

# Western IPM Center Project Report Form

**How to submit:** Please submit this completed form electronically, as an attached Microsoft Word file, to Frank Zalom at [fgzalom@ucdavis.edu](mailto:fgzalom@ucdavis.edu). **Content:** Complete each section below, and include responses to as many of the questions listed in Attachment A as are relevant to your project. *These are guidelines.* Provide your readers with enough detail that someone who is not familiar with your project can understand what you were trying to achieve, how you went about it, and what you accomplished, but please keep it concise.

## A. Report Data

**Date:** October, 2011

**Reporting Period:** 6/1/08 to 5/31/11

**Report Type (please check one):**

Progress Report     Final Report

## B. Grant Data

- Grant Agreement #:
- Title: Creation of online urban IPM resources for the High Plains region
- Grant Type: Extension
- Lead investigator:
  - Name: Mary Burrows
  - Title: Assistant Professor
  - Institution: Montana State University
  - Address: 119 Plant BioScience Building
  - Phone: 406-994-7766
  - Fax: 406-994-7600
  - Email: mburrows@montana.edu
- Team members (name, title, institution): Ned Tisserat, Professor; Whitney Cranshaw, Professor; and Ronda Koski, Research Associate - Colorado State University; Bob Hammon, Extension Agent - Colorado State University Extension
- State(s) involved: Montana, Colorado

**C. Nontechnical Summary.** An overview of the project, briefly outlining the problem(s), how your project addresses them, and your results, *written to a lay audience*. (500 words)

We have developed, deployed and evaluated the use of a LUCID key for woody ornamental pests. The key was based on the book 'Insects and Diseases of Woody Plants in the Central Rockies' (Cranshaw, W., Leatherman, D., Jacobi, W. and Mannix, L. 2000. Insects and Diseases of Woody Plants in the Central Rockies, Colorado State University Bulletin no. 506A, 300 pages). Over 250 fact sheets pertaining to pests and problems associated with woody landscape plants in the Central Rocky Mountain Region were posted on the High Plains IPM Wiki website ([wiki.bugwood.org/HPIPM](http://wiki.bugwood.org/HPIPM)). Images to enhance the key were collected from Colorado State University, The Bugwood Network (<http://www.bugwood.org>), and other online sources. The key was evaluated by Master Gardeners and is currently available online at <http://diagnostics.montana.edu/Lucid/Woody%20Plants/>. This key is intended for use by non-technical audiences, including extension agents, landscape professionals, garden center employees, and master gardeners; it will be a useful tool to aid in the diagnoses problems associated with woody landscape plants growing in the Central Rocky Mountain Region. The key is a multi-access key, meaning that the user can start the diagnostic process anywhere in the key by selecting characteristics (features and states) that pertain to the sample in question; gradually narrowing down the list of possible causes of a problem (entities). Most of the possible causes (entities) are linked to fact sheets on the High Plains IPM Wiki; these fact sheets provide information on the pest and management recommendations.

**D. Objectives and Progress.** List your objectives and describe your progress for each objective.

Objective 1. Integrate a multi-entry diagnostic key, fact sheets, and recommendations for pests and problems associated with woody landscape plants in the Intermountain States into the High Plains IPM Wiki for Woody Ornamentals pages of the High Plains IPM Wiki website using The Bugwood Network's Bugwoodwiki and images from the Bugwood Image Archives.

We have accomplished this objective. Over 250 fact sheets have been entered in a standard format, enhanced with additional information and images, and are available for use on the High Plains IPM Guide. Over the past two years, the LUCID key was designed and constructed. The deployed key is linked to the High Plains IPM Wiki for Woody Ornamentals home page ([http://wiki.bugwood.org/HPIPM:Woody\\_Ornamentals](http://wiki.bugwood.org/HPIPM:Woody_Ornamentals)) .

Objective 2. Validate the key and evaluate the usage of the High Plains IPM Wiki for Woody Ornamentals by homeowners (master gardeners) and urban landscape professionals.

We have accomplished this objective. Two groups of master gardeners have used and evaluated the key. The key was modified based on their feedback to make it easier to use, and more accurate.

Objective 3. Promote the existence of the woody ornamental diagnostic keys to a wide audience.

Due to some technical difficulties the key was only recently released to the public. Promotion of the key will be accomplished beyond the timeline of this grant. We are planning promotion through master gardener, county agent and urban IPM training opportunities. The key is available for download to USB sticks or computer hard drives to make it mobile.

**E. Outputs.** List your project's outputs, which might include publications, information, data, meetings held, attendance at meetings held, etc.

Outputs include: The LUCID key to Pests and Problems Associated With Woody Plants of the Central Rocky Mountain Region; over 250 fact sheets formatted and uploaded to the High Plains IPM Wiki; a downloadable version of the key on the High Plains IPM Wiki for Woody Ornamentals website.

The LUCID key to Pests and Problems Associated With Woody Plants of the Central Rocky Mountain Region was created at Colorado State University. Master Gardeners in Montana assisted with the testing and debugging of the key; none of the attendees had used a LUCID key before. Most of those who evaluated the key indicated that the key will be an excellent resource for diagnosing problems associated with woody landscape plants. Participants rated the key very relevant, useful, helpful, and organized; somewhat fun, easy to use, and accurate. Based on evaluator feedback, the key was modified to make it more accurate and easier to use.

