Rapid Response and Control of Japanese Knotweed in Polk and Burnett County

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Table of Contents

Table of Contents 2
Japanese Knotweed background 3
Project Objectives 4
Infestation inventory 5
Methods of Treatment 7
Treatment Results 9
Project Conclusions 11
Appendix 12

Knotweed Background

Japanese (Polygonum cuspidatum) and Giant Knotweed (Polygonum sachalinense) are large robust perennial plants with very aggressive growth habits. The Knotweeds, both Giant and Japanese, are native to Asia. Imported to Wisconsin in the mid 1900s as an ornamental, this species has begun to escape landscaping conditions becoming more prevalent in the wild. This plants escape to the wild is particularly concerning and becoming more prevalent. Knotweed has the ability to grow very fast, out-competing other vegetation so no other vegetation can be found beneath the canopy of a Knotweed stand. Where this plant has established itself along stream banks, the lack of understory can promote intense erosion where both soil and Knotweed roots can move downstream. Where root segments wash ashore downstream, new infestations will undoubtedly develop.

Knotweed appears to be a member of the bamboo family with its hollow bamboo-like stalks. Truthfully, it is not even closely related to bamboo. As a member of the family Polygonaceae, it is more closely related to Buckwheat.

Knotweed is a perennial. Each spring it re-grows from its extensive root system at a tremendous rate. In the peak of the growing season Knotweed can grow two to four inches per day. Maximum height depends on the species. Japanese Knotweeds maximum height is 8 to 10 feet tall whereas Giant Knotweed can reach heights of 12 to 15 feet tall.

While height is one way to determine the species, it is not the most reliable. Leaf size and shape are the most reliable way to identify which species of Knotweed a person might be dealing with. Typically, Japanese knotweed leaves are up to 6 inches in length with flat or truncated leaf bases. Giant Knotweed leaves are much larger than Japanese Knotweed leaves growing up to 12 inches in length. They also differ slightly in shape, taking on a pronounced “heart” shape.

The Knotweeds are dioecious, meaning this species cannot self-fertilize. Plants with this characteristic have separate male and female plants. Having been sold as ornamentals it was thought that cultivars sold would not produce viable seed. However as time passed, imports from many sources have likely introduced Knotweed colonies of the opposite sex making germination by seed a likely source for reproduction. This is particularly concerning because of this species seed making potential.

As well as seed, Knotweeds exhibit multiple other ways of establishing new clones. Cut stems and root segments also contribute to producing new stands of Knotweed. If cut stems are deposited in an area where the soil is moist and conditions are right, roots can develop from viable nodes on each segment of the stem. In a short amount of time one stem segment can develop into a new colony. Roots also pose a significant threat in the spread of Japanese and Giant Knotweed. Knotweed can develop into a new colony from as small as a ¼ inch root segment. Roots are a large contributor to the expansion of Knotweed. Knotweed is also rhizominous, producing horizontal growing roots that can extend out 60 ft from the parent colony. Rhizomes are responsible for colony expansion and making this species so difficult to control.

Project Objectives

At the beginning of this project the LWRD had documented eleven colonies of Knotweed in Polk County and three colonies in Burnett County. The objectives of this effort were to:

- provide information and education to the public about this invasive
- identify and map any new colonies
- gain volunteer assistance in identifying new colonies and controlling infestations
- eradicate all documented infestations
- monitor the success of eradication efforts.

In an effort to maximize awareness of the existence of this species in Polk and Burnett County the LWRD attended many county events delivering information on Knotweed and controlling this invasive. Please see the list of events attended in the Appendix A. The LWRD attended also PCLAR meetings to deliver the message of our concerns with this species. PCLAR is a non-profit lake protection organization that includes members of nearly all the county lake

associations and concerned lake residents. Following these meetings the LWRD is confident PCLAR delivered information on to remaining Lake District members.

News and newsletter articles also played an important roll in reaching the public with information regarding Japanese and Giant Knotweed. On September 24th, 2009 an article was written and published in the County Ledger Press about this grant proposal and the impacts of this invasive (Please see Appendix B). In the spring and summer 2010 issue of Burnett County Lake Lines, the LWRD also submitted an article entitled "Shoreline Invasive Compels Rapid Response" (Appendix C). The Burnett County Lake Lines reaches approximately 4,000 people. In addition, Knotweed awareness was included in a nine part article by the Inter-County Leader called "Chasing Invasives". Eric Wojchik of the LWRD was interviewed and brought Leader Staff writer Greg Marsten on a tour of documented Knotweed locations in northern Polk County (Please see Appendix D). This was an excellent article that reached many Polk County residents.

Infestation Inventory

When applying for the Rapid Response and control grant, the Polk County LWRD knew of a small number of infestations. Through educational awareness, personal observations and landowner contacts Polk County LWRD documented and mapped 61 infestations in Polk County and 22 in Burnett County (Please see Appendix E) by summer's end 2010. This was a much larger number than we had anticipated as this species was not recognized as colonizing these counties in any literature prior to this grant. Figure 1 and Figure 2 show the number of sites and their locations. Most of the sites were located in lawn and landscaping environments. This is no surprise for a species introduced as an ornamental. What is concerning, is the number of wild sites found. These wild colonies have most likely become established due to the existence of a nearby colony in a yard or landscaprd setting. In Polk County 22 wild colonies have been documented (Figure 1). Burnett County has 8 wild colonies documented during this project effort (Figure 2). Colonies considered wild in the figures below are colonies in areas that are minimally maintained such as Right of Ways, CRP fields, Woodlots, fence rows, and shorelines.

Though it is hard to verify, we believe the majority of the Knotweed found in Polk and Burnett County is Giant Knotweed. A small number of the infestations appeared to have much smaller leaves than the rest of the sites documented. This could be due to less fertile growing conditions. However, a second opinion should be obtained. Giant Knotweed is listed as Prohibited in Chapter NR 40, Wisconsin's invasive species rule. If the majority of the sites prove to be Giant Knotweed this could significantly impact future management strategies.

A listing of all documented Knotweed locations in Polk and Burnett County can be found in Appendix F.

