

Pheasant Brood Survey Report – 2008

Prepared by:
Chad Switzer, Sr. Wildlife Biologist
Upland Game Management



Department Secretary
Jeff Vonk

Division Director
Tony Leif

Assistant Director – Technical Services
George Vandell

Wildlife Program Administrator – Game
Tom Kirschenmann

SOUTH DAKOTA PHEASANT BROOD SURVEYS 2008 REPORT

SD Game, Fish and Parks conducts pheasant brood surveys each summer to evaluate the status of pheasant populations and predict pheasant population levels relative to previous years. This information, when combined with other factors such as status of the agricultural harvest and historical hunting pressure, can be used to predict hunter success and satisfaction for geographical areas of the state. Densities of pheasants alone do not infer high or low hunter success and satisfaction. Access to hunting opportunities is equally, if not more important to densities of pheasants in evaluating potential hunter success and ultimately, hunter satisfaction.

Survey indices are derived from 110 30-mile pheasant brood routes that are distributed across South Dakota where pheasants are found in sufficient number for surveying. Routes are surveyed from 25 July through 15 August each year using standardized methods on mornings when weather conditions are optimal for observing pheasants. Also, pheasant brood members are opportunistically counted throughout the survey period to estimate an average number of young per brood. Pheasants per mile (PPM) estimates are calculated by summing the product of mean brood sizes and broods observed with numbers of cocks and hens observed on each route. PPM estimates for 2007 and the average of the previous 10 years are compared with the 2008 survey results. Results are compared within local areas with Wilcoxon signed-rank tests which take into account the direction (up or down) and magnitude of change for each route. Since PPM estimates are *relative* density estimates, comparisons are valid only between years within each local area.

County brood survey routes are allocated to local area analyses as follows:

- Chamberlain: Brule, Buffalo, Charles Mix (north route), Gregory (north route), Lyman, Tripp (north route), and Aurora.
- Winner: Tripp, Gregory, Lyman (south route), Jones (south route), Mellette, and Todd.
- Pierre: Hughes, Jones, Lyman, Potter (south route), Stanley, Hand/Hyde (south route only), and Sully.
- Mobridge: Campbell, Corson, Dewey, Potter (north and central routes), and Walworth.
- Aberdeen: Brown, Marshall, Day (south route), Edmunds, Faulk, Spink (north and central routes), and McPherson.
- Huron: Hand (north and central routes), Beadle, Jerauld, Kingsbury, Sanborn, Miner, Clark (south route only), and Spink (south and central routes).
- Mitchell: Davison, Hanson, Charles Mix (central route), Douglas, Aurora, Hutchinson (north and west routes), Jerauld, McCook, Miner, and Sanborn.
- Yankton: Yankton, Charles Mix (south route), Bon Homme, Clay, Turner/Hutchinson (west and south routes), and Union.
- Sioux Falls: Minnehaha, Turner/Hutchinson (north route), Lake, Lincoln, McCook, and Moody.
- Brookings: Brookings, Deuel (south route), and Hamlin (south and central routes), Kingsbury, Lake (north route), and Moody.
- Watertown: Codington, Clark, Deuel, Grant, and Hamlin.
- Sisseton: Grant, Day (north route), Marshall, and Roberts.
- Western SD: Bennett, Haakon, Perkins, Butte and Fall River.

SURVEY RESULTS

Overview

Results from the 2008 pheasant brood survey indicate the statewide Pheasants Per Mile (PPM) index increased by 9% (7.85 to 8.56) compared to the 2007 index. In comparison to the 10-year average, this year's index (2008 = 8.56, 10 year ave. = 5.22) is significantly higher (+64%) and the highest PPM recorded in the past 45 years. Compared to 2007, department staff counted more roosters, hens and broods throughout the 110 survey routes, while the average brood size decreased by 5%. Statewide, 48 routes of the 110 surveyed indicated an increase from 2007; with 62 routes showing a decrease. Significant PPM increases on many of the routes in the central part of South Dakota compensated for the decreases in other parts of the state. In respect to the 10-year average, 79 routes had a higher PPM value in 2008, whereas 31 were lower.

