
BLACK ROCK FOREST NEWS

Winter 2009

The Black Rock Forest Consortium

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Diverse Research Activities Progress in Forest

This past summer, once again, scientists and students flocked to Black Rock Forest to conduct research. Much of their work was part of long-term, multi-investigator projects, such as the future of oak forests and urban-rural gradient studies, or of ongoing efforts to understand mercury in the ecosystem and survey the Forest's biodiversity.

Future of Oaks

The Forest's Future of Oak Forests project, with principal investigators from Columbia University's departments of [Earth and Environmental Science](#) and of [Ecology, Evolution and Environmental Biology](#), [The Ecosystems Center of the Marine Biological Laboratory](#), the [American Museum of Natural History](#), the [Cary Institute for Ecosystem Studies](#), [Harvard University](#), and Fordham University's [Calder Ecological Center](#), as well as from the Forest, is the first direct, manipulative test of the cascades of impacts likely to follow the loss of oaks, in advance of what may occur should they succumb to current and/or future threats (see "Oak Research," [Spring 2008](#)). As foundation species in northeastern forests, oaks play vital ecosystem roles, such as regulating water yield and quality, carbon storage, fire regimes, and biological diversity.

In reviewing the work on the project since its beginnings as a small pilot in 2005-2006, Forest Executive

Director Dr. William Schuster outlines some of the initial results now that all the study plots have been treated (three plots each with all oaks girdled, half the oaks girdled, all non-oak trees girdled, and unmanipulated controls, with subplots in each fenced to exclude deer). Researchers are examining changes in tree species composition and live above-ground biomass; understory vegetation; coarse woody debris; environmental variables such as water, temperature, and light; soil respiration; decomposition; nitrogen dynamics; soil

Barnard College student Laura Diefenbach, a summer intern, sampling for ticks.



water chemistry; mycorrhizal fungi; small mammals; and spiders, ants, ticks, and litter insects.

"Some of the most interesting preliminary results," notes Dr. Schuster, "include an increase in soil moisture in oak-girdled plots (probably as result of less water uptake by trees), which could impact many other ecosystem processes, and dramatic increases in nitrate and ammonium concentrations in soil water in the oak-girdled plots, as well as high nitrogen concentrations in their soil. We will also look at impacts on forest productivity and cascading effects on organisms in the food web."

Impact of Cities

Many researchers and students worked on the multiyear urban-rural

National Recognition

Field Station Group Meets at Black Rock

From September 17 to 21, some 75 scientists gathered in Black Rock Forest for the annual meeting of the [Organization of Biological Field Stations](#) (OBFS), whose membership includes nearly 200 field stations from around the United States and North and Central America. Visitors came from near and far, from 24 states and Costa Rica, as well as from Consortium member institutions and the National Science Foundation. They stayed in the Forest Lodge while enjoying a program of meetings, presentations, and field trips.

"The OBFS meeting was a great opportunity for Black Rock to exhibit our facilities, many "green" features, our research and education programs, and our consortium of universities, schools, and other scientific organizations," notes Executive Director Dr. William Schuster. "This was the first "fully green" annual meeting for OBFS, and we and other members have contributed ideas for their forthcoming set of guidelines on sustainable design of field stations. At least one other field station has adopted a consortium model similar to ours to enhance synergy between research and education."

Participants had a busy agenda, starting with a choice of two pre-meeting field trips. One explored the Hudson River and its passage through the Highlands via a kayak tour and marsh visit, and the other visited mountainous regions to the north of the Forest (the Catskills and Shawangunks), including meetings with naturalists and researchers and a tasting at a local winery. After the official opening of the meeting that evening,

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Black Rock Forest Consortium

Black Rock Forest News is published three times a year by the Black Rock Forest Consortium.

The Black Rock Forest Consortium is an alliance of public and private schools, colleges, universities, and scientific and cultural institutions engaged in research, education, and conservation in the 3835-acre Black Rock Forest in New York's Hudson Highlands.

The Black Rock Forest Consortium is a not-for-profit 501(c)(3) organization supported by membership dues, grants, and gifts.