Figure 1 Polk Locations of Infestations
Total 61 Sites

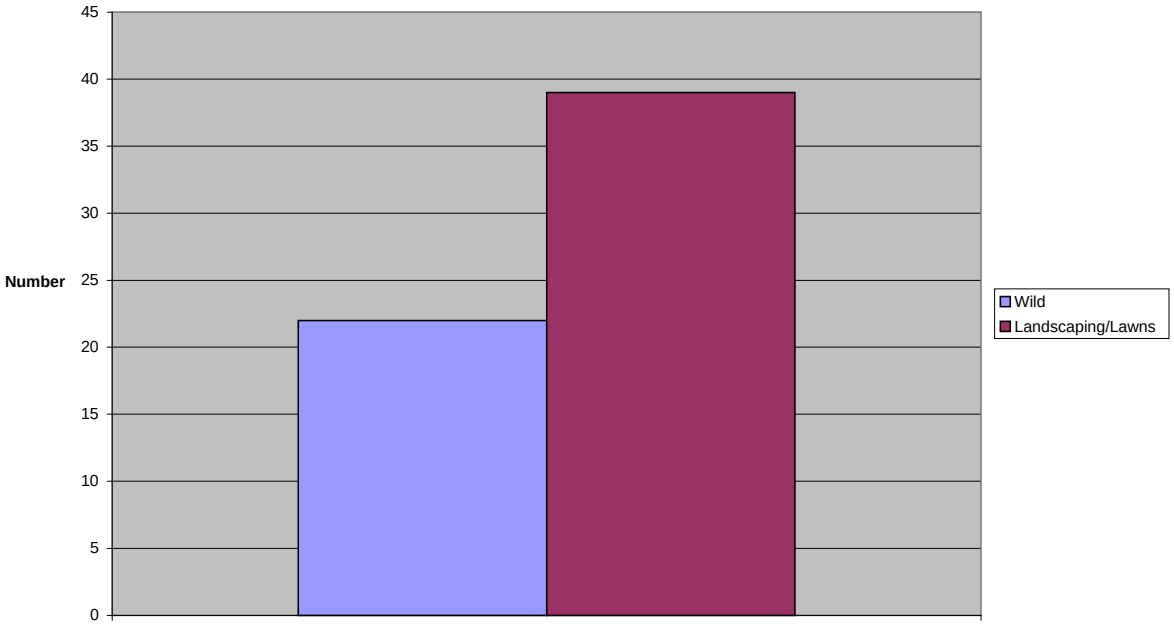
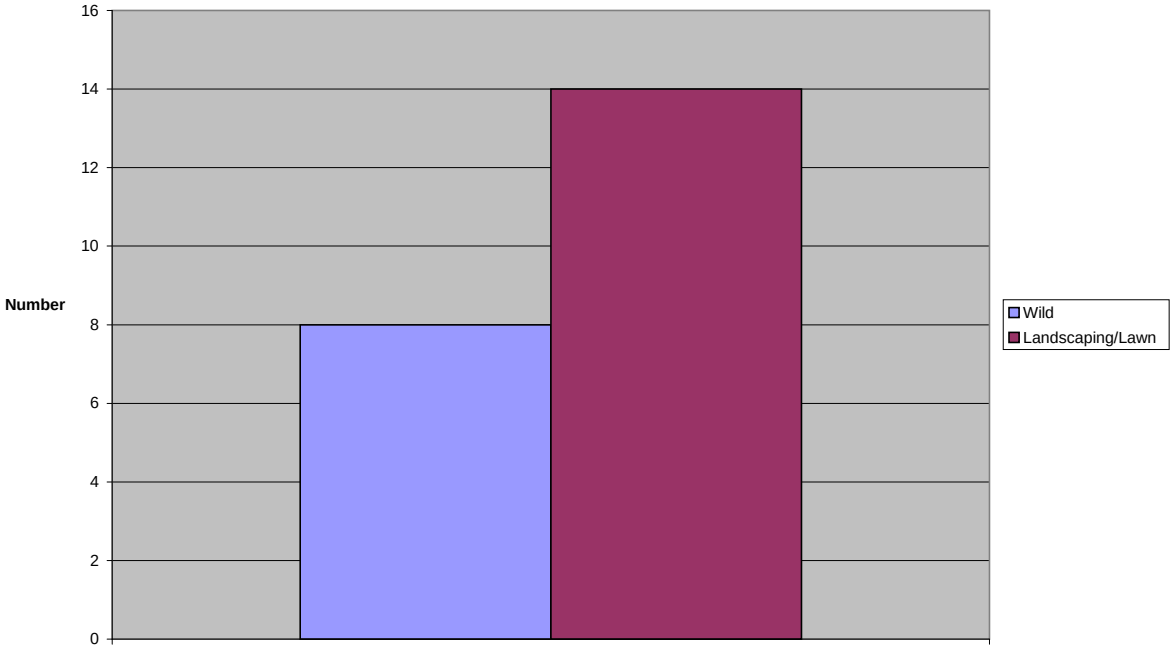


Figure 2 Burnett Locations of Infestations
Total 22 Sites



TREATMENT AND METHODS

Testing of treatment methods was an important component of this rapid response and control grant. We hoped to determine what method between stem injection and foliar application of herbicides was most effective and determine which herbicide worked best. The grant allowed us to purchase two JK stem injection systems, a 4 gallon backpack sprayer, a 16 gallon ATV sprayer for use in control, herbicide and personal protective equipment.

Herbicides used in the project were Cornerstone Plus (Glyphosate), Habitat (Imazapyr) and Milestone (Aminopyralid). These herbicides were used because of their reputation for good control of Knotweed and provided labeled use for a wide range of situations. Habitat being labeled for use near water was used on sites in close proximity to surface water. Milestone being a selective herbicide (only effective on broadleaves) was used in lawn settings so grass would not be killed. Cornerstone Plus was the only herbicide tested through the injection systems. Cornerstone Plus was very effective used in its concentrate form and applied in the stem as close to the roots as possible. Stem injection worked very well in minimizing stem density of as stand to allow for easier access for additional treatments later in the season.

Foliar application of Habitat and Milestone was the second method of treatment. Foliar treatment was used on sites that were to large or difficult to stem inject due to stem density. Habitat was mixed with water at a 2.5-3% solution. Approximately 3 to 4 ounces of Habitat was mixed to one gallon of water. Milestone was mixed much differently. Milestone was mixed using10 milliliters of herbicide per gallon of water.

In the interest of time, only having the summer of 2010 for treatment we treated sites whenever we could. It was convenient to treat by stem injection in the spring due to immature plant growth and ease of stand access. Foliar treatment was mainly done in late summer. Most foliar treatments were applied towards the end of July to early August as Knotweed is most susceptible to herbicides before flowering.

Mowing was also incorporated into the management of some stands. If a stand was not able to be treated early and was large enough to make entire stand access difficult, mowing operations were performed. Mowing allowed the stand to be accessible, forcing the plant to re-grow expending more energy and hopefully making the plant more susceptible to herbicide treatment. Once the stand regenerated to a height of 2 to 3 feet tall a foliar treatment of Habitat was applied in the middle of the summer.

Mowing was not performed as the only control effort on any stands. Mowing was always followed by a foliar treatment of either Habitat or Milestone.

Knotweed stand two weeks after mowing.

TREATMENT RESULTS

Valid treatment results are unclear at this point due to the control difficulty of this species and the limited time within the grant cycle. However, through observations following the different treatment methods we are able to document some progress towards control. Through our treatments enough information was gathered to make good control recommendations to affected landowners. Our findings from herbicide treatments are as follows:

1. Established Giant and Japanese knotweed stands typically will not be eradicated with one herbicide treatments. Multiple applications are necessary.

2. Herbicide treatment by stem injection is very successful on stands that have been recently transplanted or are very young. Small stands with minimally developed root systems are very susceptible to this type of treatment and can be eradicated in one application.

3. Herbicides with soil residual carryover such as Habitat were most effective. Following herbicide treatment no residual carryover such as Cornerstone Plus, Knotweed regenerated new shoots quite quickly. Though stem density was lessened many follow up applications were necessary because parts of the root system remained unaffected. Sites where Cornerstone was used re-growth was seen within 6 to 8 weeks following application. Sites where Habitat was applied in June took many weeks to defoliate but no re-growth was seen the rest of the summer.

Approximately two months following treatment with Habitat herbicide.

Approximately three months following treatment with Habitat herbicide.

4. Milestone was tested on sites in lawn areas. It was used as a foliar treatment alone and following stem injection. This herbicide was used later in the summer and effectiveness is not well known yet. However, in the short time we used this herbicide it seemed to provide good control and is perfect in lawns or landscaping settings.

