

# North American Weed Classical Biological Control Research and Development Program Directory and Contacts

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## **Introduction:**

The classical weed biological control programs included in this directory are the subjects of ongoing foreign exploration or have new biological control agents under development or progressing through the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) permitting process. This document does not address all target weeds in North America with permitted classical weed biocontrol agents. Information on existing USDA APHIS permitted biological control agents may be found elsewhere.

This document was compiled by Carol Bell Randall, USDA U.S. Forest Service (USFS) Forest Health Protection (FHP), for information only; it does not constitute an endorsement for funding.

A number of acronyms and initialisms are used throughout the document. Appendix 1 contains a list of acronyms and initialisms and the agencies or entities they represent.

Classical weed biological control research and development programs are listed alphabetically by target weed common name; toadflaxes are listed under Ts, an index by scientific name is located in Appendix 3.

Green highlighted weeds systems are organized through a consortium. A classical weed biological control consortium is formed to support biological control development and foreign exploration for a specific target weed, is led by a consortium chair and supported by contributions from a variety of sources.

A list of target weeds for which classical weed biocontrol research and development work may be ongoing; however, information requested was not fully available to Carol as she compiled this directory may be found in Appendix 4.

If you have additional information or corrections to the information below, please contact Carol at [crandall@fs.fed.us](mailto:crandall@fs.fed.us).

This document is intended to be a living document; it will be updated as time and resources allow.

## **Air Potato (*Dioscorea bulbifera*)**

**Project started:** 2002

**Entity conducting foreign exploration:** USDA ARS IPRL

**Project scientists:** Phil Tipping (USDA ARS), Min Rayamajhi (USDA ARS)

**Funded in 2015 or 2016 or both by:**

- USDA ARS
- FDACS DPI

**For more information contact:** [Philip.Tipping@ARS.USDA.GOV](mailto:Philip.Tipping@ARS.USDA.GOV), [Min.Rayamajhi@ARS.USDA.GOV](mailto:Min.Rayamajhi@ARS.USDA.GOV), [Eric.Rohrig@freshfromflorida.com](mailto:Eric.Rohrig@freshfromflorida.com)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3017>  
<http://plants.ifas.ufl.edu/plant-directory/dioscorea-bulbifera/>

## **African Wire Grass (*Ventenata dubia*)**

**Project started:** 2014

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** René Sforza (USDA ARS EBCL), Steve Novak (Boise State University), Massimo Cristofaro (BBCA)

**Funded in 2015 or 2016 or both by:**

- USDA ARS

**For more information contact:** [brian.rector@ars.usda.gov](mailto:brian.rector@ars.usda.gov), [rsforza@ars-ebcl.org](mailto:rsforza@ars-ebcl.org), [snovak@boisestate.edu](mailto:snovak@boisestate.edu), [m.cristofaro55@gmail.com](mailto:m.cristofaro55@gmail.com)

**Weed Information:** <http://cru.cahe.wsu.edu/CEPublications/EB2038E/eb2038E.pdf>  
<https://www.invasiveplantatlas.org/subject.html?sub=6589>

## **Brazilian Egeria (*Egeria densa*)**

**Project started:** 2010

**Project scientists:** Paul Pratt (USDA ARS), Guillermo Cabrera Walsh (FUEDEI)

**Funded in 2016-2017 by:**

- USDA ARS

**For more information contact:** [Paul.Pratt@ars.usda.gov](mailto:Paul.Pratt@ars.usda.gov)

<http://ucanr.edu/sites/DRAAWP/>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3019>

<http://plants.ifas.ufl.edu/plant-directory/egeria-densa/>

## **Brazilian Peppertree (*Schinus terebinthifolia*)**

**Project started:** 1954, 1990

**Entity conducting foreign exploration:** UF-IFAS; USDA ARS IPRL

**Project scientists:** James Cuda (UF-IFAS), Carey Minteer (University of Florida), Greg Wheeler (USDA ARS)

**Consortium chairs:** James Cuda (UF-IFAS)

**Funded in 2015 or 2016 or both by:**

- UF-IFAS
- USDA ARS
- FDACS DPI
- SFWMD
- FIPR

**For more information contact:** [jcuda@ufl.edu](mailto:jcuda@ufl.edu), [c.minteerkillian@ufl.edu](mailto:c.minteerkillian@ufl.edu), [greg.wheeler@are.usda.gov](mailto:greg.wheeler@are.usda.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=78819>

<https://plants.ifas.ufl.edu/plant-directory/schinus-terebinthifolia/>

## **Canada Thistle (*Cirsium arvense*)**

**Project started:** 2009, suspended in 2016

**Project scientists:** Carol Ellison and Kate Pollard (CABI UK); Huanhuan Wan and Hongmei Li (CABI China), Harriet Hinz (CABI Switzerland)

**Funded in 2014 or 2015 or both by:**

- USDA APHIS CPHST

**For more information contact:** [h.hinz@cabi.org](mailto:h.hinz@cabi.org)

<http://www.cabi.org/projects/project/56051>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=2792>

## **Cape-Ivy (*Delairea odorata*)**

**Project started:** 1997

**Project scientists:** Patrick Moran (USDA ARS), Liame Van der Westhuizen (ARC-PPRI), Dr. Iain Paterson (Rhodes University, South Africa)

**Funded in 2016-2017 by:**

- USDA ARS

**For more information contact:** [Patrick.Moran@ars.usda.gov](mailto:Patrick.Moran@ars.usda.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5529>

## **Cheatgrass (*Anisantha tectorum*)**

**Project started:**

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Brian Rector (USDA ARS), Massimo Cristofaro (BBCA)

**Funded in 2016 or 2017 or both by:**

- USDA ARS
- USDI BLM

**For more information contact:** [brian.rector@ars.usda.gov](mailto:brian.rector@ars.usda.gov), [m.cristofaro55@gmail.com](mailto:m.cristofaro55@gmail.com)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5214>

## **Chinese Privet (*Ligustrum sinense*)**

**Project started:**

**Entity conducting foreign exploration:** USDA ARS IPRL

**Project scientists:** Scott Horn (USDA USFS), Michael D. Ulyshen (USDA USFS), and Yanzhuo Zhang (University of Georgia)

**Funded in 2015 or 2016 or both by:**

- USDA USFS

**For more information contact:** [shorn01@fs.fed.us](mailto:shorn01@fs.fed.us), [mulyshen@fs.fed.us](mailto:mulyshen@fs.fed.us), [yzzhang@uga.edu](mailto:yzzhang@uga.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3035>  
<http://plants.ifas.ufl.edu/plant-directory/ligustrum-sinense/>

