DEPARTMENT OF AGRICULTURE

Noxious and Invasive Weed Program

2024 Annual Report

01/28/2025

Minnesota Department of Agriculture

Noxious and Invasive Weed Program
625 Robert Street North
Saint Paul, MN 55155
noxiousweeds.mda@state.mn.us
www.mda.state.mn.us/noxiousweedprogram

Contents

Program Operations

2024 was a busy and productive year for the Noxious and Invasive Weed Program (NIWP) and our partners. This annual report highlights some of the important work that was accomplished this year on behalf of the citizens of Minnesota. Whether program staff are providing grant funds to local units of governments, confirming new invasive plants, conducting training for new county and municipal inspectors, providing opportunities for weed biological controls, or collaborating with our Noxious Weed Advisory Members, the NWIP is built on a commitment to provide the highest level of service and assistance to Minnesotans. The Minnesota Department of Agriculture (MDA) encourages anyone interested in invasive terrestrial plants and noxious weeds to visit our program webpages. This report is a brief summary of 2024 program highlights; for more information, please contact the NIWP via email: noxiousweeds.mda@state.mn.us

New County Finds of Eradicate Species

In 2024, Palmer amaranth (*Amaranthus palmeri*) was found for the first time in Morrison and Steele counties. Both findings resulted from the planting of a contaminated seed lot. The landowners are working with the MDA to control and monitor the sites.

Additionally, hooked hair hops (*Humulus japonicus*) was confirmed for the first time in Washington County.

A news release was sent out via Weed of the Month on eradicate species newly found in 2023. The Palmer amaranth public map was updated with 2024 new finds and included a five-mile radius around the infested site. Management for all active locations, including the two new county finds was also updated.

Finds of New Species in the State of Minnesota

A bittercress was reported as woodland bittercress (*Cardamine flexuosa*) at Arden Park in Edina. Samples were collected on November 21, 2023. The preliminary identification was woodland bittercress. Additional samples were provided in 2024 for identification but the species of *Cardamine* could not be identified with certainty.

A report of suspected nettle-leaved bellflower (*Campanula trachelium*) came in from a resident of Minneapolis. Samples of the plant were collected from the site and sent to a botanist at the Minnesota Department of Natural Resources. The samples were positively identified as nettle-leaved bellflower, making it the first documented find of the species in Minnesota.

Figure 1. Close up image of Nettle-leaved bellflower taken from the site in Minneapolis.

Noxious Weed Advisory Committee (NWAC)

The NWAC completed nine risk assessments in 2024. Those assessments with regulatory recommendations approved by NWAC will be submitted to the commissioner of agriculture for review. If approved by the commissioner, species recommended to be added to the Noxious Weed List will be officially listed in 2026.

Table 1: Species assessed and the recommendation for each species.

Scientific Name	Common Name	Recommendation
Acalypha australis	Asian/heart copperleaf	Do not list
Cirsium arvense	Canada thistle	Move from Prohibited Control to be a Restricted Noxious Weed
Elaeagnus angustifolia	Russian olive	Do not list
Elaeagnus umbellate	autumn olive	Restricted Noxious Weed
Filipendula ulmaria	queen of the meadow	Do not list
Microstegium vimineum	stiltgrass	Prohibited Eradicate Noxious Weed
Salix matsudana x alba	Austree hybrid willow	Do not list
Salix x rubens (Salix x fragilis)	white crack willow	Do not list

Noxious Weed Law

The MDA trained 12 new County Agricultural Inspectors (CAIs). Staff attended five county meetings with townships and attended the CAI short course to train CAIs on noxious weed identification. Staff also attended the Minnesota Association of County Agricultural Inspectors (MACAI) board meetings and hosted the MACAI Executive Board for a meeting at the MDA in December.

The MDA issued one transport permit for a wastewater treatment facility to transport non-native phragmites, four permits to move Palmer amaranth infested materials to incinerators, and several research/possession permits.

Staff compiled noxious weed enforcement data submitted by CAIs and the completed report with summaries of the data was sent out to CAIs.

Outreach

- The MDA Noxious Weed Program staff provided over 20 trainings and presentations on plant identification and weed management and trained over 200 people.
- A leafy spurge biocontrol workshop was held with 15 participants.
- The Weed of the Month celebrated 10 years of articles and continues to have a tremendous reach, with over 19,000 subscribers. The articles are also reprinted in local newspapers, broadcast on farm network radio shows, and sent to hundreds of master gardener volunteers.
- Staff attended the Upper Midwest Invasive Species Conference and gave multiple presentations, totaling close to 200 participants.

