

CPHST NEWS



CENTER FOR PLANT HEALTH SCIENCE & TECHNOLOGY



NASA Engineering for PPQ Survey Programs

July 2005



People



Places



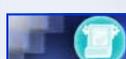
Projects &
Programs



Publications



Policy & Plans



Presentations



Philosophy

This project was initiated by Jeff Drake in 2003 to develop tools which can aid in the rapid screening of large samples of insects; such as those obtained from vacuum samples of row crops, as well as bark beetle and fruit fly traps. Jeff Drake, a former NASA Engineer working at New Mexico State University, developed the Automated Insect Surveillance as part of an Inter-Agency Agreement that eventually evolved into a CPHST project. Jeff converted to a CPHST employee in April 2005 (look for upcoming CPHST spotlight). The screening tools being developed are based on remote sensing—applying image analysis and pattern classification to digital images acquired at distances measured in *inches* rather than miles—of insect samples. The screening tools are being designed to rapidly and robustly count/classify large volumes of insects to the genus level and in some cases species level. Additionally, the tools will utilize robotics technology to enable automated physical sorting and handling of individual insects.

The initial proof-of-concept phase of the project is now complete. The proof-of-concept was demonstrated utilizing vacuum samples of insects obtained from cotton plants in an agriculture setting, providing a great diversity and volume of samples for processing. The difficulty of obtaining statistically meaningful samples of insect populations in order to determine predator/prey ratios has long been the *Achilles heel* of agricultural biocontrol.

The proof-of-concept system demonstrated the capability to quickly, reliably, and accurately (> 90% accurate) identify to the genus level, large numbers of insects from cotton vacuum samples. This automated system clearly demon-

strated the capability to significantly decrease, from several days to several hours for large samples, the time required to count and classify field samples. This quick turn-around in providing insect densities enables growers for the first time to make biological control decisions based on real time (same day) predator/prey ratios. This in turn has potential for vast positive economic and environment consequences.

The second phase (initiated spring 2005) of this project focuses on extending the capabilities of the proof-of-concept system and applying the technology for use with bark beetle surveys. This extension will leverage off the proof-of-concept utilizing the foundational image processing and pattern recognition techniques developed there.

Bark beetle survey programmatic objectives include monitoring for foreign or invasive species. This requires a somewhat different approach and capabilities than that required when simply looking for predator/prey ratios for biological control. Rather than attempting to develop an automated survey system capable of identifying—to the species level—every sample with high confidence, we take a different approach we call “separating the wheat from the chafe.” In this approach we strive to greatly reduce the volume of samples that must be identified by hand, by physically sorting samples. Robotics technology, integrated with the identification system, will physically sort the identified samples, picking-up each sample and placing it in the appropriate container. Samples that cannot be identified with high confidence will be placed in a container for examination by a qualified taxonomist.

Bark beetle survey data from Oregon provides a clear example of the potential benefits of such a system: Of the 100,000 samples collected over a 5 year period, just 10 species account for 95% of



Samples from Bark Beetle Trap



Traditional Hand Counting

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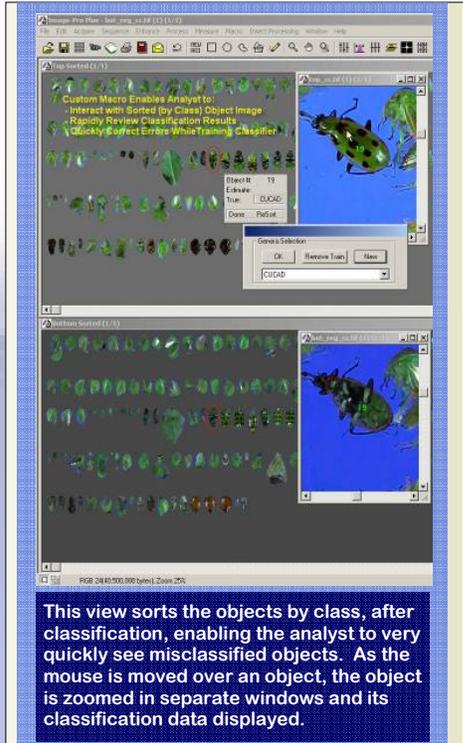
(continued on page 2)

NASA Engineering for PPQ Survey Programs (continued from page 1)

the samples and 4 species represent 75%. Thus a system capable of accurately identifying just those 10 species could reduce the volume of samples that the limited number of qualified taxonomists must look at from 100,000 down to a much more manageable 5,000. In addition, the system would also be very valuable for physically sorting a wide range of other survey applications including bio-diversity studies and forest health monitoring. Such a system can also be of value physically by sorting samples at a higher level, say to family, and to "clean-up" trap catches removing unwanted objects. Finally, using a flexible 6-Axis robot would enable the development of a complete

tele-identification system where objects that could not be automatically identified could be automatically placed (and held) under a microscope stage, the object could be positioned by the taxonomist (possibly remotely located) using a simple track-ball to assist identification (images could also be sent real-time to a remotely located taxonomist).

