ERDP's SEMPostings

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Number 3

SEMP Researcher Profiles: Meet Lisa and John

Beverly Collins, SREL

John Dilustro, Ph.D. and Lisa Duncan, M.S. are indispensable members of the SREL team. They are based full-time at Fort Benning, and have primary, day-to-day responsibility for the project. Lisa was our first employee on the project. She immediately set about establishing an office at Fort Benning, working with Fort Benning folks to select SREL field sites, and visiting potential sites to determine if they met criteria for soil type, military use intensity, and forestry practices. During the first field season, she hired summer technicians and supervised vegetation sampling. She continues to be the primary go-to person for questions about sites and vegetation sampling; she also makes sure that John doesn't get lost in the field. John was selected for a postdoc position with this project because of his interest in biogeochemical cycling, particularly C and N cycling, and his experience working in a research team. John has primary responsibility for supervising the project at Fort Benning. He makes sure that we meet our milestones, and that research included in the proposal actually gets done. He interacts with Fort Benning folks to ensure that the experimental treatments, including the prescribed fires, are done. In addition, he has taken the lead in designing and carrying out the nutrient cycling aspects of the research. He has primary responsibility for hiring summer field help. He coordinates getting plant and soil samples from Fort Benning to SREL, and oversees laboratory analyses. He also functions as the SREL representative at scientific and research meetings to present the project and answer questions about the day-to-day research. In summary, John and Lisa *are* the SREL research; the intense sampling field sampling needed to answer our research questions could not be done long-distance. We need conscientious, talented researchers at Fort Benning; John and Lisa are certainly those people.

JOHN: I am a postdoctoral researcher at the University of Georgia's Savannah River Ecology Laboratory (SREL) working with Dr. Beverly Collins. My interest is in ecosystem ecology with an emphasis on plant and soil carbon and nitrogen cycling. I completed my Masters work on the Virginia Coast Reserve - Long Term Ecological Research Site, working on aboveground net primary production of dune vegetation. For my PhD research I looked at the belowground response to elevated CO2 at the Smithsonian's CO2 research site located at Kennedy Space Center in Florida. I completed B.S. degree in Biology at Virginia Commonwealth University in Richmond and my MS in Biology and PhD in Ecological Sciences at Old Dominion University in Norfolk, Virginia. I live in Columbus, GA with my wife Theresa and my two children Frank and Annie.

LISA: I am a research technician for Beverly Collins at the University of Georgia's Savannah River Ecology Lab. I completed a Bachelor of Science degree in Forest Resources and a Master of Science degree at the University of Georgia. My master's research focused on neotropical migratory bird reproductive success as it related to microhabitat around the nest. I grew up in and now again live in Butler, GA, a rural area just east of Ft. Benning.

Lisa and John

Upcoming Events

12-13 Mar 2003: Scientific Advisory Board (SAB) Meeting, Arlington, VA
31 Mar—2 Apr 2003: Technical Advisory Committee (TAC) Meeting, Arlington, VA
3-8 Aug 2003: Ecological Society of America Meeting, Savannah, GA

SEMP Postings –

Program Manager's Comments

SEMP Management Changes

Since it's origins in 1998, SEMP has been managed by the U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC). Recently, ERDC has made some changes to SEMP management assignments. First, Bill Goran of ERDC CERL (Champaign, IL) has resumed duties as the SEMP Program Manager. Bill has overall responsibility for SEMP planning, execution and coordination with SERDP Program Office and the SEMP Technical Advisory Committee.

Dr. Harold (Hal) Balbach, also of ERDC CERL, served as SEMP PM while Bill was on other assignments. Hal will now serve in the new position as SEMP Research Coordinator, and will coordinate planning, reporting and collaboration across the various SEMP research teams. Hal also have primary responsibility for the SEMP website.

Dr. Jeffrey Fehmi, also of CERL, is now the Technology Transition Coordinator. Jeff will work with Ft. Benning and other installations and organizations to develop a plan to infuse and transition the outcomes of SEMP research and monitoring efforts.

These are the new assignments – but there are several individuals that will continue their SEMP assignments:

Dr. David Price of the ERDC Environmental Lab (Vicksburg, MS): Coordinator for the SEMP Ecosystem Characterization and Monitoring Initiative.

Dr. Rose Kress of ERDC EL: SEMP Repository Coordinator.

Mr. Hugh Westbury of ERDC CERL (at Ft. Benning, GA): Host Site Coordinator.

Ms. Teresa Aden of ERDC CERL (Champaign, IL): SEMP Reporting Coordinator.

