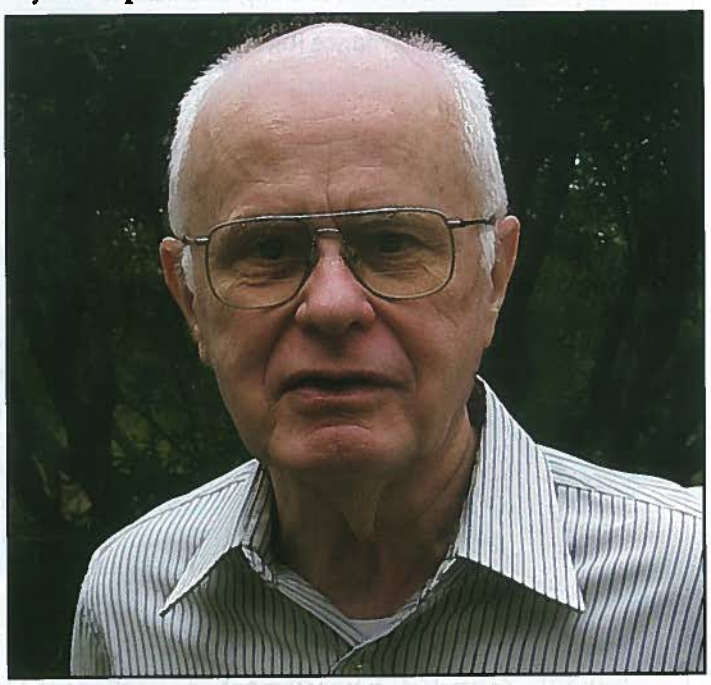
John Moser's search for small but "mitey" things

By James Barnett and Stacy Blomquist

In the basement of the Alexandria Forestry Center in Pineville works a scientist who many consider eccentric and few understand what he does, but most know that he works every work day and most weekends as a volunteer even though he retired from the Forest Service's Southern Research Station for nearly 25 years. The scientist, John Moser, has taken a path less traveled. Few know that Moser has published in sciences' most prestigious journals, has frequent international visitors, and has 20 species of insects named in his honor.



John Moser, Emeritus Scientist for the Southern Research Station, has endowed both Cornell and Ohio State Universities with $2 million donations to continue his research.

John Moser's career is an interesting one. Born near Columbus, Ohio in 1929, John freely admits that he was a poor student academically. He had no particular interest in entering college, but he found few jobs available after high school because of veterans from World War II competing for jobs. Ohio State University was only a few miles from his home so he entered with no particular direction in mind.

It was not until his sophomore year when he took a course in entomology that his interest peaked. About the same time he observed gall-making wasps flying around a hackberry tree in his front yard. His entomology professor suggested that he collect the wasps and send them to the Department of Agriculture, Systematic Entomology Laboratory for identification. They were found to be a new species and this enhanced his interest in entomology.

Surprising most of his family, friends, and even himself, John graduated from OSU. He faced serving in the military because the Korean Conflict was underway. His options were to be commissioned as an officer and serve in a pest control unit in Korea for 4 years or be drafted for 2 years and forever remain a private. Moser chose the latter and was assigned to the Army Chemical Center at Edgewood Arsenal near Baltimore, Md., where he worked as a technician. There he assisted three of the most important insect biochemists of the time.

> *"Moser retired Dec. 31, 1989 with 32 years of service. He returned to work the next workday as a volunteer and continues to work daily on ant and mite associated problems."*

When released from the Army, Moser returned to OSU and obtained his Master's degree studying the relationship of wasps to hackberry galls. Moser then applied to Cornell University's graduate program and admitted that his acceptance would have been difficult based solely on his academic achievement. Recommendations from his mentors based on his research capability overcame this weakness. While at OSU, the Army Chemical Center, and Cornell, John was fortunate to be mentored by the outstanding entomologists of the 20th century.

Shortly before receiving his Ph.D. in 1958, a GS-4 technician position in the Southern Forest Experiment Station's timber management research project at Alexandria opened to solve pine regeneration problems caused by the town ant, Atta texana. Although offered a higher grade-level position in another research station, John remembered the advice from one of his mentors: "if you ever have a chance to work with Atta, take it." So, Moser arrived at Alexandria as the Station's first Ph.D. entomologist.

John's assignment was to "eradicate" the town ant or leaf-cutting ant, a project that "should last a couple of years." Town ants defoliate pine seedlings and within their native range of western Louisiana and eastern Texas became a significant problem in reforestation. Soon John was in conflict with his supervisor, William F. "Bill" Mann, Jr., who was an authoritarian from the "old school." Mann wanted John to quickly improve methods for killing the ants, but John convinced Mann that real control could not be accomplished without knowing about the biology of the ant.

Moser, in a short time, made notable contributions to understanding the biology of town ants. With help from forest indus-

try, he excavated and mapped a large ant colony. Within 4 years, he was making progress on identifying the trail-marking substances of the town ant and identifying many associated insects in the nests of the ants. A number of these associates were mites.

