

2022-23 Ruffed Grouse Status Summary

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One of the Department's key mission statements is: conserve and manage wildlife populations and habitat for the benefit of present and future generations. This report focuses on the Department's efforts to monitor ruffed grouse populations.

Fall and spring surveys were conducted to monitor ruffed grouse population trends. Surveys of grouse hunters and archery hunters were conducted in the fall. Cooperating grouse hunters provided a daily log of their hunting and submitted feathers from birds they harvested so the age and sex of the survey population could be determined. Also in the fall, archers participating in our Bow Hunter Survey reported the number of grouse they saw while deer hunting.

In the spring, a Roadside Drumming survey was conducted by staff from the Department of Wildlife Resources (Department), US Forest Service, and volunteers. Roadside Drumming Surveys routes are 10 miles in length; observers count the number of drums heard during a 4-minute period at 1-mile intervals along a set route. The routes were randomly selected based on the criteria the US Fish and Wildlife Service use to locate woodcock singing ground surveys. Turkey hunters participating in the Department's Spring Gobbler Hunter Survey provided information on the number of grouse they hear drumming. This survey is based on the number of drummers that turkey hunters hear per hunt during the first 2 weeks of the spring gobbler season. The period is believed to catch the peak of drumming in Virginia.

Spring 2023 Breeding Population Indices

2023 Spring Drumming Survey. The spring drumming index has remained fairly static over the past several years according to our staff roadside drumming survey (Fig. 1). The number of drums heard per route (0.71) was up slightly from the 5-year average, but still well below the historic average. The 2022 survey appears to be an anomaly as we were having staffing issues with some of the survey routes and as a result several survey routes were not completed. We believe this resulted in a significantly lower average as a result. The slight uptick in the 2023 survey is a good sign. There was an abundant mast crop in the fall of 2022 so in theory, the overwinter survival should have increased. While we would have liked to see a greater increase, this represents a positive movement.

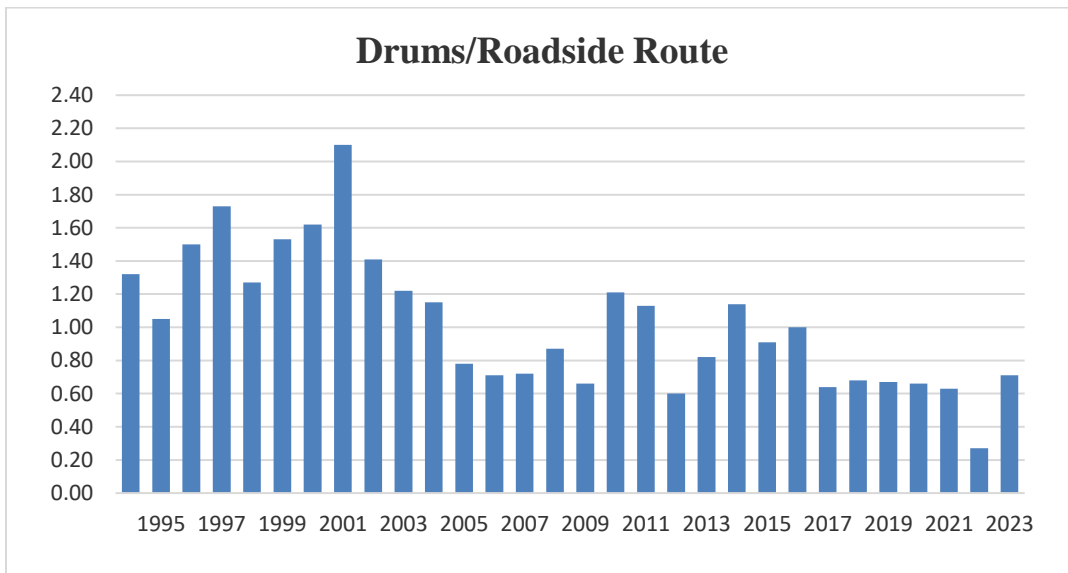
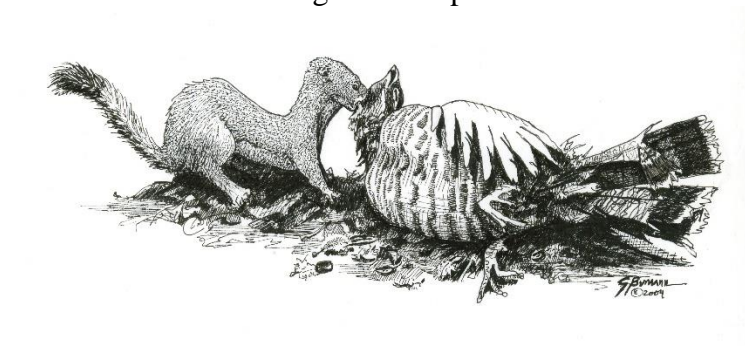


