Rice Creek Associates Newsletter

Winter 2013-2014

New Director and beginnings for Rice Creek Field Station

Kamal Mohamed, Rice Creek Field Station's new director, is currently a professor in the department of biological Science. He was appointed in the Department of Biological Sciences as a botanist, teaching plant systematics and ecology in the fall of 1994. For his doctoral degree, he attended the ecological sciences program, Department of Biology, Old Dominion University in Norfolk, Virginia. He holds Bachelor's and Master's degrees from the University of Khartoum, Sudan. His B.Sc. degree was in agricultural botany and M.Sc. in soil microbiology. While at ODU, Kamal worked as a research assistant in the Chesapeake Bay monitoring program assessing the productivity of phytoplankton in the Bay, as a wetland consultant and water quality assessment for the Norfolk Water Authority, and a research assistant for Smithsonian Institution for the assessment of habitat studied in the ecological Preserve at the Great Dismal Swamp in Virginia.

At Oswego, Kamal taught various courses ranging from introductory to upper division biology courses and served as the advisement coordinator for about 10 years. His research interest is in the area of biology and systematics of parasitic plants and the ecological niche modeling of noxious and invasive plants under scenarios of present-day and projected future climate changes. Because of his broad background in agricultural sciences, he also has interest in ethonbotany (studies related to people and plants) and currently has a course in this area.

With the completion of the new facility, Kamal is excited to start his new job at Rice Creek. He is committed to the mission of the Field Station, and is planning to work collaboratively with his staff at the Field Station, Administration, Rice Creek Associates, the campus Rice Creek Advisory Board, and all the friends of the Field Station to make sure that station is playing its natural role in public education and field research. He will take advantage of the new facility and re-examine/improve all current programs and offer new and more exciting ones for public education and student research.

The new building provides an excellent opportunity for improvement in all programs and providing a better experience for all. The staff at Rice Creek is aware that with the new facility and what it can offer comes with more responsibility. In its planning, the staff will try to balance the need to provide high quality public education while at the same time maintaining the habitat in the field in its natural condition as close as possible. Opening the station to the public will not diminish its value as an outdoor laboratory for research.

There is also a management plan under consideration for developing a conservation program which will limit the spread and the effects invasive species may have on native habitats. The objective of this program is to uphold a balanced and natural ecosystem necessary for maintaining a healthy biological diversity. If successful the program will provide field management experience and employment opportunities for a number of students. The plan will be executed in such a way as to have minimal effect on non-target species. The staff at Rice welcomes any new ideas to advance the mission of the Field Station.

Science at Rice Creek

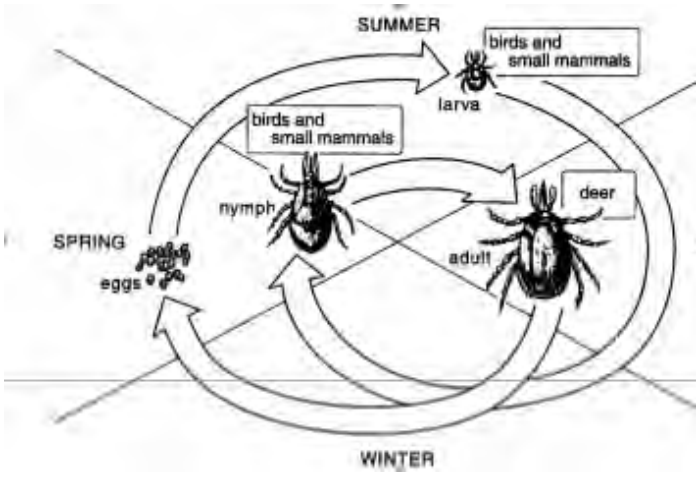
Tick abundance and its implication on field station grounds

(Editor's note: The following text contains excerpts from a research paper by a SUNY Oswego student funded through the Rice Creek Associates' Small Grant Program.)

For two years SUNY Oswego student Zuzi Salais has conducted studies supported by Rice Creek Associates' Small Grant Program on mapping tick abundance across Rice Creek Field Station habitats. The reason for the study was to detect any existence of Lyme disease, which is caused by a spirochete bacterium. This bacterium is moved from host to host by the blacklegged tick, Ixodes scapularis, commonly known as the deer tick.

Deer ticks are highly concentrated in the northeastern and north central United States and are the main vectors (carriers) of Borrelia burgdorferi, the spirochete bacterium causing lyme diease. In these areas alone, 35-50% of

tested ticks have been found to contain the spirochete (Maggi et al., 2010). A contributing factor in the spread of Lyme is the 2-year life cycle of the tick. The tick life cycle consists of a larva, nymph, and adult. The tick must attain a blood meal between life stages in order to molt into the next stage. When a tick is actively seeking a host it is referred to as questing, and it does so by climbing on forest vegetation about 1 meter high and waiting for a potential host (Ostfeld, 2011, p. 24). When the tick is not questing, it remains on the forest floor until its next blood meal. Questing behavior depends on the life stage of the tick; nymphs primarily quest throughout the summer, larvae in June and July, and adults are active during spring and fall. The larvae peak at the same time as the nymphs, which increases the chance of larvae to feed off hosts that have already become infected with the spirochete. Lyme peaks along with human outdoor activity making the local abundance of infected nymphs the primary risk factor for human populations (Fish, 1993, p. 31).



