WILDLIFE MANAGEMENT AND RESEARCH NOTES

INDIANA DIVISION OF FISH&WILDLIFE

No.	Author	Date
998	Steven E. Backs, Wildlife Research Biologist Title 2010 Spring Breeding Indices of Ruffed Grouse	4/23/10

Abstract: *Ruffed grouse breeding populations are at the lowest levels since this survey was first initiated in 1953. No drumming males were heard on the 10 roadside survey routes (15 stops/route) during the 2010 survey period. In 2009, 0.02 drumming males heard per stop on the 8 control routes. The 5-year (2006-2010) mean drumming index for the control routes was 0.02 drummers per stop (~1 drummer heard every 50 stops) which was <2% of levels recorded during the peak years of 1979-81. For the fifth consecutive year, no drumming activity centers were located on the Maumee Grouse Study Area where population monitoring began in the early 1960's. Prospects for population recovery are poor to dismal given the continual advancement of forest maturation. Ruffed grouse population levels are projected to drop below "viable population levels" within the next 5 years in portions of their existing range in south-central Indiana unless some intervention (e.g., extensive timber harvests of sufficient intensity) or sizable natural disturbances occur across the forested landscape to create early successional forest habitats.*

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Ruffed grouse *(Bonasa umbellus monticola.)* breeding population indices (Drumming Index "DI" = mean number of males heard drumming/stop) were surveyed during the spring of 2010 (March 29 – April 16) along 10 roadside drumming trend routes (15 stops/route) in southern Indiana. The annual drumming activity center count was conducted at the Maumee Grouse Study Area located on Hoosier National Forest in Jackson/Brown counties. For the first time since the roadside counts were initiated in 1953, no male ruffed grouse were heard along the roadside drumming routes **(Table 1)**. Drumming indices for the control routes have declined steadily the last 30 years since the peak of 1979-81 when the mean drumming index was 1.16, or roughly 17 male drummers heard per 15-stop route. The combined 5-yr mean DI (2006-2010) for the 8 annual control routes was 0.02 grouse heard per stop or 1 male grouse heard every 50 stops **(Table 2)** and represents <2% of drumming levels that occurred during the 1979-81 peak.

Ruffed grouse population monitoring began on the Maumee Grouse Study Area in the early 1960's. For the fifth consecutive year, no drumming activity centers were located on the Maumee Grouse Study Area **(Table 3).** In 1980, 24 activity centers were identified and the estimated density was 5.8 grouse/100acres. Habitat on the Grouse Study Area is fairly reflective of habitat conditions on the Pleasant Run Unit of Hoosier National Forest.

Roadside drumming indices and Maumee density estimates show parallel downward trends over 30 years **(Figure 1)**. Ruffed grouse population levels are projected to drop below "viable population levels" within the next 5 years in portions of their existing range in south-central Indiana unless some intervention (e.g. timber harvests of sufficient intensity) or sizable natural disturbances occur across the forested landscape to create early successional forest habitats.

Following reforestation in beginning in the 1930's, natural range expansion and successful restoration efforts from 1961-82, the ruffed grouse distribution expanded to 41 counties in 1983, the widest distribution since 1856 (Backs 1984a, 1984b). A reassessment of the ruffed grouse distribution and relative conservation status was conducted in 2008 (Backs and Castrale 2008). Since 1983, ruffed grouse appear to be extirpated from 15

counties and this extirpation trend is likely to exceed 25 counties within a few years if no major forest disturbance occurs. The plight of ruffed grouse reflects the declining early successional habitat base that is negatively impacting a wide array of wildlife species (Backs 2009, Dessecker 2010).

Literature Cited

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Table 1. Numbers of ruffed grouse heard on roadside drumming counts in Indiana between 29 March to 16 April 2010.

County / Area	Total Routes	Total Stops	Cumm. Total Grouse Heard	Grouse Heard Highest Count	Cumm Total Drums	Highest Drum Count	Total No. Seen	Grouse Heard [a] Per Stop		Drummings [a] Per Stop	
								2009	2010	2009	2010
* Jackson, Brown, Monroe (Hickory Ridge, USFS)	2	30	0	0	0	0	1[†]	0.13	0	0.13	0
* Owen-Putnam	2	30	0	0	0	0	0	0	0	0	0
* Perry Co. (Oriole-St. Croix-USFS)	2	30	0	0	0	0	0	0	0	0	0
* Washington State Forest	2	30	0	0	0	0	0	0	0	0	0
* Lawrence & Orange (Lost River E, USFS)	2	30	0	0	0	0	0	0	0	0	0
Martin & Orange (Lost River W, USFS)	2	30	0	0	0	0	0	0	0	0	0
* Morgan-Monroe State Forest	2	30	0	0	0	0	0	0	0	0	0
* Greene	2	30	0	0	0	0	0	0	0	0	0
* Orange (Lick Creek, USFS)	2	30	0	0	0	0	0	0	0	0	0
Jefferson *	2	30	0	0	0	0	0	0	0	0	0

[a] Indices calculated using route with highest count.

* Historical 8 "control" routes used for long term monitoring.