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[The Browning School](#)
[The Calhoun School](#)
[Central Park Conservancy](#)
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Black Rock Forest News

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Report from the Executive Director

Will our environment suffer as a result of the recent steep worldwide decline in financial markets? Will there be reduced support for organizations such as ours that pursue scientific understanding and environmental education? It seems that there may be causes for concern as well as optimism.

Spending for most items tends to decrease during difficult economic periods. Public schools are already being particularly hard hit since they are heavily supported by state funding which is being significantly reduced. All programs, including environmental ones, will be at risk. The same is true for funding for most public parks and deep cuts in support are also looming for zoos, botanic gardens, and aquaria. It remains to be seen whether the economic crisis will stall the development of cleaner alternative energy sources or undermine the pursuit of long-term solutions to major environmental problems. Despite much evidence to the contrary, the old view that economy and environment are adversaries still persists in some places. But the parallels between the two realms are clear: just as there is no easy fix for years of unsustainable economic practices, we must recognize that decades of environmental unsustainability will have their consequences, and some changes cannot be deferred until the next generation.

On the positive side, environmental concern and knowledge may have reached all-time highs in our society. There is increased recognition that our environment represents our own life support system. Science, reinforced by experience, has shown to people and societies how economic and human health both depend on environmental health.

The new economic situation may force us to pursue ways to operate that reduce overall costs. For example, rather than pay for treatment of water, it makes much more economic sense to not pollute water in the first place, and to employ natural ecosystems for long-term water quality protection. The reexamination of spending patterns and priorities that is now taking place could result in less waste and increased focus on efficiency. People may choose to spend

more time closer to home, supporting local enterprises and paying more attention to their own backyards. New economic paradigms are developing that place greater value on supporting the long-term well-being of our environment and our society.

The new administration in Washington has plans to address global climate change, reduce greenhouse gas emissions, and create millions of "green collar" jobs. It has pledged support for research and development of solar, wind, and biofuel energy sources. It has proposed energy-focused job programs to give disadvantaged youths service opportunities and to improve the energy efficiency of buildings in their communities. It has also proposed incentives to reward forest owners, farmers, and ranchers for planting trees and for other practices that capture carbon dioxide from the atmosphere and that protect and restore wetlands, grasslands, and forests. Certainly the early appointments for most of the top science posts bode well for maintaining a focus on our environment while dealing with the difficult economic situation.

The rapid collapse of unsustainable parts of our economy has provided a wake-up call, and the silver lining may be a reexamination period in which we steer our economy onto a sustainable path, transforming our system to one that values long-term good over short-term economic gain. We need to continue to invest in research to find solutions, since we cannot properly repair something unless we fully understand it. Thus, we need science to help us find the way and education to prepare our society for the future. And we need the environment because it truly is earth's life support system. These must be priorities for the future.

Here in the Forest, our programs of ecosystem research, education for more than 11,000 students each year, development of replicable green infrastructure projects using natural energy sources in partnership with local municipalities, and protection and restoration of natural Highlands ecosystems show how we will be focusing on these priorities despite the economic challenges. ■

— Dr. William Schuster

Students Develop Alternative Energy Projects

Students at two Consortium member institutions are helping bring new forms of alternative energy to the Forest. Columbia University [Department of Earth and Environmental Engineering](#) seniors are investigating how to develop microhydro power at Black Rock, and [Metropolitan Montessori School](#) sixth graders are helping to install a wind turbine.

Black Rock Forest is advancing its role as a center for the use and exploration of renewable “green” energy. Starting with geothermal heating and energy-efficient building techniques for the Center for Science and Education and the Forest Lodge, and continuing with the addition of an 80-panel solar array and aggressive energy conservation measures, the Forest is now eager to explore other demonstration and practical projects.

The microhydro system would use water from Black Rock Brook, which drops 100 meters over a dis-

tance of 1 kilometer. Flow in the Brook and the water supply for the Village of Cornwall-on-Hudson are drawn from the same reservoir, and the Village Board “is officially interested in the possibilities for a joint microhydroelectric project with the Forest using their water supply facilities,” says Forest Executive Director Dr. William Schuster. “They have approved looking into these possibilities.”

