



Maryland Invasive Species Council
November 16, 2006
USDA Beltsville Agricultural Research Center
Building 307, BARC-E
Beltsville, MD

Call to Order: ~9:50 a.m. (delayed by unfortunate coffee incident, no injuries reported), Bob Tichenor

Additions to the agenda

None

Introductions

Carole Bordelon, National Arboretum

*Christopher Carley, National Arboretum

Dave Clement, MCE

**G. Keith Douce, UGA

Eric Duce, SHA

Mike Farley, EQR

Robert A. Feldt, MD DNR FS

Anne Hairston-Strang, MDNR

Ruth Hanessian, MAPI

Lane Heimer, MDA

Mike Hemming, Eastern Shore Nurseries

Carol Holko, MDA

Marc Imlay, Sierra Club, MAEPPC

Kerrie Kyde, MD DNR

Jonathan McKnight, MD DNR

Mary Kay Malinoski, MCE

Betty Marose, MCE

Ellen Nibali, MCE

Jil Swearingen, NPS

John Peter Thompson, Behnke Nurseries

Bob Tichenor, MDA

*indicates new attendee

** guest speaker

Membership

Motion to accept Robert Feldt as voting member. Motion seconded and passed.

Carole Bordelon requests reinstatement. Mike Farley requests voting membership. Will be voted on at next meeting attended.

Approval of Minutes, August 2006 meeting

Motion to approve minutes as submitted. Motion seconded and approved.

Presentation: *Center of Invasive Species and Ecosystem Health, G. Keith Douce, University of Georgia, College of Agriculture and Environmental Sciences, Bugwood Network Tifton GA*

! The Center will formalize existing structure

! Prefer .tif image files

! Handout - **Attachment A.**

! Website <http://www.bugwood.org>

! Discussion:

" Need to connect with ARS SEL re diagnostic needs

" Project needs to be approved at UGA before increasing to national scope

" How can MISC help?

Motion for MISC to prepare a letter in support of the Center for MISC membership approval. Motion seconded and approved.

Kerrie will prepare draft letter and circulate via listserv.

Updates & Discussion Topics:

DNR - J. McKnight, K. Kyde

- ! ANS Regulations in force
- ! Chinese mitten crab
- ! Purple loosestrife (PLS) PTI grant - MDA and DNR released 42K predatory beetles on 22 sites, 28 locations submitted through Website, 18 through MDA and county weed control staff; breeding population established at Cheltenham lab; trained 207 PLS scouts
- ! Virile crayfish - no definitive way to ID species of crayfish by catch in goldfish shipments in pet trade, DNR will help with ID; 4 high-risk species in regs.

MDA - C. Holko, R. Tichenor

- ! Emerald ash borer (EAB)
 - " Quarantine issued for all of Prince George's County August 22, 2006 with Infested Area south of Rte. 4; movement of ash wood or ALL HARDWOOD FIREWOOD from regulated areas is prohibited
 - " USDA quarantine revision expected soon
 - " APHIS is providing funding - Maryland is a priority site - furthest outlier and not contiguous with other infested states
 - " Trees with exit holes found SE and N of original eradication area, bumped out buffer area; still associated with 2003 introduction
 - " MD DNR FS is conducting ash inventory, will oversee logging in wooded areas
 - " MDA is delimiting EAB populations, survey in 1 ½ - 2 mile buffer area; ash inventory on street trees
 - " Current eradication area is ~16K acres
 - " Working with Maryland Environmental Services Western Branch Composting Facility, Upper Marlboro - accepts almost all curbside yard waste in Prince George's County, and some arborist material; critical control point
 - " Outreach works - broad support for the project on all fronts - utilization, logging, homeowner response, tree painting/removal
 - Public meetings to be held November 29, December 7, 7 p.m. MDA will issue press release and post details on <http://mda.state.md.us/plants-pests/eab/>, or go to MDA home page and click on big green beetle
- ! Gypsy moth
 - " Garrett County is one of the worst areas, lots of stressed trees of concern; Baltimore Co. reservoir has defoliating populations for 1st time since 1995; reduced FS \$\$ - looking for other funding

