

# **Technology Development for the Biological Control of Invasive Native and Non-Native Plants Proposal - Forest Health Technology Enterprise Team RFP - FY 2011**

## **1. Project Title**

Biological Weed Control in Your Backyard – Creating an Internet Portal to Synergize Youth and Community Outreach Programs in the USFS Intermountain and Northern Regions

## **2. Principal Investigator**

Cami King, Lead Fiscal Manager and Principal Investigator  
Bear River Resource Conservation and Development  
1860 North 100 East  
Logan, UT 84341-1784  
435.753.3871 Ext. 109  
Fax (435) 755-2117  
Email: cami.king@rcdnet.net

## **3. Cooperators and Other Participating Institutions**

### **BCIP Technical Working Group Contact: Carol Randall**

Cami King, Bear River RC&D – Fiscal Officer and Principal Investigator – Cami is point of contact, accountant, and contract manager.

Sage Fitch, Salt Lake Co. Public Works – Sage is reporting and evaluation coordinator.

Carla Hoopes, Internet Portal Project Coordinator and Co-Principal Investigator – Carla is responsible for Steering Committee facilitation and media content development, production, and reporting.

Becca Schneiderhan, MIA Consulting – Becca is web graphics designer for the Portal.

Ciara Wolfe, Stewardship Partner, Inc. – Ciara is the trainer module outline designer.

Chuck Bargeron, The Bugwood Network ITC – Chuck is responsible under a separate grant to build the Portal, upload content and updates, and maintain it long-term.

Janet Valle, State and Private Forestry Noxious Weed Grants Coordinator – Janet is coordinating the grant for the proposal's documentary component.

*Intermountain and Northern Region Education Program Directors will coordinate access to existing resources and relevant opportunities to capture digital media:*

Southern Idaho Student Bug Crew – Director/Trainer Becky Freiberg/Dwight Scarbrough

Holding the Line multi-partner Working Group – Nine Counties in mid-eastern Idaho

Whitehall Biological Noxious Weed Control Project – Bugs with an Attitude Program –

Co-Directors Todd Breitenfeldt and Mike Battiola

What's In Your World? Youth Naturalist—Weed Scientist – Director Carla Hoopes

MIA Consulting (Schneiderhan) – More Kids in the Woods and Holding the Line project

## **4. Amount Requested (yearly and total), Project Leveraging**

The total project budget (\$151,240) includes the grant request (\$64,992) plus leveraged in-kind (\$51,248) and State and Private Forestry (\$35,000) contribution.

The yearly and total request is \$64,992. The request is matched at 25% (\$16,248) by non-federal in-kind: steering committee participation, professional consultants' time, and equipment rental fee waivers. In addition, State and Private Forestry is contributing

\$35,000/year (and total); augmenting the project scope to produce one feature length documentary (27-minute) from captured motion media to expand reach on local public broadcasting networks and to national audiences. The State and Private Forestry award is matched at 1:1 (\$35,000) by non-federal in-kind: steering committee participation, professional consultants' time, and equipment rental fee waivers.

## **5. Project Goals and Supporting Objectives**

- ↑ Increase integration of weed biological control knowledge and methods across media to reduce forest health risks associated with invasive native and non-native plants.
  - Bring together existing weed and invasive plant biological control education programs (BLM programs, Bug's with an Attitude, etc.) through an accessible Internet Portal.
  - Consolidate information on existing collaborative weed management programs (Holding the Line, Southern Idaho Biological Control Program, What's In Your World?, etc.) at the same web portal facilitating information sharing, technology transfer, and integrated weed management strategy development.
  - Develop a trainer module for the weed biological control Internet portal to allow future expansion and integration with other invasive plant efforts (regional weed mapping, invasive plant spread models, integrated weed management planning programs, etc.)
- ↑ Provide a user-friendly one-stop web destination for educators, private citizens, and weed managers for all weed biological control information.
  - Create self-contained short clips; making them available to teachers and land managers so that, combined in a sequence, a variety of presentations, lesson plans, or training workshops can be constructed. Educators will be able to select from a library archive of still graphics, motion video, fact sheets, and fundamental bio-control concepts training aids. This fills needs for native and non-native plants and biological control agent motion images and builds on popular The Bugwood Network invasives.org still photo technology. Under another project grant (CSREES NIFA), The Bugwood Network has developed new motion video capacity. Content developed under "this" proposal will be uploaded to the new motion video technology at Bugwood where it will be maintained long-term.
  - Reinforce fundamental concepts of biological weed control. For example, fact sheets can come to life with links to motion video close-ups of bio-agent activity to illustrate life cycles, life stages and site of attack, updatable release and monitoring protocols, basic collection and reporting techniques, effective use of tools in remote settings, and other peer-reviewed existing curricula. A core group will form to maintain updates on release and monitoring protocols. In addition, short-independent training clips (6-8 minutes) can be dragged and dropped into PowerPoint presentations. Unlike ineffective training films where talking heads

attempt to replace fact sheets, Portal training films will apply National Science Foundation recommendations for cyberlearning. Clips will illustrate from end user perspectives in live demonstration how four education programs implement service learning and community field days to engage the public, develop careers for students, and build sustainable bio-control integration programs. A feature-length (27-minute) PBS documentary for television will result from this effort.

