DEPARTMENT OF NATURAL RESOURCES

Upland Bird Hunting Diary Results 2024

Nate Huck, Migratory Gamebird Consultant
Populations and Regulations Group
Minnesota Department of Natural Resources
Brainerd, MN

Introduction

Upland game bird populations can be difficult to monitor, and many current monitoring efforts focus on population indices that do not always reflect the actual experiences of hunters, particularly because they may not fully account for factors such as breeding success or variability in local habitat conditions. To address this gap, the Upland Bird Hunting Diary project was started to directly monitor upland game bird hunter activity, with a focus on measuring flush rates—an important indicator of bird abundance and hunter success. These hunter-recorded observations offer a complementary perspective to formal monitoring programs and help determine how well those efforts align with what hunter's encounter in the field.

Another goal of the diary was to estimate hunter usage of various public lands, including Wildlife Management Areas (WMAs), Hunter Walking Trails (HWTs), and Walk-In Access areas (WIAs), and to evaluate how success rates varied among these land types. Lastly, this initiative aimed to increase engagement with the upland bird hunting community by involving hunters directly in the monitoring and management of species they value.

Methods

Considerable outreach was undertaken to encourage participation in the diary project. Promotional efforts included mentions on popular outdoor podcasts, articles published in outdoor recreation media, and formal news releases. This initiative was exclusively hosted through Survey123, allowing participants to enter their hunting data either by downloading the mobile app or via a web-based entry form.

The diary was open to participants from September 1st, 2024, through January 16th, 2025. Hunters were asked to provide the date of the hunt and either submit their parking location or describe the distance and direction to the nearest town. Participants also reported whether they used public land, WMAs, HWTs, or WIAs. Specific to each hunt, hunters recorded whether they used a dog, how long they hunted, and which species they pursued. For each species, hunters were asked to report the number of birds flushed and harvested. Pheasant hunters were asked to distinguish between the number of males and females flushed, and those harvesting pheasants were asked to report the age (juvenile or adult). Hunters who harvested Ruffed Grouse were asked to report both the age and sex of the bird, if they were comfortable doing so.

Reports were submitted on a voluntary basis, and the data included in this report represent only those records where a sufficient sample size was available to ensure accurate and meaningful analysis.

Results

A total of 120 hunters submitted diary entries, contributing to 927 reported hunts. The number of hunts per hunter ranged from 1 to 79, with 30 hunters submitting at least 10 hunts. Species specific results total hunts, hours hunted, flushes, and flush and harvest rates can be found in Table 1. Ruffed Grouse was the most frequently hunted species with 593 hunts reported, accounting for 1492.20 hours and resulting in 406 harvested birds with a mean flush rate of 2.0 birds per hour. American Woodcock was next with 269 hunts totaling 631.95 hours, producing 140 birds harvested and a mean flush rate of 1.5/hour. Ring-necked Pheasant followed with 279 hunts, 600.90 hours, 182 birds harvested, and a mean flush rate of 2.9/hour. Sharp-tailed Grouse were pursued in 50 hunts over 102.00 hours with 30 birds harvested and a mean flush rate of 2.4/hour, while Greater Prairie Chicken were hunted in 17 hunts spanning 51 hours with 10 birds harvested and a mean flush rate of 2.1/hour. Spruce grouse were pursued in 35 hunts and a total of 119.00 hours, with 10 bird harvest and a mean flush rate of just 0.1/hour. Wilson's Snipe, despite a small sample of 15 hunts and 32.70 hours, yielded 15 birds and a mean flush rate of 2.7/hour. Hungarian Partridge and Wilson's snipe had the lowest effort each with 15 hunts. Hungarian Partridge saw 17.00 total hours, 1 bird harvested, and a mean flush rate of 1.0, while Wilson's snipe hunts totaled 32.70 hours with 15 birds harvested and a mean flush rate of 2.7/hour. Reports came from a wide geographic range, with Ruffed Grouse recorded in 26 counties (Fig. 1), Pheasants in 51 (Fig. 2), and Woodcock in 29 (Fig. 3). In total, hunts were reported in 72 counties (Fig. 4).