NEWS AND NEW BUSINESS

John Peter Thompson - Alliance to preserve USDA BARC, 40 agencies and national companies; meeting tomorrow

Mike Farley, Environmental Quality Resources - On the ground invasive species programs; wants to carry science, technological, and regulatory input into project development; wants to join

Marc Imlay - assisting in a presentation on the interaction of non-native invasive plant removal and deer control, will send out email request for information.

National Arboretum - concerned about eab; survey for invasives in all wild areas, emphasizing ornamentals that may have become invasive; *P. ramorum* survey *Rhododendrons*, *Camellias* conducted by USDA - all negative; MA-EPPC Winter Meeting November 24

Kerrie Kyde - DNR Landowner Incentive Program, opportunity for contract botanist on nursery site in Prince George's County, **Attachment B**.

Anne Hairston-Strang - Japanese hops PTI, collecting incidences of Japanese hops, next summer will evaluate best methods of control

Future meetings

January, March... (new cycle)

Contact Bob Tichenor with location suggestions (Behnke's, Bowie library)

January 18, 2006

Kerrie will take responsibility for ensuring that IOTM's are submitted.

December - Barberry, Jil Swearingen

January - EAB, Carol Holko

~Adjourn 12:30 p.m.~

Respectfully submitted by: Carol Holko, Recording Secretary

Center of Invasive Species and Ecosystem Health

(Proposed)

G. Keith Douce

David J. Moorhead

The University of Georgia

College of Agricultural and Environmental Sciences

Warnell School of Forestry and Natural Resources

Bugwood Network, Tifton Georgia

Presentation to Maryland Invasive Species Council

November 16, 2006

Center for Invasive Species & Ecosystem Health

Invasive plants, insects, plant pathogens, aquatic species and terrestrial wildlife cost the United States economy more than \$100 billion each year. Agricultural and forested systems have been coming under increased stress due to problems caused by both non-native invasive species and native pest organisms. Solutions to these problems require collaborations that transcend traditional disciplinary, college, institutional and agency approaches, as well as state and national borders.

The Bugwood Network, developed through faculty cooperation between the College of Agricultural and Environmental Sciences (CAES) and the Warnell School of Forestry and Natural Resources (WSFNR), has become an internationally recognized entity addressing issues on invasive species and ecosystem (agricultural, forested and natural system) health. By formalizing this existing structure, we propose to become the Center for Invasive Species & Ecosystem Health. The Center formation will allow expansion of current Bugwood Network programs to attract emerging funding opportunities and to better serve the College, School, University and its partners.

Mission Statement

The mission of the Center for Invasive Species & Ecosystem Health (here after the Center) is to serve a lead role in development, consolidation and dissemination of information and programs focused on invasive species, forest health, natural resource and agricultural management through technology development, program implementation, training, applied research and public awareness at the state, regional, national and international levels.

The goals of the Center are:

- To become a preeminent national and international public service and outreach center for invasive species and ecosystem health
- To develop collaboration between UGA and state, university, federal and international partners in these areas
- To integrate and develop information and programs in these areas
- To produce web sites, publications, posters and presentations in these areas
- To serve as a clearing house for information, applied research and training in these areas
- To promote public awareness, education and applied research in these areas

Background

Over the last 12 years, Drs Douce and Moorhead have developed programs in entomology, forest health, integrated pest management, silviculture, and forest management through the Bugwood Network. The Bugwood Network consists of the following faculty and staff:

University Funded:

G. Keith Douce, Ph.D. Entomology
Professor, CAES

David J. Moorhead, Ph.D. Forest Ecophysiology
Professor, WSFNR

Salina C. McAllister, Dipl. Business and Office Technology/Accounting
Administrative Assistant II, WSNFR

