Merged Analysis: A Case for Modernizing Firearm Regulations in Southern Minnesota (Revised 12/05/2025)

Brett Meyer, BS, DC

This report is an independent analysis based on publicly available data.

Minnesota's restriction on centerfire rifles in its southern deer hunting zones is an antiquated regulation, originally implemented to manage herd populations by intentionally limiting hunter effectiveness. However, more than two decades of contemporary data demonstrate this premise is no longer valid. Hunter participation records from 2002–2024, with annual participation averaging 359,502 hunters, show that northern rifle-zone hunters comprise approximately 55.4% of all firearms deer hunters (~199,161 hunters/year), while southern shotgun-zone hunters represent 44.6% (~160,341 hunters/year).

Crucially, long-term deer firearm incident data (2002–2024) reveal **104 total incidents statewide**, demonstrating that the statistical likelihood of a firearm-related deer hunting incident is exceptionally low—approximately **1.258 incidents per 100,000 hunters per year**. This finding directly contradicts the assumption that rifles constitute a greater inherent danger than shotguns. When incident probability is normalized to hunter participation, **shotgun hunters exhibit a 34% higher overall incident rate than rifle hunters**. More specifically, shotgun hunters are **2.76 times more likely to injure another hunter**, while rifle incidents are **1.84 times more likely to be self-inflicted**. This indicates that rifle-associated risks arise primarily from handling behaviors, whereas shotgun risks more frequently involve multiple parties.

With modern advancements in ammunition, optics, and hunter education, centerfire rifles offer superior precision, more ethical harvest potential, and do not meaningfully alter the established safety profile. In light of Minnesota's ongoing battle against Chronic Wasting Disease (CWD), access to precision tools is not merely equitable—it is operationally necessary.

Note on Data Scope and Classification:

This analysis is based on Minnesota DNR data that categorizes incidents by "rifle" and "shotgun" as reported. It is assumed that the vast majority of incidents in the **northern zone** involve centerfire rifles, and in the **southern zone** involve shotguns, reflecting the predominant lawful use in each region. Importantly, **centerfire rifle cartridges fired from handguns have been legally permitted in the southern shotgun-only zone for years**, yet no distinguishable safety issue has been recorded. While shotguns are also permitted in the north and handguns (including rifle-cartridge pistols) are permitted in the south, no shotgun incidents were recorded in the northern zone, and handgun incidents were excluded due to insufficient data to distinguish between pistol-caliber firearms and

centerfire rifle-cartridge pistols. Therefore, the comparison presented reflects the de facto risk profiles of the primary firearm platforms used in each zone under current regulations, further highlighting the inconsistency of the existing restriction.

1. Safety Profile: Incident Frequency, Distribution, and Risk

A 23-year analysis (2002–2024) documents **104 verified deer firearm incidents**:

Classification	Rifle	Shotgun	Total
Self-Inflicted	**32**	**14**	**46**
2-Party	**18**	**40**	**58**
Total	50	54	104

Table 1a. Two-Party Incidents: Fatality Analysis

Firearm Type	Fatal	Non-Fatal	Total	Fatality Rate
Rifle	**8**	**10**	**18**	44.4%
Shotgun	**4**	**36**	**40**	10.0%
Total	12	46	58	20.7%

Table 1b. Annual Per-Capita Incident Rates (per 100,000 hunters)

Category	Rifle	Shotgun	Statewide
Self-Inflicted	**0.699**	**0.380**	**0.521**
2-Party	**0.393**	**1.084**	**0.737**
Total	1.092	1.464	1.258

Interpretation:

- **Shotguns are involved in 2.22× more two-party incidents** than rifles (40 vs. 18).

- However, **rifle-related two-party incidents are 4.44× more likely to be fatal** (44.4% vs. 10.0%).
- **Shotgun hunters are 2.76× more likely to injure another hunter** (1.084 vs. 0.393 per 100,000).
- **Rifle hunters are 1.84× more likely to sustain a self-inflicted injury** (0.699 vs. 0.380 per 100,000).
- **Total statewide probability:** 1 incident per 79,450 hunter-years.

