

THE FIREFLY

Proceedings of the 1998 (Twenty-Fifth)
Annual Meeting of the
Tennessee Entomological Society



October 15-16, 1998
Tennessee State University
Nursery Crop Research Station
McMinnville, Tennessee

Volume Thirteen

IN REMEMBRANCE

JOHN HAMMETT

(July 25, 1921 - April 14, 1998)

John Hammett, a native of Lawrence County, TN, died on April 14, 1998. After graduating from the University of Tennessee with a B.S. in Horticulture, he was appointed as a Field Inspector with the Tennessee Department of Agriculture on February 1, 1951. In 1956, he was promoted to East Tennessee Supervisor and served in that capacity for 20 years. John was appointed State Supervisor of Environmental Controls in 1978 and Director of Plant Industries in 1982. He retired from state government on August 28, 1987. He was a long-time member of the Tennessee Entomological Society, where he was selected as an Honorary Member in 1987. He also received the Outstanding Entomologist Award (Tennessee Entomologist of the Year) from the Tennessee Entomological Society in 1987.

TABLE OF CONTENTS

	<u>Pages</u>
Richard E. Caron Outstanding Entomologist Award Nomination Form	i
Proceedings of the Twenty-Fourth Annual Meeting	1
Minutes of the Twenty-Fourth Annual Meeting	17
Treasurer's Report	26
Attendance Roster of the 1997 Annual Meeting	27
Board of Directors and Committees	29
1997 Prediction and Evaluation Reports	30
Historical Notes	57
Constitution of the Tennessee Entomological Society	62
Membership List (As of October 1998)	67
Membership Application	74

RICHARD E. CARON

OUTSTANDING ENTOMOLOGIST AWARD

NOMINATION FORM

The Awards Committee of the Tennessee Entomological Society invites nominations from any TES member for the Richard E. Caron Outstanding Entomologist Award. The award is presented periodically to TES members who have distinguished themselves by making outstanding contributions to entomology in Tennessee.

Name of Nominee _____

Brief Description of His/Her Qualifications for the Award

Name of Nominator _____

Phone Number of Nominee: Area Code () _____

Please submit your nomination by **August 1, 2000** to:

Dr. Steve Hamilton
Department of Biology
Austin Peay State University
Clarksville, TN 37044
FAX (931) 648-5996
hamiltonsw@apsu.edu

**PROCEEDINGS OF THE TWENTY-FIFTH
ANNUAL MEETING
OCTOBER 15-16, 1998**

**Tennessee State University
Nursery Crop Research Station
McMinnville, Tennessee 37110**

**HOW FIRE ANT PHYSIOLOGY
CAN INFLUENCE CONTROL**

Dr. Arthur Appel
301 Funchess Hall
Department of Entomology,
Auburn University, Auburn, Alabama 36849

Dr. Arthur Appel, a professor of entomology at Auburn University, served as the Keynote Speaker at the 1998 TES Annual Meeting. His presentation focused on his extensive years of basic and applied research related to arthropod pests, specifically fire ants, in the urban environment. Management of fire ants is a long-term commitment and can be impacted by many factors. Dr. Appel's presentation examined physiological influences and mechanisms that may influence management programs directed against fire ants.

**EVALUATION OF PERIMETER TREATMENTS
FOR ODOROUS HOUSE ANT CONTROL**

Karen Vail

Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

ABSTRACT NOT AVAILABLE

**PIT SCALES OF THE NEW WORLD:
A PHYLOGENETIC COMPARISON**

Christof Stumpf and P. L. Lambdin

Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

CANCELLED

**DIVERSITY OF INSECTS IN BURNED AND NON-BURNED
TALLGRASS PRAIRIE ECOSYSTEMS IN MIDDLE TENNESSEE**

Derek L. Puckett, J. F. Grant and P. L. Lambdin

Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

A two year study was initiated during the fall of 1997 to assess the impact of burning on insect communities in tallgrass prairie ecosystems. Various sampling methods were utilized during the collection process. Some of the more traditional collection methods that were used in each site included nets, beat sheets, and pitfall traps were used in each site. Additional collection methods included the use of malaise traps, light traps, and Manitoba traps for specific insect groups not commonly obtained through the methods aforementioned. Occurrence of insects on selected RTE (rare, threatened, and endangered) species such as Eggert's sunflower, *Helianthus eggertii* Small, was also monitored.