Grant Funded (Department of Entomology, CAES):

Charles T. Barger, M.S. Computer Science
Information Technology Application Support Professional
Christopher W. Evans, M.S. Forest Biology
Public Service Professional – Invasive Species and Natural Resources
Joseph H. LaForest, M.S. Entomology and M.S. Plant Pathology
Research Professional – Forest Health and IPM
Jessica N. Smith, Dipl. Internet Specialist/Website Design
Laboratory Technician – Digital Imaging and Web Design
Walter B. Sikora, PhD Entomology
Laboratory Technician (Part-time) – Insect Taxonomy and Photography

The Bugwood Network personnel work throughout the state, region, nation and internationally in forestry, entomology and invasive species to:

- Develop educational resources on emerging issues including bulletins, publications, posters, CD-ROMs and presentations
- Provide training and support for landowners, natural resource professionals and managers, as well as the general public
- Develop and administer fifteen educational web systems
- Seek and archive digital images in four topic-based web systems to support educational activities
- Support activities of professional organizations such as Exotic Pest Plant Councils, Entomology Societies, Forestry Organizations, etc.
- Manage the Georgia Cooperative Agricultural Pest Survey Program and Georgia Invasive Species Task Force
- Develop and implement policy and protocols for early detection and rapid response of invasive species
- Develop and administer the Southeastern U.S. Invasive Plant Mapping program
- Develop web versions of USDA Forest Service Forest Health Protection and Forest Health Technology Enterprise Team publications
- Provide image support for the Southern Plant Diagnostic Network, Exotic Forest Pest Information System, Global Pest and Disease Database and National Invasive Species Information Center
- Facilitate and extend program development and Maymester courses in Europe

During 2005, the Bugwood Web Sites:

- Received nearly 76 million hits (up from 46 million hits in 2004);
- Served more than 28 million pages of information (up from 17 million in 2004)
- Served over 7 million users (up from 3.7 million users in 2004).

The Bugwood image sites contain more than 44,000 high quality photographs on more than 6,900 subjects from over 1000 photographers.

Facilities and Equipment

Located at the University of Georgia – Tifton Campus in the old Administration Building of the Coastal Plain Experiment Station, the Bugwood Network personnel utilize eight offices (with one assigned to USDA APHIS PPQ personnel), a 575 sq. foot computer laboratory, and a climate controlled fire resistant computer server room. Supporting equipment includes 11 desktop computers, 4 laptops, 10 web/database/file/image servers, 3 computer projectors, 4 print/film scanners, 2 laser printers, a large format plotter, a copier and high speed internet.

Cooperating Organizations

United States

USDA Forest Service

- Forest Health Protection, Forest Health Technology Enterprise Team (FHTET)
- Forest Health Protection national and regional-levels
- National Invasive Species program
- Encyclopedia of the Appalachians – Forest Health

USDA Animal and Plant Health Inspection Service (APHIS) Plant Protection Quarantine (PPQ)

- Cooperative Agricultural Pest Survey (CAPS)
- Global Pest and Disease Database (GPDD)
- The Center for Plant Health Science and Technology
- Eastern Region Office
- State Plant Health Director – Georgia

USDA Cooperative State Research, Education, and Extension Service

USDA Agricultural Research Service

USDA Natural Resource Conservation Service, PLANTS Database

U.S. Department of the Interior - Geological Survey

U.S. Department of the Interior - National Park Service

National Plant Diagnostics Network, Southern Region (SPDN)

NSF Center for Integrated Pest Management (CIPM)

The Nature Conservancy (TNC)

Exotic Pest Plant Councils (EPPCs)

Georgia Forestry Commission

Georgia Department of Agriculture, Plant Health Division

Joseph W. Jones Ecological Research Center

Other Land-grant Universities

Maryland Invasive Species Council ???