He spent little of his research looking for ways to eradicate the ants; but fortunately for him, the U.S. Department of Agriculture program of aerial distribution of Mirex granules to control fire ants was also effective in reducing town ant populations.

In 1962, Moser managed to be reassigned to an insect research project in Pineville and thus ended the frequent conflicts with Bill Mann. The Station's Assistant Director, Les Orr, asked John if he wanted to work with "small stuff"—mites associated with bark beetles and blue-stain fungus. This was a task that Orr assumed would take about 6 months. John eagerly agreed.

Fortunately, Moser was allowed to continue his research related to the ecology of the town ant because he was collecting significant data on trail-marking chemicals and mating flights that needed publication. This research gained national recognition and financial support from the National Institute of Health. Although Moser was frequently directed to complete his research on ants, he used the international recognition of this work to prolong the program.

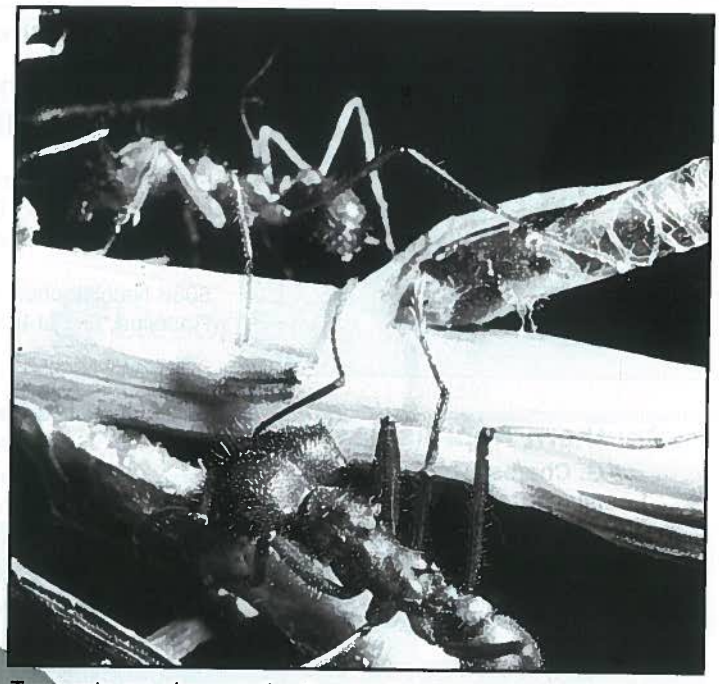
It was nearly 10 years after John's assignment to the southern pine beetle (SPB) research program that he began publishing information about mites associated with SPB. During this time, however, he had an excellent technician, Lary Roton, to whom he had assigned "to learn all you can about mites." Roton led the effort to process over 20,000 slides of mites in support of Moser's assignment.

Moser's research on mites associated with SPB demonstrated a relationship between mites carried by beetles and the infestation of pines by blue-stain fungus, and provided an example of insect, mite, and fungus interrelationships.

The Southern Forest Experiment Station, however, finally determined that the ant and mite research programs should be terminated. So, rather than work on a different assignment, Moser retired on Dec. 31, 1989, with 32 years of service. He returned to work on his projects the next workday as a volunteer and continues to work daily on ant and mite associated problems.

When asked why he has continued his research, John responds, "It's fun. It's my hobby." Why mites? He says, "I find their various types of biology fascinating, especially the phoretic mites (those that hitch a ride on other animals.)"

Much of Moser's research as a volunteer has been with international scientists where he is recognized as the leading authority on leaf-cutting ants and mites associated with bark beetles. This collaboration has resulted in 20 species named in his honor. The effort on mites brings new understanding of the biology of major forest insect pests and their associates. Knowledge of these relationships provides an opportunity to understand the role of mites in transmission of some of our major tree diseases and



Town ants are shown eating the needles and buds of a loblolly pine seedling. (Photo courtesy Jim Barnett)

potential control of forest insect pests. His collection of over 50,000 slides of mites will be critical in developing these relationships.

At the age of 84, Moser has considered the fate of his research program when he is unable to continue the effort. Since few forest insect taxonomists are being trained that might continue his research, Moser has funded with his own resources professorships at both Cornell and Ohio State Universities. Each required a $2 million dollar donation.

This commitment will support study and training of appropriate taxonomic skills by individuals capable of continuing his research program. In addition to his dogged determination and persistence, the donations also show that Moser and his wife Martha (now deceased) have been frugal! John has received numerous awards, mostly for his outstanding contributions to forest entomology. For many years, he was a self-described "avid runner."

Native populations of town ants were more severely reduced by the distribution of Mirex than the targeted fire ants. Only now—40 years later—are town ants returning to their niche in the forest ecosystem. Sometimes the goals of programs and supervisors are changed either by happenstance or by stubborn individuals that think outside the box. John Moser's studies of town ants and mites have earned him an international reputation and may provide a vision and direction for research that will provide new insights in control of major insect pests and transmission of tree diseases.

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