Preliminary trends suggest that prescribed burning does indeed have an effect on these grassland ecosystems. In fact, there seems to be an increase in abundance and insect diversity on those systems recently subjected to burning. The largest increase in the recently burned systems is those members representing the groups Hymenoptera, Orthoptera, and Coleoptera. There seems to be a significant decrease, however, in those groups that are ground dwelling assemblages such as Collembolans and Carabid beetles.

Reports from Eggert's sunflower indicate definite insect-plant associations. It is important to mention that this sunflower can range in size from two feet in height to as much as six feet in height. Spittle bug masses were found almost exclusively on those sunflowers that were shorter in origin and on the upper one-third of the stem. Lepidopterans representative of the family Arctiidae were observed feeding on the flowerheads while certain Coleopterans (Curculionidae) were found damaging the peduncle area of the flower, yet other insects may be involved.

GROUND-DWELLING INSECT FAUNA OF AN OAK-DOMINATED FOREST IN EASTERN TENNESSEE

M. M. Gibbs, P. L. Lambdin and J. F. Grant
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

The southern Appalachian mountains of eastern Tennessee support a diverse array of flora and fauna, many of which are unique to specific forest ecosystems in this region. These organisms help sustain the proper functioning of these habitats, but the presence of exotic forest pests may threaten our native forests. The gypsy moth, *Lymantria dispar* L., is one such pest that can cause mass defoliation of hardwood forests. The southern limit of this pest's range is currently located near Roanoke, VA, but is expected to enter the forests of eastern Tennessee within the next decade. Currently, no studies have been performed in the southeastern United States to determine the potential impact of this pest on mixed hardwood forests. Therefore, a study was initiated in 1997 in The University of Tennessee Forestry Experiment Station and Arboretum located in Oak Ridge, TN, to: 1) assess the overall diversity of ground-dwelling insects, 2) determine the possible influence of habitat on insects collected using pitfall traps placed under three different tree species in four different collection plots, and 3) assess the species composition, seasonality, and abundance of selected insects collected.

Collections from pitfall traps yielded 20,906 insects identified with 187 species in 87 families representing 18 insect orders. The four most abundant orders collected included the Collembola (49%), Hymenoptera (20%), Diptera (15%), and Coleoptera (9%). Ants (Formicidae) composed approximately 88% of the Hymenopterans collected with 24 species

identified. Many of the beetles collected may be potential beneficial predators against exotic pests, such as the gypsy moth. Twenty-one families of beetles were collected with 79% represented by four families: Staphylinidae (41%), Scarabaeidae (13%), Nitidulidae (13%), and Carabidae (12%). Of the carabid beetles, 21 species were identified. Beetle species diversity and richness did not differ among the four plots. More ants and beetles were collected in traps placed under sugar maple, *Acer saccharum* Marsh, and significantly fewer were collected in traps placed under tulip poplar, *Liriodendron tulipifera* L.

Overall seasonality trends were similar for most of the insects collected with highest densities in the summer months. Collections made in these forest habitats reveal a stable community with many different guilds represented. Plot differences are representative of the types of disturbance found in mixed hardwood ecosystems. Similar analyses performed on data collected after the gypsy moth is established in eastern Tennessee may help determine the impact of this pest on native southern Appalachian forests.

