



CWMA Newsletter
July/August 2011

Executive Director's Corner

Upcoming dates and deadlines:

The deadline for pre-ordering the 2012 *Weeds of Colorado Calendar* is July 10, 2011. There is free shipping on all pre-orders. Go to the CWMA web site at www.cwma.org for the order form.

The next Board of Directors meeting will be by teleconference on August 3, 2011 at 10:00 am.

The 2011 Annual Conference and Trade Show will be at the Cheyenne Mountain Resort in Colorado Springs on December 7th and 8th, 2011. A tentative agenda will be developed this fall. This will be held in partnership with the Colorado Section of the Society for Range Management.

Check the website regularly for Pulling for Colorado events and activities.

CWMA Legislative Committee NPDES Update

The U.S. Senate could consider the "NPDES fix" legislation that was passed overwhelmingly by the House in late March. The bill could move through committee and to the floor very soon. *We need your support to make that happen.* Ask your Senators to work with their colleagues to quickly pass HR 872: 'Reducing Regulatory Burdens Act of 2011'.



As of October 31, 2011, court-ordered National Pollutant Discharge Elimination System (NPDES) permits will be required by the U.S. EPA for pesticide applications "to, over, or near" water. Congress never intended to regulate pesticide applications with Clean Water Act NPDES permits. In fact, EPA has no concerns in this area, but must now comply with a court order because of *National Cotton Council v. EPA*.

Aquatic pesticide applications are important to protect public health from mosquito-borne diseases such as West Nile virus and Eastern Equine Encephalitis, and protect our waterways from dangerous invasive species such as snakehead fish, zebra mussels, hydrilla and Eurasian watermilfoil. In addition, the paperwork burden imposed by the permit process will increase the cost of controlling pests, which puts jobs at risk.

Please ask your Senators to support and pass H.R. 872: 'Reducing Regulatory Burdens Act of 2011'.

You may send a pre-formatted email to your Senators by following this link:

[http://capwiz.com/croplifeamerica/issues/alert/?alertid=38980501&queueid=\[capwiz:queue_id\]](http://capwiz.com/croplifeamerica/issues/alert/?alertid=38980501&queueid=[capwiz:queue_id])



There will be no joint field day this fall with CWMA/CALCP this September. It has been cancelled.

Mid-year membership renewals were mailed to the 2010 members who haven't yet renewed for 2011. If you haven't renewed yet you can do so online at the CWMA web site or download a renewal form and mail or fax it in.

[Guidelines for eNewsletter Articles](#)

Links

[CWMA Website](#)
[Calendar of Events](#)
[CWMA Newsletter](#)
[Colorado Dept of Agriculture](#)

Calendar Time

The CWMA Weeds of Colorado calendar is well underway and will be printed and ready for delivery in mid-July. The 2012 calendar focuses on recreation and its relationship to the spread of invasive species. As we all engage in the recreational opportunities in Colorado, our enjoyment can be greatly impacted by invasive species. Conversely, some of our recreational activities are major players in the spread of these

Worried About Herbicide Resistant Weeds? You should be!

By Dr. Scott Nissen, Colorado State University

Do private and public land managers really need to worry about herbicide resistant weeds? Isn't that just a problem for soybean, corn and cotton farmers in the midwest and southeast? Over the past 16 years, I have struggled with how to make herbicide resistant weed management relevant to non-agricultural land managers.

The best example I can think of to make resistance management relevant is to talk about herbicide resistant kochia (*Kochia scoparia*). Kochia is one of the most ubiquitous weeds in Colorado. It doesn't matter if you're growing wheat, onions, or sugar beets, doing roadside weed management, or attempting to establish native grasses you will be dealing with kochia. Kochia is the poster child for herbicide resistant weeds in the western US.



