The Invader Utah Weed Supervisors Association Newsletter

Weed Spotlight

Elongated mustard

Brassica elongata

By: Heather Olsen and Corey Ransom

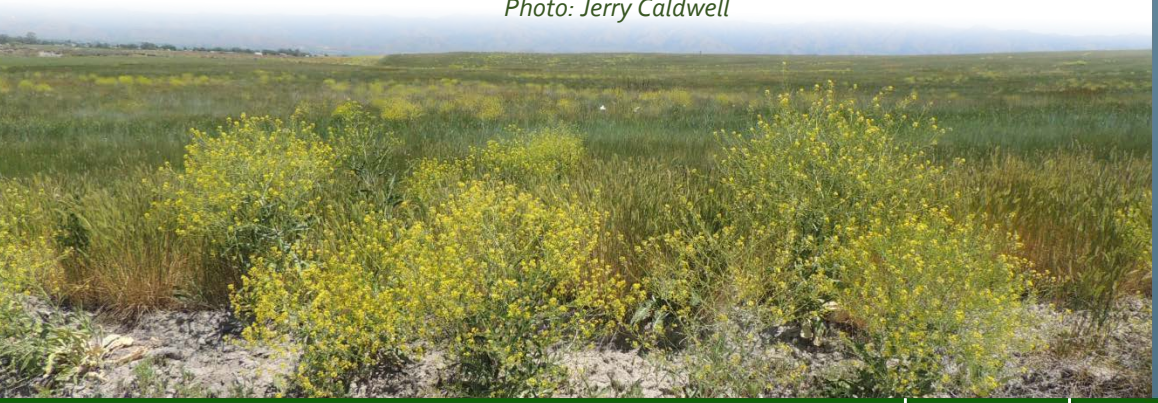
Figure 1. Elongated mustard flowers. Photo: Corey Ransom

Elongated mustard, *Brassica elongata*, is native to southeastern Europe and Asia and is a newly invading species in Utah and is in the Class 1-B on the Utah noxious weed list. Two subspecies of *Brassica elongata* are known to occur, but it is most likely that the subspecies present in Utah is *B. elongata spp. integrifolia*.

Elongated mustard was first documented in the United States near Portland, Oregon in 1911 as being present in ship ballast, but was not noted again until a 1968 documentation of it in Nevada. It is unknown when elongated mustard first occurred in Utah. Its current known distribution is limited to a handful of states: Oregon, Idaho, Nevada, Utah, and Colorado.

Like the other, more well-known mustards, elongated mustard has four-petaled flowers. When those petals are removed the 6 stamens (4 long + 2 short) are visible. The flowers are a yellow – bolder than the tansy or tumble mustard, not quite as bright as dyer's woad – and it blooms in June and early July (Figure 1). The leaves are entire, shallowly toothed or wavy, and strap-like with a prominent midvein (Figure 2). The seedpods are distinct in that they have a tapered, or beaked, tip and are heavily indented around each seed (Figure 3). Another key identifying characteristic is the long petiole or stalk that connects the seedpod to the main stem. (*Continued on Page 2)>>>*

Photo: Jerry Caldwell



Noxious Weed Field Guide Now Available

The fourth edition of the Noxious Weed Field Guide for Utah is now available.

Digital copies are available from https://extension.usu.edu/fieldguides/noxious-weed-field-guide-for-utah#

Hard copies can be ordered from USU Extension Publications at 435-797-2251

Inside this Issue

Elongated Mustard (Continued from Page 1)

Elongated mustard has variable life cycles – it can act as a winter annual, biennial, or a perennial. It is well adapted to tough conditions and can be found on dry rocky slopes, along roadsides, as well as mixed grass CRP land and irrigated grass hay.

Much about the management of elongated mustard is still unknown, or not well documented. Current research being conducted by Utah State University is testing a variety of herbicide options, including Telar, Escort, 2,4-D, Sterling Blue, and Plateau. There are no known/available biocontrol agents. Repeated removal of elongated mustard plants by hand pulling – prior to seeding – can deplete the seedbank and provide good control, but is expensive and time consuming.

