

**Summary 2008-2010: Quail Populations and Harvest on Sugema and Kellerton WMAs**

Beginning with the 2008-09 season and ending 2010-11, we have been monitoring quail populations and harvest on Sugema and Kellerton areas in southern Iowa. The assistance and participation from these unit staff have made for a great collaborative effort between management and research.

This project is the result of perceptions and potential concerns that quail are at risk of overharvest in certain public areas. In a nutshell, with all the intensive quail management on Sugema and the attention to it, and word getting out among hunters, there was concern that quail might be overharvested on the area. The only way to determine this is to estimate a pre-hunt population and then determine what harvest occurs on the area. Most of the literature on quail management indicates fall harvest rates of 30% or less is sustainable (3 birds out of a 10 bird fall covey). Thus, if we know the pre-hunt population we can take 30% of it as allowable harvest. We included the Kellerton area as a comparison (control) area that has not received intensive quail management and thus likely lower hunter interest.

**Methods and Discussion**

*Population:* We used fall covey counts for estimating quail trends or populations. The number of coveys that call on a given morning varies with the number of other coveys calling and weather variables, but if you know these variables, and your average covey size, you can use this formula to come up with a population estimate. Each October, with the help of unit staff, we conducted covey counts on Sugema and Kellerton. Plugging these observations and weather conditions into a partial model we estimated a conservative population and density (quail/acre) for each area. In the fall, Sugema birds per acre varied from 0.084 ('08), to 0.039 ('09), and 0.072 ('10); yielding an estimated population of 236, 109, and 202 birds each year (Table 1). By comparison, Kellerton birds per acre grew from 0.035 ('08) to 0.074 ('09) and 0.083 ('10), with populations of 39, 126, and 133 each year (Table 1). If we used the fall model as others do, our population estimates would be higher.

*Harvest:* We estimated harvest and hunting pressure on both areas by physically surveying each area throughout the hunting season. In 2008-09 we put special emphasis on weekends, holiday periods, and opening and closing weeks of the season. However, the remaining two seasons incorporated a more uniform sample. By the end of the season, we recorded number of hunters and their harvest on half the weekends and a third of the weekdays. We assumed hunter use and harvest was similar on the days we did not have staff on the areas. The most hunting activity occurred on Sugema with 2008 having the most harvest at the 30% level, but closer to 20% the following two years (Table 1). Quail populations also declined thru the period statewide, and reports of poor populations likely reduced hunting pressure. Kellerton had very little activity, as expected, with zero observed harvest in the first two years, and only one bird reported in 2010.

Generally, hunter activity and harvest was heaviest in Oct-Nov and lightest in late January, including both weekends and weekdays. In 2008, the pilot year, it appears harvest over 30% occurred; however, we made adjustments in sampling protocol to improve confidence in harvest estimates the following two years (Table 1). Overall, it does not appear quail were overharvested on either area during the monitoring period; nor does it appear any excess harvest exists during late portions of the season. With this third year of monitoring, and after discussions with staff, this will end quail harvest monitoring on these two areas.

Table 1: Summary of hunter activity and harvest, with fall population, on the Sugema area from 2008-2011.

SUGEMA AREA	ESTIMATED HUNTERS/DAY				DAILY BAG RATE		EST. HARVEST		FALL POPULATION
	Weekends		Weekdays		Estimate	SE	Total		
	Estimate	SE	Estimate	SE			Estimate	95%CL	
2008-09	Oct/Nov	13.88 +/- 1.47	1.50 +/- 0.16	0.2143 +/- 0.1055	44	+/- 8	0.084 birds/acre 236 Est. Pop'n 71 30% H 47 20% H		
	Dec-Jan10	3.71 +/- 0.68	2.17 +/- 0.40	0.2143 +/- 0.1055	23	+/- 6			
	Jan 11-31	5.48 +/- 0.65	2.79 +/- 0.33	0.2143 +/- 0.1055	16	+/- 5			
	<b>TOTAL HARVEST</b>				<b>82</b>	<b>+/- 41</b>			
2009-10	Oct/Nov	7.33 +/- 0.92	1.80 +/- 0.51	0.0795 +/- 0.0404	9	+/- 2	0.039 birds/acre 109 Est. Pop'n 33 30% H 22 20% H		
	Dec-Jan10	2.00 +/- 0.57	4.00 +/- 1.77	0.0795 +/- 0.0404	11	+/- -1			
	Jan 11-31	2.00 +/- 0.97	0.00 +/- 0.00	0.0795 +/- 0.0404	1	+/- 0			
	<b>TOTAL HARVEST</b>				<b>21</b>	<b>+/- 7</b>			
2010-11	Oct/Nov	4.67 +/- 0.96	2.20 +/- 1.09	0.1795 +/- 0.1154	17	+/- -1	0.072 birds/acre 202 Est. Pop'n 61 30% H 40 20% H		
	Dec-Jan10	1.17 +/- 0.69	1.63 +/- 0.75	0.1795 +/- 0.1154	11	+/- -3			
	Jan 11-31	1.00 +/- 0.24	2.25 +/- 1.13	0.1795 +/- 0.1154	7	+/- -3			
	<b>TOTAL HARVEST</b>				<b>35</b>	<b>+/- 11</b>			
Overall	Oct/Nov	8.63 +/- 0.66	1.83 +/- 0.40	0.1578 +/- 0.0538	23	+/- 10	0.065 birds/acre 182 Est. Pop'n 55 30% H 36 20% H		
	Dec-Jan10	2.29 +/- 0.37	2.60 +/- 0.65	0.1578 +/- 0.0538	15	+/- 7			
	Jan 11-31	2.83 +/- 0.40	1.68 +/- 0.39	0.1578 +/- 0.0538	8	+/- 3			
	<b>TOTAL HARVEST</b>				<b>46</b>	<b>+/- 29</b>			