

Semi-Annual Narrative Progress Report for Fiscal Year 2004
Indiana Cooperative Agricultural Pest Survey (CAPS)

Progress made toward accomplishment of Fiscal Year 2004 work plan objectives during the period January 1st, 2004 through June 30th, 2004.

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Name	Organization	Discipline
Dr. Christopher Pierce	Purdue University	State Survey Coordinator
Dr. Robert Waltz	IN Dept. Natural Resources	Entomology/ Regulatory Science
Gary Simon	USDA APHIS PPQ SPHD	Regulatory Science
Dr. Steve Yaninek	Purdue University	Biological Control/ Invasive Species
Phil Marshall	IN Dept. Natural Resources	Forest Health
Cloyce Hedge	IN Dept. Natural Resources	Plant Ecology/ Identification
James Carroll	USDA APHIS PPQ	Forest Health
Jim Pheasant	CERIS	NAPIS
Gail Ruhl	Purdue University	Plant Disease Diagnostics
Dr. Karen Rane	Purdue University	Plant Pathology
Dr. Cliff Sadof	Purdue University	Ornamental Pests
Dr. Chris Oseto	Purdue University	Entomology
Dr. Ray Martyn	Purdue University	Botany/ Plant Pathology
Dr. Peter Hirst	Purdue University	Horticulture

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Overview

Indiana CAPS Exotic Survey Projects for 2004

1. Core Proposals

a. Old world bollworm survey

This project was initiated to provide information regarding the presence or absence of this damaging insect is not known to occur in Indiana or the United States. Pheromone traps (3 traps per site) for *Helicoverpa armigera* were placed in 6 Indiana Counties (Porter, Whitley, Tippecanoe, Randolph, Knox, and Jennings) in late June. Funnel traps using rubber impregnated with pheromones are serviced on a bi-weekly schedule and will continue to be serviced until the end of October. Specimens will continue to be identified and positive or negative data will be entered into NAPIS by December 1st, 2004.

Pest:

Old world bollworm, *Helicoverpa armigera*

b. Sudden Oak Death disease survey

A preliminary survey to detect the presence of *Phytophthora ramorum*, the casual agent of Sudden Oak Death, in Indiana nurseries that received shipment of nursery stock from geographical areas of California and Oregon which are known to harbor the pathogen was initiated in the spring of 2004. Dr. Robert Waltz coordinated the collection of nursery samples by IDNR inspectors. Hybrid rhododendron, *Pieris* and *Vaccinium* spp., were the primary host plants sampled. Samples were packaged accordingly and shipped to the Purdue Plant and Pest Diagnostic Lab to be processed. Tissue samples were processed by an ELISA method. Extracted DNA from positive ELISA samples were sent to USDA, APHIS-PPQ/ CPHST Lab in Beltsville, Maryland for PCR confirmation. Survey samples resulted in negative findings for this pathogen in Indiana. Subsequent negative information was entered into NAPIS.

Pest:

Phytophthora ramorum, a fungal pathogen

c. Wood boring beetle survey

The Wood boring beetle survey was initiated in late March to survey selected warehouses in Indiana to detect newly introduced, exotic woodboring beetles and to document pest movement of United States and North American endemic wood boring species in warehouses. The exotic bark beetle survey is coordinated by USDA APHIS PPQ and the Indiana CAPS State Coordinator works in conjunction the USDA on survey activities. Pheromone and host volatile traps were placed in 50 selected warehouses throughout Indiana. Three 12-funnel Lindgren traps will be placed at each site. Each trap will be baited with one of the three lures or lure combinations, 1) Ultra-high release (UHR) ethanol lure (black pouch) only (general attractants for woodboring insects in deciduous hosts), 2) UHR alpha-pinene (blue pouch) and UHR ethanol (black pouch) lures together (general attractants for

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woodboring insects in coniferous hosts), and 3) Three-component exotic bark beetle lure (2 bubble caps, one pouch). More specific for conifer-feeding exotic bark beetles e.g. *Ips typographus*, *Ips sexdentatus*, *Hylurgus ligniperda* and *Orthotomicus erosus*. Traps are serviced on a bi-weekly schedule and will continue to be serviced thru mid-October. Specimens will be identified and positive or negative data will be entered into NAPIS by December 1st, 2004.