Proportion of hunters using different land types varied widely among species. The species-specific proportion of hunters using public lands, WMAs, HWTs, WIAs, and dogs can be found in Table 2. Public land use ranged from 60% for Hungarian Partridge to 97% for Spruce Grouse. Use of WMAs ranged from 17% for Ruffed Grouse to 54% for Pheasants. HWT usage peaked at 20% for Ruffed Grouse and was not reported for several species. WIAs were used by very few hunters, with Greater Prairie Chicken showing the highest use at 18%.

Mean flush rates also varied across land types. For public versus private land, the flush rate for pheasant was 3.0 birds per hour on public land and 3.8 on private land (Fig. 5). Ruffed Grouse showed a flush rate of 2.2 on public land and 2.6 on private land, while Sharp-tailed Grouse had a notably higher rate on private land with 4.6 compared to 1.3 on public (Fig. 5). On and off Wildlife Management Areas, Woodcock had a flush rate of 1.1 on WMAs and 1.5 off WMAs (Fig. 6). Pheasant flush rates were 3.1 on WMAs and 3.3 off (Fig. 6). Ruffed Grouse showed 1.9 on WMAs and 2.3 off WMAs (Fig. 6). Sharp-tailed Grouse followed a similar pattern with 1.6 on WMAs and 3.6 off WMAs (Fig. 6). On Hunter Walking Trails, Woodcock flush rates were 1.2 compared to 1.5 off trails, and Ruffed Grouse were at 1.9 on trails and 2.3 off trails (Fig. 7).

Most hunters reported using dogs, however ruffed grouse saw the second highest rate of hunters reporting not using dogs (17%) behind greater prairie chickens (29%) (Table 2). Hunters using dogs generally experienced higher flush rates: Ruffed Grouse flush rates were 2.3 birds per hour for those hunting with dogs compared to 2.0 for those hunting without (Fig. 8).

Discussion

This hunter diary initiative has provided important insights into upland bird hunting activity and success across Minnesota. With 927 hunts submitted by 120 hunters, this represents a strong first year of effort. While the results were largely expected, it is difficult to draw long-term conclusions from a single year. The diary is intended to track trends over time and will be more informative after at least five years of consistent data collection.

Moving forward, several changes will be made to improve participation. First, we will no longer ask hunters to submit specific locations, instead requesting only the county where the hunt occurred. While location data were never intended to be made public and were collected to improve spatial analysis in large counties, feedback from non-participating hunters indicated discomfort with sharing this level of detail.

Second, to reduce the burden on hunters, we will no longer ask for the age and sex of harvested Ruffed Grouse. Lastly, we will remove Wilson's Snipe from the list of species collected. Because snipe season opens earlier than other upland species, this change will allow better alignment and focus for outreach related to the diary.

Continued engagement with the upland bird hunting community will support data-driven decision-making and strengthen connections between hunters and wildlife managers. Figures below display the results where >10 hunts were reported in each category.

Acknowledgements

I thank all upland bird hunters that participated in this survey and the MNDNR staff that provided feedback on earlier drafts of the survey and this report. I also thank Bailey Petersen, Pete Takash, David Schueller, and Morgan Sussman for their help in coordinating outreach and communication to solicit hunter participation.

Tables

Table 1. Total hunts, hours, and flushes, harvest and flushes per hour and harvest per hour by species.