Critical Context: Incident Distance Analysis

An examination of incident narratives over the 23-year period further dispels the notion of "stray bullet" risks commonly cited in opposition to rifle use:

- **Only two recorded incidents involved recorded shots beyond 100 yards:** one at approximately 275 yards (victim, another hunter, was in the line of fire) and one between 100–150 yards (victim was misidentified as a deer).
- **The vast majority of fatal rifle injuries occurred within 0–25 yards**, emphasizing that proximity and handling—not ballistic range—are the primary risk factors.
- These findings underscore that incidents are overwhelmingly the result of **hunter judgment and situational awareness** rather than the inherent capabilities of centerfire rifles.

The data reveals a clear risk profile difference: shotgun incidents more frequently involve other hunters, while rifle incidents are more likely to be self-inflicted and more severe when they involve another party. The consistent proximity of incidents further demonstrates that risk is linked to hunter behavior and scene management—not firearm platform. Nothing in the statistical record supports the claim that rifles increase overall public risk in southern Minnesota's hunting landscape.

2. Modernization Benefits: Precision, Ethics, and Enhanced Safety

Modern centerfire rifles, high-quality ammunition, and advanced optics offer superior precision and effectiveness that directly translate to more responsible hunting.

- **Ethical Harvests:** The flat trajectory and extended effective range allow for highly accurate shot placement, increasing the probability of a clean, first-shot harvest and minimizing animal suffering.
- **Reduced Wounding Loss:** Improved accuracy decreases non-fatal wounding, reducing the number of animals that escape undetected—benefiting both ethical standards and game recovery.
- **Improved Shot Discipline:** The limitations of shotgun slugs can inadvertently promote less disciplined shooting behavior, including hurried multiple shots at moving targets. The confidence provided by an accurate rifle encourages hunters to wait for safe, stationary shots with proper backdrop awareness, fundamentally

improving safety and situational awareness.

3. Critical Conservation Need: Proactive CWD Management

An urgent argument for regulatory modernization involves Chronic Wasting Disease (CWD), a 100% fatal prion disease that threatens Minnesota's deer herd. While Brown County currently has no confirmed cases, proactive policy is essential given nearby outbreaks in southeastern Minnesota and the metro area.

- **Precision for Disease Control:** The accuracy and effective range of centerfire rifles are force multipliers for targeted population management. Rifles enable confident, ethical harvests in varied southern Minnesota landscapes where precise, longer shots are often necessary to meet culling objectives.
- **Regional Surveillance Enhancement:** Expanding rifle use strengthens the entire region's capacity to respond. Efficient harvesting reduces wounding loss and increases deer recovered for mandatory testing, improving disease surveillance data quality for earlier outbreak detection and more accurate prevalence mapping.

4. The Current Reality: Existing Firearm Capabilities and Landowner Rights

The argument for modernizing firearm regulations is further supported by acknowledging the current technological and legal landscape in Southern Minnesota. The existing restrictions are not only scientifically outdated but are also inconsistent with the actual capabilities of firearms already in legal use and the rights of landowners.

- **Precision Firearms Are Already in Use:** The assertion that shotguns are inherently less capable is misleading. Modern shotguns firing saboted slugs, along with advanced smokeless powder muzzleloaders, are now capable of achieving trajectories and effective ranges that rival centerfire rifles, extending reliably to 300 yards or more. Furthermore, centerfire rifles are already extensively and legally used for varmint hunting across the region. This creates a contradictory reality where a hunter may use the same firearm to harvest a coyote at 250 yards but is prohibited from using it to ethically harvest a deer at 150 yards during the firearms season, despite the identical safety and ballistic profile.
- **The Choice of Firearm is a Landowner's Right:** The final authority on what is safe and appropriate for a specific property should rest with the landowner, who understands its unique layout, sightlines, and risks. Minnesota law already recognizes and protects this principle. Landowners have the unequivocal right to impose stricter regulations than the state, including limiting hunting methods, specifying allowable firearms, or restricting hunting to specific individuals. Modernizing the statewide regulation to allow centerfire rifles would not remove this right; it would simply expand the options from which a landowner may choose, empowering them to match the tool to the terrain and their management goals.