Pests:

Citrus longhorn beetle, *Anoplophora chinensis*
Pine bark beetle, *Pityogenes chalcographus*
Asian longhorn beetle, *Anoplophora glabripennis*
Black spruce beetle, *Tetropium castaneum*
Black spotted longhorn beetle, *Anoplophora malasiaca*
Longhorn beetle, *Xylotrechus spp.*
Japanese cedar longhorn beetle, *Callidiellum rufipenne*
Bark beetle, *Hylurgops palliatus*
Bamboo longhorn beetle, *Chlorophorus annularis*
Xylotrechus undulatus borer, *Xylotrechus spp.*
Longhorned wood borer, *Hesperophanes campestris*
Banded elm bark beetle, *Scolytus schevyrewi*
Goldenhaired bark beetle, *Hylurgus ligniperda*
Gallmaking maple borer, *Xylotrechus spp.*
Japanese pine sawyer beetle, *Monochamus alternatus*
European spruce bark beetle, *Ips typographus*
Brown spruce Longhorn beetle, *Tetropium fuscum*

2. Additional State Survey Programs

a. Gypsy Moth program

The Gypsy Moth program included the Indiana Department of Natural Resources – Divisions of Forestry and Entomology & Plant Pathology, USDA APHIS PPQ, and USDA Forest Service, and Department of Interior. Data was geo-referenced and submitted to the US Forest Service as part of the Gypsy Moth Slow the Spread National Database. This year's final round of treatment for the gypsy moth was completed in Northern Indiana as of June 23rd, 2004. Completed to-date were infested sites in Elkhart, St. Joseph, Porter and LaPorte counties. These counties were a part of a three-day treatment that also included sites in Kosciusko, Marshall, Allen, Noble and DeKalb counties. The treatment areas will include more than 56,600 acres in 10 northern Indiana counties. The mating disruption process consists of small plastic flakes that will be dropped from an airplane. The flakes are covered in a scent important in the gypsy moth mating cycle and will ultimately disrupt mating. Indiana DNR entomologists will observe the area the rest of this year and make a determination if any treatment will be needed again next year.

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b. Pine shoot beetle survey

The Pine shoot beetle (PSB) survey is operated primarily by USDA APHIS PPQ. Indiana DNR handles the State quarantine compliance and monitors nurseries and production areas. A total of 80 PSB were set in 10 counties in Indiana in 2004 (8 per county) from January 20th thru June 30th, 2004. Counties surveyed in 2004 were: Clay, Dearborn, Decatur, Greene, Jackson, Jennings, Lawrence, Ripley, Sullivan, and Vigo. On April 23rd, 2004, pine shoot beetle was discovered in Vigo, Decatur, Jennings, and Ripley Counties in Indiana. As of June 7th, 2004, USDA APHIS amended the pine shoot beetle regulations by adding Vigo, Decatur, Jennings, and Ripley Counties in Indiana to the list of quarantined areas. This action is necessary to prevent the spread of pine shoot beetle, a pest of pine products, into non-infested areas of the United States.

c. Karnal bunt of wheat survey

In 2004, the karnal bunt of wheat survey was conducted by USDA APHIS PPQ and was responsible for drawing and submitting samples according to USDA guidelines. Three samples collected resulted in negative findings of karnal bunt of wheat in Indiana. Samples represented grain from 15 different counties in Indiana which include: Adams, Boone, Clinton, Delaware, Hancock, Hendricks, Henry, Jay, Montgomery, Randolph, Rush, Shelby, Tippecanoe, Wayne, and Wells.

d. Emerald ash borer survey

The Indiana Division of Forestry and Division of Entomology & Plant Pathology, USDA APHIS PPQ, and the Department of Entomology at Purdue University are conducting surveys and providing educational outreach and materials for emerald ash borer. In the April 2004, emerald ash borer was confirmed in Steuben County, Indiana. On May 26th, 2004, emerald ash borer was confirmed in Lagrange County, Indiana. In Steuben County, Jamestown Township was quarantined for Emerald ash borer and ash products and in Lagrange County, Clay Township was quarantined. The removal of affected ash trees within Jamestown Township to the quarter mile mark was conducted in May 2004 and will be expanded to the half mile mark in January 2005. Removal of ash trees in the affected area of Clay Township in Lagrange County will also occur in January 2005. Surveys, both visual and trap trees, in the northeast region of Indiana by IDNR and USDA APHIS PPQ personnel are ongoing.

e. IPSAWG – Invasive Plant Species Assessment Working Group

IPSAWG conducts surveys throughout the state for invasive weed species including exotic weeds by utilizing approximately 70 *bona fide* plant survey volunteers who are competent botanists. Report on assessment of autumn and Russian olive. On May 12th, 2004, Ellen Jacquart, Director of Stewardship Indiana Chapter of The Nature Conservancy, reported for the subcommittee that assessed autumn and Russian olive last month. There were several survey reports on autumn olive invading natural areas in Indiana, but none for Russian olive. It

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appears from all sources that Russian olive is not currently naturalizing in Indiana. The assessment of autumn olive resulted in an ecological impact score of 12 (medium), potential for expansion score of 31 (high), difficulty of management score of 35 (high), and value score of 3 (low). While Russian olive is not currently naturalized in Indiana, we used the potential for expansion portion of the assessment as a predictor and came out with a score of 31 (high). It was recommended that neither species be bought, sold, or planted in Indiana.

f. New or exotic pests

Emergency detection and monitoring of other new exotic pests and diseases may arise during the course of the fiscal year. New pest reports for the state or a county will be reported through the CAPS folder and entered into the NAPIS database.