The Columbia students will conduct a preliminary design and cost analysis, determine the best site and system design, consider impacts on the environment and stakeholders, and evaluate annual operating capacity and operational methods. The Forest would use the power in the Forest Lodge, and the Village will evaluate using the power to operate its water filtration plant.

“This is an ideal topic and scale for the year-long design project,” explains Dr. Gavin Gong, who super-

vises the students. “It touches on many of the hydrologic and alternative energy topics in our curriculum, has a clear engineering design element, and is consistent with the themes of our department. If all goes well, the students’ preliminary design could be close to a final design that just needs to be contracted out.”

The Montessori sixth graders also engage in a year-long project. This year’s focus is environmental science, especially energy. The students have already built a generator and a mini-windmill, and are learning about wind patterns, the impact of wind speed, and other factors influencing the generation of wind power. They are considering various wind turbines that could be placed on a small tower near the Science Center. “The students are very excited about the project,” notes science teacher Casey Keith, “and it ties in with the school’s theme of community service.” ■

Second Green Ride Nets \$59,000 for Education in Forest

Three days, 230 miles, and 26 enthusiastic bicycle riders added up to \$59,000 for Black Rock Forest education and research programs, as the second [Green Ride](#), held over Columbus Day weekend, surpassed the first. The intrepid group consisted of teachers from several Consortium member schools, including [The School at Columbia](#), the [Amistad School \(PS 311\)](#), and the [Urban Assembly for Applied Math and Science](#) (see “Forest News in Brief,” p. 7), other friends of the Forest, and Forest staffers, each of whom had to raise at least \$1800 to participate.

The riders set off bright and early from Fort Tryon Park on the first day of the ride, traveling across the George Washington Bridge and north

past Bear Mountain State Park, West Point, and Storm King Mountain to reach the Forest. The second day was the longest and most strenuous, taking the cyclists some 100 miles over the Shawangunk Mountains and then back to the Forest. The final day brought the riders back to New York City and cheering supporters.

This year, the global investment firm [BlackRock](#) generously contributed \$10,000 to the Ride, which again was [organized by Marty Rosen](#). Along with a team of more than a dozen staff and volunteers, she provided support for the riders, from signage to cooking to entertaining the riders at night in the Forest Lodge.

Many participants in the inaugural ride in 2007 returned this year, some recruiting new riders as well. Teacher Lisbeth Uribe, from The School at Columbia, topped the recruiters, with five other cyclists joining her group. One, former PTA president Ilana Adelman, wrote in The School’s newsletter “[The] camaraderie, collective sense of cause, and physical challenge gave us all a sense of honor and accomplishment . . . I can’t wait to ride again . . .”

Jim Bixler, a Cornwall area resident and a friend of Black Rock For-

est, was another repeat rider; he also invited people on training rides, circulated e-mails, and put photos up on the web. “When riding for three days, you start to think: Can I do it? How much further?,” he says. “Then you realize it’s all about the kids who come to Black Rock. Returning to Manhattan and seeing the kids from the Amistad School with their painted signs cheering for us with their parents will give you goosebumps.”

Other notable riders and supporters included Ken Baum, the principal of the Urban Assembly School, who signed up for the ride, along with two of his teachers, at the last minute; Scott Wood of Tishman Construction (formerly with FXFowle, architects for the Forest’s green buildings), who provided coaching on equipment and training; and Bill Kelly, Consortium treasurer, the Ride’s biggest fundraiser.

Congratulations to all! ■



Virtual Forest Initiative To Offer Online Access to Forest Data

What if students and scientists could click on a map of Black Rock Forest, access the Forest's rich archive of scientific data and other resources, and then use the data for their studies or research? That's what the Virtual Forest Initiative, now in a pilot phase, aims to do.

"The centerpiece of the project is an interactive web-based software application that will provide searchable, downloadable Forest resources," explains Dr. Ryan Kelsey from the [Columbia University Center for New Media Teaching and Learning](#) (CCNMTL), the director of the Virtual Forest Initiative, "as well as a suite of learning tools." Forest resources include scientific data, such as the records of the environmental monitoring stations and long-term tree data, maps, photographs, publications, and conservation information.