Current project goals coalesce with the U.S. Forest Service (FS) in the area of rapid identification of potentially invasive forest pests, including bark beetles. Pheromone trapping near shipping ports is part of the Forest Health Protection (FHP) efforts on early detection of invasive exotics. Being able to quickly screen the traps for bark boring and other beetles would solve a big problem for the Forest Service and PPQ. Delta traps exist for many other species. The algorithms and techniques developed here can then be applied to other foreign/invasive species. As such, APHIS and FS have pooled resources to create a mutually beneficial tool. In addition to financial contributions, the Forest Health Protection (FHP) group will be providing technical staff, fabrication support, and analytical assistance.



This view sorts the objects by class, after classification, enabling the analyst to very quickly see misclassified objects. As the mouse is moved over an object, the object is zoomed in separate windows and its classification data displayed.



Submitted by Jeff Drake



Images Are Acquired From Above and Below Samples

Capturing Images for Image Analysis: Samples are poured onto non-reflective glass and imaged from both above and below by 14 M pixel digital cameras. The images are then automatically transferred to the image processing workstation for processing and ultimately determination of insect densities.



New LucID Key Available July 2005

The *Federal Noxious Weed Disseminules of the U.S.* Lucid key is now available on compact disc and on the internet (www.lucidcentral.org). This long-awaited interactive identification tool for seeds and fruits of plants on the United States Federal Noxious Weed List was authored by Julia Scher (CPHST) in cooperation with North Carolina State University and the California Department of Food & Agriculture. Interest in the



key has been overwhelming. As of July 16, 2005, over 200 requests for the compact discs have been received and filled, and requests for the key continue to come in daily. Demand has come mostly from Canadian governmental and private seed laboratories (over 55 requests) and from U.S. state agricultural departments, conservation agencies, and university research laboratories. Julia, who is now in the final stages of a Lucid key for cut flower exports

from Africa, is pleased that her identification tool is filling an essential functional role for various agencies and organizations. To request a copy of the noxious weed disseminules key, email Terrence Walters, CPHST Lucid Coordinator at terrence.w.walters@aphis.usda.gov.



Submitted by Terrence Walters



Modernizing Management - The CPHST Workbench

July 2005

The CPHST Workbench is a web-based tool for CPHST-wide project management and record keeping that is expected to lead to significant improvements in the Center's operational effectiveness, communication structure, and reporting ability. It was conceptualized and developed exclusively by CPHST scientists following a February 2004 request from **Dr.**

Gordon Gordh for the creation of a tool that would help managers keep track of CPHST projects.

Even though the initial Workbench Team, consisting of **Heike Meissner**, **Andrea Lemay**, **Heather Hartzog**, and **Alison Neeley**, had little experience in database development, programming, or webpage design, they did have ample experience as users of various database systems, both within and outside of CPHST. This experience helped them establish what the Workbench should not be:

A black box. If staff were expected to spend their time entering information, then they should also have full and convenient access to this information.

A big brother. The Workbench should not be a managers' tool only. Of course, one of the main purposes of the Workbench is to enable managers to keep track of activities. After all, that's their job. At the same time, however, the Workbench should hold managers accountable. Project approval and certain other management activities should be transparent for everyone. Employees should have a way to submit anonymous feedback and criticism to CPHST management, and everyone should be able to see if and how management responded.

A quick fix. The Workbench shouldn't be a short-sighted fix for the problem of the moment. Rather, it should be designed with a long-term vision, creating a sound solution to a range of fundamental challenges. It should be designed with sufficient flexibility to accommodate changing needs and expansion as appropriate.

A lone ranger. There exists a number of simultaneous database initiatives, some of which have overlapping objectives. Employees are expected to enter information into each of them, remember passwords and user instructions for all of them, and understand the differences

between them. This is a sub-optimal use of time and resources. Instead, it should be the responsibility of system developers to coordinate and integrate their systems. No database should be developed in isolation, and the convenience of the user should always be a priority.

A maintenance ordeal. Using the Workbench should not require employees to install anything, and they should not have to download updates and newer versions.



Heike Meissner and Andrea Lemay

Lab-specific. The functionality of the Workbench should be equally applicable to all CPHST labs, focusing on CPHST-wide project and information management processes rather than lab-specific needs. Even though minor adjustments would eventually be necessary to address unique laboratory functions, the main structure of the Workbench should be universal. All CPHST employees should be included in regular updates on the progress of the project and should have a chance to comment and contribute with ideas through a convenient and transparent mechanism.

While setting these goals was easy, meeting them proved to be more of a challenge. The primary Workbench developers, **Heike Meissner** and **Andrea Lemay**, stayed busy juggling coordination and planning, website and database development, programming, de-bugging, training of users, communications, etc. while at the same time working on other projects.