Kochia
(*Kochia scoparia*)

According to the Herbicide Resistance Action Committee (HRAC) [website](#), the first documented case of herbicide resistant kochia was in 1976. The first report from Kansas indicated that over a thousand kochia populations were resistant to atrazine. Atrazine inhibits photosynthesis and resistant plants have a significant ecological advantage anywhere atrazine is used. Atrazine or triazine resistance (triazine refers to the chemical family) comes at a cost to the plant. Triazine resistant plants are less efficient in turning carbon into sugars and the resistant trait is passed to the next generation from the female plant, limiting long distance movement of the resistance trait. Fast forward ten years, introduce two new herbicide chemistries that share the same mode of action and the process starts over again at an accelerated pace. These new herbicide chemistries were, of course, the sulfonylureas (SU; examples; Telar, Oust, Escort, Matrix) and imidazolinones (IMI; examples; Plateau, Habitat, Clearcast). The time frame necessary to select kochia populations resistant to the triazines was over 20 years, while the time frame to selection of SU and IMI resistant kochia was only 5 years. The increased selection pressure that was applied to kochia populations led to rapid development of resistance. This was also due in part to the herbicides' mode of action and the lack of any fitness penalty (resistant plants were just as competitive as susceptible plants).

In 2007, Kansas State University confirmed Roundup resistant kochia populations. Through pollen and seed movement, Roundup resistant kochia is bound to be on a roadside, pasture, or rangeland site near you.

The bottom line is that what happens in agricultural production systems eventually affects other land managers. In order to combat Roundup resistant broadleaf weeds, major seed companies are genetically modifying soybeans to tolerate dicamba and 2,4-D. If millions of soybean acres are routinely sprayed with dicamba, dicamba resistant kochia will not be far behind. In the next ten years we could be dealing with kochia populations resistant to the triazines, SUs, IMIs, Roundup, and dicamba. Hopefully, I will be retired by then!

invaders to new habitat.

The calendar price structure will remain the same as last year for bulk orders and anyone ordering over 300 calendars will be recognized as a calendar sponsor. We will also provide paid shipping on all orders received before July 10, 2011. The number printed is based on pre-orders so don't delay ordering and find yourself without a great educational tool. Please, jump on board early and support your calendar by ordering soon.

[CLICK FOR ORDER FORM](#)

2011 Board of Directors

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What happened to that herbicide I applied?

By Thia Walker, Extension Specialist- Pesticide Safety Education, Colorado State University, thia.walker@colostate.edu

Did you ever wonder what happens to that herbicide after you made the 'perfect' application? Well, the fate of that pesticide depends on the characteristics of the herbicide including how persistent it is, how quickly it is degraded or broken down, and how mobile it is. One fate that applicators should be particularly concerned about is off-site movement of herbicides to surface water or groundwater.

Pesticide persistence, or how long the pesticide stays intact, is an important trait to consider when selecting herbicides. Pesticides that break down quickly don't usually persist in the environment or on the target, but if it breaks down too quickly it may only provide short-term control. Pesticide persistence is measured in 'half-life' which is the amount of time it takes for half of the pesticide to break down in the environment. Pesticides can be divided into categories based on their half-life: those with a half life <30 days are considered to be of low persistence; 30-100 days, moderately persistent; and > 100 days, highly persistent. Table 1 illustrates some of the pesticide characteristics of selected herbicides. According to that table, 2,4-D amine is considered to have low persistence while the other herbicides listed are moderately to highly persistent.

Pesticides are broken down by chemical reactions, microbes, and/or photodegradation. Chemical breakdown is a normal process that occurs in the soil through hydrolysis (involving water) and is influenced by soil temperatures, moisture, and pH levels. Microbial degradation also occurs in the soil, through the action of fungi, bacteria and other microorganisms. Sometimes when the same herbicide or class of herbicides is used over a period of years, the persistence of the herbicide seems to be shorter than expected. This may be due to the microorganisms using the herbicide as a food source, and, over time, populations of those microbes increase to correlate with the food supply (another good reason to alternate herbicides with differing modes of action and chemical structure). Finally, pesticides may be broken down by sunlight (photodegradation). Most pesticides are photo degraded to some extent and photodegradation can happen on any surface that is exposed to sunlight, including leaf surfaces and soil.

The next factor to consider is how soluble the pesticide is in water. Water solubility describes the amount of pesticide that will dissolve in a known amount of water. The higher the solubility value, the more likely the pesticide will be removed from the soil in runoff or by leaching. All the herbicides listed in Table 1 are likely to move in water but some, such as 2,4-D amine and picloram, are very vulnerable to movement in water through runoff or



Renew Your Membersh ip!

It is time to renew your Membership for 2011. You can renew your membership online (using a credit card) and receive an immediate receipt or you can download and print a paper renewal form. If you renew a group membership online don't forget to send an email to info@cwma.org listing the names and contact information (including email) of everyone in your group. Renewal forms were mailed to all 2010 members.

