

2025

# Wetland Health Evaluation Program

Dakota County, Minnesota

# 2025 Wetland Health Evaluation Program Report

## Dakota County, MN



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**Report**  
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Dakota County Parks Department

City of Apple Valley

City of Burnsville

City of Eagan

City of Farmington

City of Hastings

City of Lakeville

City of Mendota Heights

City of Rosemount

City of South St. Paul

City of West St. Paul

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*For more information on the Dakota County Wetland Health Evaluation Program or for a copy of this report, please contact the Dakota County Environmental Resources Department or visit [www.mnwhep.org](http://www.mnwhep.org).*

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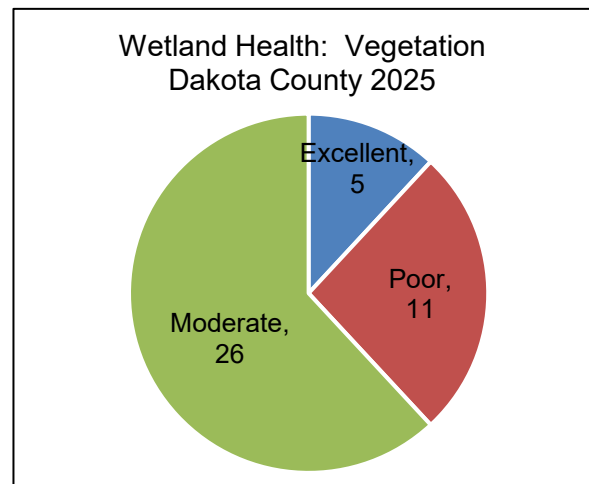
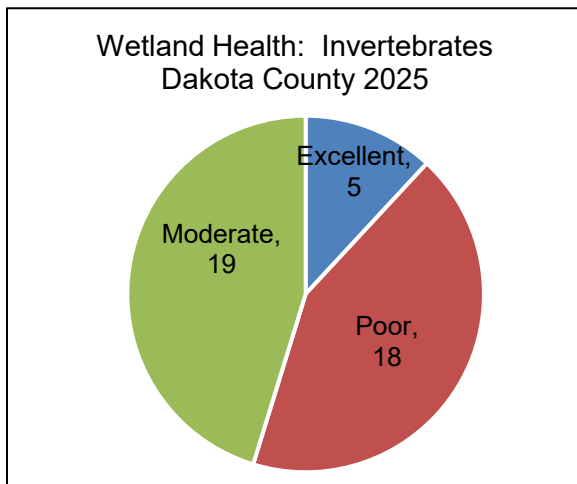
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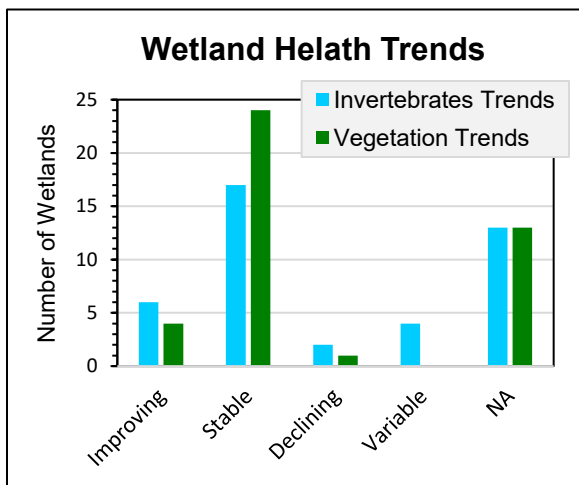
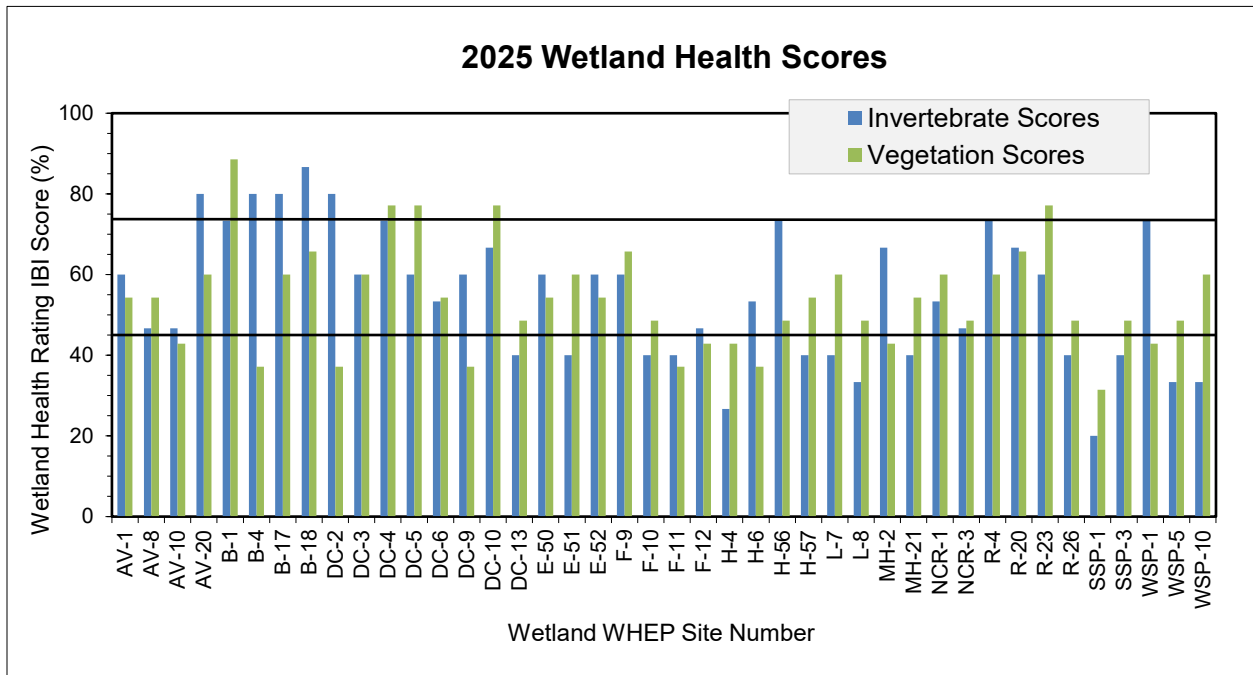
# Executive Summary

## Dakota County Wetland Health Evaluation Program 2025

Dakota County began sponsoring the Wetland Health Evaluation Program (WHEP) in 1997. Since then, 212 wetlands have been monitored by many volunteers across the County. In 2025, ten cities, one watershed management organization, and Dakota County Parks sponsored WHEP teams, monitoring 42 different wetlands. Seven of these wetlands (E-50, E-51, E-52, F-10, F-11, F-12, MH-21) were monitored for the first time in 2025. Trained volunteers collected macroinvertebrates (insects and other small animals without backbones) that live in the wetland and surveyed for vegetation (plants) present in the wetlands. The invertebrates and vegetation are identified and documented. The data is used to calculate an Index of Biotic Integrity (IBI) that is used to estimate the health of each wetland.



The results of the monitoring for 2025 showed a variety of wetland conditions. The Index of Biotic Integrity was used to determine wetland health ranging from poor to excellent. The largest portion of wetlands scored in the moderate category for invertebrates (45%) and vegetation (62%). Five wetland sites rated excellent for invertebrates: Valleywood Golf Course (AV-20) in Apple Valley, Alimagnet (B-4) in Burnsville, Alimagnet Powerline ROW (B-17) in Burnsville, Terrace Oaks Pond (B-18) in Burnsville, and Buck Pond (DC-2) in Dakota County Parks. Five wetland sites rated excellent for vegetation: Crystal West (B-1) in Burnsville, East Jenson (DC-4) in Dakota County Parks, Wood Pond (DC-5) in Dakota County Parks, Duck Pond (DC-10) in Dakota County Parks, and CR-38 Mitigation Site #2 (R-23) in Rosemount. Eighteen (43%) of the wetlands scored poor for invertebrates and eleven (26%) of the wetlands scored poor for vegetation. There was agreement between invertebrate and vegetation wetland health ratings for 14 of the wetlands monitored in 2025.



A trend analysis was conducted for each of the wetlands monitored in 2025 that had enough data to analyze trends. The overall trends are indicated as follows; however, the health of each wetland is unique and observed changes in health score trends are discussed with each wetland later in the report. For invertebrates, six wetlands are showing improvement, 17 wetlands are stable, and two are declining. Vegetation trends show four of the wetlands improving, 24 are stable, and one is declining. Four wetlands show variable invertebrate data over the years of their monitoring, and no wetlands show variable vegetation data. Thirteen wetlands did not have enough years of data to demonstrate a health trend.

Seventeen of the wetlands agree in invertebrate and vegetation health trends. Several analyses were done to try to identify some of the causes of wetland health conditions found. No significant relationships were found between IBI scores and wetland alterations.

In 2025, 151 Dakota County WHEP volunteers donated 2,869 hours in training, invertebrate sample collections and invertebrate identification, and vegetation surveys to capture and report this valuable biological data. The dedicated volunteers look forward to the science, environmental stewardship, and community gathering that WHEP demonstrates. It gives community members an opportunity to study the wetlands in their communities and see the impacts of human disturbance on our wetlands, and it provides valuable data to the cities and County. The data collected by the WHEP volunteers can be used for many purposes such as, to help track changes in wetlands over time and relate to changes in the watershed, help identify high quality wetlands that may need protection, track changes in wetland health with restoration projects, evaluate the success of wetland creation or impacts of new stormwater input, and to help find invasive species that threaten the wetlands. WHEP is a great example of a successful cooperative program between citizens, cities, watersheds, counties, and state government.

## 1.0 Background

### The Wetland Health Evaluation Program (WHEP)

The Wetland Health Evaluation Program (WHEP) is a volunteer monitoring program for wetlands. WHEP uses sampling methods and evaluation metrics developed by the Minnesota Pollution Control Agency (MPCA) to evaluate wetland health. The metrics are based on species diversity and richness for both vegetation and macroinvertebrates. Community teams, led by trained team leaders, conduct the sampling.

WHEP got its start at the MPCA in the 1990s, when Mark Gernes and Judy Helgen were separately developing biological indexes to measure wetland health using grants from the US Environmental Protection Agency (US EPA). Mark's biological index was based on wetland plants, and Judy's on invertebrates. Developing chemical standards for measuring pollution in wetlands seemed impossible then, so they pushed for the biological approach, as did US EPA.

Wetlands are generally not viewed as having the same status as streams and lakes. The Wetland Conservation Act helps maintain the number and acreage of wetlands in Minnesota, but often the quality of the wetlands is not protected. MPCA staff recognized that they could teach citizens how to evaluate wetlands and they could convince their local governments to protect the water quality as reflected by the diversity of organisms and plants that thrive in healthy wetlands.

In 1996, the MPCA partnered with Minnesota Audubon, forming a large contract with them (with EPA funds) to help start WHEP. Audubon handled the logistics for the various training sessions and organization of the original teams of volunteers linked to six communities in Scott County. Mark and Judy provided the training and developed the guides for sampling protocols and identifications based on MPCA's more technical biological indexes.

Wetland sampling efforts began in 1997 in Dakota County. During 1998-2000, the program was managed by the Dakota Environmental Education Program. During these years, the project was funded by various sources, including the US EPA grant, Minnesota Legislature (LCCMR grant), and participating cities. Gradually, the number of cities participating in WHEP increased under the leadership of Charlotte Shover and Dan Huff, and the program flourished under the stewardship of Paula Liepold at Dakota County between 2007 and 2024. Beginning in 2025, Katie Pata leads the charge to advance WHEP into the future. Up to thirteen cities/citizen teams have participated in the project in Dakota County. MPCA continues to provide training, but the organization of teams and other logistics are handled by the County and communities.



JUDY HELGEN,  
PROGRAM CO-FOUNDER



MARK GERNES,  
PROGRAM CO-FOUNDER  
(DEMONSTRATING HIS "SEDGE  
THREE-RANKED" POSE)

Dakota County, participating cities, and North Cannon River Watershed Management Organization provide funding for Dakota County WHEP. Today, the program is strong and thriving in Dakota County, setting an example for the nation in volunteer wetland monitoring.

## **Why Monitor Wetlands?**

Why are we sampling the plants and critters that live in wetlands? Many aquatic invertebrates (animals without a backbone that live in water) spend much or most of their life living in wetlands. Because these animals are exposed to the conditions within the wetland for a period of time, they serve as indicators of the health of the wetland. Some are more sensitive to pollution and habitat conditions than are others. Aquatic plants also respond to wetland conditions. Different plants are found in different water quality and bottom conditions. If we evaluate what is living in a wetland, we can assess its general condition. When the same wetlands are monitored over time, the data can also be used to track changes in wetland health.

The information collected by the WHEP volunteers can be used by decision makers to help identify the highest quality wetland resources and identify those that have been negatively impacted. More information is available to help with decisions regarding development, transportation corridors, and other areas that may affect our water resources. For example, wetlands ranked as excellent may receive more protection. Cities can use this information to evaluate the overall success of construction or restoration projects or to evaluate the impact of new stormwater inputs.

Citizen volunteers are an essential component to WHEP's success. Each season, volunteers are relied upon to provide important data on the health of wetlands in their communities. The data collected is used by the cities, counties, and the State of Minnesota to better plan and protect these environments.

Although ten million acres of wetlands remain, Minnesota has lost approximately 50 percent of its wetlands since it became a state. Throughout the country, wetlands are being lost due to agriculture, development, and road expansion. Wetlands play a vital role in ecosystems by filtering runoff for groundwater, absorbing rain and snowmelt before flooding, providing habitat for mammals, birds, amphibians, reptiles, and many other organisms, and creating beautiful views for our own recreation. Since the adoption of the Minnesota Wetland Conservation Act, Minnesota has worked to maintain no-net-loss of wetlands.

Everyone involved in Minnesota WHEP past, present, and future can be pleased with their contribution, and rewarded with increasingly healthier wetland ecosystems to enjoy for years to come.

## **Wetland Types**

Wetlands make up about 6.5 percent (24,501 acres) of the total area in Dakota County. Using the Circular 39 classification system, eight different wetland types are recognized in Minnesota. A description of each type and estimates of acreage are listed below. Two additional wetland categories are included in the total, riverine (between banks) and industrial/municipal (dike-related impoundments). WHEP focuses on the open water wetlands, types 3, 4 and 5.

**Type 1 – Seasonally Flooded Basin or Flat:** 5,995 acres

Seasonally Flooded Basins or Flats are fully saturated or periodically covered with water, usually with well-drained soils during much of the growing season. The vegetation varies from bottomland hardwoods to herbaceous plants depending on the season and length of flooding.

**Type 2 – Wet Meadow:** 551 acres

Wet Meadow wetlands usually do not have standing water, but have saturated soils within a few inches of the surface during the growing season. Grasses, sedges, rushes, and various broad-leaved plants dominate Wet Meadows. Common sites include low prairies, sedge meadows, and calcareous fens.

**Type 3 – Shallow Marsh:** 12,491 acres

Shallow Marsh wetlands often have saturated soils and six inches or more standing water during the growing season. Grasses, bulrush, spike rush, cattail, arrowhead, pickerelweed, and smartweed often grow in these wetlands.

**Type 4 – Deep Marsh:** 778 acres

Deep Marsh wetlands often have inundated soils and six inches to three feet or more standing water during the growing season. Cattail, reed, bulrush, spike rush, and wild rice grow in these wetlands. Pondweed, naiad, coontail, watermilfoil, waterweed, duckweed, water lily, and spatterdock can often be found in the open water areas.

**Type 5 – Shallow Open Water:** 1,213 acres

Shallow Open Water wetlands have standing water less than 10 feet deep. These wetland types include shallow ponds and reservoirs. Emergent plants are often found in these areas.

**Type 6 – Shrub Swamp:** 1,188 acres

Shrub Swamp wetlands are often covered with up to six inches of water, and the soils are usually completely saturated. The water table is usually at or near the surface of these areas. Alder, willow, buttonbush, dogwood, and swamp privet inhabit these areas.

**Type 7 – Wood Swamp:** 1,859 acres

Wood Swamp wetlands often have one foot of standing water, and the soils are completely saturated during the growing season. The water table is usually at or near the surface of these areas. Hardwood and coniferous swamps contain tamarack, northern white cedar, black spruce, balsam fir, balsam poplar, red maple, and black ash.

**Type 8 – Bogs:** 0 acres

Bogs are often supplied by the water table being at or near the surface of these areas. The acidic peat soils are usually saturated. Heath shrubs, sphagnum mosses, sedges, leatherleaf, Labrador tea, cranberry, and cottongrass dominate bogs.

**Riverine:** 52 acres

Wetlands associated with rivers and found between the riverbanks.

**Municipal/Industrial:** 374 acres

Municipal/Industrial wetlands include diked areas.

**Total wetland area in Dakota County:** 24,501 acres

Many federal and state agencies are involved in wetland regulation, protection, and restoration. In Minnesota, the state wetland regulations are overseen by the Board of Water and Soil Resources and Department of Natural Resources. To learn more about regulations and programs that affect or protect wetlands, visit [www.bwsr.state.mn.us](http://www.bwsr.state.mn.us) and click on wetlands. Many cities, watershed organizations and counties have adopted local administration of the state Wetland Conservation Act.

## Dakota County Wetland Monitoring



KATIE PATA

Katie Pata is a Water Resources Specialist for Dakota County, where she manages the Wetland Health Evaluation Program (WHEP). She also leads the County’s Aquatic Invasive Species (AIS) program and coordinates water resources education and outreach for the Environmental Resources Department. Since joining Dakota County in 2004, Katie has enjoyed collaborating with residents and partners who share a passion for exploring, enjoying, and protecting local waters. She values how WHEP connects people to nature through hands-on learning and gives community members a meaningful way to help monitor the health of nearby wetlands. Katie is deeply grateful for the energy and commitment of WHEP volunteers—their curiosity, care, and dedication strengthen both the program and the community, inspiring the next generation of water stewards.

Benjamin Hoyt is a Water Resource Specialist for Dakota County where his main responsibility is managing the onsite septic system program. He supports several programs on the water resources team, one of which is WHEP. Ben started at Dakota County in April 2025, is a trained geologist, and brings over a decade’s worth of experience in the environmental field. He enjoys working on computers and getting outside whenever possible. “I want to make computers and technology work for us more efficiently so we can all spend more time outdoors”. Ben supports the WHEP program as a webmaster, data manager, and general support. What I’ve enjoyed most so far is seeing how dedicated and professional so many of the WHEP leaders and volunteers are. They understand that their work is the backbone of WHEP.



BENJAMIN HOYT



JEFF KORPIK

Jeff Korpik is the Field Monitoring Coordinator for Dakota County WHEP. He has been involved in WHEP since 2007 as a volunteer, team leader, and field monitoring coordinator. Jeff stated, “I like my current role since it gets me out to more of the County and I can visit all of the teams. We have a bunch of great volunteers and team leaders. I will miss the team leaders that retired at the end of this year. They have been long term, committed WHEPpers (I made up a word!) and good people. I look forward to next year and hope we have a lot of enthusiastic teams again.”

## 2.0 Methods

### 2.1 Training

Training for citizen monitors is arranged by Dakota County and taught by technical experts from the MPCA and a third-party consultant. Both classroom and field sessions are held. Training is provided on vegetation plot selection/sampling and invertebrate sampling (dip netting and setting/retrieving bottle traps). Volunteers learn to identify the vegetation and macroinvertebrates during laboratory identification sessions which cover sampling protocol, key characteristics for invertebrate and plant identification, as well as hands-on identification of live and preserved specimens. For a more detailed explanation of the methods used in WHEP, visit [www.mnwhep.org](http://www.mnwhep.org).



TRAINING DAY

### Minnesota Pollution Control Agency Experts

Part of the success of WHEP is due to the great assistance provided by the knowledgeable team of experts from the MPCA. Mark Gernes provides WHEP vegetation training and technical assistance. Joel Chirhart provides WHEP macroinvertebrate training and technical assistance. Michael Bourdaghs and John Genet provide technical support.

In May of 2025, Mark Gernes retired from MPCA; however, he volunteered his time to provide WHEP training for the 2025 season. He commented, "For over 25 years I reveled in and admired the dedication and enthusiasm of the many WHEP citizen volunteers and team leaders - all focused-on learning about and protecting wetlands. Though use of WHEP data has not been framed by state listing of impaired waters like lakes, rivers, and streams there are many examples of 'before and after' restoration actions or 'long-term' trends wetland monitoring of individual wetlands chosen by city staff. However, WHEPs real strength has been the wetland advocacy and support demonstrated by the participants. Thank you all!"



MARK GERNES



MICHAEL BOURDAGHS



JOEL CHIRHART



JOHN GENET

The MPCA staff support WHEP and have been instrumental in making WHEP a success.

## 2.2 Data Collection

In order to use the data to interpret the health or condition of the wetlands, a scoring process called the Index of Biological Integrity (IBI) is used. Separate IBIs are calculated for plants and macroinvertebrates. Several measures, referred to as metrics, are used to calculate an IBI. The IBI scores are categorized as poor, moderate or excellent. Biological integrity is commonly defined as "the ability to support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity and functional organization comparable to those of natural habitats within a region" (Karr, J. R. and D. R. Dudley. 1981. Ecological perspectives on water quality goals. Environmental Management 5: 55-68). Biological integrity is equated with pristine conditions, or those conditions with no or minimal disturbance (MPCA, <https://www.pca.state.mn.us/water/tmdl-glossary>). Each city participating in WHEP has identified "reference" wetlands, those that are believed to be minimally disturbed and represent the most pristine conditions within the city.

### *Vegetation Index of Biological Integrity (IBI)*

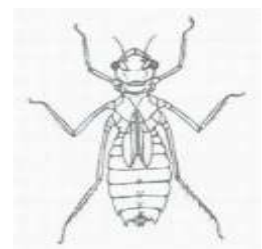
Vegetation is analyzed using a 100 square meter releve plot. All species within the sampling plot are identified to the genus level and documented on the field data sheet. Vegetation is divided into categories based on their ecological function or relationship. The categories include nonvascular, woody, grass-like and forbs. The forbs are further subdivided into various submergent and emergent categories. The number and coverage of genera identified are then evaluated using the metrics developed by MPCA.



The methodology and evaluation for the vegetation IBI have remained relatively consistent throughout the project. However, the persistent litter metric calculation was revised in 2004 to reflect average cover values as compared to maximum cover values. In 2005 and again in 2015, minor changes to the data sheets were implemented to reduce the number of transcription errors. The scoring criteria were adjusted slightly to better represent vegetation diversity. Since 2018, Dakota County Parks has altered the vegetation survey protocol (see Dakota County Parks section 4.2). Previous changes in methodology have been documented in earlier summary reports.

### *Macroinvertebrate IBI*

Macroinvertebrates (small aquatic animals with no backbone) are analyzed by collecting samples using six bottle traps and two dip netting efforts combined to represent one sample. The invertebrates are then identified to the genera or "kind" level. Generally, the invertebrates evaluated are macroinvertebrates and include leeches, bugs and beetles, dragonflies and damselflies, caddisflies, mayflies, fingernail clams, snails, crustaceans and phantom midges. The number of genera identified is then evaluated using the metrics developed by MPCA.



**DRAGONFLY  
GRAPHIC: MPCA**

Several changes have been made to the data collection and metrics for the invertebrate IBI over the duration of the program. There were no modifications to the methods after 2004. Previous changes in methodology have been documented in earlier summary reports.

Blank data sheets and equipment lists can be found at [www.mnwhep.org](http://www.mnwhep.org).

## 2.3 Cross-Checks and Quality Control

There are several safeguards included in WHEP to validate the data, including training, assistance in the wetland, team cross-checks, and third-party cross-checks. In typical years, each WHEP team is responsible for evaluating one wetland of another WHEP team as a means of providing a cross-check, providing a second sample for the selected wetland to determine if two different samples provide similar results for the vegetation and invertebrate IBI; the Citizen Monitoring Coordinator (Jeff Korpik) assists teams and provides advice regarding proper sampling methods and sampling placement; and a third party technical expert (Bolton & Menk, Inc.) provides Quality Control (QC) review of the completed data sheets, and invertebrate and vegetation identification.

In 2025, Tigris assisted MPCA in training sessions. Bolton & Menk, Inc. provided quality assurance of data and prepared the annual report. Bolton & Menk Water Resources staff has been working with Dakota County on WHEP since 2007.

Over the duration of the program, team cross-checks and third-party cross-checks have been conducted on a rotational basis. The technical expert reviews 10 percent of the vegetation plots and one invertebrate collection from each team. In 2025, Bolton & Menk cross-checked the vegetation plots of four wetlands: Dakota County Parks’ Star Pond West (DCP-9), Eagan’s LP-34 (E-50), Lake Rebecca (H-6), and West St. Paul’s Mud Lake (WSP-1). Bolton & Menk also reviewed the invertebrate samples from sites AV-1, B-1, DC-5, E-50, F-9, H-6, L-7, MH-2, R-20, SSP-3, and WSP-1. The purpose of the checks is to determine if the data being collected by the citizen team is accurate and complete, to verify and correct the samples, and to help the teams better interpret their data and strengthen their vegetation and invertebrate identification. The tables and graphs in Section 4.0 include the corrected data from the technical quality control checks. The official data scores are derived from the WHEP team’s data incorporating any corrections made during the technical quality control checks (vegetation cross-check, and datasheet review) conducted by Bolton & Menk.

## 2.4 Wetland Scores and Quality Ratings

Each metric, or measure, is evaluated based on the specimens identified and given a score of one, three or five points. The scores for each metric are then combined to get a total score for the IBI. Table 2-1 illustrates the scoring range for each IBI, the corresponding quality rating, and the scores in percent form.

**Table 2.1 Interpretation of site IBI scores.**

INVERTEBRATE IBI SCORE INTERPRETATION			VEGETATION IBI SCORE INTERPRETATION		
Point Scores	Quality Rating	Percent Score	Point Scores	Quality Rating	Percent Score
6 – 14	Poor	<50%	7 – 15	Poor	<46%
15 – 22	Moderate	50 – 76 %	16 – 25	Moderate	46 – 74%
23 – 30	Excellent	>76%	26 – 35	Excellent	>74%

The ratings (poor, moderate, and excellent) are useful to give the wetland a qualitative description, which can make it easier to describe the overall quality of the wetland. A wetland described as having poor quality would have low species richness (number of species) and diversity and dominated by pollution tolerant species. A wetland of excellent quality would have high diversity and species richness and would include species that are sensitive to pollution or human disturbance. It should be noted that the invertebrate and vegetation IBIs have slightly different ratings based on the scoring range. This is due, in part, to the number of metrics evaluated in each IBI: six for the invertebrate IBI and seven for the vegetation IBI.

Converting IBI scores to percentages allows for the ability to compare the site scores over several years. Thus, the trend in the vegetation or invertebrate IBI can be evaluated. Additionally, the percent scores allow comparison of the IBI results for a given year. This may be helpful to determine if the scores are consistent, and to determine if additional data collection or more intensive evaluation is necessary to characterize the wetland.

IBI point scores can be used to directly compare sites for a given year; however, they cannot be used to compare sites from year to year because:

- The 1998 invertebrate IBI was scored using seven metrics as compared to the six that have been used in 1999 until present.
- The ranges used to determine the quality rating have been modified since 1998 and numerous scoring sheet and metric modifications have been occurring as well.
- The total possible score is not the same for the two IBIs (vegetation IBI has seven metrics with a possible 35 point score while the invertebrate IBI has six metrics with a possible 30 point score).

## 2.5 Using the Data

Biological data can be difficult to interpret and use. Converting the data collected to metrics and indexes is helpful in interpreting and presenting the data. The methods used in WHEP allow one to identify wetland health conditions. However, they do not determine the cause of poor wetland health. Once a condition of poor wetland health is identified and confirmed, additional testing and analysis of the wetland may be necessary to further define the problem. For example, monitoring of nutrient and/or chloride may be appropriate. To identify the cause of poor wetland health, analysis of surrounding land use, stormwater inputs and other potential stressors is the next step.

For those wetlands identified as having excellent wetland health, local governmental organizations may choose to adopt requirements to provide protection to these wetlands in order to maintain wetland health. Where poor wetland health or declining trends are indicated, steps may need to be taken to help reverse the trend. Best management practices (BMPs), actions taken to reduce pollutant loading or stressors to the wetland, may need to be implemented within the wetland or in the surrounding watershed.

When BMPs are implemented, biological monitoring can be used to help track the impacts of the BMPs on the wetland. Continued monitoring can identify a change in trend or improvement in a wetland.

### 3.0 General Results and Recommendations

#### 3.1 2025 Sampling Season Results

During the 2025 sampling season, twelve citizen teams (Apple Valley, Burnsville, Dakota County Parks, Eagan, Farmington, Hastings, Lakeville, Mendota Heights, North Cannon River Watershed Management Organization, Rosemount, South St. Paul, and West St. Paul) monitored 42 wetlands in ten cities in Dakota County, one watershed management organization, and Dakota County Parks. Thirteen of these wetlands were sampled twice through citizen cross-checks. Four wetland vegetation samples and eleven invertebrate samples were checked for accuracy through the quality control check performed by Bolton & Menk, Inc.

Figure 3.1.1 and Table 3.1.1 show the overall wetland health ratings based on invertebrate and vegetation data assessed for WHEP in 2025. Based on invertebrate scores, 5 of the wetlands rated excellent, 19 rated moderate and 18 rated poor. Invertebrate scores ranged from 6 to 26 out of a maximum of 30 points. Based on vegetation scores, 5 wetlands rated excellent, 26 rated moderate, and 11 rated poor. Vegetation scores ranged from 13 to 27 out of a maximum of 35 points.

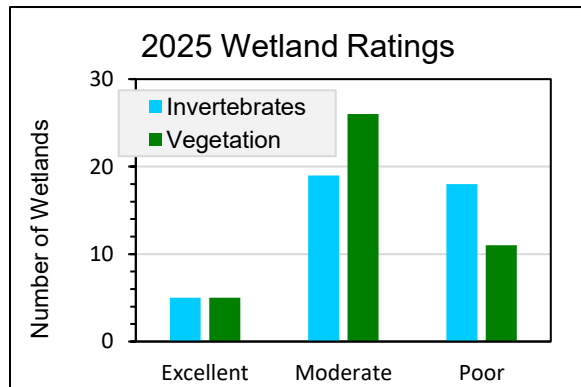


FIGURE 3.1.1. OVERALL WHEP WETLAND HEALTH RATINGS IN 2025

Several of the sites showed different ratings for vegetation versus invertebrates. Seventeen of the wetlands showed agreeing ratings for vegetation versus invertebrates. Differing ratings per wetland may be the result of varying factors influencing the plant and invertebrate communities in each wetland. Possible factors affecting wetland quality are described in the next section. Each metric can achieve a score of 1, 3, or 5.

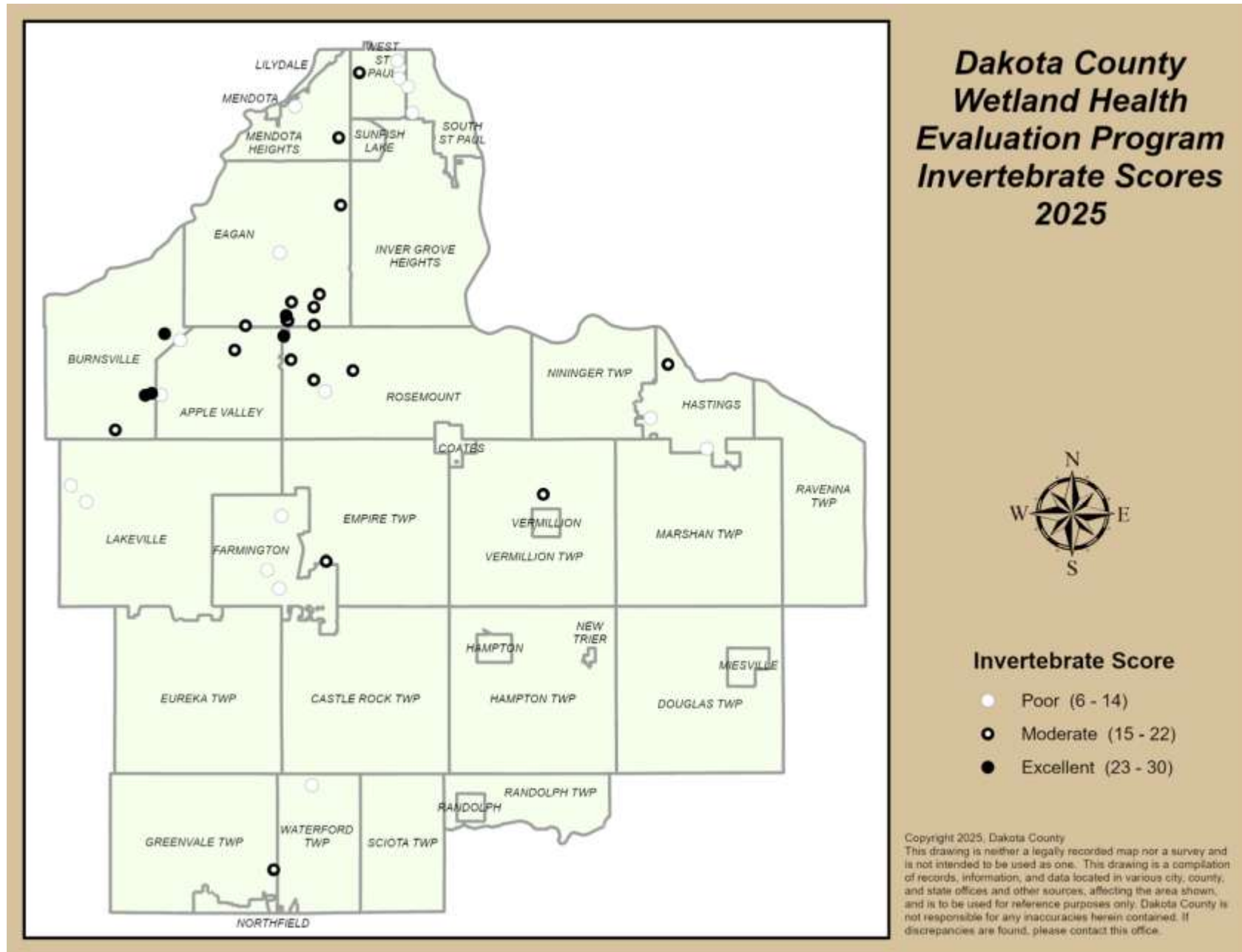
**Table 3.1.1 Wetland Ratings by City Based on IBI Scores**

Values are listed as number of wetlands rated in each category for Invertebrates/Vegetation

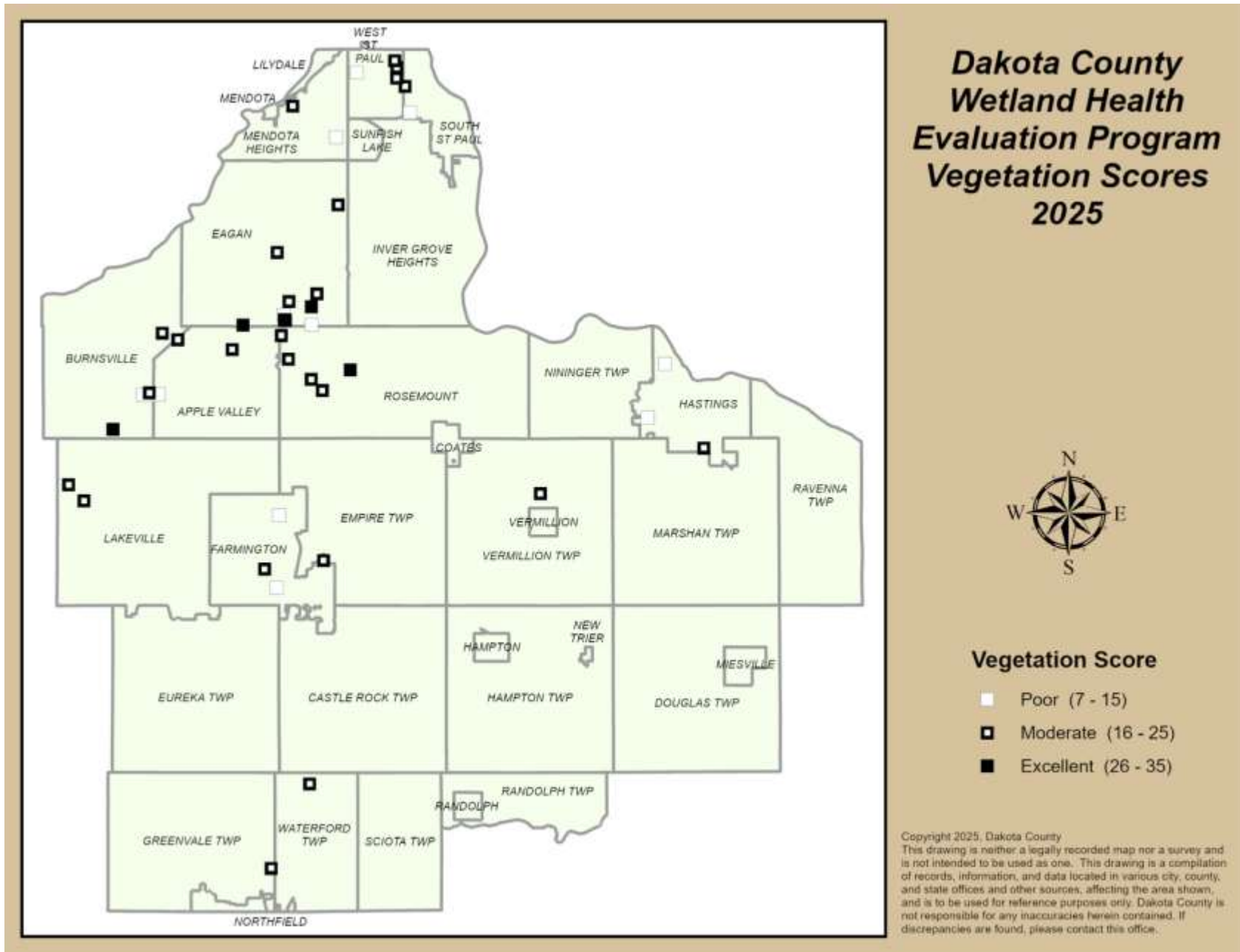
City	Excellent		Moderate		Poor	
	Invert	Veg	Invert	Veg	Invert	Veg
Apple Valley	1	0	1	3	2	1
Burnsville	3	1	1	2	0	1
Dakota County Parks	1	3	6	3	1	2
Eagan	0	0	2	3	1	0
Farmington	0	0	1	2	3	2
Hastings	0	0	2	2	2	2
Lakeville	0	0	0	2	2	0
Mendota Heights	0	0	1	1	1	1
North Cannon River	0	0	1	2	1	0
Rosemount	0	1	3	3	1	0
South Saint Paul	0	0	0	1	2	1
West Saint Paul	0	0	1	2	2	1
<b>Totals</b>	<b>5</b>	<b>5</b>	<b>19</b>	<b>26</b>	<b>18</b>	<b>11</b>

Note: For an interpretation of scores, please see page 7.

