

# Spring Ring-Necked Pheasant Surveys 2009

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## **Abstract**

The 2009 pheasant crowing counts indicate a statewide average of approximately 1.3 roosters/mile<sup>2</sup>, a 36% decrease from the 2008 average of 2.0 roosters/mile<sup>2</sup>. Fifty-five crowing rooster pheasant surveys were conducted this past spring to monitor pheasant population trends throughout Wisconsin's pheasant management counties. In addition to an estimation of populations, these surveys also provide evaluation of wild pheasant restoration projects, including Iowa F1 and Jilin F1 release areas, the Dodge County Private Lands Project, the Glacial Habitat Restoration Area and various cooperative habitat projects using Pheasant Stamp, Wings Over Wisconsin, and Pheasants Forever funds.

## **Methods**

**Crowing Rooster Surveys** -- Spring pheasant surveys were conducted during April and May. Observers initiated counts on established routes approximately 45 minutes before sunrise and finished within 1-1.5 hours after sunrise. Observers listened for 3 minutes at stops 0.5 mile apart along each route and marked locations of crowing roosters on field maps. Surveys were only conducted during good weather conditions (wind speed < 10 mph, no precipitation). Throughout the Dodge County Project area, the GHRA and the GHRA control area, the mean of two counts was used to achieve the roosters/mile<sup>2</sup> index. In the other areas, surveys were run twice and the higher of the two counts were used for comparison. On some routes, a crowing survey was conducted only once.

**Sex Ratio Surveys** -- Winter sex ratios are used to extrapolate hen densities from spring crowing rooster counts. In past years, observers searched winter concentration areas and recorded the number of roosters and hens seen in order to develop area-specific sex ratios. New pheasant sex ratios were calculated for St. Croix, Green, Rock and Iowa Counties in 2004. For other areas, the sex ratio was assumed to be the long-term Dodge County Project average of 2.5 hens/rooster. These ratios are used to calculate a Hen Index for each survey area as a method of estimating hen density.

## **Results**

Overall, 2009 surveys indicate a decrease in rooster density with a statewide survey mean of 1.3 roosters/mile<sup>2</sup> compared to 2.0 roosters/mile<sup>2</sup> in 2008. Of the routes evaluated, 82% decreased (n=45), 18% (n=10) increased and 0% (n=0) showed no change when compared to the 2008 counts (Table 1). The 2009 statewide hen index data indicates that hen densities once again were below the long-term average, with this year's index at 3.4 hens/mile<sup>2</sup>, and the long-term average at 5.9 hens/mile<sup>2</sup> (Figure 7).

**Dodge County Project** -- The Dodge County Project was initiated in 1984 to evaluate the effectiveness of private land habitat management and development in areas that have satisfactory winter cover and remnant pheasant populations. Nesting cover and food plots were developed in a two-mile radius around six different major pheasant wintering areas. Although the management phase of this project concluded in 1994, surveys continue to be conducted to monitor pheasant populations.

Spring surveys indicated an overall 46% population decrease in the 5 Dodge County survey

areas, decreasing from 1.2 roosters/mile<sup>2</sup> in 2008 to 0.7 roosters/mile<sup>2</sup> in 2009 (Table 1). The 2009 hen index data indicates that hen densities have dipped below the long-term average for Dodge County, with this year's index at 1.7 hens/mile<sup>2</sup>, and the long-term average at 6.0 hens/mile<sup>2</sup> (Figure 1).

**Glacial Habitat Restoration Area --** The Glacial Habitat Restoration Area (GHRA) is a habitat improvement program initiated in 1990 focused on purchasing, easing, and improving wildlife habitat through scattered parcels of property in 24 townships in parts of Winnebago, Fond du Lac, Dodge, and Columbia Counties. Wetland and grassland restoration projects focused on improving habitat for pheasants and other upland and wetland wildlife species are conducted throughout the project area. The goal of the project is to restore 11,000 acres of drained wetlands and 38,000 acres of grasslands within the area's boundaries.

Population indices on the GHRA surveyed areas averaged 49% lower than in 2008, with a range for individual surveys from 0.4 to 1.5 roosters/mile<sup>2</sup> (Table 1). There was an average of 0.8 roosters/mile<sup>2</sup> in 2009 compared to 1.7 roosters/mile<sup>2</sup> in 2008. The 2009 hen index data indicates that hen densities are below the long-term average for the Glacial Habitat Restoration Area, with this year's index at 2.1 hens/mile<sup>2</sup> and the long-term average at 4.7 hens/mile<sup>2</sup> (Figure 2).