**F. Impacts and Potential Impacts.** The “impacts” and “potential impacts” sections of your report will help the Western IPM Center highlight the value of IPM research and education by detailing the real-world impacts of Center-funded projects. We will use the information in news articles, reports, and informational brochures to showcase the impacts of projects that our program supports. *See Attachment A at end of form for questions to assist you in describing the impacts of your project.*

**1. Impacts.** Describe any impacts of your work. *Impacts* are specific changes in condition for those affected by your work. Impacts include adoption of technology, creation of jobs, reduced cost to the consumer, less pesticide exposure to farmers, access to more nutritious food, and a cleaner environment and healthier communities.

The LUCID key to Pests and Problems Associated With Woody Plants of the Central Rocky Mountain Region will allow lay people without technical knowledge of pests and other causes of problems on woody ornamentals to properly identify and knowledgeably manage pests and problems in urban environments. Fact sheets associated with the key provide current, science-based IPM solutions to pest management. Providing alternatives to chemical pest controls will minimize consumer pesticide use and reduce exposure to non-target organisms.

**2. Potential impacts.** Describe your project’s potential impacts. *Potential impacts* are the ways that your project’s outputs could directly lead to changes in condition that will unfold in the future.

More citizens accurately identifying pest species could lead to first detections of invasive pests in the U.S.A., allowing authorities to manage pest species earlier in their invasion. Accurate identification of pest species will also favor more knowledgeable pest control; thus encouraging the application of pesticides that are effective against a particular pest species and / or encouraging the application of a pesticide at a time when it that will have the greatest impact on reducing the population of the pest species.

## G. Appendices

1. With your report, please attach *at least two (2) photographs* that illustrate your project. Please describe the photo and indicate the name and institution of the person who took the photo. (If you submit more than two photographs, please include those additional descriptions and photo credits under “H. Additional Information,” below.)

Photo #1 description:

Screen shot of the LUCID key to Pests and Problems Associated With Woody Plants of the Central Rocky Mountain Region. The insert demonstrates the popup capability of the key.

Photo #1 credit (photographer's name and institution):

screen shot

Photo #2 description:

Screen shot of a ornamental disease fact sheet available in the HPIPM Guide.

Photo #2 credit (photographer's name and institution):

screen shot

2. Also attach any printed fact sheets or other publications resulting from your work that will enhance our understanding of your project and its impacts. Please provide a description of each attached publication below.

Document #1 description:

Document #2 description:

Document #3 description:

## H. Additional Information

*Credit: Some of the language about impacts and potential impacts was adapted from a PowerPoint presentation by H. Michael Harrington, Executive Director, Western Association of Agricultural Experiment Station Directors, Colorado State University.*

## Attachment A

### Questions to Help in Reporting Impacts and Potential Impacts

Below are some questions that will guide you in assessing and then describing the impacts and potential impacts of your project. The relevance of each question may vary depending on whether yours is a research or extension project. Please answer as many as you can to the best of your ability, and feel free to describe any additional types of impacts not mentioned below. Remember to identify any potential impacts.

**1. Innovations in IPM:**

Are there new IPM practices that have been (impacts) or could be (potential impacts) adopted as a direct result of your project? What is the total number of acres (or homes, schools, greenhouses, nurseries) on which these practices could realistically be implemented?

**2. Safeguarding human health and the environment:**

- a. Has the project reduced risk (or could it potentially do so) by changing the use of pesticides on farms, in homes, in schools, etc.? For example, could it result in fewer sprays per season or a switch to lower-risk pesticides? If possible, quantify the changes in condition. (Since there is no unanimous definition of *high* and *low risk*, investigators selecting this indicator are asked to categorize the pesticides they are reporting on as *high* or *low risk* according to the particular situation [e.g., lower risk to natural enemies]).
- b. Are there any other impacts or potential impacts on human health or the environment as a result of your project?

**3. Economic benefits:**

- a. What is (or could be) the economic benefit (e.g., dollars saved) for clientele who adopt IPM strategies and systems you studied? Do you envision potential commercialization or mass production of these systems?
- b. How many clients are satisfied with IPM results (such as improved yield, improved quality of yield, reduced pest populations, more effective pest control, greater preservation of nonpest species)?
- c. Are there other financial benefits that might be realized (potential impact) as a result of your project?

**4. Implementation of IPM:**

- a. How many IPM strategies and systems have been validated through this project (e.g., through on-farm trials, large plot tests, or other methods used to confirm efficacy)?
  - b. How many educational materials were delivered? To whom? And what are the impacts or potential impacts?
  - c. What is the number of growers/personnel trained? And what are the impacts or potential impacts?
  - d. For a Web site, what volume of traffic and type of use has the site experienced? (For example, number of visitors per day or month; number of page views; number of unique user sessions; change in volume during growing season; average viewing time.) And what are the impacts or potential impacts?
  - e. How many more people adopted IPM practices as a direct result of your project, or how many people adopted new IPM practices?
  - f. Are there other ways in which your work will result in improved use or increased implementation of IPM strategies in your region or across the West?
5. Has your project or study increased collaboration among stakeholders interested in the development and implementation of improved IPM strategies and systems?