Figure 1. Average number of drums heard during 10-mile routes in grouse range in Virginia.

2023 Spring Gobbler Survey (SGS). The 2023 spring gobbler drumming surveys are out for data entry and the data is not yet available as of the writing of this report.



Reproduction in 2022

Percent Juveniles in the 2022-2023 Fall Harvest. Hunters submitted eighteen (18) grouse wing and tail feathers during the 2022-2023 grouse season to provide an estimate of recruitment. The percent juvenile (44%) indicates that reproduction was near the 20-year average of (45%). Since the introduction of WNV (~2000), the reproduction index has actually been higher (45%) than the years before (40%, 1974-1999). The 2015-16 season index was the best recruitment year seen in the survey.

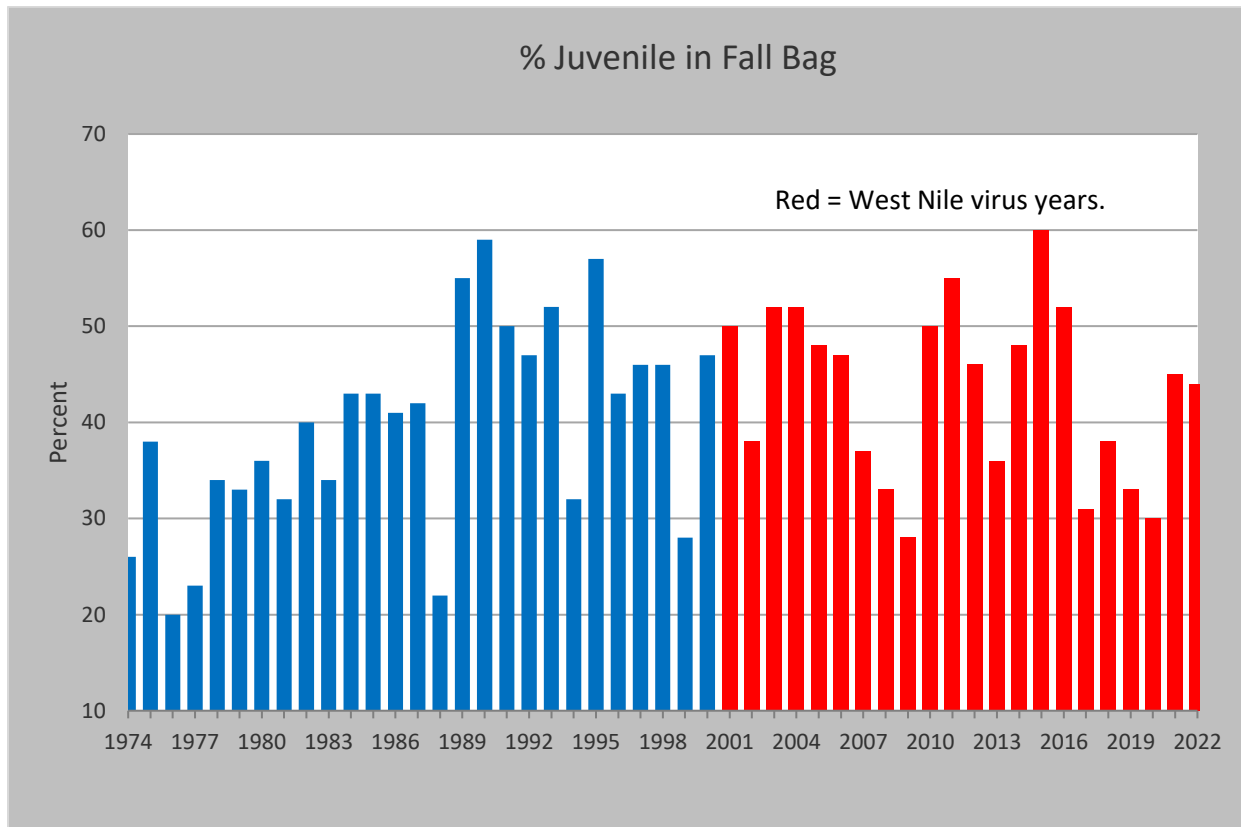
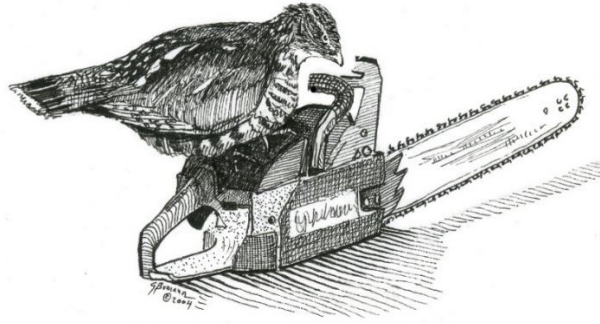