**GHRA Control Areas --** GHRA control area surveys are conducted in order to compare pheasant numbers where active management under the Habitat Restoration Area Program is not occurring. The number of roosters/mile<sup>2</sup> decreased in these units by 55% to 0.6 roosters/mile<sup>2</sup> in 2009 compared to 1.3 roosters/mile<sup>2</sup> in 2008 (Table 1). The mean hen index in the GHRA Control Area was 1.4 hens/mile<sup>2</sup> in 2009. This is a 55% decrease from 3.1 hens/mile<sup>2</sup> in 2008, and is below the long-term average of 4.6 hens/mile<sup>2</sup> (Figure 3).

**Other Control Areas --** In order to effectively evaluate the Iowa F1 and Jilin F1 projects, department personnel in conjunction with Wings Over Wisconsin and Pheasants Forever members conducted surveys on control areas in St. Croix, Rock, Jefferson, and Polk counties. These areas have generally had habitat improvements due to CRP or pheasant stamp projects, but they have not received wild bird releases. The number of roosters/mile<sup>2</sup> decreased in these units by 30% to 3.0 roosters/mile<sup>2</sup> in 2009 compared to 4.3 roosters/mile<sup>2</sup> in 2008 (Table 1). The mean hen index on these survey routes was 8.4 hens/mile<sup>2</sup> in 2009. This is a 30% decrease from 12.0 hens/mile<sup>2</sup> in 2008, and dips below the long-term average of 10.4 hens/mile<sup>2</sup> (Figure 4).

**Iowa Pheasant Release Area --** The average number of roosters/mile<sup>2</sup> in the Iowa Pheasant Release Area decreased 27% from 1.8 roosters/mile<sup>2</sup> in 2008 to an average of 1.3 roosters/mile<sup>2</sup> in 2009 (Table 1). The 2009 hen index data indicates that hen densities are below the long-term average for the Iowa Pheasant Release Areas, with this year's index at 3.4 hens/mile<sup>2</sup> and the long-term average at 5.6 hens/mile<sup>2</sup> (Figure 5).

**Jilin (Manchurian) Pheasant Release Areas --** The number of roosters/mile<sup>2</sup> decreased 29% in the Jilin Pheasant Release Area. There were 1.4 roosters/mile<sup>2</sup> in 2009, which was down from the 2008 average of 2.0 roosters/mile<sup>2</sup> (Table 1). The number of roosters/mile<sup>2</sup> ranged from 0.2 in the Manitowoc-2 Rivers/2 Creeks and Fredonia areas to 3.5 in the Dunn County-Muddy Creek WA release area. The 2009 hen index data indicates that hen numbers are below the long-term average for the Jilin Pheasant Release Areas, with this year's index at 3.5 hens/mile<sup>2</sup> and the long-term average at 6.5 hens/mile<sup>2</sup> (Figure 6).

## Discussion

Survey results indicate that pheasant numbers decreased from 2008 to 2009. The 2009 pheasant crowing counts indicate a statewide average of approximately 1.3 roosters per mile<sup>2</sup>, a 36% decrease from 2.0 roosters/mile<sup>2</sup> in 2008. Until this year, the long-term trend in pheasant hen populations was positive relative to the 1980's. However, the results from 2009 indicate a continued decrease in the statewide hen index to 3.4 hens/mile<sup>2</sup> which is below the long-term average of 5.9 hens/mile<sup>2</sup>.

Throughout much of the southern half of the state, winter conditions (2007-2008 and 2008-2009) were more severe than in recent years. Many southern areas had above normal snowfall, in some cases more than double the average levels in 2007-2008. In addition to more severe winter conditions, the southern half of the state also experienced a cool and wet spring in 2008, again with precipitation levels above average, causing flooding events in some areas. Past research from Wisconsin has shown that weather during pre-nesting is the biggest factor in year-to-year population fluctuation. The results of the 10-week brood survey support this, as pheasant brood observations in 2008 decreased by 28% compared to 2007. The average number of broods per observer was below the long-term (1970-2007) mean of 0.52. Brood size also decreased by 10%.