**Figure 3.1.2 2025 Invertebrate Scores.** Shows the distribution of wetland health ratings for each site monitored in 2025.



**Figure 3.1.3 2025 Vegetation Scores.** Shows the distribution of wetland health ratings for each site monitored in 2025.



In an attempt to help identify why there are differences in wetland quality, different factors that impact the wetlands were evaluated.

### 3.1.1 Aquatic Invasive Species and Wetland Health

Invasive species are non-native organisms that spread to ecosystems beyond their natural historic range, causing harm to economic, environmental, or human health. Aquatic invasive species (AIS) are invasive species more generally found in or near water. Invasive species are often aggressive, spread quickly, and take over areas. They impact native habitat and species diversity. They may be introduced to new areas by wind, water, animals, humans, and other means of transport.

Early detection of invasive species can greatly reduce their success and spread. New infestations or smaller populations of invasive species require less resources to control, and chances of eradication are improved. Once established, invasive species are very difficult and expensive to control, and eradication is unlikely. Detecting and reporting the presence of invasive species early in their introduction to a new area is key. WHEP provides an opportunity for aquatic invasive species to be detected and reported early so that control can be implemented before they take over a wetland.

Aquatic invasive species education and early detection tools have been incorporated into WHEP, preparing WHEP volunteers as early detectors. WHEP volunteers receive AIS training including a presentation highlighting AIS to watch for, identification tips and techniques, and how to record and report AIS to authorities. Hands-on identification practice of native and non-native species is also offered at the invertebrate and vegetation trainings to heighten species recognition, demonstrate comparisons of species, and improve identification skills. WHEP volunteers also receive AIS identification materials, including the [AIS Identification Guide](#) by the University of Minnesota CFANS, and the [Aquatic Invasive Species Early Detectors: A How to Guide](#) by Minnehaha Creek Watershed District. Each team receives AIS early detection field data sheets to record findings during each wetland visit.

Invasive species that have not yet been introduced to Minnesota or exist in limited distribution, but are known to thrive in neighboring states with similar climates and ecosystems are being targeted for early detection. Highlighted species in WHEP training include starry stonewort (*Nitellopsis obtusa*), Hydrilla (*Hydrilla verticillata*), Brazilian elodea (*Egeria densa*), brittle naiad (*Najas minor*), Carolina fanwort (*Cabomba caroliniana*), water chestnut (*Trapa natans*), flowering rush (*Butomus umbellatus*), yellow iris (*Iris pseudacorus*), non-native phragmites (*Phragmites australis*), water hyacinth (*Eichhornia crassipes*), water lettuce (*Pistia stratiotes*), and other invasive species already found in the wetlands. In Dakota County, flowering rush (limited number) has been found in Lake Byllesby, and yellow iris has been found in Lakeville at Kingsley Lake and Orchard Lake.

WHEP teams are expected to report the presence of invasive species in the wetlands that they monitor. Findings in 2025 were as predicted. Many of the WHEP wetlands have been found to contain invasive species. Reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and invasive mystery snails (*Cipangopaludina chinensis*) are common wetland invaders that were observed in wetlands monitored in 2025. Reed canary grass was observed in 23 of the wetlands, purple loosestrife was observed in 4 of the wetlands, curly leaf pondweed was observed in 4 wetlands, Eurasian watermilfoil was observed in 3 wetlands, invasive mystery snails were found in 4 wetlands, and goldfish were observed in one wetland. It is possible that other invasive species exist in wetlands but were not observed near monitoring sites at each wetland.

An analysis of variance (ANOVA) was completed to determine if the differences in wetland health scores were affected by the presence of invasive species, and statistically significant. Differences in IBI scores for wetlands with invasive species present vs. not present were not statistically significant.

### **3.1.2 Natural versus Altered Wetlands**

Wetlands were classified as natural, altered by stormwater input, or created based on information provided in the site identification form from city staff. The overall score averages of each site indicate that created, stormwater, and natural wetlands are scoring similarly. An analysis of variance (ANOVA) was completed to determine if the differences were statistically significant. Differences in IBI scores comparing natural, created, and stormwater wetlands were not statistically significant.

The score range between the created, stormwater, and natural wetlands is similar. The most recent invertebrate scores for each wetland show the lowest invertebrate scores for created, stormwater, and natural wetland, respectively, are 11, 8, 8. The highest invertebrate scores, respectively, are 18, 26, 26. The lowest vegetation scores for created, stormwater, and natural wetlands, respectively, are 15, 9, 11. The highest vegetation scores, respectively, are 29, 29, 33.

Wetland health scores vary from year to year. In 2025, the wetland health was not affected by the type of wetland (created, stormwater, or natural). One would expect that natural wetlands would support the richest and most diverse invertebrate and plant communities. Stormwater altered wetlands tend to have a greater short-term bounce (increase or decrease in water level) and more frequent fluctuations than natural wetlands. They are also inundated with pollutants found in stormwater. Created wetlands likely receive stormwater and thus would have some of the same impacts as stormwater wetlands and would take time to colonize. These factors are also likely to affect the type and diversity of plants found in the wetlands. These results infer that the created wetlands are functioning similarly to the natural wetlands as far as the biological community.

### **3.1.3 Impervious Area in the Watershed**

Data on percent impervious area (hard cover such as streets, parking lots and rooftops) in the watershed was compiled for each wetland based on the site identification forms submitted by each team sponsor. Wetlands with higher impervious areas in the watershed, likely receive more runoff and pollutants. Impervious areas ranged from 0 to 80% (Table 3.1.3). Studies have shown that stream degradation occurs at low levels of imperviousness (about 10%)<sup>1</sup>. A similar relationship may exist for wetlands too. Linear regressions have not shown any relationship between imperviousness and IBI scores. Watershed impervious area is likely a factor affecting wetland vegetation and invertebrate life, but there are other factors that are impacting these communities.

<sup>1</sup>Schueler, T. 2000. The Importance of Imperviousness, Article 1 in The Practice of Watershed Protection. Center for Watershed Protection. Ellicott City, MD.

### **3.1.4 Effect of Wetland Water Levels on Wetland Health**

Wetland water levels fluctuate from year to year. They may fluctuate daily in response to rainfall and drought, as well. Water levels may affect site sampling placement. High water levels may push plots farther upland than normally placed. Water levels may also affect the species dominance and diversity. Wetter conditions may encourage more submergent and emergent species of vegetation. Drought may reduce the population of invertebrates. Water levels were measured by volunteer WHEP teams within the vegetation plot sites. The lowest water level measured within the plots was zero feet, the highest water

level was 4.9 feet (1.5 m), and the average water level was 1.8 feet. A linear regression was completed to compare IBI scores to average plot depth. No significant relationship between IBI score and average plot depth was found for either invertebrates or vegetation. Results assume that vegetation and invertebrates sampling occurred in the same general vicinity of the wetland.

### 3.1.5 Winter Salt Watch

Since 2021, Dakota County WHEP has participated in Winter Salt Watch, a chloride monitoring program managed by Izaak Walton League of America (IWLA). The purpose is to measure chloride levels in surface waters and connect the data nationwide. IWLA provided Winter Salt Watch kits for the WHEP teams to measure chloride levels in each of the monitored wetlands.

Chloride is a water pollutant of concern. Salt applied to roads and walkways during Minnesota winters contains chloride. Stormwater readily transports chloride from the hard surfaces to the rivers, lakes, wetlands, and groundwater. Once dissolved in the water, there is no easy way to remove the chloride. Increased chloride levels in surface waters can be harmful to aquatic life and disrupt natural functions of surface waters. The State and Federal Chronic Water Quality Standard for Chloride is 230 mg/L<sup>2</sup>. This is about 1 teaspoon of salt in 5 gallons of water. Chloride levels exceeding this standard are toxic to fish, aquatic invertebrates, and amphibians.

WHEP teams collected chloride measurements in May/June (during invertebrate collection) using Hach Quantab Chloride titration test strips. The test strips are simply placed in a clean container of water from the wetland site for approximately ten minutes. The test strip and associated chart indicate the level of chloride present in the water. The Quantab strips are certified to have an accuracy of  $\pm 10$  percent ( $\pm 0.2$  Quantab Units)<sup>3</sup>.

Twenty-six of the 42 wetlands were tested for chloride, in 2025. A wide range of chloride concentrations were observed (29-227 ppm). Ten of the wetlands measured less than 30 ppm (off the chart). No wetlands measured chloride levels exceeding the chronic standard; however, Eagan's Bur Oaks Pond (E-52) came close with a measurement of 227 ppm. Figure 3.1.5 shows the comparison of chloride levels to the invertebrate and vegetation scores calculated in 2023. Only one sample was collected from each wetland. There is not enough data to analyze a trend or complete statistical analysis.

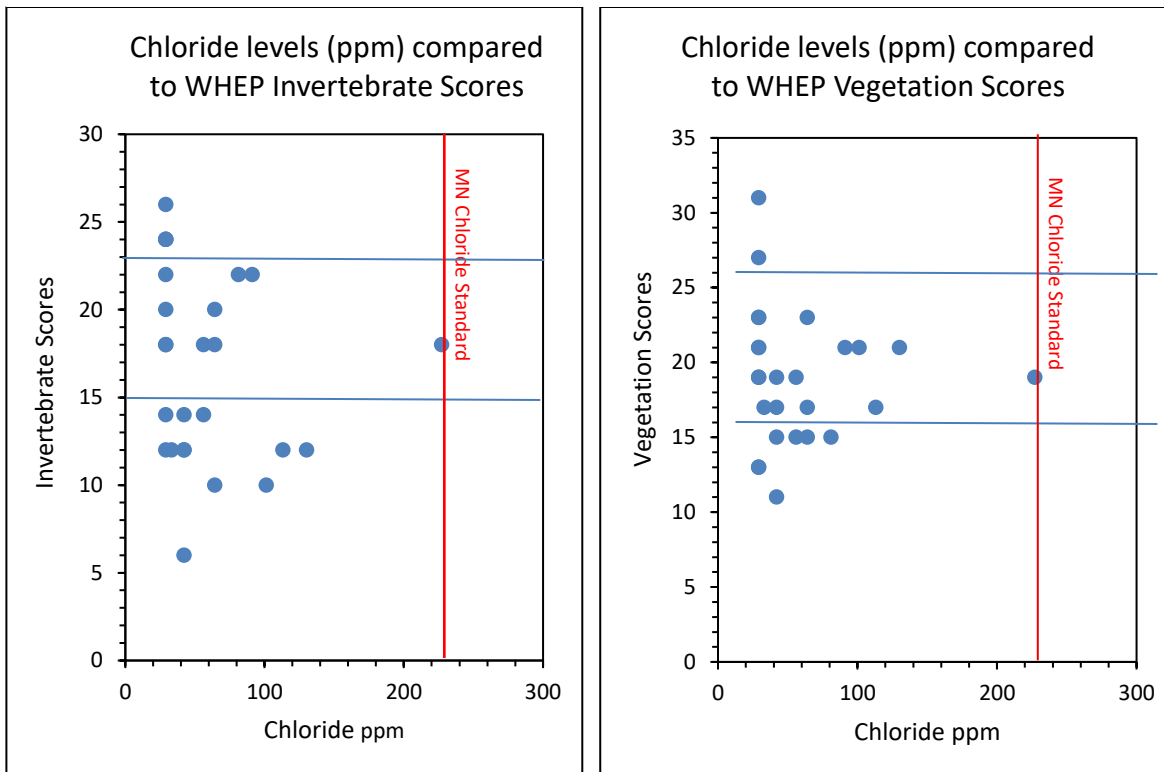
In general, chloride concentrations in the wetlands are likely to be higher during the winter and in the spring than what is found in May or June. Chloride will also be higher in the bottom of the wetland rather than at the surface where the samples were collected per the procedures of the test kit. A study on a shallow wetland in Madison, Wisconsin showed that ice thickening over the winter can increase chloride concentrations that are above natural background beyond the toxicity threshold for much of the winter.<sup>4</sup> Additional monitoring of the wetlands with elevated chloride concentrations would be helpful to determine if and for how long they are exceeding the chloride standard.

<sup>2</sup>Minnesota Pollution Control Agency. 2018. TCMA Chloride TMDL – Applicable Water Quality Standards and Numeric Water Quality Targets. [stormwater.pca.state.mn.us](http://stormwater.pca.state.mn.us)

<sup>3</sup>Hach. 2020. What is the accuracy of the Quantab Chloride Titration Test Strips? [support.hach.com](http://support.hach.com)

<sup>4</sup>Hilary A. Dugan, Greta Helmueller, John J. Magnuson, Ice Formation and the risk of chloride toxicity in shallow wetlands and lakes. *Limnology and Oceanography Letters* 2, 2017, 150-158.

**Figure 3.1.5 2025 Chloride Levels Compared to WHEP Invertebrate and Vegetation Scores**



## 3.2 Is Volunteer Data Usable?

WHEP was designed with several layers of quality assurance and quality control to be able to identify and correct potential errors. This was put into place to make sure the data collected is scientifically justifiable and will be used. The WHEP protocol includes standard annual training; citizen monitoring leaders and team leaders that check on the team’s collection methods, data entry, and metric calculations; cross-checks by other teams; and quality control checks by a professional consultant. With all of these checks in place, data users can be assured that the data and information presented is acceptable.

### 3.2.1 2025 Cross-checks

In a typical year, each team is responsible for evaluating one wetland of another team (Table 3.2.1). This citizen cross-check provides a second sample for the selected wetland. The purpose of this check is to determine if two different samples provide similar results for the vegetation and invertebrate IBI. Large wetlands and wetlands with complex plant communities may have different site scores, depending on where the samples are collected. The two samples are considered consistent if the IBI scores differ by six points or less. Most of the samples are consistent (Table 3.2.1 and Figure 3.2.1). Invertebrate scores for DC-4, H-56, and SSP-1 were inconsistent, differing by 8, 10, and 10 points respectively. The vegetation scores for MH-2 were inconsistent, differing by 8 points. The varied scores may indicate a difference in sampling technique, a change in conditions between sample dates, differences in identification accuracy, or some other cause. Below lists the obvious differences in scoring for those wetlands that were inconsistent. Data collected by the original citizen team is used for the individual wetland analysis in Section 4.0 of this report. Invertebrate scores between citizen team and cross-check team for sites DC-5, E-51, L-8, and MH-2 were identical. Vegetation scores between citizen team and cross-check team for sites B-1, DC-5, H-56, and WSP-1 were identical. Many other site cross-check scores were close in comparison. A general explanation of differences between inconsistent scores are as follows:

Invertebrate cross-check score inconsistencies:

- *DC-4*: The Dakota County Parks team identified a more diverse invertebrate community than the cross-check team. This affected the Leech, *Corixidae*, ETSD, Snail, and Total Invertebrate Taxa Metrics scores.
- *H-56*: The Hastings team identified a more diverse invertebrate community than the cross-check team. This affected the Leech, Odonata, Snail, and Total Invertebrate Taxa Metrics scores.
- *SSP-1*: The cross-check team identified a more diverse invertebrate community than the South St. Paul team. This affected the *Corixidae*, Odonata, ETSD, and Total Invertebrate Taxa Metrics scores.

Vegetation cross-check score inconsistencies:

- *MH-2*: The cross-check team found a more diverse vegetation community than the Mendota-Heights team. This affected the Vascular, Grass-like, and *Carex* Metrics scores.

Figure 3.2.1 Cross-check Comparisons of IBI Scores

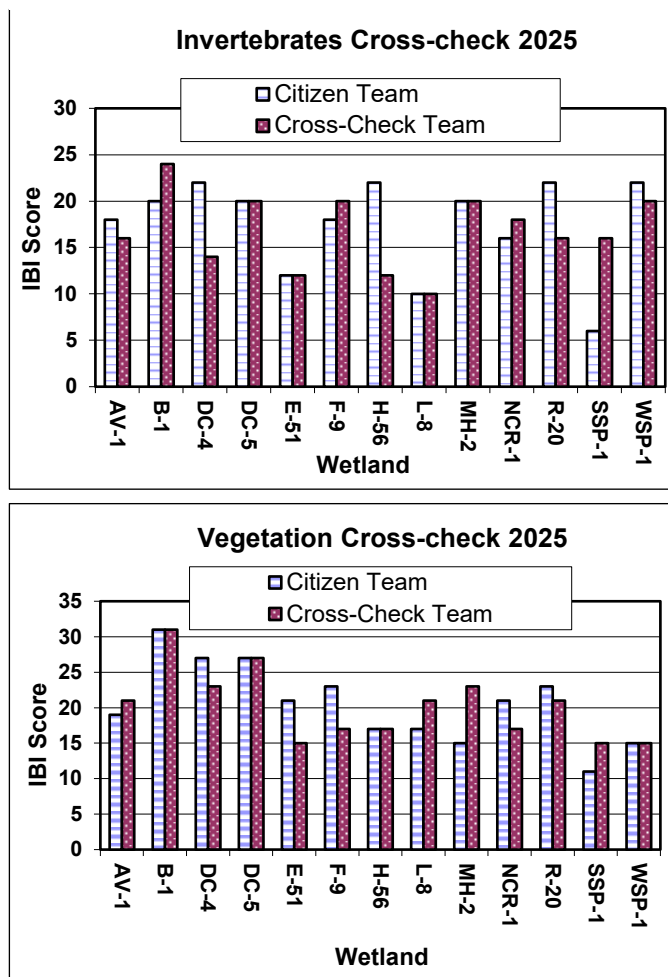


Table 3.2.1 Citizen cross-checks (those considered inconsistent are shown in bold)

Citizen Team	Cross-Check Team	Wetland Evaluated	Invertebrate Score Comparison		Vegetation Score Comparison	
			Citizen	x-check	Citizen	x-check
Apple Valley	Dakota County Pk	AV-1	18	16	19	21
Burnsville	Lakeville	B-1	22	24	31	31
Dakota Co Parks	Apple Valley	DC-4	<b>22</b>	<b>14</b>	27	23
Dakota Co Parks	Eagan	DC-5	18	20	27	27
Eagan	Dakota Co Parks	E-51	12	12	21	15
Farmington	Rosemount	F-9	18	20	23	17
Hastings	NCRWMO	H-56	<b>22</b>	<b>12</b>	17	17
Lakeville	Burnsville	L-8	10	10	17	21
Mendota Heights	West St. Paul	MH-2	20	20	<b>15</b>	<b>23</b>
NCRWMO	Hastings	NCR-1	16	18	21	17
Rosemount	Farmington	R-20	20	16	23	21
South St. Paul	Mendota Heights	SSP-1	<b>6</b>	<b>16</b>	11	15
West St. Paul	South St. Paul	WSP-1	22	20	15	15

### 3.2.2 2025 Quality Control Checks

Quality control checks were conducted at four sites for vegetation and eleven sites for invertebrates in 2025 (Figure 3.3.2) by Bolton & Menk, Inc. The invertebrate check was conducted by reviewing one identified and preserved invertebrate sample per team. The vegetation check was conducted by re-sampling the area marked off by the citizen team using the WHEP procedures and comparing results. The quality control review was done independently of the citizen team. The following sites were checked as a measure of quality control: AV-1, B-1, DC-5, E-50, F-9, H-6, L-7, MH-2, R-20, SSP-3, and WSP-1 were reviewed for invertebrate identification accuracy; DC-9, E-50, H-6 and WSP-1 were reviewed for vegetation identification accuracy.



HASTINGS' LAKE REBECCA (H-6)



DAKOTA COUNTY PARKS' STAR POND WEST (DC-9)



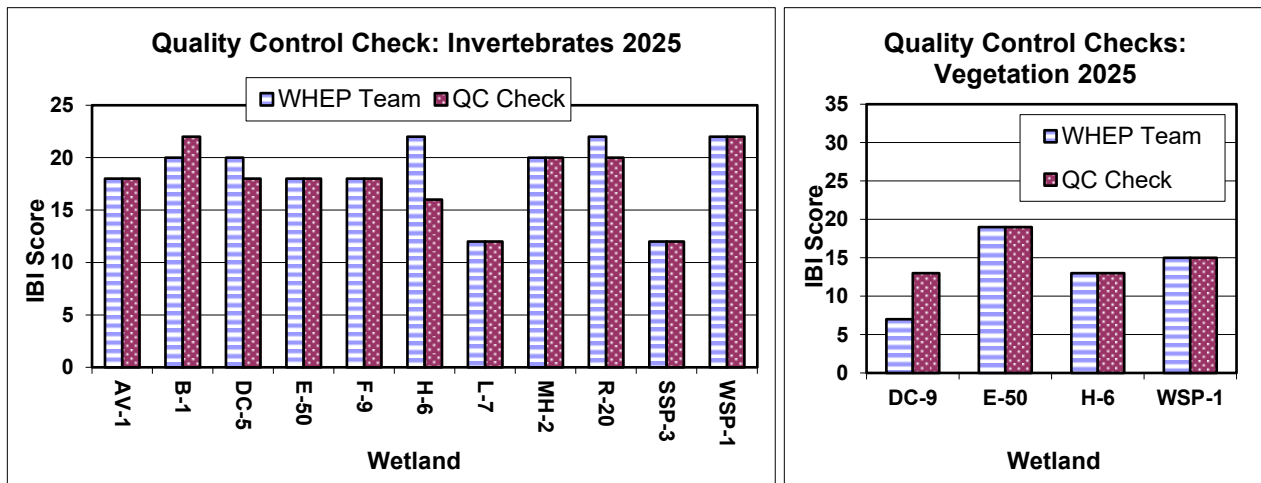
WEST ST. PAUL'S MUD LAKE (WSP-1)



EAGAN'S LP-34 (E-50)

All team invertebrate and vegetation scores were found to be consistent with the quality control checks. Each WHEP team demonstrated competency in both invertebrate identification and vegetation surveys, and illustrated that citizen volunteers participating in a high-quality program that provides good training and oversight can collect usable data.

Figure 3.2.2 Quality Control Checks (IBI Score Comparison)



WHEP also provides review of the data sheets for scoring and data transfer errors. This review is conducted by Bolton & Menk, Inc. In 2025, recently revised datasheets created confusion in calculating some metrics. The datasheets were reviewed and corrected for errors by Bolton & Menk, but errors related to calculating a metric score were not recognized. There was a total of 17 errors found in the invertebrate and vegetation datasheets; all were transfer errors. The transfer errors were due to either the collected data being incorrectly transferred to their proper metrics or metric scores not being successfully transferred to the final total IBI score calculation. Corrections affected the scores by zero to six points. Many of these errors could be prevented by double-checking the transfer and math work on the data sheets. The quality control checks are working well. Errors are identified, corrections are made as needed, and the teams can review the changes and strengthen their own skills.

### **3.3 WHEP Historical Data**

Since WHEP began in 1997, 212 wetlands have been sampled, but not all are sampled every year. Figures 3.3.1 and 3.3.2 provide an overall picture of wetland health in Dakota County based on the most recent sample collected for each wetland. The historical data can be found for each site since the start of the program at [www.mnwhep.org](http://www.mnwhep.org). Section 4.0 includes the sites sampled in 2024 with an analysis of historical data, identifying sampling history and trends based on a trend analysis for those with adequate data. There is a spread in the distribution of poor, moderate and excellent ratings.

Figure 3.3.1 Most Recent Invertebrate Scores

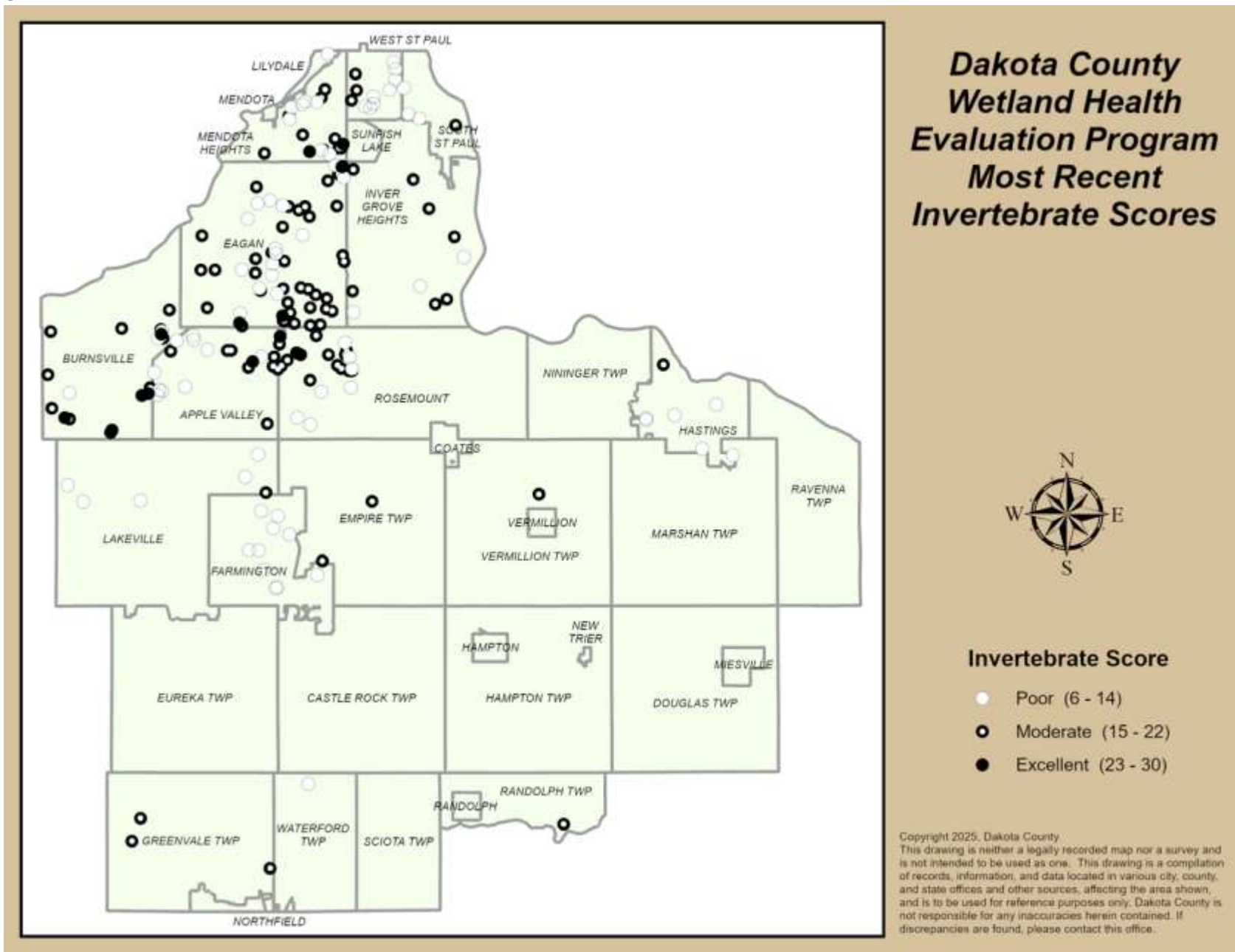
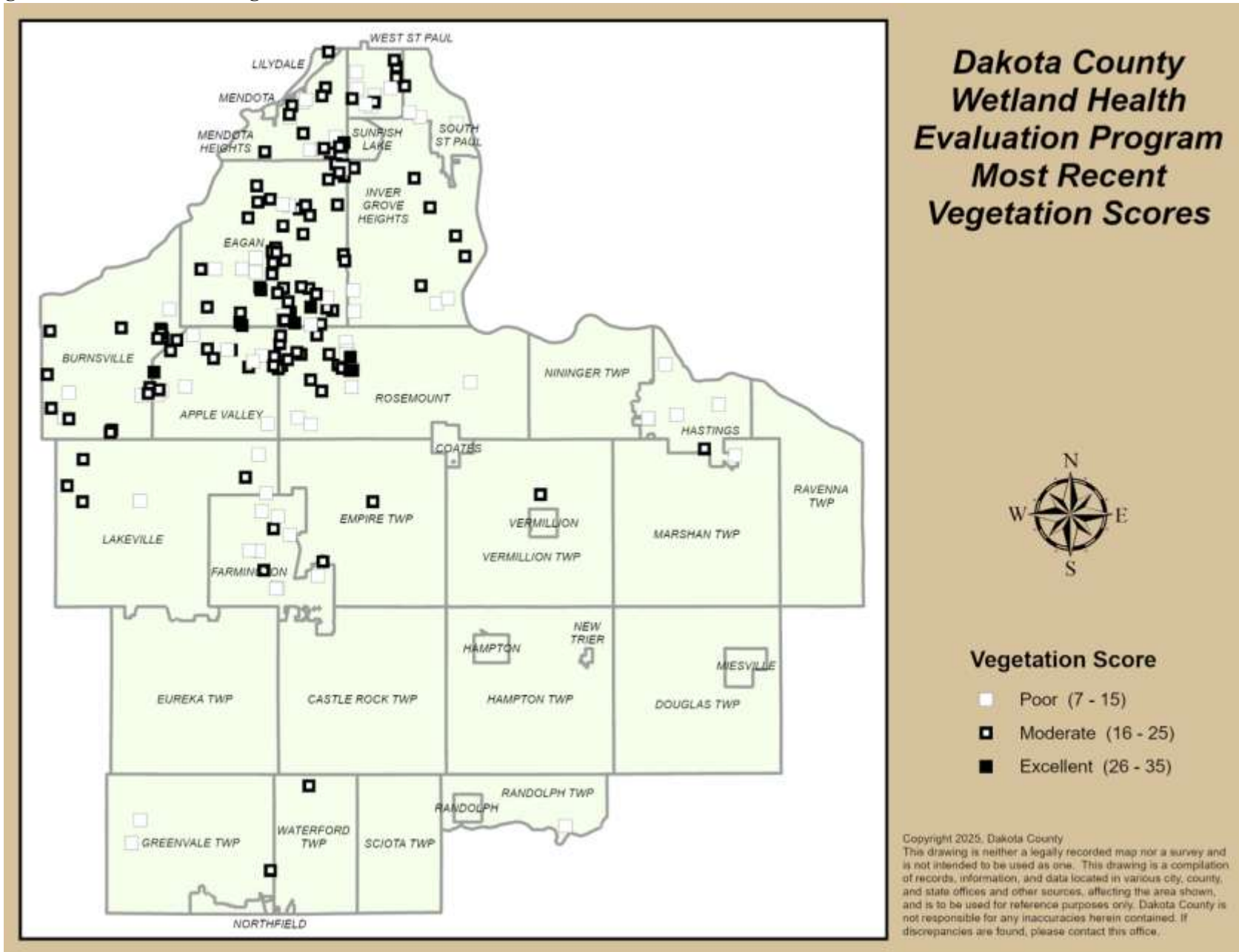


Figure 3.3.2 Most Recent Vegetation Scores



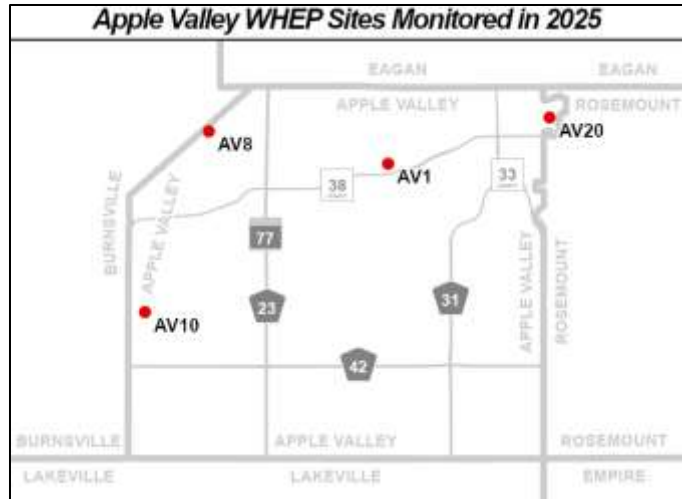
## 4.0 Wetland Evaluations

### 4.1 Apple Valley Wetlands

Four wetlands were monitored within the City of Apple Valley in 2025. This is the 28<sup>th</sup> year the City has participated in WHEP! Twenty-one wetlands have been monitored in Apple Valley since the initiation of WHEP in 1997.

**Team Leader:** Tom and Cindy Taintor

**Team Members:** Sam Berger, Brad Blackett, Noah Burns, Dexter Ellingson, Reed Ellingson, Brian Hodges, Kyle Jackson, Robin Jakubowski, Karen Levisen, Gail Machalek, Shannon Pipho, Brenda Reller, Jill Smook, John Sole, Natalie Sole, Lois Williams, and Kevin Wuebben



TOM AND CINDY TAINTOR

Tom and Cindy Taintor are co-leaders for the Apple Valley WHEP team. They have been involved with WHEP for many years. Cindy previously commented, “It’s always a pleasure to work with the Apple Valley volunteers. We deeply appreciate how well they work together to collect and process the samples while enjoying the wetlands and the interesting things we find. And this year, a couple of our youngest volunteers were excited to have grown enough to be able to fit into our smallest waders.

“We enjoy learning about the wetland plants and critters, and the opportunity to collect reliable information about the health of local wetlands. We appreciate the training and support from Dakota County and the City of Apple Valley, and especially the fantastic Apple Valley team members who make it fun.”



BRIAN HARTMAN

Brian Hartman is the Water Resources Specialist for the City of Apple Valley. Some of the primary job duties as the Water Resources Specialist include managing lake projects, natural resources permitting, following the city’s state MS4 permit, water sampling, managing wetland/pond items, conducting stormwater inspections, managing the city’s Rainwater Rewards Program, managing the city’s Deer Management Plan, amongst various other duties.

This was Brian’s first-year coordinating Apple Valley’s WHEP Program. He said, “It was very fun seeing how this program works, and all the great people associated with it. We will be using the data collected by WHEP to track our wetlands within the city to see where we can make improvements to our vegetative community and wildlife habitat. This data is important for tracking before and after results when we have projects in the wetlands corresponding areas. Specifically, for wetland AV-10 in

Alimagnet Park, we will be using this data to help establish a new Natural Resources Management Plan with Dakota County for Alimagnet Park.

“We want to thank all the volunteers for their hard work, time and dedication to WHEP this year! The city looks forward to working together with all the WHEP members in the upcoming years as their work is vital to our Natural Resources in Apple Valley.”

## Apple Valley General Wetland Health

Figure 4.1 presents an overall view of wetland health for all the 2025 monitoring sites in Apple Valley based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.1 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent

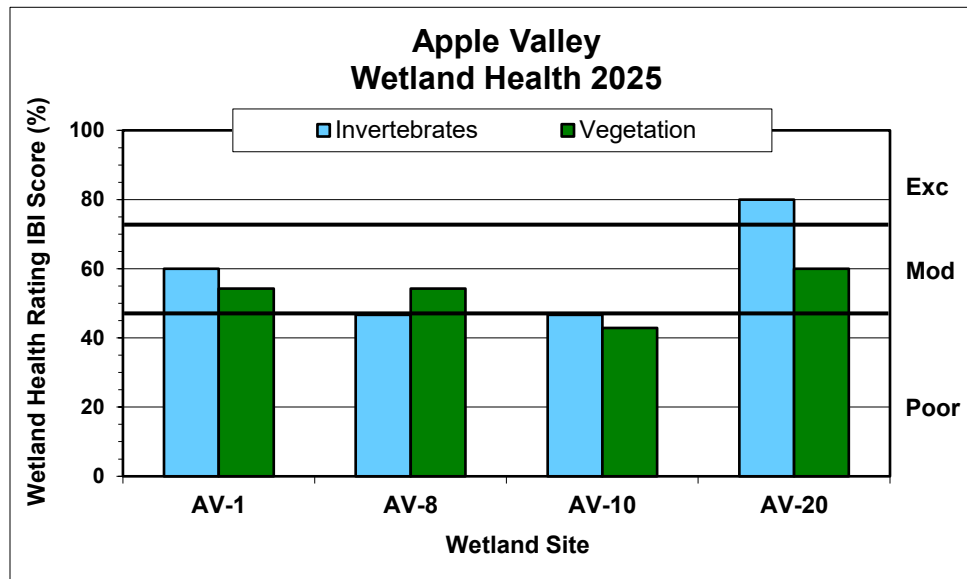


Figure 4.1 Apple Valley site scores (percent) for the 2025 sampling season

or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate, or poor. The Apple Valley wetlands exhibited poor to excellent wetland health based on invertebrate data and poor to moderate wetland health based on vegetation data. The invertebrates and vegetation scores for AV-20 were inconsistent, differing by 20 percent.

### 4.1.1 Hidden Valley (AV-1)

Hidden Valley (AV-1), also known as EVR-P53, is a 2.0-acre, type 4 wetland within the Vermillion River Watershed. It drains locally to a wetland known as EVR-P53, and then through a series of wetlands and lakes. The wetland watershed is 21 acres with 15 acres of direct drainage, and it is 35 percent impervious. It has two inlets along the southern border, two inlets on the northern end, one equalizer pipe along the eastern border, and one outlet along the western border. Shallow sumps have been placed at the inlets. This wetland is part of the City’s stormwater management plan, and it is designated as a Manage 2 wetland with a goal to observe the effects of the wetland after the drawdown at Long Lake. Wetlands assigned to this category are characterized by high or exceptional restoration potential but are not located in public or open space.





The wetland is located within a privately-owned residential development and is surrounded by homes. A vegetative buffer exists between the wetland and homes/roads. Historic aerial photos show an increase in open water/ponding depth. An adjacent County trail (North Creek Greenway) was constructed in 2016. Infiltration BMPs were included during the trail construction and native seed was used to establish any areas that were disturbed adjacent to the wetland. Erosion was observed on the northeast inlet during pond inspections in 2022.