- The MDA launched a new podcast, Smarty Plants, which has had guests from multiple agencies, the University of Minnesota, and has had hundreds of downloads.

Weed Biocontrol

Leafy spurge

Most potential leafy spurge beetles (*Aphthona* spp) collection opportunities were rained out. We held a workshop and beetle collection on June 12, 2024 that ended early due to rain. Approximately 2,500 beetles were collected at this event. They were released in Carver County. On June 16, 2024 approximately 3,000 beetles were collected at Trout Brook Nature Sanctuary in St. Paul. They were released by Minneapolis Parks and Recreation Board on June 18, 2024.

Figure 2: During the field training, trainees were taught about leafy spurge biocontrol history, leafy spurge beetle identification and biology, how to collect beetles, and site assessment before being rained out.

Spotted knapweed

Release locations at Scenic State Park were monitored on July 17, 2024. In 2020, there were four releases of 100 root weevils (*Cyphocleonus achates*) in different areas of the infestation for a total release of 400. Hundreds of seedhead weevils were observed. It was too early in the season to find adult root weevils, and none were observed, but evidence of their establishment was observed. Knapweed density was lowest at release locations.

Biocontrol monitoring on July 31, 2024 at 2020 release locations along the Ramsey Monarch Trail in Anoka County also showed knapweed decrease. Several adult root weevils and hundreds of seedhead weevils were observed.

Figure 3: The pink/purple flowers of spotted knapweed are less dense at the release location. As knapweed decreased, grasses and forbs moved in.

Release locations at Cuyuna Country State Recreation Area were monitored on August 14, 2024. In 2020, there were four releases of 100 root weevils in different areas of the infestation, for a total release of 400. In 2022, there were two supplemental releases of 100 root weevils. Weather conditions were not conducive to finding adult root weevils during this year's monitoring, but knapweed clearings at release locations indicated that they are established.

The MDA requested and received 1,000 root weevils from Montana through a USDA APHIS PPQ program to support state weed biocontrol efforts. These weevils were released on August 21 and August 23, 2023 at four large infestation sites in Cook, Otter Tail, Pine, and Washington counties. Additionally, 200 seedhead weevils (*Larinus minutes*) were collected at the Ramsey Monarch Trail site in Anoka County on July 31, 2024 and released at an airport site in Cook County on August 1, 2024.

Noxious Weed Grant

Evaluation and Impact Summary

The Noxious Weed and Invasive Plant Grant provides local governmental units in Minnesota with funds to manage noxious weeds through a variety of activities that include outreach and training, surveying and treating, hiring private applicators, and purchasing equipment and supplies to treat noxious weeds. In the spring of 2024, the MDA engaged past grant recipients through an online survey and in person interviews to learn about the impacts the grant funds have had on weed management to the organizations' communities.

Local governments hold a unique position for weed management across the state. CAIs are the point of contact for noxious weed issues within each county, including identifying weeds, coordinating weed management with multiple entities, and helping landowners become compliant with the noxious weed law. CAIs often do a variety of work, and typically a very small percentage of their time is dedicated to duties related to noxious weeds. County budgets are also stretched thin, and many counties rely on grant funds for work related to noxious weeds.

This reliance on grants with short funding periods places a burden on counties and other local governments that manage noxious weeds. Almost all noxious weeds require multiple years of consistent management to reduce populations or eliminate them from the landscape. The grant funds cannot be guaranteed from year to year, due to the small award amounts and the lack of dedicated funding to the grant program. Though many grantees have hired seasonal workers or interns, the grant funds are not sufficient for organizations to hire full-time staff, which would reduce workloads and improve weed management from year to year.

Though the funding is limited and small in scope, the grants have had positive impacts on the communities that have received them. One of the most reported benefits is that awareness of noxious weeds has increased significantly among landowners. Organizations are also improving weed management practices, including identifying noxious weeds earlier, and improving treatment timing.

To continue the positive impacts of these grants, additional funding is necessary. Grant recipients identified the following key findings crucial to continued program success and sustainability:

- Outreach and education are essential to creating a strong weed management program.
- Community building (with townships, cities, private landowners) takes a lot of time to build trust.
- Awareness of noxious weeds in communities is increasing and landowners are more receptive to doing their own management.
- Funds to treat noxious weeds and employ staff are the biggest barriers to developing strong weed management programs.
- After receiving funding from the Noxious Weed and Invasive Plant Grant, most of the organizations improved weed management practices, including identifying noxious weeds earlier and improving treatment timing.
- Consistent, multi-year funds are necessary to develop statewide weed management programs at the local level.