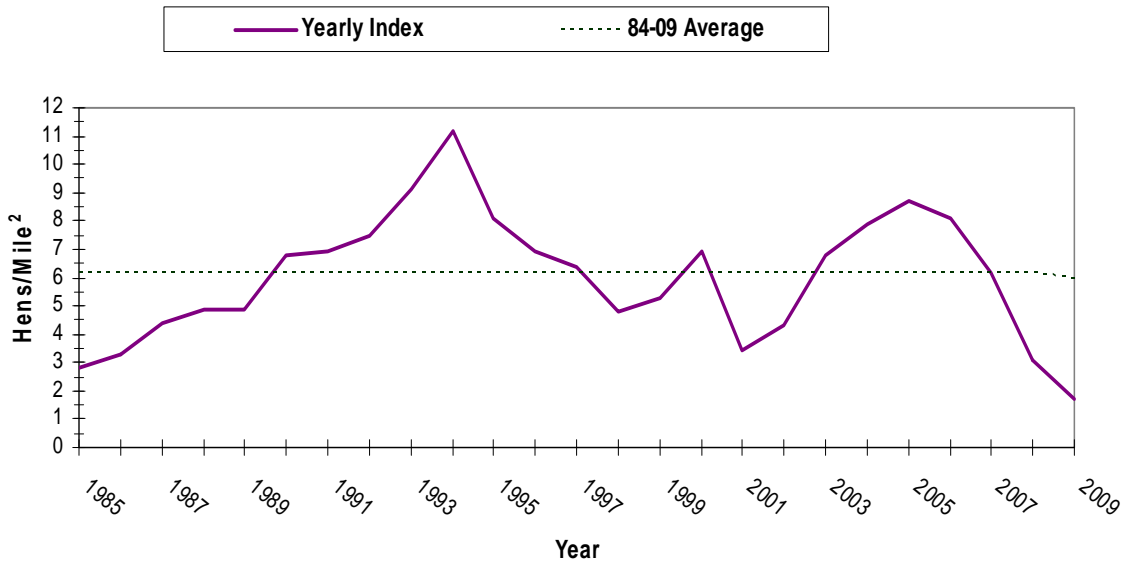
Contributing to recent weather events, changes in pheasant populations have also coincided with changing agriculture and land use patterns. Enrollment in the Conservation Reserve Program (CRP), a U.S. Department of Agriculture program which pays landowners to retire their cropland for a 10 or 15 year period by planting it to permanent cover (grass or trees), has declined significantly in Wisconsin. CRP enrollment peaked in the mid 1990s with over 700,000 acres. Current enrollment is less than 500,000 acres and is expected to decline even further. The CRP has shown to provide important habitat for pheasants and other grassland wildlife and the loss of habitat in recent years is likely impacting statewide pheasant populations.

Although survey information is published yearly, it is important to remember that **long-term trends** and comparison to **long-term averages** are more valuable than year-to-year or area-to-area comparisons. Localized population changes typically cannot be pinpointed to one cause; however, some reasons may include isolated weather conditions or land use changes. When making a comparative analysis, all of these factors must be taken into consideration. Nevertheless, long-term annual index changes for many areas with a similar treatment should provide good indications of the direction of population trends for these treatment areas. Continued emphasis is needed on research, habitat development, management, and maintenance to ensure stable pheasant populations in the future.