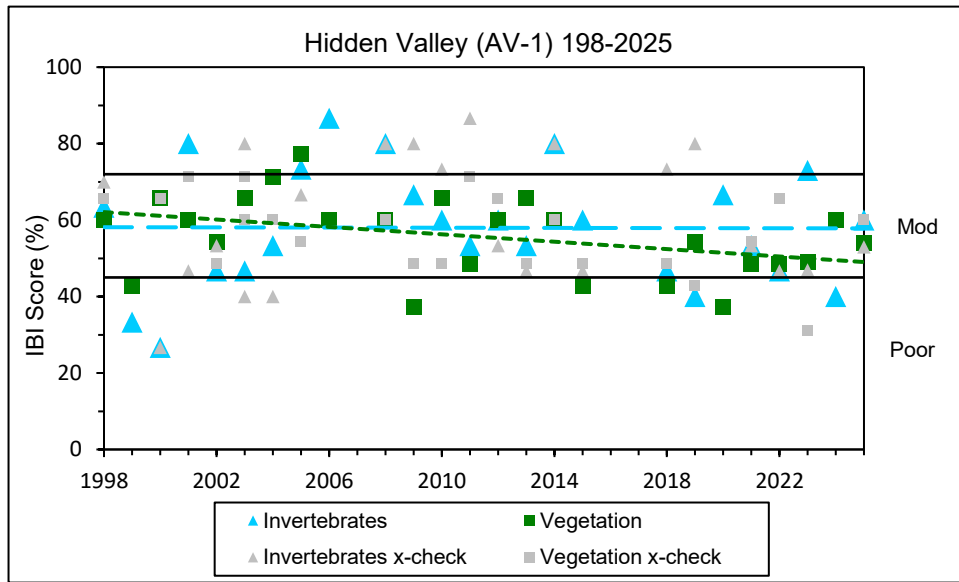
### Wetland Health

**Site Observations:** The wetland is at the bottom of a steep hill. The slope of the wetland is gentle at the water’s edge, but the water deepens quickly. The wetland substrate is semi-soft with ankle-deep muck. There is a large vegetative buffer between the homes and the wetland that includes upland vegetation like brome grass (*Bromus* sp.), thistle (*Cirsium* sp.), beebalm (*Monarda* sp.), and vervain (*Verbena* sp.). Cattails (*Typha* sp.), reed canary grass (*Phalaris arundinacea*), bur-reed (*Sparganium* sp.), and bent grass (*Agrostis* sp.) surround the wetland. Coontail (*Ceratophyllum* sp.) and pondweed (*Potamogeton* sp.) abundantly fill the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and mosquito fern (*Azolla* sp.) float upon the water surface. Water plantain (*Alisma* sp.), thistle (*Cirsium* sp.), bedstraw (*Galium* sp.), field-mint (*Menta arvensis*), smartweed (*Polygonum* sp.), water crowfoot (*Ranunculus* sp.), and stinging nettle (*Urtica* sp.) were also present. Leeches, dragonflies, damselflies, snails, trueflies, crustaceans, and beetles and bugs were collected.

**Table 4.1.1 Hidden Valley (AV-1) Wetland Health based on Index of Biotic Integrity (IBI)**

2025 Data (AV-1)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Moderate (19)
<b>Cross-check Rating (IBI score)</b>	Moderate (16)	Moderate (21)
<b>Trend 1998-2025</b>	Stable	Decline

**Figure 4.1.1 Invertebrate and vegetation trends for Hidden Valley (AV-1)**



**Site Summary:** Hidden Valley has been surveyed 25 times since 1998. The invertebrate and vegetation health scores were consistent in 2025, both scoring moderate health. The invertebrates rebounded from 2024. A greater variety of leeches and dragonflies were identified in 2025 compared to the previous year. In general, the invertebrate and vegetation scores have been variable over the years fluctuating between excellent and poor. Several invertebrate and vegetation species are commonly present from year to year while others come and go, impacting the wetland health scores. The trendlines indicate that the invertebrate scores are stable and the vegetation scores are in slight decline. Variability in data may be due to factors such as changes in water level, survey timing, and varying monitoring locations within the wetland. This site was cross-checked by another WHEP team in 2025. Scores were consistent and data was similar between teams.

### 4.1.2 Chaparral Pond (AV-8)

Chaparral Pond (AV-8), also known as BD-P14, is a 1.5-acre, type 4 wetland located within the BD-14 subwatershed of the Black dog Watershed Management Organization. The wetland watershed is approximately 110 acres with 44 acres of direct drainage. The watershed has 30 percent impervious surface. There is one inlet along the southern border, one inlet along the east side (northern lobe), one equalizer pipe along the west border (southern lobe), and one outlet on the northern end of the wetland that drains towards Burnsville. This wetland is part of the City’s stormwater management plan and is designated as a Manage 1 Restore wetland with a goal to continue monitoring periodically over time.





The area surrounding the wetland is residential. A decent sized buffer surrounds portions of the wetland. Historic aerial photos show increased open water over time. It is possible that a portion of the wetland was excavated in the past, prior to WCA, for stormwater management purposes. Road reconstruction nearby and adjacent to the wetland occurred in 2016 and 2017. During these projects, sumps were installed at the pond inlets to catch sediment from street runoff.

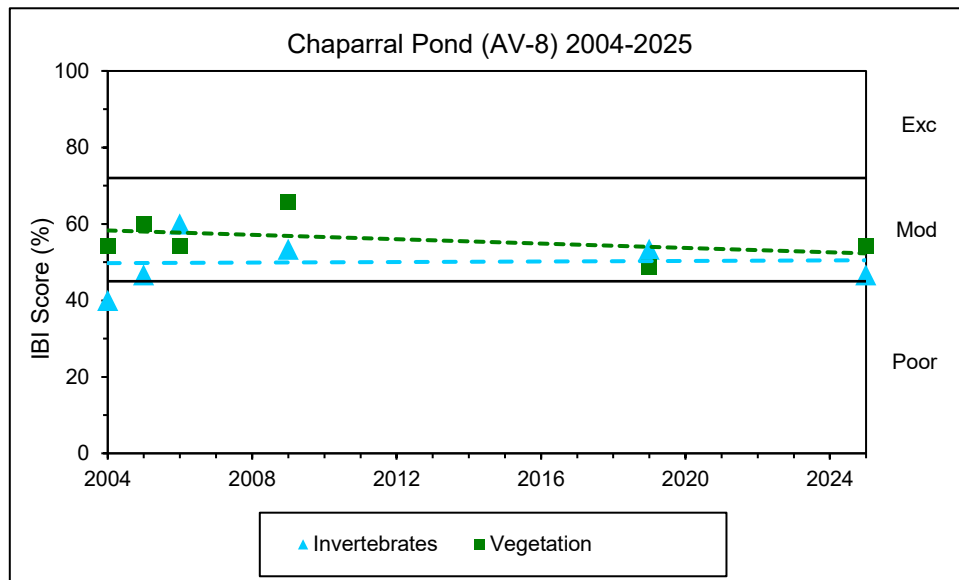
## Wetland Health

**Site Observations:** The wetland has a moderate slope and very mucky substrate. There are many fallen trees near shore. Dense tree cover surrounds the wetland, providing a natural buffer between it and both Chaparral Drive and Interstate 35E. Trees observed near the monitoring site include alder-buckthorn (*Frangula alnus*) and common buckthorn (*Rhamnus cathartica*). Creeping Jenny (*Lysimachia* sp.) dominated the shoreline and pondweed (*Potamogeton* sp.) filled the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) covered the surface of the water. Prairie cordgrass (*Spartina pectinate*), sedges (*Carex* sp.), bulrush (*Scirpus* sp.), cut grass (*Leersia* sp.), iris (*Iris* sp.), jewelweed (*Impatiens* sp.), and skullcap (*Scutellaria* sp.) were also present in the vegetation plot. Waterlilies were observed in abundance in the wetland but not found in the vegetation plot. Species of leeches, caddisflies, snails, trueflies, crustaceans, and beetles and true bugs were collected.

**Table 4.1.2 Chaparral Pond (AV-8) Wetland Health based on IBI**

2025 Data (AV-8)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Poor (14)	Moderate (19)
Trend 2004-2025	Stable	Stable

**Figure 4.1.2 Invertebrate and vegetation trends for Chaparral Pond (AV-8)**



**Site summary:** This is the sixth time that AV-8 has been monitored since the initial survey in 2004. The invertebrate and vegetation scores were consistent in 2025; however, the invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. Both health trends appear stable; however, more years of data help determine reliable health trends.

### 4.1.3 Alimagnet Park/Ridgeview Drive Wetland (AV-10)

Alimagnet Park/Ridgeview Drive Wetland (AV-10), also known as AL-P9.6, is a 0.5-acre, type 5 wetland within the Alimagnet Lake subwatershed of the Vermillion River Watershed, and lies just southeast of Alimagnet Lake. The wetland watershed is 25 acres with 5 acres of direct drainage, and it is 20 percent impervious. There is one inlet in the southeast corner of the wetland and one outlet along the western border. It is designated as a Manage 2 wetland with a goal to continue to monitor over time. It is within the Alimagnet TMDL drainage. With grants received from the County, the City will establish a Natural Resource Management Plan in Alimagnet Park and establish baseline data for future improvements under the plan.





The wetland is located within an active park that features a frisbee golf course. The surrounding area includes wooded parkland and residential neighborhoods. Some minor disturbances to the understory have occurred within the parkland from installation of the frisbee golf course; however, disturbances within this watershed are limited. A raingarden was installed upstream of the wetland, by the parking lot, in 2008. It will treat some of the stormwater that flows to this wetland. One stormwater pond and one upstream wetland also serve as BMPs.

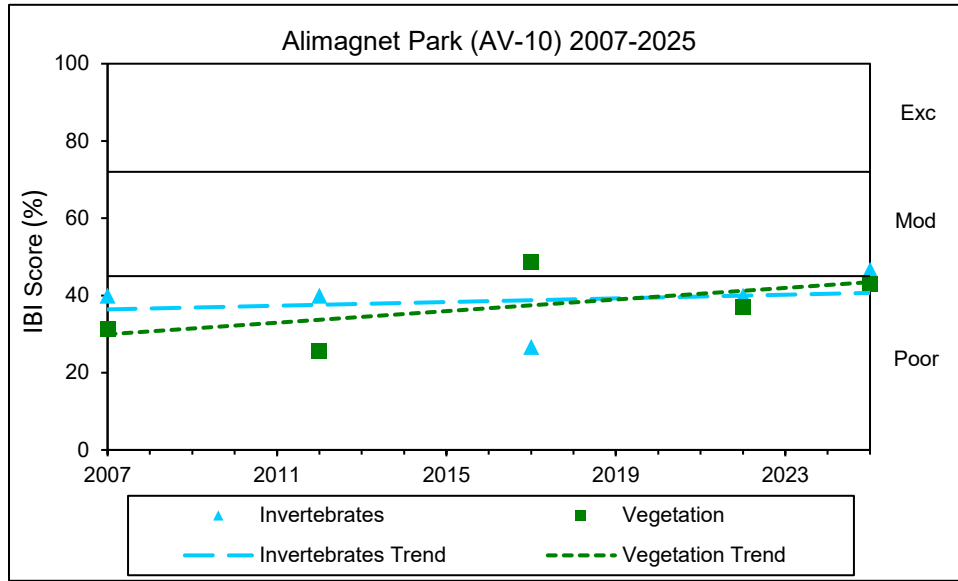
### Wetland Health

**Site Observations:** The wetland slope is gentle and there is a deep layer of muck upon a solid substrate. Reed canary grass (*Phalaris arundinacea*) dominated the shoreline. Trees including cottonwood (*Populus* sp.) and elm (*Ulmus* sp.) overhung the vegetation plot. A small amount of coontail (*Ceratophyllum* sp.) was the only submergent vegetation observed. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) covered the water’s surface. Iris (*Iris* sp.), loosestrife (*Lysimachia* sp.), skullcap (*Scutellaria* sp.), smartweed (*Polygonum* sp.), and cattail (*Typha* sp.) were also present, but not abundant. Species of leeches, dragonflies, snails, fingernail clams, true flies, crustaceans, and true bugs were collected.

**Table 4.1.3 Alimagnet Park/Ridgeview Drive Wetland (AV-10) Wetland Health based on IBI**

2025 Data (AV-10)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (14)	Poor (15)
<b>Trend 2007-2025</b>	Stable	Stable

**Figure 4.1.3 Invertebrate and vegetation trends for Alimagnet Park (AV-10)**



**Site summary:** This is the fifth time that AV-10 has been monitored since the initial survey in 2007. The invertebrate and vegetation scores were consistent in 2025, and both scores indicate poor wetland health. There is low diversity of invertebrates and vegetation at this wetland. The health trends appear to be stable for both invertebrates and vegetation; however, more years of data help determine reliable health trends.

#### 4.1.4 Valleywood Golf Course Hole 16 Wetland (AV-20)

Valleywood Golf Course (AV-20), also known as Hole 16 Pond, is a 1.5-acre type 5 wetland located within the Vermillion River Watershed. The wetland watershed directly drains approximately 12 acres. There is no impervious surface that directly affects the watershed. There are no inlets or outlets in the wetland; however, there is overland flow into and out of the wetland. This wetland is designated as a Manage 2 wetland. Wetlands assigned to this category are characterized by high or exceptional restoration potential.





Valleywood Golf Course wetland is located within the boundaries of the City’s golf course. Management of the wetland is consistent with the golf course’s practices. The golf course is interested in pursuing Audubon Certification, and to maintain cooperation in programs like WHEP that can add to their educational components.

#### Wetland Health

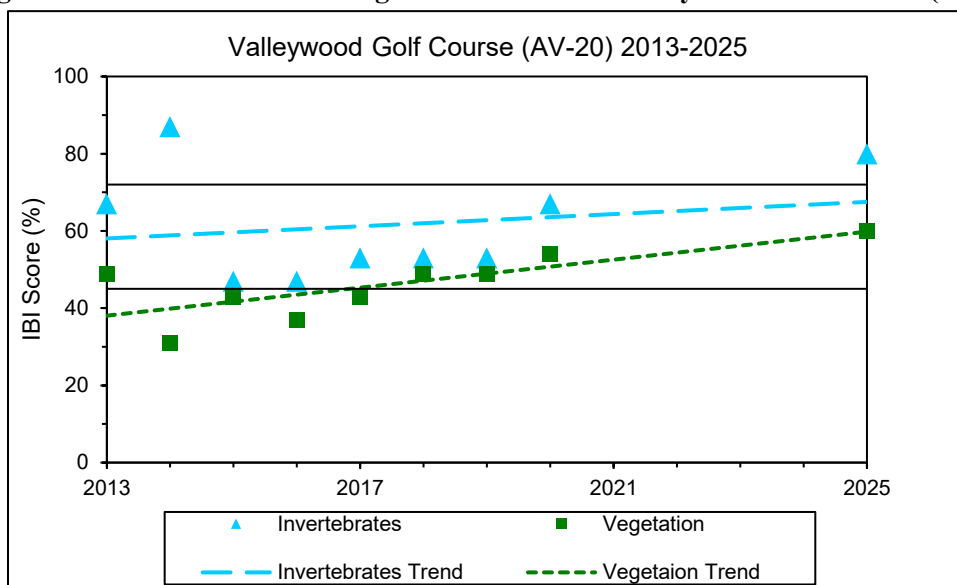
**Site Observations:** The wetland slope is gentle, and the substrate is mucky. Oak trees surround the wetland. Slender riccia (*Riccia fluitans*), duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) cover the surface of the wetland. Dense populations of coontail (*Ceratophyllum* sp.), waterweed

(*Elodea* sp.), and pondweed (*Potamogeton* sp.) made up the submergent vegetation. Emergent vegetation including smartweed (*Polygonum* sp.), jewelweed (*Impatiens* sp.), reed grass (*Calamagrostis* sp.), cut grass (*Leersia* sp.), and reed canary grass (*Phalaris arundinacea*) were also present. Leeches, dragonflies, caddisflies, snails, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.1.4 Valleywood Golf Course (AV-20) Wetland Health based on IBI**

2025 Data (AV-20)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Excellent (24)	Moderate (21)
<b>Trend 2013-2025</b>	Stable	Improving

**Figure 4.1.4 Invertebrate and vegetation trends for Valleywood Golf Course (AV-20)**



**Site summary:** This is the ninth year that AV-20 has been monitored for WHEP since the initial survey in 2013. The invertebrate and vegetation scores were inconsistent, differing by 20 percent. The invertebrate score indicates excellent wetland health while the vegetation score indicates moderate wetland health. Overall, the vegetation makeup has been similar over the years of surveys. Several species of leeches, snails, and trueflies have constant representation in the wetland. In 2025, a larger diversity of dragonflies and caddisflies, along with the array of leeches, snails, and trueflies enhanced the wetland invertebrate health score. The invertebrates trend appears stable, and the vegetation trend appears to be improving; however, more recent years of data will help determine reliable health trends.

## 4.2 Burnsville Wetlands

Four wetlands were monitored within the City of Burnsville in 2025. This is the 29<sup>th</sup> year the City has participated in WHEP! Eighteen wetlands have been monitored in Burnsville since the initiation of WHEP in 1997.

**Team Leader:** Caitlin Hughes-Parry

**Team Members:** Colleen Callejas, Calvin Darling, Alec Erickson, Ivy Erickson, Stacy Erickson, Whitney Esson, Meg Gruman, Nicolette Kranz, Jen Krekelberg, Quin McNamara, Sally McNamara, Shannon Pipho, Cindy Rader, John Sarbacker, Kelly Simonette, Frances Tschida, Tom Ward, Bri Wilde, Brian Wolff, and Chris Wolff



CAITLIN HUGHES-PARRY

Caitlin has been the Burnsville WHEP Team leader since 2021. She said, “My fifth year as the Burnsville WHEP Team

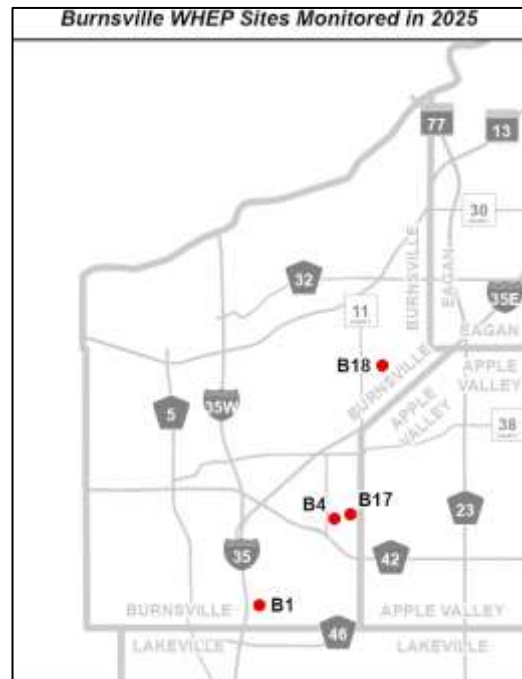
was an incredible season. I continue to be awed by both the city's wonderful wetlands and our amazing community of volunteers. The WHEP program is a wonderful way to contribute to the health of the local wetland ecosystems, to learn about the amazing natural spaces around us, and to connect with other people in our communities that share a curiosity and compassion for these places. My favorite thing about WHEP is spending summer evenings getting muddy with a handful of really exceptional people. The 2025 season was another great one; we surveyed four Burnsville wetlands and a cross-check site in Lakeville and had a

truly exceptional group of both veteran and new volunteers.”

John Stelzner is the city contact for the Burnsville WHEP team. His role at the City of Burnsville is to assist in implementation of natural resources projects, support water quality monitoring and project execution, and leading volunteers. He comments, “The City values the WHEP program for the citizen science engagement and wetland data. The data is used to compare changes over time in our local water bodies, in particular, if any large changes are occurring in the area like the large-scale restoration at Terrace Oaks and Alimagnet. We can monitor how the restoration is impacting the local wetlands in the Parks and hopefully improving water quality as we progress towards diverse native plant communities. As a staff of two people, we appreciate the WHEP volunteers as they help boost our ‘staffing’ through their volunteer efforts. Thanks for all your dedication to the City of Burnsville, and specifically for monitoring wetlands for water quality and aquatic life.”



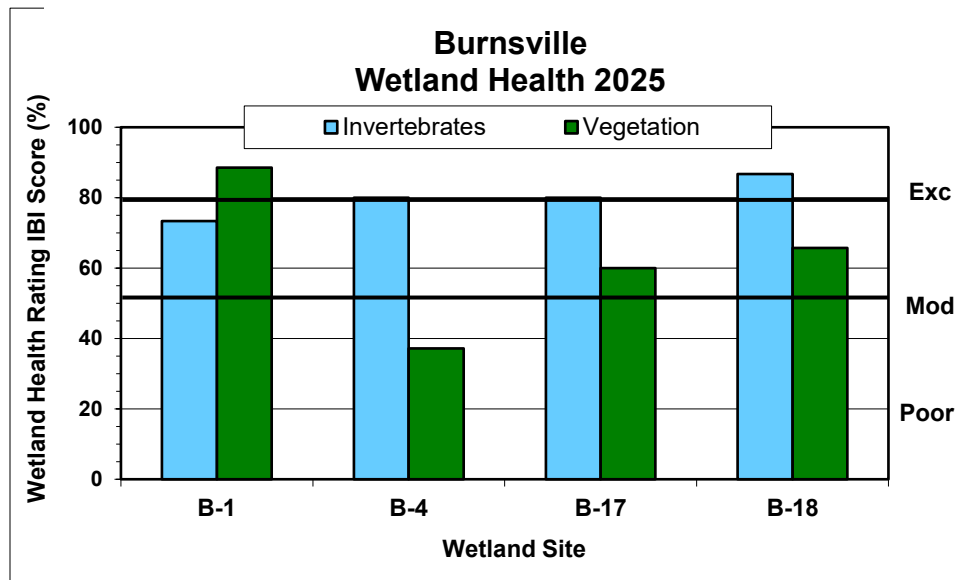
JOHN STELZNER AND JACK



## Burnsville General Wetland Health

Figure 4.2 presents an overall view of wetland health for all the 2025 monitoring sites in Burnsville based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.2 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate, or poor. The Burnsville wetlands exhibited moderate to excellent wetland health based on invertebrate data, and poor to excellent wetland health based on vegetation data. The invertebrate and vegetation scores for all four sites were inconsistent, differing by 16, 43, 20, and 21 percent, respectively.

**Figure 4.2 Burnsville site scores (percent) for the 2025 sampling season**



### 4.2.1 Crystal Lake West (B-1)

Crystal Lake West (B-1) is a one-acre, type 3 wetland located in the CL6 Drainage Area of Crystal Lake subwatershed within the Black Dog watershed. The CL6 drainage area is 444.5 acres and five percent impervious. There are no inlets or outlets in the wetland. The wetland is part of the wetland management plan and is designated as an Improvement Class. The goal for the wetland is to improve its quality.



The wetland is within a large, naturally vegetated, City-owned park called Crystal Lake West Park, and is very close to a bay on the west side of Crystal Lake. It is located in a depression surrounded by an area of rolling hills. Buckthorn and other invasive species have been removed in an area of the park adjacent to the wetland. The use of cover crop and grass seed mix aided in reestablishing ground cover

quickly after invasive species removal. There are some recreational vehicle disturbances (mostly in the winter).





CAITLIN HUGHES-PARRY, TOM WARD, JOHN SARBACKER, NICOLETTE KRANZ, FRANKIE TSCHIDA, AND KELLY SIMONETTE AT CRYSTAL LAKE

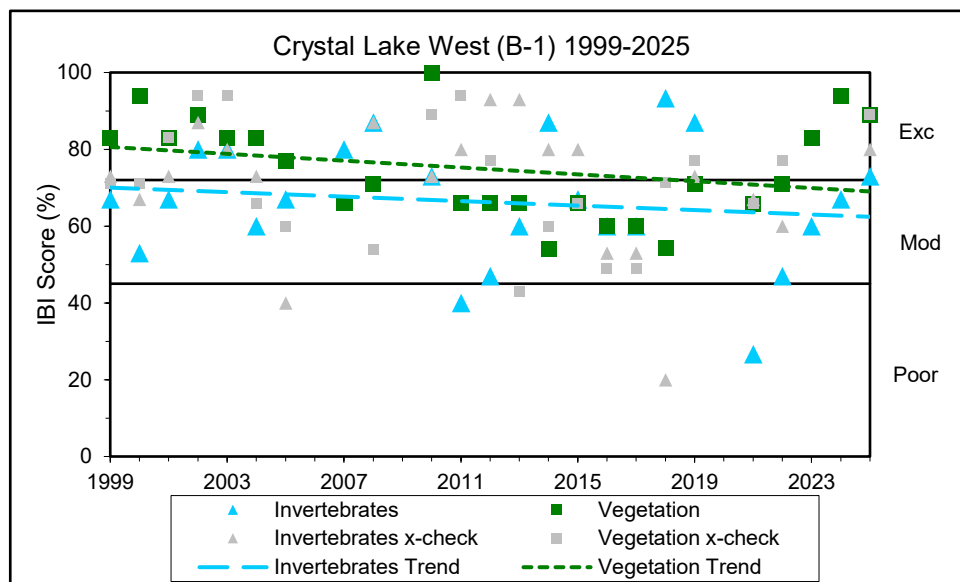
## Wetland Health

**Site Observations:** The wetland slope is gentle. The wetland substrate is very mucky and covered with lily pad root mat. A walking trail leads to the wetland. It is regularly used by walkers and anglers. The open water is covered in white water lily (*Nymphaea* sp.), slender riccia (*Riccia fluitans*), purple-fringed riccia (*Ricciocarpus natans*), and duckweeds (*Lemna* sp. and *Spirodela* sp.). Bladderwort (*Utricularia* sp.) and coontail (*Ceratophyllum* sp.) crowd the water column. Beggar-ticks (*Bidens* sp.), cut grass (*Leersia* sp.), spike rush (*Eleocharis* sp.), and reed canary grass (*Phalaris arundinacea*) dominate the shoreline. Sedge (*Carex* sp.), bulrush (*Scirpus* sp.), flat sedge (*Cyperus* sp.), arrowhead (*Sagittaria* sp.), and muskgrass (*Chara* sp.) were also present. Species of leeches, dragonflies, damselflies, mayflies, snails, fingernail clams, trueflies, crustaceans, and true bugs and beetles were collected.

**Table 4.2.1 Crystal Lake West (B-1) Wetland Health based on Index of Biotic Integrity (IBI)**

2025 Data (B-1)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (22)	Excellent (31)
<b>Cross-check Rating (IBI score)</b>	Excellent (24)	Excellent (31)
<b>Trend 1999-2025</b>	Variable	Stable

**Figure 4.2.1 Invertebrate and vegetation trends for Crystal Lake West (B-1)**



**Site Summary:** Crystal Lake West has been surveyed 24 times since 1999. The invertebrate and vegetation health scores were inconsistent in 2025, differing by 16 percent. The invertebrate score indicates moderate wetland health while the vegetation score indicates excellent wetland health. Overall, invertebrate scores have been variable over the years fluctuating between excellent and poor. The vegetation scores have remained more stable with the exception of some peak years. The extreme fluctuations may be due to factors such as changes in water level, survey timing, and plot placement. The presence of bladderwort and nonvascular vegetation enhances the vegetation score.

#### 4.2.2 Alimagnet Wetland (B-4)

Alimagnet Wetland (B-4) is a 0.9-acre, type 3 wetland located within the LA4 drainage area of Lake Alimagnet, which is in the Vermillion River Watershed. It is one of two shallow marsh areas within a 4.9-acre wet meadow wetland. The LA4 drainage area is 701 acres of which approximately 20 percent is impervious. The wetland has no inlets or outlets. It is a protected wetland, part of the City’s wetland management plan, and is considered a natural wetland adjacent to natural communities. It is being managed to maintain or improve the existing habitat.





Alimagnet wetland is bordered by a prairie and woodland (both managed as natural habitats by the City). The park road borders the northern end of the wetland. Invasive species including reed canary grass are present. Management of the surrounding land includes tree removal (woodland), prescribed burns (woodland and prairie), and herbicide control of invasive species.

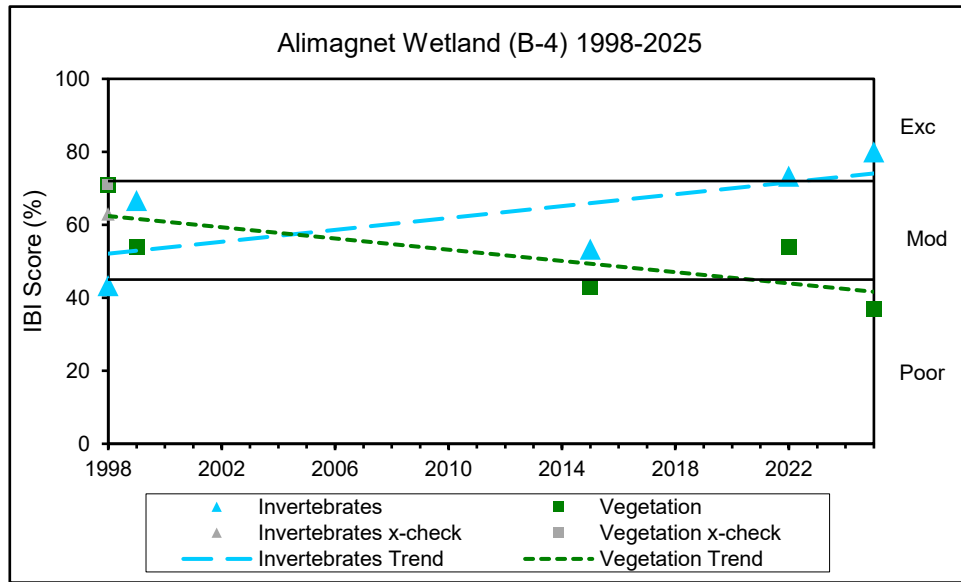
#### Wetland Health

**Site Observations:** The wetland slope is gentle. The wetland substrate is mucky. A walking trail leads to the wetland. Slender riccia (*Riccia fluitans*) and duckweed (*Lemna* sp.) scattered upon the surface of the water. There was no submergent vegetation observed within the vegetation releve. Arrowhead (*Sagittaria* sp.), joe pye-weed (*Eupatorium* sp.), water plantain (*Alisma* sp.), bur-reed (*Sparganium* sp.), bulrush (*Scirpus* p.), and reed canary grass (*Phalaris arundinacea*) were present. Species of leeches, dragonflies, damselflies, caddisflies, snails, fingernail clams, trueflies, crustaceans, and true bugs and beetles were collected.

**Table 4.2.2 Alimagnet Wetland (B-4) Wetland Health based on Index of Biotic Integrity (IBI)**

2025 Data (B-4)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Excellent (24)	Poor (13)
<b>Trend 1998-2025</b>	Improving	Stable

**Figure 4.2.2 Invertebrate and vegetation trends for Alimagnet Wetland (B-4)**



**Site Summary:** This is the fifth time that Alimagnet (B-4) has been surveyed since 1998. Invertebrate and vegetation scores were inconsistent with each other, differing by 43 percent. The invertebrate score indicates excellent wetland health while the vegetation score indicates poor wetland health. There has been little to no submergent vegetation observed over the past decade of surveys, which negatively impacts the wetland vegetation health score; however, the composition of the emergent plant community has remained stable. The invertebrate population is diverse, and the health trend appears to be improving.

### 4.2.3 Alimagnet Powerline ROW (B-17)

Alimagnet Powerline right-of-way (ROW, B-17), also known as LA4-C in City’s NPDES plan, is a 2.8-acre, type 5 wetland located within the Alimagnet Lake subwatershed (1,239 acres) of the Vermillion River Watershed. The wetland watershed is 20 acres and includes 10 percent impervious surface. There are no inlets or outlets. The wetland is part of the City’s wetland management plan. It is designated as a Protection Class Wetland and is being managed to maintain or improve existing habitat.



Alimagnet Powerline ROW wetland is a large, round, open water wetland within a naturally vegetated area of Alimagnet Park. A large powerline and ROW run along the east side of the wetland, and an unpaved trail runs 30 feet from the north side. Management of the surrounding land includes tree removal (woodland), prescribed burns (woodland and prairie), removal of invasive species, and seeding with native herbaceous species.

## Wetland Health



**Site Observations:** The wetland has a gentle slope and the substrate has sandy/rocky bottom covered with silt. Arrowhead (*Sagittaria* sp.) and reed canary grass (*Phalaris arundinacea*) are abundant. Very little coontail (*Ceratophyllum* sp.), water shield (*Brasenia* sp.), duckweed (*Lemna* sp.), and slender riccia (*Riccia fluitans*) were observed. Several emergent plants were sparsely present, including jewelweed



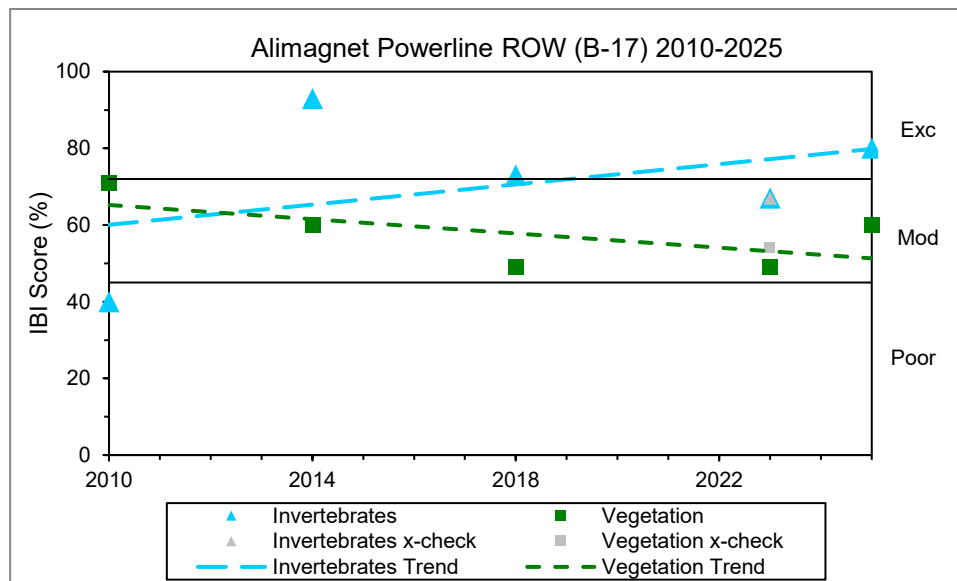
FRANKIE TSCHIDA, QUIN MCNAMARA, NICOLETTE KRANZ, CAITLIN HUGHES-PARRY, AND JOHN SARBACKER IN LAB

(*Impatiens* sp.), bugle weed (*Lycopus* sp.), purple loosestrife (*Lythrum salicaria*), smartweed (*Polygonum* sp.), and bulrush (*Scirpus* sp.). Species of leeches, dragonflies, damselflies, caddisflies, snails, fingernail clams, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.2.3 Alimagnet Powerline ROW (B-17) Wetland Health based on IBI**

2025 Data (B-17)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Excellent (24)	Moderate (21)
<b>Trend 2010-2025</b>	Stable	Stable

**Figure 4.2.3 Invertebrate and vegetation trends for Alimagnet Powerline ROW (B-17)**



**Site summary:** This is the fifth time that B-17 has been monitored for WHEP since 2010. The invertebrates and vegetation scores were inconsistent, differing by 20 percent. The invertebrates score indicates excellent wetland health while the vegetation score indicates moderate wetland health. Although several emergent plant species are present in the releve, they occur in low abundance. The vegetation data remains consistent with previous survey years. In contrast, the invertebrate community composition varies slightly between surveys, which influences the metric outcomes. Both data sets show stable wetland health.

#### 4.2.4 Terrace Oaks North Central (B-18)

Terrace Oaks North Central (B-18) is a 0.35-acre, type 3 wetland located within the E-23 watershed. The watershed is 68 acres and includes 5 percent impervious surface. There are no inlets or outlets. The wetland is part of the City’s wetland management plan. It is being managed to maintain or improve existing habitat.





Terrace Oaks North Central wetland is located in Terrace Oaks Park, south of Burnsville Parkway and east of County Road 11. The wetland is in a depression surrounded by an area with rolling hills. Beginning in late winter 2015, an oak savanna restoration project began in the northwest corner of Terrace Oaks Park. Part of this restoration area lies within the drainage area of the wetland. In addition, restoration of 26 acres surrounding the wetland began in February of 2019, and restoration of 22 acres draining to the wetland began in the winter of 2022. These projects involve a large-scale woody harvest, seeding with cover crop and native grasses and wildflowers, and follow-up control of invasive species.

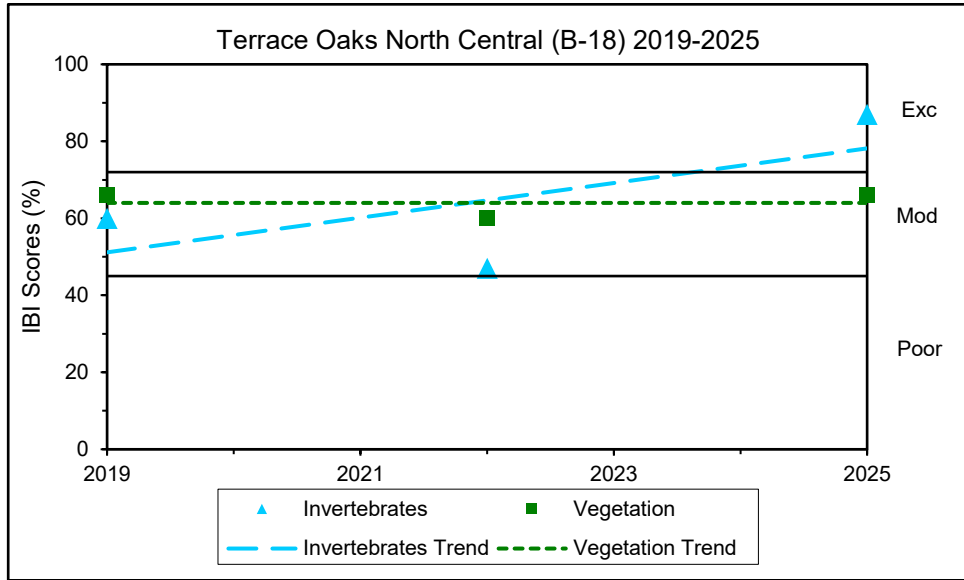
#### Wetland Health

**Site Observations:** The wetland has a gentle slope and a solid substrate. It is within a widely-used park, with hiking and biking trails nearby. The wetland is very small. A very small population of bladderwort (*Utricularia* sp.) was the only submergent vegetation present in the vegetation releve. Duckweed (*Lemna* sp.) covers the surface of the water. Sparse populations of slender riccia (*Riccia fluitans*) and another duckweed (*Spirodela* sp.) were also observed floating on the surface of the water. Water plantain (*Alisma* sp.), beggar-ticks (*Bidens* sp.), rush (*Juncus* sp.), blue grass (*Poa* sp.), and reed canary grass (*Phalaris arundinacea*) dominated the emergent community. Smartweed (*Polygonum* sp.), water parsnip (*Sium suave*), and bulrush (*Scirpus* sp.) were also observed. Leeches, dragonflies, damselflies, caddisflies, snails, fingernail clams, crustaceans, and bugs and beetles were collected.