International

Australia

Pest and Disease Image Library (PaDIL), Museum Victoria

Croatia

University of Zagreb

Ministry of Agriculture, Forestry and Water Management

Czech Republic

Forestry and Game Management Research Institute, Praha

Europe, Mediterranean & Western Asia

European and Mediterranean Plant Protection Organization (EPPO), Paris, France

France

Department of Forest Health, Ministry of Agriculture and Food, Paris

Germany

Sächsische Forestry Institute, Pirna

Bavarian Forestry Institute, Freising

Technical University Munich, Freising

Great Britain

Commonwealth Agricultural Bureau, International (CABI)

Hungary

Forest Research Institute, Mátrafüred

University of West Hungary, Sopron

North America – U.S., Canada & Mexico

North American Forest Commission Exotic Forest Pest Information System

Poland

Forest Research Institute, Forest Protection Department, Sekocin

Slovak Republic

Forest Research Institute

Slovenia

Slovenia Forest Service, Ljubljana

Slovenia Forest Research Institute, Ljubljana

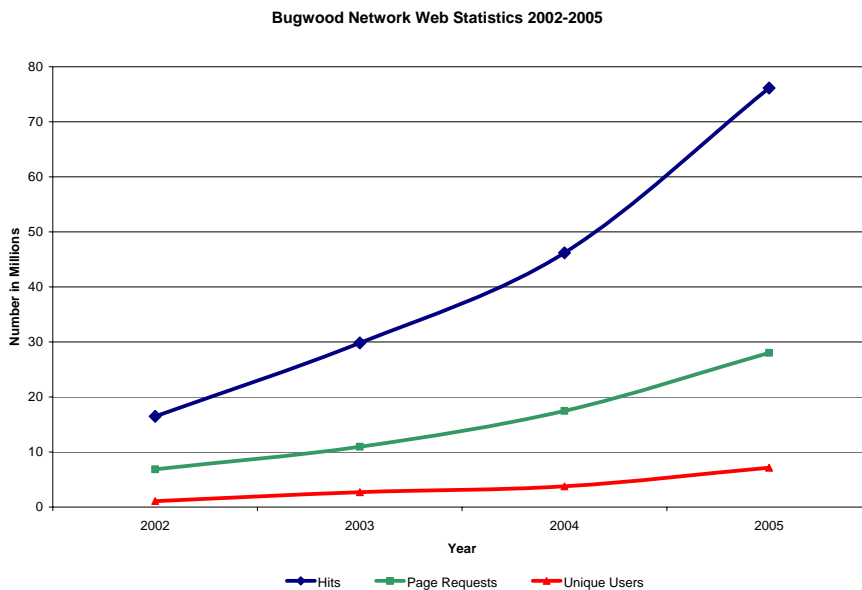
University of Ljubljana, Ljubljana

Bugwood Network Web Sites:

- Bugwood, www.bugwood.org
- Forestry Images, www.forestryimages.org
- Invasive and Exotic Species, www.invasive.org
- Insect Images, www.insectimages.org
- IPM Images, www.ipmimages.org
- Forest Pests of North America, www.forestpests.org
- Bark and Wood Boring Beetles of the World, www.barkbeetles.org
- Georgia Integrated Pest Management, www.gaipm.org
- Georgia Invasive Species Task Force, www.gainvasive.org
- Georgia Exotic Pest Plant Council, www.gaeppc.org
- Southeast Exotic Pest Plant Council, www.se-eppc.org
- Southern Forest Insect Work Conference, www.sfiwc.org
- Eastern Arc Mountains Information Source, www.easternarc.org
- Cogongrass in the Southeast U.S., www.cogongrass.org
- Regional Tropical Soda Apple Task Force, www.tropicalsodaapple.org

Bugwood Network Statistics 2002 – June 2006

Year	Hits	Page Requests	Unique Users
2002	16,460,391	6,855,422	1,074,462
2003	29,815,932	10,939,191	2,700,267
2004	46,192,562	17,457,868	3,756,927
2005	76,112,321	28,029,233	7,129,119
2006	<u>54,928,339</u>	<u>23,348,933</u>	<u>6,451,392</u>
Total	223,509,545	87,121,686	21,146,167