In the pilot stage, CCNMTL is working with three professors, Dr. Hilary Callahan from [Barnard](#) and Dr. Matthew Palmer and Dr. Kevin Griffin from [Columbia](#), to develop learning

modules for their classes. The pilot aims to assess the inventory of Forest resources, figure out how to intuitively provide dataset access, understand how the scientific and teaching community would like to use Forest assets, and examine the range and depth of technological issues involved in developing the project further.

Dr. Callahan tested a forest sampling module in her lab course on plant evolution and diversity; it allows students to combine virtual sampling methods with data on real trees in Black Rock's long-term study plots. Three of her students, acting as "guinea pigs" to test the module, reported that it realistically simulated what they did on field trips, and they were excited about being able to look at forest change through time. "The beauty of the new tool," says Dr. Callahan, "is that we can visit Black Rock virtually, including doing exercises that will, eventually, tap into Forest data not only from recent years, but also from historical datasets going back many decades."

In the spring term, Dr. Palmer's students will also use a forest sampling design and optimization simulator, and Dr. Griffin's students will use environmental monitoring data and long-term plot data to learn how to calculate respiration rates based on tree species composition information and seasonal temperature data.

Some future plans include developing modules for high school and younger students, examining additional Forest data to incorporate into the project, and collaborating with Columbia's Center for Digital Research and Scholarship to create a scalable version of the Virtual Forest that will meet global standards and that could, eventually, be shared on a national level with other field stations.

"The Virtual Forest project is an exciting testbed for developing technologies to support 'hybrid' environmental experiences," explains Forest Executive Director Dr. William Schuster, "extending field experiences with tools that can optimize the use of associated digital information." ■

Field Stations *(continued from page 1)*

Black Rock Forest's historian, Dr. Neil Maher, gave a talk on the land use history of the Forest and the Hudson Highlands (his [full report](#) on this topic is on the Forest web site).

Among their varied meetings over the next several days, the visitors had opportunities to learn more about the Forest and its programs, including the [School in the Forest](#) project which enables students from underserved New York City public schools to participate in the Forest's educational activities just as independent schools do. They also heard about ways to include green facilities in field stations from Dr. Schuster.

The schedule included time to tour Black Rock's research sites and green features. "We consider most of our normal operations "green," but we did a few extra things for the meeting," explained Han-

nah Roth, the Forest's Research Associate/Environmental Educator. "[Everyday green](#) includes our [solar panels](#) that produce 50% of the Science Center's energy, the composting

toilets that save 18.5 gallons of water per person per day, and our [geothermal heating/cooling system](#)."

"But we also "live green" within our facilities," she added, "by using cloth napkins, stoneware plates and mugs, and metal utensils. For the OBFS meeting, we also relied on electronic attachments for handouts and contact lists, gave each attendee a reusable water bottle with name tag, produced reusable "drink nametags" so people could locate their mug or glass, launched a new worm-composting system for all our kitchen scraps, and – after much research – purchased carbon offsets through [carbon-fund.org](#) (a not-for-profit that supports renewable energy, energy efficiency, and reforestation projects) to reduce the impact of participants' travel." ■

Standing on the equipment building for the Cascade Brook Stream Station, Dr. Kevin Griffin from Lamont-Doherty Earth Observatory explains some of the research in the Cascade Brook watershed made possible by data collected by the station. The equipment continuously measures stream gauge, and thus flow rate, and water quality. Computerized dataloggers collect the data and transmit it back to the Science Center via an antenna on top of the tower; solar panels keep the battery, which runs all of the equipment, charged.



Research (continued from page 1)

gradient study, which looks at the effect of urbanization on plant growth at sites ranging from the urban (Manhattan's Central Park) through the suburban and increasingly rural (Lamont-Doherty Earth Observatory and Black Rock Forest) to the completely rural (Catskill Mountains) (see "Field Season Yields Plant Growth Data," [Winter 2007](#)). Begun in 2005, the project is examining gradients in environmental variables such as day- and night-time temperatures, growing season length, incident diffuse radiation (indirect radiation that is scattered by the atmosphere), chemical deposition, and ozone and carbon dioxide concentrations, and is investigating their individual and interacting influences on native plant growth. The research team includes Dr. Schuster, Dr. Kevin Griffin and Dr. Natalie Boelman of [Lamont-Doherty](#), Dr. Matthew Turnbull from the [University of Canterbury](#) in New Zealand, and Dr. J. D. Lewis of [Fordham University](#).

