	1

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	0	7	96	0
11/2	11	0	7	96	0
11/3	13	0	7	96	0
11/4	15	0	7	96	0
11/5	14	0	7	96	0
11/6	14	0	7	96	0
11/7	13	0	7	97	1
11/8	15	0	7	97	0
11/9	13	0	7	97	0
11/10	13	0	7	97	0
11/11	14	0	7	97	0
11/12	14	0	7	97	0
11/13	13	0	7	97	0
11/14	13	0	7	97	0
11/15	12	0	7	97	0
11/16	12	0	8	100	3
11/17	12	0	8	100	0
11/18	11	0	8	100	0
11/19	13	0	8	100	0
11/20	11	0	8	100	0
11/21	8	0	8	100	0
11/22	13	0	8	100	0
11/23	11	0	8	100	0
11/24	8	0	8	100	0
11/25	14	0	8	100	0
11/26	10	0	8	100	0
11/27	9	0	8	100	0
11/28	10	0	8	100	0
11/29	8	0	8	100	0
11/30	7	0	8	100	0

Table 11. Swainson's Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Swainson's Hawk - Yearly Trend

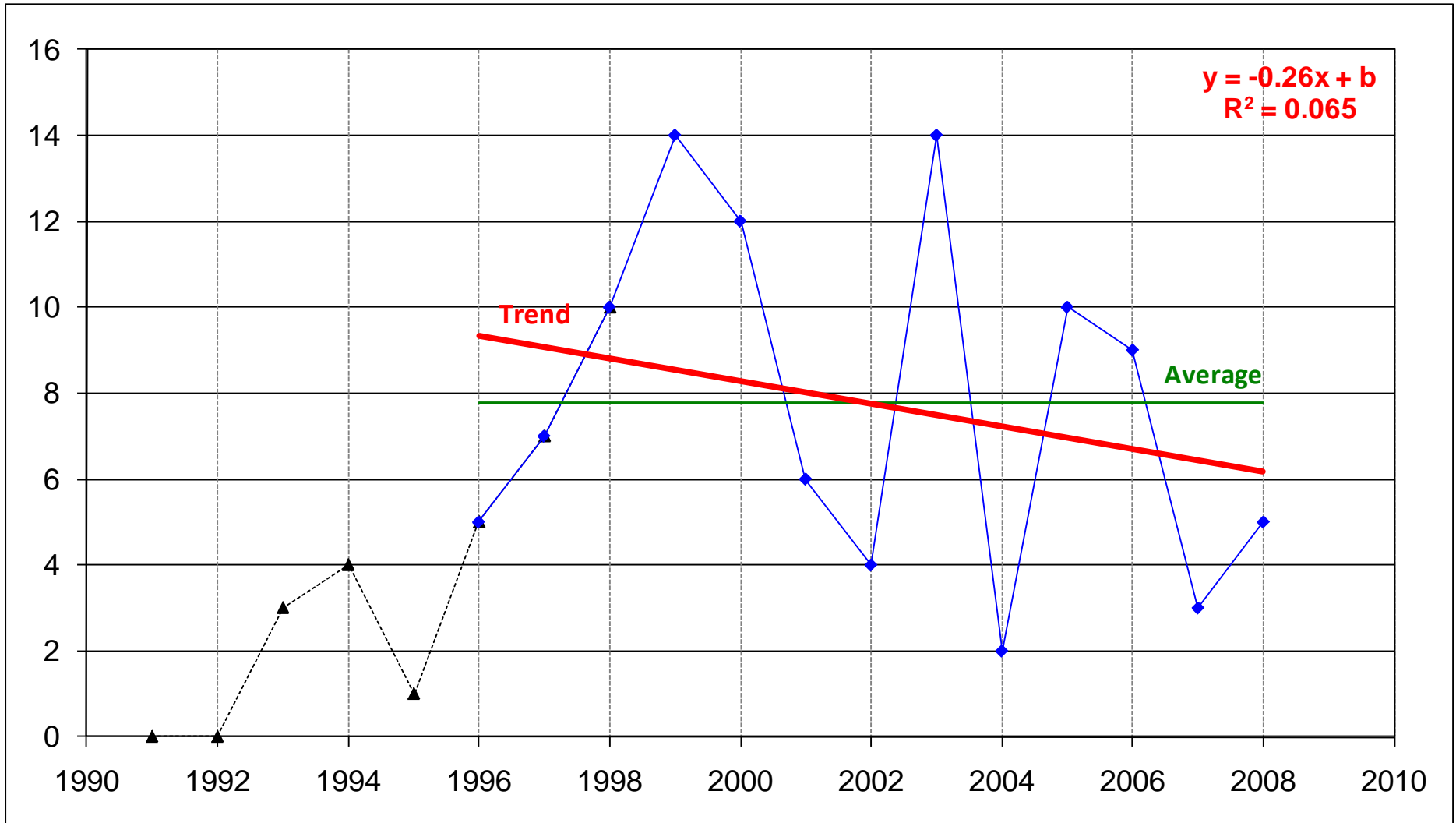


Figure 34. Swainson's Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991-2008

Detroit River Red-tailed Hawk - Seasonal Occurrence

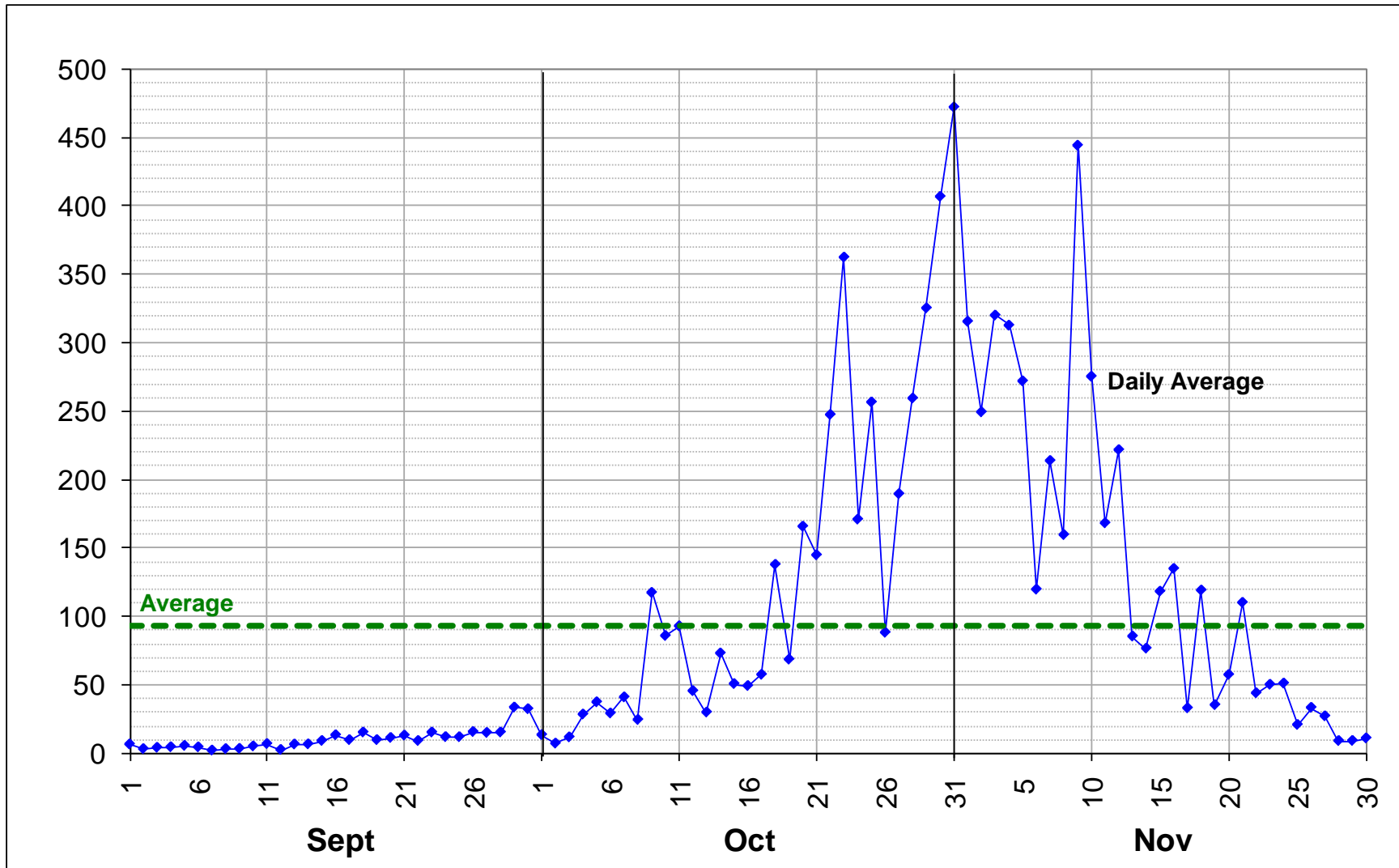


Figure 35. Red-tailed Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 30

90% Passage: Oct 5– Nov 16

Detroit River Red-tailed Hawk – 3 Day Running Average

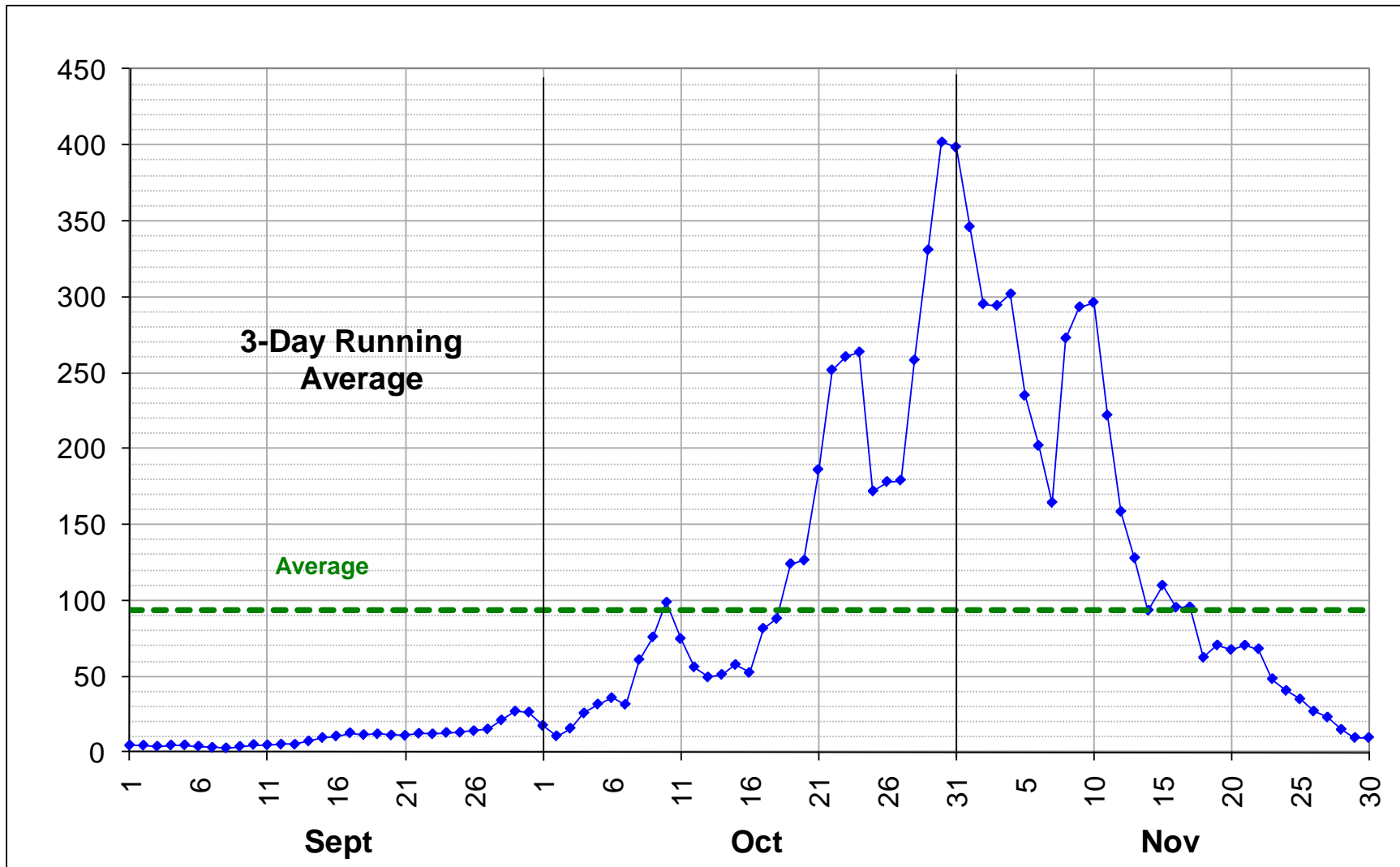


Figure 36. Red-tailed Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Oct 30

90% Passage: Oct 5– Nov 16

Detroit River Red-tailed Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	6	13	0	30
9/2	15	3	16	0	15
9/3	15	4	20	0	31
9/4	14	4	24	0	27
9/5	15	5	30	0	27
9/6	15	4	34	0	24
9/7	14	2	36	0	9
9/8	16	3	39	0	11
9/9	17	3	42	0	16
9/10	16	5	47	1	18
9/11	18	7	53	1	22
9/12	13	2	56	1	12
9/13	14	6	62	1	41
9/14	13	6	68	1	55
9/15	16	9	77	1	61
9/16	16	13	90	1	31
9/17	16	10	100	1	41
9/18	15	15	115	1	69
9/19	16	10	124	2	63
9/20	15	11	135	2	54
9/21	15	13	148	2	81
9/22	14	9	157	2	55
9/23	16	15	172	2	64
9/24	16	12	184	2	50
9/25	14	12	195	3	45
9/26	14	15	211	3	93
9/27	12	15	226	3	53
9/28	14	15	241	3	47
9/29	15	33	274	3	230
9/30	15	32	306	4	200