[Renew Now!](#)

Online Store

The CWMA Online Store is open. You and your friends can order any CWMA publication online, plus you can choose your delivery method (UPS or USPS) and all items are usually shipped the next day. Pay by credit card, invoice, check, or purchase order. To order online go to www.cwma.org.

leaching. These products generally contain cautionary statements to avoid surface and/or groundwater contamination, particularly in permeable soils.

[See Table 1 \(pdf\)](#)

The last factor to consider is the sorption coefficient (Koc) of the pesticide. Koc describes the tendency of a pesticide to bind to soil particles. Sorption retards movement of the pesticide through soil, and may increase persistence (increase the half-life) because the pesticide is protected from degradation processes. The higher the Koc value, the greater the tendency for a pesticide to bind to the soil.

No one factor--adsorption, water solubility or persistence--can be used to predict pesticide behavior. But when we put these factors together, we are able to do a better job predicting the behavior of the pesticide in the environment. We can use all of three factors to determine a 'pesticide movement rating'. The movement rating provides a sense of the *potential* for a given herbicide to move through surface water or toward groundwater. The pesticide movement rating for several pesticides has already been calculated and can be found at the Oregon State University Extension Pesticide Properties Database.

So, what does it mean for the herbicides listed in Table 1? Although 2,4-D is highly mobile, rapid degradation rates and plant uptake may reduce the potential of 2,4-D to affect groundwater. Escort® degrades at a moderate rate in soil, but is water soluble and not highly adsorbed to soil particles, so it has a high potential for movement. Tordon™ has a longer residual and is highly water soluble, indicating a concern for surface and groundwater contamination. Although Milestone® is rated 'very high' for pesticide movement, according to the manufacturer, low use rates, low to moderate persistence, and lower water solubility seem to limit mobility. However, both products belong to the family of pyridine carboxylic acid herbicides which can remain in soil and plant residue for some time. Streamline™ is classified as having very high potential for reaching surface water and label advisories warn of potential movement through runoff for several months after application. It is also likely to leach into groundwater due to its persistence, water solubility, and low adsorption potential.

Pesticide movement ratings are not a precise characterization. Ratings cannot be used for comparative purposes because there are too many factors that influence soil half-life and soil sorption to allow for a precise prediction of the behavior of an herbicide in the soil. But you should become familiar with the *potential* for pesticide movement for herbicides you frequently use. If you cannot find the active ingredient for the pesticide you are interested in on the OSU web site, check the technical bulletin of the pesticide (available from the manufacturer) and make the necessary calculations as described on the OSU website.

Hopefully, you now realize that making sound management decisions includes an understanding of the possible environmental fate of the pesticides that you select. And that is what will make you a better resource manager, advisor, or pesticide user.

For more information...

OSU Extension Pesticide Properties Database

<http://npic.orst.edu/ingred/ppdmove.htm>

Questions about Pesticide Environmental Fate

<http://extoxnet.orst.edu/faqs/pesticide/pestfate.htm>

Weed Watch Update

Message from the Newsletter Chair:

I would like to apologize to CWMA Newsletter readers that I erred in listing Japanese knotweed as a Watch List species in the last newsletter. Changes to the weed law are being introduced that will list Japanese knotweed as an "A List" species. The Colorado Department of Agriculture's web site has this species, as well as several others, listed in the "Red Alert" category, requiring reporting to Steve Ryder. Clarification will likely be made to the CDA web site this summer, once legislation is passed. For Watch List species, please report sightings to Steve Ryder and he will use the data collected to consult with the Noxious Weed Advisory Board for determining management decisions.



Himalayan
Blackberry *Rubus
armeniacus*
Photo Courtesy of
King County
Washington

Changes to the Current Noxious Weed List:

Delisted

Sericea lespedeza, *Lespedeza cuneata*

Yellow nutgrass, *Cyperus esculentus*

Addition to A List

Giant reed, *Arundo donax* L.

Japanese knotweed, *Polygonum cuspidata*

Elongated mustard, *Brassica elongata* Ehrh. ssp. *integrifolia*

Addition to C List

Bulbous Bluegrass, *Poa bulbosa* L.

Addition to Watch List

Sahara mustard, *Brassica tournefortii* Gouan

Baby's breath, *Gypsophila paniculata*

Common bugloss, *Anchusa officinalis*

Common reed, *Phragmites australis* (Cav.) Trin. ex Steud.