BUGWOOD NETWORK

www.bugwood.org

information sources supporting forestry, natural resources and agriculture



Photo by David Crippen, USA2100048



Photo by James Miller, USA0016288

The University of Georgia

Daniel B. Warnell School of Forestry and Natural Resources and

Department of Entomology - College of Agricultural and Environmental Sciences

Funding and Support from:

USDA Forest Service - Forest Health Protection
 USDA Forest Service - Forest Health Technology Enterprise Team
 USDA APHIS PPQ, USDA CSREES and
 NSF Center for Integrated Pest Management

The Bugwood Networks' mission is:

To gather, create, maintain, promote the use of, and distribute digital information as tools to enhance and complement information exchange and educational activities.



Interactive CD-ROMs



Web Sites

Expanding Extension, Service and Outreach to a global audience through use of the World Wide Web.

Web Sites include:

- Bugwood Network, www.bugwood.org
- Forestry Images, www.forestryimages.org
- Invasive and Exotic Species, www.invasive.org
- Insect Images, www.insectimages.org
- IPM Images, www.ipmimages.org
- Forest Pests of North America, www.forestpests.org
- Bark Beetles of North America, www.barkbeetles.org
- Georgia Integrated Pest Management, www.gaipm.org
- Georgia Invasive Species Task Force, www.gainvasive.org
- Georgia Exotic Pest Plant Council, www.gaepc.org
- Southeast Exotic Pest Plant Council, www.se-epc.org
- Southern Forest Insect Work Conference, www.sfiwc.org
- Eastern Arc Mountains Information Source, www.easternarc.org
- Cogongrass in the Southeast US, www.cogongrass.org
- Regional Tropical Soda Apple Task Force, www.tropicalsodaapple.org

These sites average over 7 million hits and 2.5 million requests from 750,000 unique users each month.



Full Color Publications

High-Quality/High-Resolution Image Archive

Over 35,000 images from 950 photographers covering 5900 species from 80 countries



Photo by Bob Billings, Texas Forest Service

System is:

- Database Driven
- Fully-searchable
- "Taxonomically" - based
- Focused on images and includes links to information and publications

Images are:

- High Quality
- Available in 5 Resolutions
192 x 128 to 3072 x 2048
- Uniquely Numbered
- Downloadable
- Selected for Quality and Content
- Reviewed for Taxonomy and Descriptive Information
- Available at No Cost for Educational Use with Proper Photographer and Archive Credit



Photo by William Castle, USA1468111

Images can be and are used in:

- Web pages
- PowerPoint Presentations
- Newsletters
- Newspaper articles
- Posters
- Magazines
- Full-page color prints
- Diagnostic Keys
- Journals
- Text Books



Photo by Chris Evans, USA1264035

Forest Health



Forest Insects



Forest Diseases

www.forestpests.org
 Featuring USDA Forest Service
 Forest Health Protection Publications



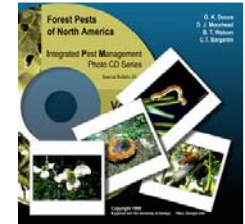
Photo by William Castle, USA1468111



Photo by William Castle, USA1468111

Bark Beetles of North America
www.barkbeetles.org

Content available on 2-disc CD-ROM set with 192 high resolution images along with major publications on identification, distribution and management

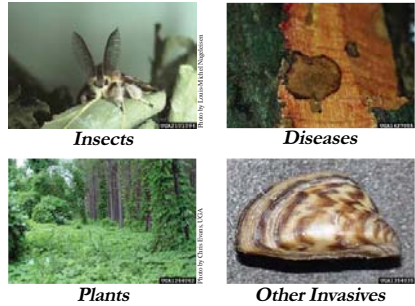


Forest Pests of North America PhotoCD

- 300 high resolution images
- 150 insect images
- 150 disease images
- Kodak PhotoCD format
- Full scientific descriptions
- Photographer credits
- \$45 (U.S.) including shipping