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	13	319	4	70
10/2	14	7	326	4	24
10/3	14	12	338	4	30
10/4	13	28	366	5	79
10/5	11	37	403	5	123
10/6	12	29	432	5	145
10/7	14	41	473	6	181
10/8	13	24	497	6	86
10/9	14	117	614	7	1,200
10/10	14	86	700	8	463
10/11	14	93	793	10	452
10/12	14	45	838	10	254
10/13	13	30	868	11	221
10/14	15	73	941	11	330
10/15	13	51	992	12	177
10/16	13	49	1,041	13	232
10/17	14	57	1,098	13	200
10/18	12	138	1,236	15	462
10/19	15	68	1,304	16	179
10/20	13	166	1,470	17	626
10/21	14	145	1,615	19	693
10/22	13	248	1,862	22	966
10/23	13	363	2,225	26	2,312
10/24	15	171	2,396	28	839
10/25	14	257	2,653	31	1,769
10/26	15	88	2,741	33	343
10/27	13	190	2,930	35	420
10/28	15	260	3,190	38	820
10/29	14	326	3,515	42	1,901
10/30	14	407	3,923	47	2,723
10/31	15	473	4,395	53	4,282

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	316	4,711	58	1,365
11/2	11	249	4,960	60	1,052
11/3	13	320	5,281	64	1,254
11/4	15	313	5,594	68	2,188
11/5	14	272	5,866	71	2,187
11/6	14	120	5,985	73	368
11/7	13	214	6,199	75	1,307
11/8	15	160	6,359	77	654
11/9	13	445	6,804	82	3,988
11/10	13	276	7,079	85	1,251
11/11	14	168	7,247	87	891
11/12	14	222	7,469	90	1,121
11/13	13	85	7,554	91	574
11/14	13	76	7,631	92	277
11/15	12	118	7,749	93	571
11/16	12	135	7,884	95	516
11/17	12	33	7,917	95	122
11/18	11	119	8,036	96	852
11/19	13	35	8,071	96	146
11/20	11	57	8,128	97	294
11/21	8	110	8,238	98	648
11/22	13	44	8,282	98	162
11/23	11	50	8,332	99	336
11/24	8	51	8,383	99	194
11/25	14	21	8,403	99	89
11/26	10	33	8,436	100	112
11/27	9	27	8,463	100	109
11/28	10	9	8,472	100	34
11/29	8	9	8,481	100	47
11/30	7	11	8,492	100	61

Table 12. Red-tailed Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Red-tailed Hawk – Yearly Trend

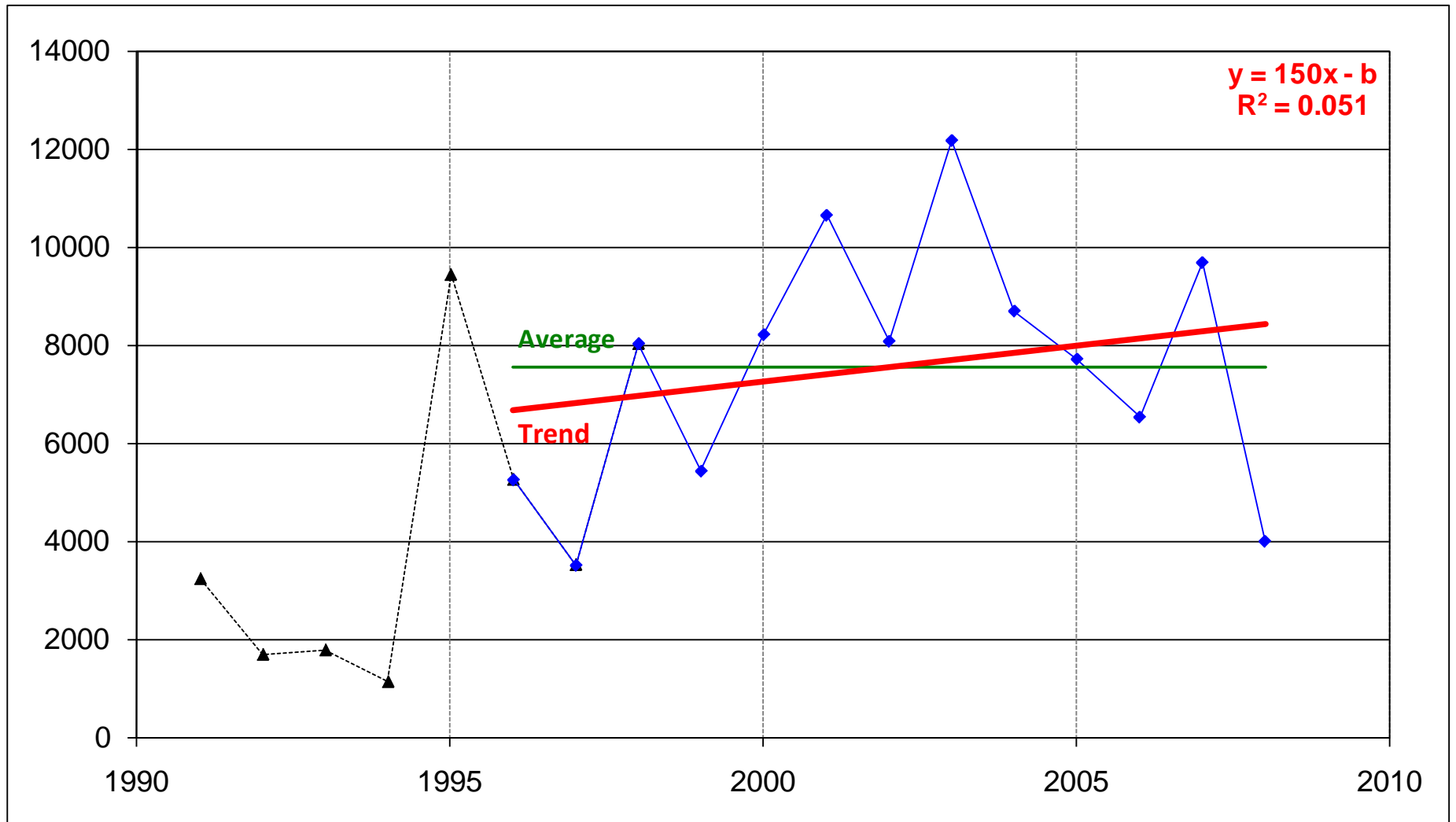


Figure 37. Red-tailed Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Rough-legged Hawk - Seasonal Occurrence

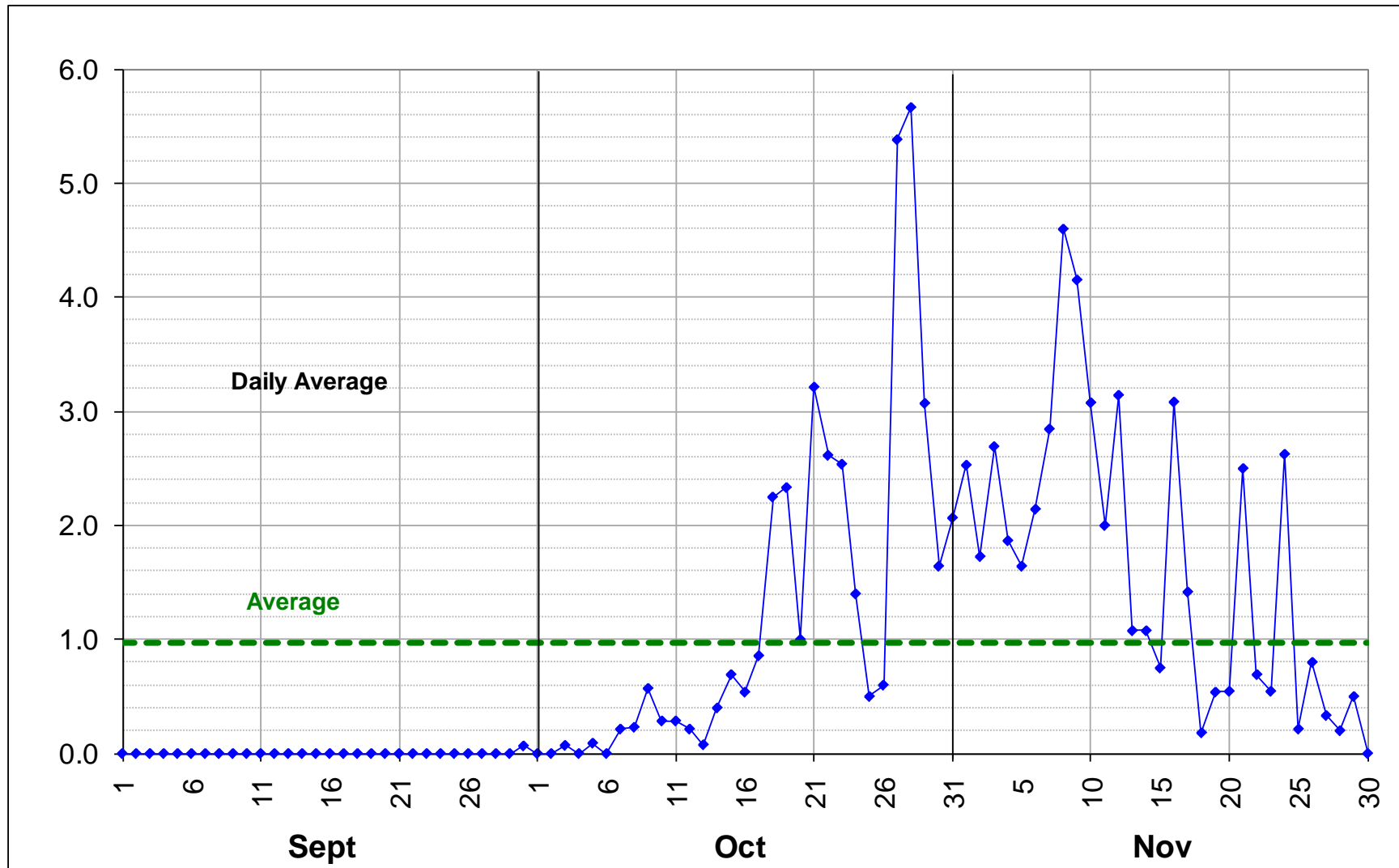


Figure 38. Rough-legged Hawk, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Nov 1

90% Passage: Oct 17– Nov 21

Detroit River Rough-legged Hawk – 3 Day Running Average

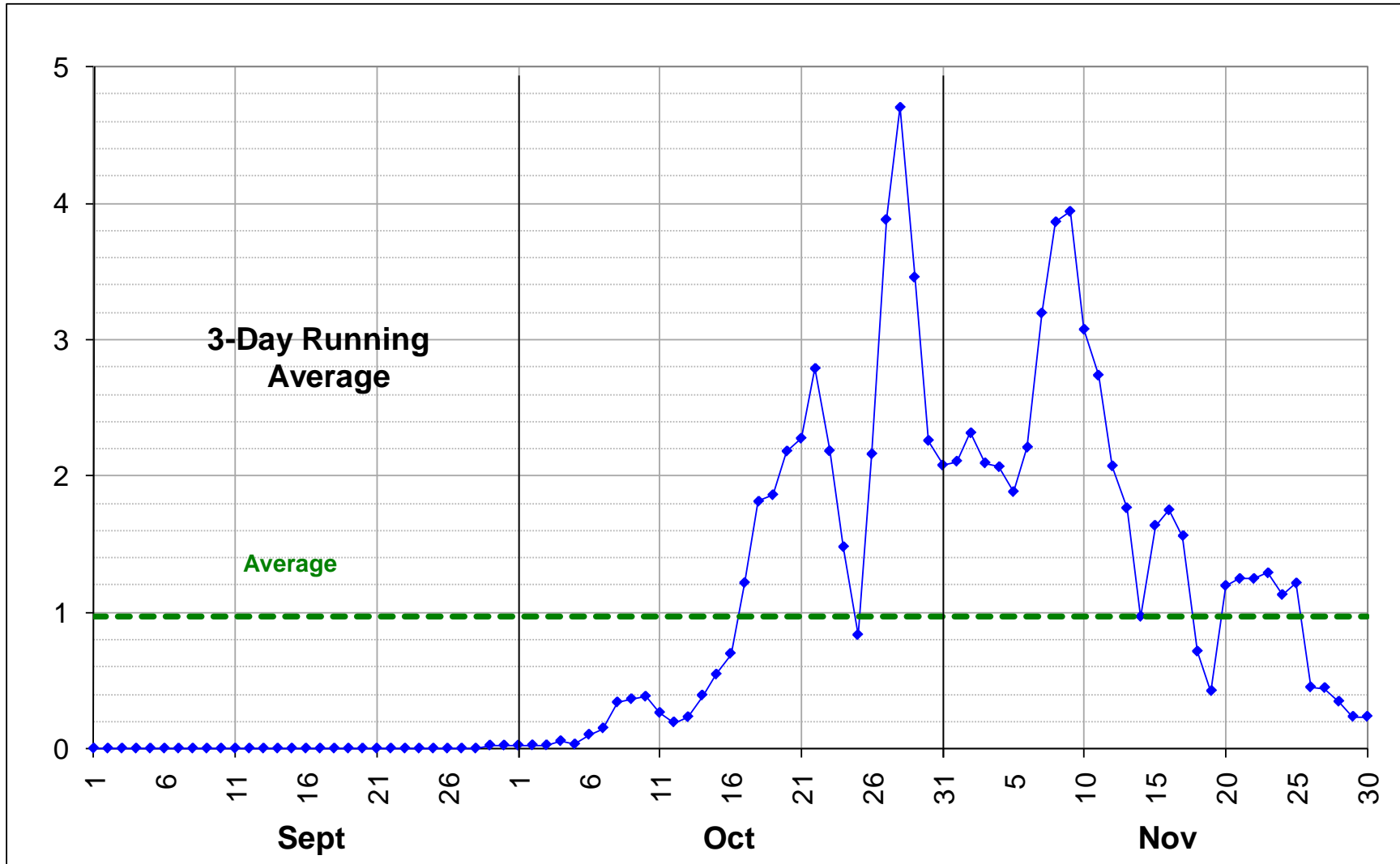


Figure 39. Rough-legged Hawk, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Nov 1