Species	Total Hunts	Total Hours	Total Flushes	Flushes/Hour Mean (Range)	Total Harvest	Harvest/Hour Mean (Range)
Ring-necked Pheasant	279	600.90	1728	2.8 (0.0 – 36.0)	182	0.3 (0.0 – 4.0)
Wilson's Snipe	15	32.70	89	2.7 (0.0 – 25.0)	15	0.5 (0.0 – 1.3)
Sharp-tailed Grouse	50	102.00	247	2.4 (0.0 – 15.0)	30	0.3 (0.0 – 2.0)
Greater Prairie Chicken	17	51.00	107	2.1 (0.0 – 7.3)	10	0.2 (0.0 – 0.7)
Ruffed Grouse	593	1492.20	2942	2.0 (0.0 – 11.0)	406	0.3 (0.0 – 5.0)
American Woodcock	269	631.95	924	1.5 (0.0 – 13.6)	140	0.2 (0.0 – 4.0)
Hungarian Partridge	15	17.00	17	1.0 (0.0 – 7.0)	1	0.1 (0.0 – 1.0)
Spruce Grouse	35	119.00	10	0.1 (0.0 – 0.5)	7	0.1 (0.0 – 0.5)

Table 2. Total counties reported and proportions of hunters using public land, WMAs, HWTs, WIA, and dogs by species pursued.

Species	Total Counties Reported	Percent Hunting Public Land	Percent using a WMA	Percent using a HWT	Percent using WIA	Percent using a dog
American Woodcock	29	96%	22%	18%	0%	96%
Greater Prairie Chicken	4	94%	53%	0%	18%	71%
Hungarian Partridge	7	60%	33%	0%	7%	100%
Ring-necked Pheasant	51	80%	54%	0%	10%	99%
Ruffed Grouse	26	93%	17%	20%	0%	83%
Sharp-tailed Grouse	8	62%	50%	2%	0%	96%
Spruce Grouse	7	97%	20%	14%	0%	97%
Wilson's Snipe	11	67%	40%	7%	0%	80%

Figures

Figure 1. Counties that hunters reported pursuing ruffed grouse.

Figure 2. Counties that hunters reported pursuing pheasants.