Version 1.0 of the CPHST Workbench was nevertheless successfully completed in only 18 months. This version allows users to electronically develop project plans, track work progress, share documents, record personal accomplishments, and

keep daily notes. It also provides a tool for sharing information on upcoming events and visitors, a room-and-equipment sign-up, and an anonymous suggestion box. The Workbench furthermore automates the compilation of CPHST's Annual Report and of the documentation required for the peer review, mandatory for all CPHST scientists. In addition, the Workbench satisfies many of the record-keeping requirements imposed by ISO. It was instrumental in obtaining ISO 9001:2000 registration for the first of the CPHST labs undergoing this process and is expected to play an equally important role in the upcoming registration of other labs. The key-feature of the Workbench, however, is the large variety of custom reports that can be produced at the click of a button, making critical information readily available to all CPHST employees.

The Workbench has been or is being integrated with a number of information-management systems within CPHST (e.g. SKI and Ad-Hoc Project Request System) and APHIS (e.g. Regulatory Project Management System).

The Workbench has been rolled out to all CPHST labs and will now undergo a period of fine-tuning and data adjustment. Each of the CPHST labs has a local Workbench expert in charge of facilitating the implementation, providing help to users, and serving as a liaison to the Workbench project lead. These local experts have contributed significantly during the roll-out phase of the project and are expected to keep playing an important role. They are **Bill Guyton** (MS), **Steven Kirpes** (TX), **Andrea Lemay** (NC-PERAL, Director's Office), **Amy Moses** (HI), **Jim Shepley** (MA), **Kelly Shobe** (NC-TQAU), **Melinda Sullivan** (CO), **Elizabeth Twieg** (MD), and **Michelle Walters** (AZ).

On June 27, 2005, the responsibility for further development and long-term oversight of the CPHST Workbench was officially transferred to **Jim Shepley**. All programming, database design, and website development will be carried out by the Center for Integrated Pest Management of North Carolina State University.



Submitted by Heike Meissner & Andrea Lemay



Japanese Beetle Ad Hoc Project

July 2005

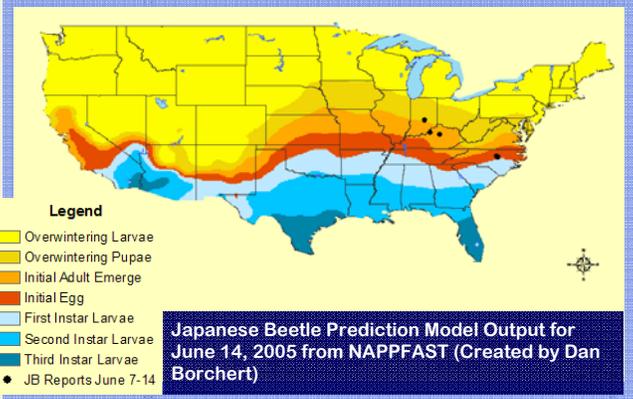
The Japanese beetle (JB) is a highly polyphagous invasive insect. Japanese beetle is mainly distributed in the eastern U.S., with limited distribution in the western states. The APHIS JB program was established to prevent the artificial spread of the beetle into protected western states by aircraft. To accomplish this program goal, survey traps are established near airports and monitored for presence of adult beetles. Airports become regulated when beetles are detected near airplanes destined for protected states.

The North Carolina State University/APHIS Plant Pest Forecast (NAPPFAST) system is an internet based tool for plant pest modeling using geo-referenced climatological weather data (Borchert and Magarey, 2004). An ad-hoc project was developed to demonstrate the utility of NAPPFAST as a prediction tool for trap placement and survey timing for adult JB. This project was also developed to find better methods for rapid data collection, analysis, and reporting.

A JB phenology model was developed

from the parameters reported in literature and then adapted to the flexible degree day model template used in NAPPFAST. Preliminary validation data were collected, analyzed, and presented to the acting Eastern Region JB Program Manager, **Yvonne Demarino**. The NAPPFAST JB model predicted occurrence of adult beetles before actual observations of adult beetles greater than 90% of the time.

The NAPPFAST JB prediction model can be an effective early warning tool for APHIS personnel to use in JB trap establishment and monitoring. The Probability maps can be used by APHIS personnel at any time in the year to determine the approximate timeframe for trap establishment. Once the season starts, History maps can be used to determine the rate of development for that particular year. In



addition, if trap reports are incorporated into the Prediction maps, the display of spatial information may assist in visualizing areas of similarity in the U.S., with respect to beetle phenology. Currently, the APHIS trap reports and other reports of JB emergence are being incorporated into the History output maps and distributed to JB program managers, regulatory officials, and decision makers on a weekly basis.