5. For all stands a two phase control plan was most effective. Phase one being either a stem injection treatment with Cornerstone Plus or mowing depending on the size of the stand. Phase two included a foliar follow-up treatment with Habitat or Milestone to treat the remaining stems that were too small to inject or re-growth that grew since phase one. This control plan seemed to provide consistent results in eliminating the majority of the stands for at least the remainder of the 2010 growing season.

6. Cornerstone plus as a diluted solution applied as a foliar treatment was also tried. It was not as effective as the other herbicides for long term control. Treatments seemed to burn down the above ground foliage but had little effect on minimizing below ground root systems. Re-growth of the stand was observed quickly following the initial treatment.

7. Cutting stems and pouring concentrate Cornerstone Plus had very similar results to stem injection and proved to be a very effective way to eradicate small infestations. Be aware that this application method is messy and personal protective equipment is necessary. Good chemical resistant gloves are required for all applications of herbicide but this one in particular gloves are essential. This method was recommended and used by some of the landowners wanting to control the Knotweed themselves.

PROJECT CONCLUSIONS

Upon completion this project was a large success from an educational awareness standpoint. Contact was made to 78 landowners having either Giant or Japanese Knotweed on their property. When contact was made, many of these landowners did not know what species of plant it was. Many of them even made prior attempts at identifying the plant. Out of the 78 landowners only 2 opposed control of the species. The remainder of the landowners had battled the plant for years and wanted it gone. In many cases, the information provided them an opportunity to implement control efforts or educate themselves on the proper way to eradicate their infestation.

Control efforts were started but not completed. Initial treatments were made on 42 sites. Follow up treatments will most likely be needed due to the resilience of this species. Unless funding is secured to continue this effort it will be up to the landowners to address these infestations in the future. This is difficult due to the expense of herbicide and the time commitment it will take to successfully eradicate this plant from affected properties.

Even with the implementation of the DNRs invasive species rule Japanese Knotweed is still being sold as an ornamental. One nursery in Burnett County was reported to be selling the plant in 2010. In addition, one landowner was cultivating it for gifting purposes. Multiple pots were observed with new shoots growing. In both cases the individuals were informed that this species was regulated and the distribution of this plant was prohibited. Follow up will be needed to ensure these individuals are complying with NR 40.

REFERENCES

1. Wikipedia http://en.wikipedia.org/wiki/Dioecious

2. DNR PUB. – ER – 657 2007 Japanese Knotweed

APPENDICIES

CONTENTS

Appendix A – List of Educational Events Attended during Grant Cycle

Appendix B – County Ledger Press Article “Japanese Knotweed Could Annihilate Waterways”

Appendix C – Burnett County Lake Lines “Shoreline Invasive Compels Rapid Response”

Appendix D – Inter County Leader Article “Chasing Invasives”

Appendix E
Page 18 – Polk County Infestation Location Map
Page 19– Burnett County Infestation Location Map

Appendix F – Infestation List and Coordinates for sites documented in Polk and Burnett County

An Amery High School student shown by a pile of old Knotweed growth during a community service day. Students were asked to clear old growth from this infestation before treatment of this Knotweed infestation in the spring of 2010.

APPENDIX A

Educational events attended with an informational booth for the public.

1. Cattail Trail Days - June 5th, 2010
2. Polk County Fair – July 28 – August 1, 2010
3. Frederic Coon Lake Lakes Fair – August 21, 2010
4. Sportsman's "Night Out" Amery Country Store September 29, 2010

APPENDIX B

Standard

Festival Theatre hopes to be on the same page as the City. Pg. 1

Ledger

County sounds alarm on seriously aggressive exotic species. Pg. 1

Enterpris

Shavings com looks to be production spring. Pg.

County Ledger Press

Polk County Seat Newspaper

Thursday, September 24, 2009

Japanese Knotweed could annihilate waterways

By Lynda C. Berg

People like to plant something unique, unusual and exotic. They are putting aquatic invasives in their rain gardens and landscaping. That's usually how they get here – and then once they're here, they get away – and they are tough to kill. Once it gets going it just completely out-competes everything else. People can order them through catalogues or get them online. Even though they are on our state list of "bad things," there are a lot of companies in other parts of the country that will still deliver them if ordered.

Supervisor Jay Luke asked if Japanese Knotweed was the same as Russian Lilac and Ritten responded that no, they are not the same, although they are "pretty darn close" and probably related.

Supervisor Brian Masters asked where the Knotweed was being found.

Ritten said on lake properties and river corridors.

"Probably our biggest concern is it (the Knotweed) being transported downstream on riverways. The stuff we've seen has really taken over."

That the Japanese Knotweed is a perennial (comes back every year) is a danger in and of itself. It spreads by stem/root fragments and also, most likely, by seed. It grows "erect to arching" in dense stands from four to 10 feet tall. The broad leaves (which block out the sun for other plants) are six inches long with a pointed tip. Small white flowers bloom in late summer. Japanese Knotweed is currently threatening riparian corridors, wetlands and other "disturbed" (by people) areas.

The stems are bamboo-like canes and to hack one's way through them a machete is needed.

The large, aggressive perennial was exported from Asia with no insects or diseases to control it. Introduced in Europe by 1800, this invasive plant has alarmed country after country with its rapid spread and difficulty of control. It came to the United States in the late 1800s and has since spread across the continent from Northeast Canada to South Carolina, and west to the Pacific.

The DNR publication on Japanese Knotweed says the plant is of "great concern in most states and is cause for alarm." It notes the plant arrived in Wisconsin in the mid-1900s and was planted in urban areas around the state. One Green Bay property owner has been mowing this plant from his lawn (unsuccessfully) for 40 years!

Japanese Knotweed is now in most every county in Wisconsin and once established it "defies control."

The roots grow as deep as nine feet and rhizomes (horizontal roots that send up shoots) grow out to 60 feet, according to the DNR. It dies in the fall with the first frost, but every spring sends bunches of shoots up along the entire length of the rhizomes.

The Japanese Knotweed rhizomes are so tenacious they have been known to their way under streets and right up through pavement. They have annihilated parking lots and even come through a Welsh living room floor.

The DNR says, "Wisconsin is now poised to suffer an explosion of Japanese Knotweed in wetlands, along stream banks and lakeshores unless we act to prevent the spread."

It is disheartening that they also state, "Manual, mechanical and chemical control methods can

(Waterways cont. pg 3)

Waterways (cont. from pg 1)

chemicals and methods of application have been tried with varying degrees of results.

In conclusion, the research available suggests that biological control may be "the only hope" for keeping this plant in check. There are insect and fungal pests in Japan that are considered promising because they appear to feed exclusively on Japanese Knotweed. Research on the safety and effectiveness of bio-control organisms is underway in Europe and the DNR says testing needs to start as soon as possible on North American plants as well.

Based on the information, it is clear to see why the resolution in "vigorous re-sprouting from rhizomes," which stand to reasons when one considers even how cutting back a houseplant results in renewed vigor of the plant.

Herbicides have advantages and disadvantages and many verbiage uses the term "manage," versus "eradicate."

removed plant material must be dried, removed from the site and burned, or put into a capped landfill. Continual cutting usually fails to eliminate clones, taking more than a year, even with multiple attempts. Apparently, most control measures result in "vigorous re-sprouting from rhizomes," which stand to reasons when one considers even how cutting back a houseplant results in renewed vigor of the plant.