Flowering rush, *Butomus umbellatus*

Hairy willow-herb, *Epilobium hirsutum*

Himalayan blackberry, *Rubus armeniacus*

Japanese blood grass, cogon grass, *Imperata cylindrica*

Onionweed, *Asphodelus fistulosus*
Pampas grass, *Cortideria jubata*
Scotch broom, *Cytisus scoparius*
Swainsonpea, *Sphaerophysa salsula*
Syrian bean caper, *Zygophyllum fabago*
Water hyacinth, *Eichhornia crassipes*
Water lettuce, *Pistia stratiotes*
White bryony, *Bryonia alba*
Woolly distaff thistle, *Carthamus lanatus*
Bathurst burr, spiny cocklebur, *Xanthium spinosum*
Meadow Hawkweed, *Hieracium Caespitosum*

Weed Profile

Himalayan Blackberry (*Rubus armeniacus*)

Family: Rosaceae (Rose Family)

Biology

- Spiny, thicket-forming shrub
- Branches up to 40 foot long that can root where they touch the ground
- Edible and tasty black fruit which are spread by birds
- Introduced from Europe
- Perennial plant with biennial stems or canes

Leaves

- Compound, palmate leaves
- Round to oblong and 7-20 cm. (3-8 in.) in length in their first year
- Toothed leaflets usually in groups of 5 along stem

Flowers

- 2 cm. (3/4 in.) white to pink flowers
- 5 petals
- Reproduces from seed and rooting stems

Fruit

- From a taxonomic perspective, the fruit is not a berry, but rather an "aggregate fruit of numerous drupelets"
- Purple to black colored fruit, which are sweeter and larger than other North American blackberry species

Status

- Watch List in Colorado
- C List in Washington
- B List in Oregon

Be on the lookout for yellow flag iris

by John Vickery, CWMA Native Plants Committee

Introduction

Yellow flag iris, *Iris pseudacorus* (IRPS), is an invasive plant of European and African origin officially designated as a noxious weed (or similarly) in six states. Pale yellow iris, as it is also known, is not a noxious weed in Colorado, but it is on the State's Aquatic Nuisance Species watch list as a "Secondary Species of Concern". I recently found a couple of small clumps of it near the water's edge of the South Platte River in Denver. It is relatively easy to spot from a distance or even hidden among tall grasses because it has large, bright yellow flowers, averages two-to-three feet tall or so, and seems to prefer full sun. It blooms mainly from May to July, but you may encounter some plants flowering into the fall. I subsequently spotted a couple of patches on the banks of stormwater retention ponds (draining to Clear Creek) in Wheat Ridge while driving on Kipling Avenue. I also came across another small clump while riding on the Ralston Creek Trail in Arvada. Although it is found in both shallow water and along shores, so far, none of my finds have had 'wet feet'. In previous years, the cities of Boulder and Loveland, as well as Arapahoe County, have reported findings to the CDA.



Yellow Flag Iris
Iris pseudacorus
Photo Courtesy of
<http://nhbirdsnest.com>

Identification

How does one distinguish yellow flag iris from ornamental yellow irises? First note that both of the Midwest and New England sources I've consulted state that *Iris pseudocorus* is the only yellow iris likely to be found in natural areas. Thus, a yellow, 'ornamental escape' iris probably IS the 'bad guy'. Its leaves have a central rib or double ridge (aka 'prominent median thickening' in botanical language) running lengthwise--something lacking in ornamental varieties. As a monocot, its flower parts are in threes or sixes. Ornamental varieties have three, large showy petals and three, large showy sepals (or collectively, six 'tepals'), whereas yellow flag has three, showy tepals and three, small or reduced, strap-shaped tepals. In IRPS, the showy tepals have brown speckling in the central, proximal portion; in ornamentals, this area typically has obvious yellow-orange, fuzzy hairs. See the Flora of North America online for a technical key for the Genus *Iris* in North America [http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=116503].