90% Passage: Oct 17– Nov 21

Detroit River Rough-legged Hawk – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	0
9/2	15	0	0	0	0
9/3	15	0	0	0	0
9/4	14	0	0	0	0
9/5	15	0	0	0	0
9/6	15	0	0	0	0
9/7	14	0	0	0	0
9/8	16	0	0	0	0
9/9	17	0	0	0	0
9/10	16	0	0	0	0
9/11	18	0	0	0	0
9/12	13	0	0	0	0
9/13	14	0	0	0	0
9/14	13	0	0	0	0
9/15	16	0	0	0	0
9/16	16	0	0	0	0
9/17	16	0	0	0	0
9/18	15	0	0	0	0
9/19	16	0	0	0	0
9/20	15	0	0	0	0
9/21	15	0	0	0	0
9/22	14	0	0	0	0
9/23	16	0	0	0	0
9/24	16	0	0	0	0
9/25	14	0	0	0	0
9/26	14	0	0	0	0
9/27	12	0	0	0	0
9/28	14	0	0	0	0
9/29	15	0	0	0	0
9/30	15	0	0	0	1

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	0	0	0	0
10/2	14	0	0	0	0
10/3	14	0	0	0	1
10/4	13	0	0	0	0
10/5	11	0	0	0	1
10/6	12	0	0	0	0
10/7	14	0	0	1	3
10/8	13	0	1	1	3
10/9	14	1	1	1	6
10/10	14	0	2	2	1
10/11	14	0	2	2	1
10/12	14	0	2	2	2
10/13	13	0	2	2	1
10/14	15	0	3	3	3
10/15	13	1	3	4	3
10/16	13	1	4	4	6
10/17	14	1	5	5	5
10/18	12	2	7	8	21
10/19	15	2	9	11	17
10/20	13	1	10	12	7
10/21	14	3	13	16	18
10/22	13	3	16	19	17
10/23	13	3	19	21	15
10/24	15	1	20	23	16
10/25	14	1	20	24	2
10/26	15	1	21	25	4
10/27	13	5	26	30	42
10/28	15	6	32	38	62
10/29	14	3	35	41	18
10/30	14	2	37	43	9
10/31	15	2	39	46	6

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	3	41	50	10
11/2	11	2	43	51	5
11/3	13	3	46	54	19
11/4	15	2	48	57	11
11/5	14	2	49	59	9
11/6	14	2	51	61	9
11/7	13	3	54	64	15
11/8	15	5	59	70	26
11/9	13	4	63	75	19
11/10	13	3	66	78	12
11/11	14	2	68	81	11
11/12	14	3	71	84	18
11/13	13	1	72	86	4
11/14	13	1	73	87	8
11/15	12	1	74	88	4
11/16	12	3	77	91	10
11/17	12	1	79	92	9
11/18	11	0	79	92	1
11/19	13	1	79	93	6
11/20	11	1	80	94	2
11/21	8	3	82	95	19
11/22	13	1	83	96	2
11/23	11	1	84	96	4
11/24	8	3	86	98	17
11/25	14	0	87	99	2
11/26	10	1	87	99	2
11/27	9	0	88	99	2
11/28	10	0	88	100	1
11/29	8	1	88	100	3
11/30	7	0	88	100	0

Table 13. Rough-legged Hawk, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Rough-legged Hawk - Yearly Trend

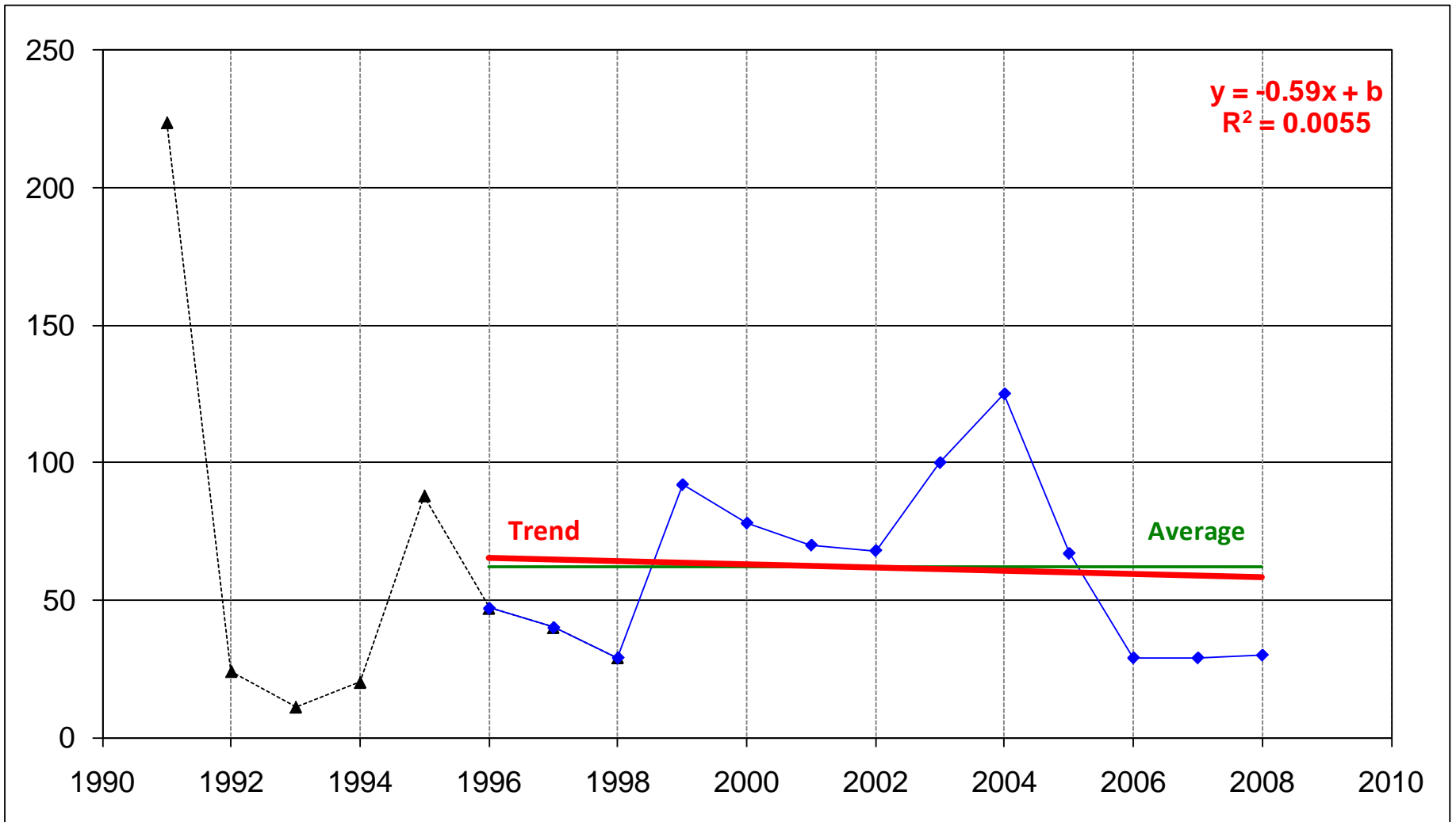


Figure 40. Rough-legged Hawk, Yearly Trend - LEMP & Pt Mouillee combined, 1991-2008

Detroit River Golden Eagle - Seasonal Occurrence

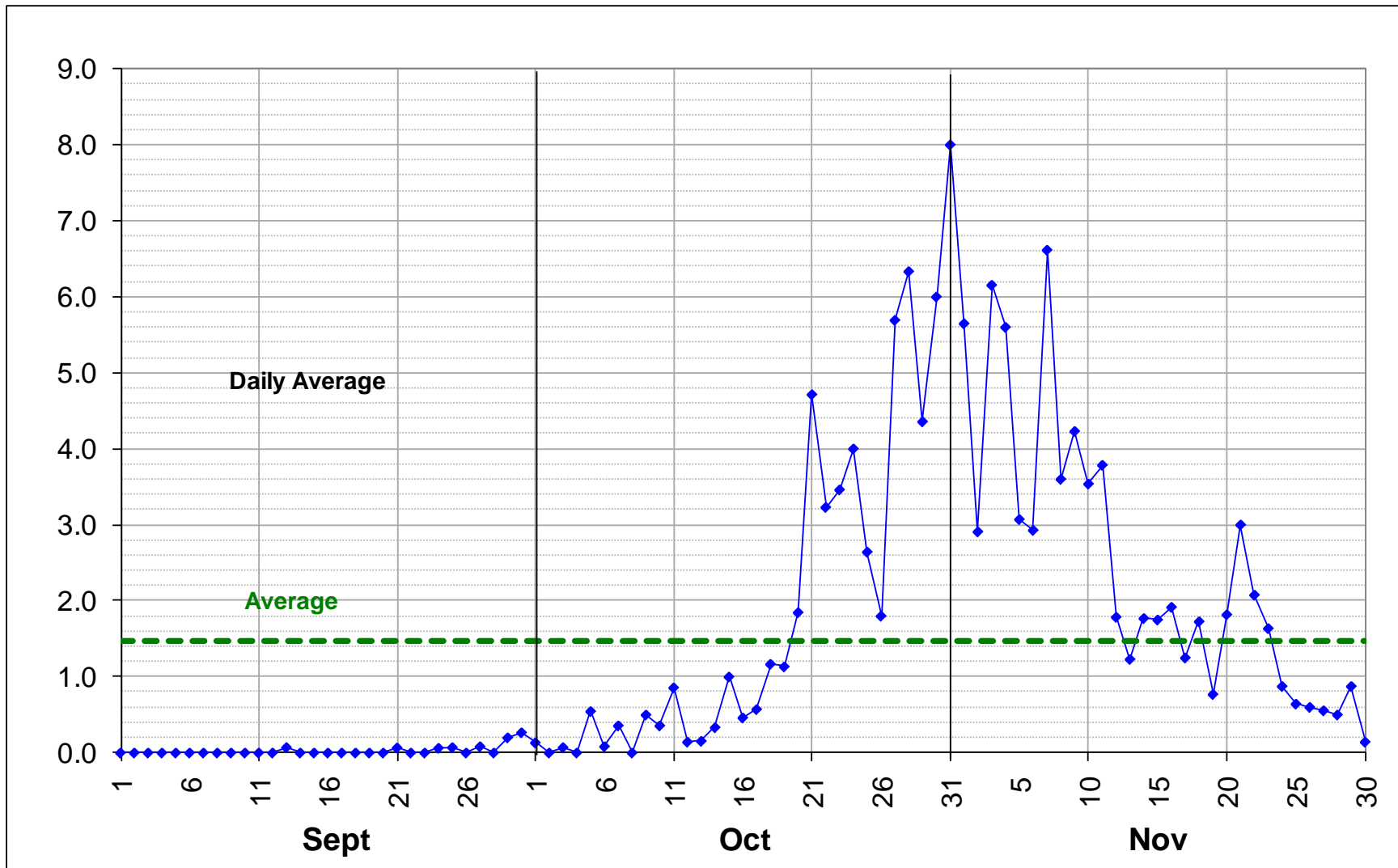


Figure 41. Golden Eagle, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Nov 1

90% Passage: Oct 17– Nov 21

Detroit River Golden Eagle – 3 Day Running Average

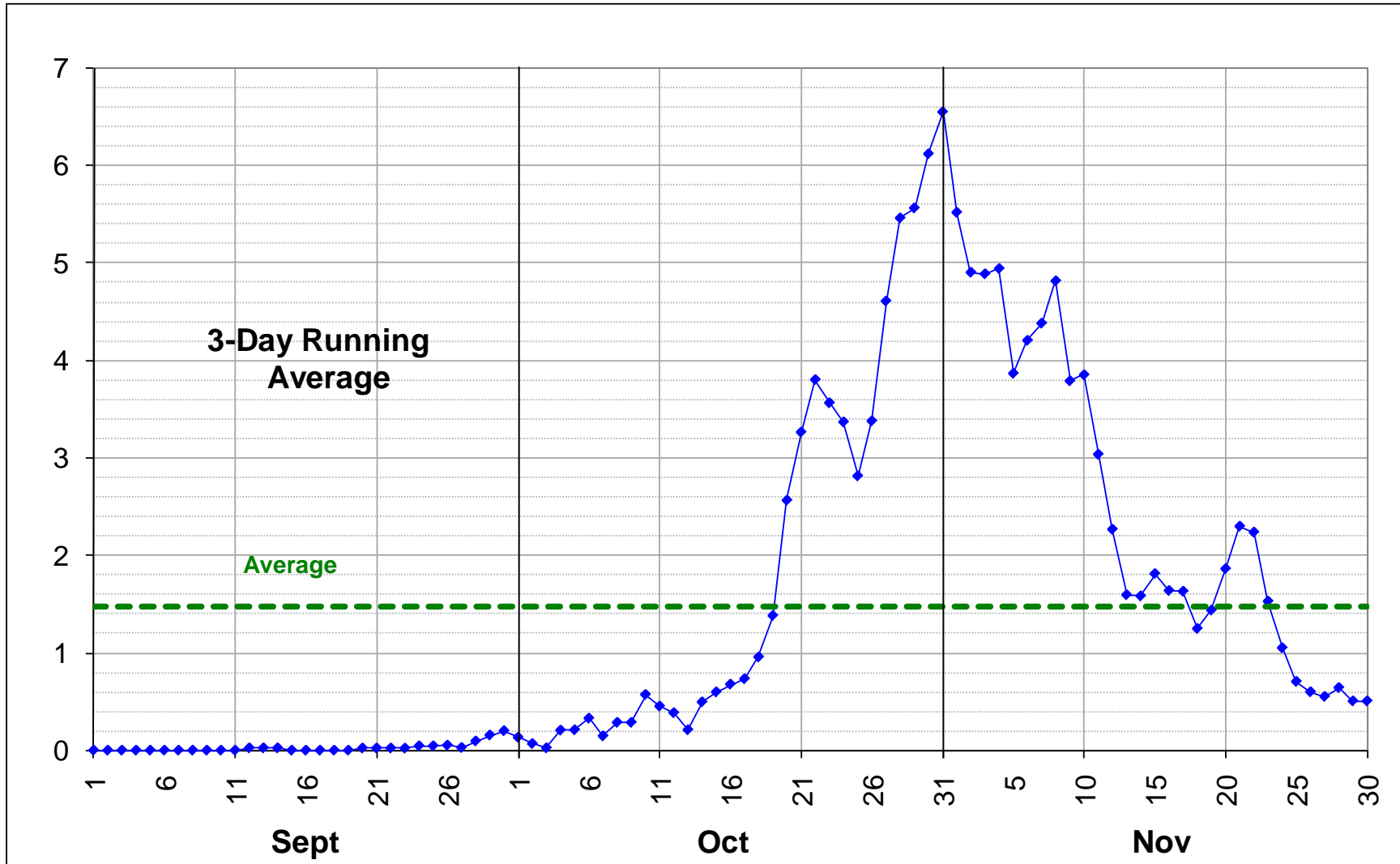


Figure 42. Golden Eagle, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Nov 1