## **Chinese Tallow/ Chinese Tallowtree (*Triadica sebifera*)**

**Project started:** 2006

**Entity conducting foreign exploration:** USDA ARS ABCL

**Project scientists:** Greg Wheeler (USDA ARS), Stephen Hight (USDA ARS), Rodrigo Diaz (Louisiana State University)

**Funded in 2016-2017 by:**

- FFWCC
- USDA ARS
- USDA USFS FHP BCIP

**For more information contact:** [greg.wheeler@ars.usda.gov](mailto:greg.wheeler@ars.usda.gov)

<http://weedbiocontrol.net/>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3079>  
<http://plants.ifas.ufl.edu/plant-directory/triadica-sebifera/>

## **Cogongrass (*Imperata cylindrica*)**

**Project started:** 2011

**Entity conducting foreign exploration:** UF-IFAS

**Project scientists:** James Cuda (UF-IFAS)

**Funded in 2015 or 2016 or both by:**

- FWC
- UF-IFAS

**For more information contact:** [jcuda@ufl.edu](mailto:jcuda@ufl.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=2433>  
<http://plants.ifas.ufl.edu/plant-directory/imperata-cylindrica/>

## **Common Reed (*Phragmites australis*)**

**Project started:** 1998



**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Patrick Häfliger and Harriet L. Hinz (CABI Switzerland), Bernd Blossey (Cornell University), and Richard Casagrande (University of Rhode Island), Rob Bouchier (AAFC, Lethbridge, Canada)

**Funded in 2016 or 2017 or both by:**

- USDD ACE
- USDI FWS through Cornell University
- BC MFLNRORD
- NY DOT through Cornell University

**For more information contact:** [bb22@cornell.edu](mailto:bb22@cornell.edu), [p.haefliger@cabi.org](mailto:p.haefliger@cabi.org),  
[Robert.Bouchier@agr.gc.ca](mailto:Robert.Bouchier@agr.gc.ca)

<http://www.cabi.org/projects/project/56397>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3062>

## **Common Tansy (*Tanacetum vulgare*)**

**Project started:** 2006

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Sonja Stutz (CABI Switzerland)

**Consortium chair:** Alec McClay (McClay Ecoscience, Sherwood Park, Alberta, Canada), Jeffrey Littlefield (Montana State University)

**Funded in 2016 or 2017 or both by:**

- BC MFLNRORD
- SK MA
- Canada-Saskatchewan Growing Forward 2 Policy Framework
- AL ISC
- MNWTF through Montana State University

**For more information contact:** [info@mcclay-ecoscience.com](mailto:info@mcclay-ecoscience.com), [s.stutz@cabi.org](mailto:s.stutz@cabi.org),  
[JeffreyL@montana.edu](mailto:JeffreyL@montana.edu)

<http://www.cabi.org/projects/project/46533>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=6517>

## Dyer's Woad (*Isatis tinctoria*)

Project started: 2004

Entity conducting foreign exploration: CABI Switzerland, BBKA; USDA ARS EBCL

Project scientists: Hariet L. Hinz and Philip Weyl (CABI Switzerland); Massimo Cristofaro (BBKA) and Radmila Petanović (University of Belgrade, Serbia), Lincoln Smith (USDA ARS EBCL)

Consortium Chairs: Mark Schwarzländer (University of Idaho)

Funded in 2016 or 2017 or both by:

- WBCSC
- USDA APHIS CPHST
- USDI BLM through University of Idaho
- USDA ARS

For more information contact: [markschw@uidaho.edu](mailto:markschw@uidaho.edu), [h.hinz@cabi.org](mailto:h.hinz@cabi.org), [Link.Smith@ars.usda.gov](mailto:Link.Smith@ars.usda.gov), [mike.pitcairn@cdfa.ca.gov](mailto:mike.pitcairn@cdfa.ca.gov)

<http://www.cabi.org/projects/project/56104>

Weed Information: <https://www.invasiveplantatlas.org/subject.html?sub=4587>

## Earleaf Acacia (*Acacia auriculiformis*)

Project started: 2015

Entity conducting foreign exploration: CSIRO, University of Florida, USDA ARS

Project scientists: Carey Minter Killian (University of Florida), Melissa Smith (USDA ARS)

Funded in 2015 or 2016 or both by:

- University of Florida
- USDA ARS
- FFWCC
- FDACS

For more information contact: [c.minterkillian@ufl.edu](mailto:c.minterkillian@ufl.edu), [Melissa.Smith@ARS.USDA.GOV](mailto:Melissa.Smith@ARS.USDA.GOV)

Weed Information: <https://www.invasiveplantatlas.org/subject.html?sub=5017>

## Eurasian Watermilfoil (*Myriophyllum spicatum*)

Project started: 1975

**Entity conducting foreign exploration:** USDA ARS

**Project scientists:**

- Native and Naturalized Insects- Raymond Newman (University of Minnesota (UM)), Neal Spencer (retired)
- The fungus *Mycoleptodiscus terrestris* was originally studied for its use as a bioherbicide against *Hydrilla verticillata* but was found to be ineffective. It is currently being studied for its efficacy against Eurasian watermilfoil in field trials in Michigan. Robert Smith (LCWC)

**Funded in 2015 or 2016 or both by:**

- LCWC
- UM-LCCMR

**For more information contact:** [RNewman@umn.edu](mailto:RNewman@umn.edu), [rob1518smith@gmail.com](mailto:rob1518smith@gmail.com)

**Weed Information:** <http://plants.ifas.ufl.edu/plant-directory/myriophyllum-spicatum/>

## **Field Bindweed (*Convolvulus arvensis*)**

**Project started:** 2009

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Ghislaine Cortat (CABI Switzerland), Ivo Tosevski (CABI Serbia)

**Funded in 2016 or 2017 or both by:**

- USDA APHIS CPHST

**For more information contact:** [g.cortat@cabi.org](mailto:g.cortat@cabi.org)

<https://www.cabi.org/projects/project/62342>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4338>

## **Flowering Rush (*Butomus umbellatus*)**

**Project started:** 2013

**Entity conducting foreign exploration:** CABI Switzerland and CABI UK

**Project scientists:** Patrick Häfliger, Harriet Hinz, (CABI Switzerland), Carol Ellison (CABI UK)

**Consortium chair:** Jennifer Andreas (Washington State University)

**North American Collaborators:** Greg Haubrich (WSDA), Peter Rice (University of Montana), Jenifer Parsons (WDOE), Rob Bouchier (AAFC, Lethbridge, Canada)