**Table 4.2.4 Terrace Oaks North Central (B-18) Wetland Health based on IBI**

2025 Data (B-18)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Excellent (26)	Moderate (23)
<b>Trend 2019-2025</b>	Improving	Stable

**Figure 4.2.4 Invertebrate and vegetation trends for Terrace Oaks North Central (B-18)**



**Site summary:** This is the third time that Terrace Oaks North Central wetland has been monitored for WHEP. There are others within Terrace Oaks Park that have been monitored over the years. The invertebrate and vegetation scores were inconsistent, differing by 21 percent. The invertebrates score indicates excellent wetland health while the vegetation score indicates moderate wetland health. A greater diversity of invertebrates was identified in 2025 compared to 2022. The vegetation diversity is similar to 2022. The invertebrate health trend has improved since its initial survey in 2019, while the vegetation health trend is stable.



SALLY MCNAMARA, WHITNEY ESSON, NICOLETTE KRANZ, TOM WARD, KELLY SIMONETTE, JOHN SARBACKER, AND FRANKIE TSCHIDA

### 4.3 Dakota County Parks Wetlands

Eight wetlands were monitored for Dakota County Parks in 2025. This is the eleventh year that Dakota County Parks has monitored wetlands with WHEP. Eleven wetlands have been monitored for the Parks Department since 2015.

#### Team Leaders:

Marianne McKeon and Tara Perriello

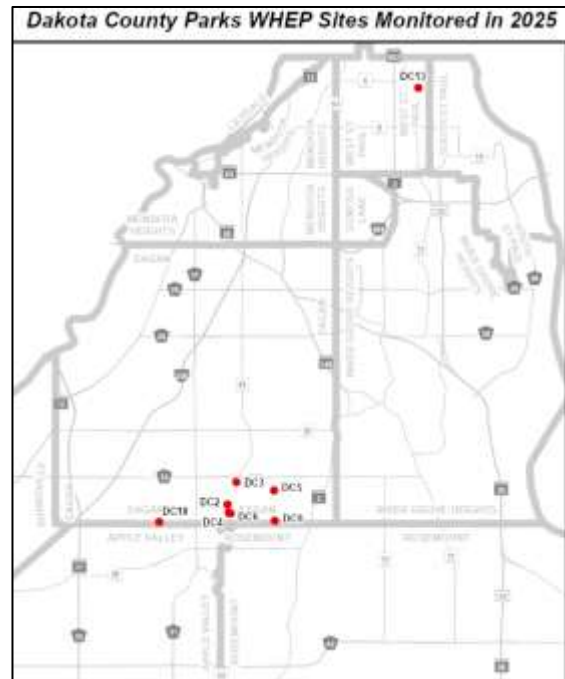
#### Team Members:

Mauro Acevedo, Kenyon Brown, Delaney Cashin, Maryann Frietsche, Tuche Her, Greyson Hurley, Alexandra O’Leary, Connor O’Leary, and Brianna Sokolowski

Marianne McKeon and Tara Perriello were co-leaders of the Dakota County Parks WHEP team this year.

Marianne has been a team leader for the Dakota County Parks team since 2022 and has been involved in WHEP since 2007. Previously, she was a team leader for the City of Eagan for many years. She said, “We had an unprecedented season starting with twice the amount of ponds (10) to sample than normal but the same amount of volunteers, but wow did they ever rise to meet that challenge! I was truly grateful and so impressed by these citizen scientists that showed up to almost everything I scheduled/asked for-in the summer-IN MINNESOTA! I feel dedication like that is really what drives the WHEP program and makes it possible.”

Tara Perriello joined WHEP as a volunteer for the first time in 2024 and jumped right into co-leading in 2025. She said, “Having worked in the natural resources field for over 15 years, I’ve always heard about the WHEP program. While taking a career break to be a stay-at-home parent, I was looking for a way to stay connected to something I’m passionate about—and WHEP provided the perfect opportunity. I’ve always enjoyed getting out into the field, but through WHEP I’ve been able to deepen my understanding of macroinvertebrates and gain insight into how the program operates.”



KEN BROWN, TARA PERRIELLO, CONNOR O’LEARY, TSUESIUM HER, AND MARIANNE MCKEON

Max Samuelson is Dakota County Parks' WHEP contact. He recognized, "The WHEP program embodies all elements of Dakota County Parks' mission by collecting critical data that helps track the effectiveness of our restoration projects and identify priority areas for future work, while providing an opportunity for the public to participate in the stewardship of their favorite natural areas. Across the County's park system there are 2,600 acres of restored land being maintained and another 247 acres under active restoration. Monitoring programs, including WHEP, are an important piece of natural resource stewardship and WHEP provides critical information for future management decisions to improve water and habitat quality in the parks. We are beyond grateful for everything WHEP does, and hope everyone had fun while they were out there!"



MAX SAMUELSON

## **Vegetation Protocol Modified**

In 2019, the Dakota County Parks Department modified the WHEP vegetation protocol in order to better understand species richness, abundance, and distribution. The traditional WHEP protocol is to identify vegetation to the genus level. The modified protocol requires that the vegetation be identified to the species.

Team members set up a 100 m<sup>2</sup> vegetation plot and surveyed the vegetation within the plot, as outlined in the traditional WHEP protocol. The key difference is specifying the plants to the species level of identification. The shared genus of species could then be easily transferred into the WHEP metrics to calculate a vegetation health score.

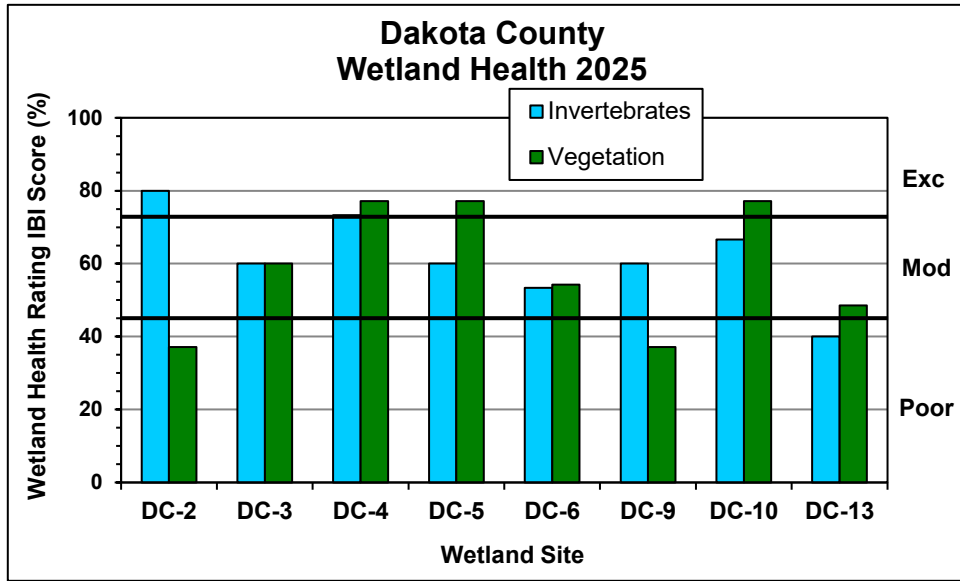
In addition, to surveying the vegetation plot, Dakota County WHEP volunteers may have conducted an optional 20-minute meander survey. This was to be completed after the 100 m<sup>2</sup> plot sampling. Meander surveys involve walking "randomly" through a wetland site and noting each species found. Meander surveys are useful in difficult terrain or irregularly-shaped sites, and are particularly useful for locating small habitat features that fall outside of the plot site. The meander should be conducted on the edges of the plot sample area. The meander is completed only if there is enough time after completing the plot survey.

These modifications came after a trial of the Rapid Floristic Quality Assessment (rFQA) was completed in the Dakota County Parks wetlands in 2018. Modifications of the WHEP protocol in 2019 were made in hopes that moderately trained and/or experienced naturalists are able to complete the surveys.

## **Dakota County Parks General Wetland Health**

Figure 4.3 presents an overall view of wetland health for all the 2025 monitoring sites in Dakota County Parks based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.3 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate, or poor. The wetland health invertebrates and vegetation scores both ranged from poor to excellent. Wetland DC-2 exhibited excellent wetland health based on invertebrate data. Wetlands DC-4, DC-5, and DC-10 exhibited excellent wetland health based on vegetation data. Invertebrate and vegetation scores were inconsistent for DC-2, DC-5, DC-9, differing by 43, 17, and 23 percent, respectively.

Figure 4.3 Dakota County Parks site scores (percent form) for the 2025 sampling season



### 4.3.1 Buck Pond (DC-2)

Buck Pond (DC-2) is a 1.6-acre, type 3 wetland located in the Lower Minnesota River watershed. The pond’s watershed is approximately 12 acres with zero impervious surface. It is a small, round depressional pond/wetland located near the center of Lebanon Hills Regional Park. It is an isolated terrene basin, within 700-1200 feet of larger lakes to the east and south. It is classified as “shallow marsh” and a “freshwater emergent wetland”. The wetland and surrounding area were recently restored. Previously, the wetland was surrounded by smooth brome-dominated uplands and overgrown savanna/woodland, which have now been restored to native prairie vegetation. Prior to restoration, the wetland was dominated by reed canary grass (*Phalaris arundinacea*), and deposition from the surrounding land had caused build-up in the wetland covering the native seed bank. Historically, the area was likely grazed and/or farmed.





Dakota County began implementing major ecological restoration of this wetland in December 2015 and continued through June 2018. In December of 2015, 1.5 feet of farmland deposits were scraped from the wetland edge, in hopes that it would remove the rhizomatous root system of reed canary grass and expose and reestablish the native wetland seed bank. Prior to the scrape, there was very low plant diversity within the basin and very little native emergent vegetation; however, following the scrape in June 2016, the native seedbank began emerging during the growing season. Data collected before, during, and after the restoration document the effects of the project on the wetland.

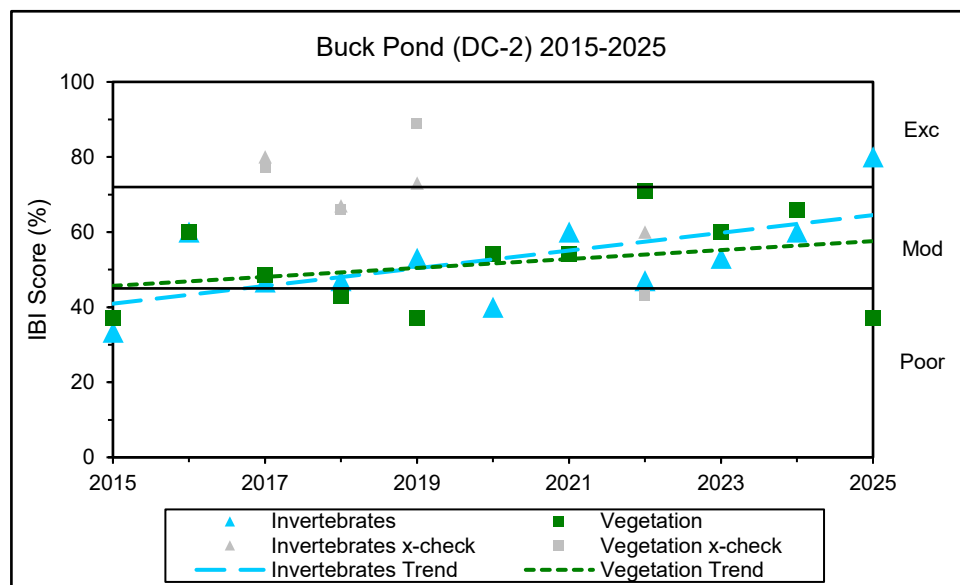
## Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is solid. Water-nymph (*najas* sp.) filled the water column. Arrowhead (*Sagittaria* sp.) spread throughout the releve. Duckweed (*Lemna* sp.) scattered upon the water’s surface. Beggar-ticks (*Bidens* sp.), smartweed (*Polygonum* sp.), pondweed (*Potamogeton* sp.), and reed canary grass (*Phalaris arundinacea*) were sparsley present. Many leeches were present and collected. Species of dragonflies, damselflies, mayflied, caddisflies, snails, fingernail clams, trueflies, crustaceans, and bugs and beetles were also collected.

**Table 4.3.1 Buck Pond (DC-2) Health based on Index of Biotic Integrity**

2025 Data (DC-2)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Excellent (24)	Poor (13)
Trend 2015-2025	Improving	Stable

**Figure 4.3.1 Invertebrate and vegetation trends for Buck Pond (DC-2)**



**Site summary:** This is the eleventh time that Buck Pond has been monitored by WHEP. The invertebrate and vegetation scores were very inconsistent, differing by 43 percent. The invertebrates score indicates excellent wetland health while the vegetation score indicates poor wetland health. The invertebrate diversity grew in 2025 despite the vegetation diversity decreasing. The invertebrate trend is showing improvement. Prior to 2025, the vegetation data showed signs of improvement, especially since the completion of the restoration in the area. The variable health scores may be due to fluctuating water levels, survey timing, and monitoring locations at the wetland site.

### 4.3.2 Tamarack Swamp (DC-3)

Tamarack Swamp (DC-3) is a 7.7-acre, type 3 wetland located in the Lower Minnesota River watershed. This tamarack occurrence is the southernmost example of tamarack swamp remaining in Minnesota. No large-scale alterations to the historic hydrology of the swamp have been detected, and efforts have been made throughout the history of the park to protect this unique feature from human impact. It receives runoff from surrounding land, and there is a small outlet that runs into Holland Lake that was restored in 2020 and only flows during high water periods. A number of years show the area dry in September.



This remnant tamarack swamp is located in Lebanon Hills Regional Park. Surrounding the swamp are oak woodland and oak forest plant communities. The natural area is comprised of a matrix of glacial moraine hills, plains and kettle hole lakes and ponds. The dominant land cover types pre-settlement would have been primarily oak forest, shallow lakes and wetlands, and prairie/savanna.

Dakota County Natural Resource Department’s primary goal is to create conditions in this wetland that favor tamarack regeneration through the removal of shrubs and invasive herbaceous species within the swamp, and to buffer the swamp by removing invasive species from the adjacent plant communities with the swamp watershed. Monitoring will give the County baseline data and on-going data collection in the following years. The monitoring will help determine the effectiveness of the restoration efforts of Tamarack Swamp. Minnesota County Biological Survey surveyed the park, including the Tamarack Swamp, and found the swamp to be of moderate biological diversity significance. This wetland has also been monitored by MPCA for the past decade.



#### Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is solid. In most years, a high diversity of emergent forbs, grasslike plants, and trees have been present while submergent vegetation is lacking. In 2025, pondweed (*Potamogeton* sp.) and water wort (*Elatine americana*) was sparsely present. Water plantain (*Alisma* sp.), swamp milkweed (*Asclepias incarnata*), bedstraw (*Galium* sp.), loosestrife (*Ludwigia polycarpa*), clearweed (*Pilea* sp.), arrowhead (*Sagittaria* sp.), burreed (*Sparganium* sp.), sedges (*Carex* sp.), spike-rush (*Eleocharis* sp.), bulrush (*Scirpus* sp.), cattail (*Typha* sp.), and cutgrass (*Leersia* sp.) were also present. Leeches, damselflies, mayflies, snails, crustaceans, and true bugs were collected.

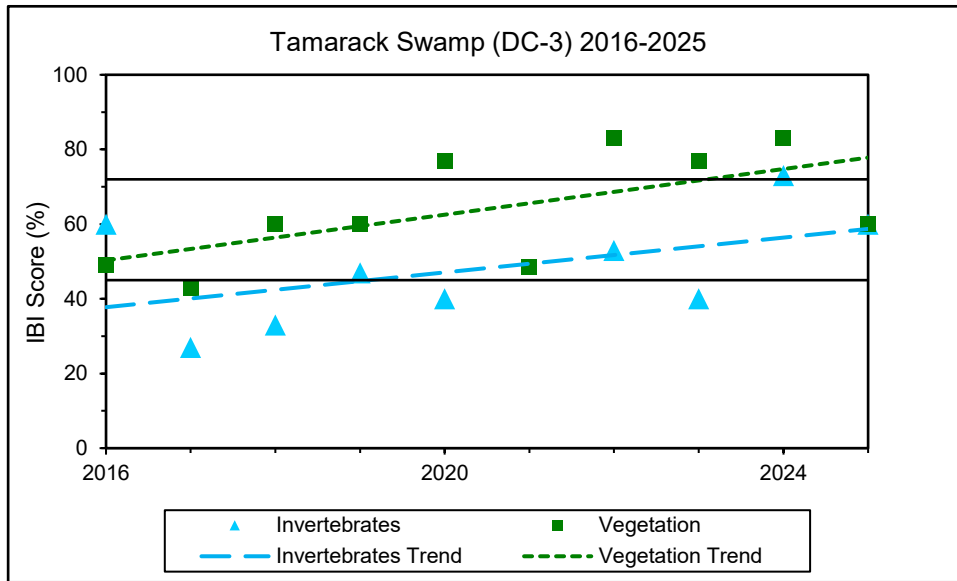


MARIANNE MCKEON, DELANEY CASHIN, TARA PERRIELLO, AND CONNOR O'LEARY

**Table 4.3.2 Tamarack Swamp (DC-3) Health based on Index of Biotic Integrity**

<b>2025 Data (DC-3)</b>	<b>Invertebrates</b> 	<b>Vegetation</b> 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Moderate (21)
<b>Trend 2016-2025</b>	Improving	Improving

**Figure 4.3.2 Invertebrate and vegetation trends for Tamarack Swamp (DC-3)**



**Site summary:** This is the tenth consecutive year that Tamarack Swamp has been monitored by WHEP. The invertebrate and vegetation scores were consistent, and both scores indicate moderate wetland health. A high representation of emergent woody, grasslike, and forb species adds to the vegetation diversity, though their representative communities are sparse. The vegetation data has been consistent in recent years, and the trend appears to be improving. The invertebrate data also shows an improving health trend.

### 4.3.3 Jensen Lake East (DC-4)

Jensen Lake (DC-4) is a 50-acre, type 5 wetland located in the Lower Minnesota River watershed. The pond’s watershed is approximately 330 acres with seven percent impervious surface. The watershed in this area of the south metro has been greatly changed/alterd with the building of roads, commercial industry, and residential areas. The general water flow is still in the same direction; however, altered with the addition of Pilot Knob Road culverts and overall landscape altering. There is a culvert running under Pilot Knob Road that connects two small ponds on either side of the road. The pond adjacent to Jensen Lake was created to collect sediment, salt, and fertilizers from



entering into Jensen Lake. When this pond reaches a certain depth, the excess water flows into Jensen without these contaminants. Jensen Lake drains into Sedge Pond in the northeast corner. There are raingardens that filter runoff from the Jensen Lake Trailhead parking lots, as well as, native plantings downslope of these infiltration basins.

Historically, the land north of Jensen Lake was agriculture and pastured land. The woodland surrounding Jensen Lake was most likely grazed with cattle. The north woodland slope of Jensen Lake was identified by the MN DNR as a high quality Mesic Oak Forest. The north and east woodlands are more degraded with invasive species like buckthorn and honeysuckle which were removed and treated with restoration efforts in the area between 2018-2021. Continued monitoring is wanted to track changes over time in this natural area as the land is restored and maintained to the proper native plant community. Along with vegetation surveys, turtle visual and trapping surveys, and insect surveys, Dakota County would like the invertebrate and plant survey information that WHEP supplies to monitor this restoration area. The goal is to minimize invasive species and maximize the cover of native species.





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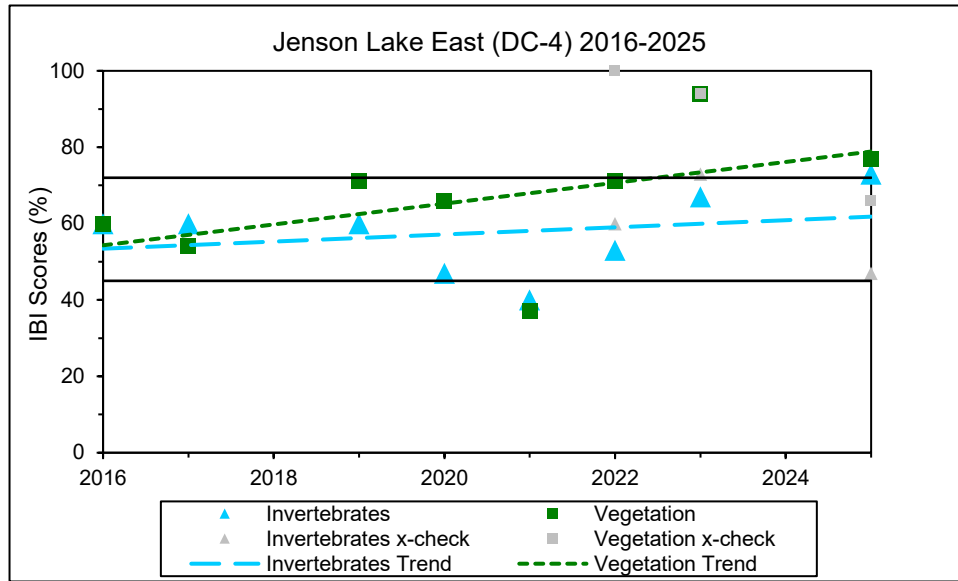
### Wetland Health

**Site Observations:** The wetland slope is gentle. The wetland substrate is very mucky, and made traversing the wetland difficult. Coontail (*Ceratophyllum* sp.) and bladderwort (*Utricularia* sp.) were present in the water column. White water lily (*Nymphaea* sp.) covered the surface of the water. Some duckweeds (*Lemna* sp. and *Spirodela* sp.) and slender riccia (*Riccia fluitans*) also scattered about. Iris (*Iris* sp.), smartweed (*Polygonum* sp.), arrowhead (*Sagittaria* sp.), swamp milkweed (*Asclepias incarnata*), water hemlock (*Circuta* sp.), sedges (*Carex* sp.), bur-reed (*Sparganium* sp.), marsh fern (*Thelypteris* sp.), and reed canary-grass (*Phalaris arundinacea*) were also present. Leeches, dragonflies, damselflies, mayflies, caddisflies, snails, fingernail clams, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.3.3 Jensen Lake East (DC-4) Health based on Index of Biotic Integrity**

2025 Data (DC-4)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (22)	Excellent (27)
<b>Cross-check Rating (IBI score)</b>	Poor (14)	Moderate (23)
<b>Trend 2016-2025</b>	Improving	Improving

**Figure 4.3.3 Invertebrate and vegetation trends for Jensen Lake East (DC-4)**



**Site summary:** This is the eighth year that Jensen Lake East has been monitored by WHEP since 2016. The invertebrate and vegetation scores were consistent with each other; however, the invertebrates score indicates moderate wetland health and the vegetation score indicates excellent wetland health. The invertebrate and vegetation health trends both appear to be improving. More years of monitoring will help determine more reliable wetland health trends. This site was cross-checked by another WHEP team in 2025. The invertebrate and vegetation scores between the two teams were inconsistent. The Dakota County Parks team identified more diverse communities of invertebrates and vegetation than the cross-check team. The Dakota County Parks team found more families of leeches, mayflies, caddisflies, and trueflies than the cross-check team. Differences in the invertebrate data may be due to sampling locations in the wetland and/or timing of the surveys. The vegetation data was actually very similar, but slight differences in grasslike and submergent counts affected the Grasslike and Aquatic Guild Metrics.

### 4.3.4 Wood Pond (DC-5)

Wood Pond (DC-5) is a 0.8-acre, type 3 wetland located in the Lower Minnesota River watershed. The pond’s watershed is approximately 22 acres with no impervious surface. Water flows into Wood Pond from Cattail Pond and seeps from the surrounding area. The water eventually drains into Schultz Lake.



Historically, the area was used for grazing; though now, Wood Pond is near a restored and maintained prairie. Upstream wetlands to the north and west were not completely restored with previous restoration efforts. Continuous monitoring will serve to observe changes as activities progress.



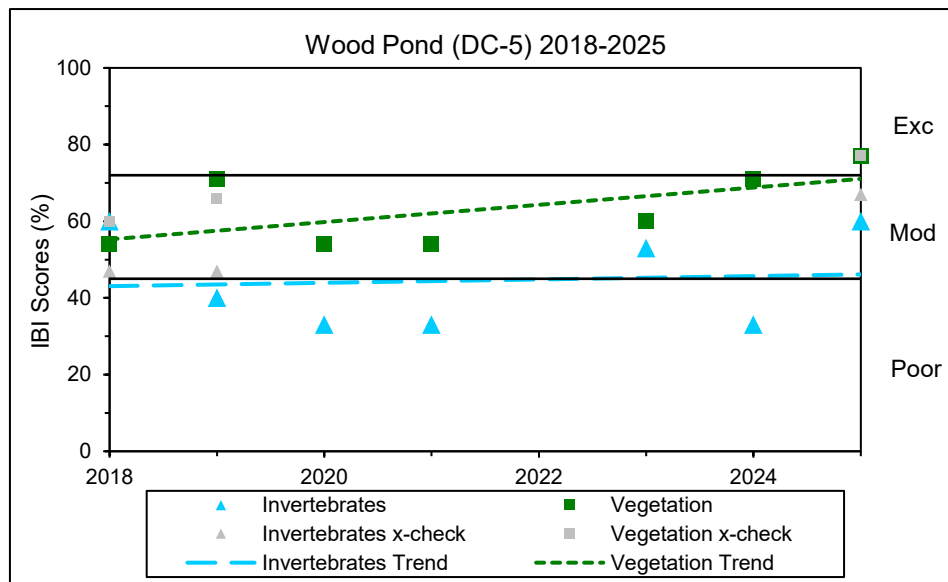
## Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is a solid floor covered by muck. Yellow water lily (*Nuphar* sp.) and white water lily (*Nymphaea* sp.) covered the surface of the water. Coontail (*Ceratophyllum* sp.) and bladderwort (*Utricularia* sp.) filled the water column. Duckweed (*Lemna* sp.) and slender riccia (*Riccia fluitans*) also scattered about. Smartweed (*Polygonum* sp.), arrowhead (*Sagittaria* sp.), reed canary grass (*Phalaris arundinacea*), bur-reed (*Sparganium* sp.) sedge (*Carex* sp.), bulrush (*Scirpus* sp.), marsh milkweed (*Asclepias* sp.), smartweed (*Polygonum* sp.) were present in low proportions. Leeches, dragonflies, snails, fingernail clams, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.3.4 Wood Pond (DC-5) Health based on Index of Biotic Integrity**

2025 Data (DC-5)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Excellent (27)
<b>Cross-check Rating (IBI score)</b>	Moderate (20)	Excellent (27)
<b>Trend 2018-2025</b>	Not enough data	Not enough data

**Figure 4.3.4 Invertebrate and vegetation trends for Wood Pond (DC-5)**



**Site summary:** This is the seventh year that Wood Pond has been monitored by WHEP since 2018. The invertebrate and vegetation scores were inconsistent with each other, differing by 17 percent. The invertebrate score indicates moderate wetland health, while the vegetation score indicates excellent wetland health. A high diversity of emergent vegetation is present at this site; though many species are sparsely represented. The invertebrate diversity has rebounded after several years of low water. More data will help determine a reliable health trend. This site was cross-checked by another WHEP team. The invertebrate and vegetation scores between teams were consistent. The data was also very similar.

### 4.3.5 BB’s Wetland (DC-6)

BB’s Wetland (DC-6) is a 1.2-acre, type 5 wetland located in the Lower Minnesota River watershed. There is a natural inlet on the west end of the wetland, as well as a natural overflow/outlet on the west end.

This wetland is within Lebanon Hills Regional Park. There is very little disturbance. Natural oak forest surrounds the wetland. This wetland is significant due to the presence of Blanding’s turtles. The County Parks have been tracking a female Blanding’s turtle in the vicinity of the wetland. The wetland management goal is to maintain high quality vegetative cover conducive to turtle habitat. The overall strategy is to continue monitoring for the presence of invasive species and determine stability of native plant cover.





#### Wetland Health

**Site Observations:** The wetland slope is gentle, and the wetland substrate is solid. A hiking trail runs along the northern portion of the wetland. White water lily (*Nymphaea* sp.), duckweeds (*Lemna* sp. and *Spirodela* sp.), and slender riccia (*Riccia fluitans*) float on the water surface. Bladderwort (*Utricularia* sp.) grows in the water column. Bur-reed (*Sparganium* sp.), sedges (*Carex* sp.), rush (*Juncus* sp.), reed canary grass (*Phalaris arundinacea*), bur-reed (*Sparganium* sp.), smartweed (*Polygonum* sp.), and several upland forbs and woody species were present. Leeches, dragonflies, caddisflies, snails, fingernail clams, crustaceans, and bugs and beetles were collected.

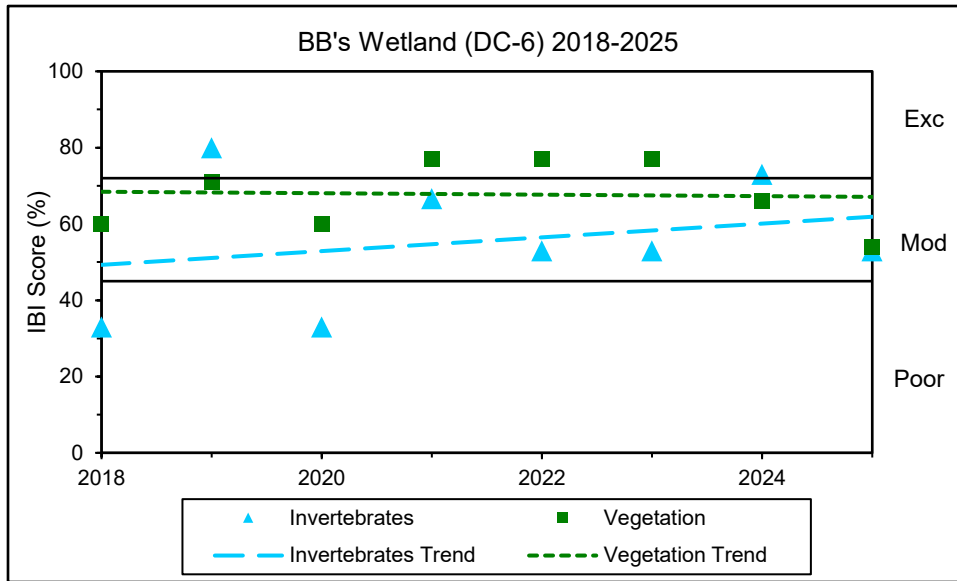


MARIANNE MCKEON, KEN BROWN, ALEXANDRA O’LEARY, AND CONNOR O’LEARY

**Table 4.3.5 BB’s Wetland (DC-6) Health based on Index of Biotic Integrity**

2025 Data (DC-6)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (16)	Moderate (19)
<b>Trend 2018-2025</b>	Not enough data	Not enough data

**Figure 4.3.5 Invertebrate and vegetation trends for BB’s Wetland (DC-6)**



**Site summary:** This is the eighth consecutive year that BB’s Wetland has been monitored by WHEP since 2018. The invertebrate and vegetation scores were consistent with each other, and both scores indicate moderate wetland health. Though the vegetation data has varied from year to year, the annual scores indicate a stable health trend. The invertebrate scores are more variable; however, appear stable in most recent years. Likely, water levels impact wetland populations and monitoring capabilities. More years of data will help determine reliable health trends.

### 4.3.6 Star Pond West (DC-9)

Star West (DC-9) is a 0.8-acre, type 5 wetland located in the Lower Minnesota River watershed. Water flows into the wetland from a stream/ditch on the north side. Water flows out of the wetland from a natural outlet on the south side of the wetland, and toward Star Pond East from a natural outlet on the northeast side.





This wetland is within Lebanon Hills Regional Park. A moderately busy dirt road (120<sup>th</sup> Street) runs adjacent to the south side of the wetland. Historically, the upland areas around the wetland were farmed; however, very little disturbance has occurred in the area since Lebanon Hills Regional Park was formed. The management goal is to minimize invasive species and maximize the cover of native species.

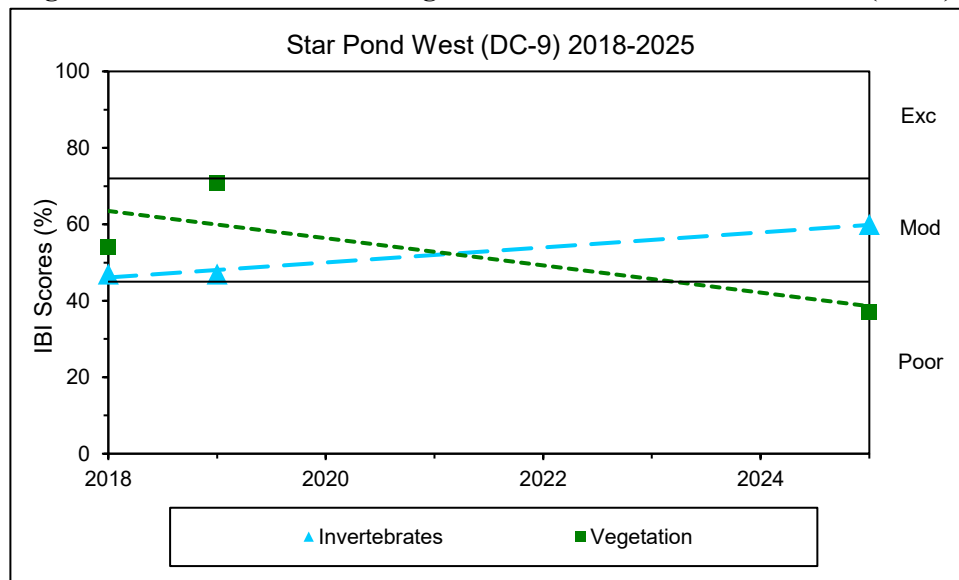
## Wetland Health

**Site Observations:** The wetland slope is gentle, and the wetland substrate is mucky. The upland area surrounding the wetland is restored prairie. The diversity within the wetland is low. Dense cattail (*Typha* sp.) mats surround the wetland and make it difficult to navigate and see through the tall, dense stands. Bladderwort (*Utricularia* sp.) fills the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) float upon the wetland surface. Smartweed (*Polygonum* sp.), water hemlock (*Cicuta* sp.), and beggar-ticks (*Bidens* sp.) are also present. A species of caddisfly, snails, fingernail clams, true flies, crustaceans, and one beetle were collected.

**Table 4.3.6 Star Pond West (DC-9) Health based on Index of Biotic Integrity**

2025 Data (DC-9)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Poor (13)
<b>Trend 2018-2025</b>	Not enough data	Not enough data

**Figure 4.3.6 Invertebrate and vegetation trends for Star Pond West (DC-9)**



**Site summary:** This is the third year that Star Pond West has been monitored by WHEP. The invertebrate and vegetation scores were inconsistent with each other, differing by 23 percent. Invertebrate data indicates moderate wetland health. The vegetation data indicates poor wetland health. The vegetation diversity is low. The invertebrate diversity was also low, but metric scoring was generous. More years of data will help determine reliable health trends. This wetland was cross-checked by a third-party consultant (Bolton & Menk.). Overall, the vegetation data was similar between the two groups. Bolton & Menk identified bladderwort in the revege which enhanced the vegetation health score.

### 4.3.7 Duck Pond (DC-10)

Duck Pond (DC-10) is a 4.0-acre wetland located within the Lower Minnesota River watershed. It is delineated as a type 1 and type 2 wetland. There are no inlets. There may be a seep from the surrounding hills. There is one outlet on the northwest corner that leads to Gerhardt Lake.





The wetland is within Lebanon Hills Regional Park and surrounded by oak forest. Past disturbance is evident by the almost total dominance of reed canary grass. It is suspected that the land was formerly used for agriculture. The wetland management goal is to manage for vegetation and limit erosion from surrounding slopes. Future intervention may arise based on a wetland scrape feasibility study.

The wetland management goal is to manage for vegetation and limit erosion from surrounding slopes. Future intervention may arise based on a wetland scrape feasibility study.