Figure 2. Elongated mustard rosette. Photo: Corey Ransom

Figure 3. Elongated mustard seed pod – held aloft on an elongated petiole or stalk, with the characteristic tapered point. Photo: Corey Ransom

Operational Excellence

The SUCCESS Framework is a set of management principles designed to boost the quality and efficiency of government services with the goal of creating more value for every tax dollar invested. For more information about Operational Excellence and the SUCCESS Framework, please visit the Governor's Office of Management and Budget at: https://gomb.utah.gov/operational-excellence/

"Our obligation to the taxpayer requires that we continue delivering outstanding results over the next four years…[our] target is to improve government operations and services by 25% (a combination of quality, cost, and throughput) throughout the next four years."

-Governor Herbert (2013 State of the State Address)

Project Journal

SUCCESS – New Harmony Hoary Cress

By: Amber Mendenhall

Washington County obtained an ISM grant to treat hoary cress in New Harmony in 2013. The New Harmony hoary cress is an example of one of many projects where the invasive species program used the SUCCESS Framework to identify priority weed populations for eradication.

Although hoary cress is common in the northern half of the state, it is just beginning to encroach on Southern Utah. Hoary cress is a highly invasive and competitive plant species that reproduces through both seeds and roots, making it difficult to control. These factors produce a high ranking within the SUCCESS project plan model.
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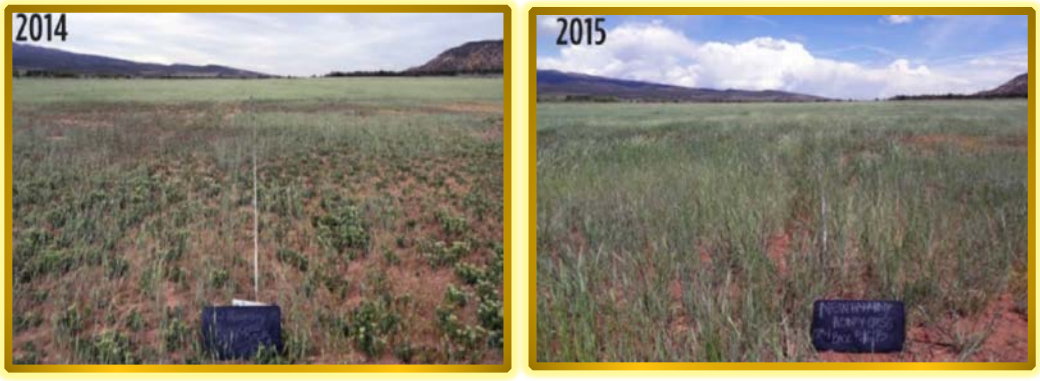
New Harmony Hoary Cress (Continued from Page 2)

The New Harmony hoary cress project covered 222 acres of agricultural land adjacent to Zion National Park. The threat of the whitetop invading the park increased its priority. Beginning in 2013, the 222 acres were sprayed and the fields were planted on an annual basis with a grass mix to compete with any surviving weeds. From 2014 to 2015, hoary cress decreased by 85%. We anticipate the project will continue to reduce hoary cress throughout Washington County.



New Harmony hoary cress monitoring. Photo: Bracken Davis

Biocontrol Today

Purple Loosestrife Biocontrol Success

By: Amber Mendenhall

Purple loosestrife root weevil

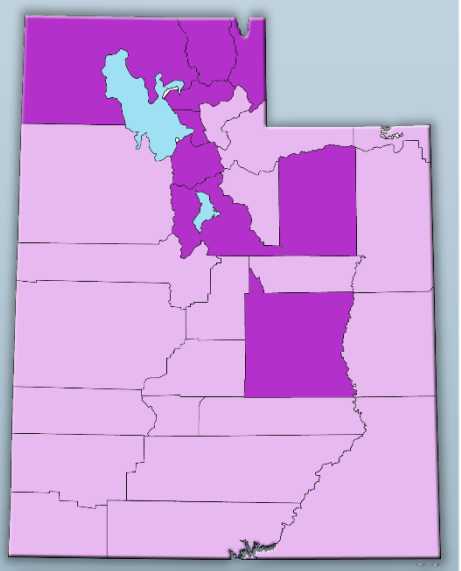
We had great success in 2017 on purple loosestrife. We distributed three species of biocontrol in 350 releases to nine counties! We were able to distribute more biocontrol agents on purple loosestrife in Utah than ever before.