Kilo Eleven Update

Hugh Westbury

The Kilo Eleven Ecological Indicator Validation Study is a unique opportunity for SEMP researchers to actually measure the effectiveness of the ecological indicators that they are studying. The conception and management of this experiment are part of the Oak Ridge National Laboratories Indicator Proposal and is lead by Dr. Virginia Dale.

Work on this study began in 2000, with the selection of a research area in the K-11 training compartment north of Hasting's Range. Pete Swiderek and Theresa Davo worked hard to locate two similar, relatively undisturbed intermittent drainages, in an area accessible to heavy armored vehicles that drained into a permanently flowing stream. This was an especially difficult task because the continuing drought left few options for testing aquatic indicators.

Throughout 2001, the SEMP research teams collected data to characterize the pre-disturbance baseline values of the various indicator variables. The two study sites are to both be given the same "light intensity" treatment consisting of the standard land management practices of prescribed burning and timber thinning. After measuring the response of the indicator variables to the "light intensity" treatment, one of the study sites will be subjected to a "high intensity" treatment that simulates an armored vehicle movement exercise. The validity of the disturbance indicators will be tested by their ability to differentiate between the two treatments.

On May 29, 2002, the experimental area was burned as part of the normally scheduled prescribed fire regime. Conditions were excellent and the fire destroyed most of the understory shrubs and hardwoods. The selective thinning of the larger hardwoods and undesirable pines was conducted October 28-30 as part of the timber management program. This treatment was generally restricted to the upland parts of the watershed, with minimal disturbance to the soil or hydrology.

The "high Intensity" treatment will take place in 2003 after the logging is complete. Last fall and throughout the winter SEMP research teams are collecting their post-treatment data. This is a rare opportunity for a diversity of scientists to validate the effectiveness of their indicators and compare the results of their work. The Kilo Eleven Project has had some unanticipated delays, but through the hard work and perseverance this study will culminate in a collaborative effort that advances ecosystem science.

Controlled burn before …

during

and after.

K11 showing effect of forest thinning

Good-Bye Bill DeBusk; Hello Ramesh Reddy

Joseph Prenger

The University of Florida team has had a change of leadership for their SEMP research effort. Dr. William F. (Bill) DeBusk, the former P.I. on the project, has left the academic world for a position with the consulting firm Ecology and Environment. Bill led the UF effort from its beginning in October, 1999, through June, 2002. He received his doctorate from the Soil and Water Science Department at UF in 1996 and was involved in much of the early research on nutrient impacts in the Everglades of south Florida. He was on the faculty at the University of West Florida before returning to UF as a Wetlands Extension Specialist in 1998. Bill is now employed at E&E's Pensacola Florida office, focusing mainly on watershed management, treatment wetlands, and wetland mitigation / restoration. He has been replaced as P.I. by Dr. K. Ramesh Reddy of the University of Florida's Soil and Water Science Department.

Ramesh Reddy has been the Chair of Soil and Water Science at UF since July 2000. He received his Ph.D. from Louisiana State University in 1976 and has been conducting research related to biogeochemical cycling in wetlands and aquatic systems in Florida since 1979. Ramesh founded UF's Wetland Biogeochemistry Laboratory and for the past 15 years has been involved in investigations in three major freshwater ecosystems of south and central Florida, including: nutrient loading impacts on wetlands and streams in the Lake Okeechobee Basin; internal nutrient cycling and loading in Lake Apopka and Lake Okeechobee; and historical nutrient loading impacts in the Everglades. Ramesh is a fellow of both the Soil Science Society and the Agronomy Society of America.

Field tech Dwight Dindial, Ramesh Reddy, Bill DeBusk; Bill washing off his pants legs post sampling in wetlands (background) along Clear Creek below the McKenna Drop Zone

Word from the HSC

Hugh Westbury

As SEMP approaches the end of its third year at Fort Benning, this is a good time to reflect on our accomplishments and focus on future challenges. For most researchers, the work on SEMP has four phases: proposal, startup, research and publication. Things are not that simple from the point of view of the Host Site Coordinator. The SON1 projects are a year ahead of SON2, of course, but there are new SERDP projects that appear to the HSC and Fort Benning to be part of the research effort that SEMP has attracted. Within the SEMP projects, researchers and students start up new research to support or refine the original studies as well. These factors make it difficult to assign a mid-point to our work at Fort Benning, but clearly the SEMP projects have settled into the research phase and have publications in sight.