Over the summer, Dr. Boelman, along with student assistants, measured the spectral reflectance and pigment concentrations in red oak (*Quercus rubra*) as a way of looking at photosynthetic rates, and also analyzed rainwater samples for pollutants (see "Small Grants," [Spring 2008](#)). Stephanie Searle, a University of Canterbury doctoral student, working with a variety of other students and interns from Columbia and Barnard, studied photosynthesis and respiration, analyzed the nitrogen content of leaf samples, and measured plant growth and morphological characteristics. Another Columbia graduate student, Diana Hsueh, has been analyzing atmospheric carbon dioxide (CO₂), measured by Dr. Wade McGillis and his Lamont-Doherty group, along the gradient, and also preparing tree cores for ¹⁴C analysis which can be used to calculate CO₂ levels over the past century.

The researchers have found trends along the urban-rural gradient in some variables, such as plant growth, respiration, and chlorophyll fluorescence (a measure of stress), but not in others, such as photosynthesis and CO₂ levels. "The bottom line is that the transect story has turned out to be more complicated than we anticipated," notes Ms. Searle; "we still don't really know why the plants in the city grow bigger."

Mercury Research

For several years, Dr. Allan Frei from [Hunter College](#) (part of the City University of New York) and Dr. Anthony Carpi of [John Jay College](#) (also part of CUNY) have been examining mercury, a toxic chemical that affects human, animal, and environmental health, at Black Rock Forest (see "Mercury Research," [Spring 2007](#)). Their goals are to examine the fluxes of mercury to and from the ecosystem to determine how much mercury there is in the system, and to quantify the effects of a variety of factors, including temperature, light, precipitation, and soil chemistry, on these fluxes; ultimately, they would like to estimate the impact climate change might have on the mercury balance of the system.

Results from their mercury monitoring site at the Old Headquarters building, where they measure dry deposition of mercury and emissions from soil samples, show that wet deposition of mercury (through rainfall) is the primary contributor of mercury to the ecosystem. Mercury emissions from the soil account for a significant portion of the loss of this mercury back to the atmosphere; snow cover significantly reduces mercury emissions. The scientists' students work with them, both in the Forest and back in their labs, analyzing soil samples.

In addition, Drs. Frei and Carpi enabled Black Rock Forest to join the national [Mercury Deposition Network](#) (MDN) by establishing a monitoring station on West Point land adjacent to the Forest's [National Atmospheric Deposition Program](#) (NADP) site. This station provides weekly data on mercury in precipitation in the Forest which can be compared with data from neighboring MDN sites. Results indicate that Black Rock, along with stations in nearby Pennsylvania and New York, generally has higher mercury deposition rates than stations further north. The researchers have also added an ozone monitor to the network of meteorological instruments at the Old Headquarters site.

Bats and More!

Scientists also studied the fauna and flora of Black Rock Forest. Dr. Chanda Bennett, from the [Center for Biodiversity and Conservation](#) of the American Museum of Natural History, conducted bat surveys in the Forest

as part of her research on the community composition and diversity of bats in the New York City area; she used the Forest as a rural comparison to urban parks (see "Small Grants," [Spring 2008](#)). She monitored, recorded, and digitized the echolocation calls of several species of free-flying bats. She is still analyzing her data, and hopes to continue surveying the Forest and other parks in the metropolitan area over the next several years so she can assess temporal changes in bat distribution and community assemblage.

Dr. Catherine Burns, formerly of [WildMetro](#) and now at the [University of Maine](#), also is interested in the urbanization gradient in the New York metropolitan area. She used [Earth-watch](#) volunteers as well as scientists, park managers, and student interns to assess the abundance and diversity of amphibians, birds, mammals, and plants in eight parks and protected areas ranging from the urban (Central Park) to the rural (Black Rock Forest). They hoped to answer questions about the human impact on biodiversity, thresholds of urbanization and land use change for species survival, differences in responses to urbanization among the species groups, strategies leading to coexistence of nature and people, and features of protected areas that might be important for biodiversity.