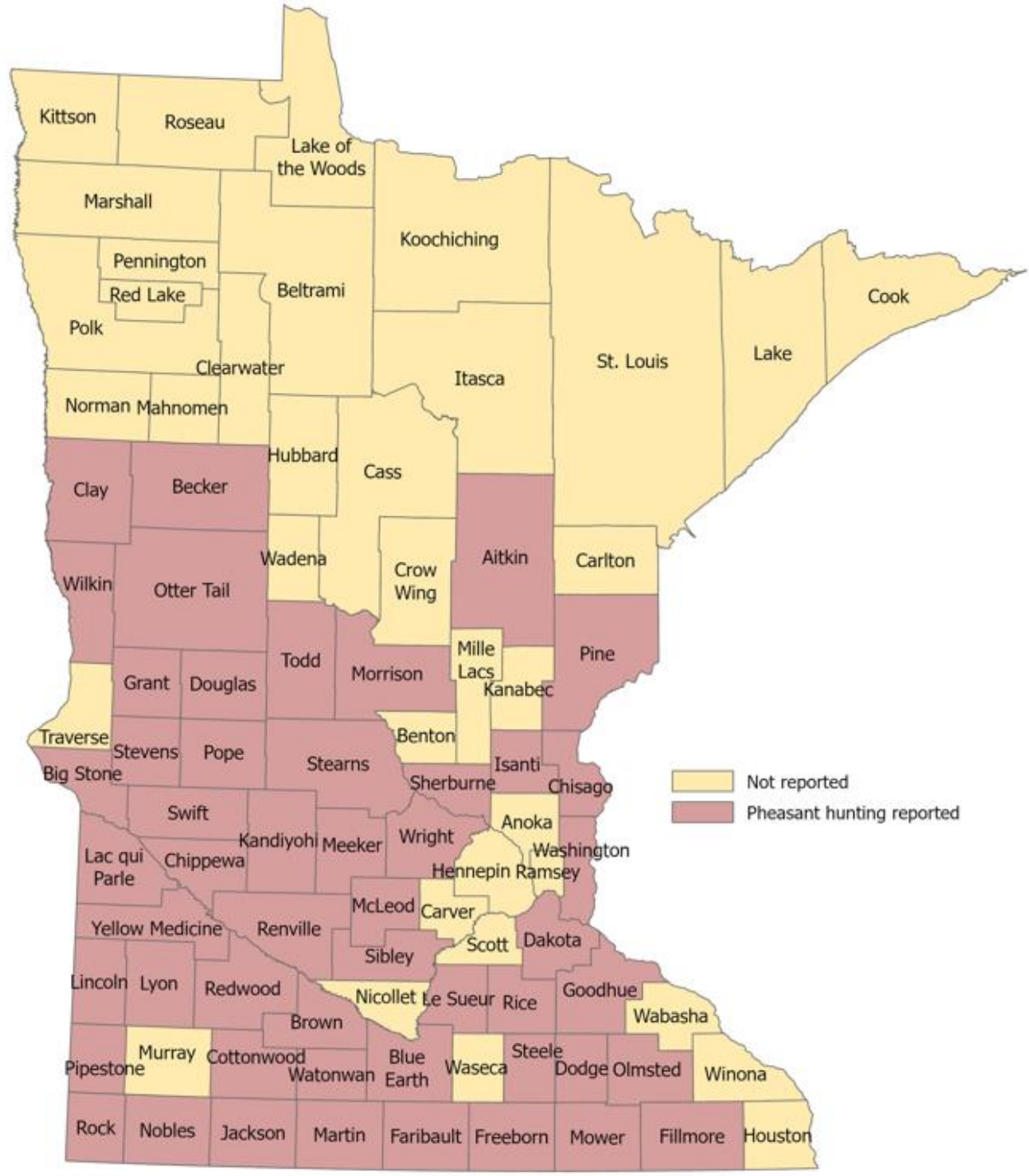

Figure 3. Counties that hunters reported pursuing American woodcock.