On March 30th, 2004, Indiana DNR Director John Goss signed an emergency order banning the importation and sale of 31 specific types of trees and shrubs imported from California due to the fungus-like pathogen (*Phytophthora ramorum*) which is responsible for Sudden Oak Death, a disease that has killed tens of thousands of oak trees in California. Under the order, wholesale and retail outlets are not allowed to receive shipment of the banned plants if from California.

The Indiana action came on the heels of a federal quarantine from the U.S. Department of Agriculture aimed at nurseries in California. Hoosier nurseries and stores were allowed to accept the restricted plants, even if from California, if the plants had been inspected and certified as disease-free by either the USDA or the California Department of Food and Agriculture.

Wholesale and retail outlets that had already accepted shipments of plants from California prior to the federal or Indiana quarantine were required to segregate those plants from their remaining stock. They were then required to immediately notify the DNR that they have some of the banned California stock on hand.

The DNR then sent an inspector to examine the plants and, if free of the symptoms of the sudden oak death pathogen, the plants were released for sale. If the symptoms were present, the stock will be held until laboratory tests could be completed. If the stock was free of the disease it was released. If it was found to be infected it was destroyed.

On April 30th, 2004, the state announced a quarantine of the snails that said, in part, no person in Indiana may "possess, offer for sale, sell, give away, barter, exchange, or otherwise distribute or release a giant African land snail, in any life stage." Giant African land snails had been confiscated by a Wabash County health department worker earlier in the week. A federal quarantine has been in place for a number of years.

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The giant African land snail is considered to be the most threatening to the environment of any land snail in the world. This creature is known to eat hundreds of different types of plants including some grown as crops in Indiana.

State health officials warn that individuals can become ill if they ingest snails that have not been completely cooked. The snails can carry the rat lung worm, which can cause individuals who eat raw or undercooked snails to develop meningitis and to suffer from permanent neurological damage. Although rat lung worm has not been reported in Indiana, state health officials are concerned it could have been imported from tropical areas. Scientists believe the giant African land snail is originally from East Africa. It is now commonly found throughout the Indo-Pacific Basin, including the Hawaiian Islands.

In Late June 2004, Indiana DNR - Div. of Nature Preserves confirmed the first location for giant hogweed, *Heracleum mantegazzianum*, in Indiana. This invasive plant is a high priority for detection and control due both to its threat to human health and because we still have the chance to prevent it becoming established in the state.

The confirmed site was reported by a botanist from JF New at a site near Warsaw in NE Indiana. There were both first year seedlings and blooming plants at the site, so this is at least the second year it's been there. Indiana DNR - Div. of Nature Preserves believe the next nearest location for this species is NE Ohio, so this represents a pretty large leap for the plant and raises the possibility that it has managed to leap to other spots within the state or the Midwest.

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Indiana CAPS Committee Meeting(s)

Minutes for Indiana CAPS Committee Meeting (02-24-04)

Attendance:

Jim Pheasant, CAPS	Bill Smith, Lilly AG	Tonya Byrd, Botany Bus. Office
Gail Ruhl, BTNY	Karen Rane, BTNY	Julie Golod, CAPS
Cliff Sadof, ENTM	Jim Carroll, USDA-APHIS	Phil Marshall, DNR-Forestry
Gary Simon, APHIS-PPQ	Christopher Pierce, CAPS	Deb Dimmitt, ENTM
Nikki Kubly, ENTM	Cherise Hall, Ag Sponsored Program Services	
Steve Yaninek, ENTM	Bob Waltz, DNR	Chris Oseto, ENTM
Cloyce Hedge, DNR	Peter Hirst, HORT	

Review of Budget and Financial Protocols:

- Facilitated by Steve Yaninek
- Gary Simon stated that PPQ still had outstanding billing for 2003
- Deb Dimmitt clarified that we still had orders coming in and the orders can not be paid until the are received
- If new budgets are received, they go to the business office first (*ASAP)
- Typically a 3-6 week turn around

