New study shows invasive exotic plants helped by natural enemies

David Terras
Institute Communications and Public Affairs

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though conventional wisdom suggests that invasive exotic plants thrive because they escape the natural enemies that kept them in check in their native ranges, a new study in the journal Science suggests the opposite. In fact, exotic plants that are in the presence of their natural enemies actually do better in their introduced ranges. Each year, invasive exotic species cause an estimated $120 billion in damage in the United States, not to mention the untold amount of harm they do to the structure and function of native ecosystems. In this latest study, researchers found that exotic herbivores, including cattle, rabbits and goats introduced by Old World explorers can encourage the spread of invasive exotic plants, increasing their relative abundance by nearly 70 percent over native plants.

“Exotic herbivores may facilitate the growth of exotic plants by selectively consuming native plants, potentially freeing resources for exotic plants that can resist these herbivores,” said John Parker, a graduate researcher in the School of Biology. Parker, along with Professor Mark Hay and fellow graduate student Deron Burklepe, analyzed 63 published studies of more than 100 exotic and 400 native plant species. In addition to finding that exotic plant eaters increased the percentage of exotic plants in a community, they found that exotic plant eaters also increased the richness and variety of exotic plants.

They also found that native herbivores, once thought to have little effect on exotic plants, are far more effective in reducing their number. Recent research, including a paper authored by Parker last year, suggests that native herbivores actually prefer to eat exotic plants over native plants. This research proposes that since the exotic plants haven’t yet adapted to the threats posed by native plant eaters, they may not have the right defenses and are often easier prey than the native herbivores’ usual meal.

The study’s findings have serious implications for conserving ecosystems and reducing the economic damage that exotic species cause.

“Restoring native vertebrate herbivores to their natural ranges, while reducing the number of exotic herbivores, could be an effective tool in reducing invasive exotic plants,” Parker said.

Music Department prepares to offer master’s degree program

Matt Nagel
Institute Communications and Public Affairs

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ending approval from the University System of Georgia’s Regents, Georgia Tech’s Music Department will soon offer its inaugural degree program: a master’s in music technology.

“After working several years to expand the music program and to provide an academic center to what has been for years a co-curricular program, I believe this new master’s degree in music technology represents a huge step in the development of music at Georgia Tech,” said Tom Galloway, dean of the College of Architecture. “I am so appreciative of the many students and faculty across campus who have helped us create a fully interdisciplinary program centered in art and technology.”

Students interested in the program will need to complete 48 credit hours to graduate and will be heavily involved in research. According to Music Technology Director Gil Weinberg, “We would like students to take part in our effort to innovate and develop future technologies for music performance, composition, and education.”

To complete the degree, the new program plans to offer students two different concentrations. Initially, only one — computer music research and engineering — will be available. The other concentration, geared toward music production, is expected within the next few years.

“Clearly, what is most important is to provide a world-class education for students who wish to pursue careers in music technology,” said Frank Clark, who directs the Music Department. “We also hope to positively impact our profession through innovative research, performance and teaching. As we look forward, it will be imperative to build a new Center for Music, Art and Technology, for which we desperately need new and innovative facilities.”

The master’s degree in music technology will be the first degree in Tech’s history to combine performing arts with computer music research and engineering. The degree is also interdisciplinary and will require collaboration across campus, giving students a broad perspective.

Site preparation for nanotechnology building begins

Michael Hagearty
Institute Communications and Public Affairs

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ew phase in the site preparation for a planned nanotechnology complex is expected to begin later this month as specialists move in to clear asbestos from two campus structures.

Located at the northwest corner of Peet and Atlantic Drives, the Electronics Research Building (ERB), is first on the abatement schedule. The site will be surrounded by fencing, and Atlantic Drive will be closed to traffic.

ERB abatement is expected to go quickly. The more complicated removal will begin in April, when the containment building that is part of the Neely Nuclear Research Center is cleared.

For the purpose of the project, the Neely Center is comprised of two separate buildings. The containment building, which housed Tech’s nuclear reactor until 1999, will be part of the abatement and demolition project. The instructional building will remain and will continue to be used during Site preparation.

Abatement continued, page 3

AVP of Institute communications named

Michael Hagearty
Institute Communications and Public Affairs

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ollowing a national search, Georgia Tech will welcome a new chief communications officer next month.