Adult Bird and Brood Data

The total number of roosters counted during the 2008 survey was up considerably (+55%) from the 2007 survey (2,425 vs. 1,568). In addition, the number of hens counted was up 20% from last year (4,194 vs. 3,500). Total broods counted increased by 8% (3,359 vs. 3,107), while the statewide average brood size decreased by 5% (6.38 vs. 6.71). Unlike 2007 where brood sizes increased in all GF&P regions, 2008 data indicated a minor increase in average brood size for Regions 1 & 2 and a small decrease in Regions 3 & 4 (Figure 1). The statewide average brood size for 2008 (6.38) is slightly lower than the 10-year average (6.59).

Local Area

2008 vs. 2007

Chamberlain, Mobridge and Pierre city areas all had a significant increase compared to 2007 (Table 1). Huron and Winner city areas indicated numerical increases, however not statistically significant. Brookings, Mitchell, Sisseton, Sioux Falls and Watertown city areas all showed significant decreases, while Aberdeen, Yankton and the Western SD area indicated a non-significant numerical decline.

2008 vs. 10 Year Average

Aberdeen, Chamberlain, Huron, Mobridge, Pierre and Watertown city area PPM indexes are significantly higher than respective 10-year averages (Table 1). Although not statistically higher, the PPM index for the Brookings, Mitchell, Sisseton, Sioux Falls, Winner and Yankton city areas are higher than its 10-year average. Only Western SD had a lower index than its 10-year average, however it was not statistically different.

INTERPRETATIONS & DISCUSSION

Favorable weather conditions and a solid habitat foundation, most importantly the Conservation Reserve Program (CRP), are the key ingredients to the success of ring-necked pheasants in South Dakota. As in recent years, the winter conditions of 2007/2008 were mild from a pheasant survival perspective. While much of South Dakota experienced heavy snow cover and blizzard conditions during late March and early April, these events were short lived given spring temperatures and little mortality was reported. As experienced in 2007, significant rainfall events and below normal temperatures occurred across much of the state during the months of May and early June. However, this timely precipitation helped set the stage for widespread habitat conditions that were complimentary for ideal nesting conditions, in particular the central portion of the state where pheasant production was phenomenal. Though above average

precipitation and below average temperatures were observed over much of the state through the early nesting period, much drier and warmer conditions were experienced throughout the critical brood-rearing season.

Statewide, pheasant numbers have increased by 9% compared to the 2007 pheasant brood survey. Analyzing the 2008 survey results from a broad perspective, the PPM index is the highest observed since 1963 during the Soil Bank era and a 64% (8.56 vs. 5.22) increase over the 10 year average. On a local scale, the city areas of Aberdeen, Chamberlain, Huron, Mobridge, Pierre and Watertown are significantly higher than their respective ten year average, with the remaining city areas showing slight increases.

Pheasant numbers in South Dakota have continued to rise over the past 10 years (Figure 2 & 3), demonstrating their reproductive capabilities, given optimum nesting cover as provided by CRP, to overcome localized harsh winter conditions and severe drought conditions experienced statewide in 2002 and 2006. Winter sex ratio surveys conducted in 2008 showed the highest rooster to hen ratio observed in nearly 40 years. The high carry over of birds into the 2008 breeding population, 1.3 million acres of CRP, nesting cover provided by rangeland interspersed throughout central South Dakota, and acceptable weather conditions during the nesting and brood-rearing season, have set the stage for a fall population unimaginable after the tremendous fall of 2007.

As in recent years, the James River Valley and central South Dakota remain the state's core area with strong pheasant populations. However, in comparing the 2008 PPM index to the long-term trend, excellent hunting opportunities should be available in all areas of South Dakota's pheasant range. Survey routes with a PPM index of 10.00+ were observed at an unprecedented level in Region 2 (Figure 4). However, in evaluating survey routes in other GF&P regions, many were significantly higher than 2007 and, more importantly, the ten year average.