Life cycle of *I. scapularis* (Figure from Buskirk & Ostfeld, 1994).

Ticks surveys were conducted weekly inside and outside newly built exclosures as well as in locations in meadows, hardwood forests, edges (between meadows and forests) and walking trails at RCFS. Safety precautions while sampling included the wearing of tyvek suits, field boots, and tick gaiters to minimize exposure to ticks.

A 1-m^2 white corduroy cloth sewn at one end to a wooden handle and weighed at the opposite end by small lead weights sewn into the cloth was dragged and examined every 20 meters along the chosen transects. The ticks collected were preserved in 70% ethanol, identified by species, gender, and life stage. Ticks were then refrigerated until they were analyzed to determine the presence or absence of *Borrelia*.

During 2012, Zuzi surveyed the Rice Creek Field Station (RCFS) weekly at 13 locations in meadows, hardwood forests, edges (between meadows and forests) and walking trails. The white corduroy cloth was dragged and examined every 20 meters along the chosen transects.

A total of 214 ticks were collected only in the forested (n=211) and trail (n=3) locations. Ticks were most often found in August-October. Following collection of ticks, ZuZi determined the presence of *Borrelia burgdorferi* within each habitat at RCFS. Of the 214 ticks collected, 81 have been tested for the presence of *Borrelia.* To date, one tick has tested positive for *Borrelia*.

During the dry 2012 summer, ticks at RCFS seemed to only be present in forested locations and trails and not in meadows or edge communities.

The city of Oswego is at the edge of the current limit of Lyme disease spread in upstate NY (with heavier incidence to the East toward the town of Mexico and down the Mohawk valley) (Diuk-Wasser et al. 2012).

Why is this study important to us?

The ability of Lyme disease to infect humans is a public health concern. Therefore, in addition to learning how Lyme disease occurs, we must know when, where and why ticks are abundant and infected. Zuzi's research will assist in the creation of an ecological risk map for faculty, students, and anyone taking part in outdoors activities at Rice Creek Field Station.

Literature Cited:

Buskirk, J.V., & Ostfeld, R.S. (1994). Controlling Lyme disease by modifying the density of species composition of tick hosts. *Ecological Applications, 5*, 1133-1140. URL: http://ecostudies.org/people_sci_ostfeld_pubs.asp

Diuk-Wasser, M.A., Gatewood-Hoen, A., Cislo, P., Brinkerhoff, R., Hamer, S.A., Rowland, M.,…Fish, D. (2012). Human risk of infection with *Borrelia burgdorferi*, the Lyme disease agent, in Eastern United States. *The American Journal of Tropical Medicine and Hygiene, 86*, 320-327. doi:10.4269/ajtmh.2012.11-0395

Fish, D. (1993). *Population Ecology of Ixodes dammini*. H.S. Ginberg, (Ed.). New Brunswick, NJ: Rutgers University Press.

Maggi, R.G., Reichelt, S., Toliver, M., and Engber, B. (2010). *Borrelia* species in *Ixodes affinis* and *Ixodes scapularis* ticks collected from the coastal plains of North Carolina. *Ticks and Tick-borne Diseases, 1*, 168-171. doi:10.1016/j.ttbdis.2010.08.003

Ostfeld, R.S., Hazler, K.R., & Cepeda, O.M. (1996). Temporal and spatial dynamics of *Ixodes scapularis* (Acari: Ixodidae) in a Rural Landscape. *Journal of Medical Entomology, 33*, 90-95. URL: http://ecostudies.org/people_sci_ostfeld_pubs.asp

Rice Creek Associates' Spring 2014 offerings:

Save the dates!

Rice Creek Reflection presentations have been scheduled for early spring. On **March 30**, Dr. Richard Furnas from Cornell University will discuss his adventures in ecology and environmentalism. On **Sunday, April 27**, Dr. Andrew Nelson will speak about the flora of the city of Oswego. In **May**, Dr. Lytton Musselman from ESF in Syracuse will discuss plants of the Bible.

In addition to these presentations, Bill Reilly and Mindy Ostram from river's end bookstore will briefly discuss a selection of books on nature and the environment, all of which will be available for purchase. This event will be held at 11:00 a.m. on **Saturday, March 8** at the field station.

Sat. Mar. 8: Book sale, 11:a.m. – 1 p.m.
Sun. Mar. 30: Ecology & environmentalism, 3p
Sun. April 27: Flora of Oswego, 3 p.m.
May: Plants of the Bible, to be announced.