The teams used a variety of techniques including surveys, visual and auditory counts (for birds), camera-trapping, and track-tubing (studying animal tracks left in specially designed tubes). In the Forest, they found several species of frogs and salamanders, many bird species, and such mammals as gray squirrels, red foxes, raccoons, deer, bears, white-footed mice, and chipmunks. They also surveyed understory plants, both comprehensively and with a focus on three invasive species. Dr. Burns is still analyzing her data, but reports that "for most taxonomic groups that we studied, we found intriguing evidence of the impacts of urbanization; we are eager to investigate these emerging patterns and their root causes further."

"Research is thriving at Black Rock Forest," says Dr. Schuster, "and this is just a sampling of the exciting scientific work taking place. Our Research Symposium on June 22 will showcase many of the studies at the Forest, as well as others from around the Hudson Highlands region." ■

Current Research at the Forest

The Black Rock Forest Consortium is committed to encouraging collaboration among member institutions and also between researchers and students. To help members learn what other members are doing and explore opportunities for collaboration, we here present a list of current research projects at the Forest, along with contact information. ■

Distribution, Assemblage, and Activity of Bats in a Temperate Urban Landscape. Chanda Bennett ([American Museum of Natural History](#)). *Contact: Chanda Bennett.*

Oak Forest Sustainability and Response to Canopy Disturbance. William Schuster ([Black Rock Forest](#)), Shahid Naeem and Maria Uriarte ([Columbia University](#)), Kevin Griffin ([Lamont-Doherty Earth Observatory](#) of Columbia University), and Jerry Melillo ([The Ecosystems Center](#), Marine Biological Laboratory). *Contact William Schuster.*

Cycling of Mercury in Terrestrial Environments. Allan Frei ([Hunter College](#), City University of New York), Anthony Carpi ([John Jay College](#), City University of New York), David Evers ([Biodiversity Research Institute](#)), and Roger Claybrook ([US Mercury Deposition Network](#)). *Contact Anthony Carpi.*

Native Plant Performance along an Urbanization Gradient. Kevin Griffin and Natalie Boelman ([Lamont-Doherty Earth Observatory](#)), William Schuster (Black Rock Forest), Matthew Brown ([Central Park Conservancy](#)), and J. D. Lewis ([Fordham University](#)). *Contact Kevin Griffin.*

Ecology of Slave-Maker Ants and Their Hosts: The Effect of Geographic Variation in Parasite and Host Range on Co-Evolutionary Trajectories. Christine A. Johnson ([American Museum of Natural History](#)). *Contact: Christine Johnson.*

Functional Ecology of Complex Plastic Traits in Forest Trees: Pilot Studies of Reproductive and Root Traits. Hilary S. Callahan ([Barnard College](#)) and Louise Comas ([Pennsylvania State University](#)). *Contact: Hilary S. Callahan.*

The Autotrophic Contribution to Soil Respiration by *Quercus* and Its Associated Mycorrhizal Fungi in Black Rock Forest: An Assessment for the Ecosystem Consequence of Foundation Taxon Loss Project. Kevin Griffin ([Lamont-Doherty Earth Observatory](#)). *Contact: Kevin Griffin.*

Land-Atmosphere Coupling at Black Rock Forest: The Role of Snow, Vegetation, and Soil Thermodynamics. Gavin Gong ([Department of Earth and Environmental Engineering](#), Columbia University), Jason Smerdon ([Lamont-Doherty Earth Observatory](#)), and Jessie Cherry ([University of Alaska](#)). *Contact: Jason Smerdon.*

Effects of Host Defoliation and Distribution on Spatial Patterns in Ectomycorrhizal Fungi. J. D. Lewis ([Fordham University](#)). *Contact: J. D. Lewis.*

The Tamarack Pond Core as a Rosetta Stone for Impact Events: Correlation to Known Ejecta Layers. Dallas Abbott ([Lamont-Doherty Earth Observatory](#)). *Contact: Dallas Abbott.*