Fig. 2. Percentage of juvenile grouse from avid grouse hunter bag submitted from 1974-2022.



Fall 2021-2022 Grouse Population and Grouse Hunting

2022-2023 Grouse Hunter Survey. During the 2022-23 season, 22 avid grouse hunters reported data from 207 hunts. Cooperating grouse hunters reported flushing 0.36 birds per hour, slightly below the flushing rates reported over the previous two seasons (2020-2021 and 2021-22). This flush rate represents the lowest flush rate in the survey history, which dates back to 1973. Since 2002, flush rates have declined 4.6% annually ($P < 0.01$, $r^2 = 0.73$) and have decreased 9.7% annually since 2013 ($P < 0.01$, $r^2 = 0.86$). Prior to the introduction of West Nile Virus (WNV), 1973-99, grouse flush rates were stable ($P=0.70$, $r^2 = 0.006$).

Flushing rates (grouse/hr.) by month in the 2022-23 season were: October (0.22), November (0.39), December (0.32), January (0.36), and February (0.42). Cooperators hunting on privately-owned lands (0.43) flushed more birds than federal owned lands (0.39) and state-owned lands (0.10).

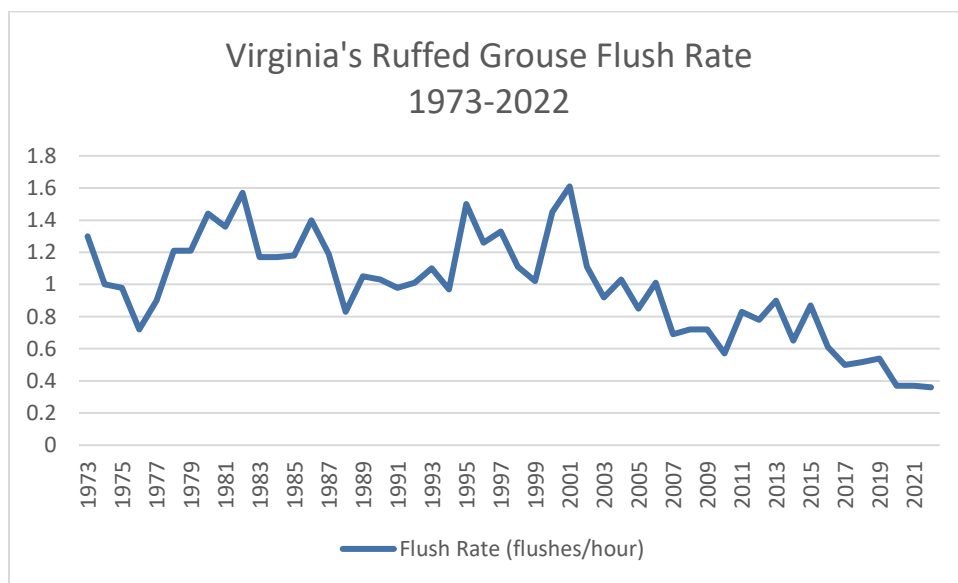


Figure 3. Ruffed grouse flushing rates from avid ruffed grouse hunters in Virginia, 1973-2022.

2022 Bow Hunter Survey. The results from the 2022 bowhunter survey can be seen in Figure 4. This survey no longer appears to represent grouse observations well, so we will no longer report these metrics moving forward (not enough grouse observations to remain viable). The bowhunter survey indicates a significant population decline over the past two decades.