**Funded in 2016 or 2017 or both by:**

- WSDA
- WDOE
- WSDNR
- USDD ACE
- MNWTF through University of Montana
- MDNRC through University of Montana
- USDA USFS through University of Montana
- USDA USFS FHTET
- Kalispel Tribe
- BC MFLNRORD

**For more information contact:** [jandreas@wsu.edu](mailto:jandreas@wsu.edu), [h.hinz@cabi.org](mailto:h.hinz@cabi.org), [Robert.Bouchier@agr.gc.ca](mailto:Robert.Bouchier@agr.gc.ca)

<http://www.cabi.org/projects/project/56422>

List serve: [flowering\\_rush\\_biocontrol\\_consortium@lists.wsu.edu](mailto:flowering_rush_biocontrol_consortium@lists.wsu.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5219>

## **French Broom (*Genista monspessulana*)**

**Project started:** 1999

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** René Sforza (USDA ARS EBCL), Gaylord Desurmont (USDA ARS EBCL)

**Funded in 2016 or 2017 or both by:**

- USDA ARS

**For more information contact:** [Link.Smith@ars.usda.gov](mailto:Link.Smith@ars.usda.gov), [mike.pitcairn@cdfa.ca.gov](mailto:mike.pitcairn@cdfa.ca.gov), [rsforza@ars-ebcl.org](mailto:rsforza@ars-ebcl.org), [gdesurmont@ars-ebcl.org](mailto:gdesurmont@ars-ebcl.org),

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5666>

## **Garlic Mustard (*Alliaria petiolata*)**

**Project started:** 1998

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Ghislaine Cortat and Harriet L. Hinz (CABI Switzerland)

**North American Collaborators:** Laura van Riper (MN DNR), Elizabeth Katovitch and Roger Becker (University of Minnesota); Robert Bouchier (AAFC, Lethbridge, Alberta)

**Funded in 2016 or 2017 or both by:**

- USDA USFS through the University of Minnesota
- USDA APHIS CPHST

**For more information contact:** [g.cortat@cabi.org](mailto:g.cortat@cabi.org)

<https://www.cabi.org/projects/project/62322>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3005>

## **Giant Reed (*Arundo donax*)**

**Project started:** 1999

**Entity conducting foreign exploration:** USDA ARS EBCL, BBCA

**Project scientists:** John Goolsby (USDA ARS), Patrick Moran (USDA ARS), Javid Kashefi (USDA ARS EBCL), Massimo Cristofaro (BBCA), Maricela Martinez Jimenez (*Instituto Mexicano de Tecnología del Agua*)

**Funded in 2006-2019 by:**

- USDA ARS
- USDHS CBP

**For more information contact:** [John.Goolsby@ars.usda.gov](mailto:John.Goolsby@ars.usda.gov) , [Patrick.Moran@ars.usda.gov](mailto:Patrick.Moran@ars.usda.gov)

<https://earthzine.org/2017/06/09/update-on-biological-control-of-carrizo-cane-in-the-rio-grande-basin-of-texas-and-mexico/>

<http://ucanr.edu/sites/DRAAWP/>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3009>

## **Giant Salvinia (*Salvinia molesta*)**

**Project started:** 2000

**Entity conducting foreign exploration:** Louisiana State University (LSU), FUEDEI (Argentina), INIA (Uruguay), USDA ARS

**Project scientists:** Rodrigo Diaz (LSU), Guillermo Cabrera-Walsh (FUEDEI), Ximena Cibils (INIA)

**Funded 2015 through 2021 by:**

- Louisiana Department of Wildlife and Fisheries
- Coypu Foundation

**For more information contact:** [rdiaz@agcenter.lsu.edu](mailto:rdiaz@agcenter.lsu.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=2785>

<http://www.lsuagcenter.com/giantsalvinia>

## **Hawkweeds (*Pilosella* spp.)**

**Project started:** 2000

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Ghislaine Cortat (CABI Switzerland)

**Consortium chairs:** Jeff Littlefield (Montana State University) and Rosemarie De Clerck-Floate (AAFC, Lethbridge, Alberta)

**Funded in 2016 or 2017 or both by:**

- MNWTF through Montana State University
- USDA APHIS CPHST
- AAFC
- BC MFLNRORD

**For more information contact:** [jeffreyl@montana.edu](mailto:jeffreyl@montana.edu), [Rosemarie.DeClerck-Floate@AGR.GC.CA](mailto:Rosemarie.DeClerck-Floate@AGR.GC.CA), [g.cortat@cabi.org](mailto:g.cortat@cabi.org)

<https://www.cabi.org/projects/project/62351>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4423>

<https://www.invasiveplantatlas.org/subject.html?sub=4424>

<https://www.invasiveplantatlas.org/subject.html?sub=4422>

## **Himalayan Balsam (*Impatiens glandulifera*)**

**Project started:** 2006

**Entity conducting foreign exploration:** CABI

**Project scientists:** Carol Ellison (CABI UK)

**North American collaborators:** Robert Bouchier (AAFC, Lethbridge, Alberta); Susan Turner (BC MFLNRORD)

**Funded in 2016 or 2017 or both by:**

- BC MFLNRORD
- Consortium of European Funders

**For more information contact:** [c.ellison@cabi.org](mailto:c.ellison@cabi.org)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=12794>

## **Hoary Cress/ Whitetop (*Lepidium draba*)**

**Project started:** 2001

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Philip Weyl and Hariet L. Hinz (CABI Switzerland)

**Consortium chairs:** Mark Schwarzländer (University of Idaho) and Brian Connely (Natrona County Weed and Pest, WY)

**Funded in 2016 or 2017 or both by:**

- WBCSC
- MNWTF through Montana State University
- USDA APHIS CPHST
- USDI BLM through the University of Idaho
- BC MFLNRORD

**For more information contact:** [markschw@uidaho.edu](mailto:markschw@uidaho.edu), [p.weyl@cabi.org](mailto:p.weyl@cabi.org)

<http://www.cabi.org/projects/project/56246>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5232>

## **Houndstongue (*Cynoglossum officinale*)**

**Project started:** 1988

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Hariet L. Hinz (CABI Switzerland)