AN ANALYSIS OF THE ARTHROPOD COMMUNITY ASSOCIATED WITH A NATURAL WETLAND IN MIDDLE TENNESSEE

J. Vlach, P. L. Lambdin and J. F. Grant
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

Sinking Pond is a seasonally flooded karst depression comprising 52 hectares within more than 15,783 ha of land managed by Arnold Air Force Base. The water level within the pond may rise and fall more than 2 m within a 24-hour period, and water depths may vary from 0 to 3.5 m. Of the seven plant communities present, it is the presence of overcup oak (*Quercus lyrata* Walter), river birch (*Betula nigra* L.) and resurrection fern (*Pleopeltis polypodioides*) that distinguishes this area. This forest type occurs nowhere else in Tennessee, and it has been tentatively labeled G1 by the Tennessee Chapter of the Nature Conservancy. This ranking indicates that less than five occurrences of this "critically imperiled" habitat are known globally.

A research project was initiated in 1997 to survey and develop a database for species of terrestrial arthropods associated with Sinking Pond. The nine sampling methods used included beat sheeting, canopy fogging, direct collecting, leaf-litter sampling, light trapping, malaise trapping, Manitoba trap, pitfall trapping, and sweep netting. Some 23,894 arthropod specimens were collected representing 28 orders. From these, 822 species of insects were identified in 196 families. Over 98% of all insect specimens collected were from Coleoptera, Collembola, Hymenoptera, Diptera, Homoptera, Hemiptera, Lepidoptera, and Orthoptera, respectively. The number of species present and their distribution were represented by a high Shannon diversity index score (H') of 4.69, and a moderately high evenness score (J) of 0.70.

Species collected that may represent a potentially rare status include the four species *Cicindela unipunctata* F., *Enodia anhedon* Clark, *Glaucopsyche lygdamus* (Doubleday), and *Speyeria cybele* (F.), which are on the endangered species lists of Alabama or North Carolina. In addition, 16 species were identified that may represent disjunct species. The presence of these populations at Sinking Pond suggests it may be important to maintain these unusual genotypes. The information collected on the number and abundance of species present also may be useful in development of management strategies for this unique habitat.

COMPARISONS OF MOSQUITO OVITRAPPING RESULTS FROM NORTH AND SOUTH FACING SLOPES

Kristy Gottfried and Reid Gerhardt
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

Mosquito oviposition traps were used to monitor the egg laying activity of container breeding mosquitoes in Knox and Anderson Counties from March-October 1998. With the recent increase in LaCrosse encephalitis cases in 1997 and 1998, monitoring the egg laying activity by oviposition traps serves as a simple and economical method to indicate seasonal adult activity of the vector, *Aedes triseriatus* (Say) and the suspected vector, *Ae. albopictus* (Skuse). Twenty oviposition traps, 10 traps each on the north and south slopes, were positioned in two well-developed wooded sites (Oak Ridge and UT Woodlot). Comparisons of the eggs collected from the north and south facing slopes at each site were found to have no significant difference with the exception of *Ae. albopictus* (Skuse) eggs from Oak Ridge. Due to the small amount of *Ae. albopictus* (Skuse) eggs collected, this must be further investigated to make accurate conclusions. Data suggest that *Ae. triseriatus* (Say) eggs appear approximately one week prior to *Ae. albopictus* (Skuse) eggs with a start date of May 18, 1998. Oak Ridge ovitrapping results were compared to a suburban site (Karns) for both species of mosquitoes. Both locations followed a similar seasonal distribution of increased eggs found from mid-May through the end of July. There were no significant differences in egg counts of *Ae. triseriatus* (Say) between Oak Ridge and Karns. *Ae. albopictus* (Skuse) eggs appeared in larger numbers in Karns than in Oak Ridge, but followed the same distribution curve of mosquitoes with the exception of an additional increase in eggs collected in August that was not evident in *Ae. triseriatus* (Say) collections.