2004 CAPS Work Plans:

- Graduate Student Work (Chris Oseto)
 - Chris Oseto stated that Anne Radavich is continuing her pathway analysis
 - She is looking at common attributes of invasive species
 - Risk assessment using the Monte Carlo Simulation and data is from North Carolina
- Sudden Oak Death Survey (Karen Rane, Gail Ruhl, Bob Waltz)
 - Gail Ruhl informed us that they are increasing the sample size 4X after meeting with Bob Waltz
 - Question was raised about \$25,000.00 for the Federal SOD Survey
 - P&PDL is running at capacity due to staff
 - Possibility of fall survey work
- Wood Boring Beetle Survey (James Carroll, Christopher Pierce)
 - Working with DNR
 - State is divided into 4 regions/ Purdue responsible for 1
 - Purdue has 8 sites in central Indiana
 - Begins early March/ Serviced every 2 weeks until September
- Old Bollworm Survey (Christopher Pierce)
 - 6 Counties (Ag. Exp. Stations) throughout Indiana
 - Late June/ Service twice a month for 4 months

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- State Survey Programs

- Gypsy Moth (IDNR, USDA APHIS PPQ, USDA Forest, Dept. of Interior)
- Emerald Ash Borer (Division of Forestry, Entomology, and Plant Pathology)
- Pine Shoot Beetle Survey (USDA APHIS PPQ)
- Exotic Bark Beetle Survey (USDA APHIS PPQ)
 - 2 Tone Chevy is added to survey
 - Borders Missouri and Illinois
- IPSAWG (Invasive Plant Species Assessment Working Group)
- USDA APHIS PPQ will draw and submit samples for karnal bunt of wheat
- Emergency detection and monitoring of other new exotic pests and diseases that may arise this year

- Supplementary Surveys

- Phil Marshall stated that the Indiana Forest Service will be doing moderate risk hexagon surveys this summer for SOD
 - This survey will focus on the forest habitat of production nurseries
 - Also, a second survey out of Virginia will focus on determining background *Phytophthora* species
- Cloyce Hedge stated that IPSAWG will be having a survey coastal program around Lake Michigan
 - They will be collecting LepS (native pests)
 - Non-target surveys of state properties as well
 - Steve Yaninek suggested samples should go to Arwin to be housed in the collection for reference

CAPS Issues from the Committee:

- Created a list of issues and objectives for the CAPS Program, Christopher Pierce will prioritize
 - EAB and ALB Surveys have no lures and require trained individuals to survey
 - Contact State to State Work Group (SSC)
 - Training Program to look for EAB (Ellis, Sadof)
 - Newsletter or Webpage for CAPS by commodity or crops or pathway (SSC)
 - Yearly wish list (As objectives come up)
 - E.D.E.N. = get list for first responders
 - Regionalization (Steering Committee)
 - Prioritize List (Steering Committee)
 - Outreach (Mullis and Ellis)
 - Research on CAPS data for Graduate Students (Steering Committee and Dept. of ENTM)
 - N.E.O.N. (Steve Yaninek)
 - Need for trained entomologists and plant pathologists for forest surveys

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- Communication
 - Communication is essential
 - Christopher Pierce will contact via e-mail or by phone
- Outreach
 - Steve Yaninek talked about Outreach and Regionalization
 - What are we focusing on, are we missing anything
 - Commodities
 - What does Purdue take a lead on with our CAPS Program?
 - Are there any Pathways or Taxa Purdue should focus on?
- Future Opportunities
 - Contact Steve Cain of E.D.E.N. for list of organizations that may act as First Responders
- Committee Membership
 - Should broaden to encompass all areas
 - Memberships may include Industry, E.D.E.N, The Nature Conservatory, an Aquatic Nuisance expert, someone from Animal Science
- Meetings
 - Suggested 2 or more meetings per year for the whole CAPS Committee
 - A planning meeting in May
 - An end of the season meeting in November to discuss what we found and future considerations
 - Christopher Pierce will contact about making smaller work groups to focus on pathways or insects

How to Proceed:

- Jim Pheasant stated that the Eastern Region Guidelines and National Pest List will be out the first week of March
- Christopher Pierce will then disseminate the material

NEXT MEETING = Thursday, May 6th, 2004 from 1:00 to 4:00 p.m.