- Develop a marketing strategy to inform the public of the portal's existence. Consider "free" visitor contributions to the motion video archive library and future processes to build on what already works so well for still photos.
- Develop a tracking system to assess the project's impact on participant's weed biological control activities.

### Primary Objectives and Deliverables: 2011

- (1) Capture 4 bio-control education programs in still and motion digital media.  
Performance: Travel to four project areas, conduct participant interviews, document future steps: interactions and program integration opportunities.
- (2) Collect and format existing curriculum, film clips, training modules, resources  
Performance: Collect and format existing materials for Portal uploads.
- (3) Develop training modules based on 4 bio-control education programs.  
Performance: 12 short clips, 3 per program.
- (4) Develop gateway outline (access) and image (design) for targeted audiences.  
Performance: Create site map, develop graphics, format and upload.
- (5) Use newly developing technology in new ways to disseminate information.  
Performance: Provide input to developing technology; upload content.
- (6) Organize training modules, expert network, and linkage to existing resources.  
Performance: Develop logical access to existing links and modules.
- (7) Develop/disseminate communications for news/spokesperson opportunities.  
Performance: Facilitate and complete a comprehensive outreach plan.
- (8) Create public service announcements (PSAs), motion clips, and documentary.  
Performance: 9 PSAs with media contact list for western United States.  
Performance: 12 training clips - 3 per program; plus independent short video clips to initiate the library archive  
Performance: PBS 27-minute lessons learned documentary.
- (9) Evaluate process and progress using a decision support mechanism.  
Performance: Track and submit process/progress reports (qtly/annual).  
Performance: Initiate a mechanism to track impact on public response.
- (10) Collaborate on a peer-reviewed paper and associated project reports.  
Performance: Submit draft to one academic journal.

## **6. Project Justification/Urgency**

The Forest Health Technology Enterprise Team calls for Federal, state, and private agencies to form partnerships to adequately address the spread and impacts of invasive plants (USDA Forest Service 2010); and to aid in the development and transfer

of technologies aimed at increasing the use of biological control methods. This project captures four successful biological control outreach programs through digital motion and still media, providing content for an Internet portal created and maintained by The Bugwood Network; and a platform on which to add additional weed web-based activities, such as distribution mapping, modeling, and treatment. This project uses technology in new ways to increase public participation (Bell et al. 2009) in weed and weed biological control learning and action.

The weed biological control Internet portal project will focus on features of the web to support weed biological control science learning and management in ways that other media do not e.g. receiving and sending information in contrast to print media. According to the Pew Internet and American Life Project's, the Internet is the second most accessed media for science information (Bell et al. 2009), second only to television. The majority of respondents would turn to the Internet first to find information on specific scientific topics.

The proposed Internet portal will allow users to design how they access information; allowing them to iteratively explore the world of invasive weed biological control in one fluid process. The portal will lead Internet users to credible, tested biological control teaching tools, training modules, community assistance programs, a new library archive of motion clips, and opportunities to participate in integrated weed management programs with a biological control component.

### **Addressing FY 2011 FHP/FHTET Priorities**

The Internet Portal will access multi-partner-funded and science-peer-reviewed biological control education programs, addressing FHP/FHTET Fiscal Year 2011 priorities for innovative projects.

## **7. Approach**

### Activities:

- Create a steering committee and develop a communication plan.
- Collaborate with The Bugwood Network to develop/maintain an Internet portal.
- Provide optional steering committee input on format as BUGWOOD formalizes bio-security technology that will be used to protect portal content.
- Collect existing resources and format them for the portal.
- Create new resources for gateway interface with training modules.
- Organize and structure the portal sitemap for lay audiences, scientists, program managers, teachers, and students.
- Develop a tracking system to assess portal effectiveness and public response.

### Methods:

- Travel to four program locations: Idaho, Nevada, Utah, and Montana.
- Consolidate existing resources and generate motion video resources.
- Organize existing curricula and resources into training modules.
- Create a portal and associated gateway outline, and supporting graphics.

### Length of Project:

Portal functionality should occur during the first year. The majority of input, collection, and formatting will occur before the first quarter of the second year. If any unexpected resources are collected and require attention after the first quarter of the second year, everything will be complete and uploaded by the end of the second year. A peer-reviewed paper will be complete and submitted by the end of the third year.