**Consortium chairs:** Mark Schwarzländer (University of Idaho)

**Funded in 2016 and 2017 by:**

- USDA APHIS CPHST

**For more information contact:** [markschw@uidaho.edu](mailto:markschw@uidaho.edu), [h.hinz@cabi.org](mailto:h.hinz@cabi.org)  
<http://www.cabi.org/projects/project/56272>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5502>

## **Hydrilla (*Hydrilla verticillata*)**

**Project started:** 1971

**Entity conducting foreign exploration:** USDA ARS, UF-IFAS, USDD ACE, CSIRO

**Project scientists:**

- Insects- James Cuda (UF-IFAS), Nathan Harms (USACE), Matthew Purcell (CSIRO)
- *Mycoleptodiscus terrestris*- David Schisler (USDA ARS, retiring 2018)

**Funded in 2015 or 2016 or both by:**

- USDA ARS
- UF-IFAS
- USDD ACE

**For more information contact:** [jcuda@ufl.edu](mailto:jcuda@ufl.edu) , [Nathan.E.Harms@usace.army.mil](mailto:Nathan.E.Harms@usace.army.mil)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3028>  
<http://plants.ifas.ufl.edu/plant-directory/hydrilla-verticillata/>

## **Knotweed (*Fallopia species*)**

**Project started:** 2010

**Entity conducting foreign exploration:** CABI

**Project scientists:** Fritzi Grevstad (Oregon State University), Robert Bouchier (AAFC), Richard Shaw (CABI UK), Marion Seier (CABI UK), Corin Pratt (CABI UK), Daisuke Kurose (CABI UK)

**North American Collaborators:** Fritzi Grevstad (Oregon State University), Susan Turner (BC MFLNRORD), Rob Bouchier (AAFC, Lethbridge, Alberta), Jennifer Andreas (Washington State University Extension)

**Funded in 2016 or 2017 or both by:**

- USDA USFS FHP BCIP
- WSDA
- BC MFLNRORD



- Consortium of European Funders

**For more information contact:** [fritzi.grevstad@science.oregonstate.edu](mailto:fritzi.grevstad@science.oregonstate.edu), [m.seier@cabi.org](mailto:m.seier@cabi.org), [c.pratt@cabi.org](mailto:c.pratt@cabi.org), [r.shaw@cabi.org](mailto:r.shaw@cabi.org)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=59459>  
<https://www.invasiveplantatlas.org/subject.html?sub=19929>  
<https://www.invasiveplantatlas.org/subject.html?sub=19655>

## **Medusahead (*Taeniatherum caput-medusae*)**

**Project started:** 2000

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Brian Rector (USDA ARS), Paul Pratt (USDA ARS), Steve Novak (Boise State University), René Sforza (USDA ARS EBCL), Massimo Cristofaro (BBCA)

**Funded in 2016 or 2017 or both by:**

- USDI BLM
- USDA ARS

**For more information contact:** [brian.rector@ars.usda.gov](mailto:brian.rector@ars.usda.gov), [Paul.Pratt@ars.usda.gov](mailto:Paul.Pratt@ars.usda.gov), [snovak@boisestate.edu](mailto:snovak@boisestate.edu), [rsforza@ars-ebcl.org](mailto:rsforza@ars-ebcl.org), [m.cristofaro55@gmail.com](mailto:m.cristofaro55@gmail.com)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=6507>

## **Melaleuca (*Melaleuca quinquenervia*)**

**Project started:** 1977

**Entity conducting foreign exploration:** USDA ARS, UF-IFAS

**Project scientists:** Melissa Smith, Phil Tipping, Min Rayamajhi (USDA ARS IPRL)

**Funded in 2015 or 2016 or both by:**

- USDA
- FWC
- SFWMD

**For more information contact:** [Melissa.Smith@ars.usda.gov](mailto:Melissa.Smith@ars.usda.gov), [Philip.Tipping@ARS.USDA.GOV](mailto:Philip.Tipping@ARS.USDA.GOV), [Min.Rayamajhi@ARS.USDA.GOV](mailto:Min.Rayamajhi@ARS.USDA.GOV)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=2783>

## **Old World Climbing Fern (*Lygodium microphyllum*)**

**Project started:** 1997

**Entity conducting foreign exploration:** USDA ARS

**Project scientists:** Ellen Lake (USDA ARS IPRL)

**Funded in 2015 or 2016 or both by:**

- USDA ARS
- SFWMD
- FFWCC

**For more information contact:** [Ellen.Lake@ars.usda.gov](mailto:Ellen.Lake@ars.usda.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3046>

## **Oxeye Daisy (*Leucanthemum vulgare*)**

**Project started:** 2008

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Sonja Stutz (CABI Switzerland)

**Consortium chair:** Alec McClay (McClay Ecoscience, Sherwood Park, Alberta, Canada), Jeffrey Littlefield (Montana State University)

**Funded in 2016 or 2017 or both by:**

- BC MFLNRORD
- MNWTF through Montana State University
- AL ISC

**For more information contact:** [info@mccclay-ecoscience.com](mailto:info@mccclay-ecoscience.com), [s.stutz@cabi.org](mailto:s.stutz@cabi.org), [JeffreyL@montana.edu](mailto:JeffreyL@montana.edu)

<http://www.cabi.org/projects/project/56283>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5937>

## **Perennial Pepperweed (*Lepidium latifolium*)**

**Project started:** 2006

**Entity conducting foreign exploration:** CABI Switzerland, BBKA

**Project scientists:** Sonja Stutz & Harriet L. Hinz (CABI Switzerland) Massimo Cristofaro (BBKA), and Radmila Petanović (University of Belgrade, Serbia)

**Consortium chair:** Aaron Foster (Fremont County Weed and Pest, WY)

**Funded in 2016 or 2017 or both by:**

- WBCSC
- USDA APHIS CPHST
- USDI BLM through University of Idaho

**For more information contact:** [afoster@wyoming.com](mailto:afoster@wyoming.com), [s.stutz@cabi.org](mailto:s.stutz@cabi.org)

<http://www.cabi.org/projects/project/56296>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5931>

## **Red Brome (*Anisantha rubens*)**

**Project started:** 2015

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Brian Rector (USDA ARS), Massimo Cristofaro (BBKA)

**Funded in 2016 or 2017 or both by:**

- USDA ARS
- USDI BLM

**For more information contact:** [brian.rector@ars.usda.gov](mailto:brian.rector@ars.usda.gov), [m.cristofaro55@gmail.com](mailto:m.cristofaro55@gmail.com)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5211>

