

Dr. David Kattes, professor of Agribusiness, Agronomy, Horticulture and Range Management, is the 2010 recipient of Tarleton's Faculty Excellence in Scholarship Award for his research in the fields of tick and filth fly management, parasitoids of black widow spiders, establishment of native grasses and management of Bermuda grass.

Kattes shares the credit for his accomplishments with all the faculty members and researchers who collaborate with him and with the undergraduate and graduate student researchers he recruits and mentors. He also notes how much he values events like the Tarleton Research Symposium and the Texas A&M University System's Pathways Research Symposium, which give his students valuable public speaking experience and also have helped him meet and establish research partnerships with faculty from other universities.

### **COLLABORATIVE RESEARCH**

As one example of collaborative research, he describes an on-going **project to determine whether and how naturally occurring plant compounds, such as condensed tannins, might be used as another tool to manage filth flies in confined animal operations**. Tannins are bitter plant chemicals that affect protein absorption in many animals. Some animals, such as deer and goats, can consume the materials with no ill affect. Previous research has suggested these compounds can reduce the number of internal parasites in goats and may interfere with house fly development. In addition to Dr. Kattes, the project team includes:

- Dr. Barry Lambert, an animal nutritionist with a joint faculty appointment at Tarleton and the Agri-LIFE Research Center in Stephenville. Dr. Lambert is studying the metabolism and degradation of tannins fed to livestock.
- Dr. James Muir, a crop ecologist at the Agri-LIFE Research Center, is studying tannins present in various plants, particularly legumes.
- Dr. Jeff Tomberlin, an Extension entomologist, is studying the relationship of tannins to *e coli* bacteria in animal waste.
- Dr. Sonja Swiger, a Texas Extension veterinary entomologist, and Dr. Justin Tulley, an entomologist with the Oklahoma State Extension Service, are determining how to incorporate the team's findings into actual practice.
- Tarleton undergraduate student Briana Jamison (supported with funding from a University Research Committee Organized Research Grant) is trying to define the preferred filth fly breeding environments in dairy operations.
- Tarleton graduate student Cassie Schoenthal is experimenting to determine the relationship between the amount of tannins, filth fly mortality rate and effects on *E. coli* residing in the manure.

As a second example of cooperative research, Dr. Kattes describes **a spinose ear tick study being conducted for the Fossil Rim Wildlife Center**. In addition to Dr. Kattes, project team members include:

- Dr. Jeff Breeden, Tarleton wild-life management faculty
- Tarleton graduate student Christopher Niebuhr. Chris' participation is supported by a Student Research Grant from the Office of Student Research and Creative Activities. He is supervising all field and lab activities and plans to work toward his Ph.D. in public health. Dr. Breeden is his faculty mentor.
- Tarleton undergraduate student Sarah Mays. Sarah, a Wildlife Science major, is surveying small mammals at the Center and identifying the tick species associated with each mammal species.

A spinose ear tick (*Otobius megnini*) is a pink or blue-gray, leathery soft tick whose larval and nymphal stages infest the ears of many animals. The Fossil Rim Wildlife Center is home to 1,100 animals representing 60 species, including antelope, bison, cheetahs and wolves. The 1,500 acre preserve includes numerous shelters and barns. Because wild animals can't be treated routinely for ticks like domestic cattle and horses, the research project must determine where the ticks are in the preserve and the most effective way(s) of eliminating them. Typically, adult ticks lay eggs in sheltered spots like cracks in poles, crevices and walls, under mangers, and under tree bark. Because the females need shelter, spinose ear ticks are typically found only on stabled animals that are close to breeding locations.

So far, the team has discovered ticks are most common in barns in cracks and crevices and in bedding materials no further than two feet from the walls. They also have removed a lot of tree bark but not found any ticks. In the fall 2010, they will be experimenting in the lab with various chemical solutions to determine which one(s) will drive ticks out from under bark and out of cracks. During the spring and summer of 2011, the team will experiment with various control measures and assess their results.

## **STUDENT RESEARCH**

While research obviously engages Dr. Kattes' endless curiosity and wide-ranging intelligence, his students own his heart. Four years ago, Kattes' met two young ladies in his Introduction to Crop Production class and developed an undergraduate research project based on their interests. He talks about Melody Minkley, who sat at his desk and said she wanted to get a degree in Range Management and then go back to her small Panhandle Texas hometown to help her father on the family ranch while working for the Soil Conservation Service. She's now engaged to be married and a graduate student in the Range Management Department at Texas A&M University. Rebecca Hackey from deep East Texas, was raised on a chicken and cattle farm. Now she's doing graduate work with Dr. Roger Wittie, Tarleton Professor of Range Management, and Dr. Charles Hart, Professor and Extension Range Specialist in the Department of Ecosystem Science and Management at Texas A&M University. "It's a great feeling to see young folks mature professionally and become your peers," Kattes says.

Then he leans back and reminisces about the best part of working with students: the moment when the light goes on. His home in De Leon (southwest of Stephenville) provides ample inspiration for field studies. He has four hay rings in three fields. A "hay ring" is the area occupied by a large, round bale of hay used to feed livestock. When the round bale rings are removed, the vegetation that was under the bale usually is stunted or dead. Graduate student Michael Donaldson just joined Kattes' research project to study Bermudagrass recovery under hay rings. Other faculty members involved in the study are Dr. Randy Harp (animal production), Dr. Barry Lambert (animal nutrition) and Dr. Donald McGahan (environmental soil scientist). While showing the student four hay rings in his three pastures, Kattes started talking about replication and randomization in research. When the student questioned replication, Kattes drove from a dry hay ring to one on wetter ground, stopped, and asked whether the student thought just experimenting with just the first ring would get the job done. The student turned to him and said "well, I'll be damned."

Kattes also serves as a resource person for Kimberly Thompson, who is doing her master's thesis on the glassy-winged sharpshooter under the supervision of Dr. Forrest Mitchell, Professor of Entomology at the Texas AgriLife Research Service. The sharpshooter invasive leafhopper insect is a vector for Pierce's disease on grapevines. She is working closely with Dr. Roger Wittie, department head and professor of Agribusiness, Agronomy, Horticulture and Range Management. Team members also are studying what attracts green Junebugs so they can minimize the bugs' destruction of grapes by attracting them away.

## **RESEARCH SYMPOSIUMS**

Dr. Kattes observes that, from a global perspective, research problems now are so complex that any researcher working alone is unlikely to be able to produce useful results. At regional, teaching universities like Tarleton where time, facilities and funding are constrained, faculty benefit from the professional interactions made possible by events that bring together faculty from other disciplines and other universities. For example, at the 2009 Pathways Research Symposium, Kattes met Dr. David Beck, a microbiologist at Texas A&M-International (TAMUI) in Laredo, who shares his interest in ticks. These two scientists enlisted Dr. Fernando Quintnana, a biostatistician at TAMUI, and Ms. Man'Dee Mason, a Tarleton psychology instructor who is interested in how people understand and deal with ticks. The four researchers are collaborating to determine the current knowledge of ticks, tick bites and tick transmitted diseases, by the general public and how to enhance their awareness of these serious pests.

If “scholarship” is defined as a “fund of learning and knowledge,” Dr. Kattes is evidence that scholarship is more than a list of publications. Scholarship is the process of actively learning with and from your colleagues and then constantly sharing your knowledge with others.