### Required Documentation:

Any actions undertaken by the educational programs are coordinated through land management agencies, which hold any and all required documentation. The Bugwood Network holds documentation regarding the portal.

### Statistical Analyses:

The steering committee will develop a Logic Model, or a system to analyze activities and immediate and long term outcomes of portal use. One such tool the committee may use is Google Analytics, which can provide insight into web traffic and marketing effectiveness.

## **8. Expected Products and Outcomes**

The project creates an Internet portal, a "go to" URL, for scientists, students, and lay audiences, where they can connect with training modules, curriculum, and expert resources from four Intermountain and Northern Region biological noxious weed control programs. The portal will be used to increase integration of weed biological control knowledge and methods to reduce forest health risks associated with invasive and non-native plants. The project increases education and resource sharing in a one-stop shopping portal for biological control information. For example, portal visitors can learn how nine counties in the Holding the Line Project in Idaho utilize student labor to integrate biological control and other weed management tools into a cohesive strategy to prevent leafy spurge from moving into Yellowstone National Park.

The portal will provide worldwide access to deliverables created by this project such as a library archive of short motion video of bio-control content, training modules, public service announcements, workshop information materials, and expert resource networks. The project creates new media, not new knowledge, and delivers it in new motion technology on the Internet to address multiple ways of knowing and learning. For example, teachers and program managers will be able to access still and motion resources and construct them into a series to teach biological weed control concepts. The Bugwood Network made a commitment to build and maintain the portal long term, and upload content and future updates.

Training modules will include library archive short clips, training clips, and documentary style segments of live field activities involving the public. Successful programs are engaging youth in biological control projects where students initiate service learning and become community mentors. The portal will present, through innovative teaching methods, meaningful and sustainable biological control science learning through the experiences, good and bad, of participants engaged in integrating bio-control.

## **1. Principal Investigator(s) Vitae**

- Cami King – Bear River RC&D
- Carla Hoopes – Portal Project Coordinator
- Ciara Wolfe – Stewardship Partners
- Sage Fitch – Salt Lake County Public Works

### Cami King

Role: Lead Principal Investigator, Point of Contact, and Fiscal Officer

Cami has worked for the Bear River Resource Conservation and Development, Inc. (RC&D) since 2005. She has helped the Bear River RC&D to utilize their non-profit status as a 501(c)(3) to engage in projects best suited to their mission. Acting as a fiscal agent for several noxious weed projects has been a major focus for the Bear River RC&D during this span of time. Cami has managed the funds for the Utah Weed Supervisors Association, the Utah and Idaho Cooperative Weed Management Area, and the "Bugs with an Attitude" Teacher Training sponsored by the Bonneville CWMA. Additionally, Cami has acted as the fiscal manager for several community fire protection projects sponsored by the Idaho Department of Lands. Cami has a bachelor's degree in education from Utah State University and received 2 years of training in Business Technology from the Bridgerland Applied Technology College in Logan, Utah. The Bear River RC&D was designated in 1966 and is a locally led 501(c)(3) not for profit organization that addresses natural resource conservation and development issues.

### Carla Hoopes

Role: Co-Principal Investigator, Steering Committee Facilitator, and Production Manager

Carla has 13 years experience building partnerships to initiate and implement invasive species education projects; many are biological control of weeds curriculum. She holds a Master of Science in Land Resources and Environmental Sciences (2006) from Montana State University Bozeman. Carla holds a Bachelor of Arts in Visual Language and Organizational Communications (1993) from Montana State University Billings. Prior to her current position directing Montana's interagency Statewide Noxious Weed Awareness and Education Campaign, Carla served as Marketing Director for an information technology firm, Computers Unlimited, Inc. As owner of Intermedia Productions, PLLC Carla worked with stream restoration firms to build biological plans and render scientific and engineering notes into meaningful and attractive illustrations, paintings, and graphics for projects in the mid-western and western United States.

More recently, Carla collaborated with Montana State University's Master of Fine Arts Program in Science and Natural History Filmmaking. As executive producer, she engaged Masters Candidates in weed biological control education program film projects. Carla pulled together partnerships and co-produced a success documentary targeting national audiences for the Montana Noxious Weed Trust Fund. She produced and co-produced 4 websites, 4 training films, 15 public service announcements, 22 collaborative peer-reviewed and published articles on noxious weed and biological control management methods, 2 collaborative peer-reviewed and published scientific papers, and landowner lessons-learned articles for agency education publications.

Carla provided fiscal oversight and managed 47 multi-year invasive species education challenge cost-share agreements; all agreements were completed on time on budget. She shares a National Invasive Species Council and National Park Service recognition award for collaboration and service with the interagency Greater Yellowstone Coordinating Council Weed Committee.