A robust Noxious Weed and Invasive Plant Grant fund increases the likelihood that more landowners can be reached, educated, and encouraged to manage noxious weeds on their lands. Organizations can also hire more

staff to implement outreach and education programs. Multi-year grant projects could be funded to support longer term weed management, which would improve the health and resiliency of Minnesota's ecosystems.

2024 Recipients

In Fiscal Year (FY) 2024, $150,000 was available for the noxious weed grants and the MDA awarded eleven projects.

Table 2: Projects awarded in 2024.

Organization	County	Award Amounts	Project Title
Anoka Conservation District	Anoka	$14,530	Early Detection Noxious Weed Control in Anoka County
Becker SWCD	Becker	$9,000	2024 Becker County Noxious Weed and Invasive Plant Grant
Carlton SWCD	Carlton	$15,000	Battling Invasives in City of Cloquet
Cass County	Cass	$15,000	Japanese and Hybrid Knotweed Control and Outreach
Fillmore County	Fillmore	$15,000	Fillmore County Noxious and Invasive Weed Control
Fillmore SWCD	Fillmore	$15,000	Treatment of Bohemian Knotweed on Maple Creek
Prairie Island Indian Community	N/A	$14,000	Prairie Island Indian Community Amur Maple and Rangeland Management
Scott SWCD	Scott	$15,000	Scott CWMA Noxious Weed Management
St. Louis County Public Works	St. Louis	$15,000	St. Louis County Ramps Up the Fight Against Knotweed and Parsnip
Stearns County	Stearns	$5,000	Stearns County FY24 Noxious Weed and Invasive Plant Grant
Washington Conservation District	Washington	$15,000	Noxious Weed Management

Cumulative Data

Since 2018, the MDA has received appropriations to award grants for the Noxious Weed and Invasive Plant Grant fund. Between FY18 and FY24, the MDA awarded $1,557,488 to 165 projects to municipalities and tribes for noxious weed work. Recipients have used grant funds to:

- Survey over 26,000 acres and roadside miles to document locations of noxious weeds.
- Treat over 14,000 acres and roadside miles infested with noxious weeds.
- Hold over 390 trainings/workshops focused on noxious weed identification, management strategies, and noxious weed law enforcement protocol with 2,042 participants.
- Purchase equipment and supplies, such as herbicide sprayers, herbicide, tools, mowers, and other equipment used for noxious weed management.

Table 3: Cumulative totals of the grant program since 2018.

Fiscal Year	Total Applications	Total Projects Awarded	Total Request	Total Funds Available and Awarded
2018	41	29	$791,540	$295,500
2019	35	35	$481,512	$321,325
2020	45	35	$868,877	$537,277
2021	44	20	$182,092	$95,100
2022	33	28	$142,868	$119,586
2023	31	7	$179,407	$38,700
2024	50	11	$537,439	$150,000
Totals	279	165	$3,129,735	$1,557,488

Great Lakes Restoration Initiative Project

This project is a collaboration with numerous local partners throughout the Minnesota portion of the Great Lakes Basin. Spring treatments controlled common buckthorn and non-native honeysuckles at two parks in Duluth. Wild parsnip management was done at sites in three counties. Knotweed was treated at 18 locations in three counties in early September. Many new locations with knotweed were mapped in the fall of 2024 in preparation for 2025 treatments. There was also fall buckthorn management in Lake County. In continuation from 2023, the MDA revisited and updated old invasive plant records.