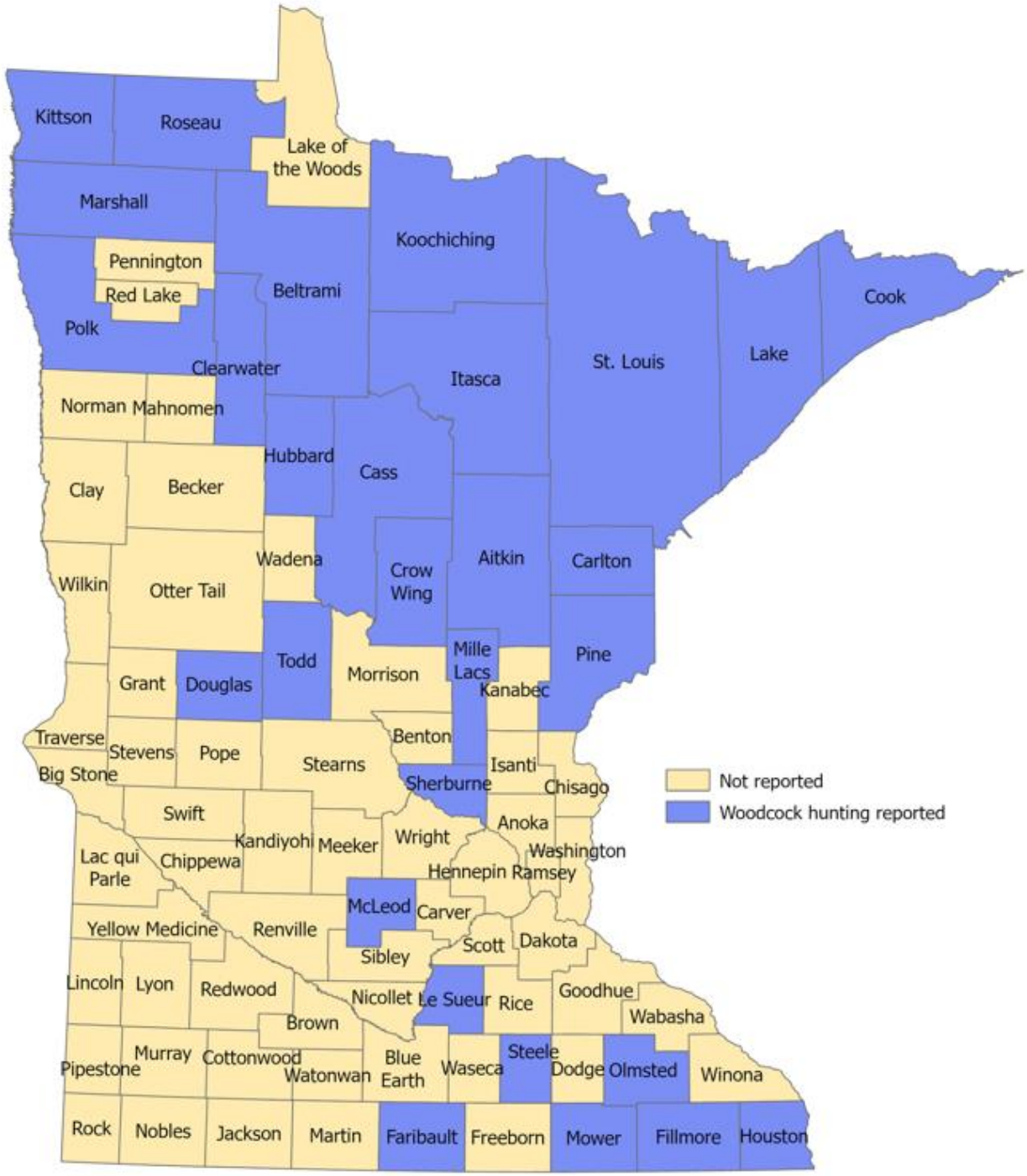

Figure 4. Counties that hunters reported hunting.