With another spectacular season predicted for 2008 in South Dakota, the recent and near future loss of thousands of CRP acres is on the mind of wildlife managers, in particular for ring-necked pheasants. Comparing July 2008 to July 2007 at a statewide level, South Dakota lost 259,909 acres or 17% (1,560,969 vs. 1,301,060) of its nesting cover provided by CRP. To put this into perspective, this loss is equivalent to a one mile wide strip of nesting habitat positioned from Sioux Falls to the Black Hills of South Dakota. At a GF&P regional level, Region 4 saw the largest decrease losing 22% of its CRP acres, with Regions 1, 2 and 3 losing 18%, 11% and 12% respectively (Figure 5).

Drought was a non-issue in 2008 because enhanced grassland conditions across the state provided somewhat of a buffer against this CRP loss, although documented declines in local areas, particularly eastern SD, were likely felt by the effect of this reduction in nesting cover. Observers conducting surveys on many of the eastern SD routes noted that bird numbers were down substantially along their assigned routes where CRP had disappeared from 2007. When critical nesting habitat is lost in local areas, it can have an immediate, negative impact on the pheasant numbers in that area.

While it's hard to imagine a statewide forecast capable of surpassing that of 2007, this year's PPM index of 8.56 is the highest since the 1963 PPM index of 11.24 and the fourth highest ever recorded since the survey began back in 1949. Corn harvest and weather conditions can affect hunting success and hunters are encouraged to visit with those in their traditional hunting areas to learn more about the local status of pheasant populations and current habitat conditions.

With this being said those who enjoy pursuing South Dakota ringnecks should again experience a memorable fall season.

Table 1. Pheasants Per Mile (PPM) index values comparing 2008 to 2007 and 10-year averages.

Local Area	Routes	Pheasants per mile (PPM)			Difference of 2008 PPM with	
		2008	2007	10-yr ave	2007	10-year ave
Chamberlain	10	22.56	16.64	14.11	36%*	60%*
Winner	8	10.61	7.76	6.43	37% ^{ns}	65% ^{ns}
Pierre	13	13.58	8.82	5.27	54%*	158%*
Mobridge	8	12.29	7.61	4.37	61%*	181%*
Aberdeen	14	8.84	9.38	5.50	-6% ^{ns}	61%*
Huron	17	11.39	10.61	7.78	7% ^{ns}	46%*
Mitchell	16	7.61	9.22	7.23	-17%*	5% ^{ns}
Yankton	10	1.78	2.31	1.64	-23% ^{ns}	9% ^{ns}
Sioux Falls	13	2.55	3.99	2.33	-36%*	9% ^{ns}
Brookings	11	4.85	6.89	4.16	-30%*	17% ^{ns}
Watertown	12	5.93	8.84	4.00	-33%*	48%*
Sisseton	5	1.90	3.61	1.59	-47%*	19% ^{ns}
Western SD	5	1.96	2.37	2.67	-17% ^{ns}	-27% ^{ns}
STATEWIDE	110	8.56	7.85	5.22	9% ^{ns}	64%*

^{ns} Results of Wilcoxon signed-rank test not significant ($P > 0.10$)

* Results of Wilcoxon signed-rank test significant ($P < 0.10$)

NOTE: Comparisons are valid only between years within each local area.