**Table 1. Relative change in 2009 pheasant crowing rooster densities and hen indices relative to 2009 results.**

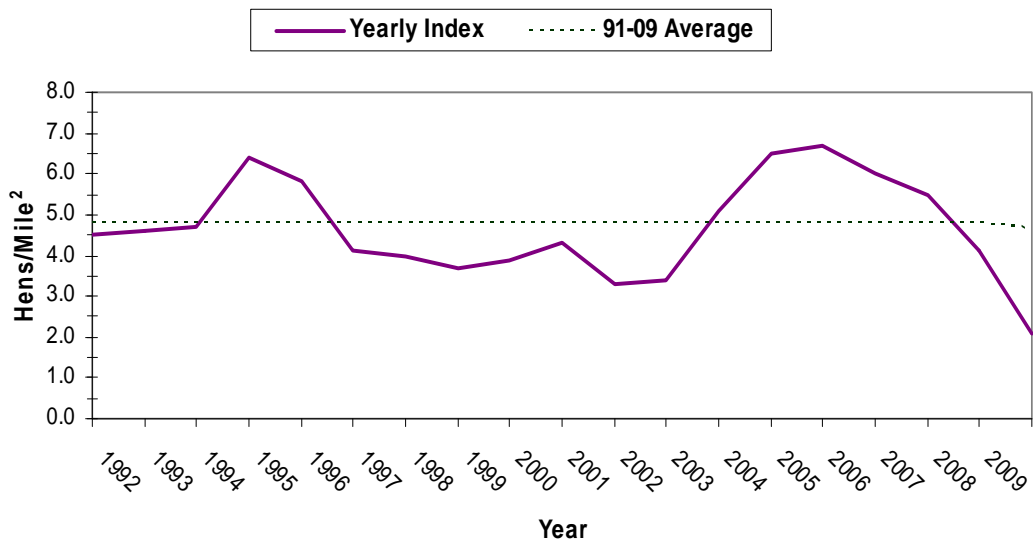
Project	Unit	Method	Roosters per sq.mi-'08	Roosters per sq.mi-'09	% Change for Roosters	Hens/ Cock	Hen Index '08	Hen Index '09	% Change for Hens
<b><u>Dodge County</u></b>									
	Elba	Mean 2 cts.	0.5	0.6	7%	2.5	1.4	1.5	7%
	Calamus	Mean 2 cts.	1.0	0.7	-29%	2.5	2.5	1.8	-29%
	Trenton	Mean 2 cts.	1.3	0.5	-62%	2.5	3.4	1.3	-62%
	Clyman	Mean 2 cts.	1.4	0.6	-55%	2.5	3.6	1.6	-55%
	Fountain Prairie	Mean 2 cts.	1.8	0.9	-52%	2.5	4.6	2.2	-52%
<b>Dodge Co. Mean</b>			<b>1.2</b>	<b>0.7</b>	<b>-46%</b>		<b>3.1</b>	<b>1.7</b>	<b>-46%</b>
<b><u>GHRA</u></b>									
	Winnebago-Pumpkinseed	Mean 2 cts.	1.1	0.6	-48%	2.5	2.7	1.4	-48%
	Winnebago-Waukau	Mean 2 cts.	0.4	0.4	10%	2.5	1.0	1.1	10%
	Winnebago-Pickett	Mean 2 cts.	1.6	0.7	-58%	2.5	4.0	1.7	-58%
	Fond du Lac-Ripon	Mean 2 cts.	1.2	1.0	-10%	2.5	2.9	2.6	-10%
	Fond du Lac-Rosendale Cntr.	Mean 2 cts.	2.1	1.2	-44%	2.5	5.2	2.9	-44%
	Fond du Lac-Silver Creek	Mean 2 cts.	1.9	1.2	-36%	2.5	4.7	3.0	-36%
	Fond du Lac-Eldorado	Mean 2 cts.	3.7	1.5	-59%	2.5	9.2	3.8	-59%
	Fond du Lac-Ladoga	Mean 2 cts.	2.9	1.3	-57%	2.5	7.4	3.2	-57%
	Dodge-Alto	Mean 2 cts.	1.1	0.8	-29%	2.5	2.8	2.0	-29%
	Dodge-Fox Lake	Mean 2 cts.	1.9	0.4	-79%	2.5	4.8	1.0	-79%
	Dodge-Randolph	Mean 2 cts.	0.9	0.7	-23%	2.5	2.2	1.7	-23%
	Columbia-Courtland	Mean 2 cts.	0.8	0.4	-52%	2.5	2.1	1.0	-52%
	Columbia-Fountain Prairie	Mean 2 cts.	2.1	0.9	-56%	2.5	5.2	2.3	-56%
<b>GHRA Mean</b>			<b>1.7</b>	<b>0.8</b>	<b>-49%</b>		<b>4.1</b>	<b>2.1</b>	<b>-49%</b>
<b><u>GHRA Controls</u></b>									
	Columbia-Otsego	Mean 2 cts.	1.2	0.7	-38%	2.5	2.9	1.8	-38%
	Columbia-Hampden	Mean 2 cts.	2.1	0.4	-79%	2.5	5.3	1.1	-79%
	Columbia-Lebanon	Mean 2 cts.	0.9	0.6	-31%	2.5	2.2	1.5	-31%
	Green Lake-Puckyan	Mean 2 cts.	1.3	0.8	-41%	2.5	3.2	1.9	-41%
	Dodge-Ashippun	Mean 2 cts.	0.7	0.2	-64%	2.5	1.7	0.6	-64%
	Dodge-Clyman	Mean 2 cts.	1.6	0.6	-61%	2.5	3.9	1.5	-61%
	Dodge-Elba	Mean 2 cts.	1.2	0.6	-48%	2.5	2.9	1.5	-48%
<b>GHRA Control Mean</b>			<b>1.3</b>	<b>0.6</b>	<b>-55%</b>		<b>3.1</b>	<b>1.4</b>	<b>-55%</b>
<b><u>Other Controls</u></b>									
	St. Croix-New Richmond	2 cts/ 1 wy	5.7	3.6	-38%	2.4	13.8	8.6	-38%
	Rock-West Beloit	2 cts/ 1 wy	2.3	1.5	-35%	4.9	11.4	7.4	-35%
	Jefferson-Oakland	2 cts/ 1 wy	0.4	0.5	8%	2.5	1.1	1.2	8%