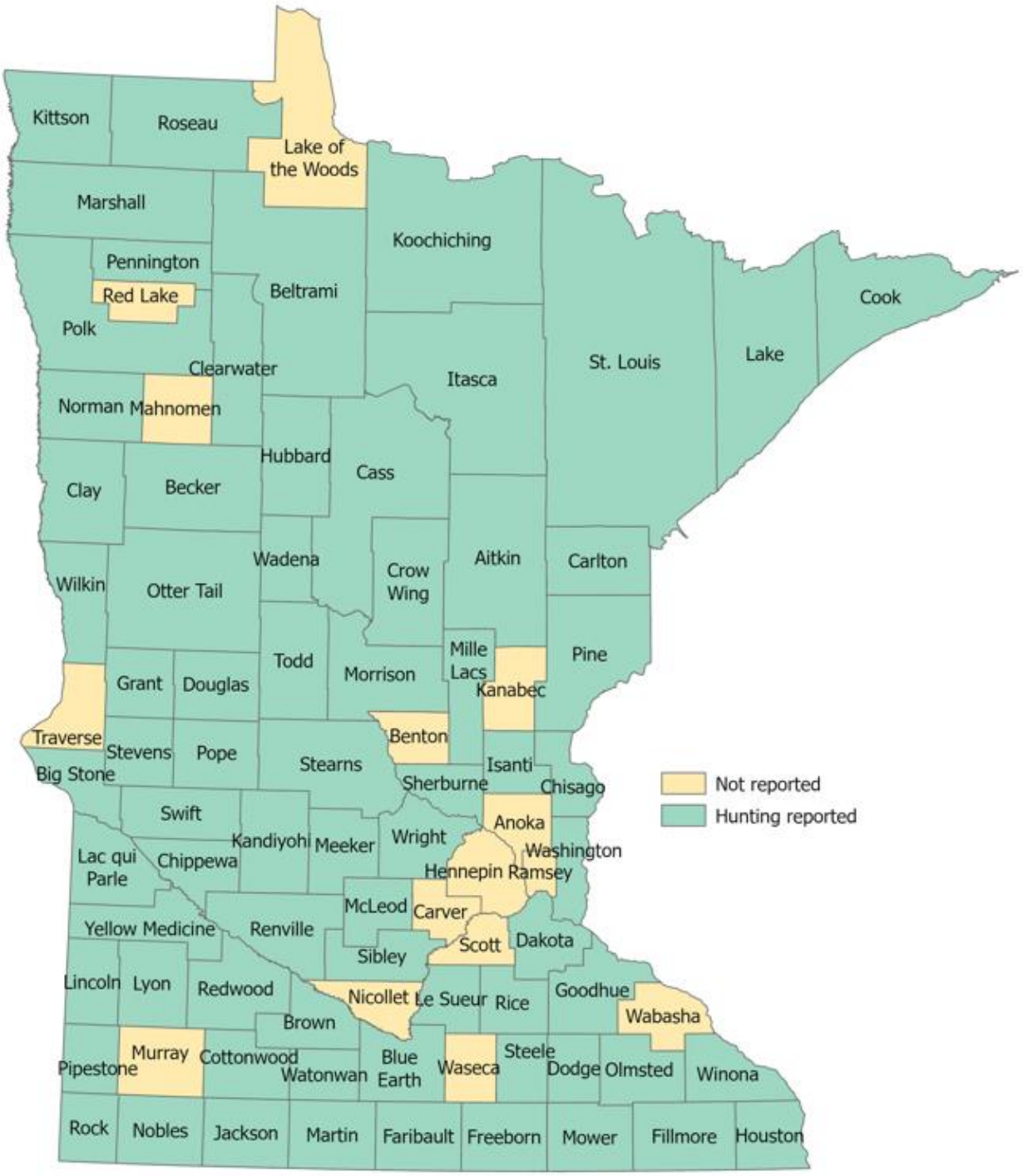

Figure 5. Mean flushes per hour of hunters pursuing pheasant, ruffed grouse and sharp-tailed grouse on public and private land with bars representing the 95% CI.

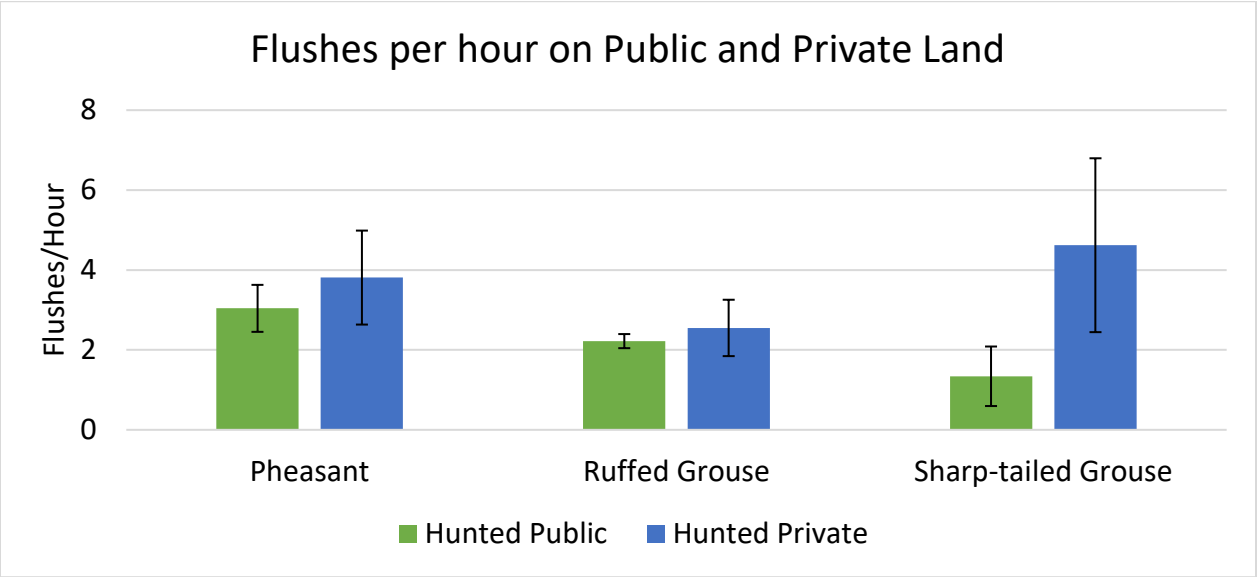

Figure 6. Mean flushes per hour of hunters pursuing woodcock, pheasant, ruffed and sharp-tailed grouse on and off Wildlife Management Areas with bars representing the 95% CI.