In FY00, the HSC scheduled 256 field-crew days on the Installation. In FY01 we conducted 445 and in FY02 we will approach 460. That's over 1200 field trips and more than 5000 compartment reservations, so far without a serious accident, and only one instance where SEMP research interfered with the military's training mission. There are not many units or organizations at Fort Benning with a better record of safety and compliance. The result is that SEMP enjoys excellent relations with and support from the Fort's operation and training directorate. This is a major accomplishment for an ecological research effort on a very active military base.

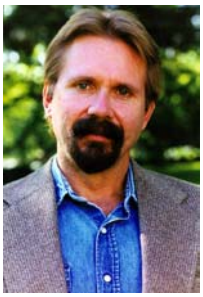
The present research plateau is a time when most of the problems have been encountered and overcome, personnel know what to expect and what to watch out for, and preliminary results allow some "fine tuning" of techniques. But this time of "smooth sailing" is also the last chance to work out collaborative efforts between SEMP projects.

The difference between SEMP and the other SERDP projects at Fort Benning is that SEMP is an Ecosystems Management project. While most of us are used to gauging success by publications, SEMP will be judged on coordination, cooperation and the infusion of research and management tools into the Installation's practices. Now is a good time to go to the SEMP web site and re-read the foundation documents on ecosystem management which are the basic principles on which SEMP was conceived. SEMP researchers and managers are charged with going beyond research and developing new paradigm of teamwork and adaptive management.

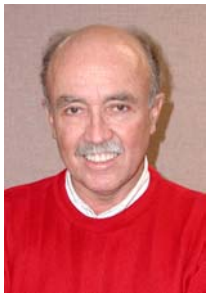
Participation in the upcoming Research Coordination Meeting is especially important this year. The research results are mounting and we should all look for ways that this knowledge can be shared and leveraged. The RCM is an opportunity to better understand the other projects and discuss how we can work together to provide a more useful product. Please plan to attend the Research Coordination Meeting, October 28, and come prepared to participate in adaptive research management.

New TAC Members

Welcome to the new SEMP Technical Advisory Committee Members:



Brian Czech, U.S. Fish and Wildlife Service, Department of Interior



Ray Johnston, U.S. Forest Service, Department of Agriculture

Thanks to Penny Firth of the National Science Foundation for agreeing to serve as the 2002 SEMP TAC Chair. Her help in resolving many issues is appreciated. John Hall of the Nature Conservancy will serve for 2003.

Penny Firth with son Robin, daughter Ria and their dog Rocket

Departing Members: Thanks to **Whit Gibbons** of the Savannah River Ecology Lab for his years of service on the SEMP TAC.

Farewell to Theresa

Theresa Davo has resigned her position as Forest Ecologist for the Fort Benning Environmental Management Division-Land Management Branch. Theresa was a major influence in the direction, design and realization of SEMP.

Theresa became involved with SEMP as the LCTA Coordinator for the DOT ITAM program. She participated in the Land Manager's and Trainer's Workshop in January 1999 where the land and natural resource data requirements of the Installation were identified. Two weeks latter, she participated in the Research Workshop, where those needs were translated into a work plan for the Ecosystem Characterization and Monitoring Initiative (ECMI). As an Ex Officio member of the SEMP Technical Advisory Committee, Theresa represented Fort Benning at every SEMP TAC meeting from August of 1999. In fact, she attended virtually every SEMP meeting, reviewed all of the SEMP proposals and documents, and helped write the "SEMP Approach".

When Theresa moved from ITAM in April of 2000, she was designated as SEMP's point of contact for EMD-LMB. At this time she became even more involved with SEMP - coordinating the SEMP research activities with those of LMB, working with ECMI to improve the forest inventory methodology and infuse SEMP research findings into the effort to achieve the Desired Future Conditions outlined in the INRMP. In the interim period between Patty Kosky's departure and the hiring of a new Host Site Coordinator, Theresa stepped in and made sure that our researchers were able to conduct their research without interruption. Theresa then spent a lot of time over the next two years shepherding the SEMP Host Site Coordinator and generally making things run smoothly.

Theresa began a new career as a teacher in the fall of 2002. We wish her the very best and - one more time - give her a big "Thanks Theresa" for her work with SEMP. We feel sure her students will come to learn what a great person and gifted biologist she is!

Theresa doing quadrat sampling while working with LCTA program

Status of Historic Air Photos and Corona 1964 Imagery For Fort Benning

Glenn Frano, Robert Lozar

Background:

One of the goals of the SERDP Ecosystem Management Project (SEMP) is to create a long term monitoring characterization of site (s) on DOD lands and thereby to observe trends over time at various spatial and temporal scales. One step in this process is to characterize the historical land usage and condition. Although there are no records as to the actual usage of the land by the military at the first SEMP location, Fort Benning GA, historical imagery of the area does exist. ERDC/TEC is developing a 1938 imagery map from air photos and ERDC/CERL is processing high-resolution satellite imagery from 1964. Later imagery (though at the very course resolution of 80 meters) is available from satellite images beginning in 1972 with LANDSAT MSS data.