Jim Fetig, a retired military officer who has held leadership positions in government and corporate affairs, has been named an associate vice president and head of Institute Communications and Public Affairs. He will assume his new duties on Apr. 10.

President Wayne Clough said Fetig would be a strong resource for Tech as it moves forward with key initiatives, including its $1.3 billion capital campaign.

“Jim has an impressive background in public relations and marketing and is eager to become involved in the planning and execution of a strategy that fits our goals for the future. We are excited to welcome him to our leadership team.”

Working for the U.S. Army, Fetig has directed media strategy at the Pentagon and served as the special assistant to its Chief of Staff. In his last governmental position, he served as director of public affairs for the National Security Council at The White House. More recently, he has worked as vice president of public relations for Lockheed Martin and as vice president for media relations at Raytheon Company in Waltham, Mass.

Fetig’s work in public relations has earned him national honors from professional societies. Sue Ann Allen, executive assistant to the president and chair of the search committee, said the group was swayed by his track record and organizational success.

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Volume 31, Number 10 • March 13, 2006

THE GEORGIA INSTITUTE OF TECHNOLOGY
Smart Shirt’s success inspires new health management center

Brad Dixon
College of Management

W hen Georgia Tech’s Sundaresan Jayaraman invented the computerized Smart Shirt 10 years ago with military funding, he initially intended it for wear only in combat situations. Designed with optical fibers and sensors woven in, the lightweight T-shirt can monitor soldiers’ vital signs and detect bullet wounds, electronically transmitting this information to medical triage units near the battlefield.

After realizing that the Smart Shirt’s technology could have much wider medical uses — such as the remote monitoring of patients’ condition after they return home from surgery — Jayaraman recognized that he, too, could play a bigger role in enhancing the health care system. So Jayaraman, a professor of polymer, textile and fiber engineering, expanded his focus beyond technology innovation to include healthcare management, obtaining a joint appointment at the College of Management last year. He is in the process of establishing a Center for Management and Technology Innovation in Health Care at the business school.

“Because of my Smart Shirt work, I’ve come to value the role of technology in enhancing health care,” says Jayaraman, who joined Georgia Tech’s faculty in 1985. “Management Innovation is the fuel that sustains the technology innovation engine.”

Still in the early stages of developing the center, Jayaraman is now working on research proposals with Doral Health Medical Center and building an advisory board. He has assembled a team of information technology management, operations management and organizational behavior professors at the business school whose research will examine best practices in a patient-centered health care system. Other academic areas will eventually become involved.

Integrating multiple perspectives, the center will serve as a forum for doctors, patients, insurers and all other parties involved in the health care-delivery continuum — from the research institutions and biotech companies developing innovations to the venture capitalists funding them, to the pharmaceutical companies bringing medical breakthroughs to market.

The Smart Shirt that started it all is finally getting close to market itself. Invented by Jayaraman and research associate Sungmee Park, the Smart Shirt’s technology was licensed from Georgia Tech in 2000 by Sensatecs, which plans to introduce products in the near future.

In addition to combat care, other possible uses of the Smart Shirt include the remote monitoring of infants at risk of sudden infant death syndrome, astronauts in space, athletes competing and law-enforcement officials on duty.

Did you know?

In 2002, the Smart Shirt earned a place in the Smithsonian Institute’s collection of important items in the history of textiles. This spring, it will be featured as part of a traveling museum tour sponsored by the History Channel.

Graduate students Scott Driscoll and Travis Thatcher and Assistant Professors Gil Weinberg and Jason Freeman showcase some of their music technology research.

L ater this month, the Music Technology Group will travel to Israel for a performance at the Halamadah Art Center in Jerusalem. The March 25 concert will feature three compositions exploring the ways in which machines can listen, improvise and collaborate with humans.

Assistant Professor Jason Freeman will engage the audience with his performance, “Glimmer.” The audience will actively shape the performance by participating in it. Each audience member will possess a battery-operated light stick which the user can turn on and off during the course of the piece. Video cameras read the images, computer software analyzes the video and sends instructions to the musicians on stage, telling them when and what to play.