## **Rush Skeletonweed (*Chondrilla juncea*)**

**Project started:** 1996

**Entity conducting foreign exploration:** BBKA Italy

**Project scientists:** Massimo Cristofaro (BBKA), Rita Dolgovskaya and Mark Volkovich (Zoological Institute, St. Petersburg)

**Consortium chairs:** Joseph Milan (USDI BLM)

**Funded in 2016 by:**

- USDI BLM through the University of Idaho

**For more information contact:** [jmilan@blm.gov](mailto:jmilan@blm.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4404>

## **Russian Knapweed (*Rhaponticum repens*)**

**Project started:** 1997

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Philip Weyl and Urs Schaffner (CABI Switzerland) Massimo Cristofaro (BBCA)

**Consortium chair:** Matthew Jolivet (Natrona County Weed and Pest, WY)

**Funded in 2016 or 2017 or both by:**

- WBCSC
- USDA APHIS CPHST
- MNWTF through Montana State University

**For more information contact:** [ncwp.jolivet@gmail.com](mailto:ncwp.jolivet@gmail.com), [afoster@wyoming.com](mailto:afoster@wyoming.com),  
[p.weyl@cabi.org](mailto:p.weyl@cabi.org)

<http://www.cabi.org/projects/project/32793>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4388>

## **Russian Olive (*Elaeagnus angustifolia*)**

**Project started:** 2007

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Philip Weyl and Urs Schaffner (CABI Switzerland) in collaboration with Massimo Cristofaro (BBCA), Sharlene Sing (USDA USFS RMRS), Rosemarie De Clerck-Floate (AAFC, Lethbridge, Alberta)

**Consortium chairs:** Aaron Foster (Fremont County Weed and Pest, WY)

**Funded in 2016 or 2017 or both by:**

- WBCSC
- MNWTF through Montana State University
- BC MFLNRORD

**For more information contact:** [afoster@wyoming.com](mailto:afoster@wyoming.com), [p.weyl@cabi.org](mailto:p.weyl@cabi.org), [ssing@fs.fed.us](mailto:ssing@fs.fed.us),  
[Rosemarie.DeClerck-Floate@AGR.GC.CA](mailto:Rosemarie.DeClerck-Floate@AGR.GC.CA)

<http://www.cabi.org/projects/project/46552>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3022>

## **Russian Thistle (*Salsola tragus*)**

**Project started:** 1970s

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Lincoln Smith (USDA ARS EBCL), Massimo Cristofaro (BBCA)

**Funded in 2015 or 2016 or both by:**

- USDI BLM
- USDA ARS

**For more information contact:** [Link.Smith@ars.usda.gov](mailto:Link.Smith@ars.usda.gov), [Patrick.Moran@ara.usda.gov](mailto:Patrick.Moran@ara.usda.gov), [mike.pitcairn@cdfa.ca.gov](mailto:mike.pitcairn@cdfa.ca.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=6375>

## **Sahara Mustard (*Brassica tournefortii*)**

**Project started:** 2015

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Daniel Winkler (USDI USGS), René Sforza (USDA ARS EBCL), Massimo Cristofaro (BBCA), David Garmon (Tubb Canyon Desert Conservancy)

**Funded in 2015 or 2016 or both by:**

- USDA ARS
- Tubb Canyon Desert Conservancy

**For more information contact:** [jdgarmon@me.com](mailto:jdgarmon@me.com), [winkler.de@gmail.com](mailto:winkler.de@gmail.com), [rsforza@ars-ebcl.org](mailto:rsforza@ars-ebcl.org)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5215>

## **Scotch Broom (*Cytisus scoparius*)**

**Project started:** 2013

**Project scientists:** Paul Pratt (USDA ARS), Jennifer Andreas (Washington State University), Scott Onetto (University of California Cooperative Extension, Jackson, CA)

**Funded in 2016-2017 by:**

- USDA ARS

**For more information contact:** [Paul.Pratt@ars.usda.gov](mailto:Paul.Pratt@ars.usda.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4408>

## **Scotch Thistle (*Onopordum* spp.)**

**Project started:** 2000

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Lincoln Smith (USDA ARS EBCL), Massimo Cristofaro (BBCA)

**Funded in 2015 or 2016 or both by:**

- USDI BLM
- USDA ARS

**For more information contact:** [Link.Smith@ars.usda.gov](mailto:Link.Smith@ars.usda.gov) , [mike.pitcairn@cdfa.ca.gov](mailto:mike.pitcairn@cdfa.ca.gov)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4432>

## **Swallow-Worts (*Vincetoxicum* spp.)**

**Project started:** 2006

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Ghislaine Cortat (CABI Switzerland), Robert Bouchier (AAFC, Lethbridge, Alberta), Lindsey Milbrath (USDA ARS), René Sforza (USDA ARS EBCL)

**Funded in 2016 or 2017 or both by:**

- AAFC
- USDA ARS

**For more information contact:** [robert.bouchier@agr.gc.ca](mailto:robert.bouchier@agr.gc.ca), [g.cortat@cabi.org](mailto:g.cortat@cabi.org), [rsforza@ars-ebcl.org](mailto:rsforza@ars-ebcl.org)

<http://www.cabi.org/projects/project/46591>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3398>

<https://www.invasiveplantatlas.org/subject.html?sub=4260>

## Toadflax Dalmatian and Yellow (*Linaria* spp.)

**Project started:** 1960's . . . 1980's . . . 2000's

**Entity conducting foreign exploration:** CABI Switzerland

**Project scientists:** Ivo Toševski, André Gassmann, and Harriet Hinz (CABI Switzerland), Lincoln Smith (USDA ARS EBCL), Patrick Moran (USDA ARS), Sharlene Sing (USDA USFS RMRS), Rosemarie De Clerck-Floate (AAFC, Lethbridge, Alberta)

**Consortium chairs:** Rosemarie De Clerck-Floate (AAFC, Lethbridge, Alberta), Andrew Norton (Colorado State University), Josh Shorb (Park County Weed and Pest, WY)

**Funded in 2016 or 2017 or both by:**

- WBCSC
- USDA APHIS CPHST
- MNWTF through Montana State University
- USDA USFS through Montana State University
- BC MFLNRORD
- USDA ARS

**For more information contact:** [Rosemarie.DeClerck-Floate@AGR.GC.CA](mailto:Rosemarie.DeClerck-Floate@AGR.GC.CA), [apnorton@lamar.colostate.edu](mailto:apnorton@lamar.colostate.edu), [h.hinz@cabi.org](mailto:h.hinz@cabi.org), [Patrick.Moran@ars.usda.gov](mailto:Patrick.Moran@ars.usda.gov)