Three biocontrol agents are used for control of purple loosestrife. The most successful and most abundant biocontrol agent is the purple loosestrife defoliating beetle, *Galerucella* spp. The defoliating beetle can be collected or purchased at one dollar per insect. We held two successful collections in June of 2017. Six cooperators were able to collect 1,300 defoliating beetles. (*Continued on Page 4)* >>>

Purple loosestrife defoliating beetles

Biocontrol Agents for Purple Loosestrife

- *Galerucella* spp. – Purple loosestrife defoliating beetle: Most abundant and most effective agent
- *Hylobius transversovitattus* – Purple loosestrife root weevil: Difficult to find, but effective. First collection ever made in Utah this year!
- *Nanophyes marmoratus* – Purple loosestrife seed head weevil: Less effective, but can withstand mosquito abatement. Helps stop spread of seeds.



Purple loosestrife distribution to nine counties in Utah

Biocontrol Distribution in Utah

Galerucella spp. – Loosestrife defoliating beetle:

1,300 Collected
By 6 Cooperators
4,000 Purchased
25,000 "Freebies"
300 Releases
In 9 Counties

Hylobius transversovitattus – Loosestrife root weevil:

200 Collected
By 6 Cooperators
1,400 from Cooperators
20 Releases
In 7 Counties

Nanophyes marmoratus – Loosestrife seed head weevil:

1,200 Collected
By 6 Cooperators
12 Releases
In 3 Counties

Purple Loosestrife Biocontrol (Continued from Page 3)

Cooperators purchased an additional 4000 *Galerucella* from Integrated Weed Control in Montana. We have developed a great relationship with Integrated Weed Control and were able to obtain 25,000 additional FREE *Galerucella* spp. through this relationship. Nine counties were able to make 300 biocontrol releases this year through our collections, purchases and "freebies".

Cooperators at the loosestrife collection field day.

A second biocontrol agent was collected at the two field days. We collected 1,200 *Nanophyes marmoratus*, the purple loosestrife seed feeding weevil. The seed head weevil is widely distributed in Utah. *N. marmoratus* are valuable because they can survive in areas that are treated with mosquito abatement.

The third biocontrol agent is *Hylobius transversovitattus*, the loosestrife root weevil. Loosestrife root weevils are able to attack the large woody root system. Until now, loosestrife root weevils have never been recovered in the field. Root weevils are timid and elusive. They quickly drop off of plants as shadows pass over. The only way to obtain root weevils is to raise them in lab conditions on an artificial diet. During our loosestrife biocontrol collection, we discovered *H. transversovitattus* on loosestrife plants and in our sweep nets. Utah became the first state to recover and collect loosestrife root weevils! We collected 200 loosestrife root weevils and redistributed them in Davis County. Our cooperators in Idaho and Colorado were able to send us an additional 14 releases.

Ask the Experts

Monitoring Your Noxious Weed Projects

By: Jerry Caldwell and Amber Mendenhall

Monitoring is an important aspect of any successful weed control project. Monitoring tells us many things about our spray project. We can use monitoring to ensure that we are using appropriate chemicals at proper rates. We can also see what's happening to the landscape as a whole. This helps us to determine what to do next. Are there other weeds we need to control? Do we need to reseed with beneficial plants? Monitoring helps to paint a picture of our success. Data can be shared with county commissioners, weed boards and granting sources to help secure additional funding.

All ISM grants are going to require monitoring as part of the grant report in the future. Monitoring can be as simple or as complex as you want it to be. Types of monitoring include: before and after pictures, "camera on a stick", quadrats, line intercept and point intercept. *(Continued on Page 5) >>>*

Monitoring Your Noxious Weeds (Continued from Page 4)

Before and after pictures

This is the most basic monitoring and can be done in just a few minutes per year. Pictures can say a lot in a small amount of time. The disadvantage to photo points is that they do not have any numbers to back them up. It can also be difficult to accurately capture different types of vegetation in a photo. It is recommended that you do additional monitoring along with your photo points.

Camera on a Stick

Bracken Davis from Utah Department of Agriculture and Food (UDAF) recommends using this method for monitoring. "Camera on a stick is good because it is fast and easy out in the field," says Davis. UDAF has technology to help analyze camera on a stick data for any ISM grants. All you have to do is take the points and get them to UDAF for analysis. To set up "camera on a stick":

1. Select a site in your project for monitoring. Davis recommends that you pick a site with a dense infestation of weeds. This will be more revealing after your control. The monitoring site should be a good representation of your entire project.

2. Run a 100 foot measuring tape and mark both ends with a rebar, T-post, or a large nail. Label your site using a chalk board. Your first photograph should be your transect with the label.