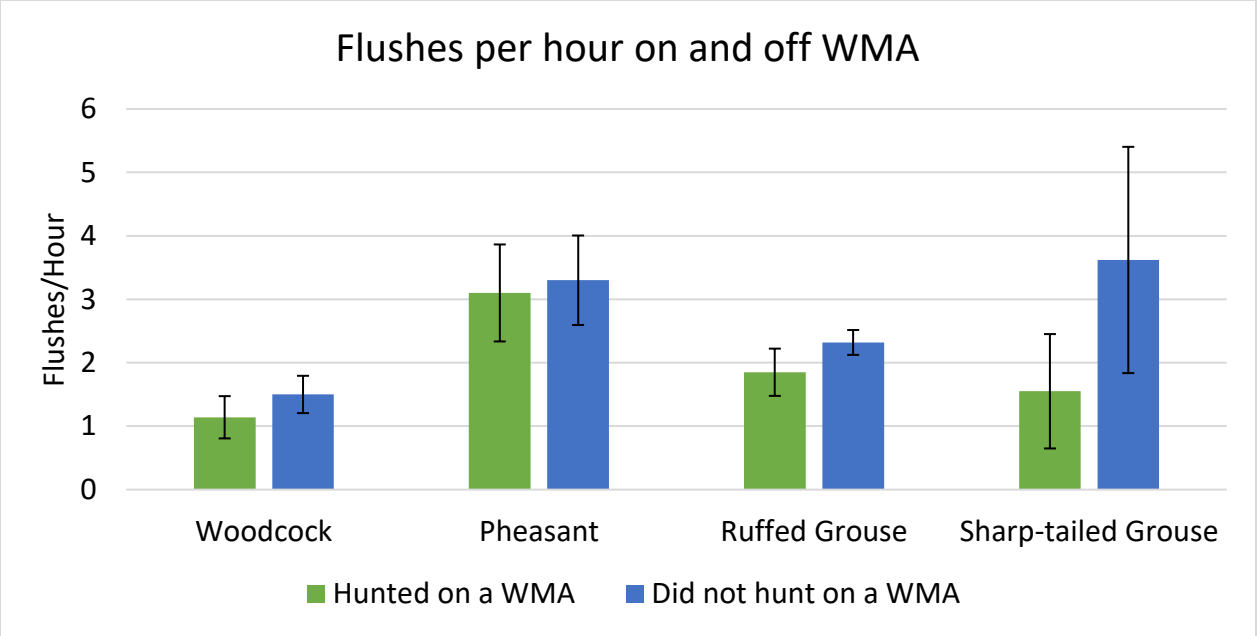

Figure 7. Mean flushes per hour of hunters pursuing woodcock and ruffed grouse on and off hunter walking trails with bars representing the 95% CI.

