

1 **Title:**

2 Federal Agency-Perspectives and -Funding Opportunities for Weed and Invasive Plant Research

3 Symposium

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16 **Introduction:**

17 Weeds and invasive plants know no borders and have collectively impacted many ecosystems
18 worldwide, including croplands, forests, grasslands, rangelands, wetlands, and riparian areas. Losses
19 continue to mount, affecting yield and productivity, species diversity, and ecosystem services, with both
20 short and long-term repercussions on the sustainability of plant and animal communities and the
21 livelihoods of many. New and emerging invasive plants, along with many of the most intractable weeds,
22 have undermined even the best control efforts, serving as a reminder of the constant need for
23 improvements in science, application, and technology. One of the main reasons for the success of weeds
24 and invasive plants is their ability to adapt to abiotic and biotic conditions and research suggests that
25 this will continue with minimal change.

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27 Despite the challenges posed by weeds and invasive plants, integrated management techniques, several
28 effective chemistries, and the development of new technology are a signal that ongoing and renewed
29 efforts are worthwhile. National coordination is needed across the sectors of weed and invasive plant
30 sciences to achieve common goals. Federal agencies have the largest land holdings—which are infested
31 with weeds and invasive plants— and work with a diverse group of stakeholders comprising managers,
32 researchers, and regulators. Thus, there is an urgent and pressing need to facilitate dialogue between
33 federal agencies specific to weed and invasive plant science to 1) serve as a starting point for
34 summarizing current knowledge and identifying information gaps and 2) re-engage national program
35 leaders and representatives to better coordinate programs in addressing common challenges.

36
37 Federal departments and agencies with expertise in weed and invasive plant science were brought
38 together at a symposium held during the Weed Science Society of America 63rd Annual Meeting.
39 Individuals from Animal and Plant Health Inspection Service (APHIS), Agricultural Research Service (ARS),

40 National Institute of Food and Agriculture (NIFA), Office of Pest Management Policy (OPMP), Natural
 41 Resources Conservation Service (NRCS), US Forest Service (USFS), Bureau of Land Management (BLM),
 42 US Geological Survey (USGS), National Park Service (NPS), Department of Defense (DOD), Army Corps of
 43 Engineers (ACOE), National Aeronautics and Space Administration (NASA), and National Science
 44 Foundation (NSF) shared current research and management efforts and participated in a discussion
 45 focused on the identification of funding opportunities and other issues pertaining to research gaps and
 46 management needs among this society’s membership.

47

48 Table 1. Funding opportunities for select federal agencies that focus on weeds and invasive plants.

Agency	Program	Notes
ARS	Areawide Pest Management Program	This is an internally funded program at ARS
APHIS	Plant Protection Act Section 7721	Search website
DOD	Strategic Environmental Research and Development Program	Link to funding
	Environmental Security Technology	Link to funding
	Certification Program	
EPA	EPA Grants	Search for weeds and/or invasive plants
NASA	Applied Sciences Program – Agriculture, Ecological Conservation	Browse practitioner resources, including opportunities that links to NSPIRES (NASA Solicitation and Proposal Integrated Review and Evaluation System)

NIFA	Agriculture and Food Research Initiative (AFRI)	Several programs, including inter-disciplinary, in plant health and production categories
	Crop Protection and Pest Management	Link to RFA
	Methyl Bromide Transition	Link to RFA
	IR-4	Link to RFA
	Organic Agriculture Research and Extension Initiative	Search program information
	Organic Transitions	Search program information
	Specialty Crop Research Initiative	Link to RFA
DOI	Funding Guide for Invasive Species Management	Search program information
NRCS	Conservation Innovation Grants	This program has funded projects on weeds and invasive plants
NSF	Plant Biotic Interactions	A joint program with NIFA that focuses on agricultural species
USFS	Invasive Forest Plants	Requests for applications through the Working with Us link

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50 Each federal department and agency gathered at the symposium support weed and invasive plant

51 science research and/or management through grant funding, technical assistance, and scientific studies.

52 They represent a diversity of stakeholders who may be separated geographically yet have a common

53 focus on weeds and invasive plants in crop, terrestrial, and aquatic ecosystems.

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55 The panelists shared their perspectives in response to audience questions and several ideas were
56 generated on how best to use the information gained from a recent WSSA survey of members on the
57 needs and direction of research in the field of weed and invasive plant science. The symposium provided
58 an environment to have a productive dialogue that focused on research gaps, program support, and
59 national initiatives in weed and invasive plant science. Many existing relationships were strengthened,
60 and new ones developed as a result of the symposium.

61

62 The terrestrial and aquatic areas covered by federal agencies and the work of employees and associated
63 stakeholders to address weeds and invasive plants are a primary reason to focus on improved
64 coordination and communication. As such, the symposium, which brought national program leaders and
65 representatives from 12 federal agencies and departments together, was an initial effort in this direction
66 by discussing weed and invasive plant science efforts and what is known and needed in order to help
67 build and re-establish connections. Funding and engagement opportunities for each agency and
68 department have been provided for greater awareness among weed and invasive plant scientists (Table
69 1). In addition, an effort is underway to identify gaps and overlaps in invasive plant activities that could
70 create opportunities for greater collaboration at the national level. Ultimately, the symposium served as
71 an important starting point for more frequent and diverse interactions, improving information and
72 knowledge transfer pathways, and building collaborations.

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