Herbicides have advantages and disadvantages and many verbiage uses the term "manage," versus "eradicate."

Japanese Knotweed shows its blossoms and flowers in late summer. When in full display is the six foot wide dense canopy it forms making it virtually indestructible so far.

This is what Japanese Knotweed looks like in the winter months, which is a good time to look for the highly aggressive, invasive species.

Here one can see just how closely the Japanese Knotweed stem resembles bamboo. It is a strong, tenacious perennial, which crowds out all other undergrowth – rapidly.

Supervisor Pat Schmidt asked how these invasive species get to Polk County.

"Wonderful question," Ritten said. "People are our problem!

Approval of this resolution was perhaps the one item the county board unanimously agreed on in what was a rigorous six-hour mostly budget discussion.

The resolution states (among several other environmental points), "...Polk County is plagued with the presence of Japanese Knotweed and must manage current infestations and prevent future infestations..."

Ritten will now be allowed to submit an application to the State of Wisconsin for financial aid for "rapid response and control" on this persistent land and water plant. He said this invasive species has established itself firmly in no less than 10 or 12 places in Polk County – which he knows of.

The grant amount is $26,000 and of that, it "calls for the county spending $6,627, which is already in Ritten's Land and Water budget.

"The grant will cover about $16,000 worth of staff time and also a couple thousand dollars in supplies," Ritten informed the board. "Of the $6,000 county responsibility, we can probably recoup about half of that back, so it is really more like a $3,000 investment."

APPENDIX C

LAKELINES

Shoreline Invasive Compels Rapid Response

by Eric Wojchik, Conservation Planner, Burnett County Land & Water Conservation Department

We need your help identifying and locating Japanese Knotweed (Polygonum cuspidatum)! Once a common ornamental sought after for its "green screen" facade and lilac like flowers that seemed to emit a warm glow, it now presents a tremendous threat to Wisconsin's waterways. This species has been listed by the World Conservation Union as one of the world's 100 worst invasive species. This large herbaceous plant is native to eastern Asia and is a member of the family Polygonaceae. It has hollow, bamboo-like stems with raised nodes. Though Japanese Knotweed has the appearance of bamboo it is not closely related. It is actually a closer cousin to Buckwheat. As a very frost susceptible species, frost causes this plant to die back leaving only reddish hollow bamboo like canes above ground throughout the winter. Make no mistake, winter does not kill Japanese Knotweed, it is only dormant. With the arrival of spring, Japanese Knotweed begins to grow back from its enormous root system and takes full advantage of the growing season. In the peak of the growing season Japanese Knotweed can grow 2-4 inches per day. When conditions are right, mature colonies can easily reach their maximum height of 10-12 feet in one growing season.

Japanese Knotweed has the potential to spread by many different methods. Modes of reproduction include rhizomes, root and stem cuttings and seed. There is conflicting evidence as to whether or not Japanese Knotweed spreads by seed due to the plants Dioecious nature, meaning Japanese Knotweed colonies are either male or female. It is thought, as a species cultivated for ornamental uses all plants sold would have been only one sex. However, with the plants many uses it is likely that both male and female plants have been imported and now exist, resulting in viable seed.

The Burnett County LWCD in conjunction with the Polk County LWRD has secured a grant from the Wisconsin Department of Natural Resources for rapid response and control of Japanese Knotweed in 2010. The grant monies allocated to Burnett and Polk will help in purchasing supplies and herbicides to effectively control Japanese Knotweed. The grant will also allow staff to perform information/education activities for the public and control workshops for property owners with infestations of Japanese Knotweed. We hope to establish an effective control program before infestations become too costly to address.

If you would like more information or you would like to report existing infestations of Japanese Knotweed in your area please contact the Burnett County LWCD at 715-349-2186 or the Polk County Land and Water Resources at 715-485-8699 for assistance in eradicating this harmful invasive.

Japanese Knotweed is a very aggressive plant that will grow on a wide range of soil types, has no native biological controls, is easily transported and almost impossible to eradicate in one single attempt. Wherever this species has been allowed to thrive has now proven to be a very costly mistake.

APPENDIX D

INTER-COUNTY LEADER
OUTDOORS
ATVs • BIRDING • BOATING • CAMPING • FISHING • HIKING • HUNTING • RECREATIONAL VEHICLES

Chasing Invasives

Part eight - Sleeping beside a giant: Giant and Japanese Knotweed

by Greg Marsten
Leader staff writer

TOWN OF WEST SWEDEN – As invasive species run, there are several levels of threatening critters and plants. From the lesser types that are more of a hassle and nuisance, like Eurasian lady beetles or even earthworms, to the moderately threatening type, such as purple loosestrife or even buckthorn are another matter. They are plants or critters that can be controlled but have a soft-enough underbelly or tough natural predators to be controlled at a moderate or affordable cost.

But now we get to the heavy hitters, the invasive species that even those "in the know" are truly concerned about, like the two varieties of knotweed - technically called *Fallopia japonica* or *Polygonum cuspidatum* - both of which were discovered recently in the area ... or so they thought.

Meet the "Goliath" of invasives species: Giant and Japanese knotweed are among the largest, most threatening invasives in the world and are routinely listed as the being one of those plants or critters that is mutually feared across the planet. And even scarier is that we are just now waking up to its presence, after years of it being traded, gifted and sold as a pretty ornamental.

This giant has been slowly crawling into our bed, possibly for as long as 75 years.

"I talked to a gal on Lake Wapogasset who recalled her mom planting it in the '50s. She got it from someone north of the Country Dam ... so, yeah, it's probably been here a long, long time!" stated Polk County Land and Water Resources conservation planner Eric Wojchik, who has taken the knotweed battle to heart. Wojchik has become the regional "go-to guy" on knotweed and following him around for an afternoon as he surveys and fights the giant weed is both interesting and frankly, a little scary.

Knotweed may not be the devil, but it's close.

Wojchik is the person who discovered the extent of the knotweed problem over the last two years, and has since noted over three dozen sites, he calls them "parent colonies," of the plant across Polk and Burnett counties.

"It's way worse than buckthorn," stated Jeremy Williamson, the Polk County LWRD water quality specialist who also is a soldier in the invasives "battle." He concurs with Wojchik that the knotweed threat is among the scariest challenge their department, and landowners across the region, may face yet as far as invasive species go.

"Deer can't even walk through the patches," Williamson said in an earlier interview. "It's a major, major problem."

Two flavors, one threat

Giant and Japanese Knotweed are directly related, and so far, Wojchik says he's discovering mainly the giant variety, which has heart-shaped leaves up to a foot wide, while the smaller, Japanese variety has leaves about half that size. But the characteristics of the plant are identical, otherwise. They have numbers that are almost surreal when it comes to potential: The plant can spread through horizontal runners up to 60 feet from the base, and as deep as nine feet into the earth, looking for water. They can tower as high as 15 feet and their bamboo-like stalks are jungle-thick even when dead.

Polk County Land and Water Resources conservation planner Eric Wojchik stands amongst a grove of invasive knotweed along Polk County Road W, in the Town of West Sweden. – *Photos by Greg Marsten*

The biggest concerns are when it gets near waterways. It can take over a riverbed to the point where the erosion can alter the river path and make the shoreline literally unusable, even for deer to walk through, as mentioned. The worst part is how easily it can spread, as tiny stem pieces can then wash downstream, taking it even farther from that point of origin.