**THE EFFECTS OF PAT SIZE, RAINFALL, AND SHADING
ON FACE FLY (*MUSCA AUTUMNALIS* DEGEER)
LARVAL MORTALITY**

Stephanie French and Reid Gerhardt
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

The effects of pat size, rainfall, and shading on face fly (*Musca autumnalis* DeGeer) larval mortality were observed in June, July, and August of 1998. The 600 g pats with 25 larvae had higher mortality than the smaller pats of 75 g, 150 g, and 300 g, each with 25 larvae. There was no significant difference in mortality between different sized pats that had a ratio of 3 g/ 1 larva. The highest level of rainfall (122.5 mm) increased mortality significantly. Pats under reflective and black cover had high mortality, low temperatures, and low moisture loss, whereas pats under the clear cover and the open condition had low mortality, high moisture loss, and high temperatures.

**BINDING OF INTERFERON-GAMMA TO PARTICULATES
FROM THE HEMOLYMPH OF *MANDUCA SEXTA* IS
COMPETED BY POLY-L-LYSINE IN PREFERENCE
TO OTHER POLYCATIONS**

M. S. Parker and D. Ourth
Department of Microbiology and Molecular Cell Sciences
The University of Memphis, Memphis, TN 38152

Mammalian interferon-gamma (IFN- γ) contains oligobasic amino acid sequences in its C-terminal portion. These basic residues are very important in the binding of IFN- γ to its receptor. We have previously shown that there are at least two populations of receptors specific for recombinant human IFN- γ in cells extracted from last-instar larvae of the tobacco hornworm moth, *Manduca sexta*. We have also shown that various polyacidic molecules, especially polyacidic sulfated polysaccharides (including heparin and its derivatives) are very effective in the displacement of IFN- γ binding from both mammalian blood platelets and cells from *Manduca sexta* tissues.

Here, we demonstrate that the binding of IFN- γ to its specific receptors in *Manduca sexta* is significantly inhibited by polybasic amino acids, with the rank order of potency Lys > Arg > Orn. These amino acids have a similar effect on the binding of neuropeptide Y (NPY), a sequence mimic of IFN- γ , to its receptors in the rabbit kidney, but with the rank order Arg > Lys > Orn. This is due to the differences in the sequence of the C-terminal portions of the IFN- γ and neuropeptide Y molecules, which are critical in their binding to the receptors.

SEASONAL EMERGENCE OF TOBACCO BUDWORM FROM WEST TENNESSEE COTTON

Jerry L. Harris and G. L. Lentz
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

The bollworm/budworm complex was the most destructive insect problem throughout the cotton belt in 1996, and required treatment on 23,371 of Tennessee's 42,000 hectares of cotton. After feeding on the cotton plant the larva burrows into the soil to pupate. Insecticide resistant strains of this pest are beginning to show up in producers' fields and careful attention needs to be given to crop production systems that may increase the probability of these larvae becoming adults. This research was initiated to find if no-till production was allowing more moths to emerge from the soil compared to a conventional tillage system.

There were no significant differences in moth emergence from the two tillage systems, but the no-till system always had a higher percentage to emerge. There was a trend for more moths to emerge later in the growing season in both tillage systems. Emergence percentages ranged from 5.65% on a June 08, 1998 infestation, to a high of 53.33% on an August 1, 1998 infestation. Since there were significant differences between infestation date emergence percentages, a multiple regression test was conducted. DD-60's, a measure of crop growth, and precipitation were found to significantly influence emergence, according to the following equation: y (emergence %) = $-9.062 + .027$ (DD-60) -1.37 (prec).

DIE GYPSY MOTH DIE: THE SEARCH FOR ENTOMOPATHOGENIC FUNGI IN EASTERN TENNESSEE

Gary B. Moughler, J. F. Grant, R. M. Pereira, and P. L. Lambdin
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

Despite many years of management efforts, the gypsy moth, *Lymantria dispar* L., devastates large acreages of hardwood forests throughout the northeastern United States. With more than one half of the state forested (5.4 million hectares), 78% of which is dominated by oaks and hickories, the potential establishment of the gypsy moth has led to increased research and management efforts in Tennessee. The objectives of this research were to: 1) assess incidence of entomopathogenic fungi on field-collected gypsy moth larvae, and 2) perform assays on soil and duff samples to detect the presence of *Entomophaga maimaiga* (Humber, Shimazu and Soper), a fungal pathogen recently responsible for extensive epizootics in gypsy moth populations in the northeastern United States.