90% Passage: Oct 17– Nov 21

Detroit River Golden Eagle – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	0
9/2	15	0	0	0	0
9/3	15	0	0	0	0
9/4	14	0	0	0	0
9/5	15	0	0	0	0
9/6	15	0	0	0	0
9/7	14	0	0	0	0
9/8	16	0	0	0	0
9/9	17	0	0	0	0
9/10	16	0	0	0	0
9/11	18	0	0	0	0
9/12	13	0	0	0	0
9/13	14	0	0	0	1
9/14	13	0	0	0	0
9/15	16	0	0	0	0
9/16	16	0	0	0	0
9/17	16	0	0	0	0
9/18	15	0	0	0	0
9/19	16	0	0	0	0
9/20	15	0	0	0	0
9/21	15	0	0	0	1
9/22	14	0	0	0	0
9/23	16	0	0	0	0
9/24	16	0	0	0	1
9/25	14	0	0	0	1
9/26	14	0	0	0	0
9/27	12	0	0	0	1
9/28	14	0	0	0	0
9/29	15	0	1	0	2
9/30	15	0	1	1	4

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	0	1	1	1
10/2	14	0	1	1	0
10/3	14	0	1	1	1
10/4	13	0	1	1	0
10/5	11	1	2	1	4
10/6	12	0	2	1	1
10/7	14	0	2	1	4
10/8	13	0	2	1	0
10/9	14	1	3	2	4
10/10	14	0	3	2	4
10/11	14	1	4	3	4
10/12	14	0	4	3	1
10/13	13	0	4	3	1
10/14	15	0	4	3	1
10/15	13	1	5	4	7
10/16	13	0	6	4	4
10/17	14	1	6	5	3
10/18	12	1	8	6	9
10/19	15	1	9	7	6
10/20	13	2	11	8	7
10/21	14	5	15	12	53
10/22	13	3	18	14	24
10/23	13	3	22	16	16
10/24	15	4	26	20	22
10/25	14	3	29	22	12
10/26	15	2	30	23	10
10/27	13	6	36	27	43
10/28	15	6	42	33	33
10/29	14	4	47	36	21
10/30	14	6	53	41	37
10/31	15	8	61	47	48

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	6	66	53	35
11/2	11	3	69	54	13
11/3	13	6	75	59	20
11/4	15	6	81	63	32
11/5	14	3	84	66	11
11/6	14	3	87	68	14
11/7	13	7	94	73	43
11/8	15	4	97	76	14
11/9	13	4	102	79	28
11/10	13	4	105	81	12
11/11	14	4	109	84	20
11/12	14	2	111	86	6
11/13	13	1	112	87	5
11/14	13	2	114	88	7
11/15	12	2	115	89	6
11/16	12	2	117	90	6
11/17	12	1	119	91	5
11/18	11	2	120	92	7
11/19	13	1	121	93	5
11/20	11	2	123	94	9
11/21	8	3	126	95	10
11/22	13	2	128	97	8
11/23	11	2	130	98	6
11/24	8	1	130	98	3
11/25	14	1	131	99	4
11/26	10	1	132	99	3
11/27	9	1	132	99	3
11/28	10	1	133	100	2
11/29	8	1	134	100	3
11/30	7	0	134	100	1

Table 14. Golden Eagle, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Golden Eagle - Yearly Trend

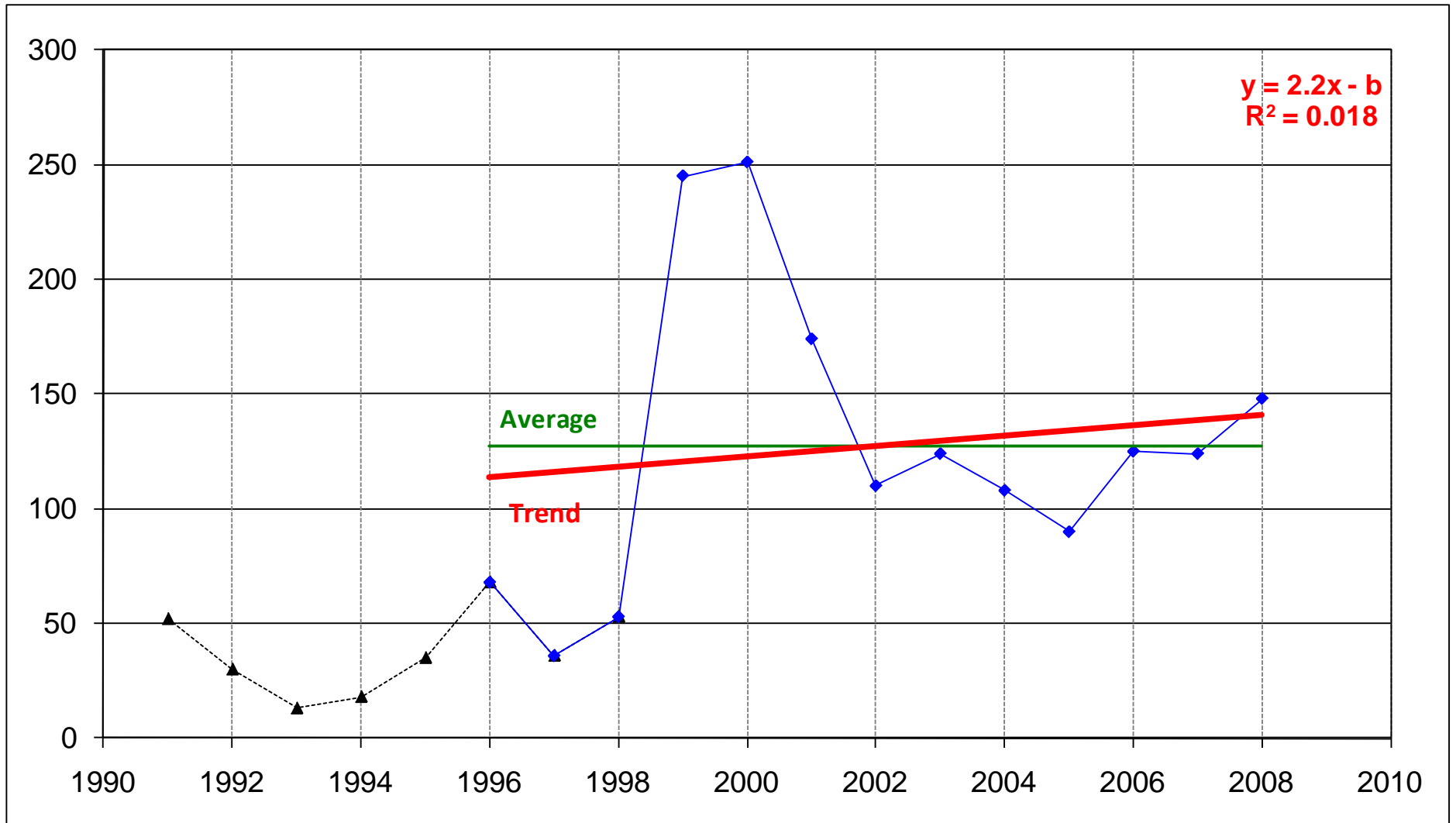


Figure 43. Golden Eagle, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River American Kestrel - Seasonal Occurrence

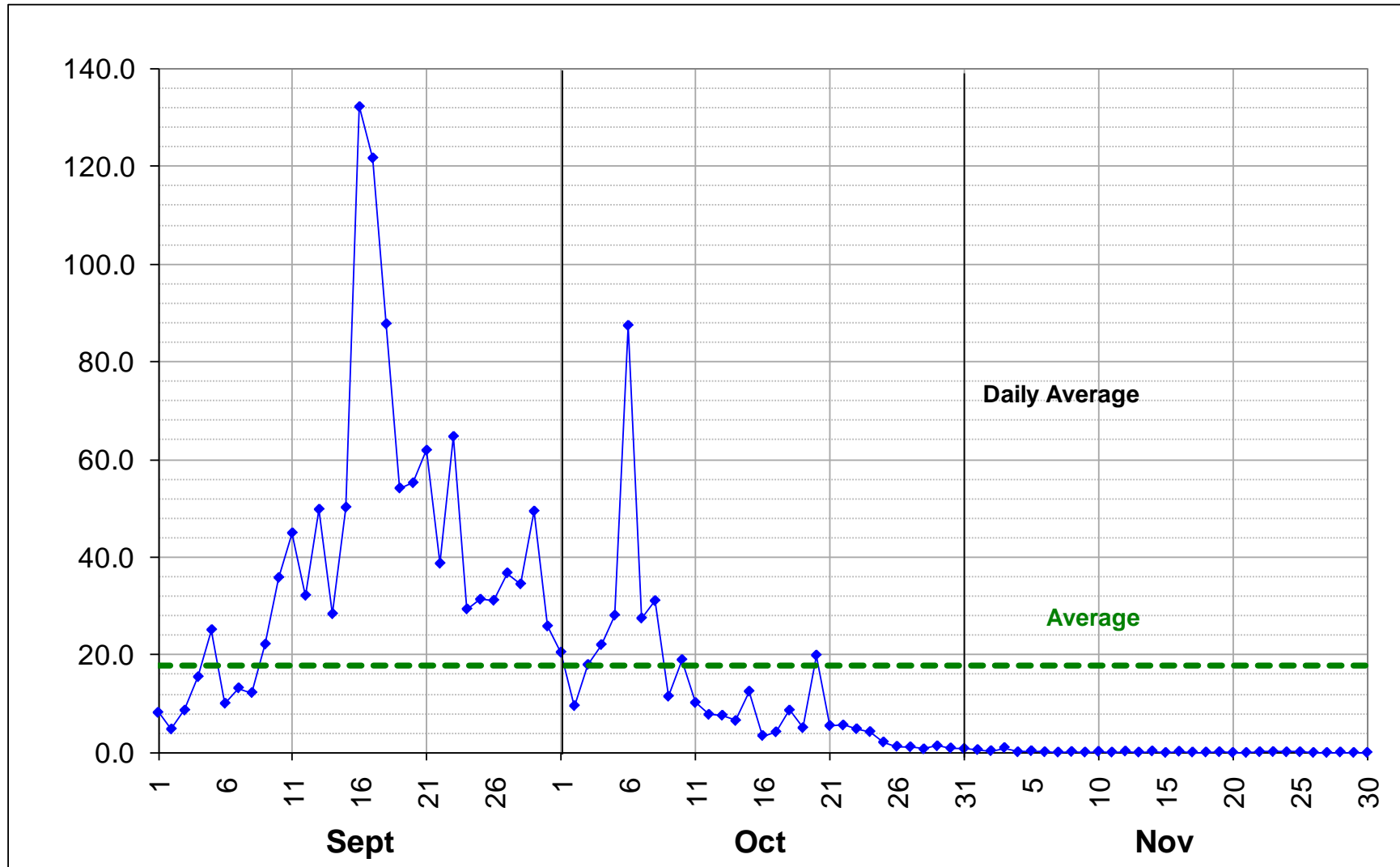


Figure 44. American Kestrel, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 19