Collaborations

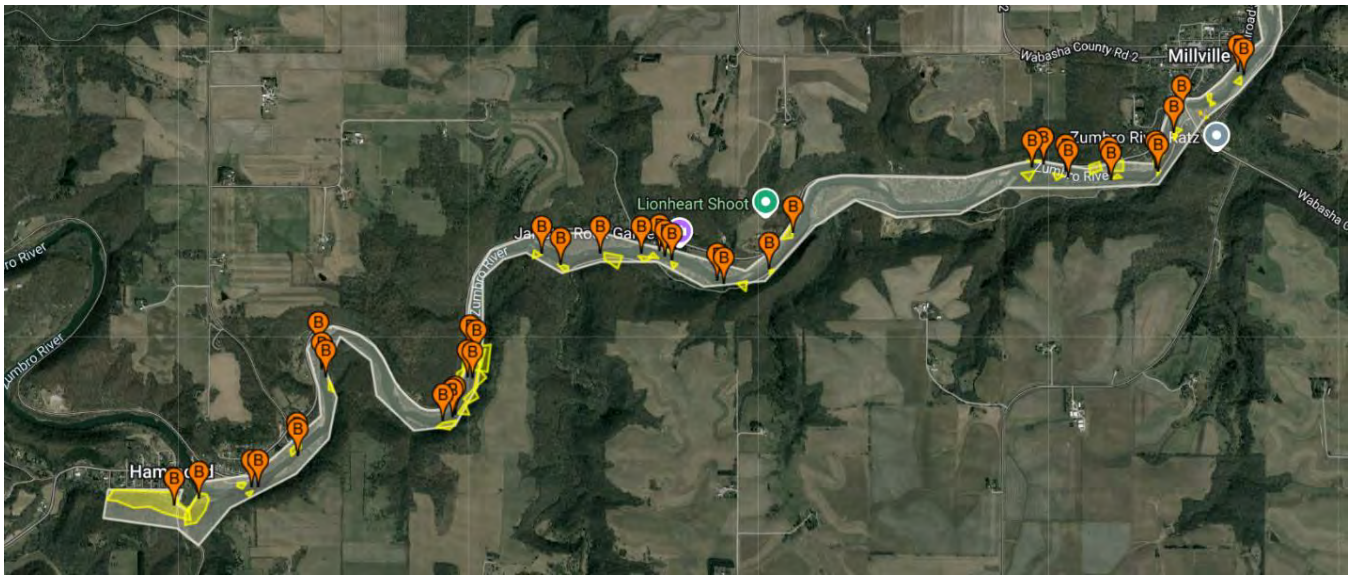
The MDA organized efforts to tackle knotweed and roundleaf bittersweet infestations in southeast Minnesota. This involved collaboration with Minnesota Department of Natural Resources (DNR) Forestry for funding, MDA staff for organizing and coordinating, the Conservation Corps of Minnesota and Iowa (CCMI) for treatments, and landowners whose land had the infestations. We were able to establish relationships with new landowners and treat these newly reported infestations, update reports on current and eradicated infestations, and continue treating historical infestations.

Knotweeds

Prioritizing knotweed infestations along waterways and land adjacent to waterways helps protect Minnesota waters against the harmful effects of knotweed species. In 2024, the CCMI team was extremely efficient and treated:

- 53 infestations (40 acres) along the Zumbro River.
- 33 infestations (18 acres) on land throughout Olmsted, Winona, and Houston counties.

Figure 4: Knotweed treatments along the Zumbro River in 2024. Orange balloons are infestations, and yellow polygons are treated areas. Riverside infestations were treated by boat.



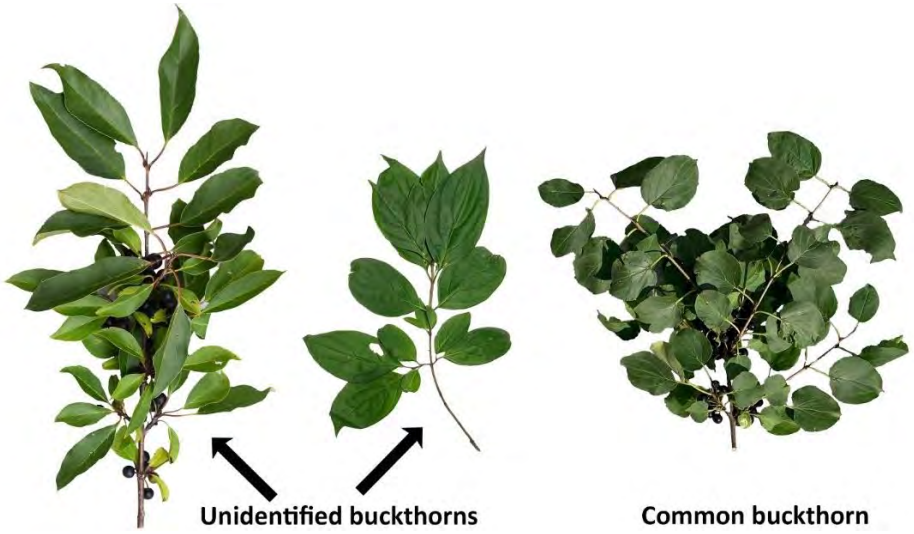
Round Leaf Bittersweet

The MDA also collaborated with the City of Red Wing for round leaf bittersweet treatments. Good relationships with the city were established as they welcomed the CCMI crews and provided workspace for the crew to take breaks and store supplies. Three infestations totaling 94 acres were treated in Red Wing.