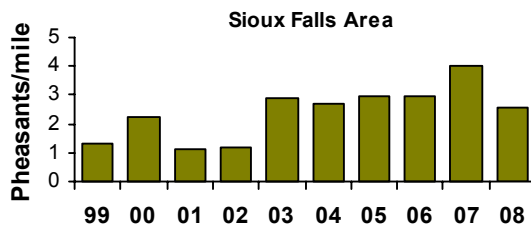
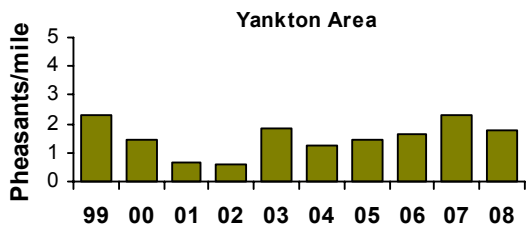
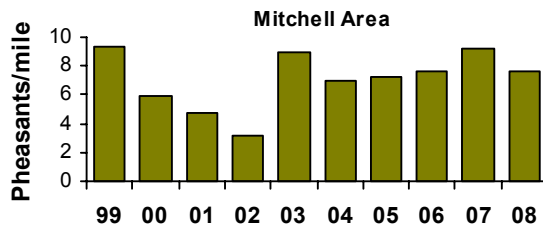
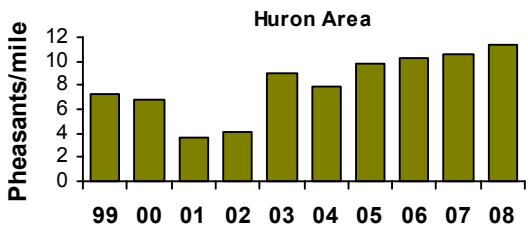
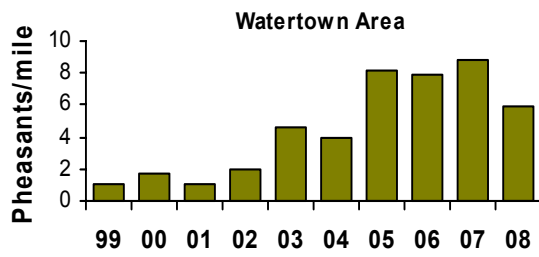
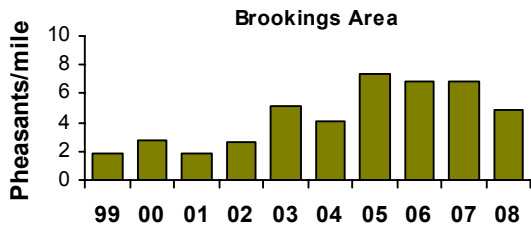
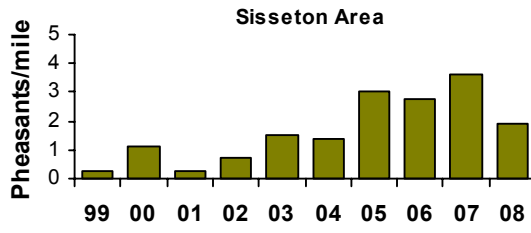
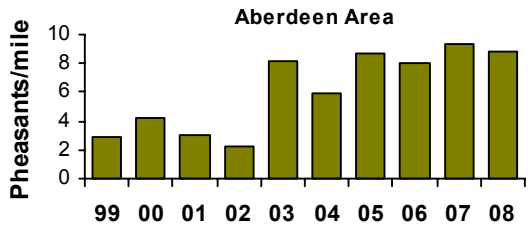
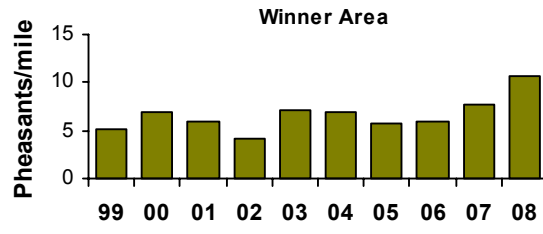
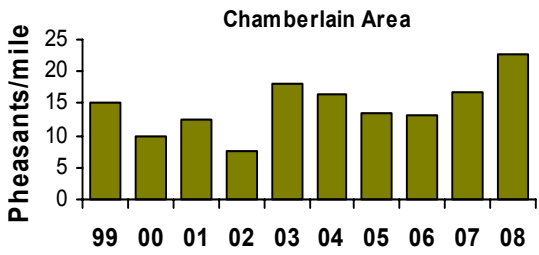
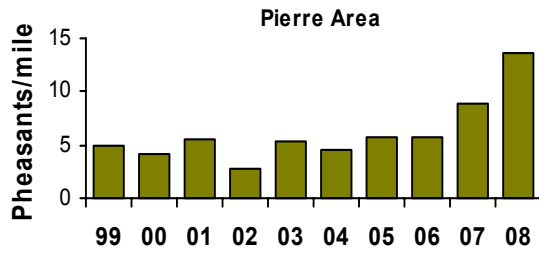
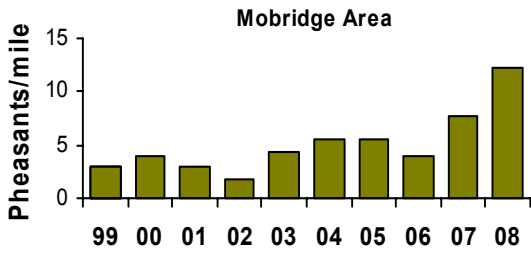