	Polk	2 cts/ 1 wy	8.7	6.5	-25%	2.5	21.7	16.3	-25%
<b>Other Controls Mean</b>			<b>4.3</b>	<b>3.0</b>	<b>-30%</b>		<b>12.0</b>	<b>8.4</b>	<b>-30%</b>
<b><u>Iowa F1 Releases</u></b>									
88-90	Rock/Dane - Union Township	2 cts/ 1 wy	0.3	0.2	-34%	4.9	1.3	0.9	-34%
88-90	Iowa - Western	2 cts/ 1 wy	1.4	0.2	-82%	3.9	5.3	0.9	-82%
91-92	Green-North Monroe	2 cts/ 1 wy	3.8	0.9	-75%	3.8	14.3	3.5	-75%
91-93	St. Croix-Boardman	2 cts/ 1 wy	6.5	5.0	-23%	2.4	15.6	12.0	-23%
94-96	Manitowoc-Collins	2 cts/ 1 wy	1.3	0.7	-41%	2.5	3.2	1.9	-41%
94-96	Walworth-Spring Prairie	1ct/ 1wy	0.5	0.3	-47%	2.5	1.3	0.7	-47%
94-96	Columbia-Springvale	2 cts/ 1 wy	1.5	1.1	-27%	2.5	3.8	2.8	-27%
94-96	Dodge-Mayville	2 cts/ 1 wy	1.1	0.2	-83%	2.5	2.8	0.5	-83%
94-96	Fond du Lac-Washington	2 cts/ 1 wy	1.4	0.2	-86%	2.5	3.5	0.5	-86%
96-98	Grant - Clifton Township	2 cts/ 1 wy	2.6	2.1	-20%	2.5	6.4	5.2	-20%
96-98	Dodge-Beaver Dam1	2 cts/ 1 wy	1.3	1.5	20%	2.5	3.1	3.8	20%
97-99	Iowa - Eastern	2 cts/ 1 wy	0.4	0.5	29%	3.9	1.4	1.8	29%
97-99	Sheboygan Marsh	2 cts/ 1 wy	1.3	0.5	-62%	2.5	3.3	1.3	-62%
97-99	Pepin/Dunn	2 cts/ 1 wy	1.7	1.8	5%	2.5	4.3	4.5	5%
97-99	Winnebago-Rat River	2 cts/ 2 wy	1.0	0.9	-9%	2.5	2.5	2.3	-9%
00-02	Green Lake-Markesan F1 (Iowa)	2 cts/ 1 wy	3.6	2.8	-23%	2.5	9.0	7.0	-23%
00-02	Manitowoc-Centerville	2 cts/ 1 wy	0.8	-	-	2.5	2.0	-	-
00-02	Eau Claire-Clear Creek	2 cts/ 1 wy	2.3	3	43%	2.5	5.8	8.4	43%
00-02	Walworth-New Richmond	1ct/ 1 wy	0.4	0.5	6%	2.5	1.1	1.2	6%
00-02	Green Lake-Manchester	2 cts/ 2 wy	2.9	2.2	-24%	2.5	7.2	5.5	-24%
<b>Iowa F1 Mean</b>			<b>1.8</b>	<b>1.3</b>	<b>-27%</b>		<b>4.9</b>	<b>3.4</b>	<b>-30%</b>
<b><u>Jilin F1 Releases</u></b>									
92-93	Dane-EDHRA	2 cts/ 1 wy	0.7	0.4	-50%	2.5	1.7	0.9	-50%
92-94	Dunn Co.-Muddy Creek W.A.	2 cts/ 1 wy	5.9	3.5	-41%	2.5	14.7	8.7	-41%
92-94	Green Lake-Markesan (Jilin)	2 cts/ 1wy	3.3	3.1	-6%	2.5	8.4	7.8	-6%
92-94	Fond du Lac-Waupun	2 cts/ 1 wy	1.5	0.7	-53%	2.5	3.8	1.8	-53%
92-94	Jefferson-Waterloo	1 ct/ 1 wy	0.7	-	-	2.5	1.7	-	-
93-95	Fredonia	2 cts/ 1 wy	1.8	0.2	-88%	2.5	4.5	0.5	-88%
93-95	Holland	2 cts/ 1 wy	1.6	1.7	4%	2.5	4.1	4.3	4%
95-97	Manitowoc-2 Rivers/2 Creeks	2 cts/ 1 wy	0.2	0.2	3%	2.5	0.5	0.5	3%
<b>Jilin F1 Mean</b>			<b>2.0</b>	<b>1.4</b>	<b>-29%</b>		<b>4.9</b>	<b>3.5</b>	<b>-29%</b>
<b>State Mean</b>			<b>2.0</b>	<b>1.3</b>	<b>-36%</b>		<b>5.3</b>	<b>3.4</b>	<b>-36%</b>