In some parts of the country, the knotweed infestation has literally altered the course of rivers, affected flood control and made property values plummet.

That last line - plummeting property values - is where it becomes a concern for people who otherwise couldn't care less about invasive species and may question why it costs so much to control and spend taxpayer money on plant control. That one, goofy little species of plant from the Far East, can dramatically have a negative effect on land values, and hence everyone's tax rates, which is a wake-up call for elected officials, landowners, realtors and even landscapers, gardeners and as you'll see in a moment, even snowplow drivers and highway workers.

Knotweed is the "poster child" for why we should all be concerned about some invasives.

On the battle lines

Following Wojchik to a colony on CTH W in the Town of West Sweden, we stop on the roadway and the plant is obvious. The stand has both tall brittle stalks that are dead or dying, looking like bamboo, and many fresh, green plant faces beside it, in a swath as long as a mobile home and wider than the road right of way. It is a stand of knotweed that Wojchik is familiar with, and which has been treated with herbicide twice already, to some effect.

"But I'm a little disappointed," he admits. "I was hoping it would look a little more haggard!"

The CTH W stand can be traced back, as all colonies can, to a general point of origin. This stand probably originated on a nearby property. Wojchik traces the lineage through a series of hand gestures as he explains.

"They had it at several residences round here," he said. "They plowed their roads, with a little bit of it in that soil and, well, here we are ... all it takes is a quarter-inch root graft in a shovel full of dirt to start a new colony."

Yes, Goliath may be a giant, but his babies are tiny, cute and mobile.

We then head to a nearby, private residence, where a man solicited Wojchik's help last year after seeing him treat a stand of the plant in Burnett County. As Wojchik first rolled into the man's rural property, he was stunned, he said, by the extent of the infestation. The knotweed is so thick on some parts of the man's land, you almost need machinery to get through or around it.

"I could use a machete, actually!" Wojchik jokes. But his tone is serious and a little dour. The reality is, the knotweed invasion has been at this spot for at least half a century and likely even longer.

"Yeah, maybe 50 to 75 years," Wojchik said with a sigh as he struggles to both fend off mosquitoes and 12-foot tall bamboo-like plants so thick you have to step on them to fold them over and walk. "No, this didn't happen overnight!"

The threats to the home

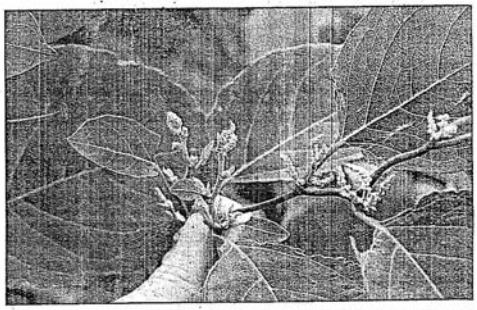
At the private residence, the name and location is being withheld because of the herbicide treatment and possible effect on property values, literally, the colony is everywhere. It stretches from the man's garden several hundred yards into the woods. He has tried to mow it, to little avail and probably only made it worse as it comes back with new shoots.

There are well-documented accounts of knotweed going under parking lots, basements, buildings and even roadways, rippling them up and forcing major excavation work. This plant is so tenacious it can literally wreck a home by destroying the foundation.

Wojchik walks across the yard and points out the tiny, scarlet-tinted stalks, creeping ever closer to the man's back porch.

"That's what concerns me, it's getting pretty close to their house," Wojchik said as he begins a treatment, noting that the man's extensive landscape work has also compounded the problem, as the fresh soil has probably spread it far past the point of origin.

See Invasives/ page 27



The buds for invasive knotweed can look much like wild cucumber, but are distinguished by their leaves, which become sort of heart-shaped as the plant matures, unlike the cucumber, which has a more starlike pattern.

Great Northern Outdoors Bass Fishing League Standings

Co-sponsored by BLC Well Drilling in Milltown

Standings

1. Wiehl/Long, 120 lbs., 9 oz.
2. Olson/Shrzik, 111 lbs., 13 oz.
3. Luck Sport & Marine, 108 lbs., 2 oz.
4. Bistram Boys, 102 lbs. 15 oz.
5. Laqua/Allee, 102 lbs., 12 oz.
6. Cory/Jamie, 96 lbs., 3 oz.
7. A1 Construction, 83 lbs., 0 oz.
8. BLC Well Drilling, 77 lbs., 13 oz.
9. Grumpy Grandpas, 73 lbs., 11 oz.
10. Harry/Leroy, 65 lbs., 0 oz.
11. Struck/Lonetti, 64 lbs., 8 oz.
12. Jenell's Main Dish, 61 lbs. 0 oz.
13. Milltown Dock Marine, 58 lbs. 3 oz.
14. Mosseys, 56 lbs., 13 oz.
15. Ones/Roberts, 51 lbs., 10 oz.
16. GNO, 47 lbs., 3 oz.
17. Sinkers, 33 lbs., 7 oz.
18. Team Top Water, 29 lbs., 2 oz.
19. Hutton/Erickson, 26 lbs., 13 oz.

Big bass weekly winner

Week 17:
Wiehl/Long, 4 lbs., 2 oz.

New hunting and trapping rules in effect for 2010 seasons

MADISON – Hunters and trappers looking forward to the 2010-2011 seasons will have some new rules to follow as they pursue their fall pastimes. Several of the new rules were requested and supported by hunters and trappers at the annual Spring Rule Hearings. Others have come to life in response to changing wildlife management needs and new technologies.

Most of the newer rules are found in the "What's New" section of the fall seasons regulations pamphlets and are also listed in a new fact sheet available online on the Hunting and Trapping Regulations page of the Department of Natural Resources Web site. A few of the newer rules were not finalized until after the paper copies of the regulations went to press but are updated on the DNR Web site. Hunters and trappers are encouraged to study the regulations pamphlets and check the DNR Web site under the type of game they intend to pursue to be sure they are aware of any new rules.

Hunters and trappers can also call the DNR information (1-888-WDNR INFO) line 7 a.m. to 10 p.m., seven days a week with questions.

A sample of new rules of interest to deer hunters includes:

• The free archery antlerless deer carcass tags that come with a regular archery deer license and patron's license is not valid in 19 deer management units designated as Regular Units – Buck Only.

• Archery deer hunters no longer must wait three days from the date of license purchase to go hunting – the license is good immediately when purchased during the open season.

• Scopes or telescopic sights with magnification are now legal on muzzleloaders during the 10-day Nov. 29 – Dec. 8 muzzleloader season.

• Whole deer carcasses can now be transported out of the CWD Management Zone or into Wisconsin from CWD areas of other states where CWD has been detected under certain restrictions.

• Deer and bear may now be quartered for easier removal from the field, also subject to certain restrictions.

• Whitefish Dunes and Potawatomi state parks are now open for deer hunting during the nine-day firearm deer season.

• Fall turkey hunters may now use dogs anywhere in the state.

• The bobcat season has been extended through January and split into two separate time periods. Trappers will be able to also use cable restraints for bobcat in the January portion of the season if they have a permit for the second bobcat time period.