Figure 1. State map with GF&P regions and brood size comparisons for 2007 and 2008.

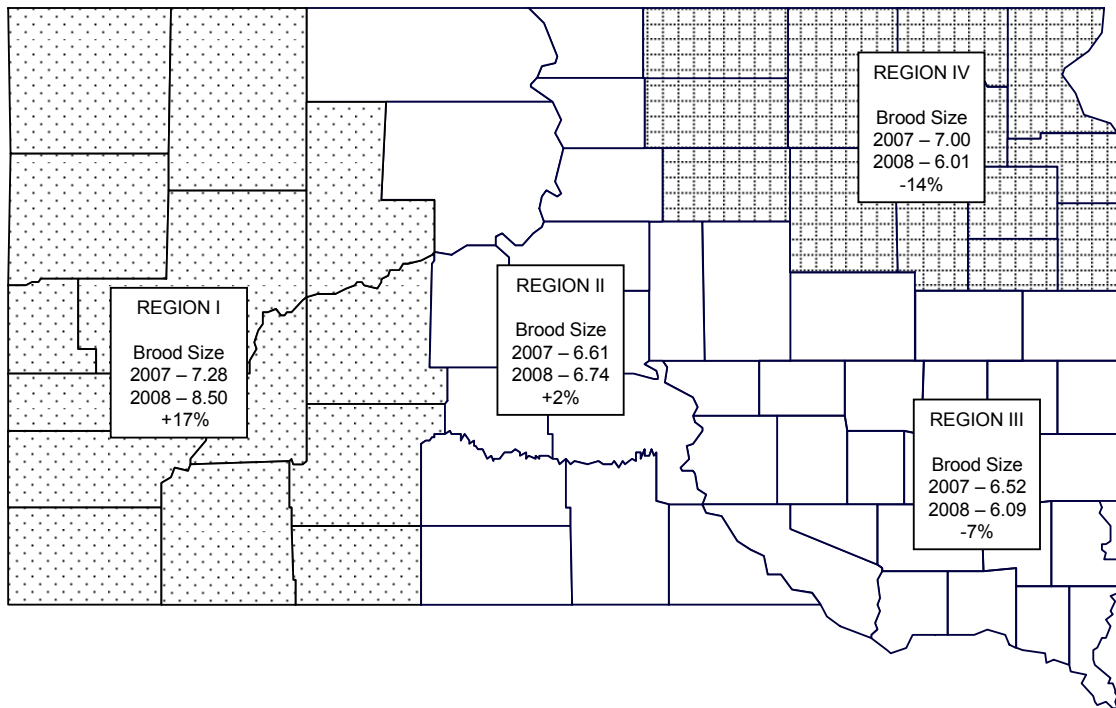


Figure 2. Number of roosters, hens, and broods counted during annual pheasant brood surveys, 1999-2008. The dashed line illustrates the trend over the past 10 years.