Host and Develop the
 Southern Forest Insect Work Conference Website
www.sfiwc.org

Invasive Species



Insects

Diseases

Plants

Other Invasives

www.invasive.org

Featuring USDA Forest Service

Forest Health Technology Enterprise Team Publications



Invasive Plants of the Eastern United States CD

- 97 species
- High resolution images
- Identification and control information
- USDA Forest Service, National Park Service, U.S. Fish and Wildlife and SE-EPPC publications
- 20,000 copies distributed



www.cogongrass.org



www.tropicalsodaapple.org



www.se-eppc.org

Their Natives are Our Exotics

- Polish Forest Research Institute
- Hungarian Forest Research Institute
- European & Mediterranean Plant Protection Organization
- Forestry and Game Management Research Institute - Czech Republic
- University of Zagreb - Croatia
- Forest Research Institute - Slovak Republic
- Département de la Santé des Forêts - France
- Sächsische Landesanstalt für Forsten - Germany
- University of Udin - Italy
- Università di Padova - Italy
- University of Ljubljana - Slovenia
- Dept. of Agriculture, Fisheries and Forestry - Australia



and many others

Forestry and Natural Resources

www.forestryimages.org



Fire

Trees and Stand Types

Silvicultural Practices



Understory and Rangeland Plants

Wildflowers



Forest Products

Nursery Practices



Wildlife

Agriculture and Integrated Pest Management

www.ipmimages.org



Agricultural Crops

Horticultural Crops

Vegetables, Fruits, Nuts, Lawn, Turf, Livestock and Poultry

Featuring:



Clemson University - USDA Cooperative Extension Slide Series



R.J. Reynolds Tobacco Company Slide Set

Insects

www.insectimages.org



Clickwise: Joseph Berger, David Cappant, Susan Ellis, David Cappant, George Cooks, Susan Ellis, David Cappant and George Cooks

Submission Guidelines for Images

The Bugwood Network Image Archive is actively accepting image submissions. Your images will make the archive more useful. The Forestry Images website contains guidelines for submission of images (<http://www.forestryimages.org/contribute.cfm>) including details for submitting slides, digital images, negatives and line art, as well as editing and image handling guidelines. A summary follows.

Quantity - The Bugwood Network can work with any number of images, but receiving groups of 50-100 images or image files promotes efficient processing and does not burden the photographer with an extreme amount of documentation.

Quality - Original slides should be submitted whenever possible, as they provide better color and detail than slide copies. Digital scans and image files should be submitted at the highest quality and resolution possible to maximize the usefulness of the image.

Image Formats

Slides: Submit original slides in protective sleeves or boxes or digitized photographic slides on a compact disc (CD). Received slides will be scanned and then returned to the contributor.

Scan slides at a high resolution (2000 PPI or greater). Scanned image files typically should be 10 megabytes or larger. The file format should be uncompressed TIFF. The received TIFF files will be archived in their original state. Crop and rotate images as required prior to submission.

Digital camera image files: Submit high-resolution image files taken with a good-quality digital camera. Use at least a 4-megapixel digital camera if possible. Images should be taken at the largest size and best quality settings that the camera is able to produce. If sending JPEG files, please submit the best quality JPEG photos your camera can produce. Very good quality can be obtained in high-resolution JPEG files. However, if TIFF or RAW files are available, please send those, as they are the highest quality images. Send the least-edited, least compressed file available.

Package all submissions as securely as possible. Digital submissions can be sent on CD or DVD. We request e-mail notification that the materials are underway and the date that they were sent so that we can anticipate their arrival and can schedule image processing. We will do everything possible to ensure that the items are processed and returned expeditiously.

Regardless of how images are submitted, subject identification and descriptive information for each image must be provided.