Burlap sampling, a common technique used to collect larvae, was initiated at six sites during May 1998. Ten trees were chosen at each site, burlaped, and monitored weekly until 6 July 1998. No larvae were found during this study. At nine sites, 20 soil (depth 5-10 cm) and duff samples were collected between 27 May and 8 June from a 15 cm² area, stored in 3.8 l bags, and kept in a growth chamber. Between 13 June and 13 August, 90 samples representing nine sites were processed. No *E. maimaiga* was recovered; however, another entomopathogenic fungus, *Metarhizium anisopliae* (Sorok.) Metsch, was recovered from three cadavers on soils from Grainger and Unicoi Counties (<1% of all larvae tested). Although *E. maimaiga* was not recovered in sampling, it could, if established, play an important role in reducing gypsy moth populations in Tennessee. This research will be repeated in 1999 to assess the incidence of *E. maimaiga* in the state. If none is found, *E. maimaiga* could be introduced as a biological control agent against the gypsy moth in Tennessee.

INFESTATION OF *ROMALEA GUTTATA*, THE EASTERN LUBBER GRASSHOPPER, BY THE TACHINID PARASITOID *ANISIA SEROTINA*

D. Otto,¹ M. Lamb, and D. Whitman

¹Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

In 1997, eastern lubber grasshoppers, *Romalea guttata* (Houttuyn), in SW Florida were heavily parasitized with maggots of the tachinid parasitoid *Anisia serotina* (Reinhard). We found that 92% (46/100) of females and 72% (36/50) of males were parasitized; these levels were significantly different ($X^2=6.78$, $df=1$, $p<0.05$). The number of maggots per grasshopper ranged from 0 to 63 and averaged 7.02 ± 3.3 (SE) ($n=100$). In 1998, we returned to south Florida and dissected 166 lubbers. We found that 4.8% (8/166) of dissected lubbers were parasitized with *A. serotina* maggots, with an average of 0.4 ± 0.03 (SE) maggots/grasshopper ($n=166$). We also noted a dramatic reduction in lubber densities between 1994 and 1998. In 1994, the estimated maximum density in the Copeland-Ochopee area was >1100 lubbers/100m². By 1997, the lubber density had fallen to 7 lubbers/100m² and in 1998, 0.4 lubbers/100m². This 99.9% reduction in lubber density is impressive and may have been driven by *A. serotina* parasitization. We believe the 82% parasitization level we observed is the highest level ever recorded for tachinids parasitizing grasshoppers. We also believe that 63 tachinid maggots in a single grasshopper is a record. Research is currently being performed to monitor parasitization by the tachinid, and to determine the full relationship between the lubber grasshopper and *A. serotina*, and to monitor parasitization.

**THE EFFECTIVENESS OF TWO IVERMECTIN CONCENTRATIONS
IN CONTROLLING THE LONE STAR TICK, *AMBLYOMMA
AMERICANUM* (ACARI: IXODIDAE), IN FAIRFIELD GLADE, TN**

Christopher G. Morris and Reid R. Gerhardt
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

The lone star tick (LST), *Amblyomma americanum* (L.), serves as a vector for the rickettsia, *Ehrlichia chaffeensis*, the causative agent of human monocytic ehrlichiosis (HME). In 1993, the Centers for Disease Control reported an outbreak of HME in Fairfield Glade, TN. The University of Tennessee initiated a tick control program in 1994 to reduce the size of the LST population and human risk of contracting HME.