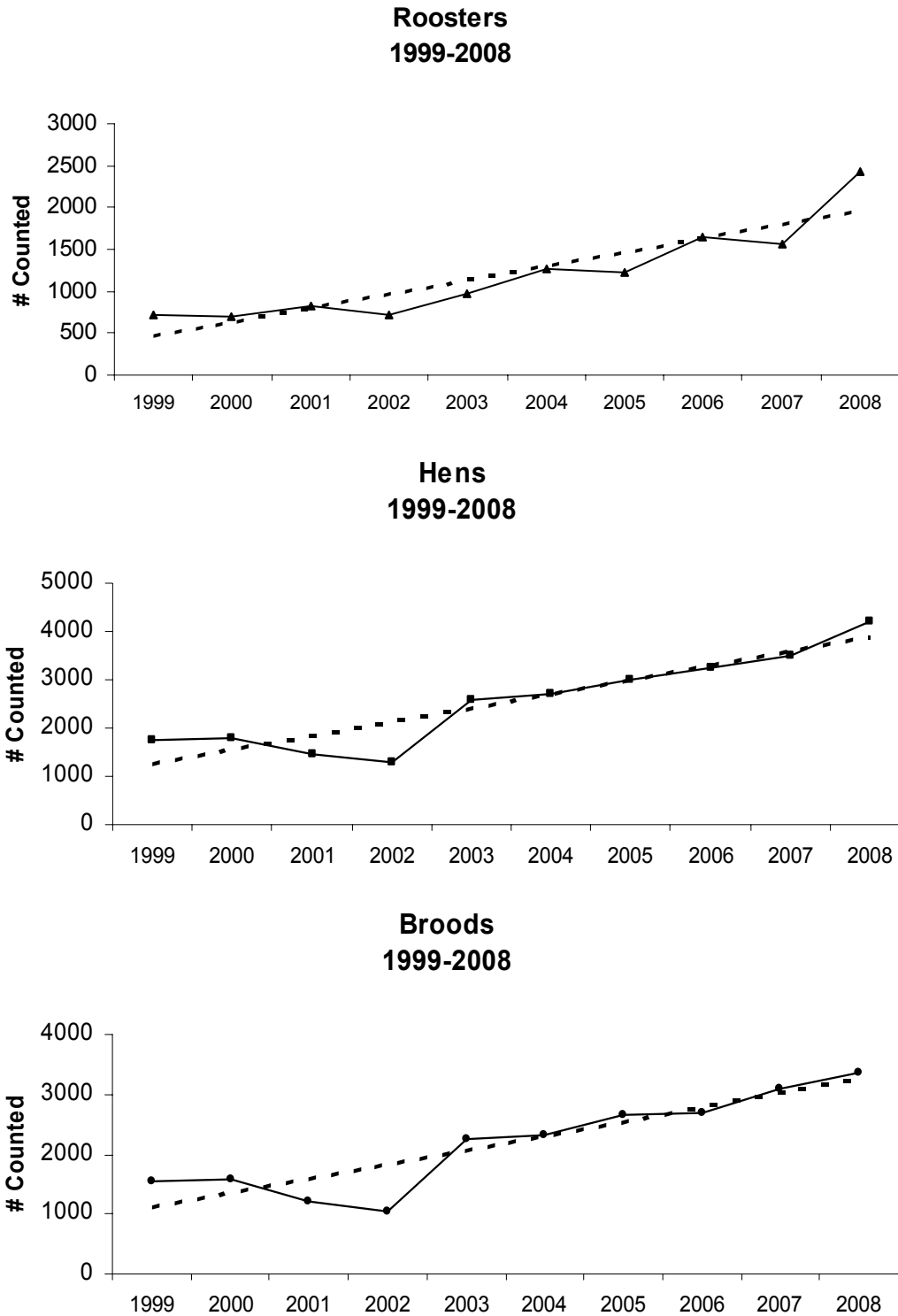


Figure 3. Statewide Pheasants Per Mile (PPM) index for South Dakota, 1999-2008. Dashed line illustrates the trend over the past 10 years.