Photographers are asked to join the Forestry Images system at <http://www.forestryimages.org/join/> to ensure current and correct affiliation and contact information.

For More Information, Contact:

Keith Douce, David Moorhead, Chuck Bargeron or Chris Evans
The Bugwood Network
The University of Georgia - Tifton
4601 Research Way Room 114
P.O. Box 748
Tifton, GA 31793 USA

Phone - 229-386-3298
Fax - 229-386-3352
E-mail - bugwood@uga.edu

Request for Proposals: Behnke Nurseries Co. Botanical Survey and Management Plan

Date RFP Issued:

Submission deadline: December 1, 2006

Award date: January 15, 2006

Background:

The Behnke Nurseries Co. was founded in Beltsville Maryland in 1930 and currently has two retail locations in Beltsville and Potomac, where it grows and sells ornamental plants. In 2005, Behnke's established a new greenhouse and nursery production facility in Lothian, MD. The Lothian property is located on the eastern banks of the Patuxent River in Anne Arundel County on the site of an old sand and gravel mining operation. Much like the habitat found at Jug Bay Wetland Sanctuary, the deep sandy soils found at the Behnke's site are home to unique plant species as well as to rare sand-dependent invertebrates including bee, tenebrionid beetle and tiger beetle species.

As required by Critical Area regulations for mandatory soil erosion control, the slopes of the former pit had been planted with the non-native plant Chinese lespedeza (*Lespedeza cuneata*). Lespedeza is a shrubby, warm-season, perennial legume that can reach 2 meters tall and has a deep and extensive taproot.

Project Overview

With a grant from the Maryland Landowner Incentive Program, administered by the Maryland Department of Natural Resources, the Behnke Nurseries Co. is initiating a native plant project with the following goals: 1) to determine and propagate native plants that could be used to stabilize the steep banks of the old sand & gravel pit instead of the non-native lespedeza monocultures 2) to remove and replace the non-native lespedeza with native species in order to stabilize the slopes while creating better habitat for the rare sand barren-dwelling invertebrates, and 3) to create habitat that would best benefit rare hymenopterans, tiger beetles and tenebrionid beetles both by planting native species and by carrying out a disturbance regime to maintain sandy, early-successional openings.

Scope of Work & Required Deliverables:

Botanists, plant specialists, and naturalists with a background in native plant identification, life history, and/or propagation are encouraged to submit proposals detailing a work plan for the first goal of the project: the inventory of the plant species and communities occurring on the Behnke's property (approximately 120 acres, see attached map). Required deliverables include:

- 1) An inventory and maps of the plant species and communities occurring on the property;
- 2) A report that details the findings of the inventory work, including:
 - a. The composition and phenology of native plants on the property throughout the growing season
 - b. Identification of potential native sand barren species for propagation and their location on the property or nearby
 - c. Propagation recommendations for suggested native plants (when and how to collect seeds and greenhouse propagation recommendations).

Using the information provided in this report, a habitat restoration/enhancement plan will be developed for the Behnke Nurseries Co. site to include invasive species removal, native plant propagation and planting, and microhabitat enhancements for RTE invertebrates.

Timeline:

Survey work should begin by February of 2007, with the map and report due by September 2007.

Proposal Submission:

Please submit proposals with a work plan that explains how the required deliverables will be met. Include a time line of the inventory activities, an estimate of the amount of hours that may be required to complete the task, and the hourly rate. Proposals should also include resumes or CV of qualifications.

Send proposals via mail or e-mail to:

Linh Phu
Maryland Landowner Incentive Program
Department of Natural Resources
580 Taylor Ave, E-1
Annapolis, MD 21401
lphu@dnr.state.md.us

Basis for Award of Contract:

Proposals will be reviewed by DNR biologists and Behnke Nurseries Co. in December 2006 and final decisions will be made by January 15, 2007.

For additional information, contact: Linh Phu, 410-260-8554