

Dispersing seeds (often weeds) is a deer activity, CU ecologists discover

By Roger Segelken

About the hoofed mammal gardeners love to hate, there's good news and the other kind from Cornell researchers who study plant-eating habits of the white-tailed deer.

Speaking at the Ecological Society of America (ESA) annual meeting Aug. 3-8 in Savannah, Ga., Mark Vellend reported his discovery that a significant role in seed dispersal is played by deer browsing on vegetation wherever they wish and depositing seeds, in their pellet-like feces, to germinate and produce new plants up to two miles away.

"The good news is that deer might facilitate the spread of native plants to habitats recovering from disturbance, where the seeds otherwise wouldn't be able to reach," said Vellend, a Cornell graduate student of ecology and evolutionary biology. Along with Cornell undergraduate Jonathan Myers, the graduate ecologist spent countless hours dissecting deer pellets.

The bad news, said Vellend: "Unfortunately, many of the seeds we're finding in deer feces are from noxious weeds, including four of the top 20 invasive plants of greatest concern in New York state. The multiflora rose, for example," he said, referring to a pretty plant that creates impenetrable brambles.

Ecologists have long known about the myriad ways seeds are dispersed from plants in eastern North America: Ants carry some

seeds and so does the wind, while birds and other vertebrates drop indigestible seeds in their feces. And certain plants with ballistic capabilities can shoot seeds several feet or even yards away.

Many of those methods, however, fail to account for the relatively rapid spread of some plant species when unused farmland returns to woodlands. Or the resurgence of woodlands when Ice Age glaciers scoured landscapes of all vegetation millennia ago and then receded, leaving barren soil in their wake.

The study by Vellend and his colleagues was the first comprehensive test of seed dispersal by white-tailed deer, which are known to researchers by their scientific name, *Odocoileus virginianus*, and to long-suffering gardeners by unprintable epithets. Once a rare sight in suburban neighborhoods, deer populations have reached unprecedented levels in many parts of eastern North America. Wildlife biologists credit a variety of factors (the return of abandoned agricultural fields to woodland, suburban sprawl and a shortage of predators, both human and wild) for the deer explosion.

A typical cluster of deer pellets examined by Vellend and colleagues contained more than 30 germinable seeds. They found that seeds are dispersed by deer throughout the year. The majority of seeds found had no obvious adaptations for dispersal—that is, if the deer hadn't carried them to new loca-



Frank DiMeol/University Photography

Graduate student in ecology Mark Vellend, shown collecting deer feces at the edge of campus, studies the animals' role in seed dispersal.

tions, they probably wouldn't be there. Some seeds were from trillium, the three-petaled woodland flower that is a protected species in some areas. Other seeds came from plants that need no protection and threaten to overwhelm native plants.

At the ESA meeting, Vellend reported: "White-tailed deer represent a significant and previously unappreciated vector of seed dispersal across the landscape, likely contributing an important long-distance component to the seed shadows of hundreds of

plant species and providing a mechanism to help explain rapid rates of plant migration."

Vellend also was assisted in his deer study by research associate Sana Gardescu and Professor Peter L. Marks in Cornell's Department of Ecology and Evolutionary Biology. The study was supported, in part, by the A.W. Mellon Foundation, the McIntire-Stennis program, the Cornell University Biological Sciences Honors Program and a STAR Fellowship from the U.S. Environmental Protection Agency.

Weekend multimedia workshop explores melding of sight and sound

"Sound Cultures: An International Workshop of Art and Theory" will be held on campus this weekend, Sept. 12 and 13, as a joint inaugural project of the Comparative Literature Theory Project and the Rose Goldsen Archive of New Media Art at Cornell University Library. The events, which include evening music performances, are free and open to the public.

"The workshops will introduce influential international artists and theorists who dwell on the cultural impact of sound in an electronic and digital age," said Timothy Murray, Cornell professor of comparative literature and English, who organized the workshop. "In addition to demonstrations in electronic music and digitally generated sound, participants will consider sound's importance in the era of visual studies, the cultural and ethnic specificity of sound fields and rhythms, the gender import of voice and spoken narrative, and the history and politics of electronic experiments in sound."