White-tailed deer were fed corn treated with 250 µg ivermectin / 22.5 kg whole kernel corn. Three randomly selected sites were sampled in treatment and non-treatment areas and each site was subdivided into wooded and open, grassy areas. Cloth drags measuring 1 meter² were pulled 100 meters to create a total sampling area of 100 meter² in each habitat. Drags were checked every 10 meters and any LSTs on the cloth were identified by sex and stage and recorded. CO₂ traps were also placed in each habitat and any LSTs found on the trap after one hour were identified to sex and stage and recorded. The treatment and non-treatment areas were sampled from 1994-1996.

In 1997, a new treatment area was added to expand the area of control. The ivermectin concentration was increased to 500 µg ivermectin / 22.5 kg whole kernel corn to see if greater control could be established in this area. Sampling methods were identical to those of 1994-1996. The ratio of larval masses to females was much lower in the two treatment areas than in the non-treatment area. This suggests that ivermectin inhibits the ability of a female to successfully reproduce and that control efforts have been successful. Statistical analysis demonstrates no significant difference at $\alpha_{0.05}$ between the rate of decline of any LST sex or stage with the two concentrations of ivermectin (250 and 500 µg/22.5 kg corn). However, at $\alpha_{0.10}$ larval mass rate of decline is significantly higher with a concentration of 500 µg of ivermectin. Only the first two years of each treatment were studied, so conclusive data will be available at the end of the 1999 season. Positive rate differences suggest that with the inclusion of the 1999 data 500 µg ivermectin will significantly provide more control than 250 µg/22.5 kg corn.

REGULATORY INSECT UPDATE FOR 1998

Steve Powell

Tennessee Department of Agriculture

Division of Regulatory Services

PO Box 4062, Melrose Station, Nashville, TN 37204

Surveys for insect pests of regulatory concern were conducted by the Tennessee Department of Agriculture in cooperation with other government agencies, especially USDA-APHIS-PPQ.

Approximately 390 Pink Bollworm traps were placed this year in West Tennessee with results being negative to date.

Imported Fire Ants continue their gradual northward movement and are often found in isolated areas away from the generally infested region due to man-aided movement. Madison County south of Interstate 40 is being recommended for addition to the quarantined area.

Japanese Beetles were frequently trapped in plant dealers outside of the generally infested area. Madison County is being recommended for addition to the quarantined area due to catches in many areas of the county.

All Sweet Potato grower locations were trapped for sweet potato weevil with results being negative.

Pine Shoot Beetle surveys were also negative.

There were 397 Gypsy Moths caught in Tennessee in 1998 with the counties of Scott (224), Cumberland (68), and Sevier (36) having the largest number of catches. An aerial spray project is planned for Scott County in the spring of 1999. Viable egg masses were found in October in Cumberland County in the Elmore Road delimiting grid. Over 19,400 gypsy moth traps were placed in Tennessee in 1998.

Asian Longhorn Beetles were found in the Chicago, Illinois area by USDA. They are trying to eradicate these infestations. Should this insect become established in Tennessee, it would likely become a serious tree pest as it attacks maples, elms, poplars, willows and fruit trees.

INTEGRATED PEST MANAGEMENT IN THAILAND AGROECOSYSTEMS

Gary L. Lentz

West Tennessee Experiment Station
The University of Tennessee, Jackson, TN 38301

Pest management strategies were studied in major crops of Thailand in a study tour taken in March 1998. Crop pest management systems were studied in corn, cotton, soybean and small grain. The study tour consisted of on-site visits to experiment stations, private agricultural concerns, as well as visits with entomologists in Kasetsart University's Department of Entomology and in the Department of Agriculture's Division of Entomology and Zoology. Pest management research is very active in Thailand and IPM programs are frequently demonstrated along side farmer pest control programs. Current IPM research programs consider pest population dynamics, economic thresholds, biological controls, chemical control, pesticide resistance and host plant resistance. Major limitations to adoption of IPM components are costs and the size of individual land holdings.