[†] One male ruffed grouse observed during route reconnaissance prior to conducting the survey.

Table 2. Drumming count indices along roadside control routes, 1979-2010.

	Male Grouse Heard Per Stop by Roadside Route *								
Year	HICKORY	OWPUT	PERRY	WASH	LR-EAST	MORGAN	GREENE	LICKCR	MEAN
1979	1.00	0.27	-	0.53	-	-	-	-	1.80
1980	1.27	0.53	0.60	0.73	-	-	-	-	0.78
1981	1.33	0.89	0.60	0.80	-	-	-	-	0.91
1982	0.73	0.40	0.20	1.07	-	-	-	-	0.60
1983	0.53	0.27	0.33	0.40	-	-	-	-	0.38
1984	0.93	0.20	0.33	0.00	-	-	-	-	0.37
1985	1.00	0.47	0.20	0.07	-	-	-	-	0.44
1986	1.00	0.33	0.13	0.07	-	-	-	-	0.38
1987	0.40	0.47	0.20	0.13	0.27	0.27	0.13	0.33	0.28
1988	0.33	0.13	0.07	0.07	0.33	0.33	0.27	0.47	0.25
1989	0.67	0.20	0.21	0.07	0.27	0.47	0.20	0.73	0.35
1990	0.47	0.20	0.13	0.13	0.37	0.47	0.27	0.47	0.31
1991	0.13	0.13	0.07	0.00	0.40	0.13	0.13	0.53	0.19
1992	0.13	0.13	0.13	0.00	0.27	0.07	0.27	0.40	0.18
1993	0.07	0.40	0.13	0.07	0.33	0.40	0.47	0.40	0.28
1994	0.20	0.07	0.07	0.00	0.40	0.27	0.53	0.40	0.24
1995	0.13	0.00	0.07	0.07	0.47	0.47	0.13	0.40	0.22
1996	0.13	0.27	0.07	0.00	0.33	0.27	0.07	0.20	0.17
1997	0.20	0.20	0.07	0.07	0.53	0.40	0.07	0.07	0.20
1998	0.27	0.07	0.00	0.07	0.53	0.07	0.27	0.07	0.17
1999	0.07	0.07	0.07	0.00	0.40	0.07	0.07	0.00	0.09
2000	0.13	0.20	0.00	0.00	0.27	0.07	0.20	0.13	0.13
2001	0.07	0.07	0.07	0.00	0.13	0.07	0.13	0.13	0.08
2002	0.07	0.00	0.07	0.27	0.00	0.00	0.20	0.20	0.10
2003	0.00	0.00	0.00	0.13	0.07	0.13	0.07	0.07	0.06
2004	0.00	0.00	0.07	0.13	0.13	0.13	0.00	0.00	0.06
2005	0.07	0.07	0.00	0.07	0.00	0.00	0.00	0.00	0.03
2006	0.20	0.07	0.00	0.07	0.00	0.00	0.07	0.00	0.04
2007	0.07	0.00	0.00	0.07	0.00	0.07	0.00	0.07	0.03
2008	0.07	0.00	0.00	0.13	0.00	0.07	0.00	0.00	0.03
2009	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* = Indices calculated using route with highest count.

HICKORY = Hickory Ridge (USFS), Lawrence and Jackson Counties
OWPUT = General area of Owen-Putnam St. Forest
PERRY = northern portion of Perry Co.(USFS)
WASH = general area of Jackson-Washington St. Forest in Washington County
LR-EAST = Lost River Unit - East, USFS, Lawrence and Orange Counties.
MORGMON = general area of Morgan-Monore St. Forest in Morgan county.
GREENE = eastern Greene County
LICKCR = Lick Creek Area, USFS, in Orange County.
MEAN = Arithmetic average value for all routes

Table 3. Spring breeding densities of ruffed grouse, Maumee Grouse Study Area.

YEAR	DRUMMING ACTIVITY CENTERS *	POPULATION DENSITY Per 40 ha (100 a) **
1969	12	2.9
1970	20	4.8
1971	16	3.9
1972	19	4.6
1973	9	2.2
1974	survey not conducted	
1975	14	3.4
1976	14	3.4
1977	18	4.5
1978	20	5.0
1979	17	4.3
1980	24	5.8
1981	20	4.8
1982	19	4.6
1983	11	2.7
1984	11	2.7
1985	11	2.7
1986	14	3.4
1987	10	2.4
1988	8	1.9
1989	8	1.9
1990	16	3.9
1991	9	2.2
1992	9	2.2
1993	7	1.6
1994	4	0.9
1995	4	0.9
1996	12	2.4
1997	8	1.7
1998	7	1.6
1999	10	2.3
2000	6	1.4
2001	5	1.1
2002	6	1.4
2003	2	0.5
2004	1	0.2
2005	2	0.5
2006	0	0
2007	0	0
2008	0	0
2009	0	0
2010	0	0

* Area covered varied from 800 to 1,000 acres; mean area covered = 875 acres.

** Assumes a 50:50 sex ratio and represents a minumum because of non-drumming males (Gullion 1981)

Figure 1. Indiana Grouse Population Trends