90% Passage: Sep 7– Oct 14

Detroit River American Kestrel – 3 Day Running Average

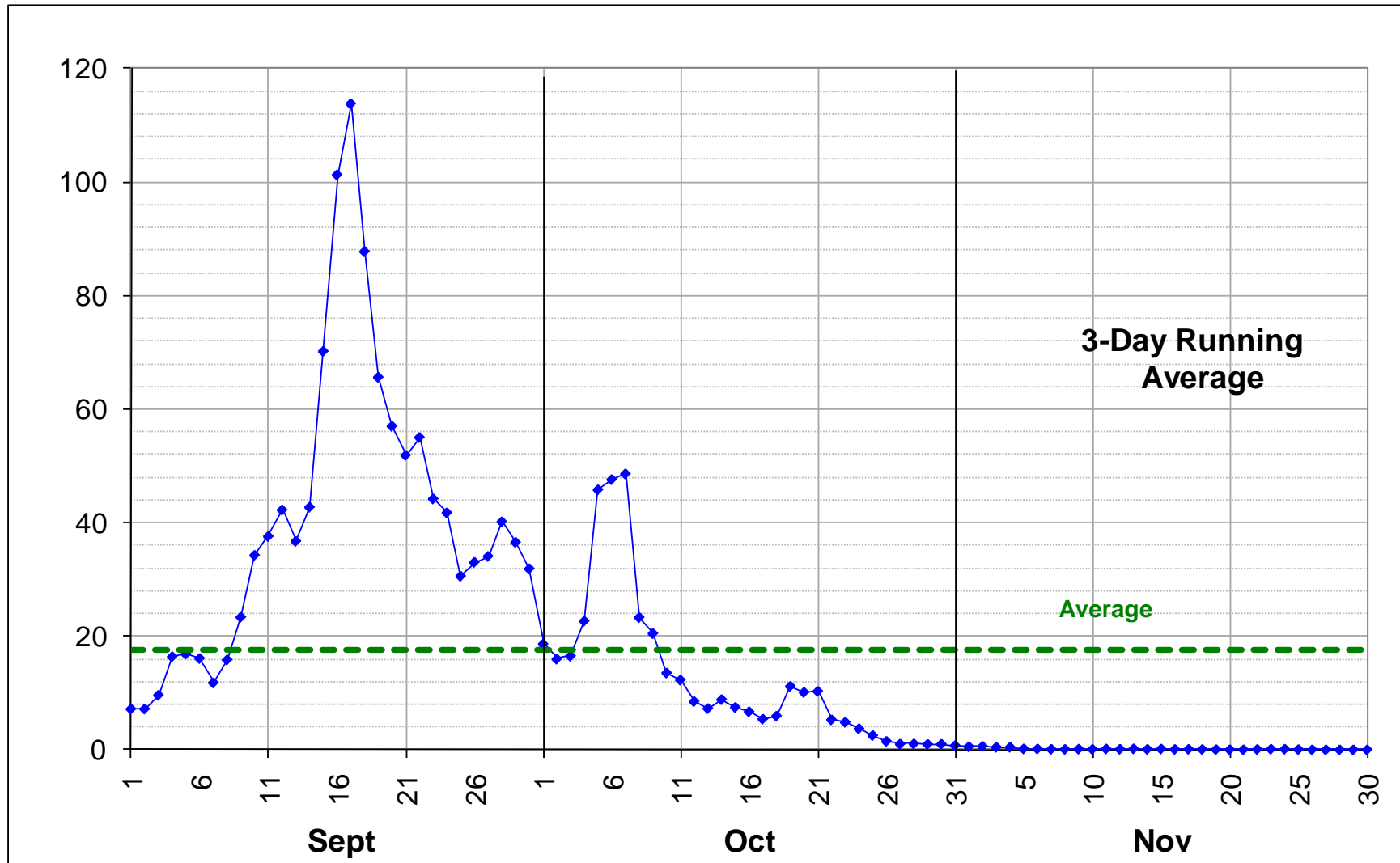


Figure 45. American Kestrel, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 19

90% Passage: Sep 7– Oct 14

Detroit River American Kestrel – Day Statistics

Date	# Yrs	Ave	Cumul Ave	Cumul %	Max
9/1	15	8	11	1	58
9/2	15	5	16	1	27
9/3	15	9	25	1	83
9/4	14	16	40	2	56
9/5	15	25	65	4	116
9/6	15	10	75	5	56
9/7	14	13	89	5	81
9/8	16	12	101	6	61
9/9	17	22	123	8	139
9/10	16	36	159	10	187
9/11	18	45	204	14	143
9/12	13	32	236	15	114
9/13	14	50	286	18	227
9/14	13	28	314	20	137
9/15	16	50	364	23	271
9/16	16	132	496	32	725
9/17	16	122	618	40	420
9/18	15	88	706	46	258
9/19	16	54	760	50	245
9/20	15	55	815	53	306
9/21	15	62	877	57	209
9/22	14	39	916	59	108
9/23	16	65	980	64	364
9/24	16	29	1,010	66	85
9/25	14	31	1,041	68	112
9/26	14	31	1,072	69	119
9/27	12	37	1,109	71	137
9/28	14	35	1,144	73	113
9/29	15	49	1,193	76	257
9/30	15	26	1,219	78	125

Date	# Yrs	Ave	Cumul Ave	Cumul %	Max
10/1	15	21	1,239	79	92
10/2	14	10	1,249	80	40
10/3	14	18	1,267	81	99
10/4	13	22	1,289	82	86
10/5	11	28	1,317	84	138
10/6	12	87	1,405	88	852
10/7	14	28	1,432	90	133
10/8	13	31	1,463	91	246
10/9	14	12	1,475	92	48
10/10	14	19	1,494	93	57
10/11	14	10	1,504	94	34
10/12	14	8	1,512	94	34
10/13	13	8	1,519	95	56
10/14	15	7	1,526	95	36
10/15	13	13	1,538	96	78
10/16	13	3	1,542	96	21
10/17	14	4	1,546	96	27
10/18	12	9	1,555	97	50
10/19	15	5	1,560	97	26
10/20	13	20	1,580	98	138
10/21	14	6	1,585	98	16
10/22	13	6	1,591	99	40
10/23	13	5	1,596	99	19
10/24	15	4	1,600	99	35
10/25	14	2	1,602	99	21
10/26	15	1	1,603	99	11
10/27	13	1	1,604	99	4
10/28	15	1	1,605	100	4
10/29	14	1	1,607	100	10
10/30	14	1	1,607	100	4
10/31	15	1	1,608	100	2

Date	# Yrs	Ave	Cumul Ave	Cumul %	Max
11/1	17	1	1,609	100	4
11/2	11	0	1,609	100	2
11/3	13	1	1,610	100	4
11/4	15	0	1,610	100	1
11/5	14	0	1,611	100	1
11/6	14	0	1,611	100	1
11/7	13	0	1,611	100	1
11/8	15	0	1,611	100	1
11/9	13	0	1,611	100	1
11/10	13	0	1,611	100	1
11/11	14	0	1,612	100	1
11/12	14	0	1,612	100	3
11/13	13	0	1,612	100	1
11/14	13	0	1,612	100	1
11/15	12	0	1,612	100	0
11/16	12	0	1,612	100	2
11/17	12	0	1,613	100	1
11/18	11	0	1,613	100	1
11/19	13	0	1,613	100	2
11/20	11	0	1,613	100	0
11/21	8	0	1,613	100	0
11/22	13	0	1,613	100	2
11/23	11	0	1,613	100	1
11/24	8	0	1,613	100	1
11/25	14	0	1,613	100	1
11/26	10	0	1,613	100	0
11/27	9	0	1,613	100	0
11/28	10	0	1,613	100	1
11/29	8	0	1,613	100	0
11/30	7	0	1,613	100	0

Table 15. American Kestrel, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River American Kestrel - Yearly Trend

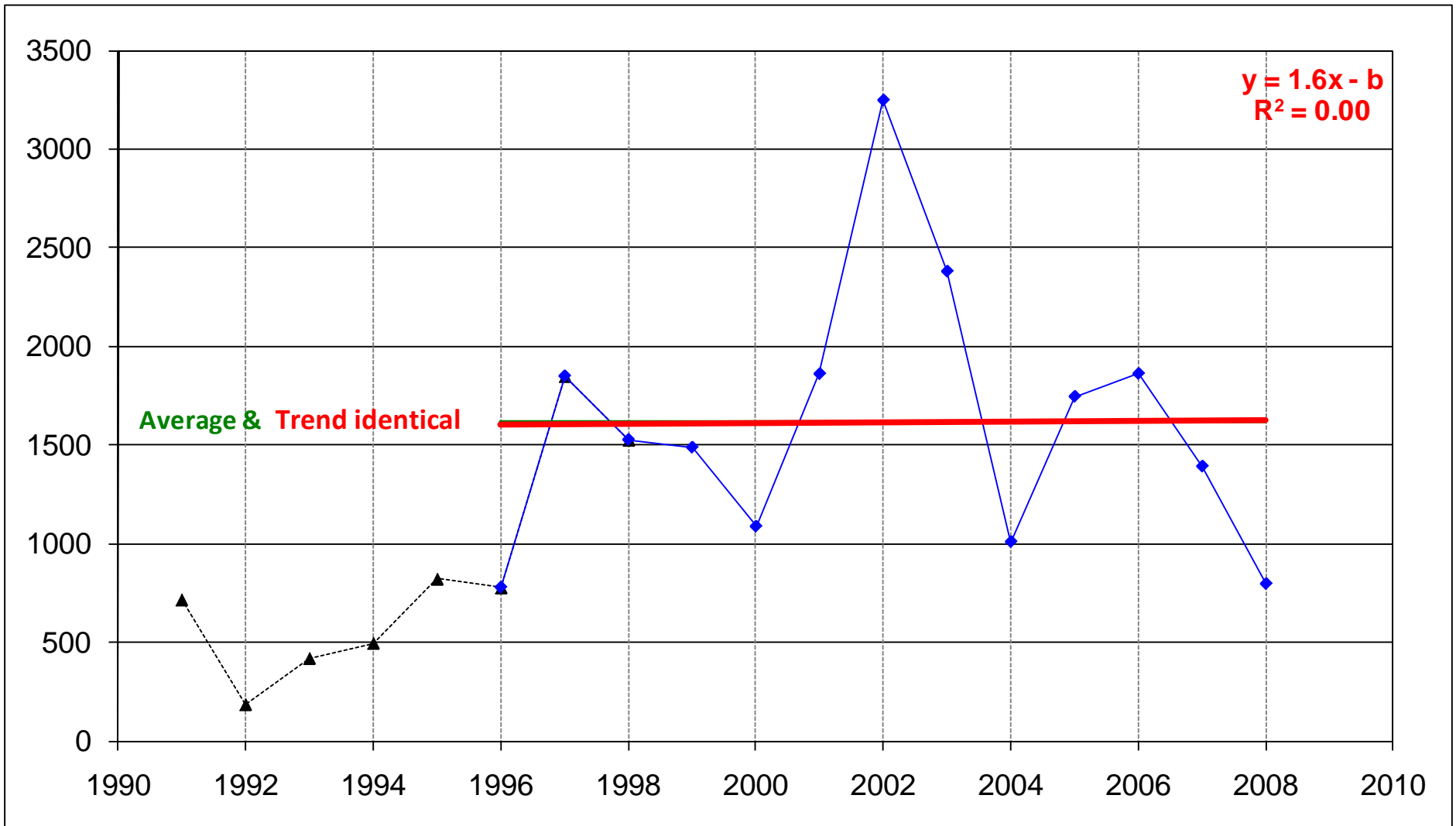


Figure 46. American Kestrel, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Merlin - Seasonal Occurrence