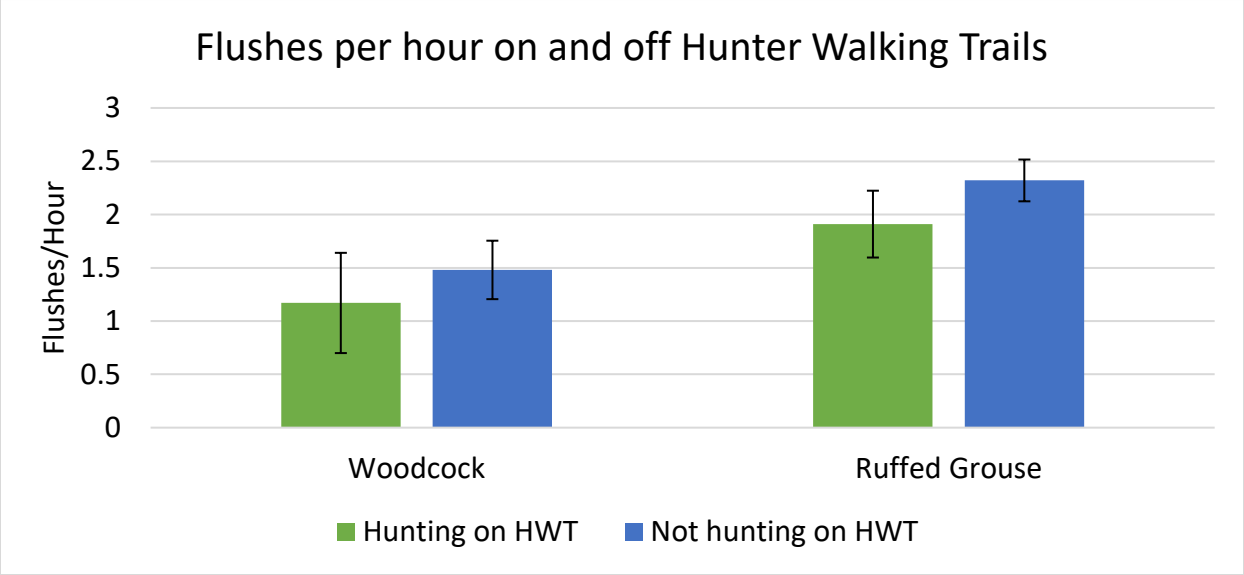
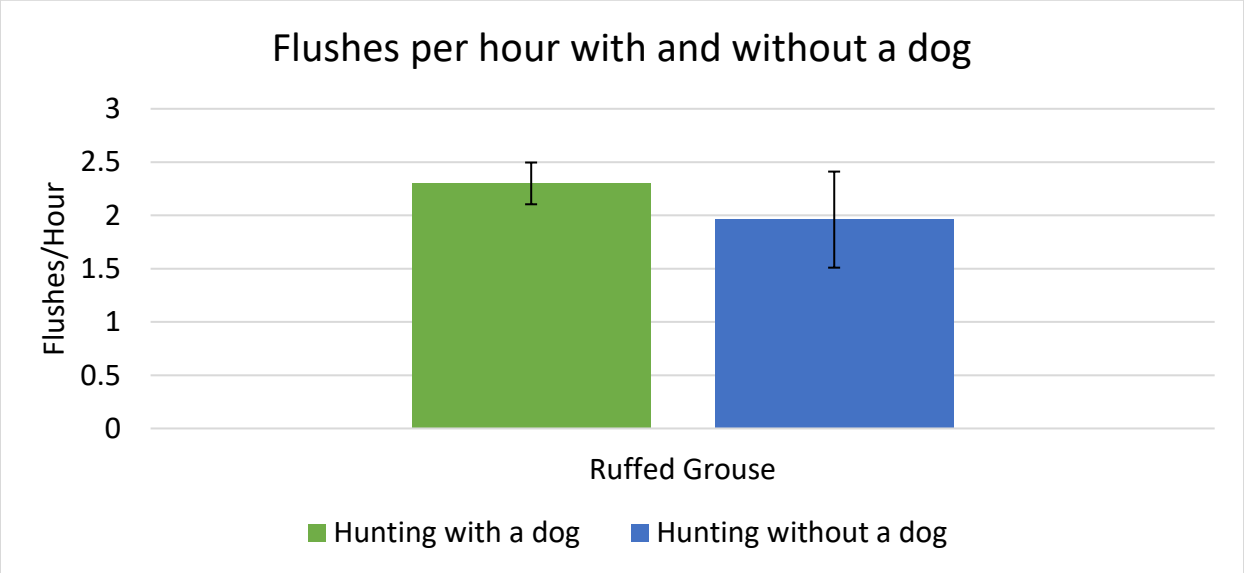
Figure 8. Mean flushes per hour of hunters pursing ruffed grouse with and without a dog with bars representing the 95% CI.