

# Executive Summary: TURTLES IN MINNEAPOLIS, 2021–2023

May 2024



Prepared for the Minneapolis Park and Recreation Board

By Jenny Winkelman



**Minneapolis**  
**Park & Recreation Board**

This study supports the mission of the Minneapolis Park and Recreation Board to permanently preserve, protect, maintain, improve, and enhance its natural resources, parkland, and recreational opportunities for current and future generations of our region including people, plants, and wildlife.



Image on front page: A common sight in Minneapolis in springtime: a female snapping turtle crossing a road.  
(*Photograph from Report A Turtle*).

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Prepared for the Minneapolis Park and Recreation Board  
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## **Acknowledgements**

This effort was made possible through the assistance and contributions of many individuals and organizations. Particular appreciation is extended to:

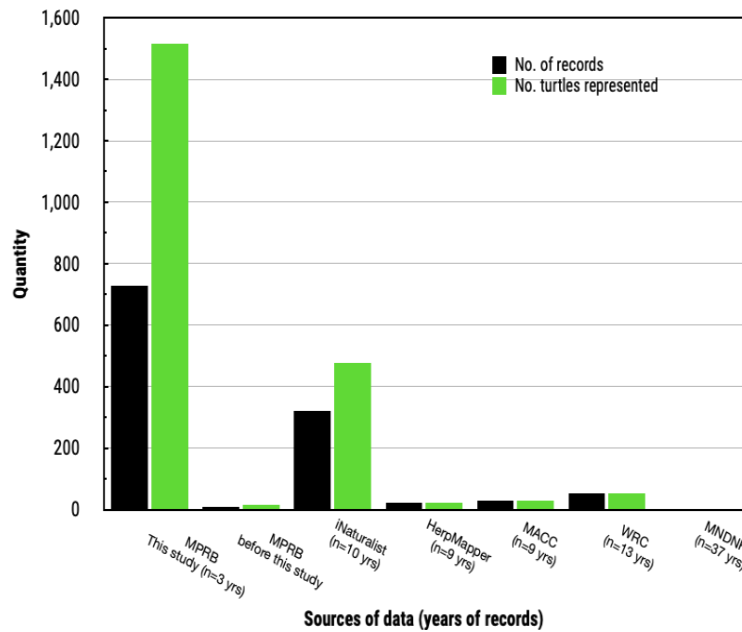
- the many local contributors to the *Report a Turtle* online form who provided most of the data, continue to share their observations, and express concern, enthusiasm and a deep commitment to protect and conserve turtles in Minneapolis parks
- contributors to iNaturalist ([www.inaturalist.org](http://www.inaturalist.org))
- HerpMapper ([www.HerpMapper.org](http://www.HerpMapper.org)) and its network of citizen contributors
- turtle admission and clinical data provided by the Wildlife Rehabilitation Center of Minnesota [www.wrcmn.org](http://www.wrcmn.org), and
- MPRB staff, especially those working in Education, Environmental and Asset Management work areas.

# Executive Summary

Until recently, little has been known about turtles in Minneapolis. This study, initiated in 2021, creates a starting point for understanding, tracking and evaluating progress in protecting turtles found in Minneapolis parks. Nest protections are being trialed and evaluated. Physical improvements benefitting turtles are being funded and integrated into existing projects.

Data used in this study comes from 1) *Report a Turtle*—an online reporting form for park visitors—an , 2) data compiled from all known sources (Table 1). Both activities are ongoing, and continue to provide significant and new information about turtle species, age, activity, location, whether turtles are found dead or alive, and where they are most vulnerable on land. Few, if any, efforts systematically collect turtle observations in an urban area or are as comprehensive in assembling data from multiple sources. Citizen scientists are a critical source of information; their collective contribution to the database far exceeds that of any source (*Report a Turtle*, iNaturalist and HerpMapper; Figure 1). In particular, *Report a Turtle* has effectively channeled the efforts of a parks-loving and wildlife-loving public to provide a large amount of information.

**Fig. 1. Relative contribution of turtle data available, shown by source, number of records provided and number of turtles**