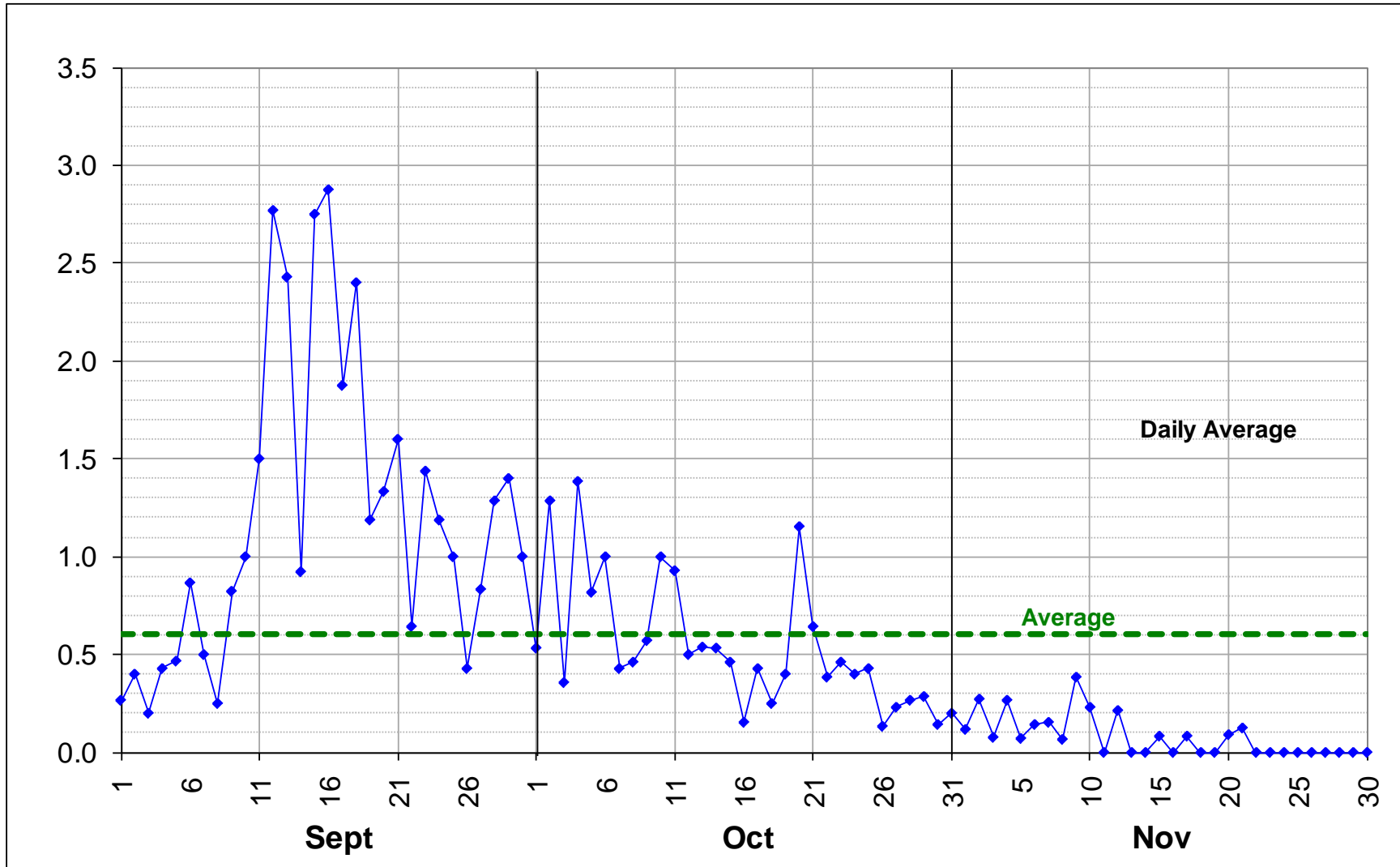


Figure 47. Merlin, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 21

90% Passage: Sep 6 – Oct 27

Detroit River Merlin – 3 Day Running Average

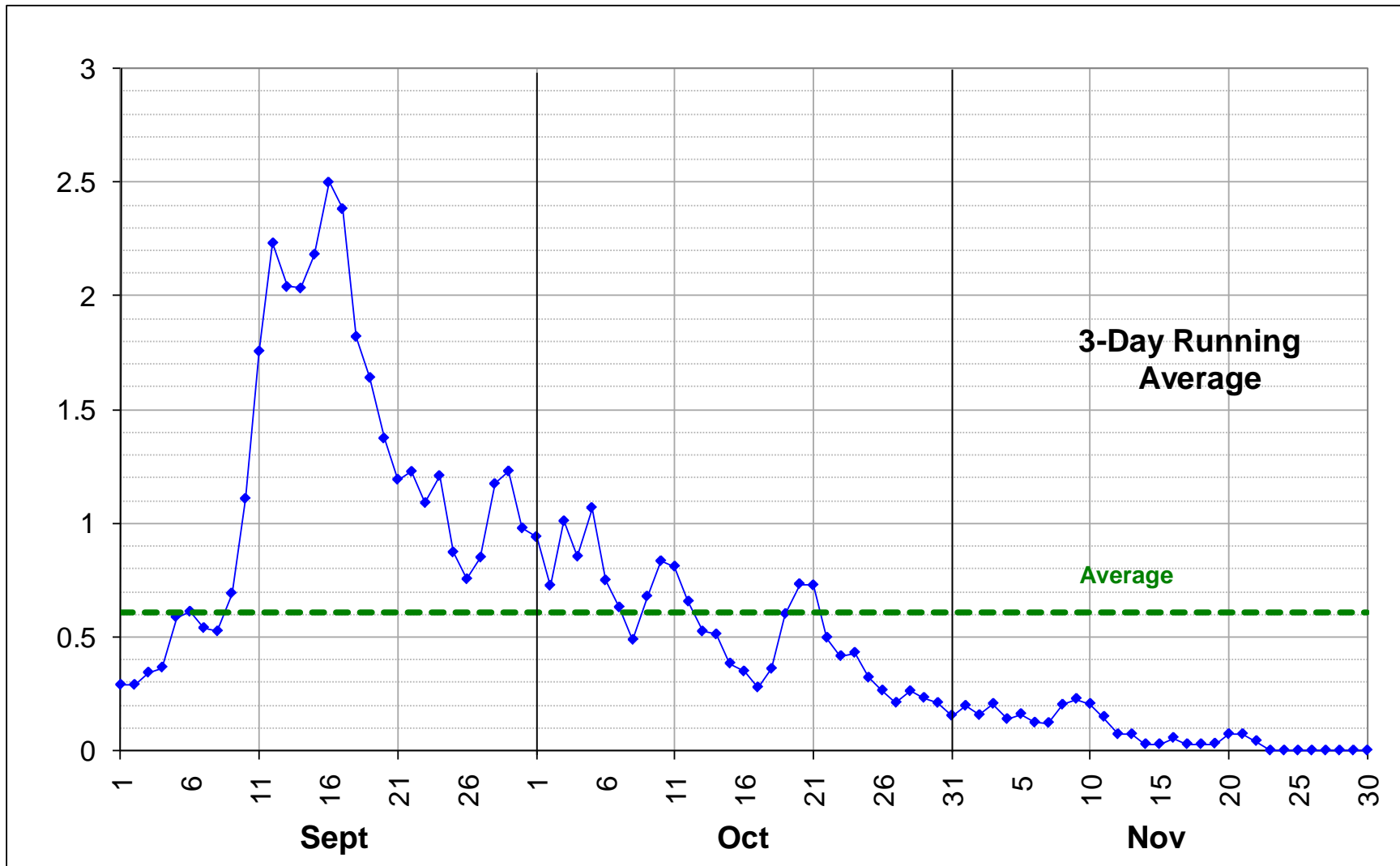


Figure 48. Merlin, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 21

90% Passage: Sep 6 – Oct 27

Detroit River Merlin – Day Statistics

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	2
9/2	15	0	1	1	3
9/3	15	0	1	2	1
9/4	14	0	1	2	3
9/5	15	0	2	3	2
9/6	15	1	3	5	6
9/7	14	1	3	6	2
9/8	16	0	3	6	2
9/9	17	1	4	8	5
9/10	16	1	5	10	4
9/11	18	2	7	13	6
9/12	13	3	9	18	13
9/13	14	2	12	22	11
9/14	13	1	13	24	5
9/15	16	3	16	29	9
9/16	16	3	18	35	9
9/17	16	2	20	39	8
9/18	15	2	23	43	12
9/19	16	1	24	45	5
9/20	15	1	25	48	5
9/21	15	2	27	51	14
9/22	14	1	27	52	2
9/23	16	1	29	55	9
9/24	16	1	30	57	6
9/25	14	1	31	59	9
9/26	14	0	32	60	2
9/27	12	1	32	61	3
9/28	14	1	34	63	6
9/29	15	1	35	66	8
9/30	15	1	36	68	6

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	1	37	69	2
10/2	14	1	38	71	9
10/3	14	0	38	72	2
10/4	13	1	40	74	7
10/5	11	1	40	75	5
10/6	12	1	41	77	3
10/7	14	0	42	77	3
10/8	13	0	42	78	3
10/9	14	1	43	79	2
10/10	14	1	44	81	5
10/11	14	1	45	82	10
10/12	14	1	45	83	4
10/13	13	1	46	84	2
10/14	15	1	46	85	4
10/15	13	0	47	86	2
10/16	13	0	47	86	1
10/17	14	0	47	87	4
10/18	12	0	48	87	2
10/19	15	0	48	88	2
10/20	13	1	49	90	9
10/21	14	1	50	91	3
10/22	13	0	50	92	1
10/23	13	0	51	92	2
10/24	15	0	51	93	2
10/25	14	0	52	94	2
10/26	15	0	52	94	1
10/27	13	0	52	95	1
10/28	15	0	52	95	2
10/29	14	0	52	96	3
10/30	14	0	53	96	1
10/31	15	0	53	96	2

DAY	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	0	53	96	1
11/2	11	0	53	97	1
11/3	13	0	53	97	1
11/4	15	0	54	97	2
11/5	14	0	54	98	1
11/6	14	0	54	98	1
11/7	13	0	54	98	1
11/8	15	0	54	98	1
11/9	13	0	54	99	2
11/10	13	0	55	99	1
11/11	14	0	55	99	0
11/12	14	0	55	100	1
11/13	13	0	55	100	0
11/14	13	0	55	100	0
11/15	12	0	55	100	1
11/16	12	0	55	100	0
11/17	12	0	55	100	1
11/18	11	0	55	100	0
11/19	13	0	55	100	0
11/20	11	0	55	100	1
11/21	8	0	55	100	1
11/22	13	0	55	100	0
11/23	11	0	55	100	0
11/24	8	0	55	100	0
11/25	14	0	55	100	0
11/26	10	0	55	100	0
11/27	9	0	55	100	0
11/28	10	0	55	100	0
11/29	8	0	55	100	0
11/30	7	0	55	100	0

Table 16. Merlin, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Merlin – Yearly Trend

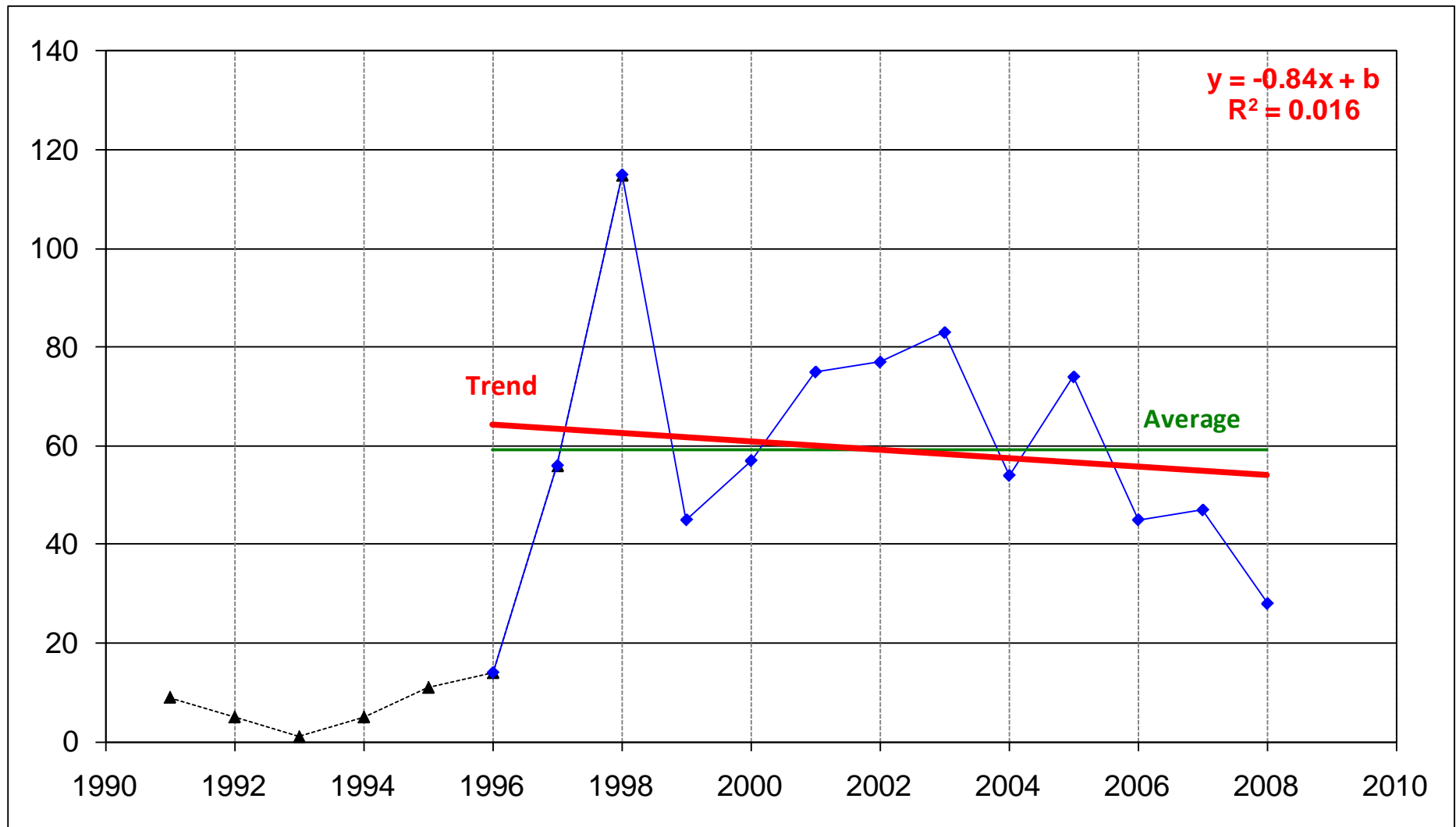


Figure 49. Merlin, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Peregrine - Seasonal Occurrence