• Several changes to the waterfowl season structure include eliminating the Burnett subzone closed area making it now huntable as part of the exterior zone and implementing new property rules at the Mead and Zeloski Marsh properties. – *from the DNR*

Invasives continued

Killing the giant

Wojchik and others have learned a lot about knotweed, how to kill it and what not to kill. They have found moderate success by using a type of glyphosate herbicide and can also use a slick type of injection gun that shoots through and into the stalks, filling it with herbicide. They have also had good luck using Habitat, an expensive but effective herbicide that Wojchik sprays across the stands he's found.

He's also found that it works best in raw sunlight, where the plant is more active and allows the treatment to spread into the root system. While several toxic agents do work on the knotweed, that sprayed herbicide is nonselective and kills pretty much everything else around it.

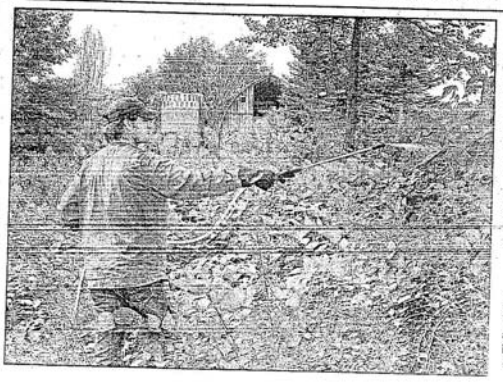
But in reality, that's what the knotweed would do eventually, anyway.

The current Department of Natural Resources grant that the LWRD is using to beat the knotweed won't last forever, only through the end of the year, in fact. The use of expensive herbicides and painstaking treatments will eventually be up to the landowners, other agencies and smaller units of government to eliminate or hopefully, at least control.

Wojchik is worried about that day when he can't take to the "battle lines" and assist in the battle, knowing full well that the consequences are indeed scary and many times more costly than the treatment to control it.

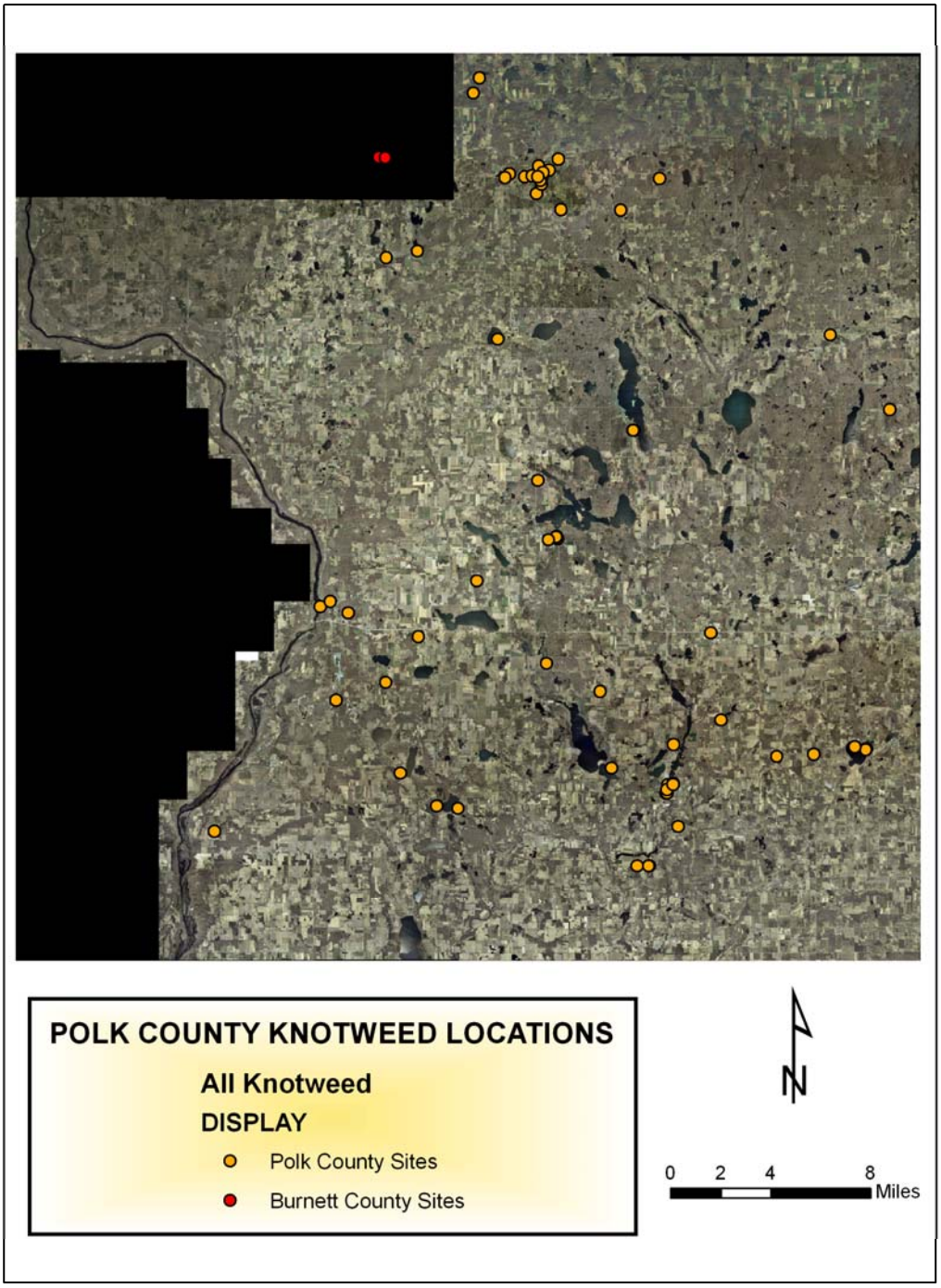
"Some people call it the 'kudzu of the north,'" Wojchik said. "And they're probably right ... it's a monster!"