3. You will take ten data points, (one every 10 feet,) beginning on zero. To take a data point, mount your camera on a monopod. Adjust the height of the monopod and zoom of the camera to get an area approximately two feet wide. Make sure that the measuring tape runs along the bottom of your picture. You may have to delete and retake your pictures a few times.

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"Camera on a stick" monitoring. Photo: Jerry Caldwell

MONITORING

For information and tutorials on other types of vegetation monitoring, visit the following websites:

Point Intercept - http://www.webpages.uidaho.edu/veg_measure/Modules/Lessons/Module%208(Cover)/8_3_Points.htm

Line Intercept - http://www.webpages.uidaho.edu/veg_measure/Modules/Lessons/Module%208(Cover)/8_4_Lines.htm

Quadrats - http://www.webpages.uidaho.edu/veg_measure/Modules/Lessons/Module%208(Cover)/8_5_Plots.htm

Monitoring (Continued from Page 5)

Transect with label.

4. Once you have all ten pictures, (plus your transect label picture,) you can take them back and analyze them yourself. You can set up your own spreadsheet to record the percent cover of weeds vs. non-weeds in each photograph. If you are monitoring an ISM project, you can take your pictures to UDAF and have them help analyze your points. UDAF uses the sample point program to analyze their photo points. You can download sample point for free at samplepoint.org. Follow the tutorial on the website.

5. REPORT YOUR FINDINGS. Taking all of this data is only useful if you report what you found.

Point Intercept
Point intercept is best used on grasses and short vegetation. This method is especially effective when measuring plant cover or counting actual plants is very difficult. To take point intercept data, run a 100 foot tape as in the "camera on a stick" method. Mark both ends with a permanent marker. Assign regular intervals and drop a pin flag at each point. Record the vegetation that touches your pin.

Line Intercept
Line intercept is a good method for recording canopy cover. Line intercept gives you a very complete view of your project area, but it can be very labor intensive and time consuming. The best way to take line intercept monitoring is with a special measuring tape. It is easier to record line intercept data in tenths of feet rather than in inches. To take line intercept data, run a 100 foot measuring tape and mark both ends with a permanent marker. Record all vegetation that comes in contact with the line and the distance that they contact. Use this data to determine percent cover of your weeds and other vegetation.

Quadrats
A quadrat is a square. You can make your quadrat any size that fits your needs. A common quadrat is one square meter. Quadrats can be placed along a measuring tape at regular intervals. Quadrats can also be "tossed" as random samples. Generally ten quadrats are measured per site. To measure a quadrat, you simply estimate the percent cover of the vegetation within the square. Quadrat monitoring is fast and easy, but it is more subjective and data may vary from observer to observer and year to year.

No matter how you monitor, it is important that your projects get monitored. Nobody knows about your success unless you record your progress.

Mark Your Calendars:

2018 Invasive Species Mitigation Grant Applications Due:

September 30, 2017

The Invader – The Utah Weed Supervisor's Association Newsletter

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Getting to Know

Aaron Eagar, UDAF, Plant Industry, Noxious Weed Specialist

Photo: Jerry Caldwell

Aaron Eagar recently accepted the position as Noxious Weed Specialist for the Utah Department of Agriculture and Food. Among his many duties, Aaron will oversee the ISM program.

Aaron comes from the Utah County Weed Department where he spent the past twelve years. Aaron was responsible for uniting multiple entities to accomplish weed management goals. He worked with The Utah Lake Commission, Utah Division of Wildlife, State Parks and Forestry Fire and State Lands to eradicate Pharagmites and other weeds on Utah Lake. On the east side of the county, Aaron brought Sundance Resort and its landowners together with the U.S. Forest Service to control Garlic Mustard. Aaron also served as the president to the Utah Weed Supervisors Association.

Aaron earned a degree in Chemistry, but his true passion is geology. Aaron can often be found rock hounding in his free time. Aaron also enjoys camping and travelling.

Aaron places great importance on the ISM program. He said that he took the position as Noxious Weed Specialist in order to help expand and fine tune the ISM grants.

Conference Review

UWSA Summer Tour, June 2017

The Utah Weed Supervisors Association held their annual summer tour in June 2017. The summer tour provided an opportunity for weed supervisors throughout Utah to come together and see EDRR weeds first hand. The tour led weed supervisors from a garlic mustard patch in Park City, through common viper's bugloss in Echo, rush skeletonweed in Willard, Ventenata in Logan and Esplanade and Matrix test plots in Collinston.

Weed supervisors participated in training demonstrations for herbicide drift and "camera on a stick" monitoring.

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