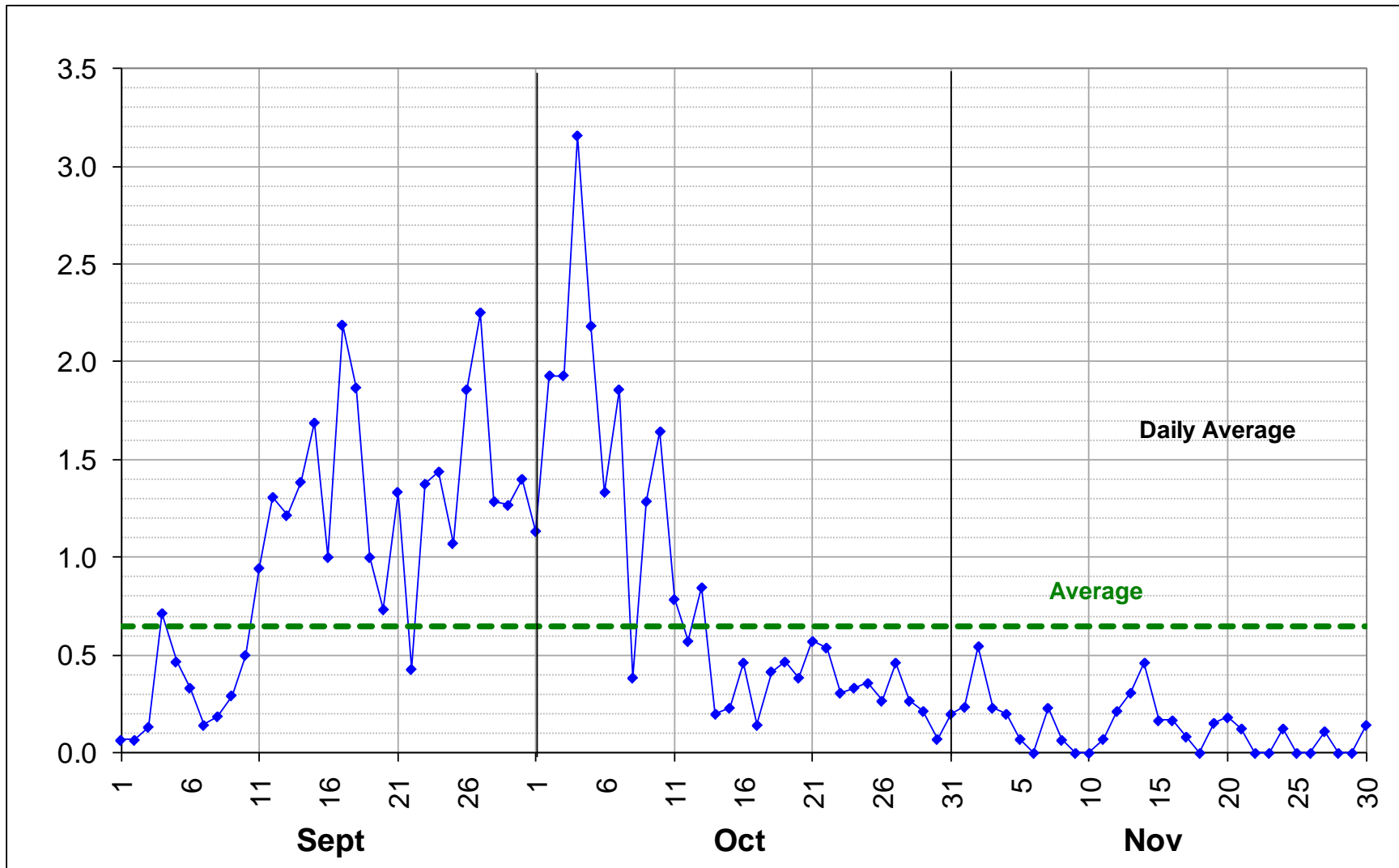


Figure 50. Peregrine Falcon, Seasonal Occurrence - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 29

90% Passage: Sep 10 – Nov 1

Detroit River Peregrine – 3 Day Running Average

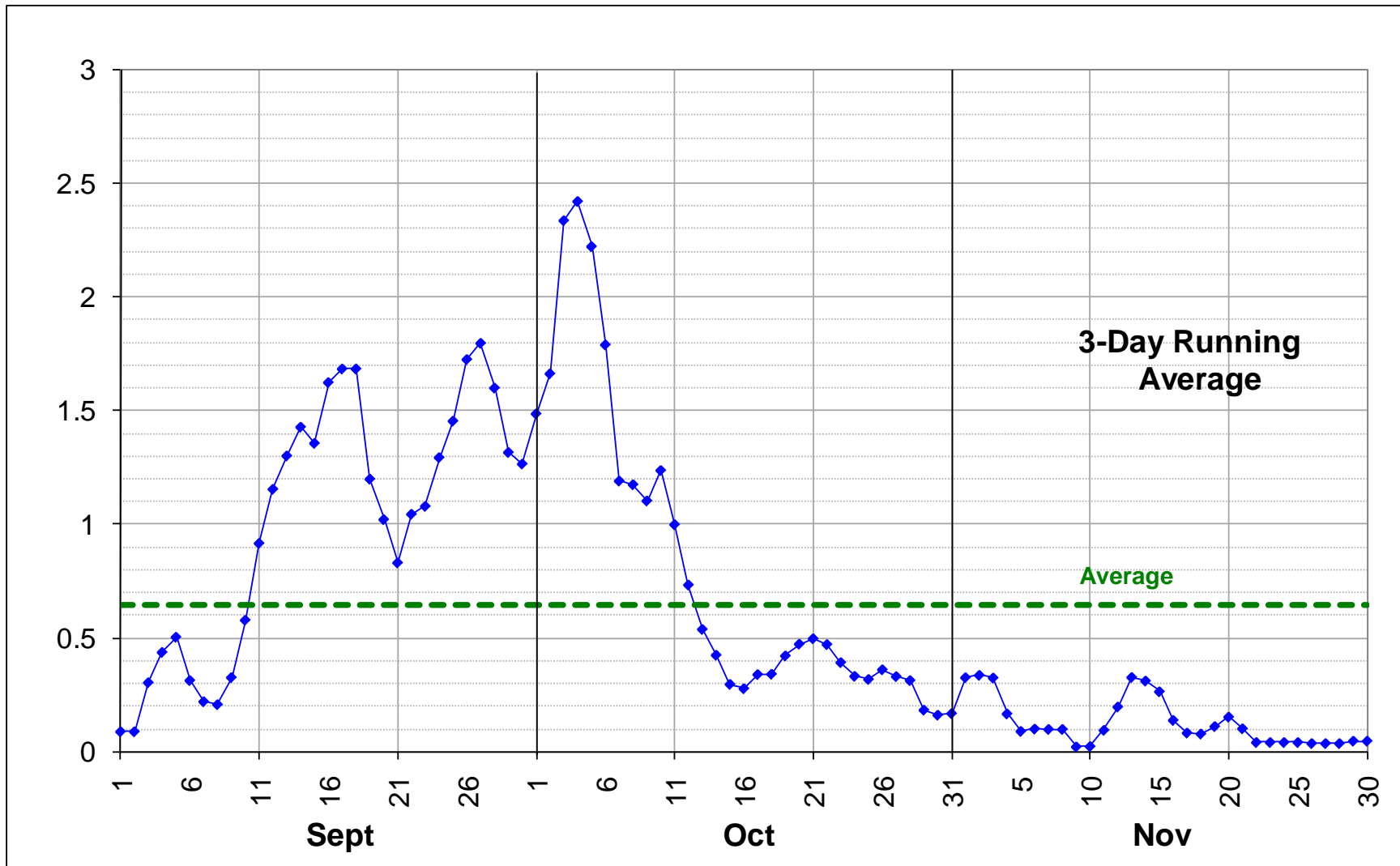


Figure 51. Peregrine Falcon, 3-Day Running Average - LEMP & Pt Mouillee combined, 1991–2008

Median Date: Sep 29

90% Passage: Sep 10 – Nov 1

Detroit River Peregrine – Day Statistics

Date	# Yrs	Avg	Cumul Avg	Cumul %	MAX
9/1	15	0	0	0	1
9/2	15	0	0	0	1
9/3	15	0	0	0	1
9/4	14	1	1	2	4
9/5	15	0	1	3	2
9/6	15	0	2	3	1
9/7	14	0	2	3	1
9/8	16	0	2	4	1
9/9	17	0	2	4	2
9/10	16	1	3	5	2
9/11	18	1	4	7	5
9/12	13	1	5	9	12
9/13	14	1	6	12	8
9/14	13	1	8	14	12
9/15	16	2	9	17	7
9/16	16	1	10	19	4
9/17	16	2	13	23	19
9/18	15	2	14	27	6
9/19	16	1	15	28	3
9/20	15	1	16	30	2
9/21	15	1	18	32	3
9/22	14	0	18	33	2
9/23	16	1	19	36	5
9/24	16	1	21	38	5
9/25	14	1	22	40	3
9/26	14	2	24	43	6
9/27	12	2	26	47	9
9/28	14	1	27	49	6
9/29	15	1	29	51	5
9/30	15	1	30	54	6

Date	# Yrs	Avg	Cumul Avg	Cumul %	MAX
10/1	15	1	31	56	5
10/2	14	2	33	59	12
10/3	14	2	35	62	11
10/4	13	3	38	67	13
10/5	11	2	40	70	11
10/6	12	1	42	72	4
10/7	14	2	43	75	8
10/8	13	0	44	76	2
10/9	14	1	45	78	12
10/10	14	2	47	81	9
10/11	14	1	48	82	2
10/12	14	1	48	83	3
10/13	13	1	49	84	3
10/14	15	0	49	85	2
10/15	13	0	49	85	1
10/16	13	0	50	86	2
10/17	14	0	50	86	1
10/18	12	0	50	87	2
10/19	15	0	51	88	3
10/20	13	0	51	88	2
10/21	14	1	52	89	3
10/22	13	1	52	90	2
10/23	13	0	53	90	1
10/24	15	0	53	91	2
10/25	14	0	53	92	2
10/26	15	0	54	92	1
10/27	13	0	54	93	2
10/28	15	0	54	93	3
10/29	14	0	55	94	2
10/30	14	0	55	94	1
10/31	15	0	55	94	1

Date	# Yrs	Avg	Cumul Avg	Cumul %	MAX
11/1	17	0	55	95	2
11/2	11	1	56	95	6
11/3	13	0	56	96	1
11/4	15	0	56	96	1
11/5	14	0	56	96	1
11/6	14	0	56	96	0
11/7	13	0	56	97	1
11/8	15	0	56	97	1
11/9	13	0	56	97	0
11/10	13	0	56	97	0
11/11	14	0	57	97	1
11/12	14	0	57	97	1
11/13	13	0	57	98	2
11/14	13	0	57	98	2
11/15	12	0	58	99	1
11/16	12	0	58	99	2
11/17	12	0	58	99	1
11/18	11	0	58	99	0
11/19	13	0	58	99	1
11/20	11	0	58	100	2
11/21	8	0	58	100	1
11/22	13	0	58	100	0
11/23	11	0	58	100	0
11/24	8	0	58	100	1
11/25	14	0	58	100	0
11/26	10	0	58	100	0
11/27	9	0	59	100	1
11/28	10	0	59	100	0
11/29	8	0	59	100	0
11/30	7	0	59	100	1

Table 17. Peregrine Falcon, Day Statistics

Highest Ever Seen in a day in Red

2nd & 3rd Highest days in Blue

High counts early & late in Season in Bold

Detroit River Peregrine - Yearly Trend

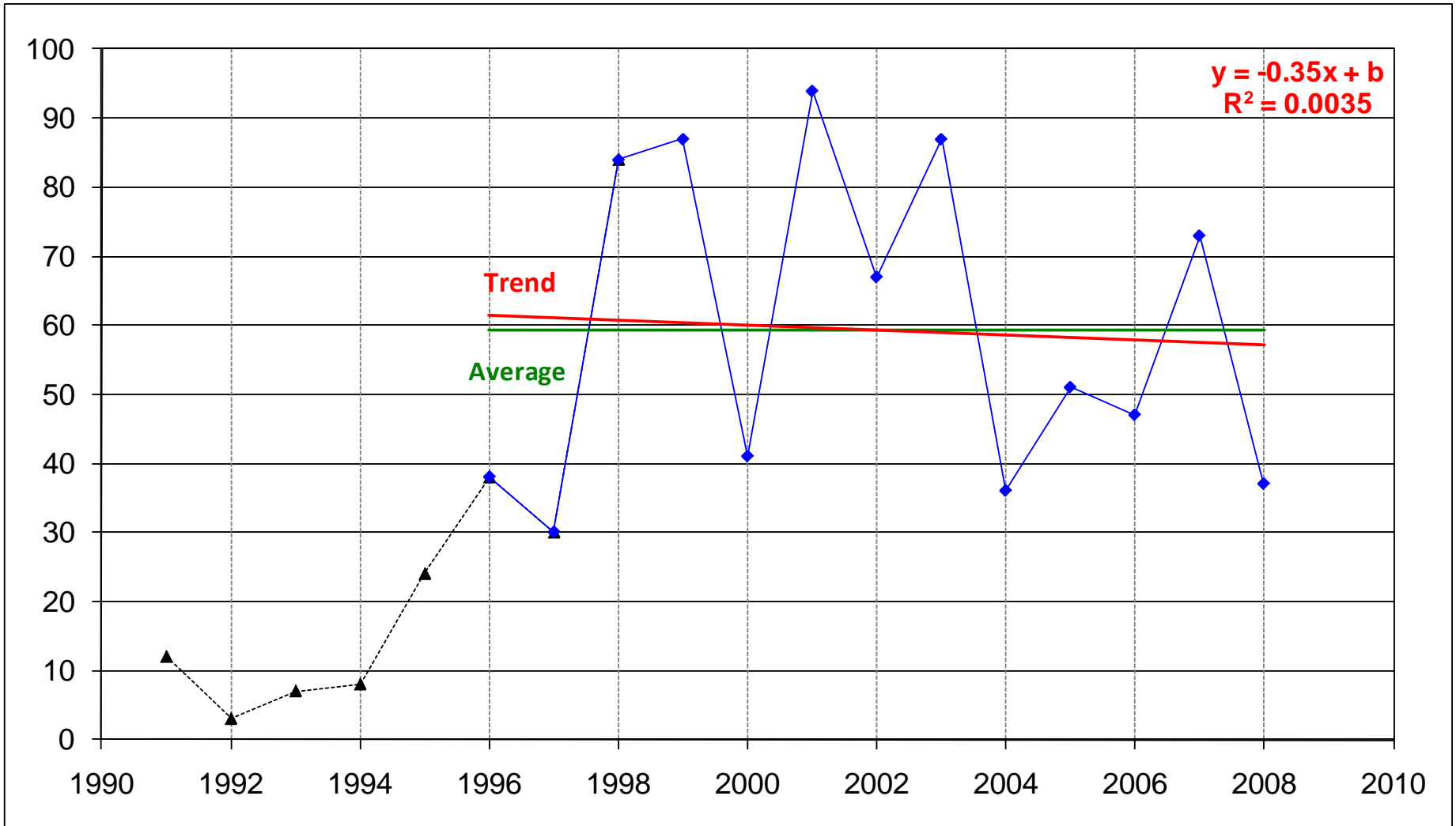


Figure 52. Peregrine Falcon, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Total Hawks

