CWMA Newsletter
April 11, 2011

Executive Director's Corner

The CWMA Spring Training School was well attended this year and Kevin Gallagher deserves a big thanks for everything he did as a volunteer to make it happen. George Beck and Fred Raish also "went the extra mile" to make sure the planned program went on without a hitch because we had a computer crash and a speaker who couldn't come due to health reasons. We had 151 registrants which is a healthy increase of about 20% over last year's event. Plans are underway for several projects over the next few months. These include website improvements, updating and reprinting the Garden Smart booklet, and design and printing of the 2012 Calendar (advance orders will be solicited soon). Scholarship applications are open for submission (the forms are on the CWMA website at (www.cwma.org) and the board is working to find innovative ways to keep the 2011 budget balanced. Several committees have spots available for chairs including membership, marketing, and education/outreach. Send an email to info@cwma.org if you are interested in becoming a committee chair.

Guidelines for eNewsletter Articles

Links

CWMA Website
Calendar of Events
CWMA Newsletter
Colorado Dept of Agriculture

CWMA Has Joined GreenCo!

The CWMA Board of Directors voted to join Green Industries of Colorado (GreenCO) in order to participate in that organization as a member and to improve communication with other associations in the green industry. Membership brings added benefits to our members including a booth at the ProGreen Expo, discount admission, an expanded

Biological Control of Cheatgrass Using Soil Bacteria

by Ann C. Kennedy, Tami L. Stubbs, Jeremy C. Hansen, Renee Schultheis
USDA-ARS and Washington State University, Pullman, Washington

[Adapted by Kacey Conway from material provided by A. Kennedy for a presentation on cheatgrass biocontrol at the BLM Pesticide Applicator's Training School in April, 2010. For additional information, please contact Ann C. Kennedy (509) 335-1554 or e-mail akennedy@wsu.edu.]

Steve Dewey, Utah State University, Bugwood.org

In the arid and semi-arid regions of the western United States, perhaps the single most important invasive species is *Bromus tectorum*--downy brome or cheatgrass. Introduced from Eurasia approximately 100 years ago, some consider it important for early spring grazing, but its short growth period, fluctuating forage production, and high fire hazard make it less desirable than other species. It is an effective competitor for space, water, and nutrients because its roots are able to grow at low temperatures. Perennial grass seedlings often fail because cheatgrass is so competitive. The invasion of cheatgrass has led to its dominance within many Great Basin plant communities, infesting more than 99 million acres of the interior West. Moreover, climate change may increase its potential to expand even farther.

Our research into biocontrol for grass weeds developed from investigations of early spring growth of winter wheat. Stunted wheat plants were heavily colonized by bacteria that produced compounds that specifically inhibited winter wheat but did not injure other small grains or legumes. Recognizing this specificity, we hypothesized that we might find other soil bacteria that would inhibit grass weeds but not crops or other plant species.

In cropland studies, we isolated *Pseudomonas fluorescens* strain D7 (*P.f.*D7) from the rhizosphere of grasses. *P.f.*D7 produces a phytotoxin that inhibits root growth and seed germination, is competitive in soil, and produces metabolites that inhibit target-plant growth. The bacteria is most effective in cooler temperatures of the late fall and early spring. It does not survive hot, dry summer months or persist in the environment, thereby reducing risk to non-target species and possible negative impacts to the environment. Field studies

legislative program, and listing in the annual Green Pages directory. Kevin Gallagher volunteered to be our representative. For more information about GreenCO see http://www.greenco.org

2011 Board of Directors

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Renew Your Membership!

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.

showed that naturally occurring bacteria screened for selective cheatgrass suppression inhibited cheatgrass 5% to 60% in cropland while not reducing crop growth or yield. The greatest cheatgrass reductions were coupled with moisture in the fall and cold winters.