<http://www.cabi.org/projects/project/46570>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5939>  
<https://www.invasiveplantatlas.org/subject.html?sub=3800>

## Tree-of-Heaven (*Ailanthus altissima*)

**Project started:** 2004

**Entity conducting foreign exploration:** Virginia Polytechnic Institute and State University (VPI)

**Project scientists:** Scott Salom (VPI), Tom McAvoy (VPI), Matt Kasson (West Virginia University)

**Consortium chairs (if applicable):** N/A

**Funded in 2004 – 2018 by:**

- USDA USFS

**For more information contact:** [salom@vt.edu](mailto:salom@vt.edu), [mtkasson@mail.wvu.edu](mailto:mtkasson@mail.wvu.edu), [rreardon@fs.fed.us](mailto:rreardon@fs.fed.us)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3003>

## **Tropical Soda Apple (*Solanum viarum*)**

**Project started:** 1994

**Entity conducting foreign exploration:** UF-IFAS, USDA ARS

**Project scientists:**

- Insects- Julio Medal, James Cuda (UF-IFAS)
- Virus- indigenous or naturalized (not an exotic) registered with US Environmental Protection Agency (EPA) as a bioherbicide (SolviNix LC); may be used as a classical biological control agent in regions where it is not currently prevalent. Emeritus professor Raghavan Charudattan (UF IFAS)

**Funded in 2015 or 2016 or both by:**

- USDA APHIS
- FDACS DPI
- UF-IFAS
- BioProdex, Inc. <http://www.bioprodex.com/index.html>

**For more information contact:** [Julio.Medal@freshfromflorida.com](mailto:Julio.Medal@freshfromflorida.com), [jcuda@ufl.edu](mailto:jcuda@ufl.edu), [rcharu@ufl.edu](mailto:rcharu@ufl.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=2446>  
<http://plants.ifas.ufl.edu/plant-directory/solanum-viarum/>

## **Water Chestnut/ European Water Chestnut (*Eleocharis dulcis*)**

**Project started:** 2000

**Entity conducting foreign exploration:** Cornell University (through Jianqing Ding)

**Project scientists:** Bernd Blossey (Cornell University)

**Funded in 2015 – 2017 by:**

- NY DEC through the New York Invasive Species Research Institute

**For more information contact:** [bb22@cornell.edu](mailto:bb22@cornell.edu)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3499>

## **Water Hyacinth (*Eichhornia crassipes*)**

**Project started:** 1960s, suspended until early 2000s, then restarted



**Project scientists:** Phil Tipping (USDA ARS), Patrick Moran (USDA ARS), Paul Pratt (USDA ARS), Guillermo Cabrera Walsh (FUEDEI),

**Funded in 2016-2017 by:**

- USDA ARS
- USDD ACE

**For more information contact:** [Philip.Tipping@ars.usda.gov](mailto:Philip.Tipping@ars.usda.gov), [Patrick.Moran@ars.usda.gov](mailto:Patrick.Moran@ars.usda.gov), [Paul.Pratt@ars.usda.gov](mailto:Paul.Pratt@ars.usda.gov), [Mike.Pitcairn@cdfa.ca.gov](mailto:Mike.Pitcairn@cdfa.ca.gov)

<http://ucanr.edu/sites/DRAAWP/>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=3020>  
<http://plants.ifas.ufl.edu/plant-directory/eichhornia-crassipes/>

## **Waterprimroses (*Ludwigia* spp.)**

**Project started:** 2012

**Project scientists:** Brenda Grewell (USDA ARS), Paul Pratt (USDA ARS), Guillermo Cabrera Walsh (FUEDEI), Paul Pratt (USDA ARS)

**Funded in 2016-2017 by:**

- USDA ARS

**For more information contact:** [Paul.Pratt@ars.usda.gov](mailto:Paul.Pratt@ars.usda.gov), [Brenda.Grewell@ars.usda.gov](mailto:Brenda.Grewell@ars.usda.gov)

<http://ucanr.edu/sites/DRAAWP/>

**Weed Information:** <http://plants.ifas.ufl.edu/plant-directory/ludwigia-species/>

## **Wild Ginger (*Hedychium* spp.)**

**Project started:** 2008

**Entity conducting foreign exploration:** CABI

**Project scientists:** Djami Djeddour, Corin Pratt, Norbert Maczey (CABI UK)

**North American collaborators:** Tracy Johnson (USDA USFS), Pat Bily (The Nature Conservancy, Hawaii)

**Funded in 2016-18 by:**

- Hawaii Invasive Species Council (DNLR)
- Landcare Research, New Zealand

- Hawaii Watershed Partnership

**For more information contact:** [d.djeddour@cabi.org](mailto:d.djeddour@cabi.org)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=5692>  
<https://www.invasiveplantatlas.org/subject.html?sub=5693>  
<https://www.invasiveplantatlas.org/subject.html?sub=5695>

## **Yellow Himalayan Raspberry (*Rubus ellipticus*)**

**Project started:** 2006 (China focus) 2012 (India focus)

**Entity conducting foreign exploration:** Wuhan Botanical Institute, China, CABI UK

**Project scientists:** Jianqing Ding, Kai Wu, Jialiang Zhang (Wuhan Botanical Institute, China), Tracy Johnson (USDA USFS), Marion Seier (CABI UK)

**Funded by in 2015, 2016 and 2018:**

- HI DLNR
- Hawaii Watershed Partnership <http://hawp.org/partnerships/>

**For more information contact:** [m.seier@cabi.org](mailto:m.seier@cabi.org), [tracyjohnson@fs.fed.us](mailto:tracyjohnson@fs.fed.us)

<https://dlnr.hawaii.gov/hisc/files/2013/03/Johnson-Rubus-ellipticus-final.pdf>

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=14094>

## **Yellow Starthistle (*Centaurea solstitialis*)**

**Project started:** 1960s

**Entity conducting foreign exploration:** USDA ARS EBCL

**Project scientists:** Lincoln Smith (USDA ARS EBCL), Massimo Cristofaro (BBCA)

**Funded in 2015 or 2016 or both by:**

- USDI BLM
- USDA ARS

**For more information contact:** [Link.Smith@ars.usda.gov](mailto:Link.Smith@ars.usda.gov), [mike.pitcairn@cdfa.ca.gov](mailto:mike.pitcairn@cdfa.ca.gov), [m.cristofaro55@gmail.com](mailto:m.cristofaro55@gmail.com)