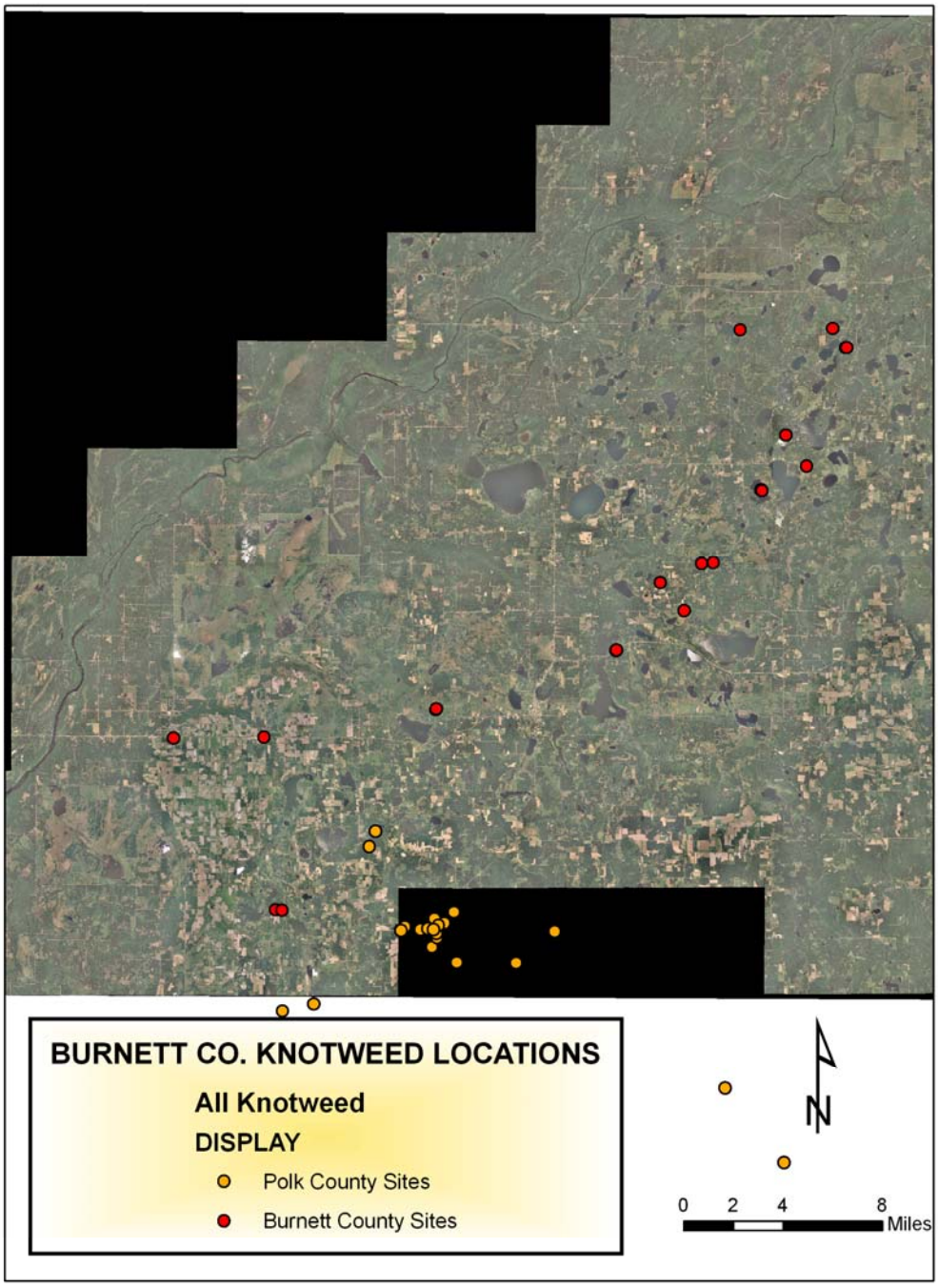
And it's been sleeping sleeping right beside us for years.



Polk County Land and Water Resources conservation planner Eric Wojchik sprays a batch of knotweed at a private residence that may go back as long as 75 years. – *Photo by Greg Marsten*

APPENDIX E


POLK COUNTY KNOTWEED LOCATIONS
All Knotweed
DISPLAY
Polk County Sites
Burnett County Sites
N
0 2 4 8
Miles


BURNETT CO. KNOTWEED LOCATIONS
All Knotweed
DISPLAY
Polk County Sites
Burnett County Sites
N
0 2 4 8
Miles

APPENDIX F

POLK COUNTY KNOTWEED LOCATIONS

IDENT	LAT	LONG	Y_PROJ	X_PROJ	NOTES	LOC
1	45.66410841	-92.45708115	5056871.15934271	542293.690918670	Steve Bolters-Ceder St- Frederic	Y
2	45.65013704	-92.46761327	5055313.43269619	541483.560004820	Frederic Storage Units	W
3	45.71778453	-92.51436023	5062805.96769430	537795.511939540	Cty Rd W -Section 6- W Swed	W
4	45.39502728	-92.32516022	5027055.02716287	552821.527340080	Int. Hwy 8 & 80th St-Pink Tav.t	W
5	45.30673751	-92.36057770	5017223.91801930	550127.216074760	Birch St Amery (Eradicated 09)	Y
6	45.28255320	-92.35231189	5014542.38462570	550796.789328620	Doug & Pat Johnson #510 95th St	L
7	45.31661952	-92.40715167	5018293.83150223	546468.039609840	#765,767,769 Cty Rd C-Bear Trap LK	W
8	45.25960481	-92.38610923	5011972.25251737	548165.575062810	Iwaskos # 1098 35th Ave	Y
9	45.39334159	-92.56516102	5026738.23594676	534037.247350060	Cty Rd Y Right of Wat and in Woodline of Property	W
10	45.35619786	-92.63313599	5022585.26584780	528735.370196950	Village of Dresser Mem. Parrk	L
11	45.29470788	-92.55032689	5015787.00419466	535259.551280200	1899 Cty Rd K - Big Lake area	L
12	45.44982900	-92.45092641	5033068.39256952	542936.023899230	Mill Pond Shore on Bal. Lk	W
13	45.45111596	-92.45177172	5033210.91764243	542868.948995140	Shiela Albrect - Stand 1	L
13	45.45094170	-92.45183702	5033191.52322820	542863.974906120	Shiela Albrect-Stand2	W
13	45.45071949	-92.45200792	5033166.74547452	542850.779724610	Shiela Albrect-Stand 3	W
14	45.56582297	-92.49975250	5045930.07757479	539037.751813160	1653 L Butternut Ln - Stand 1	Y
14	45.56588349	-92.49988368	5045936.73743011	539027.473188550	1653 L Butternut Ln - Stand 2	Y
15	45.30199134	-92.36216859	5016695.66260859	550006.673161210	Schumacher Park & Riverside Blvd	W
15	45.30233097	-92.36155420	5016733.77453308	550054.542546060	Riverside Blvd Amery	W
16	45.30428345	-92.36158554	5016950.66226649	550050.367419500	603 Bridge St. Property Line	Y
17	45.37745780	-92.45983218	5025023.57308561	542293.613076132	DD Kennedy Flower Bed S of Dam	L
18	45.30755047	-92.35664072	5017316.68855875	550435.129071750	#303 Broadway - Heacock stand #1	Y
18	45.30701713	-92.35669697	5017257.40288728	550431.192434450	#303 Broadway - Heacock stand #2	Y
19	45.32429810	-92.24100960	5019256.10338112	559482.211140450	West Clayton Cemetary	L
20	45.39073365	-92.56571012	5026448.27495025	533995.830506600	Near Dam South Property line	Y
21	45.33036718	-92.35609096	5019851.82027855	550457.970242650	838 Wisconsin Ave, Amery	L
22	45.66657093	-92.46558384	5057140.29168587	541629.510911880	Roxann White	W
23	45.66022332	-92.47733854	5056429.02926649	540718.467997921	#1533 Hwy 48-Frederic	W
25	45.44934561	-92.45825018	5033010.80476139	542363.695551210	#401 Hilltop Ave, BL- M. Paulson	L
27	45.41365287	-92.63754034	5028966.65661840	528361.653707330	203 N Day Rd. St Croix Falls	Y
28	45.25976842	-92.37592396	5011996.56072253	548964.555725480	Leona Westerberg 2 -1041 35th ave	L
28	45.25960397	-92.37662285	5011977.86757328	548909.863194010	Leona Westerberg 1 - 1041 35th ave	L
29	45.70882310	-92.51935408	5061807.99624811	537412.844826570	Scott Holmberg 3464 175th St	W
30	45.28008842	-92.73266631	5014099.30342336	520967.668181399	#488 280th St Farmington- Bebault	Y
31	45.32313863	-92.27124682	5019105.41526939	557113.704937260	Lee Elmer 798 55th St Clayton	Y
32	45.34417368	-92.31695652	5021410.89254892	553511.577780510	Dave Humpal 931 75th St, Amery	W
33	45.29327500	-92.53292221	5015635.58108394	536625.177685791	1816 Cty Rd K- Big lake area	Y
34	45.65814276	-92.46416344	5056204.65997853	541746.417925790	202 Lake Ave, Frederic	Y
35	45.32769386	-92.20936649	5019657.19864382	561958.358833670	W. Woosley 258 85th Ave Clayton	L
35	45.32807381	-92.20896735	5019699.71569704	561989.222854670	W. Woosley 258 85th Ave Clayton	L
36	45.66072699	-92.47108832	5056488.18293939	541205.020817951	#211 Cty Rd W-Frederic	L
37	45.32806920	-92.20813603	5019699.84354166	562054.373560870	Burt Senne 254 85th ave, Clayton	Y
38	45.31384653	-92.58020461	5017900.54467858	532905.759897490	LuAnn Gustafson 720 Nye Ln	L
39	45.52432861	-92.17706339	5041527.78049311	564266.258183620	Doug Rouzer-Int of Cty Rd G & 10th	W