Rangeland field studies demonstrate that a one-time application of *P.f.*D7 downgraded cheatgrass from the dominant plant species prior to inoculation to sub-dominant levels three years later. Over three years perennial native forbs increased to more than 83% of the surface cover. The low cheatgrass populations in the inoculated plots persisted, indicating that the bacterium may have reduced viable cheatgrass seeds in the seed bank. Six years after application of *P.f.*D7, the treated plots were devoid of cheatgrass and populated by scurf pea, sagebrush, Russian thistle and Indian rice grass, while the control plots were heavily populated with cheatgrass and little else. Application of this bacterium during seed bed preparation and the resultant suppression of cheatgrass root growth may allow other plant species to out-compete weeds, thus leading to the establishment of more desirable range species.

References:

Kennedy, A.C., T.L.Stubbs, J.C. Hansen, R.Schultheis, USDA-ARS and Washington State University, Pullman, WA. Biological control of annual grass weeds using soil bacteria. Research summary provided by A.C.

Kennedy for a presentation at the BLM Pesticide Applicator's Training School in Denver, CO, April, 2010.
Kennedy, A.C., L.F. Elliott, F.L. Young, C.L. Douglas. 1991. Rhizobacteria suppressive to the weed downy brome. Soil Sci. Soc. Am. J. 55:722-727.

Kennedy, A.C., B.N. Johnson, T.L. Stubbs. 2001. Host range of a deleterious rhizobacterium for biological control of downy brome. Weed Science. 49:792-797.

Colorado Pigweeds for the Vegetation Management Community (or, They're mostly native or 'nearly so')

By John Vickery

Joseph LaForest, University of Georgia, Bugwood.org

Pigweeds, genus *Amaranthus*, are generally treated as weeds, even though most of them found in Colorado are native to Colorado or at least the Great Plains (and/or other areas of the US). In the 2009 field season, I discovered an unfamiliar pigweed growing in Hentzell Natural Area as well as the adjacent, Babi Yar NA in southeast Denver. It reminded me of images I'd seen of waterhemp. Using publication no. 2 (below) I determined that it was likely a close relative of waterhemp called 'Palmer amaranth' (*A. palmeri*). At a Native Plant Society workshop on genus *Chenopodium* in October 2009, the instructor, Craig Freeman (University of Kansas), confirmed the identification.

As a vegetation specialist for Denver Natural Areas, I wondered if the plant should be 'encouraged', protected, just tolerated, or controlled. Using information from a number of sources, I determined that *A. palmeri* is probably native to the far southeast corner of the state and is possibly native to a larger area--the lower Arkansas River valley. Thus, in Denver--which is north of the Palmer Divide and in a different ecoregion--it should probably be treated as adventive: not native and not yet naturalized. Since it can grow to over eight feet tall and quite a few plants were growing in an area where none were noted the previous year, I decided it should at least be suppressed. As I learned more about amaranths, I realized however, that we should probably be more tolerant of them. I've summarized the information I gathered in a comparison table located in the latest CWMA Newsletter. Below are identification guides that I found to be useful.

1. Amaranth ('pigweed') comparison & summary table
Colorado Native Plant Society, Education & Outreach Committee

2. Pigweed Identification: a pictorial guide to the common pigweeds of the Great Plains, S-80. Oct. 1994.

Available at http://www.ksre.ksu.edu/library/crpsl2/s80.pdf.
Can also be ordered or purchased from CO-NPS bookstore:

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Cost is about $2. It appears that an online, shopping cart type of utility is not available.

3. Identification of the Weedy Pigweeds and Waterhemps of Iowa, PM 1786. April 1999.

Available at
http://www.extension.iastate.edu/Publications/PM1786.pdf.
Hard copies may be ordered online, by phone, by fax, via email or by mail:

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CWMA Legislative Committee Report

by Fred Raisch

The 2011 legislative session is in full swing and the CWMA Legislative Committee continues to monitor legislation that could impact CWMA's membership

The Legislative Committee along with Peak Resources, with the approval of the CWMA Board of Directors, have been working on proposed legislation that would establish a voluntary weed free gravel program in Colorado. CWMA met with the Colorado Department of Agriculture (CDA) and the Colorado Department of Natural Resources (CDNR) to discuss the proposed program. Currently CWMA is discussing the proposal with the Colorado Stone, Sand, and Gravel Association (CSSGA). Look for updates on the weed free gravel program on the CWMA website and in the next CWMA newsletter.