Submitted by Dan Borchert



CPHST Science Panels

July 2005

CPHST science panels provide a process to assemble scientific and other experts to discuss scientific aspects of a wide variety of topics related to the risks posed by spe-

papers, or simply a heightened understanding of the issue at hand. In the coming months CPHST will host several science panels to aid in directing internal, national, and international policy and procedures.



2005 Sharwil Avocado Science Panel

cific pest threats, appropriate regulatory actions, or the impacts associated with pest management plans. The format of science panels facilitates discussion in a systematic, organized, and transparent manner, striving to achieve policy recommendations, drafts of standards, issue

In August, two science panels will meet in Orlando, Florida. The first panel will consist of national fruit fly experts, who will discuss harmonized criteria for fruit fly host status determinations. The meeting aims to produce draft recommendations which could be forwarded to NAPPO as the basis for a regional standard, or to the IPPC as the basis for an international standard.

A second international science panel will convene to discuss quarantine metrics, quarantine security, and the appropriate

level of protection. The objectives of this panel are to identify science-based quarantine metrics that better inform decisions regarding the appropriate level of phytosanitary protection. The results of discussions by this panel will provide a scientific foundation for deciding appropriate metrics for phytosanitary decision making, in particular as regards treatment procedures.

In addition to the above, CPHST has plans to convene science panels on topics ranging from developing standards for taxonomic determinations and phytosanitary responses, to prioritizing Emerald Ash Borer research. The collaboration of area experts and focused discussion of APHIS PPQ issues provided through these and future panels are vital to achieving all aspects of CPHST's mission and providing the scientific underpinnings for risk-based decision making in PPQ.



Submitted by Tara Holtz, Robert Griffin & Ron Sequeira



Transferring New Tools to the Western Region

June 22-23, 2005

In support of CPHST's objective to deliver scientific and technical tools to organizations within PPQ, CPHST and the Western Region (WR) co-hosted a two-day workshop entitled "New Technologies for the Field" on June 22-23. The tutorial sessions were held at the Western Region Office in Fort Collins, Colorado, where the WR's computer facilities allowed for hands-on training on new CPHST tools. Workshop participants represented 12 states and included regional program managers, state plant health directors, state operations support officers, and pest survey specialists.



Presenters for CPHST's "New Technologies for the Field" workshop included (left to right) Kim Schwartzburg, Terrence Walters, Kellie Shobe, Christina Lohs, and Dan Borchert. (Todd Schroeder not pictured)

Each attendee received one day of the technology-transfer workshop devoted to NAPPFAST—the NCSU APHIS Plant Pest Forecast system (<http://www.nappfast.org>). NAPPFAST is an internet-based tool for plant pest modeling that uses biological model templates and North American weather data to produce geo-referenced maps. The system allows a wide range of users to rapidly view and create weather-based development/incidence models and maps to assist in pest prediction and occurrence. **Dan Borchert** (CPHST, Raleigh) guided workshop attendees through various online exercises, including the examination of models that have been developed during the past two years for numerous insects and diseases.

The participants received another full day of training sessions where various other technological tools were demonstrated, including the "Exotic Plant Pest Information Portal" (demonstrated by **Kim Schwartzburg** of CPHST, Raleigh).

CPHST's Portal (<http://portal.cphst.org>) serves as a central hub for directly accessing information from a number of important and relevant online databases. During her session on Ad Hoc Project Request Processes, **Christina Lohs** (CPHST, Raleigh) took participants to the Ad Hoc web site (<http://adhoc.cphst.org>) and instructed them on the processes for directly submitting Ad Hoc projects to CPHST.

Todd Schroeder (WR, Fort Collins) presented the new tool called ISIS (Integrated Survey Information System), which is a mobile handheld data gathering system that integrates specific geopositioning survey (GPS) information into the National Agricultural Pest Information System (NAPIS). **Kellie Shobe** (CPHST, Raleigh) conducted an on-line tutorial of CPHST's "PPQ Treatment Index System." She took the participants to <https://www.cphst.org/tqau> to view available Treatment Quality Assurance Unit (TQAU) program products. While at this site, the participants learned how to access two searchable, up-to-date databases that front end two PPQ manuals: 1) the PPQ Treatment Manual (<https://manuals.cphst.org/TIndex/index.cfm>) and 2) the Plant Import Manual: Non-propagative reference section (Q56 Fresh Fruits and Vegetables Reference Database; <https://manuals.cphst.org/q56/Q56Main.cfm>).

Kellie completed her presentation by demonstrating the value of the PPQ 429 web-based form that tracks fumigant usage by the agency on import/export commodities. **Terrence Walters** (CPHST, Fort Collins) gave a presentation on Lucid, a collection of software products providing support to quarantine-related identifications and obtaining relevant pest information. After the presentation, the participants had the opportunity to access a number of recently developed Lucid keys via the internet.