**Table 1. Sources and numbers of records and turtles found used in this study, from 1986–2023\*.**

SOURCE		Prior to 2021	2021	2022	2023	Percent of total
<b>This study - MPRB's Report a Turtle</b> (records from 2021)	No. of records	–	173	299	258	<b>62%</b>
	No. turtles	–	(421)	(555)	(541)	<b>(72%)</b>
<b>MPRB staff observations</b> (before 2021)	No. of records	10	–	–	–	<b>1%</b>
	No. turtles	(16)	–	–	–	<b>(1%)</b>
<b>iNaturalist<sup>1</sup></b> (records from 2014)	No. of records	109	61	58	97	<b>27%</b>
	No. turtles	(171)	(87)	(91)	(134)	<b>(23%)</b>
<b>HerpMapper<sup>2</sup></b> (records from 2015)	No. of records	17	2	3	2	<b>2%</b>
	No. turtles	(17)	(2)	(3)	(2)	<b>(1%)</b>
<b>Minneapolis Animal Care and Control</b> (records from 2015)	No. of records	18	4	4	4	<b>3%</b>
	No. turtles	(18)	(4)	(4)	(4)	<b>(1%)</b>
<b>Wildlife Rehabilitation Center of Minnesota<sup>3</sup></b> (records from 2011)	No. of records	37	4	7	5	<b>5%</b>
	No. turtles	(37)	(4)	(7)	(5)	<b>(3%)</b>
<b>MNDNR<sup>4</sup></b> (records from 1986–2022)	No. of records	3	–	–	–	<b>&lt;1%</b>
	No. turtles	(3)	–	–	–	<b>(&lt;1%)</b>
<b>TOTALS:</b>					<b>No. records for years</b> <b>(No. of turtles for all years)</b>	<b>1,175</b> <b>2,126</b>

\* Some records report multiple individuals (e.g. one record for up to 60 turtles). This table uses records used in this report; records with questionable identification or location information are not included. Due to multiple observers, a small number of records may be duplicates. When records could be matched up, only one was used.

<sup>1</sup> iNaturalist. Available from <https://www.inaturalist.org>. [Accessed February 15, 2024]

<sup>2</sup> HerpMapper. 2022. HerpMapper -A Global Herp Atlas and Data Hub. Iowa, U.S.A. Available <http://www.herpmapper.org>. [Accessed: Jan. 15, 2024]

<sup>3</sup> Turtle admission and clinical data used by permission of the Wildlife Rehabilitation Center of Minnesota a [www.wrcmn.org](http://www.wrcmn.org)

<sup>4</sup> Only three records of eight provided by MNDNR (from 1986-2022) could be used because all location information for five sightings of Blanding's turtles was redacted (four records from over 30 yrs ago, two records each in 1986 and 1989; and one in 2009). Location information of listed species is not disclosed to the public, only to the property owners and managers.

## Findings

Six species of turtles are now confirmed living in the wild in Minneapolis, including one protected species and one non-native species. In comparison, eight species are found in Hennepin County and 11 are known statewide (Table 2).

- **Blanding's turtles (*Emydoidea blandingii*)** are listed as **threatened** in the state of Minnesota and are now verified in Minneapolis multiple times since 2022. The last documented sighting was a single record in 2009, location not known (MNDNR).
- **Painted turtles (*Chrysemys picta*)** and **snapping turtles (*Chelydra serpentina*)** are the most common and ubiquitous species found in Minneapolis. Painted turtles are the most visible species often seen conspicuously basking, often in groups, on logs and other objects.
- **Spiny softshell turtles (*Apalone spinifera*)** Before 2021, softshells were known in the Mississippi River and actively nesting in lakes Harriet and Bde Maka Ska. They are now documented in the Mississippi River, Bassett Creek, and in lakes Harriet, Bde Maka Ska, Isles, Nokomis, Hiawatha; and, in 2023 for the first time, in Powderhorn Lake. The finding in Powderhorn Lake was unexpected given that it is shallow (small deep area of 20 ft), receives a large volume of stormwater and therefore nonpoint source pollution, and is not connected to other lakes in the city. The presence of hatchlings is evidence that softshells are successfully breeding in the Mississippi River and south Minneapolis lakes.
- **False Map turtles (*Graptemys pseudogeographica*)**. Usually residing in large rivers and backwaters, a few individuals have been confirmed in Lake of the Isles and Bde Maka Ska. Seen once in Lake of the Isles in 2021, more were recorded in 2023, including an adult female crossing a bike path in July.
- **Pond sliders (*Trachemys scripta* and *T. scripta bellii*)** are non-native turtles also living wild in Minneapolis. Eleven individuals of these two subspecies have been verified in five different locations. Red-eared sliders were found in Coldwater Springs—technically federal land—are a concern because it connects directly to both the Mississippi River and Minnehaha Creek. Coldwater Springs could be a source of non-native turtles moving into other water bodies, and/or may have received these turtles by way of the creek or river.

Previously suspected but not confirmed until 2021, sliders are commonly introduced (illegally) when pet turtles are released. Little is known about their ability to survive, reproduce, or hybridize and compete with native turtles. Pet turtles also pose risks of introducing disease into native turtle populations.