Distribution

The distribution map for IRPS in the USDA Plants Database profile [<http://plants.usda.gov/java/profile?symbol=IRPS>] indicates that there has been insufficient information to document that it has naturalized in Colorado, but that it has naturalized in over forty states and most Canadian provinces. It has naturalized in at least three of our neighboring states--Utah, Nebraska, and Kansas. Similarly, the Biota of North America Program (BONAP)

distribution map [http://herbaria4.herb.berkeley.edu/cgi-bin/get_bonap_map.pl?bonap_name=Iris%20pseudacorus] indicates that it is not found in Colorado. The CSU and UC-Boulder herbaria apparently lack specimens. The Rocky Mountain Herbarium Specimen Database at the University of Wyoming only has one entry--for a collection from Washington State.

Threat assessment

The NatureServe Explorer listing for the species

[<http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Iris+pseudacorus>] assigns it a US Invasive Species Impact Rank of 'high/medium'. This rank might overstate the threat for Colorado because a high proportion of our wetlands, banks, and shorelines are artificial or already severely altered from their natural state.

Control methods--only two

1. You can grub it out. Get as much of the rhizomes as you can. Skin protection is required.
2. You can treat it with herbicides. Use aquatic-labeled versions of glyphosate (e.g., Rodeo, AquaMaster) or imazapyr (e.g., Habitat, Polaris).

Report your findings

You should report sightings of yellow flag iris to the Colorado Department of Agriculture and to your county weed coordinator or land manager. Send reports of sightings to our new CDA EDRR Specialist, Patty York (patty.york@ag.state.co.us). You can also report it online at the Missouri River Watershed Coalition's EDD MapS site for Colorado. [http://www.eddmaps.org/mrwc/report/plants.cfm?id=us_co] This website has a mapping application.

This is the first year I've seen IRPS in Colorado, yet, in the space of three weeks, I encountered it in three locations--without even looking for it! Reports received this year will be helpful to CDA in determining whether it should be added to the Noxious Weed Program's Watch List--sooner rather than later. Also, with more information, we can provide more accurate info to the PLANTS Database via the site's Distribution Update tool.

For further information see:

- Invasive Plants of the Upper Midwest by Elizabeth Czarapata. 2005. Pp. 110-111.
- USDA NRCS Plant Guide for Paleyellow iris, 3 pp. [http://plants.usda.gov/plantguide/doc/pg_irps.docx]
- Draft Colorado State ANS Management Plan - 2010, Chapter 4 - Status of Aquatic Nuisance Species in Colorado: Priority for Action. Colorado Division of Wildlife and Colorado State Parks
- The various links at the end of the Plants Database profile for IRPS
- The details of the impact assessment in the IRPS NatureServe Explorer listing/profile

- State ANS ID Booklet

Syrian Bean Caper (*Zygophyllumfabago*)

Syrian bean caper is rare in Colorado. The only known infestation is in Mesa County. The patch, along I-70 near Fruita, has been there since it was first collected in 1954 (CSU herbarium specimen). Mesa County has been treating it with picloram and has had great success in reducing the population. It loves open, dry, gravelly habitats.



Syrian Bean Caper
(*Zygophyllumfabago*)
Photo Courtesy of
Bugwood

Family: Zygophyllaceae (same as puncturevine!)

Biology

- Tap-rooted perennial with multi-branched crown
- Shrub-like, growing to 3 feet tall and 3 feet across
- Reproduces by root fragments and seeds
- Seed contaminant and ornamental species
- May be mistaken for a pea family plant because of the bean-like fruit

Leaves

- Opposite, stalked
- Oval to round paired leaflets, one inch long
- Succulent, thick, leathery, smooth and hairless

Flowers

- Small (3/8" diameter) spherical flower
- Five petals and sepals
- White to cream, with salmon colored veins
- Stamens extend beyond the petal tips
- Buds used as a substitute for capers

Fruits

- Distinctive bean-shaped seed pod, about 3/4" long
- Tipped with a long, curved soft spine
- 4-5 celled, with a seed in each cell

Technology News

There are two new iPhone Apps that readers may be interested in using. Leafsnap is a tree identification application that uses leaf pattern recognition to identify common East coast trees. It was developed by Columbia University, the University of Maryland and the Smithsonian Institute. For more information go to <http://leafsnap.com/>



Leaf Snap App

The second application was created by South Dakota State University for use by agricultural producers to identify noxious weeds. Both applications are available from Apple's iTunes store <http://www.apple.com/itunes/>. The weed application can also be found at <http://www.sdstate.edu/ps/extension/weed-mgmt/index.cfm>.