Assistant Professor Gil Weinberg with graduate students Scott Driscoll and Travis Thatcher will perform his “1bus,” which enables novices to collaborate with improvising jazz musicians. Players use musical controllers called Beatbugs (pictures, left) to record live input, transform the recorded materials and create theme-and-variation, call-and-response routines on the fly.

The concert concludes with Weinberg’s world premiere of “Jan’aa,” an interactive jam session that integrates a robotic percussionist into a Middle Eastern drum circle. The robot, named Haile, listens to live percussionists, analyzes musical aspects of their playing and improvises in time.
sourcing the campus that the workers are performing routine asbestos removal, and not responding to any kind of radiological incident. The site is being prepared in advance of an $800 million nanotechnology complex.

Institutional, state and private funds are expected to produce one of the nation’s largest cleanrooms, which is critical to research and instruction in microelectronics, semiconductors, materials, medicine and pharmaceuticals.

**Notes on the Neely Nuclear Research Center**

- Built in the early 1960s, the Neely reactor was “defueled” in 1995 as a security measure prior to the Summer Olympic Games.
- In 1997, caging the cost to upgrade and operate such a facility, the Georgia Tech administration opted to initiate the site’s permanent decommission.
- Two years later, with help from the U.S. Nuclear Regulatory Commission and the Environmental Protection Agency, the reactor and support equipment were removed and transported to landfills.
- Since then, the NRC has officially released the containment building for general use, but it has remained unoccupied for the past seven years.

Measuring the impact of those initiatives and collaborating to ensure strategic alignment of all communications activities.

A Six Sigma specialist, Fetig said he is eager to take on a new challenge. I was completely impressed with everyone I met at Georgia Tech and all that Dr. Clough’s team has accomplished,” he said. “The vision for the Institute is compelling as is the opportunity to join a world-class organization. I am looking forward to meeting and working with everyone on the faculty and staff.”

**For more information…**

Institute Communications and Public Affairs
www.icpa.gatech.edu

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**Awards & Honors**

For innovative contributions to the understanding and application of the nonlinear optical properties of organic materials, Professor Joe Perry (Chemistry and Biochemistry) has been elevated to the rank of fellow of the Optical Society of America.

Citing, among other things, his role as founding editor of the Journal of American Ethnic History, The Association for Asian American Studies has awarded Professor Ronald Bayor (History, Technology and Society) its 2006 Lifetime Achievement Award.

Professor Bruce Ellingwood (Civil and Environmental Engineering) was presented with the 2006 Lifetime Achievement Award from the American Institute of Steel Construction. Ellingwood was cited for his research and for sustained professional contributions to the development and implementation of probability-based codified structural design for steel buildings and other structures.

Assistant Professor Andrea Strauss (College of Architecture) received the National Band Association Citation of Excellence at the 2006 Georgia Music Educators’ Association In-service Conference. This award recognizes outstanding contribution to bands and band music.

Assistant Professor Sasha Boldyrev (College of Computing) recently received the prestigious Faculty Early Career Development (CAREER) Award from the National Science Foundation (NSF). The NSF will provide funding over the next five years to support Boldyrev’s research project titled “Integrating Cryptography with Emerging Security Applications.”

Assistant Professor Subhash Khot (College of Computing) has been awarded a research fellowship by the Alfred P. Sloan Foundation. He will receive funding over the next two years to support his research.

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**IN BRIEF:**

**City to begin water main replacement project**

The City of Atlanta’s Department of Watershed Management has announced the start of construction for the Peachtree Street/West Peachtree Street Water Main Replacement Project. Construction will occur Monday-Friday from 9 a.m. – 7 p.m. and is expected to last six months.

Work will start on both streets at the same time. On Peachtree, the crew will begin work at 5th Street and work north to 14th Street. On West Peachtree, the crew will begin work at 12th Street and continue south to North Avenue. Project workers will install approximately 10,000-feet of new 12-inch water pipes on Peachtree Street, between 3rd Street and 14th Street, and West Peachtree Street, between 10th and 12th Street.

For more information about the project, visit www.atlantawatershed.org.

**UROP summer program now taking applications**

The Undergraduate Research Opportunities Program (UROP) at Georgia Tech encourages faculty to mentor students in undergraduate research. Mentoring an undergraduate can be a rewarding experience, as undergraduates can bring fresh ideas to laboratories and research projects. In addition, students build research skills and further understand concepts introduced in traditional coursework via hands-on learning.