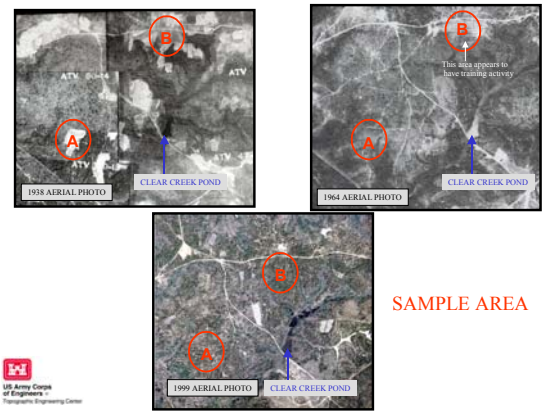
At the Topographic Engineering Center (TEC), the 1938 aerial photography acquired (from the National Archive and Records Administration) for the area has turned out to be a "challenge" to use. The original negatives of the 1938 photos were archived as 70mm negatives. This unfortunately reduced the image resolution and metric quality of the film. Our TEC photogrammetrist attempted to create an orthophoto product from the data and the results were unacceptable due to inherent faults with the 70mm data. The prints generated from the negatives will still be able to be used for analysis but to make a historical map product will require another historical year. We evaluated 1944 and 1945 aerial photography to determine if they can be used to create an accurate orthophoto of the base, and the 1944 images were selected for use. TEC analyzed 1938 and 1944 aerial photos covering a test area for historical land use categories. The test area is about two to three square miles. This analysis was done in early November 2002, and CDs were sent to the PIs for evaluation.

The 1964 imagery is available from the archives of the "spy satellites". During the Cold War era, massive amounts of remotely sensed national defense intelligence data were collected. These data include satellite-based photography, one series called "Corona". These have now been declassified and a search of the archives revealed the existence of a good set taken of Fort Benning region in October of 1964. As part of an unrelated project, ERDC/CERL had acquired and processed some of this 1964 imagery. During February and March of 2002 we asked if SEMP researchers would be interested in using sections of the 1964 image of Fort Benning for their research. Of the seven research teams, six expressed interest in receiving a sample. Fourteen samples were sent out. All respondents agreed the images would be useful, particularly if known issues could be resolved. Beverly Collins of SREL did a detailed comparison of vegetation changes between 1964 and 1999 images. Several groups were interested in additional imagery, or images outside of the coverage on hand. We therefore concluded that

- Most research groups were anxious to see the imagery.
- All groups concluded that it was or could be useful.
- Some groups showed how useful it could be in a statistical evaluation or to show changes over time.

Because of the clear interest SEMP researchers have expressed in using this imagery, we are in the process of acquiring the missing portions of Fort Benning and reformatting it into a complete coverage that can be made available to researchers via the SEMP repository. The missing sections of Corona film have been acquired and are in the process of being scanned into digital form. When available, the scanned images will be georeferenced and submitted to the SEMP Data Repository so that all researchers will have access to the 1964 imagery. The imagery will be available in mid 2003.

Fort Benning, Georgia--1938, 1964 and 1999 Aerial Photography



SAMPLE AREA

For more information, check out our website at
http://www.cecer.army.mil/KD/SEMP

US Army Corps of Engineers

Host Installation SEMP POCs

William D. Goran, Program Manager
U.S. Army Engineer Research and Development Center
Ph: (217) 373-6735
Fax: (217) 373-7222
E-mail: william.d.goran@erdc.usace.army.mil

Hal Balbach, Research Coordinator
U.S. Army Engineer Research and Development Center
Ph: (217) 373-6785
Fax: (217) 373-7266
E-mail: hal.e.balbach@erdc.usace.army.mil

John Brent, Chief Env. Division
Fort Benning, GA
Ph: (706) 545-2180
Fax: (706) 545-4209
E-mail: BrentJ@benning.army.mil

Hugh Westbury
Host Site Coordinator
Fort Benning, GA
Ph: (706) 545-7882
Fax: (706) 545-1124
E-mail: WestburyH@benning.army.mil

Editorial Note:
If you have any comments regarding this newsletter or suggestions for future articles, please contact Teresa Aden at (217) 373-6789 or via email at teresa.a.aden@erdc.usace.army.mil.