Buckthorns

A pilot study was initiated with University of Minnesota plant pathologists in 2024 to try genetic testing for species determination of unidentified buckthorn (*Rhamnus* spp.). Leaf samples were collected this year at 45 locations in southern Minnesota and from several suspect population in Cincinnati, Ohio. The next step is to extract DNA from these populations, have it sequenced, and then do an analysis.

Figure 5: There were numerous visible differences between plants such as leaf size and shape, petiole color and length, fruit size and pulp color, bark, spines, and overall size and shape of the shrub.



Palmer Amaranth

In 2014, the MDA, along with assistance from the University of Minnesota Extension (UME) and other stakeholders, began an aggressive zero-tolerance program for the aggressive agricultural weed Palmer amaranth (*Amaranthus palmeri*). This included listing the species on the Prohibited Eradicate Noxious Weed list two years prior to the plant first being discovered in the state. The goal was to develop early awareness among farmers, landowners, and land managers, so that once it was discovered, immediate action could be taken. Farmers and landowners were encouraged to report any suspect pigweeds to MDA and UME for further investigation. In fact, the first and subsequent findings in the state have occurred through farmers and crop consultants informed about Palmer through the MDA and UME outreach efforts.

Palmer amaranth was eventually confirmed in Minnesota during the fall harvest period of 2016. Since its introduction, the MDA has received 121 reports spanning 33 counties where Palmer has been suspected to be introduced through several pathways – planting seed, manure, livestock feed, and equipment. After intensive investigation of each report, the MDA has only confirmed Palmer to be present at 44 (36%) of the 121 reported sites in 17 counties (Table 4).

The following report highlights data from 2024 with all years' data provided for comparison. For more detailed information, please contact the MDA Weed Program: noxiousweeds.mda@state.mn.us.

Table 4: Number of locations where Palmer was suspected or introduced, confirmed locations, and the confirmation percentage by calendar year (numbers represent cumulative sites over time).

Calendar Year	Cumulative Introduced or Suspected Palmer Sites	Cumulative Confirmed Palmer Sites	Percentage of Sites with Confirmed Palmer
2016	31	15	48%
2017	53	21	40%
2018	70	23	33%
2019	73	26	36%
2020	76	29	38%
2021	88	35	40%
2022	92	38	41%
2023	94	40	43%
2024	121	44	36%

In 2024, Palmer was confirmed at four new sites in the state (Table 5). Two of these sites were first occurrences for their respective counties – Morrison and Steele. The MDA is also working with a landowner to control a single location confirmed in 2021 that continues to produce new plants in the same isolated location. The good news is that all Palmer plants discovered this year were destroyed on site prior to any mature seed production. The outreach conducted by MDA, UME, statewide crop consultants, and a diversity of other stakeholders has allowed for the continued quick reaction when reports are received, allowing for plants to be managed before they spread more seed. These four new locations, and the existing location experiencing regrowth, will be priorities for inspection by the MDA in 2025.

Table 5: Palmer amaranth presence and reoccurrence by calendar year.

Calendar Year	First Time Palmer Sites	Recurring Palmer Sites
2016	15	0
2017	6	2
2018	2	0
2019	3	0
2020	3	1
2021	6	2
2022	3	4
2023	2	1
2024	4	1

The MDA defines a Palmer site as the total acres for a jurisdictional property where Palmer has been confirmed. A site is usually a contiguous piece of property, not separated by legal boundaries. For example, a row-crop field managed by a farmer or landowner that is an individually defined property on a county plat map. Typically, the actual area occupied by Palmer plants growing on a site is smaller than the total acres. In general, when Palmer is confirmed at a site, it is found in a portion or several portions of a site, although on occasion a few sites have had Palmer distributed throughout.

Table 6: Number of site acres impacted by, and managed for, Palmer amaranth in Minnesota by calendar year.