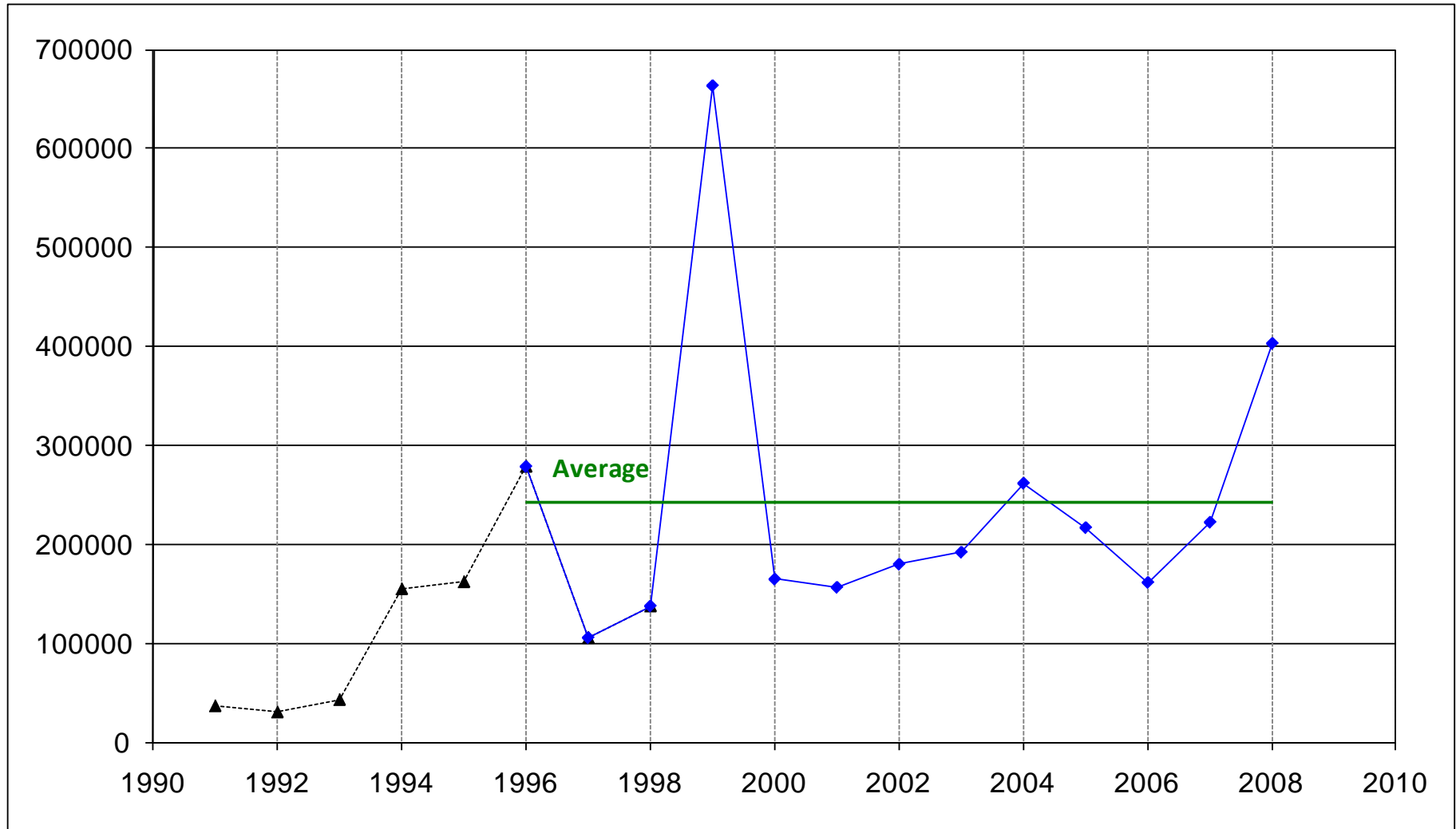


Figure 53. Total Hawks, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Total Hawks without Turkey Vultures

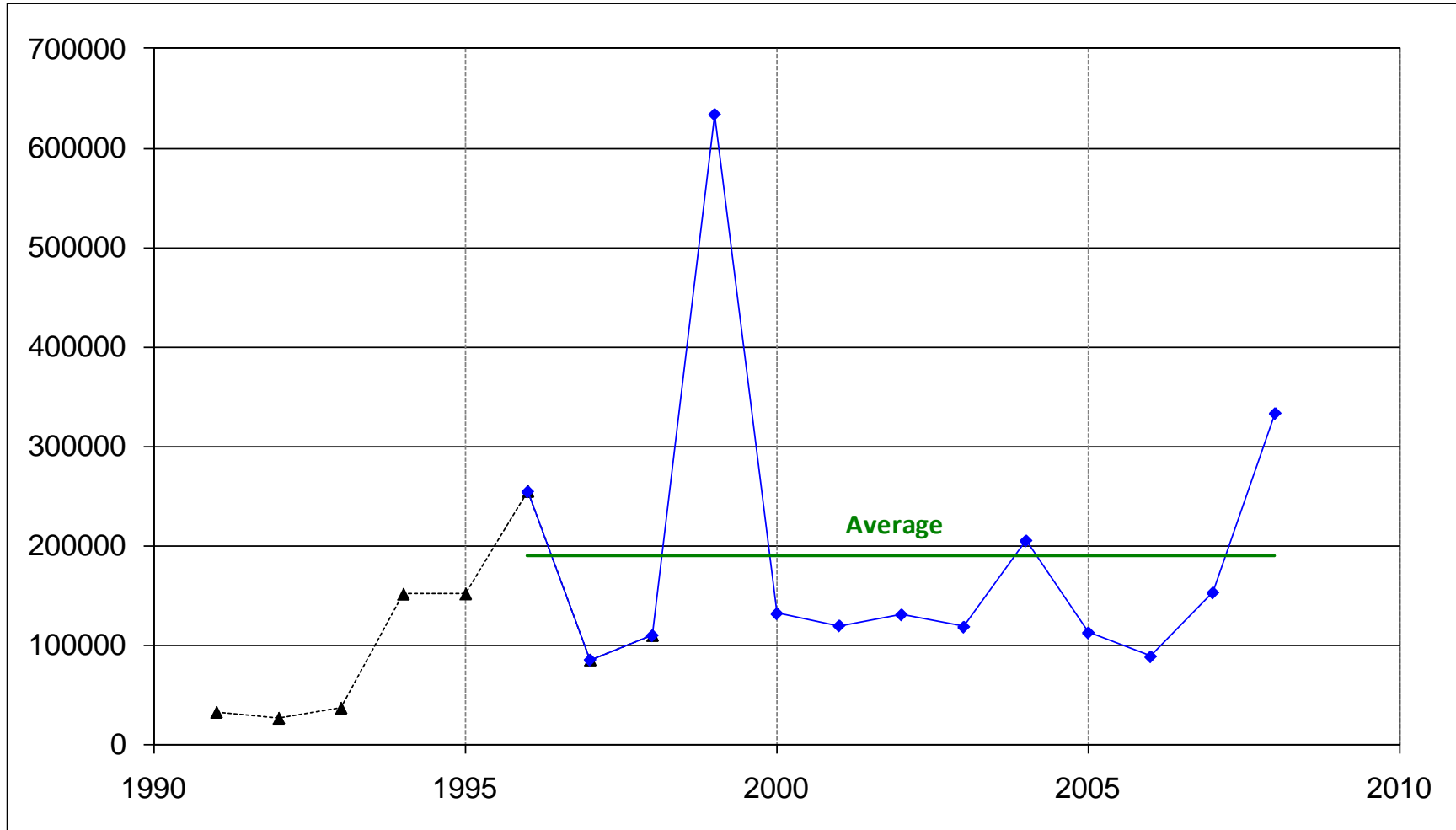


Figure 54. Total Hawks without Turkey Vulture, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

Detroit River Total Hawks without Turkey Vultures and without Broad-winged Hawks

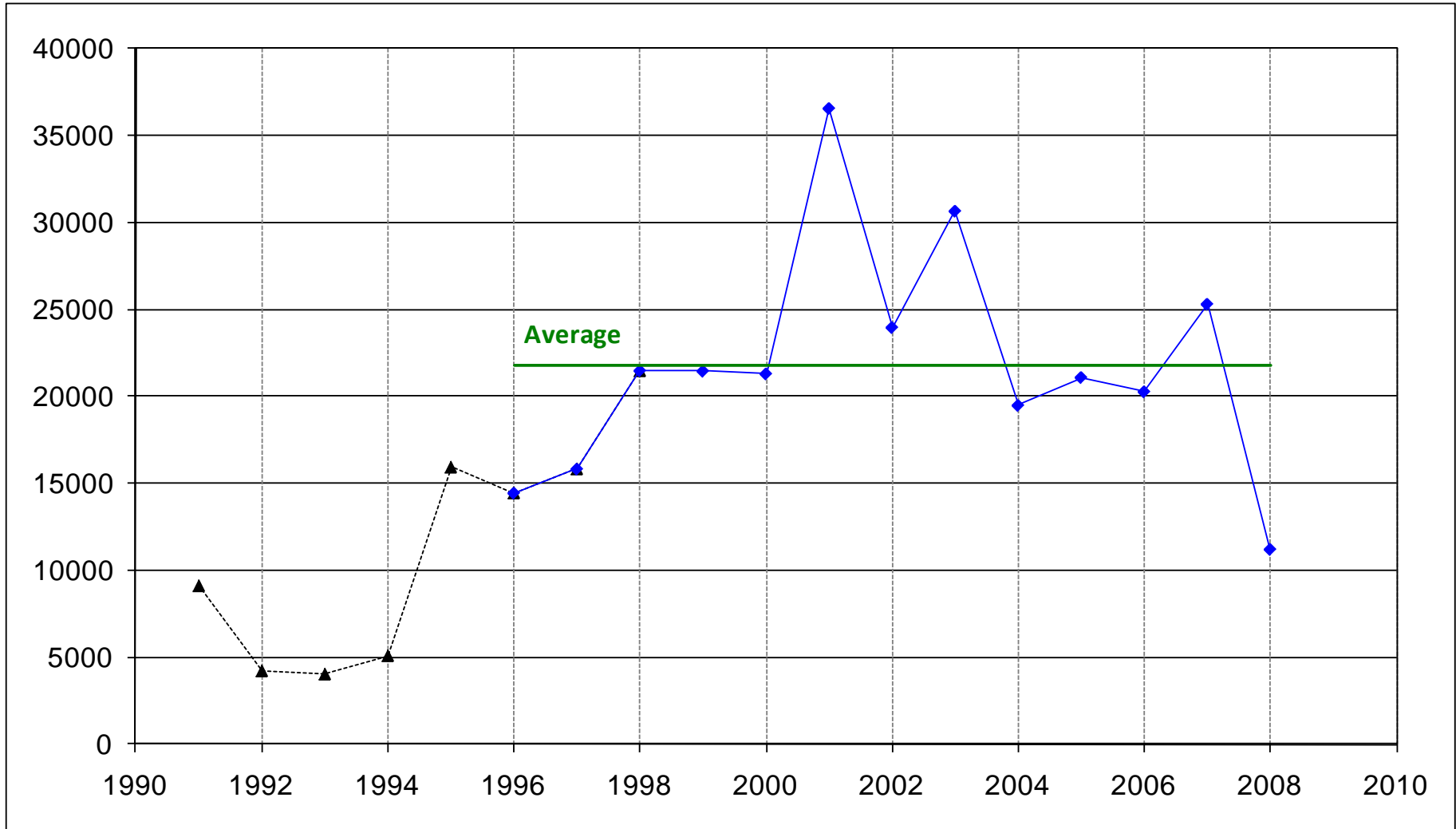


Figure 55. Total Hawks without Turkey Vulture and without Broad-winged Hawks, Yearly Trend - LEMP & Pt Mouillee combined, 1991–2008

**Trend Analysis
Detroit River Hawk Watch 1996 - 2008**

Species	Normal Distribution	Linear Regression					Rank Correlation	
		Normal about Regression	Coefficient	R ²	p	Significant	R	p
TV	yes	no	5537.00	0.72	<0.001	yes	0.868	0.000
OS	yes	yes	9.46	0.27	0.067	marginal		
BE	yes	yes	12.10	0.69	<0.001	yes		
NH	yes	yes	-2.918	0.00	0.928	no		
SS	yes	no	-133.84	0.02	0.642	no	-0.082	0.778
CH	yes	yes	22.71	0.20	0.125	no		
NG	yes	yes	-0.8790	0.02	0.616	no		
RS	no	yes	19.66	0.07	0.398	no		
BW	no	no	-3880.19	0.01	0.748	no	0.050	0.863
SW	yes	yes	-0.2640	0.06	0.402	no		
RT	yes	yes	146.48	0.05	0.46	no		
RL	yes	yes	-0.593	0.01	0.81	no		
GE	yes	yes	2.236	0.02	0.664	no		
AK	yes	yes	1.626	0.00	0.976	no		
ML	yes	yes	-0.8350	0.02	0.683	no		
PG	yes	yes	-0.3520	0.00	0.849	no		

Table 18. Linear Regression and Rank Correlation for Yearly Trends, 1996-2008

Interpretation of Trend Analysis.

Three hawk species have significant or close to significant positive trends: Bald Eagle, Turkey Vulture, and Osprey. The Bald Eagle distribution meets all assumptions for regression and results in an increase of 12 eagles per year with 99.9% confidence ($p < 0.001$). The Turkey Vulture distribution fails to be normally distributed about the regression line, in spite of a $p < 0.001$. Spearman Rank Correlation, however, shows a strong positive relationship for Turkey Vultures at $p < 0.001$. Regression analysis for Osprey results in $p = 0.067$, very close to the $p = 0.05$ criteria for significance. All other p values were greater than 0.100, indicating no significant linear trend. For these species, we have insufficient evidence to indicate anything other than a random distribution of counts over time. This is reflected in the more or less horizontal regression lines for the Yearly Trends for many species.