Phil Garcia (Acting Director Western



Developers and coordinators for the workshop were Dan Borchert (CPHST, Raleigh) and Bill Kauffman (WR, Fort Collins).

Region, Fort Collins) and **Bill Kauffman** (WR, Fort Collins), who had kicked off the workshop on Wednesday morning with an introduction to the various sessions as well as an explanation of the objectives and goals for the workshop, closed out the workshop on Thursday afternoon with a feedback session for the participants and presenters.

What did attendees think at the end of the workshop? **Yvette Redler** and **Lupe Kraucunas**, pest survey specialists, appreciated the hands-on methods and exercises used by the instructors to present the new CPHST tools. They were amazed at the diversity of tools presented during the two days and, most importantly, how many of the tools would support their responsibilities back at home. **Bruce Helbig**, South Dakota State Plant Health Director, was impressed with the number of tools being developed by CPHST that

have direct applications for him in the field. He was looking forward to the opportunity to show the members of his team the various tools now available to them, especially the CPHST Portal. All the participants agreed that the portal tool would immediately increase job performance and efficiency.



Kim Schwartzburg (CPHST, Raleigh) presented CPHST's "Exotic Plant Pest Information Portal" to the workshop participants.

So concluded the first CPHST workshop focused on ensuring that participants knew how to use new tools when they returned home. We hope to design more such technology transfer tutorials for the future benefit of PPQ employees.



Submitted by Terrence Walters



Smuggling Interdiction and Trade Compliance (SITC) Program

July 2005

USDA, APHIS, PPQ's mission is, "PPQ will provide world leadership, excellence, and innovation in safeguarding agriculture and natural resources." To do this the agency has implemented many successful programs over the years. One such program is the Smuggling Interdiction and Trade Compliance (SITC) program.

The initial SITC program field officers were called "Smuggling Liaison Officers" and were essentially PPQ officers with additional duties which included the current SITC mission of "Identifying and closing pathways for smuggling."

The Smuggling Liaison effort was organized into a network of officers nationwide and was a very successful regulatory force in PPQ which complemented the USDA Investigative and Enforcement Services (IES) program. The Liaison Officers, after identifying the smuggled product and pathway, assembled a case and then presented it to IES for prosecution. The effort, which was not a formalized effort, was successful, and there was an obvious need for a more formalized program. This was identified in the PPQ Safeguarding Review that came out in 1999. The Smuggling Interdiction and Trade Compliance program began organizing in late 2000, and by May of 2001, most of the full-time field Officers and Supervisors had been hired.

In 2003 the SITC program changed its name to the Safeguarding, Intervention and Trade Compliance. Since the name change and the DHS transition, the PPQ Executive team identified that a full program review was necessary to see how well the program was operating and supporting the Agency mission. SITC was identified as an important and necessary program, and as a result of the review many recommendations were identified. One included

having the name changed back to the Smuggling Interdiction and Trade Compliance, which occurred in the spring of 2005. The SITC program continues to implement the recommendations identified by the program review, but the mission of "identifying and closing pathways for smuggling" remains the primary duty of the SITC program. For information regarding these changes, please contact one of the SITC program managers whose numbers are listed at the end of the article.



SITC Officer with a warehouse full of artificial Christmas trees with real wooden trunks

The SITC program accomplishes the PPQ mission in many different ways. SITC Officers routinely work with DHS/CBP and United States Border Patrol conducting agricultural, anti-smuggling,

and cooperative interdiction efforts at air, land, and sea ports of entry. They also carry out operations in US commerce by inspecting domestic markets and warehouses to determine the presence of prohibited products, conduct transit surveys and agriculture anti-smuggling interdiction efforts at truck weigh stations and U.S. Border Patrol checkpoints. They provide education and outreach to importers, market owners, transportation companies, retailers, and the public regarding how to stay in compliance with agricultural regulations. SITC Officers work with state departments of agriculture and other Federal agencies such as U.S. Fish and Wildlife Services, U.S. Food and Drug Administration, and USDA's Food Safety Inspection Services. Additionally, SITC Officers conduct product recalls when prohibited items are found in commerce and when quarantine significant pests are identified to be associated with a commodity after legal importation.

In fiscal year (FY) 2004 the SITC program was responsible for taking formal regulatory action on over 183,000 pounds of prohibited agriculture items from foreign origins. An example of a prohibited item which SITC took action on was 2,700 pounds of Frozen Boneless Chicken Feet smuggled in as "Jellyfish" from Thailand. Thailand is a country known to be infected with the economically significant

animal diseases, Exotic New Castle's Disease (END) and the Highly Pathogenic Avian Influenza (HPAI). It should be noted that HPAI is not only an animal disease but poses a serious human health risk disease as well. In the case of the frozen chicken feet, SITC Officers not only identified the pathway to which the shipment made entry, but they identified how many places the product was illegally distributed to. The product was then recalled and destroyed to prevent the dissemination of the disease.