The National Pollutant Discharge Elimination System (NPDES) is a topic of discussion on the lips and minds of all CWMA members. CWMA and Peak Resources had a meeting with Jim Martin, Director of EPA Region 8, to discuss the impact NPDES will have on the members of CWMA. During the same week CWMA met with EPA, Gary Brannan (Moffat County) and I met with Gary Beers of the Colorado Department Public Health and Environment (CDPHE). Through those two meetings and other key meetings Peak Resources had on behalf of CWMA, our organization helped influence the current direction of NPDES permits in Colorado.

At the current time it is important for all CWMA members to contact their elected officials in Washington, D.C., and ask them to support H.R. 872, *Reducing Regulatory Burdens Act of 2011*. H.R. 872 would prohibit the EPA and states authorized to issue NPDES permits from requiring a permit for certain discharges of pesticides that are authorized for use under the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA). The passage of H.R. 872 would stop NPDES and save the state of Colorado $21 million annually.

The most exciting project of the Legislative Committee is helping to establish a comprehensive weed management plan for CDNR properties throughout Colorado. While this project is in the infancy stage, it has been very exciting.

Look for more updates on the activities of the Legislative Committee on the CWMA website and in upcoming CWMA newsletters. If you would like to participate in this committee or have questions on the activities of this committee or Peak Resources, please email me at Fred.Raish@ycpest.org.

Weed Management and the Gunnison Sage Grouse

by Elizabeth With, Rangeland Management Specialist, USDA-Natural Resources Conservation Service, Gunnison

The Gunnison sage-grouse (*Centrocercus minimus*) is a distinctive bird endemic to the southern intermountain-regions of Colorado with small populations occurring in Southeastern Utah. Many people are aware of a close relative--the Greater Sage grouse (*Centrocercus urophasianus*)--which inhabits similar ecosystems to the north and west. Currently, the largest and most stable population of the Gunnison sage-grouse is located in the Gunnison Basin just west of the Continental Divide.

The Gunnison Basin is a sagebrush ecosystem receiving approximately 11-14 inches of precipitation throughout the year. It is a cold desert that sustains mega-fauna such as elk, deer, pronghorn, mountain goats, sheep, and lions and many more. Due to the basin's extremely cold temperatures in the winter and the short growing season with frost throughout the year, conditions are unfavorable for most plant growth except those species evolved to handle it. However, the Basin can be impacted by many of the same weeds that have affected the sagebrush ecosystems of the Great Basin. In order to sustain functioning habitat for the Gunnison sage-grouse and other species reliant on functioning sagebrush habitat in the Basin, large coordinated efforts in weed management have been undertaken.

More than eighty-percent of the land in Gunnsion County is public land and it is benefitting from great efforts to identify and map all weeds, which enables future treatment. Gunnison County is working hard to control the spread of all weeds along county roads with an active spraying program. The county is also in the process of reforming the Gunnison County Weed Board, a forum for local land managers to discuss strategy and exchange information, allowing for informed weed management decisions across the Basin. The Gunnsion Conservation District is working with private landowners to supply information, herbicides and seed to those that are interested.

All of this effort is to control only a few weed species that could drastically affect the sagebrush habitat. Canada thistle is a problem Basin-wide and often affects susceptible brood-rearing habitat (mesic areas). Absinth wormwood is similar to sagebrush but cannot be substituted in the dietary and shelter requirements for sagebrush-dependent species. Knapweeds have been found in small localized pockets and land managers are currently working to eradicate those infestations. Toadflax and leafy spurge occur in the area and have the potential to become problematic in the valley, but currently are located at higher elevations outside of sage-grouse habitat. New projects that ignore political boundaries are being initiated to treat the emerging cheatgrass problem. In all, there is a tremendous effort to keep the Gunnsion Basin's sagebrush habitat in a healthy and functioning condition in order to sustain wildlife like the Gunnison sage-grouse.
Photo courtesy of Leslie Spicer.