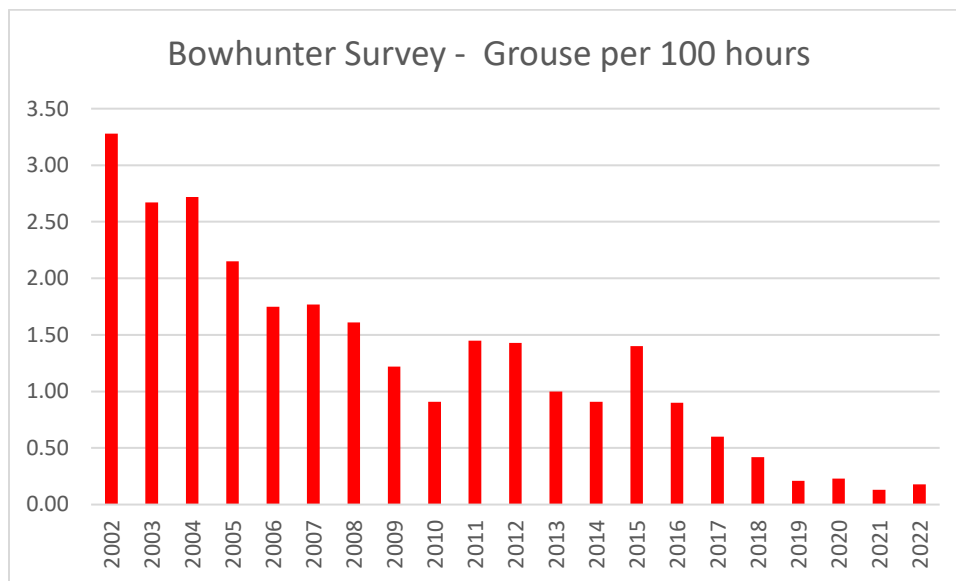


Figure 4. Ruffed grouse seen by bow hunters during the archery season in counties west of the Blue Ridge Mountains in Virginia.

Summary

Virginia’s grouse populations have continued to decline over the past two decades. This decline can be attributed to the declines in young forest habitat as well as the arrival of West Nile Virus. Although the direct impacts of West Nile Virus are largely unknown, there does appear to be a connection to the grouse declines. The declines seem to have stabilized over the past 5 years, although at a much lower level than desired.

What To Expect This Fall...

The mast conditions appear to be spotty in the mountains this year (2023). Red oaks appear to have produced a fair crop of acorns, while the white oak crop should be considered a failure. This will likely concentrate grouse into pockets where food is available and may result in slightly higher flush rates. If you can find the feeding locations, you should be able to find some birds.

Our over-winter survival seems to be up slightly this past spring as indicated by the increased drumming count this spring. We had several reports of broods spotted this summer and an increase in overall grouse observed in our summer brood survey this summer. While we are certainly still at the whims of

the West Nile Virus impacts, I think there is some room for tempered enthusiasm this fall. I don't expect to see major upticks in the flush rate, but I anticipate we may see some slight increases.