Ciara Wolfe

Role: Portal Gateway Site Map Outline

Ciara brings 7 years of leadership, community development, natural science education and training and facilitation in the nonprofit sector to the project. She served as Program Director for Whatcom Family YMCA in Bellingham, WA for 4 years and for Montana Outdoor Science School for 3 years. Ciara currently serves as Executive Director for Big Brothers Big Sisters. She holds a B.S. in Earth Sciences from Montana State University and a M.S. in Nonprofit Management from Regis University in Denver, CO. Her expertise has focused around building partnerships, developing programs, and leading organizations with diverse populations and within all sectors. Ciara is a primary contributor to the development of Trainer workshops and teacher guides for the "What's In Your World? Youth Naturalist - Weed Scientist" and "Our Wetland Project" Aquatic Invasives Activities programs. She resides in Bozeman, MT with her family.

Sage Fitch

Role: Grant Co-Reporting, Process Coordination and Evaluation

Sage has over 10 years experience in noxious weed management, education, and project coordination in both the Pacific Northwest and Intermountain Basin. Since 2004, Sage has served as Noxious Weed Specialist for Salt Lake County and Chair of the Bonneville Cooperative Weed Management Area. Sage is currently responsible for grant writing, project coordination, weed awareness and education, and works with multiple partners throughout Utah. Before moving to Utah in 2004, Sage worked as a Weed Specialist for the King County Noxious Weed Program in Seattle, Washington. She holds a Bachelors degree from Utah State University in Horticultural Science.

**2. Budget**

Sixty-Four Thousand Nine Hundred Ninety-Two Dollars (\$64,992) is requested. The request represents the total project request for all years. In-kind contributions represent 25% required match (\$16,248). The budget includes State and Private Forestry participation in the amount of \$35,000 to expand the scope of the project plus the associated 1:1 match of in-kind (\$35,000). The total project budget is \$151,240.

<b>\$64,992 = Project Grant Request</b>	<b>\$35,000 = S&amp;PF Contribution</b>
<b>\$16,248 = 25% Grant Request In-Kind</b>	<b>\$35,000 = 1:1 In-Kind</b>

**Insert Budget Spread Sheet - SPF-4xBC-Budget.xls**

### 3. Timetable

Apr - Sep 2011

- Steering Committee meets and refines strategies and communication plan
- National Science Foundation full proposals drafted and submitted
- Collaborators identify and provide resources, stories, and existing information
- Gateway sequence designer completes content outline for public access portal
- Steering Committee reviews gateway design, and feedback is applied
- Quarterly Reports submitted (June and September 2011)

Jul - Dec 2011

- Cinematographer and sound assistant collect digital, still, and interactive media
- Producer begins formatting media
- The Bugwood Network begins accepting clips and training modules for upload
- Producer identifies clips for public service announcements and other media identified in the communication plan
- Steering Committee receives rough preliminary drafts from Producer, and committee provides feedback
- Quarterly and Annual Reports submitted (December 2011)

Jan - June 2012

- Producer integrates Steering Committee feedback into media projects and formats them appropriate for recipient
- News Media Professionals and public broadcast news managers are contacted according to the communication plan
- Steering Committee and Collaborators begin spokesperson activities
- Filmmaker, assistant, and evaluator begin tracking public and participant response to media and PORTAL access
- Quarterly Reports submitted (March and June 2012)

Jul - Dec 2012

- Success/lessons learned, news releases, training workshop outcomes, and peer-reviewed papers underway
- Quarterly and Annual Reports submitted (September and December 2012)

Jan - Dec 2013

- Steering Committee and Collaborators continue spokesperson activities according to communication plan
- Pending NSF proposal funding, collaborators continue tracking project progress, participant feedback, and on-the-ground results directly associated with this project
- Quarterly Reports submitted (March, June, September, and December 2012)
- Annual Report and Final Report submitted (sponsor date TBD)

#### 4. Literature Cited

- Gunderson-Izurieta, S., G.P. Markin, N. Reedy, and B. Frieberg (2009). Southern Idaho Student "Bug Crews". Weeds, youth, and biocontrol in the rangelands of Idaho. Society for Range Science. Online *Rangelands* 31 (3): 36-40. 2009.
- USDA Forest Service (2010). Forest Health Protection: Forest Health Technology Enterprise Team. *Technology Development for the Biological Control of Invasive Native and Non-Native Plants*. Proposal Guidelines Fiscal Year 2011.
- Bell, P., B. Lewenstein, A.W. Shouse, and M.A. Feder (2009). *Learning Science in Informal Environments: People, Places, and Pursuits*. Committee on Learning Science in Informal Environments. Report of the National Research Council of the National Academies. The National Academies Press. Washington, D.C. [www.nap.edu](http://www.nap.edu)
- Horrigan, J. (2006). *The Internet as a resource for news and information about science*. Washington, DC: Pew Internet and American Life Project.