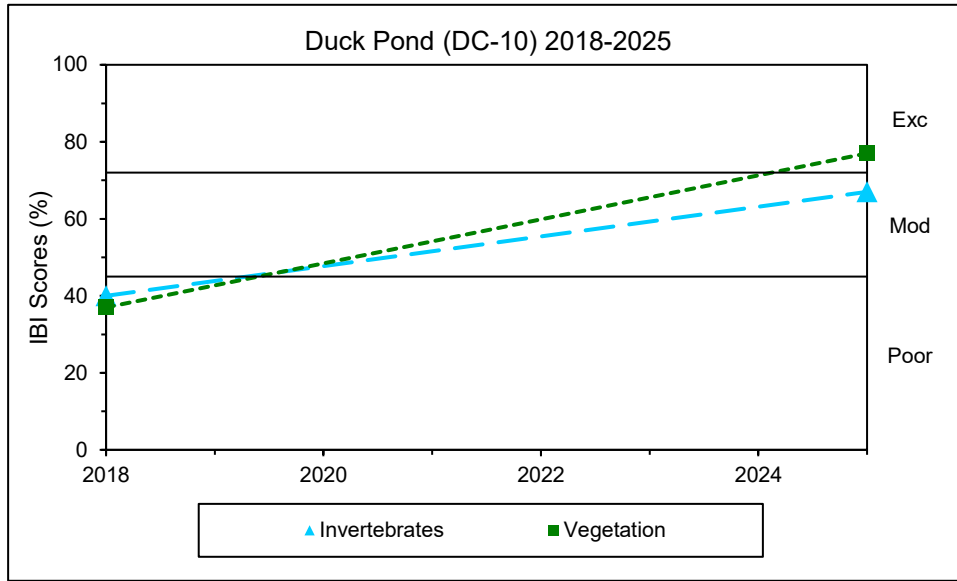
### Wetland Health

**Site Observations:** The wetland slope is steep, and the wetland substrate is very mucky. Cattail (*Typha* sp.) chokes the wetland. Water beggar-ticks (*Megalodontia beckii*), pondweed (*Potamogeton* sp.), and bladderwort (*Utricularia* sp.) thinly grow in the water column. Duckweed (*Lemna* sp.) floats upon the water’s surface. Sedges (*Carex* sp.), bulrush (*Scirpus* sp.), cut grass (*Leersia* sp.), bur-reed (*Sparganium* sp.), arrowhead (*Sagittaria* sp.), sweetflag (*Acorus* sp.), and other upland vegetation are sparsely represented. Leeches, dragonflies, damselflies, snails, fingernail clams, trueflies, and beetles were collected.

**Table 4.3.7 Duck Pond (DC-10) Health based on Index of Biotic Integrity**

2025 Data (DC-10)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (20)	Excellent (27)
<b>Trend 2018-2025</b>	Not enough data	Not enough data

**Figure 4.3.7 Invertebrate and vegetation trends for Duck Pond (DC-10)**



**Site summary:** This is the second year that Duck Pond has been monitored by WHEP. The invertebrate and vegetation scores were consistent with each other. The invertebrate data indicates moderate wetland health while the vegetation data indicates excellent wetland health. Both years of data show low representation of vegetation and invertebrates. More years of data will determine reliable wetland health trends.

### 4.3.8 Thompson Lake (DC-13)

Thompson Lake (DC-13), formerly WSP-2, is a 10-acre, type 5, wetland located in West St. Paul in the Lower Minnesota River watershed. The lake is approximately eight feet deep and sits on top of a glacial moraine of Superior Lobe age. The sub-watershed is approximately 175 acres in size and consists of about 51-64% impervious land areas. There is an inlet on the north side from Lily Lake. There is a manmade outlet on the south side of the wetland. The lake has open water with cattails along the shoreline. An aspen woodland is along the east side of the lake. An oak dominated woodland spreads along the west side. There is a lot of buckthorn in the wooded areas. A native plant shoreline restoration was completed along the north and east sides in 2021. The wetland management goal is to monitor the success of this restoration.





This wetland is highly disturbed. Residential development is to the north and south. St. Croix Lutheran Academy and turf fields are to the east. There is a paved trail around the lake and a community center on the property. Thompson County Park is receiving a number of capital improvements over the next couple of years and the potential impacts of construction is a concern.

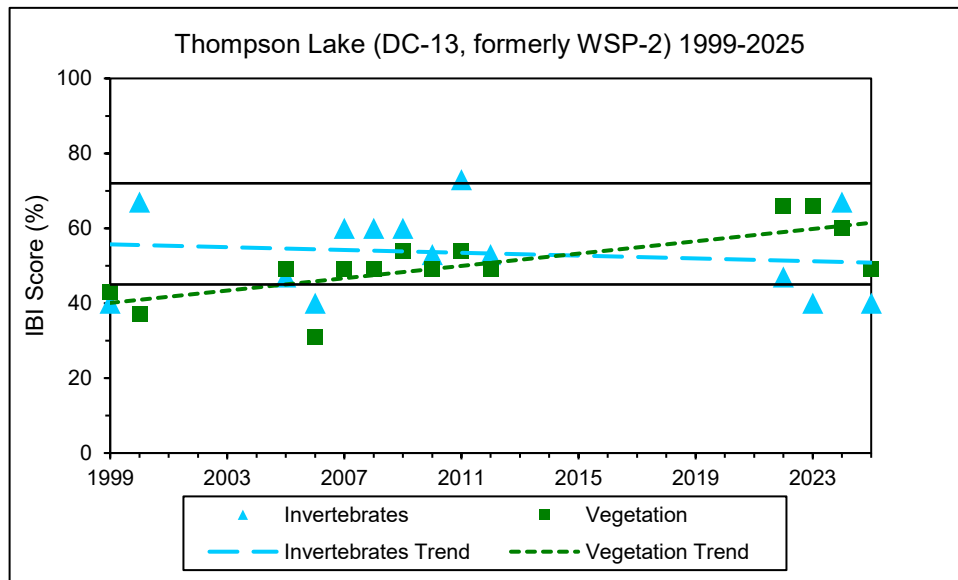
## Wetland Health

**Site Observations:** The wetland bank is steep with gentle slope upon entry. The wetland substrate is fairly firm. This wetland is often used for WHEP field methods training. Many species were represented in the vegetation releve, though all were observed in low population sizes. Duckweeds (*Lemna* sp. and *Spirodela* sp.) floated on the surface of the water. Coontail (*Ceratophyllum* sp.) and curly leaf pondweed (*Potamogeton crispus*) grow in the water column. Rush (*Juncus* sp.), bulrush (*Scirpus* sp.), iris (*Iris* sp.), pickerelweed (*Pontedaria cordata*), swamp milkweed (*Asclepias* sp.), arrowhead (*Sagittaria* sp.), and water shield (*Brasenia* sp.) were present. Mayflies, snails, true flies, and bugs and beetles were collected.

**Table 4.3.8 Thompson Lake (DC-13) Health based on Index of Biotic Integrity**

2025 Data (DC-13)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Poor (12)	Moderate (17)
Trend 1999-2025	Stable	Stable

**Figure 4.3.8 Invertebrate and vegetation trends for Thompson Lake (DC-13)**



**Site summary:** This is the fourth time that Thompson Lake has been monitored by WHEP, and the fourth year that it has been monitored by the Dakota County Parks team (formerly monitored by West St. Paul team). The invertebrate and vegetation scores were consistent with each other; however, the invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. Vegetation data has been similar in recent years. The invertebrate data has been variable, but the invertebrate health trend appears stable. The vegetation health trend also appears stable.

## 4.4 Eagan Wetlands

Three wetlands were monitored within the City of Eagan in 2025. The City has 28 years of data! Fifty-one wetlands, including three new sites in 2025, have been monitored in Eagan since the initiation of WHEP in 1997.

**Team Leader:** Hannah Figura and Chris Figura

**Team Members:** Christine Avery, Kayla Boettcher, Amelia Burgess, Raquel Diaz, Ben Doboszanski, Bekka Ginzburg, Devon Green, Erin Hauer, Greg Hawkins, Tucee Her, Lily Janousek, Christine Jones, Luke Laffey, Diane Lazarus, John Martin, Mark Niznik, Rachel Pederson, Brian Raney, Greg Svendsen, and Layla Tresedder



Hannah Figura has served as the WHEP team leader for Eagan since 2019, with her father, Chris, providing valuable assistance with equipment and administrative support. The 2025 season featured a strong group of returning volunteers along with several new participants. Despite scheduling on rainy days, the team completed a successful and enjoyable season. A memorable moment occurred when the group discovered that their bottle traps had ended up high and dry, well above the waterline. This year also brought a new opportunity to engage with homeowners at some sampling sites, adding a rewarding element of community interaction to the fieldwork.



HANNAH FIGURA



JENNA OLSON AND JESSIE KOEHLE

Eagan has 34 priority lakes, over 800 wetlands, and almost 400 constructed storm ponds. Because of this richness of surface water, Eagan’s WHEP site choices sometimes focus on repeat sampling before and after development and often examine wetland health at totally new sites. Water Resources Manager Jenna Olson has expertise in stormwater management, green infrastructure, and environmental law and policy. Water Resources Specialist, Jessie Koehle, focuses on lake water quality sampling, plant management, public education and outreach, pond depth mapping, fisheries, and lake biology. Both women are full time working moms, enthusiastic fans of

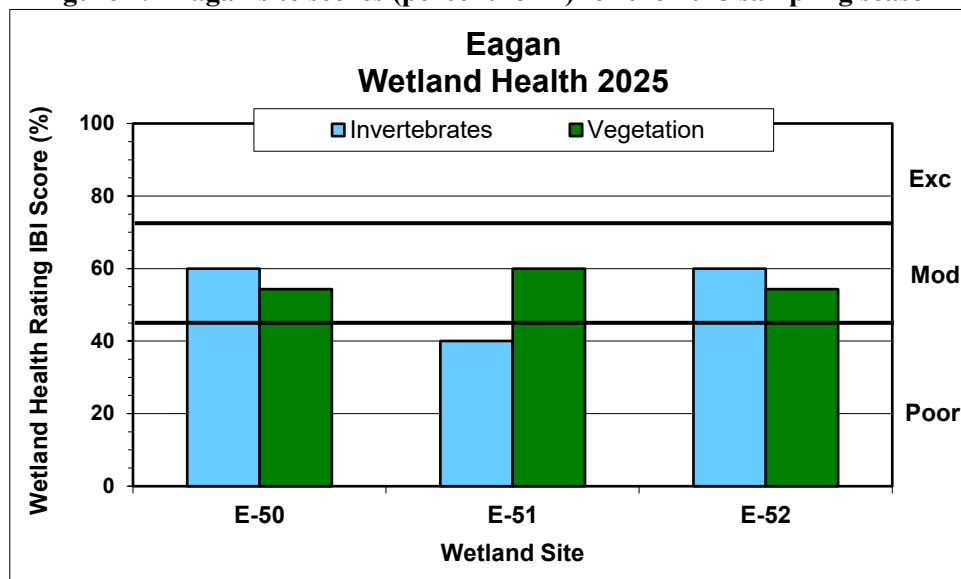
aquatic environments (especially turtles!) and really enjoy their roles at the City of Eagan. Jessie and Jenna want to say “thank you!” to all the volunteers for your hard work this year. WHEP data helps us understand the health and ecology of our surface waters more deeply than would otherwise be possible; it’s our only regular source for plant and invertebrate health scores! Also, WHEP volunteers themselves are an incredible

resource in the community and can serve as ambassadors to help everyone understand how important our lakes and wetlands truly are. Thanks for everything you do!

## Eagan General Wetland Health

Figure 4.4 presents an overall view of wetland health for all the 2025 monitoring sites in Eagan based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.4 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. Three wetlands were monitored in the City of Eagan in 2025. The Eagan wetlands exhibited poor to moderate wetland health based on invertebrate and vegetation data. The invertebrate and vegetation scores for E-51 were inconsistent in 2025, differing by 20 percent.

**Figure 4.4 Eagan site scores (percent form) for the 2025 sampling season**



### 4.4.1 LP-34 (E-50)

LP-34 (E-50) is a 1.4-acre, type 4 wetland within the Eagan-Inver Grove Heights Watershed within the City’s “L” drainage district that eventually drains to Thomas Lake. The watershed has 18.1 acres of direct drainage with approximately 15 percent impervious surface. There are two inlets: one on the north end and one along the east side. There is one outlet leaving the pond in the narrow “tail” to the south end. The wetland is included in the City’s stormwater management plan and is designated as “Class W3 – Priority A” indicating City intentions to protect and enhance quality and biological diversity of the wetland.



The wetland is within a single-family residential area that receives runoff from the wetland to the north and surrounding backyards, as well as a small amount of residential street area runoff. The City would like to

continue to educate the public about the importance of clean stormwater and is interested in the species composition and quality of the wetland.



## Wetland Health

**Site Observations:** The wetland is surrounded by woods and has a steep slope. Water levels can fluctuate rapidly, sometimes rising or falling by several inches within a single day. These dramatic changes left bottle traps stranded above the water’s surface and vegetation plot poles submerged too deeply to retrieve. The bottom of the wetland is mucky with many fallen logs and branches. The monitoring site is accessed from a private residence that is heavily wooded with oak (*Quercus* sp.), maple (*Acer* sp.), ash (*Fraxinus* sp.), and buckthorn (*Rhamnus cathartica*). Other emergent vegetation were sparse, but included bulrush (*Scirpus* sp.) and sedge (*Carex* sp.). Pondweed (*Potamogeton* sp.), coontail (*Ceratophyllum* sp.), and waterweed (*Elodea* sp.) crowded the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.), watermeal (*Wolffia* sp.), slender riccia (*Riccia fluitans*), and smartweed (*Polygonum* sp.) covered the surface of the water. Dragonflies, damselflies, snails, fingernail clams, trueflies, crustaceans, and true bugs and beetles were collected.



WATER LEVEL DROPPED WELL BELOW THE BOTTLE TRAP IN JUST TWO DAYS, SHOWN HERE WITH A SHOE FOR SCALE

**Table 4.4.1 LP-34 (E-50) Wetland Health based on Index of Biotic Integrity**

2025 Data (E-50)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Moderate (19)
<b>Trend 2025</b>	Not enough data	Not enough data



EAGAN TEAM CONDUCTING VEGETATION SURVEY

**Site summary:** This is the first time that E-50 has been surveyed by WHEP. The invertebrates and vegetation scores were consistent, both scores indicating moderate wetland health. The vegetation plot that the team set at this wetland was cross-checked by a third-party consultant, Bolton & Menk, Inc. The data was very similar between the two groups, and the scores were consistent. More years of data will help determine a reliable wetland health trend.

#### 4.4.2 JP-49 (E-51)

JP-49 (E-51) is a 1.4-acre, type 4 wetland within the Eagan-Inver Grove Heights Watershed, within the City’s “J” drainage district that eventually drains to Fish Lake. The watershed has 15.9 acres of direct drainage with approximately 15 percent impervious surface. There is one inlet on the north end and one outlet on the east shoreline of the wetland. The wetland is included in the City’s stormwater management plan and is designated as “Class W3 – Priority A” indicating City intentions to protect and enhance the quality and biological diversity of the wetland.





The wetland receives stormwater runoff from the surrounding streets, driveways, and backyards. Additionally, runoff comes from farm areas located to the southeast and east. Water also flows into the wetland from JP-6, the lake across the street to the west, which collects runoff from the City Hall, library, and Cascade Bay parking lots. The surrounding landscape includes a mix of woodland and farm acreage. The City would like to continue to educate the public about the importance of clean stormwater and is interested in the species composition and quality of the wetland.

#### Wetland Health

**Site Observations:** The wetland slope is steep. The wetland substrate is mucky. Low diversity and population density was observed within the vegetation releve. Maples (*Acer* sp.), elms (*Ulmus* sp.), oaks (*Quercus* sp.), and buckthorn (*Rhamnus cathartica*) line the shore. Coontail (*Ceratophyllu* sp.), waterweed (*Elodea* sp.), and pondweed (*Potamogeton* sp.) was sparsley present. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) covered the surface of the water. Leeches, caddisflies, snails, trueflies, and crustaceans, were collected.

**Table 4.4.2 JP-49 (E-51) Wetland Health based on Index of Biotic Integrity**

2025 Data (E-51)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (21)
<b>Cross-check Rating (IBI score)</b>	Poor (12)	Poor (15)
<b>Trend 2025</b>	Not enough data	Not enough data

**Site summary:** This is the first time that E-51 has been surveyed for WHEP. The invertebrate and vegetation scores were inconsistent, differing by 20 percent. The invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. Likely, the sparse submergent and emergent vegetation community is not ample habitat to support a more diverse invertebrate community. Overhanging tree diversity enhanced the vegetation score in 2025. This site was cross-checked by another WHEP team. The invertebrate data between teams was very similar. The vegetation data between teams was also very similar; however, the vegetation scores were inconsistent, differing by 17 percent. The City team counted more woody vegetation which heightened the vegetation score. More years of data will help determine reliable health trends.

### 4.4.3 Bur Oaks Pond (E-52)

Bur Oaks Pond (E-52) is a 15.5-acre, type 5 wetland located within the Eagan-Inver Grove Heights Watershed and the City’s “G” drainage district, which drains toward North Lake and eventually the Minnesota River. The watershed encompasses 18 acres of direct drainage with approximately 10 percent impervious surface. The wetland features three inlets in the northern basin and six in the southern basin, with a single outlet flowing out of the northern basin on the west side. It is part of the City’s stormwater management plan and designated as “Class L2 fishing and canoeing,” reflecting the City’s commitment to maintaining water quality that exceeds state standards for phosphorus, clarity, chlorophyll, and chloride levels, as well as preserving public fishing resources and access.



The wetland receives stormwater runoff from the adjacent park and several backyards. It also receives a larger volume of runoff filtered through the GP-1.2 pond to the south, which in some cases originates from industrial areas. The primary inflow from the south is treated by an iron-sand filter bench before entering Bur Oaks Pond. The City aims to continue educating the public on the importance of clean stormwater and monitoring the wetland’s species composition and quality. Chloride levels in the pond have been somewhat elevated, prompting closer watershed examination and periodic annual chloride sampling. Mid-summer vegetation growth is dense enough to potentially impact fish habitat, so future trends and management opportunities are being closely observed. Plans are underway to install four additional sump structures upstream to capture more sediment and solids at their entry points into the storm pipe system before they reach Bur Oaks Pond.





EAGAN TEAM COLLECTING  
INVERTEBRATES

### Wetland Health

**Site Observations:** The wetland slope is steep. The wetland substrate is very mucky. The immediate shoreline is brushy and wooded, including cottonwoods (*Populus* sp.), maples (*Acer* sp.), ash (*Fraxinus* sp.), and willows (*Salix* sp.). Thistle (*Cirsium* sp.), jewelweed (*Impatiens* sp.), nightshade (*Solanum* sp.), and reed canary grass (*Phalaris arundinacea*) grow along the shoreline. Coontail (*Ceratophyllum* sp.), water milfoil (*Myriophyllum* sp.), pondweed (*Potamogeton* sp.), and waterweed (*Elodea* sp.) crowd the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) float upon the surface of the water. Dragonflies, mayflies, snails, trueflies, crustaceans, and true bugs and beetles were collected.

**Table 4.4.3 Bur Oaks Pond (E-52) Wetland Health based on Index of Biotic Integrity**

2025 Data (E-52)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Moderate (19)
<b>Trend 2025</b>	Not enough data	Not enough data

**Site summary:** This is the first time that E-52 has been surveyed for WHEP. The invertebrate and vegetation scores were consistent, and both scores indicate moderate wetland health. More years of data will help determine reliable health trends.

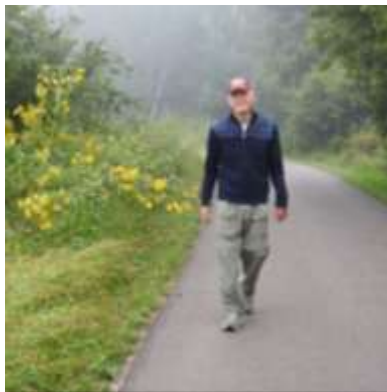
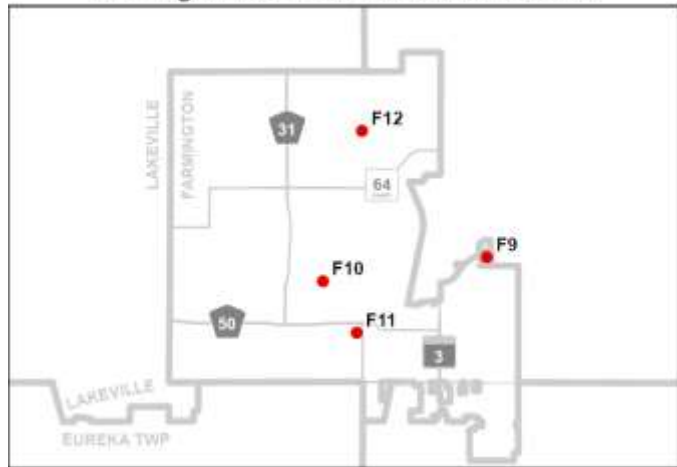
## 4.5 Farmington Wetlands

Four wetlands were monitored within the City of Farmington in 2025. The City has 28 years of data! Twelve wetlands have been monitored in Farmington through WHEP since 1998.

**Team Leader:** Rick Schuldt

**Team Members:** Rollie Greeno, Denise Hennigar, Katie Koch-Laveen, Lindsey Radle, Cadence Schuldt, Calan Schuldt, and Bellah Tange.

*Farmington WHEP Sites Monitored in 2025*



RICK SCHULDT

Rick Schuldt has been involved with the Farmington WHEP team for 15 years including 9 years as the team leader. His career with the US Fish and Wildlife Service included working to control sea lampreys in the Great Lakes as a fishery biologist. He retired from federal service after 30 years. He plans to retire from WHEP at the close of this year. It has been a pleasure to work with so many dedicated volunteers who enjoy the aquatic plants and macroinvertebrates of the area. Rick has developed friendships with several retired schoolteachers who had been with the program before he joined. He recruited two of his grandchildren (Calan and Cadence) and their friend (Bellah) in recent years and enjoyed teaching them about the need to preserve wetlands.

Previously Farmington sampling sites were visited over several years to build sets of long-term data. This year the newly hired Water Resources Specialist asked us to sample three new sites: Middle Creek East (F-10), Vermillion River South (F-11), and Meadow Creek (F-12). We also returned to the Cambodia Avenue site (F-9) which was not sampled last year. It was rewarding to sample the additional sites to see the variety of wetlands available in Farmington. At the time of sampling Middle Creek East, it was surrounded by small trees and brush to the water line. Upon returning to the site in October the team leader noted that all

brush and trees had been removed. Workers said they were assigned to “clean up” around the wetlands. It will be interesting to see if this will have any effect on aquatic plants and macroinvertebrates in the future.

McKenna Anderson serves as the City of Farmington’s Water Resources Specialist. McKenna commented, “In this role, I support the City’s efforts to improve and maintain our stormwater infrastructure and protect the quality of our surface waters. Wetlands play a vital role in our community—they help filter pollutants, reduce flooding, support wildlife habitat, and contribute to the overall health of our local ecosystems. The City of Farmington deeply values the Wetland Health Evaluation Program (WHEP) because it provides insight into how these important natural areas are functioning, promotes sustainable practices, and strengthens our connection with the community. On behalf of the City of Farmington, thank you to all the volunteers for your time, dedication, and commitment to this important program!”

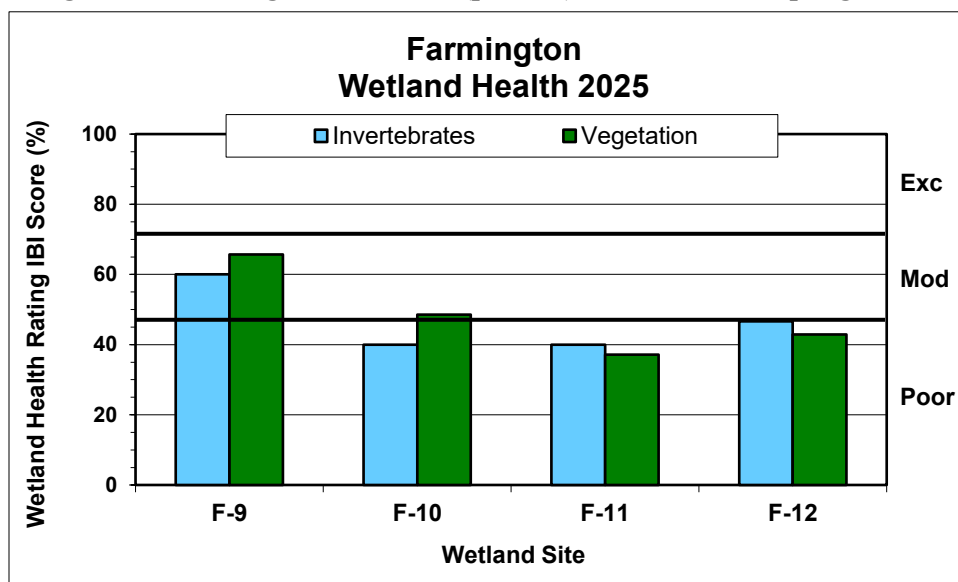


MCKENNA ANDERSON

### Farmington General Wetland Health

Figure 4.5 presents an overall view of wetland health for all the 2025 monitoring sites in Farmington based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.5 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. The Farmington wetlands exhibited poor to moderate wetland health based on both invertebrate and vegetation data. The invertebrates and vegetation scores were consistent for all four wetlands monitored in 2025.

Figure 4.5 Farmington site scores (percent) for the 2025 sampling season



### 4.5.1 Cambodia Avenue (F-9)

Cambodia Avenue (F-9) is a 3.45-acre, type 5 wetland within the Prairie Waterway subwatershed of the Vermillion River Watershed. The subwatershed is 38.6 acres with 11.8 percent impervious surface. There is one inlet on the southwest corner of the wetland and one outlet in the northeast of the wetland. It is included in the City’s Stormwater Management Plan and is designated as a Manage 2 wetland. The management goals are to monitor and document how different land uses impact man-made wetlands over time.



A wide buffer zone with native vegetation surrounds the wetland. Much of the surrounding area is agricultural land; however, development of residential homes exists to the north and west of the wetland. The Vermillion River is directly to the north opposite Vermillion River Trail.



### Wetland Health

**Site Observations:** The wetland has a gentle slope, with substrate that is mucky near the shore but becomes firmer farther from the edge. It is a small wetland with open water covered by white water lilies (*Nymphaea* sp.). Coontail (*Ceratophyllum* sp.) and pondweeds (*Potamogeton* sp. and *Stuckenia* sp.) filled the water column. Willows (*Salix* sp.), bur-reed (*Sparganium* sp.), bulrush (*Scirpus* sp.), cattails (*Typha* sp.), and reed canary grass (*Phalaris arundinacea*) surrounded the wetland. Swamp milkweed (*Asclepias incarnata*), smartweed (*Polygonum* sp.), St. John’s wort (*Hypericum* sp.), iris (*Iris* sp.), duckweeds (*Lemna* sp. and *Spirodela* sp.) and slender riccia (*Riccia fluitans*) were also present. Leeches, dragonflies, damselflies, mayflies, caddisflies, snails, trueflies, crustaceans, and bugs and beetles were collected.

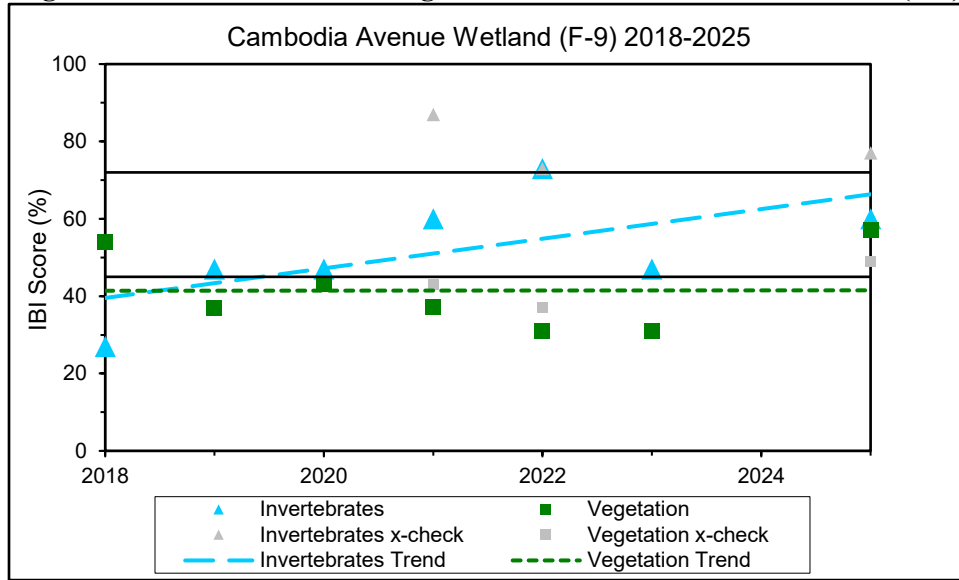


BELLAH TANGE, CALAN SCHULTZ, RICK SCHULTZ, AND DENISE HENNIGAR

**Table 4.5.1 Cambodia Avenue (F-9) Wetland Health based on Index of Biotic Integrity**

2025 Data (F-9)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Moderate (23)
<b>Cross-check Rating (IBI score)</b>	Moderate (20)	Moderate (17)
<b>Trend 2018-2025</b>	Not enough data	Not enough data

**Figure 4.5.3 Invertebrate and vegetation trends for Cambodia Avenue (F-9)**



**Site Summary:** This is the seventh time that Cambodia Avenue wetland has been surveyed for WHEP. Invertebrate and vegetation scores were consistent with each other, both indicating moderate wetland health. Preliminary vegetation data shows stable conditions while the invertebrate data shows improving conditions. In 2022, the WHEP team reported capturing 4-inch northern pike in the bottle traps. In 2025, large tadpoles were caught. Vegetation diversity increased in 2025; however, a few species heavily dominate the vegetation releve while others are sparsely represented. This wetland was cross-checked by another team. The vegetation data was similar between teams. The invertebrate scores were inconsistent between teams, differing by 17 percent. The cross-check team collected leeches, mayflies, and caddisflies; however, the Farmington team did not. The cross-check team sampled for macroinvertebrates several weeks later than the Farmington team and made no comment regarding predators in the bottle traps. Additionally, according to each team’s hand-drawn maps, they collected macroinvertebrates from opposite sides of the wetland. These factors may explain the differences in invertebrate scoring. More years of data are needed to help determine reliable health trends.



DENISE HENNIGAR AND BELLAH TANGE  
PICKING THROUGH DEBRIS

### 4.5.2 Middle Creek East (F-10)

Middle Creek East (F-10) is a 0.5-acre, type 5 wetland within the Farmington subwatershed of the Vermillion River Watershed. The subwatershed is 6.6 acres and includes 34.3 percent impervious surface. There is one inlet in the northwest corner of the wetland and one outlet in the southeast corner. The wetland is included in the City’s stormwater management plan.





## Wetland Health

**Site Observations:** The wetland has a steep slope and very mucky substrate. Townhouses align the northern side of the wetland. Middle Creek flows to the south of the wetland. Cottonwoods (*Populus* sp.), elm trees (*Ulmus* sp.), sumac (*Rhus* sp.), buckthorn (*Rhamnus* sp.), and Virginia creeper (*Parthenocissis* sp.) separate the wetland from Eastview Avenue on the east. Water milfoil (*Myriophyllum* sp.) and pondweed (*Potamogeton* sp.) crowd the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) cover the surface of the water. Cutgrass (*Leersia* sp.) and reed canary grass, and swamp milkweed (*Asclepias incarnata*) were the only other emergent vegetation present in the vegetation releve. Dragonflies, damselflies, scuds, and one beetle were collected.



CADENCE SCHULDY DOING SALT ANALYSIS

**Table 4.5.2 Middle Creek East (F-10) Wetland Health based on Index of Biotic Integrity**

2025 Data (F-10)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (17)
<b>Trend 2025</b>	Not enough data	Not enough data

**Site Summary:** This is the first time that Middle Creek East has been monitored for WHEP. The invertebrate and vegetation scores were consistent with each other, even though the invertebrate score indicated poor wetland health while the vegetation score indicated moderate wetland health. In general, both the invertebrate and vegetation diversity was low. More years of data will help determine reliable wetland health trends.

### 4.5.3 Vermillion River South (F-11)

Vermillion River South wetland (F-11) is a 7.5-acre, type 4 wetland within the Middle Mainstem of the Vermillion River Watershed. The subwatershed is 15.7 acres with 30.5 percent impervious surface. There is one inlet on the west side of the wetland and one outlet in the southeast corner of the wetland. It is included in the City’s Stormwater Management Plan.



Vermillion River South wetland is northwest of the intersection of Denmark Avenue and Spruce Street. The Vermillion River flows just south of the wetland, and a bicycle trail runs along its western edge. A nearby body of water to the north, called Vermillion River wetland (F-6), has been surveyed by WHEP in 2011, 2012, 2013, 2014, and 2015.



## Wetland Health

**Site Observations:** The wetland has a steep slope and a very mucky substrate. A ring of willows (*Salix* sp.) surround the wetland. It is a small but deep wetland with very little open water. Coontail (*Ceratophyllum* sp.) crowds the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) cover the surface of the water. Cattail (*Typha* sp.) and reed canary grass (*Phalaris arundinacea*) were the only other vegetation represented in the releve. Dragonflies, damselflies, snails, trueflies, and eight beetles were collected.

**Table 4.5.3 Vermillion River South (F-11) Wetland Health based on Index of Biotic Integrity**

2025 Data (F-11)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Poor (12)	Poor (13)
Trend 2025	Not enough data	Not enough data

**Site Summary:** This is the first time that Rambling River Park wetland has been monitored for WHEP. The invertebrate and vegetation scores were consistent with each other, both indicating poor wetland health. In general, both the invertebrate and vegetation diversity was low. More years of data will help determine reliable wetland health trends.

### 4.5.4 Meadow Creek (F-12)

Meadow Creek (F-12) is within the Vermillion River Watershed. It is the southernmost wetland along the Distad Park Greenway between Dulcimer Court and 189<sup>th</sup> Street West. Residential neighborhoods sprawl to the west, and cornfields and open land exists to the east and southeast.





## Wetland Health

**Site Observations:** The wetland has a gentle slope and a sandy substrate. Reed canary grass (*Phalaris arundinacea*) surrounds the wetland. Coontail (*Ceratophyllum* sp.), pondweed (*Potamogeton* sp.), and waterweed (*Elodea* sp.) are fill the water column. Greater duckweed (*Spirodela polyrhiza*) floats on the water's surface. Swamp milkweed (*Asclepias incarnata*), bur-reed (*Sparganium* sp.), and bulrush (*Scirpus* sp.) were sparsely represented in the vegetation releve. Dragonflies, damselflies, snails, trueflies, crustaceans, and two true bugs were collected. In addition, a type of sponge was observed.



CALAN SCHULDT RETRIEVING A BOTTLE TRAP

**Table 4.5.1 Meadow Creek (F-12) Wetland Health based on Index of Biotic Integrity**

2025 Data (F-12)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (14)	Poor (15)
<b>Trend 2025</b>	Not enough data	Not enough data

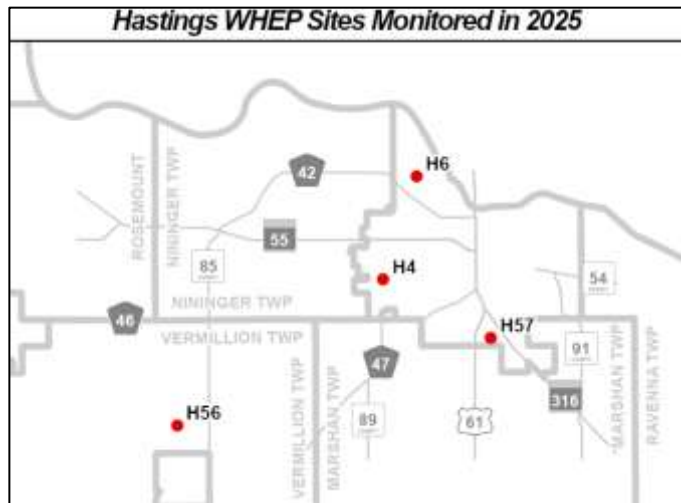
**Site Summary:** This is the first time that Meadow Creek has been monitored for WHEP. The invertebrate and vegetation scores were consistent with each other, both indicating poor wetland health. In general, both the invertebrate and vegetation diversity was low. More years of data will help determine reliable wetland health trends.

### 4.6 Hastings Wetlands

Four wetlands were monitored within the City of Hastings in 2025. The City has 27 years of data! Nine wetlands have been sampled in the City of Hastings through the WHEP program since 1999.

**Team Leader:** Michael Harrison

**Team Members:** Sarah Belisle, Evelyn Bestick, Kari Bestick, Lucy Bestick, Jonathan Blank, Nathan Buerkle, Jessie Eckroad, Jack Faje, Autumn Faulkert, Mikayla Franer, Alex Franzen, Shaun Heath, Rachel Jenson, Christine Jones, Gervase Kieffer, Danielle Lamb, Dylan Lawrence, Julie Lawrence, Miles Marcuson, Gunner McConnell, Jessica McConnell, Millie Rice, Bridget Siler, and Dwight Smith.



This is Michael Harrison’s first year as team leader for the Hastings WHEP team. The Hastings team included both experienced volunteers and new members who worked together throughout the season to collect thorough and accurate data.

John Caven is the Assistant City Engineer for the City of Hastings. He has been the City contact since 2010. He said, “The health of local water bodies are largely dependent on the surrounding land management practices. The dedicated volunteers provide reliable and dependable data for City staff and elected officials to make informed decisions. The many hours of hard work are greatly appreciated as they provide wetland health trendlines that make educated decisions possible. Thank you!”

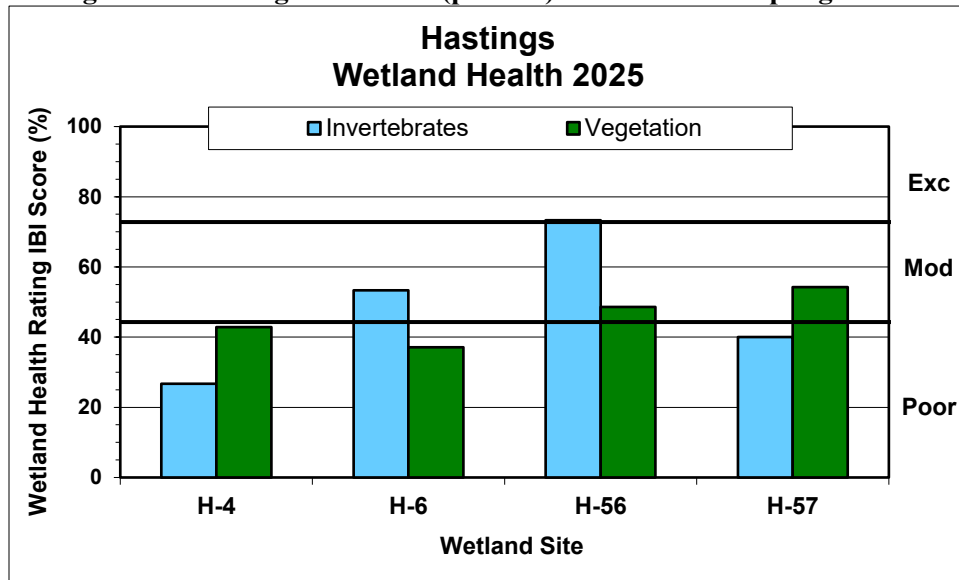


JOHN CAVEN

## Hastings General Wetland Health

Figure 4.6 presents an overall view of wetland health for all the 2025 monitoring sites in Hastings based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.6 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. The wetlands showed poor to moderate wetland health based on both invertebrate scores and vegetation scores. Invertebrate and vegetation scores for H-4, H-6, H-56, and H-57 were inconsistent with each other, differing by 16,16, 24, and 14 percent, respectively.

Figure 4.6 Hastings site scores (percent) for the 2025 sampling season



### 4.6.1 Stonegate Treated Wetland (H-4)

Stonegate Treated Wetland (H-4) is the second cell of a two-celled stormwater management system created to treat runoff from surrounding residential development. It is a 1.2-acre, stormwater retention pond located within the Vermillion River Watershed. The watershed is nine to ten acres and is 30 to 40 percent impervious. The wetland has one inlet in the southeast corner and one outlet on the north end. It is part of the stormwater management plan. The stormwater detention pond is within a developed neighborhood. The goal for the wetland is to improve water quality of the stormwater runoff before it adversely affects the Vermillion River.





The wetland is primarily residential with private property on three sides and a public trail along the south side. Private landowners within the Wyndham Hills Neighborhood Association manage their own frontages of the pond with riprap, mowing, and chemical use. Several property owners demonstrate good management practices by maintaining shoreland buffers to protect water quality and provide wildlife habitat. In 2004, the Wyndham Hills Neighborhood Association partnered with the City of Hastings and the DNR to provide

native plantings around the pond. A private trail access divides Stonegate Pond from another pond just south of the site. Some concerns compromising the health of the pond include invasive species, mowing too close to the water's edge, and the use of chemicals on adjacent shoreline turf.

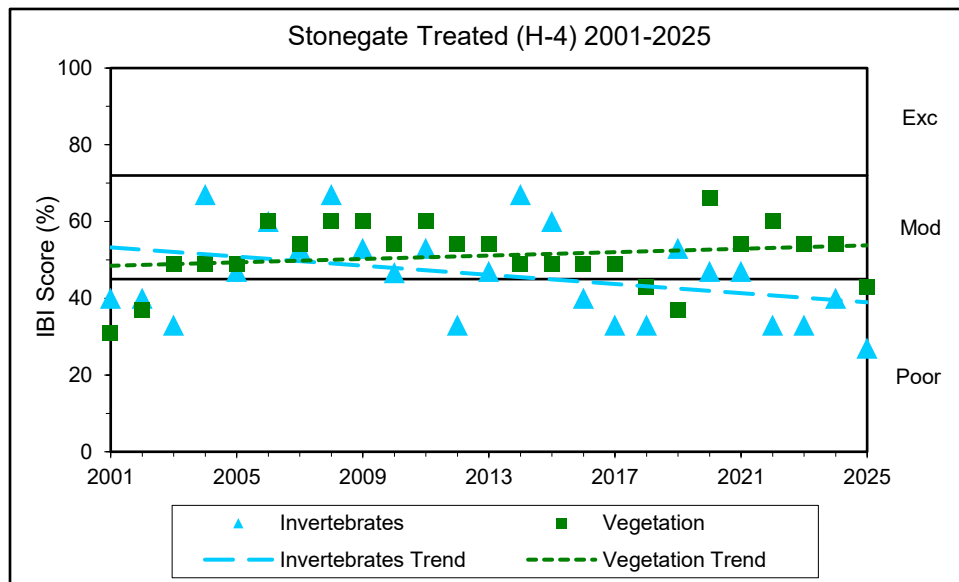
### Wetland Health

**Site Observations:** The wetland slope is steep and the substrate is mucky. The most prevalent vegetation is overhanging trees and shrubs including willow (*Salix* sp.), ash (*Fraxinus* sp.), birch (*Betula* sp.), cottonwood (*Populus* sp.), raspberries (*Rubus* sp.), wild grape (*Vitis* sp.), and dogwood (*Cornus* sp.). There were no submergent or floating leaved plants represented in the vegetation releve. Sensitive fern (*Onoclea sensibilis*), smartweed (*Polygonum* sp.), cattail (*Typha* sp.), and sedge (*Carex* sp.) were sparsely represented. Leeches, dragonflies, true flies, and crustaceans were collected.

**Table 4.6.1 Stonegate Treated (H-4) Health based on Index of Biotic Integrity**

2025 Data (H-4)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Poor (8)	Poor (15)
Trend 2001-2025	Declining	Stable

**Figure 4.6.1 Invertebrate and vegetation trends for Stonegate Treated (H-4)**



**Site Summary:** This is the 25<sup>th</sup> consecutive year that Stonegate Treated has been surveyed! The invertebrates and vegetation scores were inconsistent in 2025, differing by 16 percent; however, both scores indicate poor wetland health. In general, the invertebrate scores are often lower than the vegetation scores. There is little to no aquatic vegetation. The lack of submergent and floating vegetation likely impairs the invertebrate community. Data has been similar since 2022. The long-term health trend for vegetation is stable while the invertebrate health trend appears to be declining.

## 4.6.2 Lake Rebecca Wetland (H-6)

Lake Rebecca (H-6) also known as Rebecca EM 1&2, is a stormwater detention pond in the City of Hastings. It is a 19-acre, open water wetland located in the Vermillion River Watershed. The wetland drainage area is 56 acres and has 1 percent impervious surface. The wetland has two stormwater inlets along the southwest shoreline and one controlled outlet on the southeast end. The wetland is part of the City’s stormwater management plan. It is being managed as a wildlife habitat area and for recreational use. A natural shoreline buffer zone exists along much of the lake’s perimeter. The Mississippi River Flats Natural Resource Management and Restoration Plan was adopted in December 2002. One of the inflow areas to the lake is fitted with a series of sediment control structures. These are maintained by the City Public Works Department. The City Parks Department operates an aeration system during the winter season to benefit the game fish.





The wetland is an emergent marsh and shoreline/floodplain forest. Spring fed water from the bluffs helps maintain water levels. Jaycee Park provides access for recreation on the lake, including a boat launch. Diversion of stormwater into the lake and an impervious parking lot/boat launch adjacent to the eastern edge of the lake are of concern. Purple loosestrife and zebra mussels compromise the health of the lake.

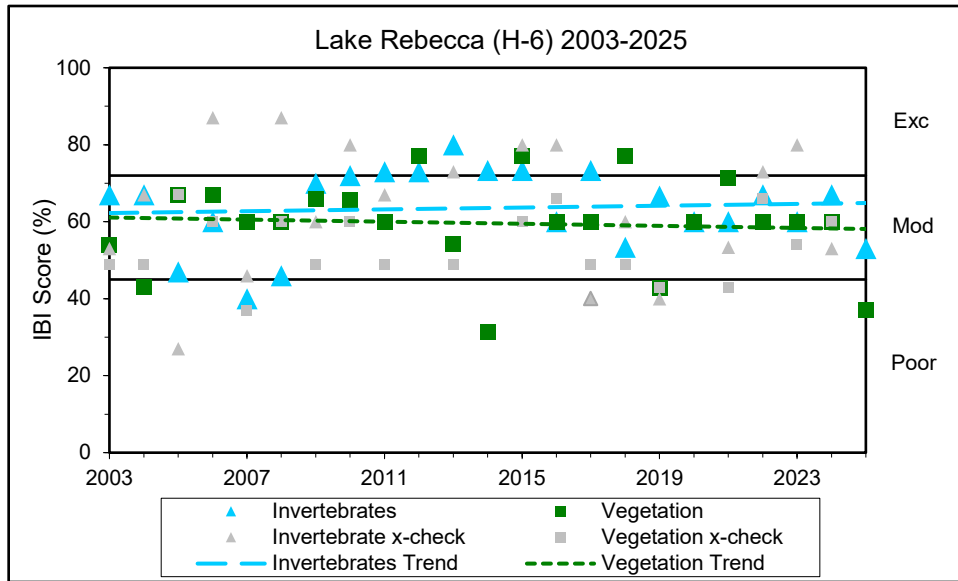
### Wetland Health

**Site Observations:** The wetland slope from the shoreline is gentle. The wetland substrate is sandy and solid. There are many fallen logs in the water. Access to the monitoring site is via the bikepath on the levee that divides the Mississippi River and Lake Rebecca. The slope from the bike path to the water is very steep and is covered with tall grasses and forbs. Coontail (*Ceratophyllum* sp.), pondweed (*Potamogeton* sp.), and waterweed (*Elodea* sp.), fill the water column. Duckweed (*Lemna* sp.) and watermeal (*Wolffia* sp.) cover the open water. Smartweed (*Polygonum* sp.), was also prevalent. Leeches, dragonflies, damselflies, mayflies, snails, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.6.2 Lake Rebecca (H-6) Wetland Health based on Index of Biotic Integrity**

2025 Data (H-6)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (16)	Poor (13)
<b>Trend 2003-2025</b>	Stable	Stable

**Figure 4.6.2 Invertebrate and vegetation trends for Lake Rebecca (H-6)**



**Site summary:** This is the 23<sup>rd</sup> consecutive year of monitoring at Lake Rebecca for WHEP. Invertebrate and vegetation scores were inconsistent, differing by 16 percent. The invertebrate score indicates moderate wetland health while the vegetation score indicates poor wetland health. With the exception of a few variable years, the invertebrates and vegetation scores show long-term stable health trends. The diversity for both invertebrates and vegetation was low in 2025. The vegetation releve at this site was cross-checked by a third-party consultant (Bolton & Menk) in 2025. Vegetation data was similar between groups.

### 4.6.3 180<sup>th</sup> Street Marsh (H-56)

180<sup>th</sup> Street Marsh (H-56) is a 20-acre stormwater detention pond located in the Vermillion River Watershed. The wetland drainage area is 340 acres, and is less than one percent impervious. The wetland has one inlet on the west side. It also has one outlet culvert located on the south side. This wetland is not part of the City’s stormwater management plan; it is in Dakota County and not under the management of the City.





The wetland is a part of several natural ponds in this agricultural area. The ponds partially cover several parcels of land: each parcel owned by a different party. Management practices are dependent on individual property owners. The landowners have not communicated any plans on management of the wetland. Farming practices to the south restrict above ground outflow to the Vermillion River. Wildlife management is protected through the Farmland and Natural Area Program. The wetland management goal is for agriculture to continue, and wildlife habitat management to be practiced in the wetland areas.

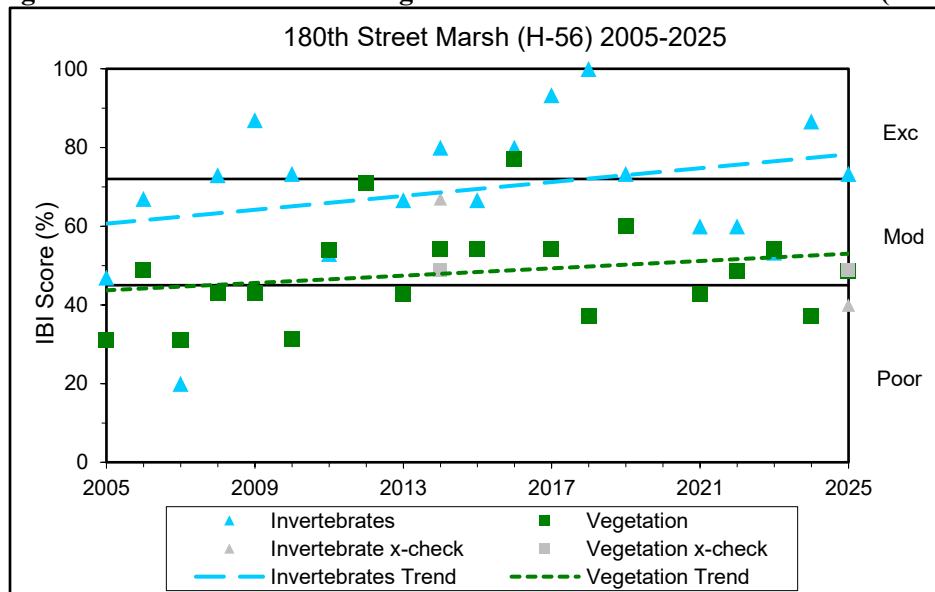
## Wetland Health

**Site Observations:** The wetland slope is gentle, though there is a drop-off at the shoreline. The wetland substrate is moderately mucky. Coontail (*Ceratophyllum* sp.) and pondweed (*Potamogeton* sp.) crowd the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) cover the surface of the water. Bulrush (*Scirpus* sp.), reed canary grass (*Phalaris arundinacea*), cattail (*Typha* sp.), arrowhead (*Sagittaria* sp.), and bur-reed (*Sparganium* sp.) dominated the shoreline. Leeches, dragonflies, damselflies, snails, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.6.3 180<sup>th</sup> Street Marsh (H-56) Wetland Health based on Index of Biotic Integrity**

2025 Data (H-56)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (22)	Moderate (17)
<b>Cross-check Rating (IBI score)</b>	Poor (12)	Moderate (17)
<b>Trend 2005-2025</b>	Stable	Stable

**Figure 4.6.3 Invertebrate and vegetation trends for 180<sup>th</sup> Street Marsh (H-56)**



**Site summary:** This is the 20<sup>th</sup> year that H-56 has been monitored for WHEP since 2005. The invertebrate and vegetation scores were inconsistent in 2025, differing by 24 percent; however, both the invertebrate score and vegetation score indicate moderate wetland health. Though there are years of variability in scores, both the invertebrate and vegetation health trends are stable. Invertebrate scores tend to be higher than vegetation scores. This site was cross-checked by another WHEP team in 2025. The vegetation scores between teams were the same; however, the cross-check team identified a greater diversity of emergent forbs and woody vegetation than the Hastings team. This is likely due to plot placement. The invertebrate scores between teams were inconsistent, differing by 23 percent. The Hastings team collected leeches,

damselflies, and crustaceans of which the cross-check team did not. The cross-check team sampled for invertebrates a month later than the Hastings team which may have affected the findings.

#### 4.6.4 Cari Park Pond (H-57)



Cari Park Pond (H-57) is a 20-acre stormwater detention pond located in the Vermillion River Watershed. The wetland drainage area is 29 acres, and 14 percent impervious. The wetland has four inlets of which three are located on the east side of the pond and one on the west side. It also has one outlet on the west side. This wetland is part of the City’s stormwater management plan. It is a man-made sedimentation pond that was constructed in 1989. It serves as a stormwater detention pond within a developed neighborhood. The goal for the wetland is to improve water quality of the stormwater runoff before it adversely affects the Vermillion River. The City has erosion control regulations in place to minimize the impacts of development within the watershed. Private landowners within the Cari Park neighborhood manage their own frontages of the pond with riprap, mowing, and chemical use. On the south and east sides of the pond, a City bituminous path connects the neighborhoods through Cari Park. Cari Park offers recreational opportunities on the south side of the pond. A bike trail runs along the south and east sides of the pond.



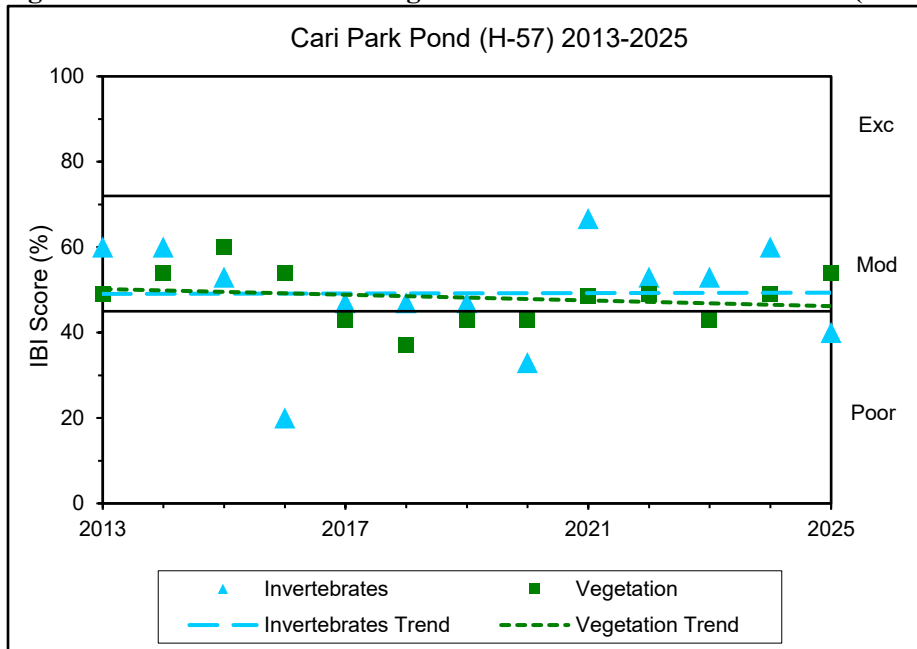
#### Wetland Health

**Site Observations:** The wetland slope is gentle, and the substrate is firm. The wetland is surrounded by homes and a nearby park. Trees overhang portions of the wetland shoreline. Willows (*Salix* sp.), dogwood (*Cornus* sp.), cattail (*Typha* sp.), bulrush (*Scirpus* sp.), sedge (*Carex* sp.), and reed canary grass (*Phalaris arundinacea*) line the shoreline. No submergent vegetation is present in the releve. Duckweeds (*Lemna* sp. and *Spirodela* sp.) are scattered upon the water surface. Several upland forbs were also present. Leeches, dragonflies, damselflies, snails, fingernail clams, trueflies, crustaceans, and true bugs and beetles were collected.

**Table 4.6.4 Cari Park Pond (H-57) Wetland Health based on Index of Biotic Integrity**

2025 Data (H-57)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (19)
<b>Trend 2013-2025</b>	Stable	Stable

**Figure 4.6.4 Invertebrate and vegetation trends for Cari Park Pond (H-57)**



**Site summary:** This is the 13<sup>th</sup> consecutive year that Cari Park Pond has been monitored. The vegetation and invertebrate scores were considered inconsistent, differing by 14 percent. The invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. Data has remained fairly similar over the years, and the long-term health trends appear stable for both invertebrates and vegetation.

### 4.7 Lakeville Wetlands

Two wetlands were monitored within the City of Lakeville in 2025. The City has 28 years of data! Ten wetlands have been sampled in the City of Lakeville through the WHEP program since 1998.

**Team Leader:** Steve Weston

**Team Members:** Sarah Crabtree, Ronnie Hartman, Loren Knutson, Elena Kulschar, Alex Messerschmidt, Ann Messerschmidt, Alex Nicholson, Joyce Nicholson, Alli Nickel, Andrew Nowak, Michael Stottler, Alexander Swartz, Mark Traffas, Lili Yu, Ziran Yu, and Zihan Yu.





STEVE WESTON

Steve Weston has participated in WHEP for over 20 years. He previously explained, “I have been a team leader of the Lakeville team since 2001, and it continues to be a high point of the year. I enjoy sharing the experience with volunteers, especially the high school students, several of whom have gone on to study biology in college and find environmental jobs.”

Ann Messerschmidt serves as the WHEP coordinator for the City of Lakeville. In this role, she determines which wetlands will be monitored by WHEP volunteers and reviews the data they collect. By comparing current findings with data from previous years, she tracks changes and identifies long-term trends within the wetlands.

Ann emphasizes that the WHEP program provides an excellent opportunity for residents who are interested in the natural environment to learn about wetland plants and invertebrates. The program offers valuable hands-on experience for volunteers while producing detailed information about the connections between the environment and its inhabitants—insights that reflect the overall health of the ecosystem. This knowledge helps residents better understand how their actions can directly affect water quality.



ANN MESSERSCHMIDT

She also values how the program connects residents to local wetlands and contributes to a growing body of long-term data that will continue to inform management decisions in the years ahead.

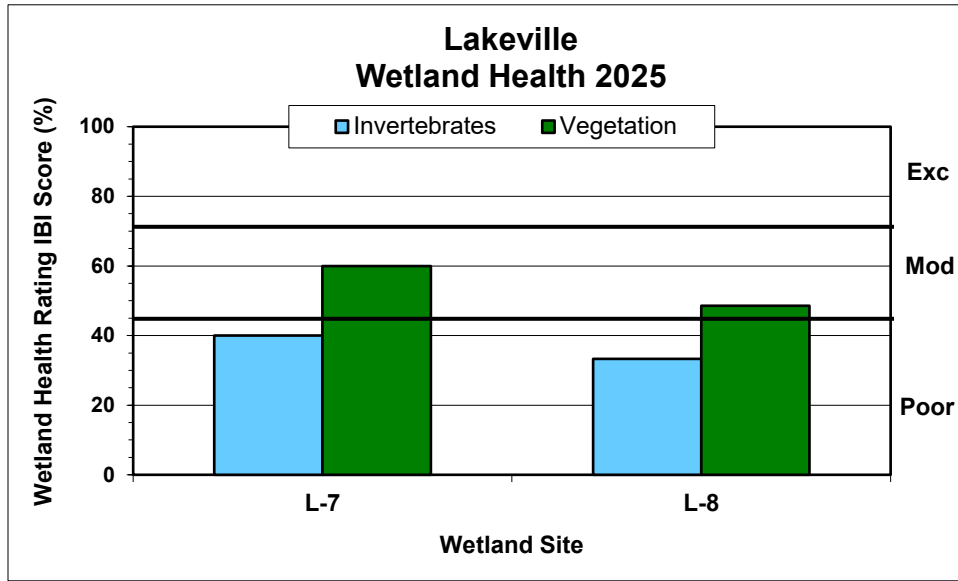
## Lakeville General Wetland Health

Figure 4.7 presents an overall view of wetland health for all the 2025 monitoring sites in Lakeville based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.7 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. The wetlands showed poor wetland health based on invertebrate scores and moderate wetland health based on vegetation scores. The invertebrates and vegetation scores for sites L-7 and L-8 were inconsistent, differing by 20 and 16 percent, respectively.



BACK ROW: ANDREW NOWAK, ALLI NICKEL, MARK TRAFFAS, ALEX NICHOLSON, RONNIE HARTMAN, ZIRAN YU, LORAN KNUTSON  
FRONT ROW: STEVE WESTON, ZIHAN YU

Figure 4.7 Lakeville site scores (percent) for the 2025 sampling season



#### 4.7.1 DNR Wetland #387 (L-7)

DNR #387 (L-7) is a ten-acre, type 4 wetland located in the Orchard Lake subwatershed within the Black Dog Watershed. The Orchard Lake subwatershed is 506.6 acres with 105.5 acres of direct drainage. It is 29 percent impervious, and both publicly and privately owned. It has one inlet in the southeast corner of the wetland off of Kettering Trail and two outlets along the north side near Orchard Lake. The wetland is part of the City's stormwater management plan. The wetland designation is to preserve. The management goal is to actively protect and preserve the functions and values of the wetland.





A woodland buffer surrounds most of the west side of the wetland, with woodland buffers between the few properties along the north and southeast wetland boundaries. In an effort to improve water quality of Orchard Lake, an aeration system was installed in L-7 in 2010. There are four diffuser heads installed near the north outlet into Orchard Lake. The goal is to precipitate phosphorous out of the water column and drop it out into the sediments in L-7 so that less phosphorous will enter Orchard Lake. The aeration system is scheduled to run from April to October annually.

#### Wetland Health

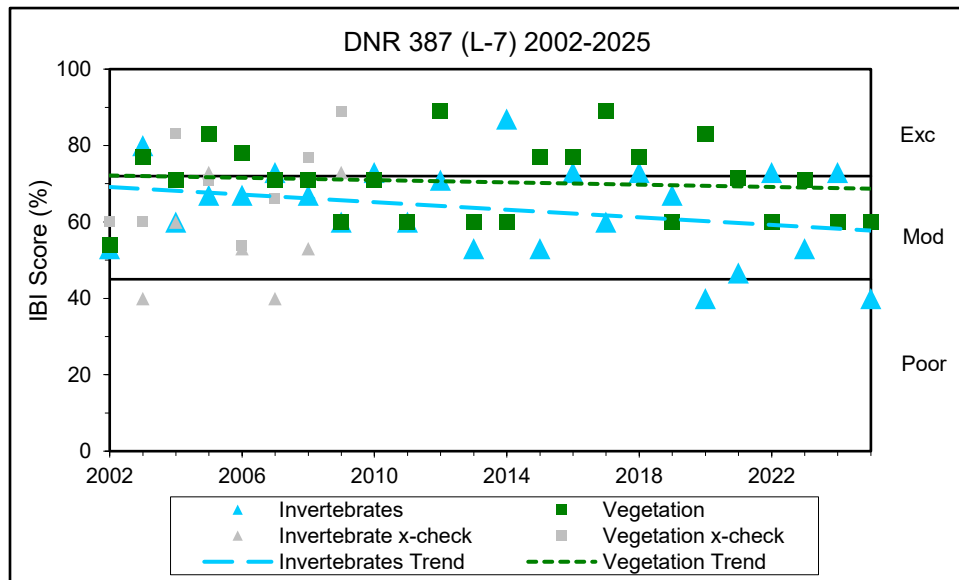
**Site Observations:** The wetland slope is gentle, and the substrate is quite mucky. *Carex* hummucks that remain, despite living *Carex* being nearly absent from the wetland for over 25 years, are prevalent near the sampling site of the wetland. A dense buffer of cottonwood (*Populus* sp.), oak (*Quercus* sp.), elm (*Ulmus* sp.), and dogwood (*Cornus* sp.) separates the wetland from nearby Orchard Lake to the north and a golf course to the south. Bur-reed (*Sparganium* sp.), cattail (*Typha* sp.), iris (*Iris* sp.), arrowhead (*Sagittaria*

sp.), bulrush (*Scirpus* sp.), purple loosestrife (*Lythrum salicaria*), and reed canary grass (*Phalaris arundinacea*) line the shoreline. A very sparse sample of bladderwort (*Utricularia* sp.) was the only submergent vegetation found in the water column. Duckweed (*Lemna* sp.) covered the water surface. Sedge (*Carex* sp.) and slender riccia (*Riccia fluitans*) were also observed. Leeches, dragonflies, damselflies, mayflies, snails, fingernail clams, trueflies, crustaceans and bugs and beetles were collected.

**Table 4.7.1 DNR 387 (L-7) Health based on Index of Biotic Integrity**

<b>2025 Data (L-7)</b>	<b>Invertebrates</b> 	<b>Vegetation</b> 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (21)
<b>Trend 2002-2025</b>	Stable	Stable

**Figure 4.7.1 Invertebrate and vegetation trend for DNR 387 (L-7)**

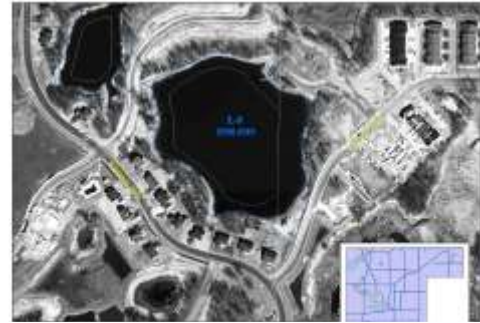


**Site summary:** This is the 24<sup>th</sup> consecutive year that DNR 387 has been monitored for WHEP. The invertebrate and vegetation scores were inconsistent in 2025, differing by 20 percent. The invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. The invertebrate and vegetation both appear to have long-term stable health trends. The vegetation data has stayed consistent in recent years. There were fish present in the bottle traps which may have impaired the invertebrate data.

#### 4.7.2 DNR #393 (L-8)

DNR #393 (L-8) is a 9.6-acre, type 5 wetland located in the Lake Marion subwatershed of the Vermillion River Watershed. The wetland drainage area is 74.7 acres, and 17 percent impervious. It is a publicly owned wetland. It has one non-stormwater inlet on the west side, and one outlet on the south side. There is a structure on the west side of the wetland that is connected to another wetland; however, it does not receive stormwater.



The wetland is included in the City’s stormwater management plan and is designated to preserve. The wetland management plan is to actively protect and preserve the function and values of the wetland to the maximum extent feasible. The wetland is within a residential neighborhood development between 2003 and 2008. A conservation easement of with a vegetative buffer of varying widths exists along all sides of this wetland.



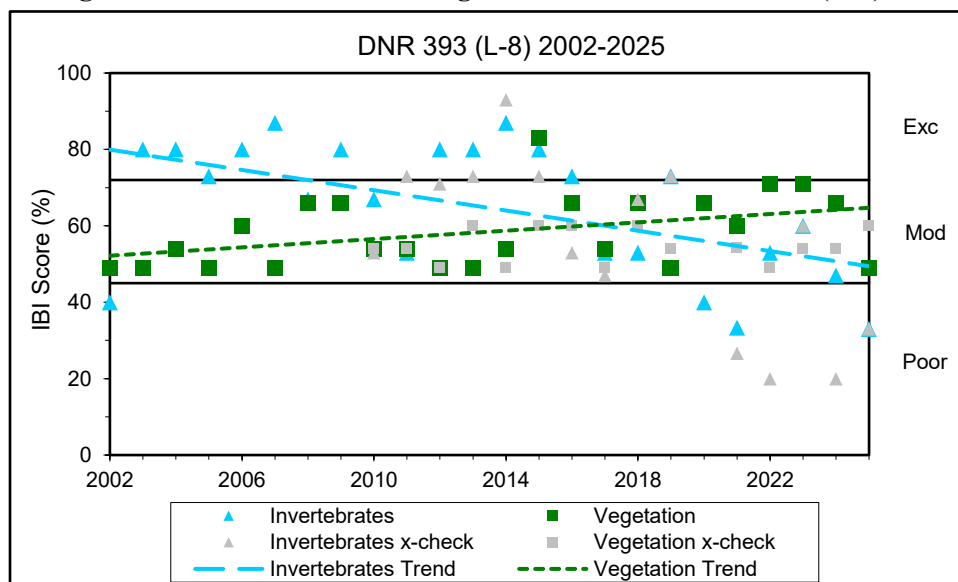
### Wetland Health

**Site Observations:** The wetland slope is gentle. The substrate is a firm. Coontail (*Ceratophyllum* sp.), water milfoil (*Myriophyllum* sp.), and pondweed (*Potamogeton* sp.) fill the water column. Water-shield (*Brasenia schreberi*), smartweed (*Polygonum* sp.), and duckweeds (*Lemna* sp. and *Spirodela* sp.) floated upon the open water. Bulrush (*Scirpus* sp.), spike-rush (*Eleocharis* sp.), arrowhead (*Sagittaria* sp.), reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum* sp.), and a few other emergent grasses and forbs were observed. Damselflies, snails, trueflies, and crustaceans were collected.

**Table 4.7.2 DNR Wetland 393 (L-8) Health based on Index of Biotic Integrity**

2025 Data (L-8)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (10)	Moderate (17)
<b>Cross-check Rating (IBI score)</b>	Poor (10)	Moderate (21)
<b>Trend 2002-2025</b>	Variable	Stable

**Figure 4.7.2 Invertebrate and vegetation trends for DNR 393 (L-8)**



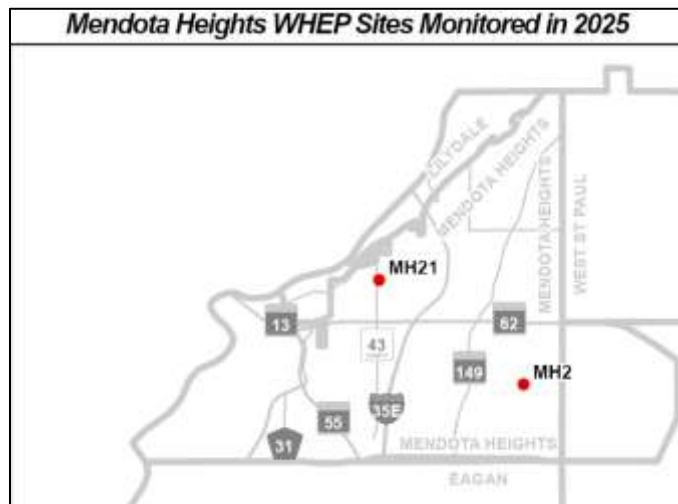
**Site summary:** DNR 393 has been monitored 24 consecutive years. The invertebrate and vegetation scores were considered inconsistent, differing by 16 percent. Excluding a high score in 2015, the vegetation scores regularly indicate moderate wetland health, and the trend is stable. Until more recently, invertebrate health scores have indicated excellent wetland health. In general, the diversity of invertebrates has been declining over the years. Previously, the team has noted that sunfish, large-mouth bass, crayfish, and tadpoles are present in the wetland which may impact the invertebrate population. Tadpoles and minnows were captured in the bottle traps in 2025. This wetland was cross-checked by another team in 2025. Invertebrate scores between the teams were the same, and data was similar. In general, the invertebrate data for both teams was low in diversity, lacking species of leeches, beetles and bugs, mayflies and caddisflies (similar to 2024). The vegetation scores between the teams are considered inconsistent, differing by 11 percent; however, the vegetation data was very similar. The cross-check team identified sedges in the releve, and this single plant increased the *Carex* metric which raised the overall vegetation score.

## 4.8 Mendota Heights Wetlands

Two wetlands were monitored within the City of Mendota Heights, in 2025. The City has 28 years of WHEP data! Twenty wetlands, including one new site in 2025, have been monitored in Mendota Heights since the start of the WHEP program.

**Team Leader:** Darcy Tatham

**Team Members:** Edwin Bradt, Noemie DeVogue, Gayl Gustafson, Jonah Hess, Marshall Johnson, Thomas McDermott, Joan O'Donnell, Angela Richardson, Michelle Skog, Mary Stade, Carol Strojny, Anneliese Tatham, Cam Wang, and Noel Wang.



DARCY TATHAM AND NELLIE

Darcy Tatham has been involved with WHEP since 2000. Her first year was as a volunteer and after that as a team leader. Darcy commented, “I’ve been a leader with WHEP for over 20 years. The ponds around Mendota Heights generally don’t have much land use change. Other areas of Dakota County have more development around ponds and wetlands, so it’s interesting to see the differences throughout Dakota County. That said, it’s fascinating to observe through the years how our own wetlands respond to all of the weather changes, whether it be droughts or severe rainstorms or mild winters or even Canadian wildfires, as well as the human made changes. It’s all in the observation and none of it is static, it’s all dynamic.

“Many thanks to my wonderful team of volunteers and city staff for joining me on this quest!”

As the Natural Resources Coordinator for the City, Krista Spreiter has had the opportunity to work with the Mendota Heights WHEP team through several seasons both in the field and in the lab. Krista remarked, “I am continually impressed with their experience, knowledge, and passion for wetland health. They have monitored many wetlands in Mendota Heights and many different types and in different locations. Some are in parks, and some are in the middle of neighborhoods. They have put in a lot of effort and time, with some volunteers participating in the program over many years, providing the city and the program with invaluable data. In some cases, if I receive complaints about the health of a wetland from residents, the WHEP team will then monitor that wetland to gauge health through monitoring. The city uses that data to monitor changes that may occur over time and how they respond to pressure from development and other environmental stressors, as well as looking for ways to protect and improve them. The city is very grateful for our WHEP team!”

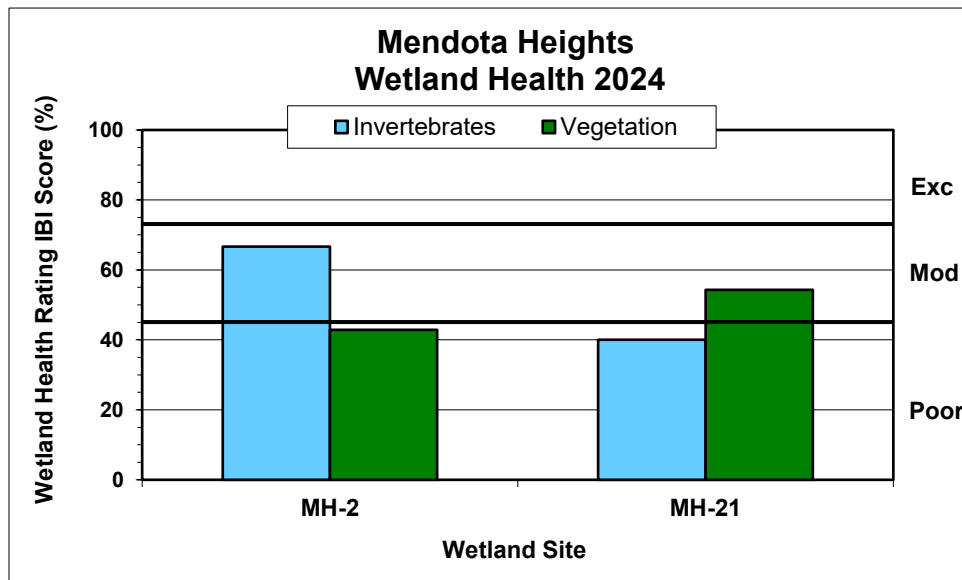


KRISTA SPREITER

## Mendota Heights General Wetland Health

Figure 4.8 presents an overall view of wetland health for all the 2025 monitoring sites in Mendota Heights based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.8 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. Two wetlands were monitored in 2025. Invertebrate and vegetation scores indicate poor to moderate wetland health for MH-2 and MH-21. The invertebrate and vegetation scores were inconsistent with each other for both wetlands, differing by 24 and 14 percent.

**Figure 4.8 Mendota Heights' site scores (percent) for the 2025 sampling season**



### 4.8.1 Copperfield Pond (MH-2)

Copperfield Pond (MH-2) is a 5.8-acre, type 5 wetland within the Lower Mississippi River Watershed. Its watershed is 965.4 acres and is 30.1 percent impervious. There are three inlets: one in the northeast corner of the wetland, one in the southeast corner, and one in the southwest corner. There is one outlet in the northeast corner, near Huber Drive. The wetland is included in the City’s stormwater management plan and is designated as NWI-PUBG. The pond serves as a recreational natural resource with a surrounding paved trail and gravel nature trail. The wetland management goal is to protect and improve water quality, and provide wildlife habitat and flood storage. A majority of the drainage area includes several treatment ponds. Copperfield is connected to an adjacent wetland when water levels are high. Many of these ponds receive surface runoff from residential and road development.



This area is a City-owned open space, and is intended for recreation and educating the public on native plantings and the importance of water management. The pond is located in a wooded area with mature trees. Some invasive species in the area include buckthorn, amur maple, and garlic mustard; however, the park and surrounding buffer is undergoing a native restoration to remove invasive species and re-establish a native vegetative buffer. The surrounding area includes residential neighborhoods in Mendota Heights.





MARSHALL JOHNSON, NOEL WANG, GAYL GUSTAFSON, MICHELLE SKOG, CAM WANG, AND DARCY TATHAM

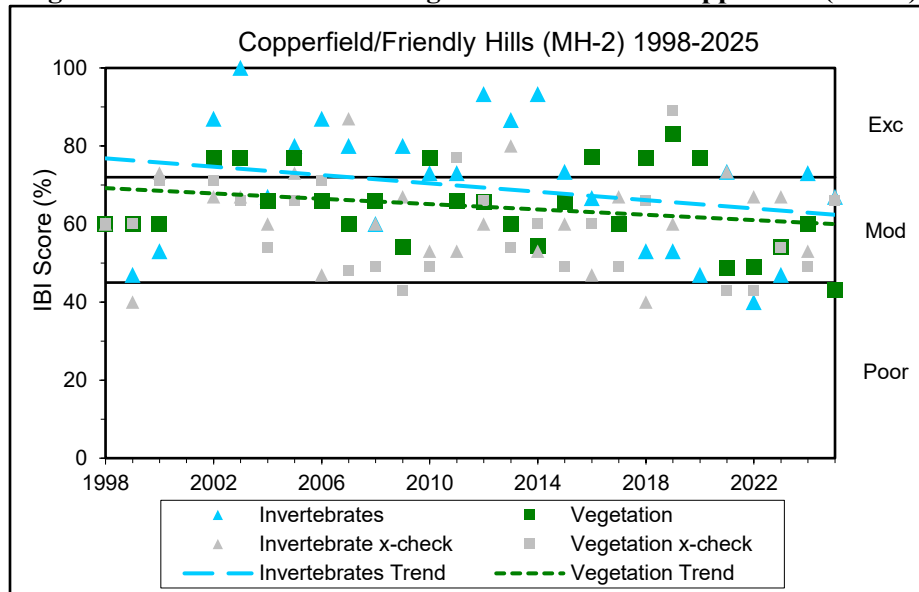
### Wetland Health

**Site Observations:** Copperfield is part of a chain of ponds within an established neighborhood, but it is City-owned. The pathway to the pond is flat and wooded, with a vegetated buffer around the water’s edge. The wetland slope is gentle. The substrate is mucky (but perhaps not as mucky as in previous years). A large stand of cattails (*Typha* sp.) extends about 25 feet from the shore. White water lilies (*Nymphaea* sp.) are prevalent beyond the cattails. Duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) also covered the open water. Coontail (*Ceratophyllum* sp.), pondweed (*Potamogeton* sp.), and waterweed (*Elodea* sp.) filled the water column. Arrowhead (*Sagittaria* sp.) was the only other emergent plant found in the vegetation releve. Dragonflies, damselflies, mayflies, snails, fingernail clams, trueflies, crustaceans, and beetles and true bugs were collected.

**Table 4.8.1 Copperfield (MH-2) Wetland Health based on Index of Biotic Integrity**

2025 Data (MH-2)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (20)	Poor (15)
<b>Cross-check Rating (IBI score)</b>	Moderate (20)	Moderate (23)
<b>Trend 1998-2025</b>	Variable	Stable

**Figure 4.8.1 Invertebrate and vegetation trends for Copperfield (MH-2)**



**Site Summary:** This is the 27<sup>th</sup> year that MH-2 has been monitored for WHEP since 1998. There is a lot of variability in the data throughout the years of monitoring. Both health data sets show steady long-term trends. Fluctuation in water levels from year to year may impact data results. The invertebrate and vegetation scores were inconsistent in 2025, differing by 24 percent. The invertebrate score indicates moderate wetland health while the vegetation score indicates poor wetland health. This wetland was cross-checked by another team. The invertebrate scores were the same and the data very similar. The vegetation scores were inconsistent between the teams, differing by 23 percent. The cross-check team found a greater diversity of emergent woody, grasslike, and forb species. Plot placement may have affected the vegetation data.



CAM WANG, THOMAS McDERMOTT, JOAN O'DONNELL, GAYL GUSTAFSON, AND MICHELLE SKOG

### 4.8.2 Warrior Pond (MH-21)

Warrior Pond (MH-21) is a 6.5-acre, type 5 wetland located within the Interstate Valley Creek subwatershed of the Lower Mississippi Watershed. The subwatershed is 17.3 acres. There is one inlet in the southwest corner of the wetland and no known outlets. It is part of the City's stormwater management plan with a goal to improve water quality and emergent vegetation.



The wetland is within a residential area at the end of Knob Road. Warrior Drive is to the east of the wetland. The wetland receives runoff from surrounding residential area. Tree canopy covers the east side of the wetland, but is sparse along the western side.



## Wetland Health

**Site Observations:** The wetland slope is steep from the street down to the water. The substrate is mostly firm. There were submerged logs and rocks in the water. The wetland is lined by trees, including oaks (*Quercus* sp.), ash (*Fraxinus* sp.), elm (*Ulmus* sp.), walnuts (*Juglans* sp.), and boxelders (*Acer* sp.). Pondweed (*Potamogeton* sp.) dominated the water column. Water-nymph (*Najas* sp.), arrowhead (*Sagittaria* sp.), duckweed (*Lemna* sp.), sedge (*Carex* sp.), reed canary grass (*Phalaris arundinacea*), and several other emergent grasses and forbs were sparsely present. Leeches, damselflies, mayflies, snails, trueflies, and three water boatman were collected.



NOEL WANG, CAM WANG, MARY STADE, AND JOAN O'DONNELL

**Table 4.8.2 Warrior Pond (MH-21) Wetland Health based on Index of Biotic Integrity**

2025 Data (MH-21)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (19)
<b>Trend 2025</b>	Not enough data	Not enough data

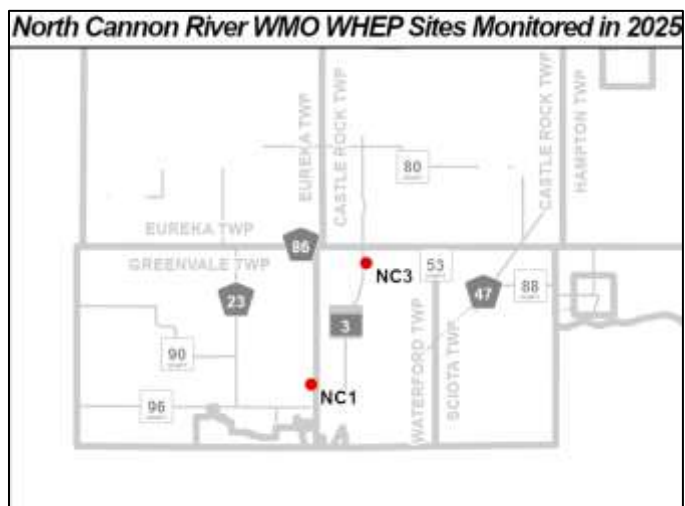
**Site summary:** This is the first time that Warrior Pond has been monitored for WHEP. The invertebrate and vegetation scores are considered inconsistent, differing by 14 percent. The invertebrate score indicates poor wetland health while the vegetation data indicates moderate wetland health. Emergent vegetation enhanced the vegetation score. More years of data may show more reliable health trends.

## 4.9 North Cannon River Watershed Management Organization

Two wetlands were monitored for North Cannon River Watershed Management Organization (NCRWMO) in 2025. This is the ninth year that NCRWMO has monitored wetlands with WHEP. Three wetlands have been monitored for NCRWMO since their inclusion in WHEP.

**Team Leader:** Shamus Collins

**Team Members:** Ella Lang, Jen Nava, and Mary Pauly



This is Shamus Collins fourth year as team leader of the North Cannon River WHEP team and has participated in WHEP since 2022. He previously said, “I have been involved with the North Cannon River Watershed for around 6 years in various roles, but always with the overarching goal of doing my part to maintain and protect the health of the associated ecosystems.”



SHAMUS COLLINS  
AND ELLA LANG

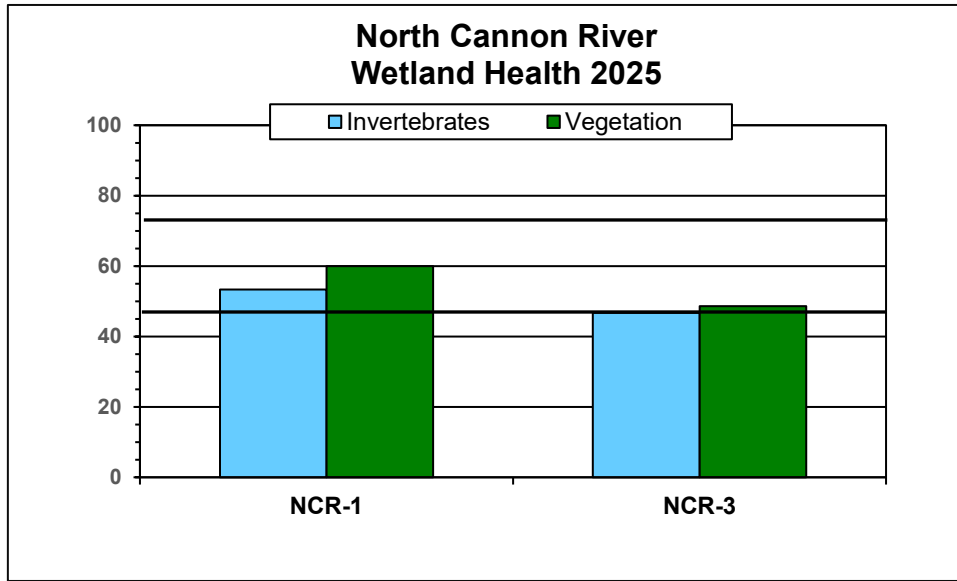
Victoria Ranua is the Administrator for the North Cannon River Watershed Management Organization (NCRWMO), this rural watershed is dominated by agricultural land use. This unit of government has been funding WHEP along with water quality monitoring within the watershed for a number of years. Many of our board members, past and present, are farmers or have close ties to farming.

Victoria said, “I have only been here a year, but I like that there has been a long-term commitment to funding these ‘health check-ups’ on our waters and wetlands, that help inform where to target our limited agricultural BMPs efforts. Water quality monitoring is something that is more typical, but WHEP has the board acknowledging that there is a biological outcome to water quality. Our WHEP sites are in restored wetland systems. I have wondered if the low diversity seen is a function of the initial restoration conditions—limited plant diversity influencing the broader biological community. I thank the volunteers who take their time and curiosity to our wetland sites. I hope for some they can translate their observations in solutions to increasing functions in these and other wetlands they are involved in the future.”

## North Cannon River WMO General Wetland Health

Figure 4.9 presents an overall view of wetland health for all the 2025 monitoring sites in NCRWMO based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.9 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. Two wetlands were monitored in 2025. Invertebrate scores indicate poor to moderate wetland health for NCR-1 and NCR-3. Vegetation scores indicate moderate wetland health for each. The invertebrate and vegetation scores were consistent for both wetlands.

**Figure 4.9 NCRWMO’s site scores (percent) for the 2025 sampling season**



### 4.9.1 Loretto Wetland (NCR-1)

Loretto Wetland (NCR-1), formerly known as Wasner, is a 0.5-acre, type 4 wetland within the Cannon River Watershed. The wetland watershed is 160 acres with four acres of impervious surface. A wetland restoration was completed in 1996. The wetland management goal is to maintain the wetland and determine the effectiveness of the restoration.



This wetland is located northwest of the intersection of 315<sup>th</sup> Street West and Dresden Avenue within Greenvale Township in southwest Dakota County. The surrounding area is predominately agricultural. There is potential for future development in the area.



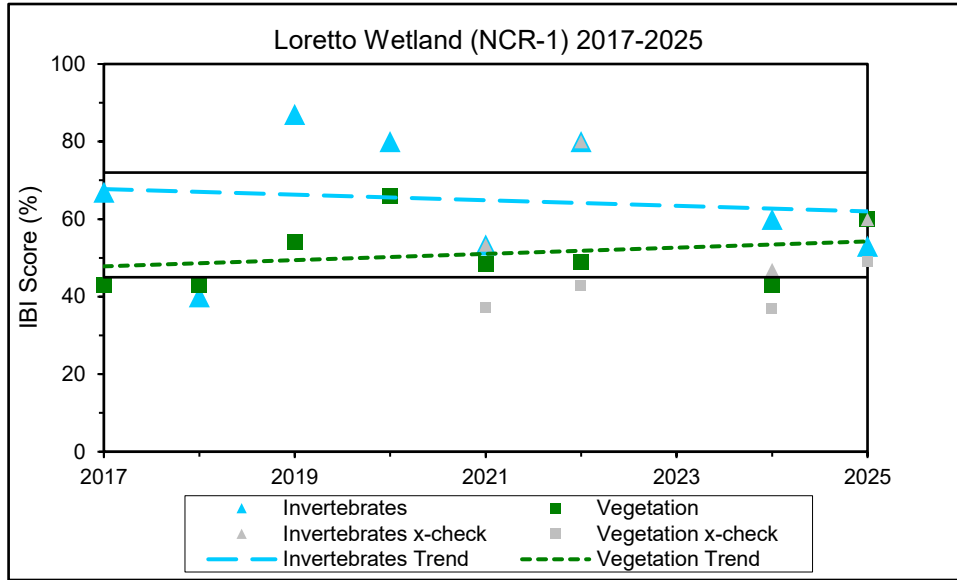
### Wetland Health

**Site Observations:** Loretto Wetland is surrounded by active agricultural fields and farms. Tall grasses surround the wetland site and a dense stand of woody vegetation and trees extends from the road to the wetland habitat. Emergent plants dominate, including: bur-reed (*Sparganium* sp.), cattail (*Typha* sp.), bulrush (*Scirpus* sp.), spike rush (*Eleocharis* sp.), beggar-ticks (*Bidens* sp.), and reed canary grass (*Phalaris arundinacea*). Water plantain (*Alisma* sp.), arrowhead (*Sagittaria* sp.), and manna grass (*Glyceria* sp.) were also more sparsely present. The open water was covered by slender riccia (*Riccia fluitans*) and duckweed (*Lemna* sp.). Water beggar-ticks (*Megalodontia beckii*) and bladderwort (*Utricularia* sp.) were scattered throughout the water column. Leeches, dragonflies, damselflies, caddisflies, snails, trueflies, crustaceans, and bugs and beetles were collected.

**Table 4.9.1 Loretto Wetland (NCR-1) Wetland Health based on Index of Biotic Integrity**

2025 Data (NCR-1)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Moderate (16)	Moderate (21)
Cross-check Rating (IBI score)	Moderate (18)	Moderate (17)
Trend 2017-2025	Stable	Stable

**Figure 4.9.1 Invertebrate and vegetation trends for Loretto Wetland (NCR-1)**



**Site summary:** This is the eighth year that Loretto Wetland has been monitored by WHEP volunteers since 2017. The wetland was too dry to collect data in 2023. In 2025, the invertebrate and vegetation scores were consistent with each other, and both indicating moderate wetland health. Emergent plants are abundant, but their distribution is unbalanced – certain species dominate the wetland while others occur only in small, scattered patches. Very little submergent vegetation is present. Extreme fluctuations in water levels impact monitoring accessibility and habitat. Preliminary data for both invertebrate and vegetation data suggest stable wetland health trends. This site was cross-checked by another WHEP team. The invertebrate scores were consistent between teams, with similar data, except that the cross-check team collected multiple families of trueflies that the NCRWMO team did not. Vegetation scores between teams were inconsistent, differing by 11 percent; however, the vegetation data was quite similar too. The NCRWMO team identified bladderwort which contributed to a higher vegetation score.

## 4.9.2 Jordan Wetland (NCR-3)

Jordan Wetland (NCR-3) is a 25-acre, type 3 shallow marsh within the Cannon River Watershed. The wetland watershed is 33 acres with two acres of impervious surface.



The surrounding area includes agriculture and roads. The site was cropped until 2018 when restoration work began. The drainage ditches were filled and a berm was built to hold back water. Vegetation work and seeding throughout the easement have created various wetland and upland habitats.



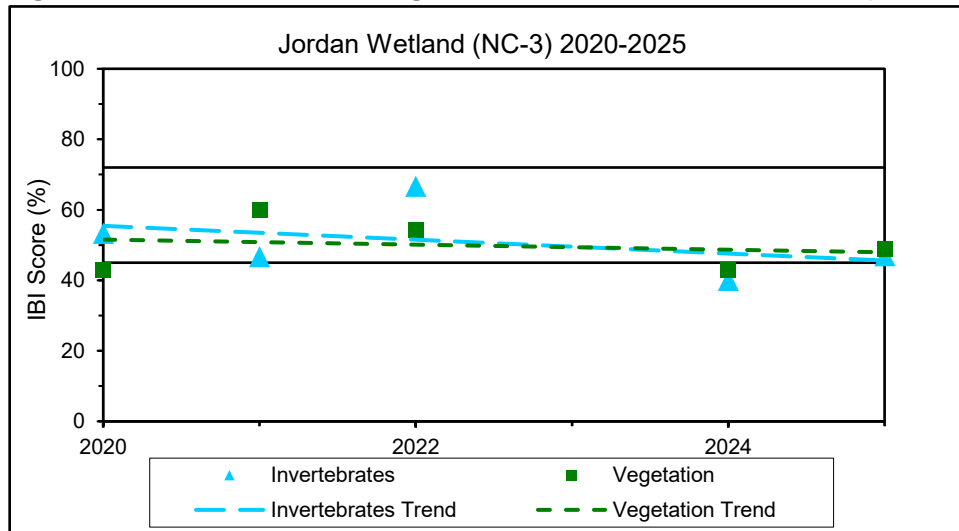
### Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is very mucky. There are no trees, as it is located in the remnants of an agricultural field. Arrowhead (*Sagittaria* sp.) and water-plantain (*Alisma* sp.) dominate the site. Several other emergent plants, including bur-reed (*Sparganium* sp.), cattail (*Typha* sp.), swamp milkweed (*Asclepias incarnata*), beggar-ticks (*Bidens* sp.), bulrush (*Scirpus* sp.), spike rush (*Eleocharis* sp.), and reed canary grass (*Phalaris arundinacea*) are also present. Wild parsnip was also abundant and made traversing the site challenging. Duckweed (*Lemna* sp.) and slender riccia (*Riccia fluitans*) dusted the surface of the shallow water. No submergent plants were observed. Leeches, dobsonflies, snails, fingernail clams, and bugs and beetles were collected.

**Table 4.9.2 Jordan Wetland (NCR-3) Wetland Health based on Index of Biotic Integrity**

2025 Data (NCR-3)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (14)	Moderate (17)
<b>Trend 2020-2025</b>	Not enough data	Not enough data

**Figure 4.9.2 Invertebrate and vegetation trends for Jordan Wetland (NCR-3)**



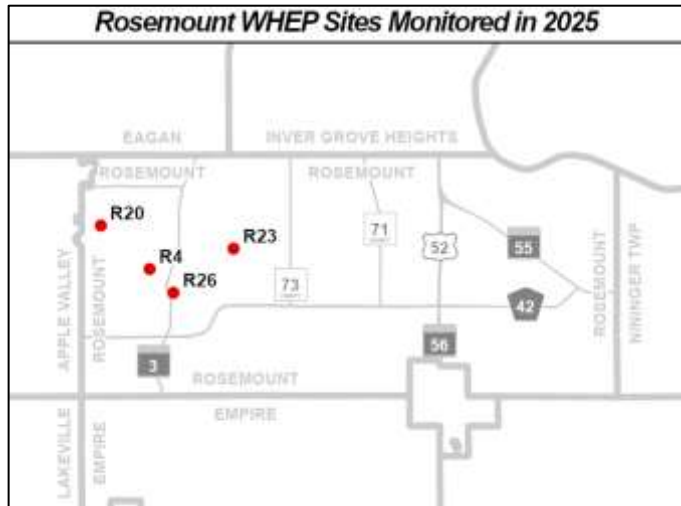
**Site summary:** This is the fifth year that Jordan wetland has been monitored by WHEP volunteers since 2020. This site was too dry to sample in 2023. In 2025, the invertebrate and vegetation data was consistent. Invertebrate and vegetation scores have ranged from poor to moderate over the years of monitoring. Dry conditions have been reported at this site several years since monitoring started. With few years of data, both data sets show consistency. More years of data will help determine reliable health trends.

## 4.10 Rosemount Wetlands

Four wetlands were monitored in the City of Rosemount in 2025. The City has 28 years of WHEP data! Twenty-four wetlands have been monitored in Rosemount for WHEP.

**Team Leaders:** Jane Porterfield and Stephan Hoche

**Team Members:** Angie Bromeland, Caleb Bromeland, David Bromeland, Reagan Cardwell, Adeline Chlebeck, Eleanor Chlebeck, John Chlebeck, Ronan Chlebeck, Sean Christianson, Susie Freiburger, Emily Hoche, Gisella Hoche, Greyson Hurley, Anya Koppula, Shauna Mackenzie, Justin Nichols, Greta Willander, and Tom Willander.



JANE PORTERFIELD

Jane Porterfield is the co-team leader for Rosemount. She has been involved in WHEP since its induction in 1997. She said, “WHEP allows me to be involved in quality research and share my interest in preserving wetlands and maintaining water quality with others. The best part of WHEP is working with the volunteers. They inspire us with their enthusiasm for learning and caring about wetlands. It has also been interesting watching some wetland ecosystems change over time. Wetlands are peaceful places that inspire!”

Stephan Hoche, Rosemount WHEP co-team leader commented, “Helping evaluate wetlands has been rewarding for me and my family. This is the first year that we all donned the waders and we had a great time doing it. This is Gisella’s first season joining in with our team and Emily’s fourth season making waves and gathering data. Overall, we had another great season because of the time and energy invested from our enthusiastic and much appreciated volunteers. Getting into the water and experiencing the plants and wildlife up close fosters a deep appreciation for how wetlands sustain our communities through clean water, storm-water management, and wildlife habitat.”



STEPHAN HOCHÉ

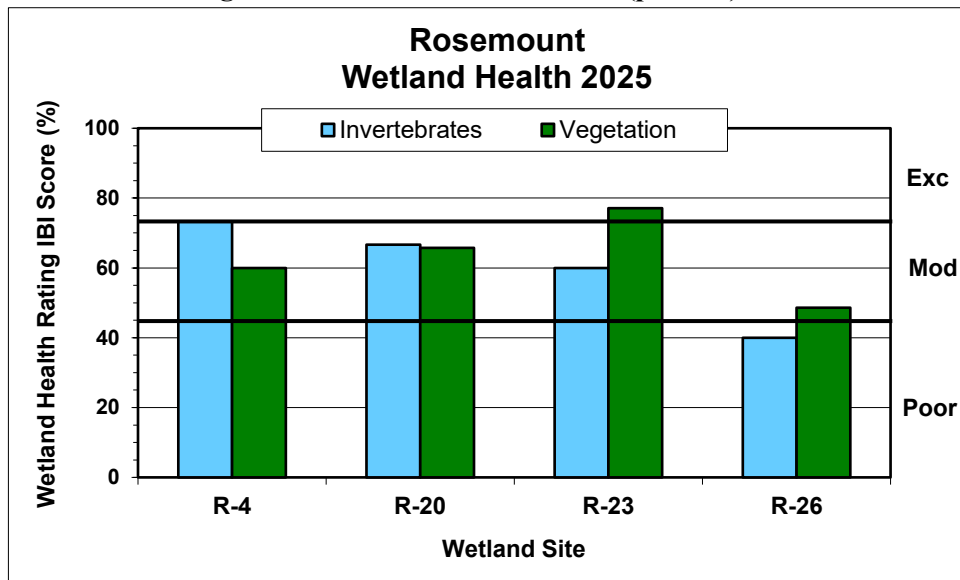
## Rosemount General Wetland Health

The City of Rosemount has a wetland management plan which includes four different categories of protection. Vegetated buffers are required around wetlands in new developments, with the buffer size determined by the wetland protection designation.

<u>Wetland designation</u>	<u>Required buffer</u>
Preserve Wetlands	75 feet
Manage 1 Wetlands	50 feet
Manage 2 Wetlands	30 feet
Manage 3 Wetlands	15 feet in non-agricultural areas only

Figure 4.10 presents an overall view of wetland health for all the 2025 monitoring sites in Rosemount based on the scores for invertebrates and vegetation presented as a percent. Figure 4.10 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. The invertebrate scores indicate poor to moderate wetland health. The vegetation scores indicate moderate to excellent wetland health. The invertebrate and vegetation scores for R-4 and R-23 were inconsistent, differing by 13 and 17 percent, respectively.

**Figure 4.10 Rosemount site scores (percent) for 2025**



### 4.10.1 Schwarz Pond (R-4)

Schwarz Pond (R-4), also known as WMP #431, is an 11-acre, type 5 wetland in the Erickson Pond subwatershed of the Vermillion River Watershed. The subwatershed is 1,832 acres with 25 percent impervious surface. There is one inlet on the northwest shoreline, one inlet on the southern shoreline, and one inlet on the eastern shoreline of the wetland. There is one outlet on the eastern side of the wetland at the liftstation. It is included in the City’s stormwater management plan and is designated to preserve with a management goal to maintain wetland and its existing functions, values, and wildlife habitat.



This is a medium sized pond surrounded by parkland and institutional land uses. The pond receives suburban and parkland runoff, and disturbances associated with those land uses. Upstream ponds and large buffers mitigate for the existing runoff. Some buckthorn removal and vegetation management has occurred in nearby parkland in recent years. Road projects in small portions of the drainage area occurred in 2025.



### Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is mucky. A trail runs around the south, east, and north side of the wetland. Rosemount High School and sports complex are built up to the south and east. Dense tree canopy separates the northern and western sides of the wetland from surrounding residential areas. Reed canary grass (*Phalaris arundinacea*) and spike rush (*Eleocharis* sp.) dominate the shoreline. Coontail (*Ceratophyllum* sp.), waterweed (*Elodea* sp.), water nymph (*Najas* sp.), and pondweed (*Potamogeton* sp.) fill the water column. American lotus (*Nelumbo lutea*), duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.) cover the open water. Arrowhead (*Sagittaria* sp.) was also present. Leeches, dragonflies, damselflies, caddisflies, snails, crustaceans, trueflies, and bugs and beetles were collected.

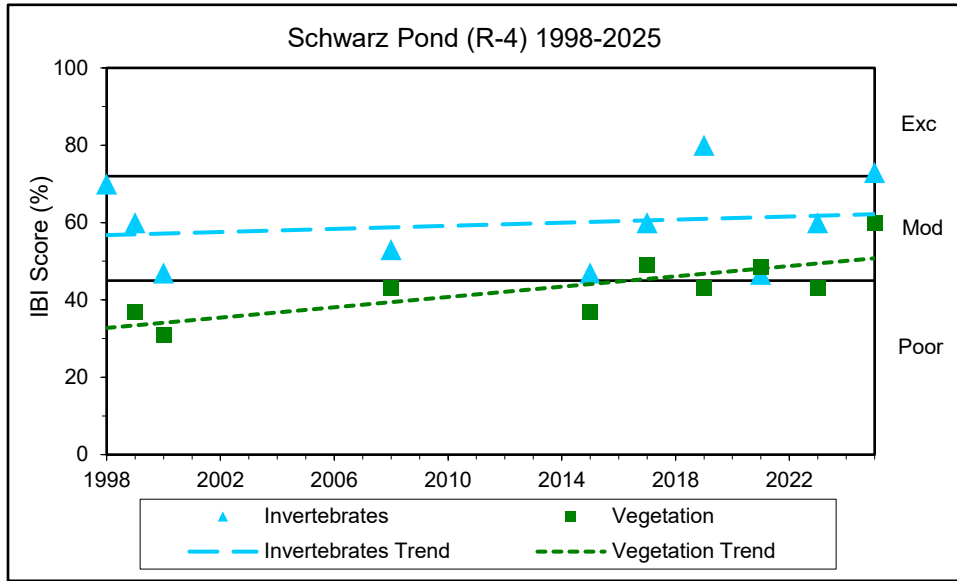


EMILY HOCHÉ, SHAUNA MACKENZIE, ADDIE CHLEBECK, RONAN CHLEBECK, AND JOHN CHLEBECK

**Table 4.10.1 Schwarz Pond (R-4) Wetland Health based on Index of Biotic Integrity**

2025 Data (R-4)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Moderate (22)	Moderate (21)
Trend 1998-2025	Stable	Stable

**Figure 4.10 .1 Invertebrate and vegetation trends for Schwarz Pond (R-4)**



**Site summary:** This is the tenth time Schwarz Pond has been monitored by WHEP volunteers since 1998. In 2025, the invertebrate and vegetation health scores were inconsistent, differing by 13 percent; however, both scores indicate moderate wetland health. Notably, several submergent plants that had not been present in the past decade appeared in the 2025 survey, contributing to an improved vegetation score and trend.

Continued monitoring over additional years will help determine if this positive trend persists. The invertebrate community composition varies from year to year, but the long-term trend remains stable. Factors such as water level fluctuations, seasonal and weather variability, sampling location, and the presence of fish and muskrats likely influence the observed changes in invertebrate data.

#### 4.10.2 WMP #332 (R-20)

WMP #332 (R-20) is a one-acre, type 5 open water wetland in the Birger Pond subwatershed of the Vermillion River Watershed. The subwatershed is approximately 897 acres of which 20 percent is impervious surface. There is one inlet on the east side of the wetland and one outlet on the south side of the wetland. This wetland is included in the City’s stormwater management plan and is designated to preserve with a management goal to maintain wetland and its existing functions, values, and wildlife habitat.



R-20 is surrounded by residential areas with several roads adjacent to the wetland. Stormwater runoff from the roads, and nutrient loading from turfgrass maintenance of residential lawns may impact the wetland health.



## Wetland Health

**Site Observations:** The wetland slope is gentle. The substrate is sandy and firm. The wetland is at the bottom of a steep hillside. There is a wide vegetative buffer separating the wetland area from nearby residences. Sumac (*Rhus* sp.) and willows (*Salix* sp.) surround the wetland. Coontail (*Ceratophyllum* sp.) and pondweed (*Potamogeton* sp.) filled the water column. White water-lily (*Nymphaea* sp.), slender riccia (*Riccia fluitans*), purple-fringed riccia (*Ricciocarpus natans*), duckweeds (*Lemna* sp. and *Spirodela* sp.), and watermeal (*Wolffia* sp.). Mosquito fern (*Azolla* sp.) was also observed for the first time in 2025. Arrowhead (*Sagittaria* sp.), spike-rush (*Eleocharis* sp.), bulrush (*Scirpus* sp.), and reed canary grass (*Phalaris arundinacea*) were also present. Leeches, dragonflies, caddisflies, snails, trueflies, crustaceans, and beetles and bugs were collected.

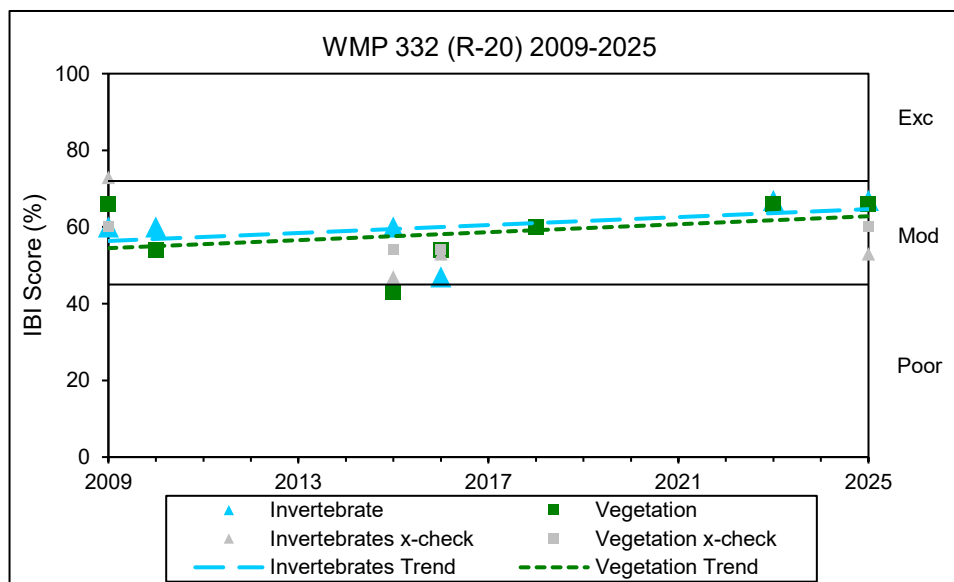


GRETA WILLANDER, TOM WILLANDER, SUZIE FREIBURGER, AND STEPHAN HOCHÉ

**Table 4.10.2 WMP #322 (R-20) Wetland Health based on Index of Biotic Integrity**

2025 Data (R-20)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (20)	Moderate (23)
<b>Cross-check Rating (IBI score)</b>	Moderate (16)	Moderate (21)
<b>Trend 2009-2025</b>	Stable	Stable

**Figure 4.10.2 Invertebrate and vegetation trends for WMP #332 (R-20)**



**Site summary:** This is the seventh time that R-20 has been monitored by WHEP volunteers since 2009. The invertebrate and vegetation scores were consistent, both indicating moderate wetland health and similar data as 2024. This wetland is within a natural area with a wide vegetative buffer. A few plants heavily dominate the vegetation plot while several other plants are more sparsely represented and allocate adequate habitat for the existing invertebrate community. Long-term wetland health trends are stable. This site was cross-checked by another WHEP team. The invertebrate scores between teams were inconsistent, differing by 14 percent. The Rosemount team identified dragonflies and caddisflies, which the cross-check team did not. According to sketches provided by the teams, they sampled opposite sides of the wetland which may have influenced the differences in invertebrate collection. Additionally, the cross-check team noted many fish in their bottle traps which may have impacted the invertebrate populations. The teams' vegetation data were consistent and similar. The Rosemount team identified several non-vascular plants that contributed to a slightly higher vegetation score.



SHAUNA MACKENZIE, STEPHAN HOCHÉ,  
GISELLA HOCHÉ, AND EMILY HOCHÉ

### 4.10.3 CR-38 Mitigation Site #2 (R-23)

CR-38 Mitigation Site 2 (R-23) is 0.3-acre, type 3 wetland in the White Lake subwatershed within the Vermillion River watershed. The White Lake subwatershed is 998 acres of which 30 percent is impervious surface. There are no inlets. There is one outlet on the south side of the wetland. This wetland is not part of the City's stormwater management plan. The wetland management goal is to maintain the wetland without any loss of function and value, and to monitor the success of this wetland's creation.





R-23 is a small depressional shallow marsh wetland. The wetland was constructed to mitigate impacts to other wetlands as a result of street reconstruction.

### Wetland Health

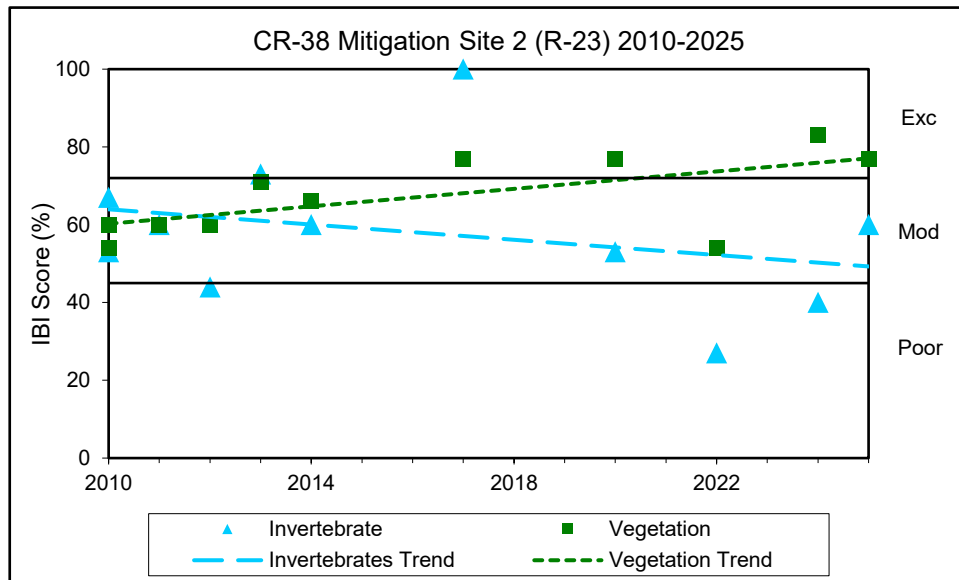
**Site Observations:** The wetland slope is gentle and the substrate is solid. Emergent vegetation, including reed canary grass (*Phalaris arundinacea*), manna grass (*Glyceria* sp.), spike rush (*Eleocharis* sp.), water-plantain (*Alisma* sp.), and arrowhead (*Sagittaria* sp.) spread throughout the entire wetland. Bladderwort (*Utricularia* sp.) crowded the water column. Only a scattering of duckweeds (*Lemna* sp. and *Spirodela* sp.), and purple-fringed riccia (*Ricciocarpus natans*) floated on the surface of the water. Smartweed (*Polygonum* sp.), iris (*Iris* sp.), monkey flower (*Mimulus* sp.), pondweed (*Potamogeton* sp.) were also present. The WHEP team commented that a layer of moss had formed beneath the bladderwort. Additionally, there was no evidence of fairy shrimp (*Streptocephalus sealii*) in 2025, which have been consistently found since 2012. Leeches, dragonflies, damselflies, snails, fingernail clams, and beetles and

bugs were collected. In 2024, sand hill cranes were observed and trumpeter swans were nesting in the pond directly east of this wetland.