Statewide Pheasants Per Mile (PPM) Trend 1999-2008

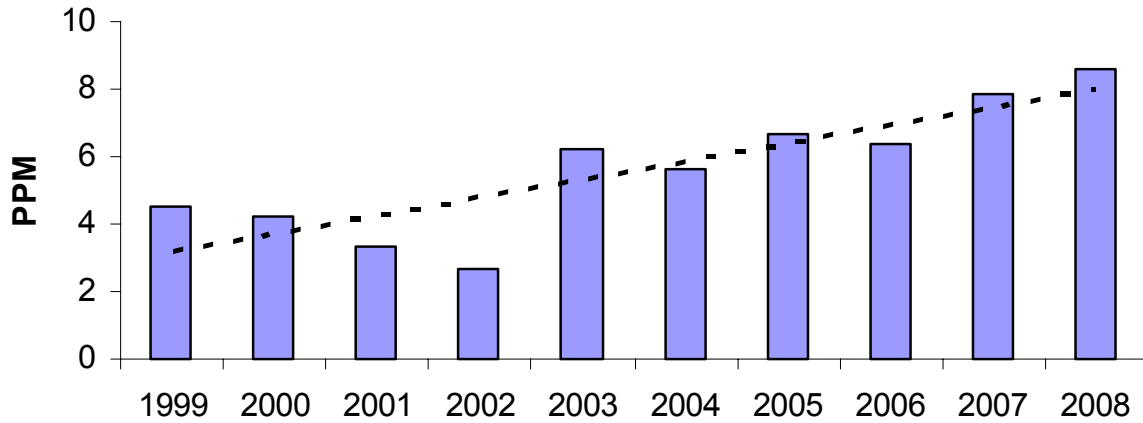


Figure 4. The number of routes in each GF&P region based on PPM index values within the ranges of 0.00-4.99, 5.00-9.99, and 10.00+.

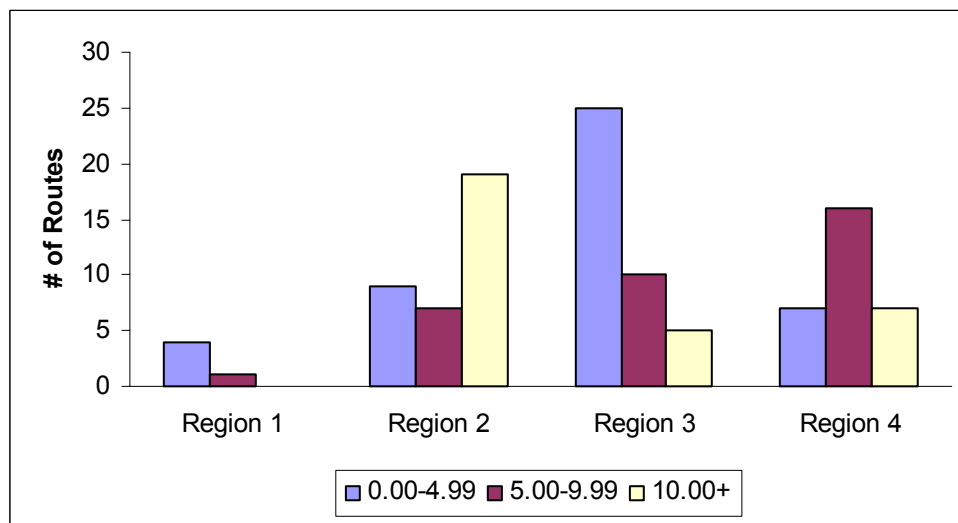


Figure 5. State map with GF&P regions and CRP acreage comparisons between July 2007 and July 2008.