Competitive salary and travel awards will be awarded to undergraduate students during Summer 2006 via the President’s Undergraduate Research Awards, a program established in 2001. Student and faculty teams from all colleges and schools are invited to apply for student research salary awards. Students presenting research at conferences and symposia can apply for travel support.

Applications for Summer 2006 awards are due April 3. Additional information, instructions and applications can be found at urop.gatech.edu/institute-wide.htm.

**Volunteers needed for research study**

The Center for Assistive Technology and Environmental Access (CATEA) is seeking volunteers for a computer workstations research study to collect information for use in the development of a new workstation to help computer users with chronic low back pain.

During the session, researchers will adjust the workstation to body size, and volunteers will be asked to do typical computer-related tasks.

The research session lasts approximately three hours and will be recorded on videotape for later analysis. Volunteers will be compensated $95 per session. Research sessions are being scheduled for April 3-14.

Researchers are seeking volunteers between the ages of 18 and 65, who average at least 10 hours of computer use per week, weigh less than 250 pounds and have touch typing skills. Preference will be given to volunteers who have chronic, recurring episodes of low-back pain or discomfort.

For more information, call Charlie Drummond at 894-4960 or e-mail focusstudies@coa.gatech.edu.
Campus Events

Art & Culture

Mar. 25
The Robert C. Williams Paper Museum hosts a workshop on “Pulp Painting with Beck Whitehead,” from noon - 3 p.m. For more information, visit www.ipst.gatech.edu/amp or call 678-232-3475.

Mar. 31
The Ferst Center welcomes the Trinity Irish Dance Company for an 8 p.m. performance. For tickets, visit www.ferstcenter.org or call 894-9600.

Brown Bags/Conferences/Lectures

Mar. 15
Ivan Allen College Founder’s Day begins with a seminar on “Teaching Civic Leadership in the South,” at 10 a.m. in the Biltmore Hotel’s Imperial Ball Room. For a complete schedule of events, visit www.foundersday.iac.gatech.edu.

Mar. 16
Georgia Tech’s Product and Systems Lifecycle Management Center has organized a one-day workshop on “Frontiers in Design and Simulation Management.” To register, visit www.pslm.gatech.edu/events/frontiers2006.

March 16
The School of Mechanical Engineering’s Woodruff Colloquia continues with University of Michigan Professor Y. S. Gianchandani on “Scaling Plasmas and Arc Discharges for Manufacturing and Sensing Applications,” at 11 a.m. in the MARC Building Auditorium.

Mar. 16
The School of Aerospace Engineering hosts the Starnes Memorial Ceremony in honor of the distinguished career of alumnus James H. Starnes Jr. The event will feature preeminent speakers in the aerospace field, followed by a special presentation by astronaut Charlie Camarda, at 1:30 p.m. in the Success Center. For more information, e-mail cindy.ponder@ae.gatech.edu.

Mar. 16
The Georgia Tech Honors Program presents its inaugural lecture series, featuring IVESCO President and CEO John Rogers, on “If the World Is Flat, How Do I Keep from Falling Off The Edge?”, at 3 p.m. in Clary Theater.

Mar. 23
The Office of Organizational Development hosts a brown bag on “More Colorful Tales of Tech’s Legends, Heroes and Reprobates.” at 11:30 a.m. in room 508, Savant Building. To register, visit www.trainweb.gatech.edu.

Mar. 27
The Sam Thunn Policy Forum on “Information and Communication Networks: Economic Development, National Competitiveness and Social Justice,” will be held in the Global Learning and Conference Center. For more information, visit www.inta.gatech.edu.

Faculty/Staff Development

Mar. 20
The GeoTech Language Institute’s English as a Second Language (ESL) program begins. The six-week sessions are held Mondays and Wednesdays from 6 - 8 p.m. until Apr. 26. Tech employees are eligible for a 50 percent discount. For more information, visit www.pe.gatech.edu and search keyword “ESL” or call 385-3500.

Mar. 22
The Office of Organizational Development’s Best Practices Showcase will be from 1-3 p.m. in the Student Center. For information on the presentations, visit www.orgdev.gatech.edu/hp.

Miscellaneous

Mar. 17
The Safe Space program will hold a training program at noon. For more information, contact Stephanie Ray at 894-2561 or visit www.safespace.gatech.edu to sign up.