### Dodge County Project Mean Hen Index, 1984 - 2009



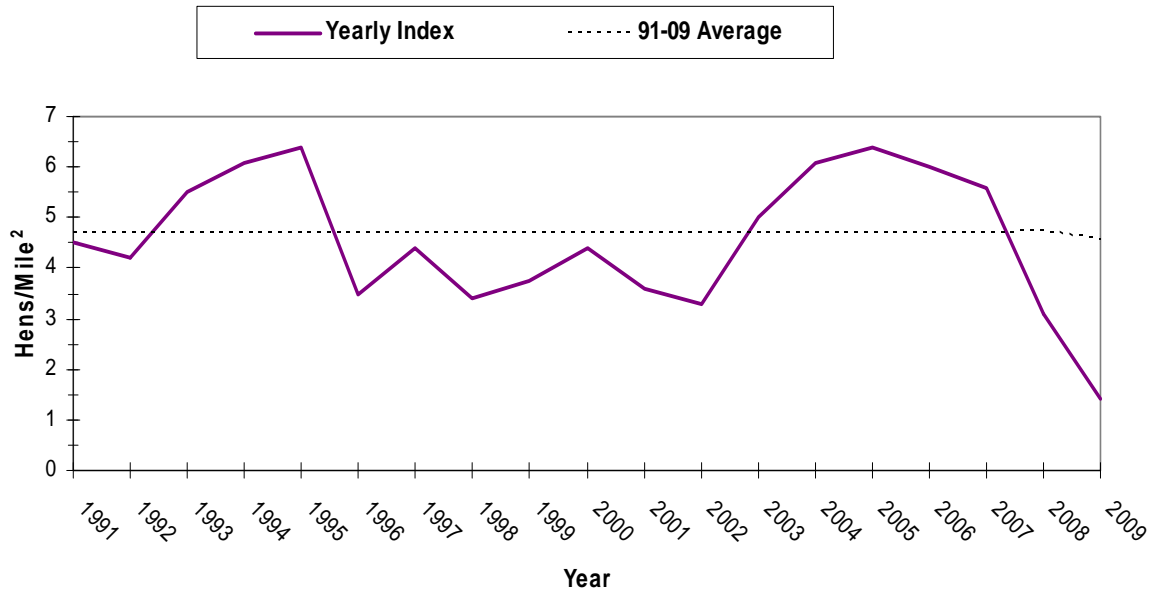
**Figure 1.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on study areas of the Dodge County Private Lands Project, 1984-2009.