Long-Term Study (77+ years) of Tree Population Dynamics and Carbon Storage. William Schuster ([Black Rock Forest](#)). *Contact: Bill Schuster.*

Small Mammal Response to Oak Removal. Jenna Lawrence and Kate McFadden ([Department of Ecology, Evolution and Environmental Biology](#), Columbia University). *Contact: Jenna Lawrence.*

Moss-Microarthropod Community Response and Recovery from Environmental Disturbances at Black Rock Forest. Shahid Naeem and Claire Jouseau ([Department of Ecology, Evolution, and Environmental Biology](#), Columbia University). *Contact: Shahid Naeem.*

Insect and Arachnid Diversity of Black Rock Forest. Vladimir I. Ovtsharenko ([American Museum of Natural History](#)). *Contact: Vladimir Ovtsharenko.* ■

Our 20th Anniversary!

In 2009, the Black Rock Forest Consortium will celebrate its 20th anniversary with, among other events, a fundraising luncheon on May 13 at the Union League Club. The highlight of the celebration will be the presentation of the first William T. Golden Award for Science and Education to Helene L. Kaplan. The co-chairs of the luncheon, Kim Elliman, chief executive of the Open Space Institute, and David Redden, vice-chairman of Sotheby's, both serve on the Consortium's board.

The Consortium created the William T. Golden Award to honor the founder of the Consortium: Mr. Golden developed the concept of a group of colleges and universities, schools, and other scientific and cultural institutions jointly using the Forest for research, education, and conservation – a vision that became reality in 1989 after years of his patient and diplomatic negotiation. He served as Chairman from then until shortly before he died in 2007. Helene L. Kaplan, as both a lawyer and a friend, has helped Black Rock Forest every step of the way.

Since the founding of the Consortium in 1989, Forest visitors have increased from just a few to more than 11,000 per year, scientists working in the Forest have produced more than 400 publications, and the Consortium has built a lab and classroom building and a Forest Lodge for overnight visitors. Activities include faculty, doctoral, and postdoctoral research; undergraduate education and research; elementary, middle, and high school programs; staff and teacher training; environmental monitoring; and tours of the Consortium's award-winning green buildings.

The luncheon will celebrate these accomplishments and introduce guests to some of the exciting projects planned for the future. As the Consortium's first fundraising event, it is designed both to include long-term supporters of the Forest and to introduce potential new friends to its programs, thus strengthening the Consortium as it moves forward into its next 20 years.

Save the date, look for an invitation in early spring, and come-celebrate with us! ■

Join Us! Become a Friend of Black Rock Forest!

☐ New Member or ☐ Renewal

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Please make checks payable to the Black Rock Forest Consortium and mail with this coupon to: Black Rock Forest, 129 Continental Road, Cornwall NY 12518-2119. *All contributions are tax-deductible; the Consortium is a 501(c)(3) organization. Thank you!*

Forest News in Brief

Small Grant Applications Due February 2. The Consortium has announced its 20th annual [Small Grants](#) program, generously funded by the Ernst Stiefel Foundation, with awards of up to \$5000 for scientific research and up to \$3000 for education projects conducted in Black Rock Forest. Grants of up to \$8000 may be awarded for research/education partnerships between two institutions and, thanks to funds provided by the [New York-New Jersey Trail Conference](#), research studies on the environmental impact of recreation can receive up to \$10,000. Proposals are particularly solicited in five priority areas: research on forest ecosystem sustainability and response to disturbance; studies of plant and ecosystem function along urbanization gradients; research on the environmental impacts of recreation, particularly (but not limited to) the impacts of trails; projects that enhance the utility of the Forest's web site; and production of instructional materials related to alternative energy technologies and Forest facilities. Guidelines and application materials are available on the Forest web site: www.blackrockforest.org/docs/scientist-resources/SmallGrants/index.html. The application deadline is February 2.