**Table 4.10.3 CR-38 Mitigation Site #2 (R-23) Wetland Health based on Index of Biotic Integrity**

2025 Data (R-23)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Moderate (18)	Excellent (27)
<b>Trend 2010-2025</b>	Variable	Improving

**Figure 4.10.3 Invertebrate and vegetation trends for CR-38 Mitigation Site #2 (R-23)**



**Site summary:** This is the tenth time that R-23 has been monitored by WHEP volunteers since 2010. The invertebrate and vegetation scores were inconsistent in 2025, differing by 17 percent. The invertebrate score indicates moderate wetland health while the vegetation score indicates excellent wetland health. Despite the excellent health rating, the vegetation diversity is low. As in 2024, the presence of non-vascular plants and bladderwort enhanced the vegetation score. The presence of dragonfly nymphs and a reduced proportion of water boatman (*Corixidae* sp.) contributed to an improved invertebrate score in 2025. The long-term vegetation trend appears to be improving while the invertebrate scores are variable.



TOM WILLANDER AND GRETA WILLANDER

#### 4.10.4 Erickson Pond (R-26)

Erickson Pond (R-26), also known as WMP #620, is a 1.9-acre, type 3 wetland within the Vermillion River Watershed. The watershed is 1,832 acres of which 25 percent is impervious surface. There is one inlet with a rock spillway from the pond to the south, but no outlets. The wetland is included in the City’s stormwater management plan and is designated to preserve with a management goal to reduce the presence of invasive wetland plant species and enhance the vegetative diversity of the wetland basin.



Erickson Pond lies in a depression surrounded by hiking trails, parks, oak forest, woodlands, and restored native prairie. The basin area was included in the City’s Erickson Pond Water Quality and Habitat Enhancement Project. Prior to this 2008 project, large amounts of stormwater discharged directly into the wetland basin. The stormwater now enters treatment cells prior to discharge to the wetland. There is also a 75-foot buffer that helps pre-treat stormwater draining into the wetland.





This wetland infiltrates the stormwater from a large commercial area. There is some indication that this may be leading to high chloride levels during times of snow melt. The basin also receives water from the nearby splashpad which has led to more water in the basin than predicted during construction of the surrounding ponds and splash pad. There has been very active management of buffer areas and nearby vegetation. The west side berm was recently maintained to repair muskrat damage.

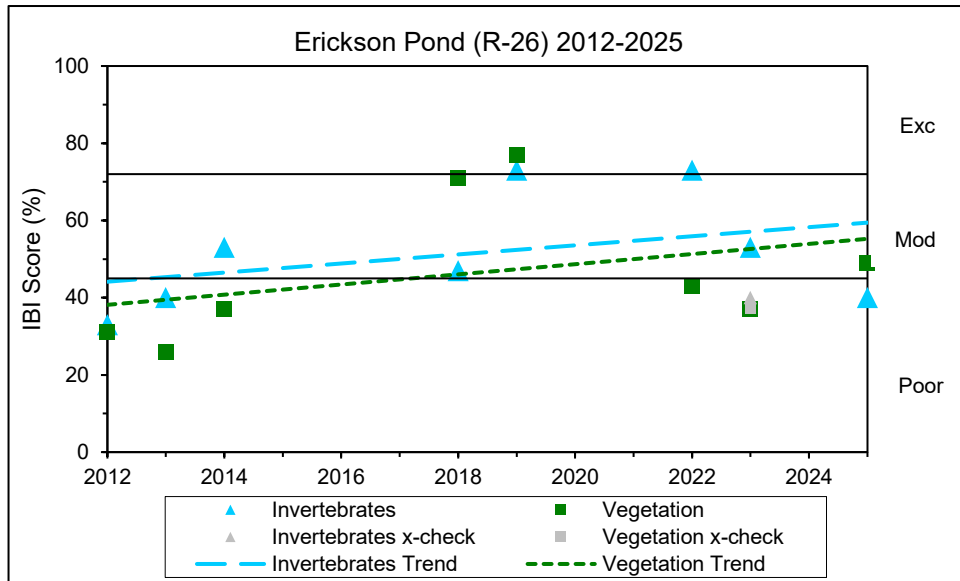
#### Wetland Health

**Site Observations:** The wetland slope is gentle and the substrate is very mucky. Water levels were low in 2025. The usually dense cattail (*Typha* sp.) fringe has died back, and arrowhead (*Sagittaria* sp.) is very prevalent in the emergent zone. Smartweed (*Polygonum* sp.), bulrush (*Scirpus* sp.), and purple loostrife (*Lythrum salicaria*) are also common. Coontail (*Ceratophyllum* sp.), water nymph (*Najas* sp.), and fragments of pondweed (*Potamogeton* sp.) occupied the water column. Duckweeds (*Lemna* sp. and *Spirodela* sp.) floated on the surface of the water. Leeches, damselflies, mayflies, caddisflies, snails, true flies, crustaceans, and beetles and bugs were collected.

**Table 4.10.4 Erickson Pond (R-26) Wetland Health based on Index of Biotic Integrity**

2025 Data (R-26)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (17)
<b>Trend 2012-2025</b>	Stable	Stable

**Figure 4.10.4 Invertebrate and vegetation trends for Erickson Pond (R-26)**



**Site summary** This is the eighth time Erickson Pond has been monitored since 2012. The invertebrate and vegetation scores were consistent, even though the invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. With the exception of a couple of high scoring years, wetland health trends appear stable. Due to low water levels in 2025, the team moved the location of the sampling site. The team commented that low water levels may also be impacting the emergent plant community. In 2025, less cattail and more arrowhead was observed. Additional years of monitoring will show if this trend continues.

### 4.11 South St. Paul Wetlands

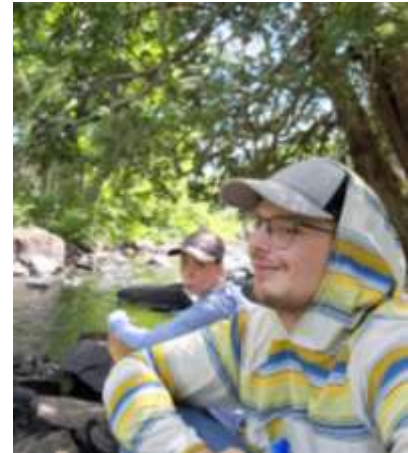
Two wetlands were monitored in South St. Paul in 2025 by the South St. Paul team. The City has 25 years of WHEP data! Four wetlands have been monitored in South St. Paul since the start of the WHEP program.

**Team Leader:** Ben Linton and Mara Ranta

**Team Members:** Ava Gardner, Lydia Godfrey, Calista Hughes, Calisi Kasper, Miles Marcuson, Anna Powers, Cretia Radman, Conor Resnikoff, Elise Tahedl, Rachel Titus, and Victor Tomasko



Mara Ranta and Ben Linton have been WHEP team leaders for the South St. Paul team since 2024. They are both students at Metropolitan University pursuing degrees in environmental science. This season was a blast for the South St. Paul team with lots of laughs in the wetlands and during lab time. Their team now refers to *Chaoborus* as "two-headed chili pepper thing" because "that's what it looks like" according to one of this year's volunteers. Mara and Ben greatly appreciate all the wonderful volunteers this year and are looking forward to returning as team leaders for the 2026 season.



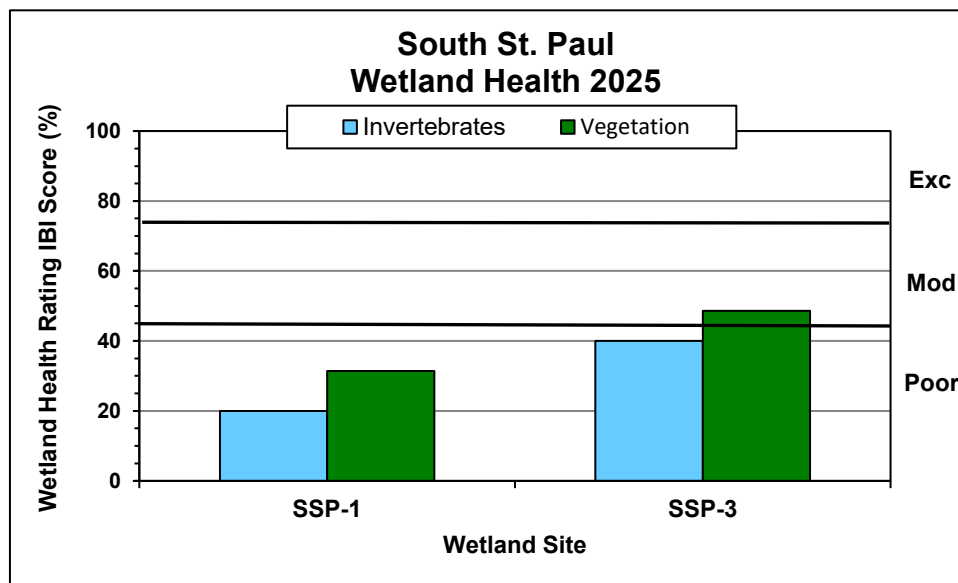
MARA RANTA AND BEN LINTON

The City of South St. Paul has relatively few wetlands compared to most cities which is why it is important to monitor the functionality and health of this limited natural resource in the community to ensure it is protected. The City appreciates the WHEP program, and its volunteers help in monitoring the wetlands' health, and will continue to support the program.

### South St. Paul General Wetland Health

Figure 4.11 presents an overall view of wetland health for all the 2025 monitoring sites in South St. Paul based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.11 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. In 2025, the invertebrates health scores were poor and the vegetation health scores ranged from poor to moderate. The invertebrate and vegetation scores were considered inconsistent for SSP-1, differing by 11 percent.

Figure 4.11 South St. Paul site scores (percent) for the 2025 sampling season



### 4.11.1 Anderson Pond (SSP-1)

Anderson Pond (SSP-1) is a 2.4-acre, type 4 wetland within the Lower Mississippi River Watershed. The drainage area is 168 acres and is approximately 15 percent impervious. It has three inlets: two on the west side of the wetland and one in the northwest corner. There is one outlet on the south side of the wetland. It is part of the City's Stormwater Management Plan.





Virtually all the area that contributes to this wetland is developed. In 2008, the City performed an extensive dredging of Anderson Pond.

The cattails are returning on the east and west sides of the pond. A separate maintenance cell was created near the northwest inlet to facilitate future dredging and other maintenance activities. Additional dredging was done in 2011 and 2012. In 2009, Southview Pond was constructed as a pre-treatment measure for the runoff from Highway 52 and West St. Paul, prior to conveyance into Anderson Pond. Highway 52 is a major contributor to Anderson Pond as is the City of West St. Paul (over 90% of the pond's watershed is in West St. Paul). The pond is in an older established residential area surrounded by roads, apartment blocks, and houses.

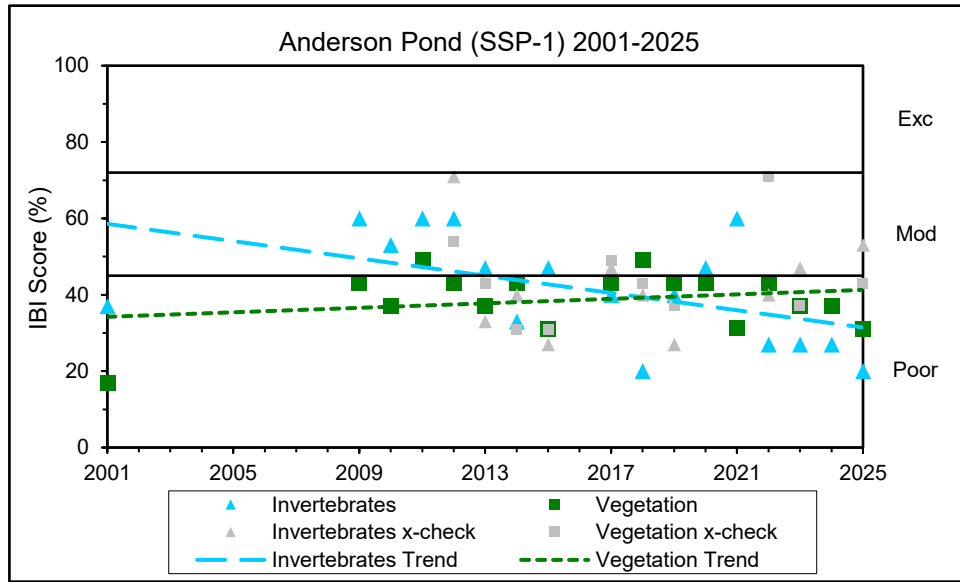
### Wetland Health

**Site Observations:** The wetland has a gentle entrance, but water deepens quickly. The wetland substrate is mucky. Cattails (*Typha* sp.) surrounds most of the wetland. The area without the cattails has large overhanging trees, including black walnuts (*Juglans* sp.), maples (*Acer* sp.), willows (*Salix* sp.), and dogwoods (*Cornus* sp.). Very low diversity of aquatic vegetation was represented in the releve. Coontail (*Ceratophyllum* sp.) dominated and filled the water column. Pondweed (*Potamogeton* sp.) and waterweed (*Elodea* sp.) were also present. Duckweeds (*Lemna* sp. and *Spirodela* sp.) were sparsely scattered upon the surface of the water. Some jewelweed (*Impatiens* sp.) and clearweed (*Pilea* sp.) were also observed. Dragonflies, damselflies, trueflies, crustaceans, and bugs and beetles were collected. The goldfish (*Carassius auratus*) population is increasing.

**Table 4.11.1 Anderson Pond (SSP-1) Wetland Health based on Index of Biotic Integrity**

2025 Data (SSP-1)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (6)	Poor (11)
<b>Cross-check Rating (IBI score)</b>	Moderate (16)	Poor (15)
<b>Trend 2001-2025</b>	Declining	Stable

**Figure 4.11.1 Invertebrate and vegetation trends for Anderson Pond (SSP-1)**



**Site Summary:** This is the 17<sup>th</sup> time that Anderson Pond has been monitored for WHEP since 2001. The invertebrate and vegetation scores were inconsistent in 2025, differing by 11 percent; however, both scores indicate poor wetland health. The invertebrate scores appear to have reached a peak in 2009 and continued to decline since that time. The vegetation scores appear stable. The presence of fish, including goldfish, may be affecting the invertebrate population. Stormwater input from Highway 52 and cattail encroachment may impair the plant and invertebrate communities as well. Invertebrate and vegetation data have maintained similarities since 2023. This site was cross-checked by another WHEP team, in 2025. The invertebrate and vegetation scores between teams were inconsistent. The invertebrate scores differed by 33 percent and the vegetation scores differed by 12 percent. The *Corixidae* Proportion Metrics were opposite. The South St. Paul WHEP team found only water boatman (*Corixidae* sp.), while the cross-check team found a majority of non-*Corixidae* true bugs. The cross-check team also identified dragonflies, damselflies, mayflies, and snails which the South St. Paul team did not. Both teams reported fish and other predators in the bottle traps. The cross-check team identified a greater diversity of woody plants, submergent and floating vegetation. The sampling areas were on opposite sides of the wetland which may have impacted results.



CALISI KASPER, BEN LINTON, AND MARA RANTA



SAGE TOMASKO, CALISTA HUGHES, CRETIA RADMAN, AND ANNA POWERS

### 4.11.2 Levander Pond (SSP-3)

Levander Pond (SSP-3) is a 3.4-acre, type 4 wetland within the Lower Mississippi River Watershed. Its watershed is 168 acres which is approximately 20 percent impervious. It is part of a City of South St. Paul easement. There is one inlet on the west side, one on the north side, and one on the east side. There is one outlet on the north side of the wetland. It is part of the City's stormwater management plan.

Virtually all areas that contribute to this wetland are fully developed. In 2008, Levander Estates was completed on the east side of Levander Pond. A trail was constructed down to the pond. Vegetation surrounds the pond. During an upgrade at the Wentworth/Thompson interchanges, Minnesota Department of Transportation (MnDOT) installed a pretreatment basin south of the pond to improve drainage. Highway 52 is a major contributor to Levander Pond as is the City of West St. Paul. In 2024/2025, the pond was dredged on the northern end to clean and connect the outlet.





RACHEL TITUS AND ANNA POWERS

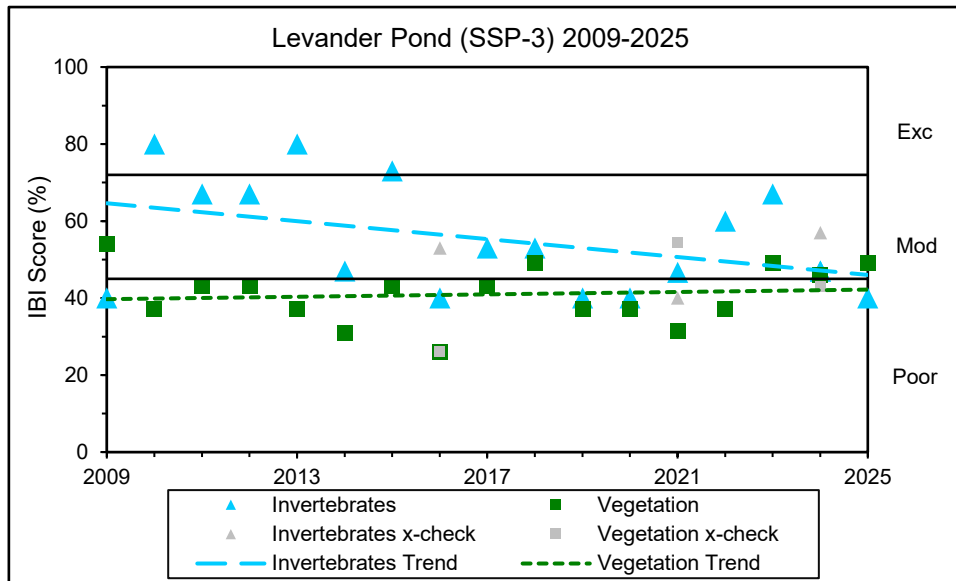
#### Wetland Health

**Site Observations:** The wetland slope is gentle. The substrate is very mucky and thick. The wetland surface is covered in duckweeds (*Lemna* sp. and *Spirodela* sp.) and watermeal (*Wolffia* sp.). Coontail (*Ceratophyllum* sp.) and pondweed (*Potamogeton* sp.) fill the water column. Cattails (*Typha* sp.), willow trees (*Salix* sp.), and waterweed (*Elodea* sp.) were also present in the vegetation releve. No other emergent grasses or forbs were present. A fallen log with moss and lichen was present in the releve. Leeches, dragonflies, damselflies, mayflies, snails, trueflies, crustaceans, bugs and beetles (including 1,340 *Corixidae* sp.) were collected.

**Table 4.11.2 Levander Pond (SSP-3) Wetland Health based on Index of Biotic Integrity**

2025 Data (SSP-3)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (12)	Moderate (17)
<b>Trend 2009-2025</b>	Variable	Stable

**Figure 4.11.2 Invertebrate and vegetation trends for Levander Pond (SSP-3)**



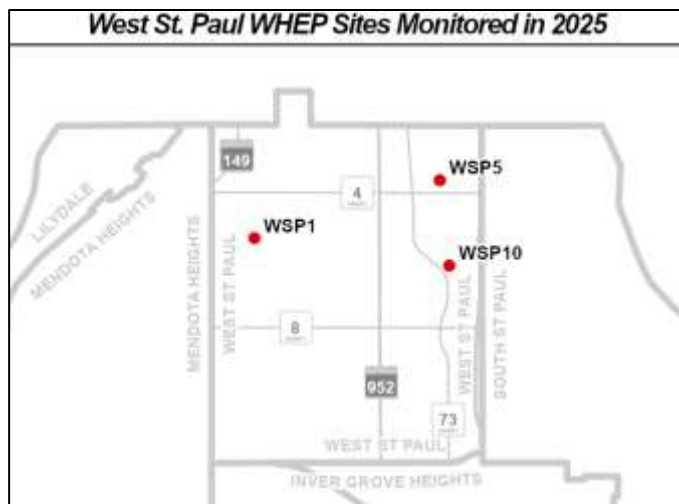
**Site summary:** This is the 17<sup>th</sup> consecutive year of monitoring Levander Pond for WHEP! The vegetation and invertebrates scores were consistent with each other in 2025; though the invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. The invertebrate scores have fluctuated between poor and excellent over the years. The presence of dragonflies, mayflies, and caddisflies have varied through the years and influence the scores. The vegetation trend is stable. This wetland has historically lacked emergent vegetation representation, and other species of vegetation represented are found year after year. In 2025, the vegetation releve contained a fallen tree with moss and lichen. These nonvascular species enhanced the vegetation score and may not be representative of the overall wetland. The invertebrate and vegetation data has been similar since 2023.

### 4.12 West St. Paul Wetlands

Three wetlands were monitored in West St. Paul in 2025 by the West St. Paul team. The City of West St. Paul has 27 years of WHEP data! Eleven wetlands have been monitored in West St. Paul since the City became involved with WHEP in 1999.

**Team Leader:** James Chastek

**Team Members:** Sara Ackerson, Olivia Barber, Beth Burton, Marcel Derosier, Delaney Farwell, Jen Jevnisek, Nicky Kerr-Anderson, Kendra Kloth, Betsy Lehman, Elle Lennartson, Larissa Lennartson, John Shillcox, Anneliese Tatham, Vanessa Van Orden, and Tano Yonekawa





JIM CHASTEK

Jim Chastek has been the team leader of the West St. Paul team since 2023. He said, “I was introduced to WHEP more than 20 years ago at a Friends of the Mississippi event. I stayed because I love it. I enjoy being in the ponds with the interesting vegetation, and the strange critters that live in the water. I enjoy finding a new species at the lab and seeing again some of the old friends in the microscope.

“Perhaps most of all I enjoy working with other members on the team, and the WHEP support staff. This year I had an especially delightful team. I am thankful to WHEP for helping me learn so much over the years, and I have had a great time with friends, both

human and invertebrate.

“Recently, I received a book on foraging for mushrooms. Walking through the woods, I identified four different mushroom species. Starting a new interest, but not yet ready to add these to my diet.”

Jessica Hall is the new Natural Resources, Environment, and Sustainability Specialist for the City of West St. Paul. She stated, “Growing up in Minnesota, spending time near lakes, rivers, streams, and wetlands are my earliest memories connecting with nature, so I understand the immense value they hold. I look forward to supporting the WHEP program as the city staff contact for West St. Paul. I am here to answer any questions as they pertain to wetland health in the city, so don't hesitate to reach out!”

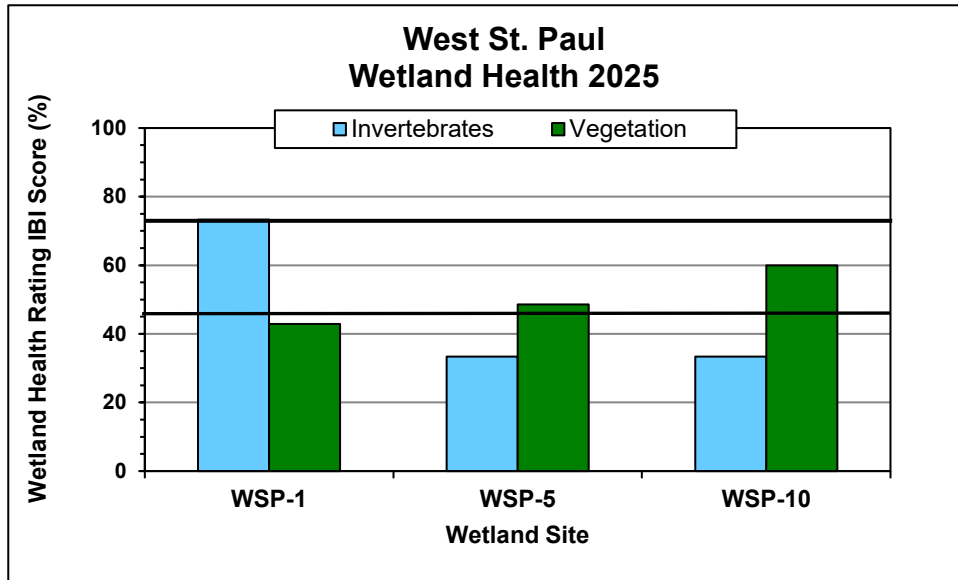


JESSICA HALL

## West St. Paul General Wetland Health

Figure 4.12 presents an overall view of wetland health for all the 2025 monitoring sites in West St. Paul based on the IBI scores for invertebrates and vegetation presented as a percent. Figure 4.12 also illustrates the consistency between the IBI scores (in percent form) for each wetland sampled. Invertebrate and vegetation scores that differ by ten percent or less are considered consistent. Based on the IBI scores, a wetland health rating is assigned as excellent, moderate or poor. The West St. Paul wetland ratings ranged from poor to moderate wetland health for both invertebrates and vegetation in 2025. The invertebrate and vegetation scores for WSP-1, WSP-5, and WSP-10 were inconsistent, differing by 30, 16, and 27 percent, respectively.

Figure 4.12 West St. Paul site scores (percent) for the 2025 sampling season



#### 4.12.1 Mud Lake (WSP-1)

Mud Lake (WSP-1), also known as RW7, is a 3.1-acre, type 3 wetland within the Riverview Tunnel Drainage District. The drainage area is approximately 34 acres, with no impervious surface. It is publicly owned and is part of the City’s stormwater management plan. The wetland management goal is to improve water quality through better education of residents surrounding the wetland. There are inlets on the southeast and northwest corners of the wetland, and one outlet in the northeast corner.





Cattail and sediment removal from Mud Lake is tentatively planned for 2026. WHEP data will contribute valuable biological information to assess wetland health before and after this project.

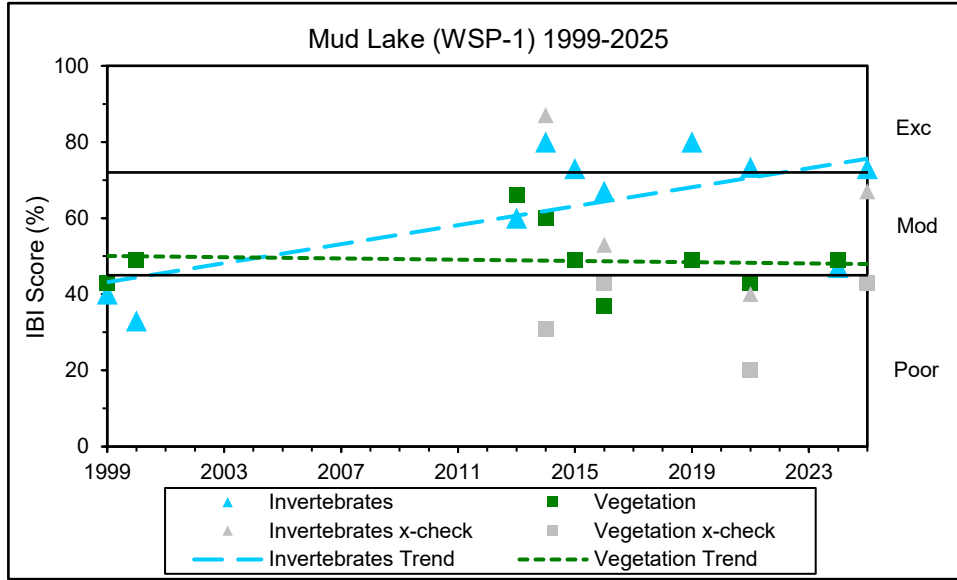
#### Wetland Health

**Site Observations:** There is a moderate slope into the pond, and the water level deepens quickly. The substrate is very mucky. The dense cattail (*Typha* sp.) growth makes navigating the wetland difficult in deeper water. You may walk on the roots and dead stems, only to suddenly sink into the deep, thick muck beneath the vegetation. Near the shore, there are dense stands of dogwood (*Cornus* sp.) and overhanging ash trees (*Fraxinus* sp.). Coontail (*Ceratophyllum* sp.) and pondweed (*Potamogeton* sp.) filled the water column. Duckweeds (*Lemna minor*, *Lemna trisulca*, and *Spirodela* sp.), watermeal (*Wolffia* sp.), and slender riccia (*Riccia fluitans*) float on the surface of the water. Arrowhead (*Sagittaria* sp.) is abundant in the center of the pond, but not represented in the releve as it grows in water too deep to reach. Reed canary grass (*Phalaris arundinacea*) and a few emergent forbs were sparsely represented in the vegetation releve. Leeches, dragonflies, damselflies, snails, true flies, crustaceans, and beetles and bugs were collected.

**Table 4.12.1 Mud Lake (WSP-1) Wetland Health based on Index of Biotic Integrity**

2025 Data (WSP-1)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Moderate (22)	Poor (15)
Cross-check (IBI score)	Moderate (20)	Poor (15)
Trend 1999-2025	Improving	Stable

**Figure 4.12.1 Invertebrate and vegetation trends for Mud Lake (WSP-1)**



**Site Summary:** This is the tenth time that Mud Lake has been surveyed by WHEP volunteers since 1999. The invertebrate and vegetation scores were inconsistent in 2025, differing by 30 percent. The invertebrate score indicates moderate wetland health while the vegetation score indicates poor wetland health. The invertebrate score rebounded in 2025, and the invertebrate data shows an improving wetland trend. The vegetation trend is stable with similar data within the last decade. The wetland has very low diversity of vegetation. This site was cross-checked by another WHEP team. The invertebrate and vegetation scores between teams were consistent and very similar. This vegetation releve at this site was also cross-checked by a third-party consultant (Bolton & Menk). Vegetation data was nearly identical between all three groups.



WEST ST. PAUL WHEP TEAM MEMBERS

### 4.12.2 Lily Lake (WSP-5)

Lily Lake (WSP-5), also known as RW24P, is a 6.4-acre, type 3 wetland within the Riverview Tunnel Drainage District. Its watershed is 22 acres. It is publicly owned. There is one inlet from Carrie Street east of the Carrie/Stanley intersection. There is an outlet on the north end to Bernard Street. It is part of the City's stormwater management plan. The wetland management goal is to improve water quality through better stewardship and education of residents surrounding the wetland.



There are plans to perform a bathymetric survey on Lily Lake to determine if sediment removal is needed. If so, the WHEP data provides excellent baseline data.



### Wetland Health

**Site Observations:** The wetland slope is steep. The wetland substrate is mucky; however, there are pockets of solid bottom where gravel may have been placed in the pond in the past. The water level deepens quickly upon entry. It is surrounded by houses and trees, including ash (*Fraxinus* sp.), cottonwoods (*Populus* sp.), and buckthorn (*Rhamnus cathartica*). Plantings of red pine and other non-wetland plants are around the area. Most of the vegetation is along the shore, with little emergent or floating vegetation in the water. Coontail (*Ceratophyllum* sp.), pondweed (*Potamogeton* sp.), white water lilies (*Nymphaea* sp.), and duckweeds (*Lemna* sp. and *Spirodela* sp.) were represented in the vegetation releve. Arrowhead (*Sagittaria* sp.), bugleweed (*Lycopus* sp.), swamp milkweed (*Asclepias incarnata*), cattail (*Typha* sp.), and reed canary grass (*Phalaris arundinacea*) are also present. Leeches, snails true flies, crustaceans, and true bugs were collected.

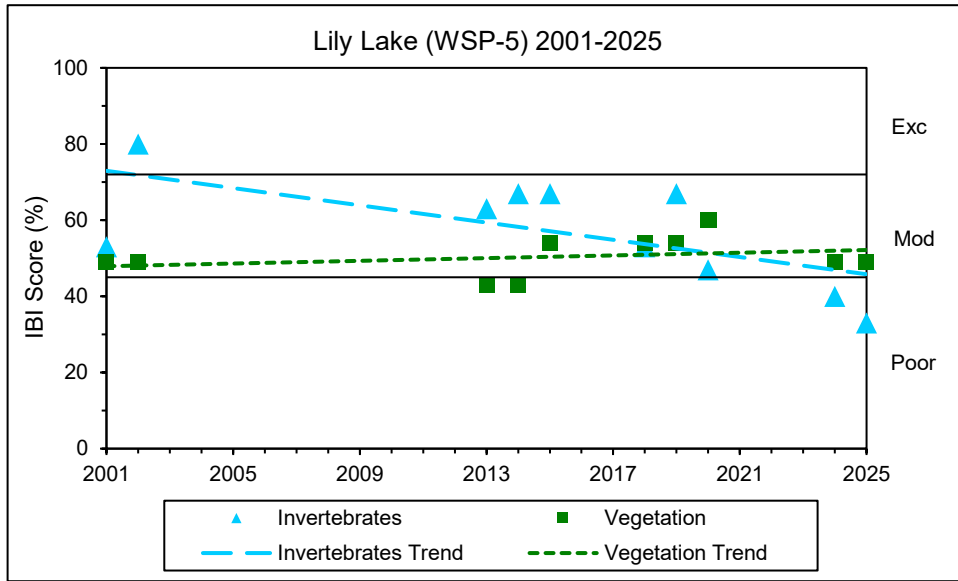


WEST ST. PAUL WHEP TEAM MEMBERS COLLECTING INVERTEBRATES

**Table 4.12.2 Lily Lake (WSP-5) Wetland Health based on Index of Biotic Integrity**

2025 Data (WSP-5)	Invertebrates 	Vegetation 
<b>Wetland Health Rating (IBI score)</b>	Poor (10)	Moderate (17)
<b>Trend 2001-2025</b>	Declining	Stable

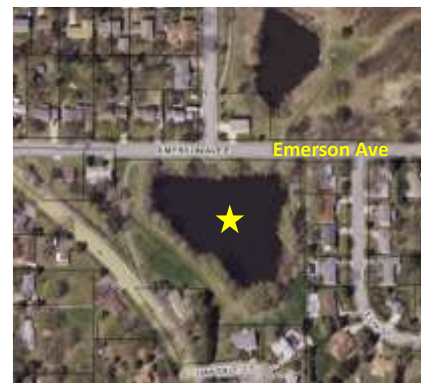
**Figure 4.12.2 Invertebrate and vegetation trends for Lily Lake (WSP-5)**



**Site Summary:** This is the tenth time that Lily Lake has been surveyed for WHEP since 2001. The invertebrates and vegetation scores were inconsistent, differing by 16 percent. The invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. There is low diversity of vegetation and invertebrates, in general, and data is very similar to 2024. The invertebrate collection may be impacted by the presence of fish and tadpoles. The vegetation health trend appears stable while the invertebrate scores have declined in recent surveys.

### 4.12.3 Emerson Pond South (WSP-10)

Emerson Pond South (WSP-10) is a 2.3-acre, type 4 wetland within the Simons Ravine District drainage area. Its watershed is 23 acres, receiving stormwater from the surrounding residential area, as well as from Thompson Lake and golf course which crosses the road north to the wetland before flowing to St. Paul. Although it is publicly owned by the City, it is not part of the City park system. There are three inlets: one in the northwest corner, one on the north side, and one on the south side. There is one outlet in the northeast corner. It is part of the City's stormwater management plan.





#### Wetland Health

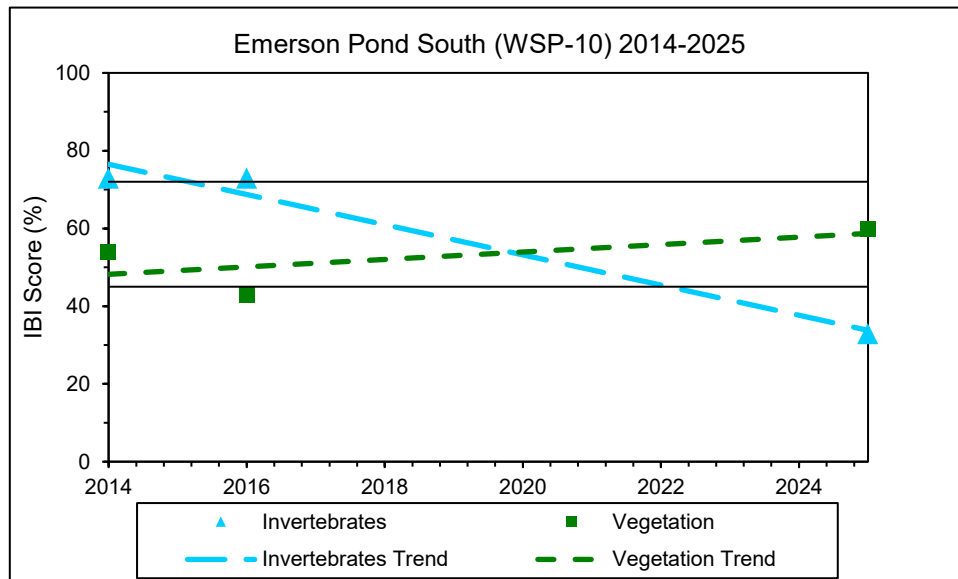
**Site Observations:** Emerson Pond South is within a residential area. There is a fairly long, steep bank covered with dense forbs and small trees and shrubs from Emerson Avenue. The substrate is mucky. There is dense submergent vegetation mostly consisting of Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*). Waterweed (*Elodea* sp.) and coontail (*Ceratophyllum* sp.) were also present. Sparse scattering of duckweeds (*Lemna* sp. and *Spirodela* sp.) were atop the surface of the water. Emergent vegetation is mainly on the water's edge, but included swamp milkweed (*Asclepias*

*incarnata*), jewelweed (*Impatiens* sp.), bugleweed (*Lycopus* sp.), smartweed (*Polygonum* sp.), arrowhead (*Sagittaria* sp.), monkey flower (*Mimulus* sp.), cut grass (*Leersia* sp.), spike rush (*Eleocharis* sp.), and reed canary grass (*Phalaris arundinacea*). Dragonflies, damselflies, snails, trueflies, scuds, and three bugs and beetles were collected at the site.

**Table 4.12.3 Emerson Pond South (WSP-10) Wetland Health based on Index of Biotic Integrity**

2025 Data (WSP-10)	Invertebrates 	Vegetation 
Wetland Health Rating (IBI score)	Poor (10)	Moderate (21)
Trend 2014-2025	Declining	Stable

**Figure 4.12.3 Invertebrate and vegetation trends for Emerson Pond South (WSP-10)**



**Site Summary:** This is the third time that Emerson Pond has been monitored since 2014. The invertebrate and vegetation scores are inconsistent with each other, differing by 27 percent. The invertebrate score indicates poor wetland health while the vegetation score indicates moderate wetland health. In the past decade, the invertebrate score has declined while the vegetation score is stable. Vegetation is abundant; however, invasive species may be outcompeting other plants, as many different species were observed but mostly in small quantities. Fish were collected in the bottle traps, which could influence the data and affect the invertebrate population. Continued data collection will help determine if these trends continue.



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COLLECTING INVERTEBRATES