The workshop opens at 1:30 p.m. Friday, Sept. 12, in the A.D. White House, with public presentations by Murray, curator of the Rose Goldsen Archive of New Media Art, and Timothy Campbell, Cornell assistant professor of Romance studies, to be followed by other participants, including Ritsu Katsumata, Cornell graphic designer, who



Murray

will perform original works on electronic violin. At 4:30 p.m., the workshop moves to Goldwin Smith Hall D for a lecture titled "The Fine Art of DJ-VJ-ing" by Art Jones, a pioneer in African-American new media and DJ culture. Later Friday evening, at 9 p.m., Jones will be joined by new media artist Christine Hart to perform "World Domination," a combination video jockey-disc jockey multimedia performance piece in 157 E. Sibley Hall.

The workshop reconvenes at 9:30 a.m. Saturday, Sept. 13, in Goldwin Smith D for presentations on subjects such as: digital sound installation, by Daniel Warner of Hampshire College; contemporary electronic music and sound in Japan, by Andrew Deutsch of Alfred University; and feminist installation and sound performance, by artist Sarah Drury of Temple University. Afternoon sessions begin at 2 p.m. and include innovative work in electronic music and digital sound, presented by Gerard Assayag, director of the Research Institute of Music and Acoustics at the Centre Georges Pompidou in Paris, and Millie Chen, an installation artist from the University of Buffalo.

The workshop concludes with a dialogue with Patricia Zimmerman, of Ithaca College, and members of the newly formed Comparative Literature Theory Project, a collective effort of faculty and graduate students in Cornell's comparative literature department. Project members will sponsor annual colloquia, workshops and comparative literature study groups. Current themes for

study include comparative translation and poetics, trauma and memory, material and visual culture, postcolonial theory, and digital theory and art.

At 8 p.m. Saturday night, in Barnes Hall, Mother Mallard's Portable Masterpiece Co. will premiere a composition by David Borden, director of Cornell's Digital Music Program.

The Rose Goldsen Archive of New Media Art is named after Rose Goldsen, the late Cornell professor and critic of commercialized mass media. The archive serves as a research center and repository of experimental digital art works produced on CD-ROM, DVD-ROM and the Internet, as well as supporting materials, such as unpublished manuscripts and designs, catalogs, monographs and resource guides. The archive will provide enhanced research opportunities for faculty members, students and scholars in the burgeoning area of experimental digital multimedia and development.

Workshop sponsors at Cornell for "Sound Cultures" include: the Rose Goldsen Lecture Series, the Society for the Humanities, Cornell University Library and the French Studies Program. And co-sponsors are: the Africana Studies and Research Center, Department of Art, Department of Comparative Literature, Department of Music, Asian American Studies Program and the Visual Studies Program.

For further information, contact Murray at 255-3530 or <tcml@cornell.edu>.

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disappearing very quickly," being replaced by Spanish, Abrams said.

The model predicts that when languages are competing for speakers, the balance always is unstable. "Multilingual" societies, like Switzerland, really consist of mostly separate monolingual populations living side by side, the researchers said. Even bilingual individuals are not truly so, Abrams said. "People almost always have a mother tongue or speak one language better," he said.

"We don't take into account social structure or geographic distribution," he added. "The amazing thing is that it still works very well."

An example of a situation where the model doesn't work is in the persistence of Spanish in the United States, which he attributes to a constant resupply of native speakers.

The conclusion is that a language can be preserved by boosting its status. In Quebec, Abrams pointed out, 20 years ago French

'[The high status of English] is driving the disappearance of languages around the world.'

— Graduate student Daniel Abrams

was disappearing, but the provincial government passed laws requiring its use in certain places, adopted immigration policies that favored French speakers and even ran an advertising campaign saying, in effect, "French is cool."

But in a lot of other places, Abrams said, English has a very high status and, "This is driving the disappearance of languages around the world."

The *Nature* paper is titled "Modeling the Dynamics of Language Death."



Robert Barker/University Photography

Professor Steven Strogatz, left, and engineering graduate student Daniel Abrams collaborated on a mathematical model that quantifies "language death."