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Minutes for Indiana CAPS Committee Meeting (05-06-04)

Purpose:

To discuss and plan FY 2005 Budget

Attendance:

Christopher Pierce, CAPS
Jim Carroll, APHIS-PPQ
Chris Oseto, ENTM
Gail Ruhl, BTNY
Steven Yaninek, ENTM
Nick Masters, NAPIS

Gary Simon, APHIS-PPQ
Jodie Ellis (filling in for Cliff Sadof), ENTM
Ray Martyn, BTNY
Karen Rane, BTNY
Jim Pheasant, NAPIS
Julie Golod, NAPIS

Current Issues:

- IDNR: Quarantine was placed on the Giant African Land Snail in Indiana.
- IDNR: Gypsy Moth sprayings are being scheduled. At the time of the meeting, a court injunction was filed against the aerial application of *Bt* in Elkhart County. Also, in Fort Wayne, the mayor was against the spraying of *Bt*.
- Gary Simon: Additional \$35,000.00 for Sudden Oak Death (SOD) for 2004; also, Sudden Oak Death samples in Indiana were presumptive positives. Two more tests were run and tested negative. Samples were sent to Beltsville, Maryland for negative/positive confirmation. To date: samples were negative.
- Jodie Ellis: Emerald Ash Borer (EAB) in Jellystone Park, Steuben County; as of May 20th, 210 ash trees will be removed, this entails a ¼ mile circle around infested trees. Larvae and pupae were found in trees. Ash trees that are asymptomatic of EAB damage were also infested. Current infestation at site may be up to 3 years or more. Deforestation of ash trees will represent a 1-mile delimiting removal. *Note: In East Lansing, Michigan 100,000 ash trees are marked to be cut down. To date: ash trees were removed.

FY 2005 Budget:

- We will be resubmitting the survey plans for 2004 for FY 2005 due to the same pests being on 2004 on 2005.
- A major problem that the CAPS Committee each year has to deal with is the lists of invasive species that the National and Eastern Region have given to us for the new fiscal year. The majority of species on the list are not of major concern to Indiana. Case in point is that there are at least 7 invasive pests of citrus on the National list; citrus as you may know is not a major crop in Indiana.
- Steve Yaninek has proposed that the Indiana CAPS Committee be proactive to this cause. Due to increased funding for the CAPS program, we believe Indiana can help change the current lists in two ways.
 1. The Indiana CAPS program will develop a state strategic plan. Under this idea we propose to develop specific Top 10 Lists of Invasive Insect, Plant, and Plant Pathogens, and Biothreat agents for Indiana. These lists of pests need to be

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developed by you the committee members. I need you in your expertise field to e-mail me what you believe are the top 10 invasive pests in your area. (Example: If I were a weed specialist, I would e-mail myself the top 10 invasive weeds that will affect Indiana. If they are Biothreat, add them to the Biothreat agent lists.) Please e-mail me these lists by June 7th. We will discuss this at our next meeting on June 17th. The importance of these lists will give us greater representation at the Eastern Region about concerns for the state of Indiana.

2. The second step is that we want to develop regional surveys work with other states on similar problems either via commodity or pathway. We realize that we will have to pick invasive pests from the lists provided; however, with greater funding to the CAPS program it is our intention develop 1-page summaries that we can present to National about proposed surveys with other states. Realizing that pest of Illinois, Kentucky, Ohio, Michigan, etc. are of concern to the state of Indiana. By submitting our regional survey work, we hope to be able to look at invasive pests that affect Indiana as well as our neighboring states. Proposed ideas are: soybeans as a commodity with Illinois and Iowa, nurseries as a pathway, and solid wood packing as a pathway. Steve Yaninek was able to meet with our counterparts at Illinois and they are interested in working with us on soybeans as commodity.

Additional CAPS Committee Members:

I would like to suggest the addition of the following 2 individuals to the CAPS Committee.

1. **Ellen Jacquart** is the Director of Stewardship of the Indiana Chapter of the Nature Conservancy. The majority of her work revolves around invasive plant species control and prescribed fire. She is also the co-chair of the Invasive Plant Species Assessment Working Group in Indiana. I believe her work with invasive plant species fills a void and will be a valuable asset the CAPS Committee.
2. **Jodie Ellis** is the Exotic Invasive Outreach Coordinator at Purdue University. She is heavily involved with the educational outreach for exotic invasive insect pests. I believe her education outreach activities will enhance the outreach activities of the CAPS program and that she will be a valuable asset the CAPS Committee.

Important Dates:

June 7th, 2004: Have your corresponding lists submitted via e-mail to me regarding invasive species in Indiana.

June 17th, 2004: CAPS Meeting in Room 104, Smith Hall from 1:00-4:00 pm to finalize FY 2005 budget.

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Minutes for Indiana CAPS Committee Meeting (06-17-04)

Purpose:

The purpose of this meeting is to discuss and develop a list of exotic invasive pests of concern to the State of Indiana to be sent to the Eastern Region CAPS Committee for the FY 2006 Eastern Region CAPS Invasive Pest List. We also discussed the addition of Area-wide surveys, Area-wide Survey of Invasive Pests in Soybeans and Exotic Wood Borer Outreach Prototype for the Midwest Region, for consideration for the FY 2005 Budget.