5. Hunter Participation Data (2008–2024)

Table 2. Annual Hunter Participation by Zone

Year	Rifle Zones	Shotgun Zones	Total
2008	182,355	148,233	330,588
2009	185,236	146,250	331,486
2010	190,062	159,433	349,495
2011	194,161	162,782	356,943
2012	199,537	165,070	364,607
2013	202,513	166,675	369,188
2014	206,618	167,179	373,797
2015	207,946	169,693	377,639
2016	208,498	165,753	374,251
2017	212,098	158,506	370,604
2018	210,203	156,144	366,347
2019	208,723	176,087	384,810
2020	206,820	170,907	377,727
2021	207,584	153,386	360,970
2022	205,030	151,411	356,441
2023	199,565	159,544	359,109
2024	199,888	162,351	362,239

Averages (2008–2024):

- Northern Zone: 201,870 hunters/year
- Southern Zone: 160,512 hunters/year
- Combined: 362,382 hunters/year

2002–2007 estimated averages (used for full 23-year analysis):

- Northern Zone: 192,311 hunters/year
- Southern Zone: 158,074 hunters/year
- Combined: 350,385 hunters/year

6. Detailed Statistical Summary

Total Hunter-Years Analysis (2002–2024):

- Northern Zone: 4,585,653 hunter-years
- Southern Zone: 3,677,147 hunter-years
- **Total:** 8,262,800 hunter-years

Incident Statistics (2002–2024):

- Total incidents: 104
- Annual incidents: 4.522
- **Probability per hunter-year:** 0.001259%
- **Individual odds:** 1 in 79,450

Fatality Analysis:

- Rifle fatalities: 17 total (0.371 per 100,000)
- Shotgun fatalities: 4 total (0.108 per 100,000)
- **Rifle incidents are 3.44× more likely to be fatal**

Conclusion: A Data-Driven Path Forward

The evidence, grounded in 23 years of verified incident data and hunter participation records, demonstrates that expanding rifle hunting to southern Minnesota would not increase the statistical probability of hunting incidents while providing significant operational benefits. The data reveals:

- **Shotgun hunters currently experience a 34% higher per-capita incident rate** than rifle hunters (1.464 vs. 1.092 per 100,000).
- **Annual individual risk remains exceptionally low** for all hunters (approximately 1 in 79,450).
- **Rifle incidents, while more likely to be fatal, are predominantly self-inflicted**, indicating manageable risk through handling education.
- **The northern zone has 55.4% of hunters** but accounts for only 48.1% of total incidents.

Modernizing regulations in counties like Brown County is supported by a clear, multi-faceted rationale:

- **Safety:** Does not increase the underlying rate of hunting incidents; current data shows shotgun hunters have a higher per-capita rate.

- **Efficacy:** Provides superior accuracy for more ethical and successful harvests.
- **Conservation:** Delivers a necessary precision tool for effective CWD management and surveillance.
- **Consistency & Choice:** Aligns regulations with existing firearm capabilities and reinforces landowner property rights.

This update would align Minnesota with other Midwestern states, recognizing that modern technology, hunter education, and landowner stewardship—not outdated regulations—are the cornerstones of safe, ethical, and effective wildlife management.

Works Cited

Centers for Disease Control and Prevention. "Animals and Chronic Wasting Disease." *Centers for Disease Control and Prevention*, U.S. Department of Health and Human Services, 13 Sept. 2024, https://www.cdc.gov/chronic-wasting/animals/index.html. Accessed 4 Dec. 2025.

Kennedy, Tony. "DNR Expands Fight Against CWD After the Deer Disease Crops Up in Hennepin and Clay Counties." *Star Tribune*, 21 Sept. 2021, https://www.startribune.com/dnr-expands-fight-against-cwd-after-the-deer-disease-crops-up-in-hennepin-and-clay-counties/601213063/. Accessed 22 Nov. 2025.

Minnesota Department of Natural Resources. *2025 Minnesota Hunting and Trapping Regulations Handbook*. Minnesota DNR, 2025, https://files.dnr.state.mn.us/rlp/regulations/hunting/full_regs.pdf?v=24.09.05.12.15. Accessed 4 Dec. 2025.

---. "Hunting Incident Reports." Enforcement Division, 2002-2024, https://www.dnr.state.mn.us/enforcement/incidentreports/index.html. Accessed 5 Dec. 2025.

---. "Minnesota Deer Harvest Statistics." Wildlife Populations and Research Unit, 2008-2017, https://www.dnr.state.mn.us/mammals/deer/management/statistics.html. Accessed 5 Dec. 2025.

Minnesota Legislature. *Minnesota Statutes § 97B.001: Landowner Restrictions*. Office of the Revisor of Statutes, 2023, https://www.revisor.mn.gov/statutes/cite/97B.001. Accessed 4 Dec. 2025.