Memorable moments at Rice Creek

"Watching intently as an Osprey perched in a tree sized-up and then splash (!), completely ignoring Dr. (George) Maxwell's lecture … 1977."

- Laurel Artz

"During the summer of 1983, I was collecting insects for the field station's collection. As I walked around a large shrub I came face to face with a deer. With three feet between us, we stared at each other for what seemed an eternity (probably five seconds) before it made a quick turnaround and disappeared into the woods."

- Mike Holy

We encourage all members to submit a favorite memory of Rice Creek Field Station. Send it to Mike Holy at fordlep@yahoo.com or mail it directly to the field station. It will appear in a future newsletter.

Membership renewals for 2014 are due!

If you haven't yet renewed your membership for 2014, please do so at your earliest convenience. All memberships now run for the calendar year. A membership form is provided in this newsletter.

Questions regarding your membership can be addressed by contacting Mike Holy at 315-622-1774 or email him at fordlep@yahoo.com. As always, we appreciate and thank you for your membership and support of special funding needs.

Help us improve our newsletter!

There are many things that you as members can do to assist us in improving the quality of our newsletter. **Share** your experiences with us of Rice Creek. **Write** a short review on a nature book that enjoyed. **Send** a digital picture you took at Rice Creek that you think we may enjoy. **Suggest** ideas that we may include, or programs that you would like to see offered to our members and public.

Send these and any other ideas to Mike Holy at fordlep@yahoo.com, or call him at 315-622-1774. We look forward to providing information that would inform and entertain our members.

Current RCA board members

Michael Holy, President
Peter Rosenbaum, Vice President
Holly Eden, Secretary
Amy Tressider
Paulia Bates
Claire Putala

Rice Creek Field Station Staff

Kamal Mohamed, Director
Diann Jackson, Assistant Director
Wendy Fragale, Secretary
Alan Harris, Groundskeeper

Field Guides Available

Guides to the butterflies and invasive plants on the field station grounds are available for sale. They would make excellent gifts for anyone who enjoys walking the trails. Contact the field station office at 315-312-6677 for details.

Rice Creek Field Station

Rice Creek Field Station is a part of the State University of New York at Oswego. While its primary function is to provide facilities for field oriented research and courses in the natural sciences taught at the college, facilities are also available for public education and recreation. The field station houses superb collections, sampling equipment, and laboratories. It is surrounded by several hundred acres of forest, fields, trails and wetlands, including Rice Pond. School children visit the field station and many individuals and groups use the area for hiking and cross-country skiing.

Directions To get to Rice Creek Field Station take Route 104, turn south on Thompson Rd, 100 yards west of the College's main entrance. The field station is 1.4 miles on the right.

Join Rice Creek Associates

Name _____

Address _____

City _____

State _____ Zip _____

Email _____

____ New Calendar-year Membership
____ Membership renewal
Level:

___ Student	5.00
___ Individual	10.00
___ Family/Couple	15.00
___ Contributing	25.00
___ Sustaining	50.00
___ Life	250.00
___ Corporate	500.00

I/We would like to make a tax-deductible contribution to the

- ___ General Fund
- ___ Endowment Fund
- ___ Special Project(s)
  - ___ GPS/GIS Laboratory
  - ___ Research Grants
- ___ Facility Development
- ___ Accessible Wetland Trail
- ___ Exploring Nature Program for children

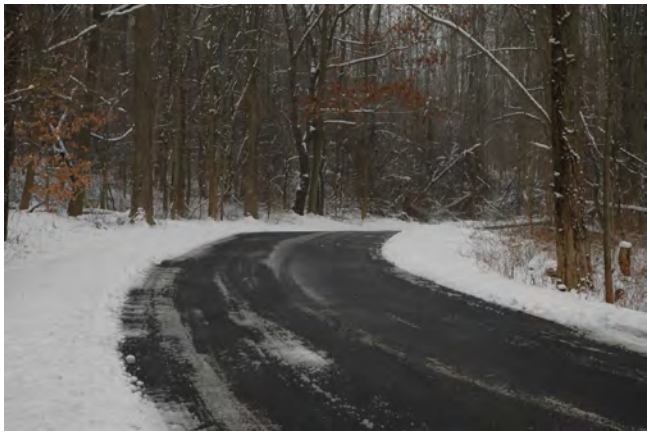
in the amount of $ _____.

Total enclosed (membership + contribution)
$ _____.

Please make checks payable to:
State University College Foundation/RCA
Return to:
Rice Creek Field Station #23
SUNY Oswego
Oswego, New York 13126

Rice Creek Associates

(RCA) is a support group that was formed in 1986 for the purpose of furthering the goals of Rice Creek Field Station (RCFS). It is the intent of RCA to expand the scientific, educational, and recreational opportunities at the station through community involvement. Over the years, RCA has continued to increase its membership making it possible to fund improvement projects that benefit the station and the community at large.



Photos at Rice Creek

Beetle vs. spider- spider won!

What's up, Dock?

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Oswego State University
Oswego, NY 13126

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Organization
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TO: