

Northeast Invasive Plant Species Forum: Breakout Questions

1. What should be high priorities for invasive plant research, extension, and/or integrated activities in funding programs of agencies or organizations?
2. Is there a challenge with currently fitting invasive species research interests within the USDA, NSF, USFS or other agency/NGO/industry goals? If so, what are the challenges and how can they be addressed?
3. What suggestions do you have for better communication between scientists at colleges/universities, government agencies and industry to facilitate pursuit of strategic research/extension goals?
4. Given the challenges of putting together creative and competent teams of investigators for inter-disciplinary approaches within the short timelines typically established for RFAs, how can we better position ourselves to ensure development of thoughtful effective proposals?
5. Do you see the Multistate Project option as a viable mechanism for strategically pursuing research/extension related to invasive plants research?
 - a. What are the advantages and limitations of a multistate project approach? Can the limitations be overcome?
 - b. Should the composition of natural and social sciences participants be prescribed (e.g., ensure representation from ecology, economics, mathematical modeling, extension/outreach; policy)?
 - c. For advancing invasive species research in the region, where is the need on the continuum between 1) periodic regular coordination activity that spawns partnerships and small collaborative projects and 2) focused development of large coordinated research projects.

Benning, Linda

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Subject: Important! -- Northeast Invasive Plant Species Forum Materials, March 21-22
Attachments: March2012NEInvasivePlantSpeciesForum.pdf; ParticipantsMarch2012NEInvasivePlantSpForum.pdf; BreakoutQuestionsInvasiveSpeciesForumRev1.pdf

To: Northeast Invasive Plant Species Forum Participants

Please find attached the following materials for your review prior to the Forum, but there's no need to bring copies. These will also be in your folders that you'll pick up when you sign in on Thursday, March 22:

1. The Northeast Invasive Plant Species Forum Program
2. List of Participants
3. Questions for the Breakout Session

Some reminders---

- The "Meet and Greet" reception on Wednesday, March 21, 5:00-7:00 pm, will be held at the Holiday Inn's Adirondack Room inside the restaurant. Everyone is invited to this free networking event. Food and non-alcoholic drinks will be served. Restaurant's cash bar is right next to the Adirondack Room.
- The Forum will be held at the USDA Beltsville Agricultural Research Center Campus - Building 5, Conference Room 021, on Thursday, March 22, from 7:00 am to 3:30 pm. **Conference Room 021 is on the ground floor and easily accessible from the right side of the building, across the parking lot.**
- The Holiday Inn will provide a shuttle to take hotel guests to the Forum. The shuttle will start leaving the hotel at 7:00AM. Please make sure to let the Front Desk know that you need a ride. Also schedule pick-up if you need a ride to return to the hotel after the forum. Walking is also an option if the weather is nice. USDA-Bldg. 5 is within a 20min. walking distance from the hotel.

- Registration/Sign-in: Please sign in and obtain a badge/nametag when you get into Building 5. Federal employees can use their government-issued ID to enter the building.
- Attire is business casual.

Driving Directions:

Beltsville Agricultural Research Center, BARC - West Side, 10300 Baltimore Avenue, Beltsville, MD 20705

* From the Capital Beltway(I-95/I-495), take EXIT 25 onto Route 1 NORTH (Baltimore Avenue).

* Get into the left lane

* After 1/2 mile you will see the 14-story National Agricultural Library on the right

* Turn LEFT onto South Drive which is directly across from the National Agricultural Library

* Turn 1st RIGHT onto Circle Drive

* Keep going until you reach the last building past the Clock Tower/Bldg. 3. Park on the right or behind Building 5. **Parking is free** and you don't need a USDA tag. USDA is aware of the event so no one will be towed!

Conference Room 021 is on the ground floor and easily accessible from the right side of the building, across the parking lot.

There is a USDA shuttle that services the Greenbelt Metro Station. The schedule is posted at ---
<http://www.ars.usda.gov/PandP/docs.htm?docid=9078>

See you next week!

Thanks,
Rubie

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Rubie G. Mize

NERA

USDA-BARC-West Building 3 Room 220

10300 Baltimore Avenue

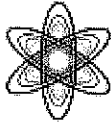
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[Home](#) > [Life Sciences](#) > [Neuroscience](#) > [Searching for the Mind](#) > The Plant "Brain": The Dodder Attacks

The Plant "Brain": The Dodder Attacks

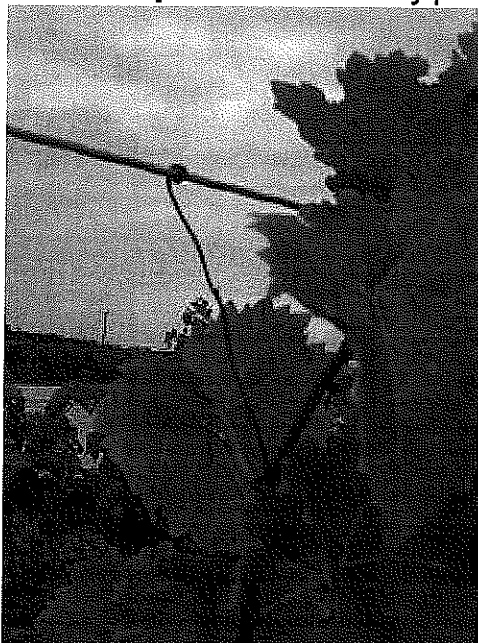
By *JonLiefMD*

Created Mar 21 2012 - 11:45am

Most of the time, **we do not think of plants as having the ability to plan, move, and attack.** Certain behaviors of plants have been known for many years, such as the ability to turn to face sunlight, to open and close leaves each day and night, and to catch insects. It is only recently that the behavior of plants has moved into the center of biological research, with **some striking findings that raise further questions about what plants know** and what they are able to do. We are beginning to see complex communication between plants, and elaborate defenses against invaders.

A Plant Predator

The Dodder plant, related to morning glories, is **a very toxic weed that presents problems for other plants.** It has very poor ability to use photosynthesis to produce its own energy and organic material. For survival, **it has to get its nutrients as a parasite.** Like predator animals, it gets food from attacking other plants. But, how can a plant attack other plants?



Recent research has taken Dodder plants and placed them away from other plants. Dodder is **able to sense other plants, even feet away, and to grow toward them,** guided by a sense of smell. When the Dodder reaches a nearby plant, it places a feeler on the plant stalk and **can detect whether it is nutritious or not.** If the plant is not a high quality candidate from which to extract nutrients, such as a wheat plant, it pulls back the feeler from that plant and grows toward another plant. When it finds a plant that is rich in nutrients, such as a tomato, it spends two days winding itself several times around the plant. **It then attacks the plant by attaching suckers and extracting the nutrients from the other plant.**

The Dodder will not grow toward fake plants. It will grow toward a chemical with tomato essence, but not to other smelly organic compounds. This means it is clearly able to differentiate the smells of the plants it wants to attack.

Cognitive Abilities

This behavior of the Dodder plant shows abilities including sensing other plants, moving towards them, determining the amount of nutrients in the plants, and then actively taking the nutrients for itself.

Future posts will discuss elaborate communication between plants and other species, and complex defense mechanisms including planning for a future event. **What is the "brain" in a plant that allows these cognitive processes without neurons or brains?**

Neuroscience

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