### Glacial Habitat Restoration Area Mean Hen Index, 1991 - 2009



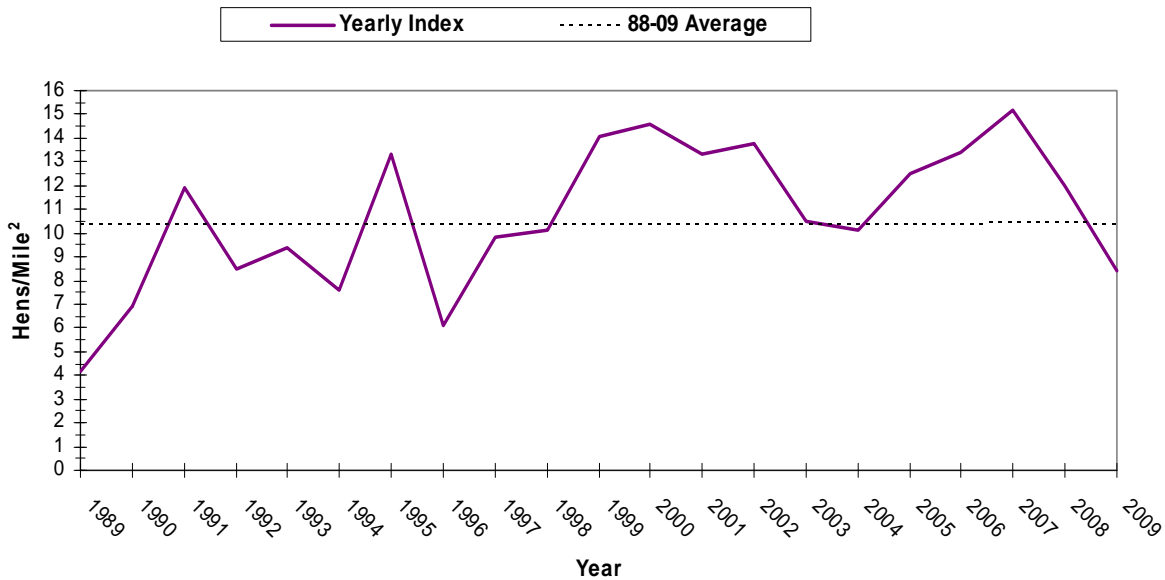
**Figure 2.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on the Glacial Habitat Restoration Area, 1991-2009.