Mar. 20-24
Spring break

Mar. 21
A town hall meeting to discuss fiscal closeout of the Institute’s books has been scheduled for 9 a.m. in room 117 of the Student Services Building. At this meeting, attendees will be provided with year-end deadlines and other information necessary to close the Institute’s financial records.

Mar. 21
Alumni Association President Joe Irwin will moderate “Innovating Here and Now,” a discussion led by Tech senior faculty on progress made by the Institute and its role in the future as an innovation leader. For more information or to register, visit gtalumni.org/innovation or call 1-800-47-ALUM.

Apr. 1
The annual Georgia Tech Auto Show will be held from 10 a.m. - 3 p.m. For more information, visit www.georgiatechautoshow.com.

Classifieds

Appliances
Sears Kenmore Series 70 washer and electric dryer, like-new condition. $600. Photos available. E-mail david.gifford@gtl.gatech.edu or call 678-252-3475.

Automobiles
1991 Mercedes Benz 300SE. Gold with tan interior, 173K miles. All power, sunroof, CD, service records to date. New transmission, excellent condition, $6,000. Call 678-577-8579 or e-mail andrew.dani@me.gatech.edu.

1995 Ford F150. Automatic, 6-cylinder, 6-foot bed w/leer fiberglass tonneau, Michelins tires, trailer hitch, Excellent condition, 212K miles, $2,800. For photos, call 678-232-3475 or e-mail david.gifford@gtl.gatech.edu.

1997 Jeep Grand Cherokee Limited. 129K miles, automatic, power seats, front dual air bags, leather. AM/FM/CD, $4,800. E-mail atlanta2006carsale@hotmail.com or call 404-791-9535.


2000 Chevy Malibu; sandbox, auto, V6, CD, reliable transportation. $6,000. Call 770-605-5874.

2002 Silver Mitsubishi Mirage, 61K miles. 2-door, AM/FM/CD, Power steering, Great starter car, good condition, $5,000. Call Audrey at 678-536-7581.


REAL ESTATE/ROOMMATES
2BR/2BA home for lease with pool, garage, 3BR/2.5BA townhome 1.5 miles from campus in gated community. Great roommate plan with 2 master suites. Hardwood floors, 10-ft. ceiling, new HVAC, private patio, 2-car garage. $1200.00. Call 404-789-2778 or e-mail blakeas@yahoo.com.

2BR/2.5BA garden-level condo in Oakhurst Village. $265,000. Call 404-849-7012.

New 1BR/1BA condo in The Plaza, on the corner of 8th and W. Peachtree. Never lived in unit on 9th floor, w/private covered parking space, great view, walking distance to QT. $245,000. Call 404-822-4122.

2BR/2.5BA furnished townhouse in Stone Mountain. Fenced yard, no association fees. Quiet neighborhood, walk to MARTA. $95,000. Call 894-9566.

2BR/2BA home for lease with parking option in Douglasville. 3/4-acre level lot with above ground pool and enclosed dog kennel. Many upgrades, move-in condition. Call 404-407-6017 or e-mail shelly.ward@gtl.gatech.edu.

2BR/2BA home in Decatur at 619 2nd Avenue. Decorator colors and fixtures, fenced back yard, secure off street parking, walking distance to Oakhurst Village. $265,000. Call Adam at 404-867-6815 or e-mail aborder@comcast.net.

Miscellaneous

Panasonic PV-GS34PFG digital palmcorder, 30x optical/1000 zoom, 1-touch navigator/joystick, LED light, carry case; AC adapter; 2 batteries, 3 DVD cassettes, software. $375 OBO. Call 894-0065 or e-mail eileenram@juno.com.

Fiberglass camper shell from 1992 Toyota pickup. Sliding windows front right and side and toolbox window on left. Also a complete set of roof racks. $400. Photos available. Call 678-232-5475 or e-mail david.gifford@gtl.gatech.edu.

New Kenmore model 15408 sewing machine. Never used. 51 stitch functions, foot system, easy drop feed dog system for freehand embroidery. Needle plate with dual seam guides in both inches and millimeters. $75. E-mail lp129@mail.gatech.edu.

E-mail calendar events to editor@icpa.gatech.edu as soon as dates are confirmed.