40	45.40698281	-92.62304476	5028230.85674287	529499.348196000	Richard Yessain 914 Maple Dr.	W
41	45.32728842	-92.19781531	5019621.10520136	562864.011585220	820 20th St. Clayton	W
42	45.32680814	-92.19824882	5019567.41100050	562830.570461120	Pietz Stand 819 20th Ave Clayton	Y
43	45.32839878	-92.20708787	5019737.26565264	562136.151356760	H. Stezniak 249 85th Ave. Clayton	L
44	45.56767646	-92.22533830	5046306.12520318	560449.844470370	A. Koltunski 336 Hwy 48	L
45	45.65575400	-92.46323850	5055939.75105315	541820.256018140	Barry Berdal 314 Lake S Ave, Frederic	L
46	45.64114720	-92.44712739	5054325.47371431	543086.686675470	Ron Sullivan NE of Int of W & 140th	W
47	45.36654934	-92.59196844	5023750.77061426	531954.007549810	Peggy Bender - 1085 210th St	L
48	45.51276016	-92.38843211	5040095.10527749	547769.621970230	Dick Boss - 2102 W Bone Lk Dr	W
48	45.51267810	-92.38745319	5040086.57137513	547846.154033310	Dick Boss - 2102 W Bone Lk Dr	Y
48	45.51277684	-92.38813237	5040097.13671062	547793.020263550	Dick Boss - 2102 W Bone Lk Dr	Y
49	45.61715819	-92.56577558	5051603.35747927	533854.719567700	Tony Menke - 1981 Mtn Dr	Y
50	45.61329983	-92.59167658	5051164.08501377	531837.542922530	Donald Davidson - 2106 280th Ave	W
51	45.67037674	-92.44947131	5057571.61828502	542881.706566130	Bill Krager SE, SE Sec 22 T37R17	W
52	45.66188495	-92.48979229	5056607.38195179	539747.085012310	Mike Martinson -1605 315th Ave	Y
53	45.65889923	-92.36600976	5056344.53638203	549392.679393640	Robert King Pasture Cty Rd I	W
54	45.66265533	-92.46210460	5056707.08189277	541903.451072810	304 Birch St, Frederic	Y
55	45.66029985	-92.46644139	5056443.12834453	541567.351897380	The Beehive Salon, 201 WI Ave, Frederic	L
56	45.64078141	-92.39814489	5054312.33786312	546904.259922950	Irv Shafer -1153 Cty Rd W	Y
58	45.42567336	-92.51712131	5030351.58254395	537775.955445570	James Stauner-1747 150th Ave	Y
59	45.48376950	-92.46706467	5036830.56664209	541649.072850510	Bernard Snider - 1497 190th Ave	Y
60	45.65967833	-92.49318344	5056360.54919901	539484.456894040	Don McKinney- 1625 HWY 48	Y
61	45.36133789	-92.41599700	5023256.70572528	545738.724733260	Richard Foster- 1240 105th Ave Amery	L

BURNETT COUNTY KNOTWEED LOCATIONS

IDENT	LAT	LONG	Y_PROJ	X_PROJ	NOTES	LOC
100	45.77199910	-92.68218194	5068763.74438530	524710.860009790	Kozy Kitchen Stand, Grantsburg WI	L
101	45.77276764	-92.60688680	5068875.15678450	530564.614088790	Zach Meyer Stand, 12130 Hwy 70	Y
102	45.76874575	-92.04417109	5068797.38735060	574320.267718640	James & David Toll-1236 Cty Rd B-Road Right Of Way	L
103	45.86159804	-92.27687040	5078923.59071243	556133.585990574	Bass Lake Rd Right of way-Gravesons at #5691	W
104	45.99785987	-92.12166119	5094183.81602500	568014.925019057	Roger Fontain Stand 1-29989 Shoreline Drive	Y
104	45.99796389	-92.12089199	5094196.03044993	568074.360445022	Roger Fontain Stand 2-29989 Shoreline Drive	Y
105	45.84537227	-92.25748155	5077134.66304565	557655.409514264	Cullen Numsen Stand-256 Dongola Rd	Y
106	45.87296206	-92.24267215	5080210.79296566	558776.244803838	Whistler Rd Stand - Ron Johnson #26387	W
107	46.00897226	-92.13239120	5095409.36773730	567170.596259560	Cabaret Stand in Web Lake-Dave Madsen	L
108	45.87348274	-92.23294437	5080275.85198030	559530.653309351	Gazlyn Rd Right of Way near #4953	W
109	45.67171206	-92.59741802	5057651.40832589	531357.280486080	Cty Rd Z- Greg Stoeklen 11882 Cty Rd Z	W
110	45.91561907	-92.19293537	5084988.00452902	562588.332380110	Hud Galein Stand 1- 4117 Greer Rd	Y
110	45.91535429	-92.19270822	5084958.76445754	562606.245554010	Hud Galein Stand 2 - 4117 Greer Rd	Y
111	45.94698365	-92.17222134	5088489.23376377	564158.522393410	Kilkare Drive Stand- Guy Cole 28510 Kilkare Rd	Y
112	46.00850028	-92.20928343	5095294.94355751	561218.157997550	Nancy Lunsman - 4436 Lunsman Dr-Twn of Swiss	L
113	45.82232673	-92.31437012	5074534.72590382	553260.131171440	Dave Carder- Carders Resort Stand 1 6420 HWY 70	L
113	45.82253745	-92.31387810	5074558.46570394	553298.150020270	Dave Carder- Carders Resort Stand 2 6420 HWY 70	W
114	45.92928627	-92.15483710	5086537.10006468	565526.748289140	Sharon Pollock Stand-3373 Cty Rd A	W

115	45.67149497	-92.59204773	5057629.40603771	531775.689398970	Randall Brenner Stand 11813 Cty Rd Z	L
116	45.91517181	-92.19201487	5084939.03451092	562660.220272460	McKee/Shoenecker Trust- 4101 Greer Rd	Y
117	45.78807718	-92.46396245	5070640.65016431	541665.376744600	Jerry Chatlein Stand 2 County Rd N	W
117	45.78875486	-92.46368375	5070716.08746958	541686.534170530	Jerry Chatlein Stand 1 County Rd N	W