Calendar Year	Total Confirmed Palmer Site Acres	Acres of Palmer Plants Managed	Percentage of Site Acres with Palmer Plants vs. Total Site Acres
2016	204	114	56%
2017	512	269	53%
2018	2479	183	7%
2019	2521	43	2%
2020	2490	103	4%
2021	534	112	21%
2022	560	102	18%
2023	345	151	44%
2024	854	509	60%

Since sites are typically exposed to the same equipment and undergo similar seeding and land management practices, the total site acreage is monitored, measured, and reported. Monitoring the entire site ensures that plants do not germinate in previously undetected areas and allows for management plans to be adjusted when necessary. In 2024, a total of 854 site acres were monitored, with 509 of those acres (60%) being directly managed for Palmer plants (Table 6). The percentage of total site acres to acres with Palmer growing at the site are dependent on the size and number of sites reported each year, and this can vary considerably (Table 6).

Table 7: Number of Palmer locations being monitored, new introductions, and confirmations by calendar year.

Calendar Year	Total Sites Being Monitored	New Site Locations	Confirmed Palmer Sites (new and recurring)
2016	31	31	15
2017	53	22	8
2018	71	17	2
2019	73	3	3
2020	46	3	4
2021	27	12	8
2022	23	4	7
2023	15	2	3
2024	34	4	5

For the MDA to consider an infested location to be eradicated, Palmer must not be found growing for three consecutive years. To date, fifteen infested sites in ten counties have been considered eradicated. Twelve sites within seven counties are still being managed and monitored. Currently five infested sites in five counties are being intensively managed because Palmer was found for the first time this year (four sites) or continues to reappear (one site). The MDA will continue its robust management plan for these five sites in 2025.

Because of the "no Palmer found in three years" rule, monitoring of sites includes sites still needing monitoring from previous years and new sites found within the year. In 2024, the number of sites being monitored for Palmer have doubled since the previous year (Table 7). The increase in sites this year results from an imported seed lot that was contaminated with Palmer seeds and sold to customers in various parts of the state. The MDA was able to follow-up with those customers and visit all locations where the seed was planted. Of the sites that planted this seed, only three were found to have Palmer actively growing. In addition to these new sites, there was a separate site found to have Palmer present. The pathway for this site is not currently known.

New locations with confirmed Palmer have decreased in frequency since 2016, with only four locations confirmed in 2024. In response to the statewide advertising campaign launched in 2022, and the outreach, cooperator trainings, and research conducted by the MDA and the University of Minnesota, farmers and landowners are paying greater attention to weeds like Palmer amaranth. They are also implementing best practices to prevent unwanted spread of weed seeds through a variety of identified pathways that Palmer has been documented to move through. This is helping to slow the spread of Palmer into and within Minnesota.

Farmers and landowners have been our greatest asset to battling Palmer amaranth and keeping its current impact on Minnesota agriculture small. Although research by our partners in UME and at the University of Minnesota's College of Food, Agriculture, and Natural Resources Sciences (CFANS) is providing ways for farmers to better manage aggressive herbicide resistant weeds like Palmer, the MDA encourages any landowner or citizen to report suspected pigweeds through the Report a Pest online form. The faster we receive reports, the quicker we can confirm and begin managing this important pest. For more information about Palmer amaranth, visit the MDA Noxious Weed Program Webpage and become Amaranth Aware!

Acknowledgements

The NIWP works hard every year to provide the best level of service possible to Minnesotans. Our program success is built on the support of our legislature, Governor's Office, Commissioner Peterson, MDA Division partners, and a diverse group of stakeholders. We'd like to thank all our partners for their support and unwavering commitment to our program in 2024 and helping us to protect the state from the injurious effects of invasive plants and noxious weeds.

Special thanks to the following:

- The Noxious Weed Advisory Committee (NWAC) members and their constituents
- Our local government partners – County Agricultural Inspectors and Designated Employees, Township Supervisors, and municipal weed inspectors
- State and Federal land managers and agency staff: MN DNR, MN DOT, MN BWSR, MN PCA, USFWS, and USDA
- The Minnesota Invasive Terrestrial Plant and Pest Center (MITPPC)
- The University of Minnesota College of Food, Agricultural, and Natural Resource Sciences (CFANS) and University of Minnesota Extension

Our Noxious Weed Advisory Committee would like to thank Roger Becker and Steve Chaplin for their dedication to forming and guiding this committee. Their knowledge and expertise in weed law and weed management has been invaluable. Both served on this committee since its inception in 2009. We wish them all the best in their retirement.

And finally, a big thank you to Sascha Lodge for making the connections for funding the knotweed and round leaf bittersweet treatment efforts.