### Glacial Habitat Restoration Control Mean Hen Index, 1991 - 2009

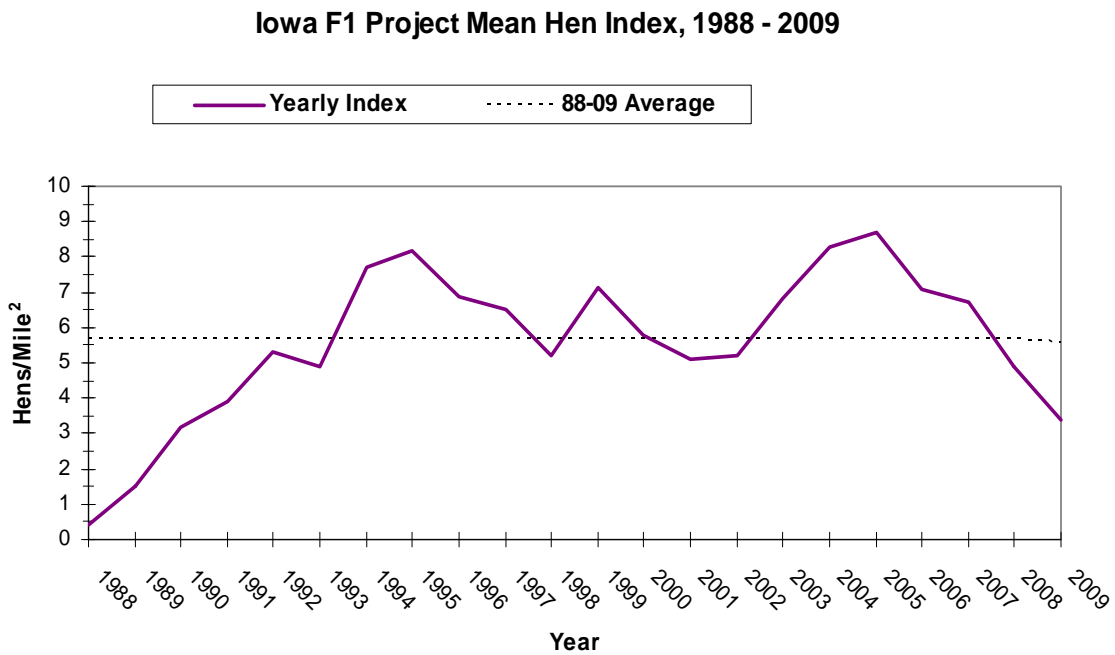


**Figure 3.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on GHRA control areas, 1991-2009.

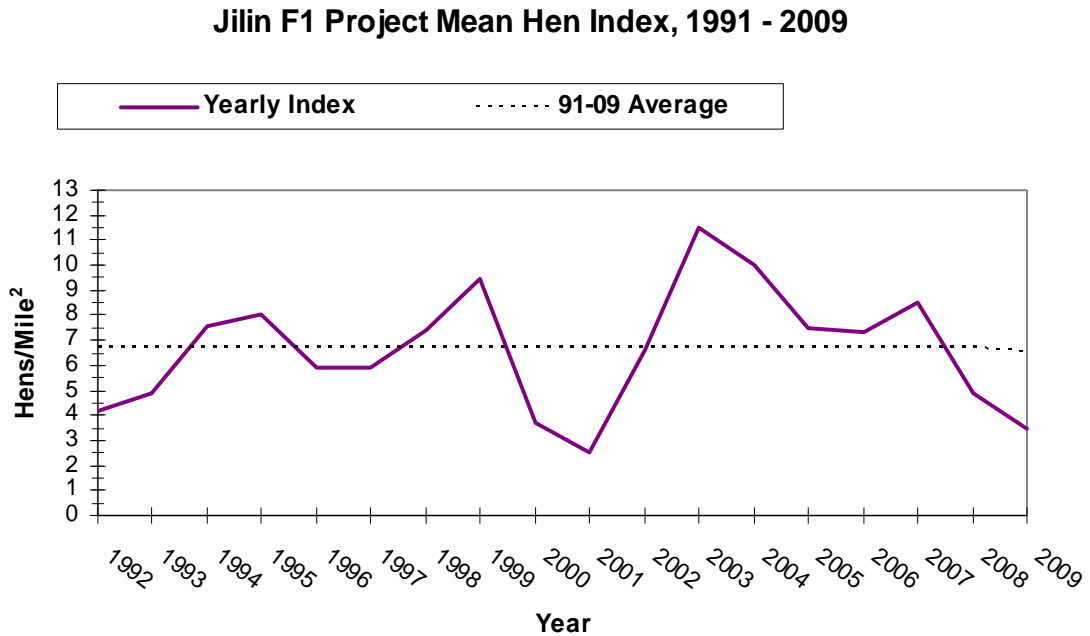
### Other Control Areas Mean Hen Index, 1988 - 2009



**Figure 4.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on control areas around Wisconsin, 1988–2009.

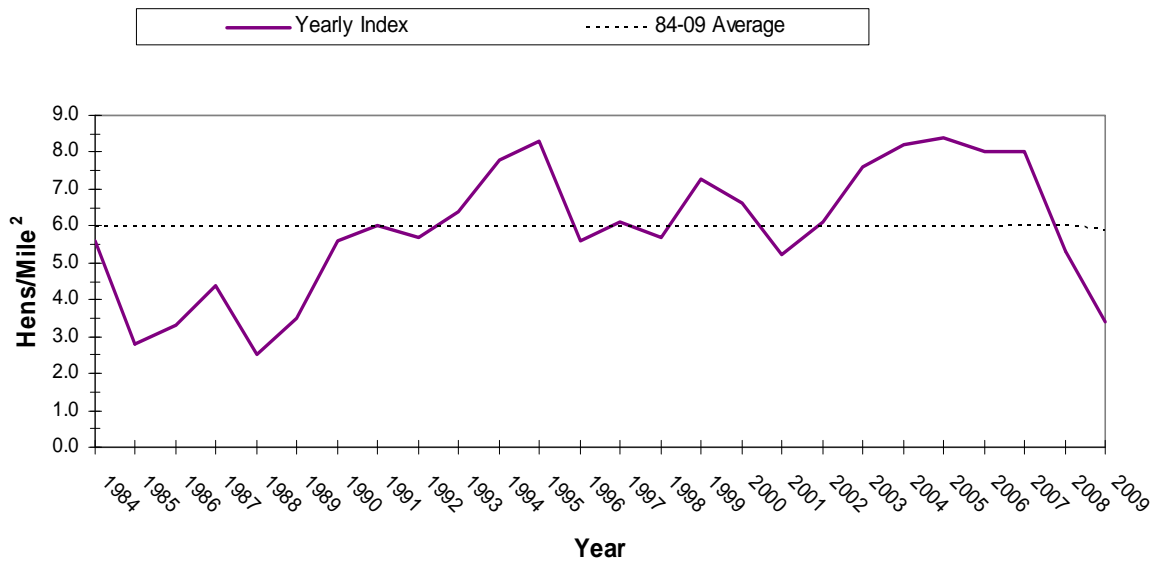


**Figure 5.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on Iowa F1 pheasant release sites, 1988–2009.



**Figure 6.** Mean pheasant hen indices (cocks heard/square mile x hens/cock) on Jilin F1 pheasant release sites, 1991-2009.

### Statewide Mean Hen Index, 1984 - 2009



**Figure 7.** Statewide mean pheasant hen indices (cocks heard/square mile x hens/cock), 1984-2009.