Professional Applicator Committee Update

by Christine Alexander, Co-chair

Happy Spring to everyone. We received a few inquiries this winter regarding 1) how to apply for a license to become a Professional Applicator and 2) how to get listed as a Professional Applicator on the CWMA website. To become a licensed applicator one should contact the Colorado Department of Agriculture at 303.239.4146. To be listed on the CWMA website as a Professional Applicator one must meet the following criteria: a) you must be a current licensed applicator listed with the CDA, b) you should have a legitimate business, and c) you need to complete a questionnaire. To obtain a questionnaire please contact Christine at calexdlind@comcast.net.

We would like to encourage all Professional Applicators to get involved with a local Pulling for Colorado event this year. Our company, Vegetation Management, Inc., will be participating in an event at Staunton State Park near Conifer this summer on Saturday July 9, 2011, from 9:30 AM to 1:00 PM. Prior to the main event, the park manager is hosting an educational program at the Elk Creek Fire Department on Sunday April 10, 2011 from 2-4 PM. If you are interested, feel free to contact us at calexdlind@comcast.net or 303.674.1215 for additional information.

We wish you all a productive and prosperous weed season.

New Biocontrol Agents for Two Colorado Weeds

by Dan Bean, Director, Biological Pest Control, Conservation Services,Colorado Department of Agriculture,Palisade Insectary, dan.bean@ag.state.co.us

Toadflax Stem Weevil

Russian knapweed (*Rhaponticum repens*) and yellow toadflax (*Linaria vulgaris*) are two of Colorado's rapidly spreading exotic weeds. Both are perennials with extensive root systems, are widespread and move into remote areas where control is difficult. As such they are ideal targets for biological control, but there are no effective agents available for either weed. That could change soon because we have two new agents approved for open fieldrelease, and establishment efforts are underway.

Russian Knapweed Gall Midge

The Russian knapweed gall midge, *Jaapiella ivannikovi*, has been released in Wyoming and in the Palisade Insectary garden. The larvae feed on growing shoots, producing a gall that forms at the growing tips (Fig 1). Larvae mature within the gall, pupate (Fig 2) and develop into small delicate flies less than 2 mm long (Fig 3). Multiple flies develop within a gall. The growing tips are affected so this insect stunts plants and dramatically reduces flowering (Djamankulova, et al., 2008). We are planning the first Colorado field releases of *J. ivannikovi* for the spring and summer of 2011 and hope for statewide establishment in four years.

The toadflax stem weevil, *Mecinus janthinus*, (Fig 4) has been effective against Dalmatian toadflax in some areas of Colorado, but it has not worked against yellow toadflax in spite of hundreds of releases over many years. In 2009, *M. janthinus* was found thriving on yellow toadflax in Montana. The Palisade Insectary received a small shipment of yellow toadflax adapted weevils and released them within cages in Rio Blanco County. They laid eggs in the stems of yellow toadflax and larvae developed successfully to the pupal stage. Adults were found the following spring, indicating successful reproduction. Additional beetles were obtained from Montana in 2010 and we now have field sites in Rio Blanco and Eagle Counties and more are planned for 2011.

Djamankulova, G., Khamraev, A. and Schaffner, U. 2008. Impact of two shoot-galling biological control candidates on Russian knapweed, *Acroptilon repens*. Biological Control 46: 101-106

2011 CWMA Scholarships Announced

The CWMA 2011 Scholarship application package is now available online at www.cwma.org . Two $1000 scholarships are available for college juniors and seniors, graduate students, and vocational/technical school students. Applicants must have recent hands-on experience emphasizing weed management in Colorado.

Applications must be submitted electronically by May 15, 2011. Scholarships will be awarded mid-summer in time for deposit to the students' accounts before the beginning of the 2011 Fall Semester. Submit applications to Jude Sirota at sunspun101@aol.com.

Spread the word! If you know of a deserving student out there who needs some financial help this coming school year, let them know about this excellent opportunity.

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