The objectives to the Area-wide Survey of Invasive Pests in Soybeans is to 1) establish a regional surveillance program in soybean fields of Illinois, Indiana, and Iowa; 2) the survey will focus on a major agricultural production system for this region; and 3) the survey will provide long-term sentinel sites to monitor temporal and spatial changes in the plant health of the heart of the soybean belt. This regional area-wide survey approach will allow current CAPS targets, e.g. *M. vitrata*, to be monitored as well as other targeted exotic invasive pests of regional concern over an extended period of time. With well over 27 million acres of soybean produced each year in Illinois, Iowa, and Indiana at risk, it would be important for agriculture to know if this pest is present in the state. *Maruca vitrata* is a serious pest on several legume crops grown in the US and we would predict that this insect would survive in the southern US on these hosts. It is considered one of the most destructive pests of beans in Hawaii and is a major pest of cowpeas in most of Africa. Surveys conducted will also include the monitoring for other potential exotic invasive pests including Soybean Aphid, Soybean Rust, and Kudzu, as well as providing background information regarding current pests of soybean. The data collected in this manner will allow for changes in pest composition in time and space to be evaluated on a regional basis.

The benefit of this regional area-wide survey is that it would provide a surveillance net cast over the heart of the soybean belt. This project will provide information about the presence or absence of damaging exotic invasive pests not known to occur in Illinois, Iowa, and Indiana or the United States. Knowledge of the existence of these exotic invasive pests would be crucial to agriculture as Illinois, Iowa, and Indiana produce over 27 million acres of soybean per year.

Introductions of exotic wood boring pests on solid wood packing material into Indiana pose a significant threat to forest and urban forest resources. Despite vigilant CAPS survey efforts, first detections of significant wood boring pests such as emerald ash borer, *Agilus planipennis*, Asian Longhorned beetle, *Anoplophora glabripennis*, pine shoot beetle, *Tomicus piniperda*, and the European wood wasp, *Sirex noctilio*, did not come from CAPS projects. Our objective is to promote awareness of this problem among pest control operators who already work with importers and are more likely to detect these pests. Assistance from CAPS would be used to develop printed materials and an educational video production for distribution in businesses that are at risk as 'ground zero' for exotic species introductions, and for the salary of an hourly student assistant to aid in implementation of the program.

This program will increase interceptions of exotic wood boring insects in solid wood packing material. Urban pest control operators, trained in the identification of common insect pests, are often employed by importers to fumigate containers that contain insects. Often, it is their

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inspections that alert the importers about the presence of pests. Increased training of these personnel about the importance of detecting and reporting exotic pests will increase the probability that these interceptions will be properly identified and reported.

Attendance:

Jim Pheasant, CAPS

Karen Rane, BTNY

Gary Simon, APHIS-PPQ

Steve Yaninek, ENTM

Gail Ruhl, BTNY

Jim Carroll, USDA-APHIS

Christopher Pierce, CAPS

Exotic Invasive Pests of Concern to the State of Indiana

This list of exotic invasive pests was developed by the Indiana CAPS Committee to be considered by the Eastern Region CAPS Committee for the FY 2006 Eastern Region CAPS Invasive Pest List. These exotic invasive pests are of major concern to Indiana's agricultural and natural resources.

Insects

Asian ambrosia beetle, *Xylosandrus crassiusculus* (Mot.)

Asian longhorn beetle, *Anoplophora glabripennis*

Bamboo longhorn beetle, *Chlorophorus annularis*

Banded elm bark beetle, *Scolytus schevyrewi*

Bark beetle, *Hylurgops palliatus*

Black spotted longhorn beetle, *Anoplophora malasiaca*

Black spruce beetle, *Tetropium castaneum*

Brown spruce longhorn beetle, *Tetropium fuscum*

Emerald ash borer, *Agrilus planipennis*

European gypsy moth, *Lymantria dispar*

European spruce bark beetle, *Ips typographus*

Exotic bark beetles complex (Scolytidae)

Exotic wireworms, *Agriotes* spp.

Gallmaking maple borer, *Xylotrechus* spp.

Goldenhaired bark beetle, *Hylurgus ligniperda*

Hemlock woolly adelgid, *Adelges tsugae* Annand

Japanese cedar longhorn beetle, *Callidiellum rufipenne*

Japanese pine sawyer beetle, *Monochamus alternatus*

Longhorn beetle, *Xylotrechus* spp.