THE TVA MOSQUITO MONITORING SYSTEM

K. J. Tennessen

Tennessee Valley Authority
Environmental Research Center
Muscle Shoals, AL 35662-1010

Current mosquito monitoring activities being conducted by The Tennessee Valley Authority are designed to help protect public health in a two-part approach. Populations of the malaria mosquito (*Anopheles quadrimaculatus*) are monitored on the major Tennessee River reservoirs from northeast Tennessee to western Kentucky. Potential arbovirus-carrying species are monitored in marginal habitats along the Tennessee River, and samples are analyzed for encephalitis viruses. Partnerships with the University of Tennessee, Macon State College, the city of Huntsville, AL, and the North Carolina Department of Environment and Natural Resources have been formed to sample vector species.

In the first part of the public health protection effort, populations of *A. qua rimaculatus* were controlled by fluctuating reservoirs on a weekly basis (each year water levels are lowered and raised by one foot over a two-day period to strand eggs and larvae). Monitoring adult and larval numbers provides a measure of the effectiveness of these fluctuations. Population levels in 1998 were slightly lower than the average for this decade, and caused very little nuisance. The severe nuisance situations in the Valley continued to be created by a group

floodwater species in the genera *Aedes* and *Psorophora*, and also by the container-breeding Asian Tiger mosquito, *Aedes albopictus*.

In the second part, disease monitoring resulted in trapping over 45,000 mosquitoes in 1998 using CDC miniature light traps baited with CO² (dry ice). Thirty species were represented in the samples. The dominant species were *Culex erraticus* (29%), *A. quadrimaculatus* (19%), *Coquillettidia perturbans* (12%), and *Aedes vexans* (9%). Over 1200 pools were sent to the University of Alabama at Birmingham for virus detection using RT-PCR (reverse transcriptase technique) for St. Louis encephalitis (SLE), Eastern Equine encephalitis (EEE), and La Crosse encephalitis (LAC). The only positive pools were from a site in northeast Mississippi: SLE was detected in a single pool of *Cx. erraticus*, and EEE was detected in a single pool of *Cq. perturbans*. Notification of these findings were sent to the CDC and state health departments as part of a mosquito-borne disease communications plan.

LACROSSE VIRUS SURVEILLANCE IN TENNESSEE

Reid Gerhardt and Kristy Gottfried
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

LaCrosse virus (LAC) surveillance was conducted in Cocke and Knox Counties in Tennessee from June-October 1998. Each collection site was in the vicinity of a confirmed LAC case in 1997. Two CO₂ baited CDC and Fay traps and 40 oviposition traps were used at each site for surveillance. To date, there has been 88 CDC and Fay trap nights and ovitrapping continues throughout the time period. The ovaries of adult *Aedes albopictus* (Skuse) and *Ae. triseriatus* (Say) collected at each site were dissected to determine the parity rate. The eggs from each site were counted, identified to species and stored for later rearing. Larvae were reared on 3 gm of liver powder per 2 liters of tap water to the adult stage. The reared adults were separated by species/sex and frozen until shipment to the CDC for virus isolation. *Ae. albopictus* (Skuse) outnumbered *Ae. triseriatus* (Say) in CDC adult traps and *Ae. triseriatus* (Say) eggs outnumber *Ae. albopictus* (Skuse) eggs collected with oviposition traps at both sites surveyed. To date an excess of 4,000 mosquitoes have been reared, separated into 220 pools and submitted to CDC for virus isolation.

DRAGONFLIES OF REELFOOT LAKE - THEN AND NOW

George L. Harp ¹ and T. J. Tennesen ²

¹ Department of Biological Sciences

Arkansas State University

State University, AR 72467

² Tennessee Valley Authority

Environmental Research Center

Muscle Shoals, AL 35662-1010

Thirty-four dragonfly species were recorded from Reelfoot Lake during 1934-38, while only 21 species were recorded during three seasonal visits (May-Sept.) in 1998. Nineteen species were collected during both surveys, but 15 were collected during 1934-38 only, and two species were collected only in 1998. *Telebasis byersi* is reported for the first time in Tennessee.