Additionally in FY 2004, SITC found over 2,300,000 pounds of products which were identified to require regulatory action due to a pest being identified after entry into United States commerce. One such pest identified was the quarantine significant Cerambycid beetle (Brown Fir Longhorn Beetle) which was found by SITC Officers in artificial Christmas Trees from China. This finding and recall has resulted in USDA suspending all shipments of wood manufactured "Craft Articles" from China and for new regulations dealing with wood and manufactured wood articles to be changed.



Damage from the Brown Fir Longhorn Beetle found in the trunks of the Christmas trees

For information on this please see the website at: http://www.aphis.usda.gov/lpa/pubs/fsheet_faqs_notice/faq_phmanufacturedwood.htm

For important SITC information and current topics, be aware of the SITC biannual publication of the Pathways newsletter which details current activities by each of the regions and their respective work units. Another source of information at SITC is the SITC web site at: <http://www.aphis.usda.gov/ppq/trade> As always you may contact one of the SITC program managers at:
Riverdale: (301)734-6805
Western Region: (970)494-7584
Eastern Region: (919)855-7340



Submitted by Keith Miller



Chicken feet smuggled into the US from Thailand

the DHS transition, the PPQ Executive team identified that a full program review was necessary to see how well the program was operating and supporting the Agency mission. SITC was identified as an important and necessary program, and as a result of the review many recommendations were identified. One included



**Inside the Decision Support and Pest Management Systems Lab, Phoenix, AZ
July 2005**

Phoenix is proud of its long tradition of being a "field oriented" laboratory. Many times the "field" is the lab. This is exemplified by:



Photo #1: Field release and evaluation with our cooperators of *Cyrtobagous salvinia* for biological control of Giant Salvinia under CPHST project leader **Earl Andress**. Key partners with shared leadership are **Jerry Levitt** and **Dan Hammond** from PPQ; **Jenifer Hontz** and **Ben Ladiere** from BLM; and **Kevin Fitzsimmons** from University of Arizona.

Projects to develop and refine control systems for Grasshopper and Mormon cricket throughout the grasslands of the western United States:



Photo #2: Project leader **Nelson Foster**, **Chris Reuter**, and **Lonnie Black** with a wind

screen to protect cage areas during application of experimental Mormon cricket treatments using a system that simulates aerial application of pesticide. Key Cooperator: **Dave McNeal** (ID SPHD).



Photo #3: **Rob McChesney** (ID Domestic Program Coordinator) and **Nelson Foster**

discuss the potential for a new bait application.



Pink bollworm eradication support: *Photo #4:* **Nick Colletto** and **Bob Statan** are applying an experimental pheromone treatment. Improvements in these systems have the potential of drastically altering the Pink Bollworm eradication program (operations and costs). Co-operators: **Michelle Walters** (CPHST), **Larry Antilla** (AZ CRPC), **Jack Jenkins** (Pacific Bio Control), **Agenor Mafra-Neto** (ISCA Tec)



Photo #5: **Guolei Tang** is moving whitefly and aphid bio control agents into cages of cotton to prevent any outbreak of these secondary pests when experiments with transgenic pink bollworm are started in cages.

This cage technology is used extensively by both **Greg Simmons** and **Ernie Miller** who are project leaders in two separate projects. The projects are developing advanced sterile insect approaches using genetically modified pink bollworm. Key cooperators are Oxitec of England, University of California, and Kansas State University.



Photo #6: **Joe Ploski** from PBW Rearing facility and **Ernie Miller** (CPHST) with newly developed systems for shipment and release of pink bollworms. The previous system resulted in more handling damage, meaning loss of competitiveness of the sterile insect.



Photo #7: The release system mentioned above is being implemented in California and Texas with Aircraft and Equipment Operations (AEO) pilots **Darryl Hill** and **Benny Barton**. Key Cooperators: NM PBW Eradication, TX PBE Eradication, CDFA, and PBW Eradication Foundation.



Our lab is always grateful to key support personnel typified here by **Henry Stewart**

and by **Jane Larsen**.



All of our projects are indebted to the people who keep the computers running, the samples counted, the building functioning, the lab activities running, and quality assured throughout.



Submitted by Carey Laney & Bob Statan



CPHST Spotlight: Kingsley Fisher
June 10, 2005

Kingsley Fisher, Entomologist with the Fruit Fly Genetics and Management Lab in Waimanalo, Hawaii, has resigned his position with PPQ effective June 10, 2005. He has made several significant contributions to PPQ and CDFA since arriving in Hawaii in December of 1999. The implementation of the tsl genetic sexing strain at the CDFA Medfly Rearing Facility and subsequent advances in production numbers was a major achievement.