Longhorned wood borer, *Hesperophanes campestris*

Old world bollworm, *Helicoverpa armigera* (Hübner)

Pine bark beetle, *Pityogenes chalcographus*

Pine shoot beetle, *Tomicus piniperda*

Soybean aphid, *Aphis glycines*

Soybean pod borer, *Etiella zinckenella* Tr.

Variant western corn rootworm, *Diabrotica virgifera virgifera* LeConte

Viburnum leaf beetle, *Pyrrhalta viburni* (Paykull)

Wood wasp, *Sirex noctilio*

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Xylotrechus undulatus borer, *Xylotrechus* spp.

Pathogens

Bacterial leaf scorch, *Xylella fastidiosa*
Beech bark disease, *Nectria coccinea* var. *faginata*
Black stem rust, *Puccinia graminis* f. sp. *tritici*
Butternut canker, *Sirococcus clavigignenti-juglandacearum*
Chrysanthemum white rust, *Puccinia horiana* Henn.
Fusarium wilt of watermelon, *Fusarium oxysporum* f. sp. *niveum*
Oak wilt, *Ceratocystis fagacearum*
Soybean rust, *Phakopsora pachyrhizi*
Sudden oak death, *Phytophthora ramorum*
Wheat streak mosaic (WSM)

Weeds

Autumn olive, *Eleagnus umbellata* Thunb.
Buckthorn(s), *Rhamnus* spp.
Bush honeysuckle(s), *Lonicera* spp.
Eurasian watermilfoil, *Myriophyllum spicatum* L.
Garlic mustard, *Alliaria petiolata* [Bieb]
Giant hogweed, *Heracleum mantegazzianum*
Herbicide resistant weeds (Round-up)
Japanese honeysuckle, *Lonicera japonica* Thunb.
Kudzu, *Pueraria montana* (Lour.)
Purple loosestrife, *Lythrum salicaria* L.
Russian-Olive, *Elaeagnus angustifolia* L.

Invertebrates

Giant African land snail, *Achatina fulica*

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NAPIS Data Submission

All survey data on pest and beneficial occurrences in Indiana for FY 2004 CAPS pest detection and biological control surveys were submitted to the NAPIS database through June 30, 2004.

Survey data included:

- New state and county records for *Chramesus subopacus*, *Euwallacea validus*, and *Xyleborus peilliculosus* from exotic bark beetle trapping programs in Lindgren funnel traps from USDA APHIS PPQ surveys.
- Negative data for *Ralstonia Pseudomonas Solanacearum* Race 3 Biovar 2 as a result of surveys conducted by USDA APHIS PPQ.
- New state and county records for Emerald ash borer, *Agrilus planipennis*, were a result of visual surveys conducted by Extension Educator from Purdue University (Steuben County) and brought to the attention of an Extension Educator by an Amish farmer (Lagrange County).
- New county records for Pine shoot beetle, *Tomicus piniperda*, for Ripley, Vigo, Jennings, and Decatur Counties in Indiana as a result of surveys conducted by USDA APHIS PPQ.
- New state and county records for Giant African land snail, *Achatina fulica*, in Wabash, Indiana as a result of confiscation by a Wabash County health department worker.
- New state and county records for giant hogweed, *Heracleum mantegazzianum*, in Indiana as a result of survey by a botanist from JF New at a site near Warsaw in Northeast Indiana.

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Indiana State Survey Coordinator (SSC) Activities

On January 13, 2004, Dr. Christopher Pierce assumed the position of the Indiana CAPS State Coordinator.

Three CAPS State Survey Committee meetings occurred during the reporting period. The first meeting was held in West Lafayette, Indiana on February 24, 2004. Introductions to the CAPS State Survey Committee occurred and discussed upcoming surveys for Fiscal Year 2004. The second State Survey Committee meeting occurred on May 6, 2004 in West Lafayette, Indiana. Discussions of the FY 2005 CAPS surveys and educational projects occurred at this time. The final CAPS State Survey Committee occurred on June 17, 2004 in West Lafayette, Indiana. At this time, development of the exotic invasive pests of concern to the state of Indiana occurred as well as the discussion of the development of area wide survey programs for the Midwest Region.