**Weed Information:** <https://www.invasiveplantatlas.org/subject.html?sub=4390>

## Appendix 1: Acronyms and Initialisms

AAFC	Agriculture and Agri-Food Canada
ABCL	Australian Biological Control Laboratory
ACOE	USDD-Army Corps of Engineers
AL	Alberta, Canada
APHIS	USDA Animal and Plant Health Inspection Service
ARC-PPRI	Agricultural Research Centre- Plant Protection Research, South Africa
ARS	USDA Agricultural Research Service
BBCA	Biotechnology and Biological Control Agency, Italy
BC	British Columbia, Canada
BCIP	USDA USFS FHP Biological Control of Invasive Plant Program
BLM	USDOI Bureau of Land Management
CABI	Centre for Agriculture and Biosciences International
CBP	USDHS Customs and Border Protection
CDFA	California Department of Food and Agriculture
CPHST	USDA-APHIS Center for Plant Health Science and Technology
CSIRO	Commonwealth Scientific and Industrial Research Organisation, Australia
DEC	Department of Environmental Conservation
DLNR	Department of Land and Natural Resources
DNR	Department of Natural Resources
DOT	Department of Transportation
DPI	FDACS Division of Plant Industry
EBCL	USDA ARS European Biological Control Lab, Montpellier, France
FDACS	Florida Department of Agriculture and Consumer Services
FHAASST	USDA USFS FHP Forest Health Assessment and Applied Science Team
FHTET	USDA USFS FHP Forest Health Technology Enterprise Team
FHP	USDA USFS Forest Health Protection
FIPR	Florida Industrial and Phosphate Research Institute
FFWCC	Florida Fish and Wildlife Conservation Commission
FUEDEI	Fundacion para el Estudio de Especies Invasivas, Buenos Aires, Argentina
FWS	USDI Fish and Wildlife Service
HI	Hawaii State
INIA	Ministerio de Agriculture, Chile Instituto de Investigaciones Agropecuarias
IPRL	USDA ARS Invasive Plant Research Laboratory
ISC	Invasive Species Council
LCWC	Les Cheneaux Watershed Council
MA	Ministry of Agriculture
MDNRC	Montana Department of Natural Resources and Conservation
MFLNRORD	Ministry of Forests, Lands and Natural Resource Operations and Rural Development
MN	Minnesota State
MNWTF	Montana Noxious Weed Trust Fund

NY	New York State
RMRS	USDA USFS Rocky Mountain Research Station
SK	Saskatchewan, Canada
SFWMD	South Florida Water Management District
UF-IFAS	University of Florida Institute of Food and Agricultural Sciences
UK	United Kingdom
UM-LCCMR	University of Minnesota Legislative Citizen Commission on Minnesota Resources
USDA	United States Department of Agriculture
USDD	United States Department of Defense
USDHS	United States Department of Homeland Security
USDI	United States Department of the Interior
USFS	USDA U.S. Forest Service
USGS	USDI U.S. Geological Survey
VPI	Virginia Polytechnic Institute and State University
WBCSC	Wyoming Biological Control Steering Committee
WDOE	Washington State Department of Ecology
WRRC	USDA ARS Western Regional Research Center
WSDA	Washington State Department of Agriculture
WSDNR	Washington State Department of Natural Resources

## Appendix 2: References

Biotechnology and Biological Control Agency, Italy (BBCA): <http://www.bbcaonlus.org/>

Centre for Agriculture and Biosciences International (CABI): <http://www.cabi.org> ,  
<http://www.cabi.org/about-cabi/cabi-centres/switzerland/weed-biocontrol/>

CABI Weed Biological Control Progress Report 2016:  
<http://www.cabi.org/Uploads/CABI/about-us/4.4-global-locations/Switzerland/Weeds%20progress%20report%202016.pdf>

CABI Weed Biological Control Progress Report 2017:  
[https://www.cabi.org/Uploads/CABI/about-us/CABI%20centres/Weed\\_progress\\_report.pdf](https://www.cabi.org/Uploads/CABI/about-us/CABI%20centres/Weed_progress_report.pdf)

European Biological Control Lab (USDA ARS EBCL), Montpellier, France  
<http://www.ars-ebcl.org/>

iBiocontrol- Biological Control of Weeds: <https://www.ibiocontrol.org/>

Biological Control of Weeds: A world Catalogue of Agents and their Target Weeds  
<https://www.ibiocontrol.org/catalog/>

International Symposia on Biological Control of Weeds  
<https://www.ibiocontrol.org/proceedings/>

Biological Control Publications: <https://www.ibiocontrol.org/publications.cfm>

Instituto de Investigaciones Agropecuarias: <http://www.inia.cl/>

Invasive Plant Atlas of the United States: <https://www.invasiveplantatlas.org/>

University of Florida Center for Aquatic and Invasive Plants: <https://plants.ifas.ufl.edu/>

USDA-APHIS Biological Control Program:  
[https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa\\_domestic\\_pests\\_and\\_diseases/sa\\_bio\\_control](https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa_domestic_pests_and_diseases/sa_bio_control)

Weed Biological Control <http://weedbiocontrol.net/>  
Brazilian Pepper <http://weedbiocontrol.net/BP/bp.html>  
Chinese Tallow <http://weedbiocontrol.net/CT/ct.html>  
Australian Pine <http://weedbiocontrol.net/CT/ct.html>  
Melaleuca <http://weedbiocontrol.net/MA/ma.html>