While the work being done to help our grouse remains largely behind the scenes, I can assure you we are working towards improving forest conditions for grouse. We are continuing to work with partners here in Virginia to identify locations and joint projects where we can see measurable impacts. We are also working with regional state biologists to ensure that the Eastern region grouse initiative is successful and that we can work to improve grouse habitat conditions across the entire eastern range for grouse. This group is focused on developing strategies to turn the attention and focus to grouse and the population declines. While it may not be as direct as on the ground habitat creation, this is work that will pave the way for additional habitat management in the near term. By working across multiple states, we are able to use the collective strength to draw the focus on the declines and hopefully get the attention trained to habitat management that would help bolster the populations.

Appendix A. Avid grouse hunter statistics in Virginia between 1990-91 and 2022-23 hunting seasons.

	Coop	Hunts	Hunts/Season	Avg Hrs	Grouse/Season	Kill/hr	Flush/hr	Hunt Quality
1990-91	110	1241	11.3	4.1	5.5	0.12	1.03	
1991-92	93	1204	12.9	4	5.2	0.1	0.98	
1992-93	81	1106	13.7	4	6.1	0.11	1.01	
1993-94	61	668	11	3.6	3.6	0.09	1.1	
1994-95	84	1040	12.4	3.9	5.3	0.11	0.97	
1995-96	70	780	11.1	3.7	4.8	0.12	1.5	3.2
1996-97	114	1269	11.1	3.9	5.4	0.13	1.26	3.2
1997-98	87	1098	12.6	3.7	5.8	0.12	1.33	3.6
1998-99	69	963	13.9	3.3	5.5	0.12	1.11	3.4
1999-00	93	1013	10.9	3.7	4.5	0.11	1.01	2.8
2000-01	62	904	14.5	3.7	7.9	0.15	1.45	3.6
2001-02	80	1082	13.5	3.7	8.9	0.18	1.61	4
2002-03	64	851	13.3	3.6	6.1	0.13	1.11	3.2
2003-04	60	779	13	3.5	4.5	0.1	0.92	2.7
2004-05	94	1275	13.6	3.3	4.8	0.11	1.03	3.1
2005-06	63	888	13.8	3.3	4.5	0.1	0.85	3
2006-07	54	830	15.4	3.4	5.9	0.11	1.01	3
2007-08	75	887	11.8	3.5	2.7	0.07	0.69	2.9
2008-09	53	748	14.1	3.4	2.8	0.06	0.72	2.8
2009-10	58	418	7.2	3.2	1.5	0.06	0.72	3
2010-11	43	454	10.6	3.2	1.7	0.05	0.57	2.6
2011-12	53	634	12	3.4	3.3	0.08	0.77	3.3
2012-13	44	472	9.7	3.3	2.5	0.08	0.78	3.5
2013-14	23	209	9.1	3.1	1	0.06	0.9	3.7
2014-15	57	569	10	3.4	1.5	0.06	0.65	3.1
2015-16	47	512	10.9	3.4	2.5	0.07	0.87	3.2
2016-17	38	447	11.8	3.1	2.3	0.06	0.61	2.8
2017-18	40	376	9.4	3.1	2	0.07	0.5	1.1
2018-19	33	350	10.61	3.15	2.61	0.08	0.52	3.1
2019-20	21	272	12.9	3.2	3.7	0.09	0.54	2.8
2020-21	27	279	10.3	2.9	1	0.03	0.37	2.9
2021-22	19	169	8.9	2.9	0.52	0.02	0.37	3.3
2022-23	22	207	9.4	2.7	0.91	0.03	0.36	2.7
5-yr Avg	24	255	10.4	3.0	1.75	0.05	0.43	3.0
10-yr Avg	33	339	10.3	3.1	1.80	0.06	0.57	3

Hunt Qlty.¹ = Hunting quality based on a scale of 1 (poor) to 7 (excellent).