Meetings, Conferences, and Workshops Attended:

- February 11, 2004: Extension Disaster Education Network (EDEN) Meeting (2:00-4:00pm) in West Lafayette, Indiana. Met with Steve Cain and Abigail Boron on developing a working relationship with Indiana CAPS and EDEN
- February 13, 2004: IDNR Invasive species law review meetings. Indiana Government Center, Indianapolis, Indiana (8:30am-3:00pm) Informational and comment meetings held to discuss the invasive species regulatory review for the Indiana Department of Natural Resources (IDNR).
- February 19, 2004: Invasive Species Website meeting. Indiana Government Center, Indianapolis, Indiana (8:30am-3:00pm). Meeting reviewed the development of the Indiana Invasive Species website.
- February 24, 2004: Indiana CAPS Committee Review Meeting (3:00-5:00pm) West Lafayette, Indiana. CAPS 2004 Work Plan Review Meeting and first meeting of State CAPS Coordinator.
- February 26, 2004: Gypsy Moth meetings (Allen County, Indiana). Public meetings with IDNR representatives to discuss 2004 Gypsy Moth Programs.
- February 27, 2004: IDNR Invasive species review meetings. Indiana Government Center, Indianapolis, Indiana (8:30am-2:00pm). Informational and comment meetings held to discuss the invasive species regulatory review for DNR. E-mailed 2005 Target lists to Indiana CAPS Committee.
- March 2, 2004: Invasive Plant Species Assessment Work Group (IPSAWG) meeting at Fort Benjamin Harrison, Natural Resources Education Center, Indianapolis, Indiana (7:30am-3:00pm). Met with IPSAWG to develop a working relationship with the state group that specializes in Exotic Invasive Plant Species.
- March 3, 2004: Indiana DNR Invasive Species Meeting. Indiana Government Center, Indianapolis, Indiana (8:30am-2:00pm). Informational and comment meetings held to discuss the invasive species regulatory review for DNR.
- March 8, 2004: State Emergency Plant Pest Plan meeting with Bob Waltz at Purdue University, Indiana (1:00-4:00pm). Met with Dr. Robert Waltz and Committee to discuss and plan Indiana's State Emergency Plan.

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- March 11, 2004: Met with Steve Cain of EDEN about first responders (1:00-2:15pm) role in Indiana and CAPS related projects.
- March 12, 2004: Indiana DNR Invasive species review meetings. Indiana Government Center, Indianapolis, Indiana (8:30am-2:00pm).
- March 16-18, 2004: Attended the Annual meeting of American Institute of Biological Sciences in Washington, D.C. on Invasive Species in the United States.
- March 31, 2004: Exotic Pest Interagency Team Meeting. Indiana Government Center, Indianapolis, Indiana (8:30am-3:00pm). 2004 Gypsy moth suppression group meeting and emerald ash borer meeting.
- April 13, 2004: Invasive Plant Species Assessment Working Group (IPSAWG) Meeting about Autumn Olive and Russian Olive Assessment. Meeting was held in Indianapolis, Indiana (9:00am-1:00pm).
- April 15-16, 2004: Attended APHIS NAPIS visit at the Center for Environmental and Regulatory Information Systems (CERIS) at Purdue University.
- April 16-18, 2004: Bug Bowl at Purdue University. Manned the Invasive Forest Species Booth (Education and Outreach).
- April 28, 2004: Indiana Exotic Forest Pest Committee at the Indiana Government Center in Indianapolis, Indiana (10:00am-1:00pm).
- May 6, 2004: Indiana CAPS Committee Review Meeting (1:00-4:00pm) West Lafayette, Indiana. CAPS FY2005 Work Plan Review Meeting.
- May 12, 2004: IPSAWG Meeting in Indianapolis, Indiana (9:00am-1:00pm) regarding invasive weed species assessments for Indiana.
- June 11, 2004: Indiana DNR Meeting at Kankakee Fish and Wildlife Preserve, Indiana (9:00am-3:00pm). Reviewed up to date information regarding current status of pests in Indiana.

As well as attending the above meetings and conferences, I also regularly attended Extension Entomology Meetings at Purdue University on a weekly basis (Monday mornings 8:30-9:30am) and Department of Entomology Departmental seminars that are held on a weekly basis (Thursday at 3:30pm) during the school semester when time permits.

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Addendum (Graduate Student Work)

Joanie Corn, a graduate student in the Department of Entomology, was supported by CAPS funds to conduct her MS research on invasive species. During her tenure at Purdue University, Ms Corn's personal situation changed. She married, had a baby, and withdrew from the university.

Another student, Rosanne Radavich was selected to continue Ms Corn's research project. Anne Radavich's plan of study was to use Palisades's simulation model to determine the risks associated with potential insect invaders. The corn pest complex in Indiana was to be used to test the parameters of the model. After her appointment to this project, Ms Radavich switched her project to a more education-based research. She is being supported through a teaching assistantship provided by the department.

Programs of study by Joanie Corn and Anne Radavich are attached information in Addendum.

Respectfully submitted,

Dr. Christopher M. F. Pierce, Indiana CAPS State Coordinator
August 26, 2004