Turtle activity varies year by year, depending on temperature and precipitation. Adult turtles in Minneapolis can be active as early as mid-March to mid-November; however, most adults are seen from April to October. Hatchlings are generally found at two different times as they leave the nest and move to water for the first time. Those that hatched last year and overwintered in the spring show up in early spring, and hatchlings from the current year emerge in mid-summer to fall.

<b>Table 2. A comparison of turtle species found living in the wild in the City of Minneapolis, Hennepin County and the state of Minnesota, 2011–23.*</b>						
<b>Common name used in report (synonyms)</b>	<b>Scientific name</b>	<b>Origin</b>	<b>Status in Minnesota</b>	<b>City of Minneapolis</b>	<b>Hennepin County</b>	<b>State of Minnesota</b>
Snapping turtle (common snapping turtle)	<i>Chelydra serpentina</i>	Native	Delisted in 2013 <sup>1</sup>	X	X	X
Painted turtle (Western painted turtle)	<i>Chrysemys picta</i>	Native		X	X	X
Blanding's turtle	<i>Emydoidea blandingii</i>	Native	Threatened	X	X	X
Smooth softshell	<i>Apalone mutica</i>	Native	Special concern		X	X
Spiny softshell	<i>Apalone spinifera</i>	Native	..... <sup>2</sup>	X	X	X
Northern map turtle	<i>Graptemys geographica</i>	Native			X	X
False map turtle	<i>Graptemys pseudogeographica</i>	Native		X	X	X
Ouachita map turtle (Southern map turtle)	<i>Graptemys ouachitensis</i>	Native				X
Wood turtle	<i>Glyptemys insculpta</i>	Native	Threatened			X
Eastern musk turtle (stinkpot) <sup>3</sup>	<i>Sternotherus odoratus</i>	Native				X
Pond slider and red-eared slider <sup>4</sup>	<i>Trachemys scripta</i> and <i>T. scripta elegans</i>	Non-native, introduced	Regulated invasive species <sup>5</sup>	X	X	X
<b>Total no. species:</b>				<b>6</b>	<b>8</b>	<b>11</b>
<p>* Sources: This study (MPRB <i>Report a Turtle</i>), MN Department of Natural Resources (MNDNR), iNaturalist, Herpmapper, Wildlife Rehabilitation Center of Minnesota, Minneapolis Animal Control. Note: in January 2023 Wood turtle and Ouachita map turtles were removed from listing in Hennepin County for lack of verified vouchers.</p> <p><sup>1</sup> Listed in 1984 and delisted in 2013 when the Department of Natural Resources changed statewide turtle harvesting rules.</p> <p><sup>2</sup> Removed from the harvestable species list as part of 2021 legislative changes (C. Hall, MNDNR, personal communication, March 21, 2022)</p> <p><sup>3</sup> Herpmapper references two specimens caught in Rochester, Minnesota. It is unknown whether these two individuals represent released pets or naturally occurring individuals. This species is suspected to occur naturally in the Mississippi River south of Winona, Minnesota.</p> <p><sup>4</sup> Same species, red-eared sliders (<i>T. scripta elegans</i>) are a subspecies of the pond slider (<i>T. scripta</i>). Both pond and red-eared sliders have been found in Minneapolis waters.</p> <p><sup>5</sup> It is legal to possess, sell, buy, and transport regulated invasive species, but they may not be introduced into a free-living state, such as being released or planted in public waters (<a href="#">MNDNR Minnesota invasive species laws</a> [Accessed March 15, 2024])</p>						

## Turtle Mortality

Turtles live on land *and* in water<sup>1</sup>. Most of their lives they live in water, but they also move about the terrestrial landscape to nest, forage and migrate between water bodies. Turtles live a long time, and it generally takes eight to fourteen years to mature and lay eggs. They have an innate need to return to where they themselves hatched to dig a hole and lay their eggs.

<sup>1</sup> For the purpose of this study, the term turtle does not include tortoises, which are not native to Minnesota.

While on land, all life stages—adults, hatchlings and eggs—are vulnerable. Within only a few generations of most turtles' lives, Minneapolis has been transformed from a spacious habitat of interconnected wetlands and natural areas to a landscape with roads crisscrossing their habitat and ancestral pathways. Roads, houses, fences, curbs, and stormwater drains obstruct their passage, fragment their habitat, and increase the likelihood of injury or death.

Adult females and newly emerged hatchlings on their first trip to water are disproportionately at risk for dying in roads. Nesting females will walk a mile to lay eggs, when she returns to water, she crosses the same roads a second time. Some painted turtles nest more than once per season. . Likewise, many small hatchlings, nearly invisible to cars, are killed crossing roads on their way to water. In the absence of vehicles and roads, adult turtles have few predators and live and reproduce for many decades, compensating for naturally high mortality of their young.