Kingsley's professional conduct of his duties as Program Project Manager of the APHIS Hawaii Fruit Fly Production Facility improvement project was exemplary. His innovative facility designs and



Kingsley Fisher's Farewell Luncheon

documentation remain available for future consideration. Innovative technology for automation of various stages of the production process was developed,

validated, and will be implemented as applicable in the Mexican Fruit Fly Rearing Facility, APHIS El Pino Guatemala Medfly Rearing Facility, and CDFA Medfly Rearing Facility.

Kingsley will certainly be missed by all of those who have worked closely with him during his tenure with APHIS. As seen in the photo, we have wished him well at a recent luncheon and presented him with a compass so he won't lose his way on 'walk-about' in Australia during his upcoming retirement!



Submitted by Sue McCombs



CPHST Spotlight: Leslie Leigh
July 2005

Leslie Leigh joined CPHST's National Weed Management Lab in Fort Collins, CO, as a Lab Support Assistant in December of 2004. Prior to joining CPHST, she worked in Human Resources with the Forest Service Rocky Mountain Research Station for 3 years. Leslie has also worked for the Department of Defense and the Department of the Air Force in

Japan and Germany for a total of 9 years of government experience.

She has been married to Robert for 13 years. He is active duty Air Force so they find themselves moving around quite a bit. They have previously lived in Arizona, Japan, and Germany. Leslie and Robert have 2 children; Austin is 11 and

Katie is 9. In her free time, Leslie enjoys remodeling her house, gardening, and traveling!!



CPHST Spotlight: Tara Holtz
July 2005

Tara Holtz joined the CPHST Director's Office in January 2005. Originally from Pittsburgh, PA, Tara has spent the last seven years in the Carolinas. She received her B.S. in Marine Science with an emphasis in Biology from the University of South Carolina in 2002. Tara moved to North Carolina in 2002 to pursue a graduate degree in Biology from the University of North Carolina at Chapel Hill. While attending USC and UNC, Tara had the opportunity to work on several research projects ranging from physiological ecology studies in the intertidal zone, to molecular diagnostics, to shrimp food assimilation studies. Tara's most fond grad school memory, however, is her research trip to Lizard Island, Australia

where she spent two months as a research assistant examining the life-history evolution and ecology of invertebrate larvae off of the Great Barrier Reef.

Upon completing her M.A. in Biology focusing on the effects of Heat stress, Tara began working for CPHST as a Biological Science Technician for the Risk and Pathway Analysis section. She is also currently a core member of the New Pest Advisory Group.

Outside of work, Tara enjoys spending time with family. Along with her husband Eric and their three dogs, Tara has somehow convinced her mother and two sisters to move to NC and has been busy

playing realtor for her sisters and becoming better acquainted with her three young nephews (3 years, 1 year, and 1 month old). When Tara isn't busy polishing her peek-a-boo

and "Candyland" skills, she is an active participant with her college sorority, Delta Gamma, and is currently the president of the Chapel Hill / Durham alumnae association as well as an advisor for the Delta Gamma chapter at Duke University.





CPHST Spotlight: Nichole Levang-Brilz

July 2005

Nichole Levang-Brilz joined the CPHST Director's Office as a Biological Science Technician for AQI and Port Technology in January 2005. Prior to joining CPHST, she taught various biology courses at Minnesota State University Moorhead and Minnesota State Community and Technical College.

Nichole received her B.S. and M.S. in Biology from the University of North Dakota and her Ph.D. in Range Ecology from North Dakota State University. Her M.S.

research involved running a computer simulation examining the effects of species colonizations and extinctions on food-web stability. During her doctoral program, she studied the effects of the interactions between the scaling properties of plant root systems and nutrient availability on the competitive relationship between plant species of the Great Plains Grasslands.

Nichole is married to Lynn Brilz, a civil engineer, and they have one cat named

Motor. In her spare time, she enjoys reading, hiking, and cooking. She is also very excited to learn about her "new" state and is looking forward to visiting the mountains and coast.



CPHST Spotlight: Bacilio Salas

July 2005

Bacilio Salas joined CPHST's Pest Detection, Diagnostics, and Management Lab in Edinburg, TX, as a Plant Pathologist in January 2005. Bacilio was born in Puno-Peru. He holds a B.S. degree in Agronomy from the "Universidad Nacional del Altiplano (UNAP), Puno-Peru." He came to the U.S. under a LASPAU scholarship in 1977 and earned his M.S. degree in 1979 at North Dakota State University (NDSU). His master's thesis focused on the intratuber infection of potato cultivars by *Verticillium dahliae* and *Verticillium albo-atrum*. After graduation, he went back to Peru and taught plant pathology courses at UNAP and researched diseases of potato and little known Andean crops. He came back to the U.S. in 1986 and began his doctoral studies and research on the effect of tillage, fertility, and crop