Urban Assembly School Joins Consortium. The [Urban Assembly School for Applied Math and Science](#), a public college preparatory school for grades 6-12 in the South Bronx, is the Consortium's newest member. Open on a noncompetitive basis to all students who are interested, the School achieved the highest math scores in its district for the past two years. Students from the School suc-

cessfully participated in last summer's High School Field Ecology Internship program.

Teacher Workshop February 27-28. At the request of several Consortium members, the Forest is offering an in-service training program in the Forest. The program will (re)introduce teachers to the Forest's facilities, review curriculum offerings and ideas for trip programming, describe logistical procedures for planning a trip, create a series of collaborative, interdisciplinary, wintertime Forest activities, connect teachers from different Consortium schools, and create a sense of camaraderie. For more information, please contact Jack Caldwell at the Forest.

High School Field Ecology Internship. For the second year, from July 5-17, the Consortium will offer a two-week residential field ecology internship program for high school students (see "Two Weeks of Forest Ecology," [Fall 2008](#)). Again led by Barnard professor Dr. Terryanne Maenza-Gmelch with teaching assistant Angelica Patterson, the program includes field study of key ecological concepts and investigative methodologies, and gives students the opportunity to work directly with research scientists. Applications are due March 6. For information, visit www.blackrockforest.org/teacher-student-resources/FieldEcologyResearchInternship/index.html.

Research Symposium June 22. Black Rock Forest's sixth Research Symposium is scheduled for June 22. Scientists conducting research in the Forest and around the Hudson Highlands region will present their work. More information will be available online later in the spring. ■

Black Rock Forest Consortium
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**Small Grants
Applications Due Feb. 21
See p. 7**

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Report from the Forest Manager

If you have traveled the Forest these past 20 years, you probably have met my sons, Matthew and Benjamin. They have been a part of the Forest for all of their lives. Their first dunking, after house water, was in Sutherland Pond. This winter, they are 24 and 21 years old.

Work is something they learned since they were big enough to pick up wood and rocks. Matt and Ben provided much of the muscle behind many Forest projects. Have you seen all the stone collected for the Science Center and Forest Lodge? Have you crossed Mailley's Mill Bridge and Ben's Bridge? Deer exclosures, roads, and trails are all places you can find evidence of their labors, much accomplished with the help of Joe Oliva, Matt Munson, and many other friends and volunteers. The hard work makes the fun times even better; taking off from a rope swing into a body of water seems more exhilarating after a day's work in the Forest.

Matt now lives in Utah, where he has pursued a career in forest products after graduating from the State University College of Environmental

Science and Forestry in Syracuse. He has taken on a buddy, a dog named Rogue. Both have explored much of Utah and have become inseparable. Ben works at the Forest part-time while also working as a carpenter's helper for one of the most reputable contractors in town. He still finds time to split wood and kayak the Moodna during high water (look for him in the blue kayak).

Both have decided to walk from Georgia to Maine on the Appalachian Trail. Starting April 1, they plan to hike for more than four months through the mountains of the eastern United States, visiting the Black Rock area mid-way. Also on the journey is Rogue, who looks like a miniature "Bear" (if you remember her). She will carry her own water, food, and first aid.

The boys wondered if their hike could benefit Black Rock Forest. They developed the idea to create opportunities for others who are willing to work in the woods, and we thought it was a great gesture. Matt and Ben remember working many days in the Forest just for pizza. They plan that money they raise will provide pizza and other sup-

port for the Forest crew, the volunteers who give their time on Saturdays to work on projects such as bridge and trail work, erecting deer exclosures, digging ditches, picking rocks, and planting trees.

It appears the first work of the spring of 2009 will be clearing roads and trails of the many branches and trees that fell in the very damaging ice storm of December 12. If you are interested in joining the crew, please contact me or a teacher at a Consortium institution; students under 18 must have permission of their parents or guardians.

To be a donor or mileage sponsor for Matt and Ben and/or Rogue, and to provide support for the Forest crew, please contact Barb Brady (she's their mom) in the Forest office.

To many of us, walking the 2,200-mile Appalachian Trail is a life experience that is close to top of a "things to do" list. In that frame of mind, we support Matthew, Benjamin, and Rogue, as well as the Forest and woods work that helped bring them to where they are. ■

— John Brady