About ten percent of turtles reported were found dead, and of these over 90% were killed while crossing roads. Dead turtles are generally underreported and while groups of dead hatchlings have been found in roads, they are even less likely to be reported because of their small size. Both vehicles in the roads and curbs, which prevent their escape, are treacherous to the little turtles. Few dead softshell turtles have been found on land. They nest close to water so adults and hatchlings rarely cross roads and paved paths.

Locations where there is a high incidence of turtle mortality are called hotspots. The MPRB uses this data to prioritize placement of turtle crossing signs and evaluate physical changes to roads. Most turtles stay within a mile of water but due to the abundance of water resources, that includes the entire city. Still turtles are most likely to die on sections of roads closest to the lakes and creeks. Because dead turtles are reported less frequently, there is still much to learn. At this time, hotspots with the highest turtle mortality are:

- Highway 55 (north of Wirth Lake; east of Bassett Creek to N Thomas Ave)
- SW section of Cedar Lake Parkway (between the lake and Cedar Meadows)
- Roads surrounding Loring Park
- Park Avenue between E 43rd and 44th streets (between Twin Ponds)
- NW section of Lake of the Isles Parkway
- Glenwood Avenue (between Wirth Parkway and Wirth beach)

Road mortality due to habitat fragmentation is the major cause of death to turtles in Minneapolis and the greatest threat to turtle populations in the city. The innate perils of nesting migration are amplified by crossing roads and the “selective” removal of reproducing adult females from the turtle population. Research indicates that as females are inadvertently culled on roads, the local population becomes increasingly male. Furthermore, the naturally low survival rates of young turtles is not adequate to offset the loss of females, who reproduce for decades. As a result, irreversible declines in turtle populations are masked for generations because there appear to be plenty of large adults.

### **Nest Protection**

As part of this study, nest protection areas were installed at Thomas Beach on Bde Maka Ska (since 2021) and North Harriet Beach on Lake Harriet (since 2022). Both sites were frequented by nesting softshell

turtles. In 2023, a trail cam captured raccoons preying on some of the nests. Monitoring will continue and if raccoons continue to visit, preventative steps will be taken.

Park users support these nest protection areas, evidenced by their feedback, an absence of vandalism, minimal trespass, and an increase of turtle observations from these areas.

Turtles prefer to nest on sandy shorelines in the full sun, and at this time the only areas intentionally managed as such are beaches for human recreation. Protecting a small area adjacent to a beach for nesting allows turtles to lay their eggs relatively undisturbed and prevents nests from being accidentally harmed by beachgoers. Nesting areas adjacent to beaches may also help concentrate beach use in designated areas.

Consecutive years of drought created low water conditions, especially noticeable in 2023. Park visitors embraced the newly exposed stretches of sand along shorelines and used them as beaches, for campfires, launching watercraft, fishing, relaxing, etc. Intensive human recreation diminishes shoreline value for nesting turtles, emphasizing a need for turtle-only spaces—which are relatively small and shown to be successful.

## **Education**

Communications and engagement are used to educate the public, raise awareness and ultimately change behaviors to protect turtles. Communications include a handout about reporting turtles and how to help them cross roads, social media postings, a webpage, interpretive signs at nesting refuges and signage on roads alerting drivers of turtles crossing in locations of concern.

Ultimately, study findings are being used to recommend and implement habitat management guidelines (HMG) to preserve the diversity and abundance of turtles in Minneapolis parks. HMGs are based on strategies that 1) reduce road mortality, 2) protect and improve nesting habitat, 3) create, enhance and maintain quality habitat, 4) maximize compatibility of maintenance and turtle management, 5) raise awareness, educate and involve the public. HMGs that connect and improve turtle habitat and make roads safer to cross benefits other wildlife, including amphibians, snakes, small mammals and waterfowl.

Inherent to all recommendation is the need to: keep long-lived adult turtles, especially females, alive; create conditions for nesting success and hatchlings reaching adulthood, address impacts on turtles during planning, design and review, and building, and maintenance thereafter; educate and involve the public; and realize that site specific solutions will vary and will often be used in combination. The need to continue to learn and adapt to emerging knowledge and challenges is ongoing.

Turtle management is complicated and requires an understanding of the particular life history needs of each species, in water and on land. Furthermore, in only three years of study, environmental conditions have included consecutive years of drought, lowered water levels, and at least one very late spring with ice on lakes until May. Turtle responses to the dynamic environment are being revealed and highly relevant as climate changes.

Results of local observations and activities, and management recommendations synthesized from these findings and reviews of other turtle conservation efforts will be updated and posted on the [Minneapolis Park and Recreation Board's \(MPRB\) website](#) as completed. These documents are dynamic and will be updated

as additional data is collected; new findings demonstrate a need to change approach; new methods are identified; and issues emerge.