### Appendix 3: Alphabetical Index of Target Weed by Scientific Name

Genus	Species	Listed Common Name	Other
<i>Acacia</i>	<i>auriculiformis</i>	Earleaf Acacia	
<i>Ailanthus</i>	<i>altissima</i>	Tree-of-Heaven	
<i>Alliaria</i>	<i>petiolata</i>	Garlic Mustard	
<i>Anisantha</i>	<i>rubens</i>	Red Brome	Formerly <i>Bromus</i>
<i>Anisantha</i>	<i>tectorum</i>	Cheatgrass	Formerly <i>Bromus</i>
<i>Arundo</i>	<i>donax</i>	Giant Reed	
<i>Brassica</i>	<i>tournefortii</i>	Sahara Mustard	
<i>Butomus</i>	<i>umbellatus</i>	Flowering Rush	
<i>Centaurea</i>	<i>solstitialis</i>	Yellow Starthistle	
<i>Chondrilla</i>	<i>juncea</i>	Rush Skeletonweed	
<i>Cirsium</i>	<i>arvense</i>	Canada Thistle	
<i>Convolvulus</i>	<i>arvensis</i>	Field Bindweed	
<i>Cynoglossum</i>	<i>officinale</i>	Houndstongue	
<i>Cytisus</i>	<i>scoparius</i>	Scotch Broom	
<i>Dioscorea</i>	<i>bulbifera</i>	Air Potato	
<i>Delairea</i>	<i>odorata</i>	Cape-Ivy	
<i>Egeria</i>	<i>densa</i>	Brazilian Egeria	
<i>Eichhornia</i>	<i>crassipes</i>	Water Hyacinth	
<i>Elaeagnus</i>	<i>angustifolia</i>	Russian Olive	
<i>Eleocharis</i>	<i>dulcis</i>	Water Chestnut	European Water Chestnut
<i>Fallopia</i>	<i>species</i>	Knotweeds	
<i>Genista</i>	<i>monspessulana</i>	French Broom	
<i>Hedychium</i>	spp.	Wild Ginger	
<i>Hydrilla</i>	<i>verticillata</i>	Hydrilla	
<i>Impatiens</i>	<i>glandulifera</i>	Himalayan Balsam	
<i>Imperata</i>	<i>cylindrica</i>	Cogongrass	
<i>Isatis</i>	<i>tinctoria</i>	Dyer's Woad	
<i>Lepidium</i>	<i>draba</i>	Hoary Cress	Whitetop
<i>Lepidium</i>	<i>latifolium</i>	Perennial Pepperweed	
<i>Leucanthemum</i>	<i>vulgare</i>	Common Tansy	
<i>Ligustrum</i>	<i>sinense</i>	Chinese Privet	
<i>Linaria</i>	<i>dalmatica</i>	Toadflax	Dalmatian
<i>Linaria</i>	<i>vulgare</i>	Toadflax	Yellow
<i>Ludwigia</i>	<i>species</i>	Waterprimroses	
<i>Lygodium</i>	<i>microphyllum</i>	Old World Climbing Fern	
<i>Melaleuca</i>	<i>quinquenervia</i>	Melaleuca	
<i>Myriophyllum</i>	<i>spicatum</i>	Eurasian Watermilfoil	

<i>Onopordum</i>	<i>species</i>	Scotch Thistle	
<i>Phragmites</i>	<i>australis</i>	Common Reed	
<i>Pilosella</i>	<i>aurantiaca</i>	Hawkweeds	Orange, Formerly genus <i>Hieracium</i>
<i>Pilosella</i>	<i>caespitosa</i>	Hawkweeds	Meadow, Formerly genus <i>Hieracium</i>
<i>Pilosella</i>	<i>officinarum</i>	Hawkweeds	Mouse-ear hawkweed
<i>Rhaponticum</i>	<i>repens</i>	Russian Knapweed	Formerly genus <i>Acroptilon</i>
<i>Rubus</i>	<i>ellipticus</i>	Yellow Himalayan Raspberry	
<i>Salsola</i>	<i>tragus</i>	Russian Thistle	
<i>Salvinia</i>	<i>molesta</i>	Giant Salvinia	
<i>Schinus</i>	<i>terebinthifolia</i>	Brazilian Peppertree	
<i>Solanum</i>	<i>viarum</i>	Tropical Soda Apple	
<i>Taeniatherum</i>	<i>caput-medusae</i>	Medusahead	
<i>Tanacetum</i>	<i>vulgare</i>	Common Tansy	
<i>Triadica</i>	<i>sebifera</i>	Chinese Tallowtree	Chinese Tallow
<i>Ventenata</i>	<i>dubia</i>	African Wire Grass	
<i>Vincetoxicum</i>	<i>species</i>	Swallow-Worts	

## Appendix 4: Potential Classical Weed Biological Control Research Programs

The following information is required for a classical weed biocontrol research and development program in order to include it in the main directory:

**Project started:** (year)

**Entity conducting foreign exploration:**

**Project scientists:**

**Consortium chairs (if applicable):**

**Funded in (Year(s)) by:**

**For more information contact:**

There are a number of additional weeds targeted for biological control research and development which are not included in the directory above. A partial list is included below. Please feel free to send me information on ongoing programs I have overlooked so I can include them in future versions of this directory:

*Crested floating heart (Nymphoides cristata)*

- Nathan Harms, USDD ACE, [Nathan.E.Harms@usace.army.mil](mailto:Nathan.E.Harms@usace.army.mil)

*Fig Buttercup (Ficaria verna)*

-

*Gorse (Ulex europaeus)*

- Fritzi Grevstad, Oregon State University, [fritzi.grevstad@science.oregonstate.edu](mailto:fritzi.grevstad@science.oregonstate.edu)

*Guinea Grass (Megathyrsus maximus)*

- John Goolsby, USDA ARS, [John.Goolsby@ars.usda.gov](mailto:John.Goolsby@ars.usda.gov)

*Japanese Stiltgrass (Microstegium vimineum)*

- Richard Reardon, USDA USFS FHAAS, [rreardon@fs.fed.us](mailto:rreardon@fs.fed.us)

*Kudzu (Pueraria montana)*

- Richard Reardon, USDA USFS FHAAS, [rreardon@fs.fed.us](mailto:rreardon@fs.fed.us)

*Mile-a-Minute Weed (Persicaria perfoliata)*

- Richard Reardon, USDA USFS FHAAS, [rreardon@fs.fed.us](mailto:rreardon@fs.fed.us)

- Ellen Lake, USDA ARS, [ellen.lake@ars.usda.gov](mailto:ellen.lake@ars.usda.gov)



Parrotfeather (*Myriophyllum aquaticum*)

-

Rose Myrtle (*Rhodomyrtus tomentosa*)

- Melissa Smith, USDA ARS, [Melissa.Smith@ars.usda.gov](mailto:Melissa.Smith@ars.usda.gov)

Skunk Vine (*Paederia foetida*)

- Min Rayamajhi, USDA ARS, [Min.Rayamajhi@ars.usda.gov](mailto:Min.Rayamajhi@ars.usda.gov)

Yellow floating heart (*Nymphoides peltata*)

-Nathan Harms, USDD ACE, [Nathan.E.Harms@usace.army.mil](mailto:Nathan.E.Harms@usace.army.mil)