rotation on common root rot of spring wheat at NDSU and received his Ph.D. degree in 1992. Bacilio worked as a Research Scientist at the University of Maine, Orono in 1993, where he studied the effect of cultural practices on the incidence of late blight, early blight, black scurf, dry rot, and early dying of potatoes. From 1994-2000, he joined NDSU as a Post-Doctoral Research Associate and studied first the microflora associated with kernel blight of barley, and later, survey, mefenoxam resistance, cultivar susceptibility, and chemical control of *Phytophthora erythroseptica* and *Pythium ultimum*. At the end of 2000, he joined the University of Minnesota as a Research Associate and studied the effect of residue management and cropping of wheat cultivars differing in susceptibility



to *F. graminearum* on the epidemics of Fusarium head blight in wheat and barley. Upon his arrival in Mission, TX, Bacilio has assisted with the ICS-Indian River Citrus Canker Survey in Florida and more recently prepared data sheets for the Citrus Commodity Based Survey Manual.



CPHST Spotlight: Don Seaver

July 2005

Don Seaver joined the CPHST Director's Office in June 2005 as a Biological Science Technician for Molecular Diagnostics and Biotechnology. A North Carolina native, he received a BS in Fisheries and Wildlife Science from N.C. State University in 1987. He began a career as a fishery biologist with the Virginia Institute of Marine Science (VIMS) in 1987, beginning as a lab technician and finally serving as a project supervisor and statistical analyst for the juvenile finfish monitoring and recruitment program. During his 16

year tenure at VIMS, his primary research interests were age and growth studies of important fish stocks, multivariate analysis of community structure, and essential fish habitat classification and quantification. Upon leaving VIMS he spent time working for the Pennsylvania Fish and Boat Commission as a biologist and the Pocono Mountain school district as a science instructor.

Outside of work he spends most of his time engaged in one of three passions:

fly-fishing, bow-hunting, and competitive cycling. He has also been involved in coaching youth soccer and basketball, served on regional parks and recreation commissions, and has been actively involved with local open space/land conservancy initiatives.



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Click the following link for the latest on CPHST "Hot Projects"
<http://www.chpst.org/hotprojects>



Recent Awards to CPHST Staff July 2005

Two members of the National Weed Management Lab (NWML) received awards for their outstanding work.

Ron Lang, who will retire at the end of July, received an award for his consistent, long term efforts in support of biocontrol of weeds in the U.S. For 17 years, Ron has played a key role in PPQ's successful delivery of biological control tools for managing exotic weeds. His knowledge of insects, plants, biological control, and his ability to work with a diverse array of project cooperators has been a major asset to PPQ. Ron has



Ron Lang, Entomologist

worked with many state cooperators on weed issues, and he has been their primary contact for information on biocontrol. Ron has helped local weed groups obtain insects and get established. His work with leafy spurge is well know. He

is also well respected for his contributions to the biocontrol efforts against knapweed, field bindweed, and hoary cress.

Leslie Leigh received an award for the outstanding work she has done to set up and furnish the new NWML facility. Leslie is the Office Administrator, and she does a great job with purchases, T&A's, travel, etc. (her normal duties). The basis of the award is for the initiative and extra work she has done to help get the new NWML facility up and going. She has coordinated GSA, the land owner, and contractors to complete remodeling and install lab benches. She has organized moving our heavy lab equipment from storage to our new building. She personally has hung pictures, patched holes in the walls, selected and purchased sinks and faucets for the lab, moved furniture, and installed baseboard molding. She is also the lab's safety officer. Leslie has been key to the progress of the new NWML facility.



Submitted by Tom Kalaris

Kayimbi Tubajika, Plant Pathologist for the Otis Pest Survey, Detection and Exclusion Lab, was elected as an Editorial Board Member for Research Journal of Plant Pathology- The Scientific World Publications (SWP).

Laura Duffie, Staff Scientist for SDI, received an award for exemplary efforts in designing the CPHST Ad Hoc Process.

Christina Lohs, Biological Science Technician for SDI, received an award for exemplary efforts in implementations of the CPHST Ad Hoc Process.

Anne-Marie Callcott, Deputy Director for the Soil Inhabiting Pests Section, received an award for support of the Analytical and Natural Products Chemistry Lab as Acting Lab Director from April 4, 2005 to August 3, 2005.

Dianne Hoffman, Staff Assistant, received an award for her continued excellent administrative support to Dr. Gordh and the CPHST Director's Office.



Publications July 2005

New Publications by CPHST Scientists:

Culliney, T.W. 2005. Benefits of classical biological control for managing invasive plants. *Critical Reviews in Plant Sciences* 24(2): 131-150.

Gould, J., R. Venette, and D. Winograd. 2005. Effect of Temperature on Development and Population Parameters of *Copitarsia decolora* (Lepidoptera: Noctuidae). *Environmental Entomology*. 34 (3): 548-556.



Dr. Gordon Gordh judging the 1st Annual APHIS Idol Contest at the Flag Day & Independence Day Cook-Out (Raleigh, NC)