Observation of fewer species in 1998 might be explained by one or both of the following reasons. First, the sampling effort may have been smaller, both in time and area, in 1998. Several species seen in 1934-38 (e.g., *Argia apicalis*) were ones which prefer running water. This type habitat was not found in areas surveyed during 1998. Overall, the area was very difficult to traverse because of its marshy/swampy nature. It is also possible that the reduction in species richness is real. Several species were reported as being abundant or common in 1934-38 (e.g., *Argia apicalis*, *Enallagma signatum*, *E. vesperum*, *Libellula luctuosa*), but only *Erythemis simplicicollis* was abundant in 1998. This species constituted well over 90% of the odonates seen. Many species were recorded from one sighting only. Nitrogen and phosphorus enrichment has obviously occurred over the years, and much filamentous algae has subsequently developed. Nymphs of *E. simplicicollis* thrive in filamentous algal mats. Further, this species is a fierce predator of other odonate species, even cannibalistic. With such great numbers of *E. simplicicollis*, probably few small- to medium-sized odonates avoid their predation.

THELOHANIA SOLENOPSÆ: INTRODUCTION OF A BIOLOGICAL CONTROL AGENT AGAINST FIRE ANTS IN TENNESSEE

Roberto M. Pereira and Karen M. Vail
Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 37901-1071

Fire ants (*Solenopsis invicta* and *S. richteri*) are important pests in the southern U.S. and continue to expand their range into Tennessee. They are a medical and veterinary concern because of their sting, but also cause damage to agriculture, wildlife, human structures and equipment. Also, the effects and costs associated with the federally-mandated quarantine are of great concern for the nursery industry.

Thelohania solenopsae, a microsporidian pathogen originally found in South American fire ants, has been discovered in the U.S. and introduced to several locations. *T. solenopsae* debilitates queens and workers, affecting the reproductive capacity of the colony, although ant survival is not drastically reduced. The protozoan is transmitted transovarially, and reproductives originating from infected colonies can spread the disease.

T. solenopsae was introduced into two study sites in Tennessee. At the Ames Plantation Experiment Station in Fayette Co., six nests within an area with 18 black fire ant (*S. richteri*) nests were inoculated with 2.5 g of infected brood from colony in Florida. In Hamilton Co., five nests within an area with 16 hybrid fire ant nests were treated with 5g of infected brood. In both locations, a control area was established at least 1 km away from the treated area.

Ant samples (adults and brood) have been collected from treated and untreated nests, in control and treatment areas, before inoculation and at 2-month intervals afterwards. Samples were macerated and observed under microscope. No *T. solenopsae* spores were observed in samples taken before treatment, showing that this pathogen does not occur naturally in TN. Also, spores were not observed in samples taken two months after inoculation. No decrease in ant activity and nest vigor has been observed so far.

REVIEW OF THE MAYFLIES (INSECTA: EPHEMEROPTERA) OF TENNESSEE: CORRECTIONS, ADDITIONS AND ECOLOGY OF SELECTED SPECIES

Lewis S. Long and Charles R. McGhee
Department of Biology
Middle Tennessee State University

An overview of the mayfly fauna for the state of Tennessee is presented. Previous studies listed 143 species in 43 genera and 15 families. Unpublished records and corrections to the list now bring the total to 154 species and 45 genera. Although the list contains 154 species, even more genera and species are expected to be reported for the state, including at least five genera and one family. More surveys for the state are necessary because only 17 counties (18%) have records of more than 10 species, 48 counties (51%) have less than 10 records and 30 counties (31%) have no records for mayflies at all. Overall, Tennessee contains the highest mayfly diversity within the Southeast and the composition is more similar to that of Virginia and North Carolina than to that of the other southeastern states. Preliminary ecological data on a new species of Baetidae from Middle Tennessee and the endemic *Paraleptophlebia kirchneri* are also presented.

THE PROCLADIINI (DIPTERA: CHIRONOMIDAE) OF THE SOUTHEASTERN UNITED STATES: TAXONOMY, ECOLOGY AND DISTRIBUTION

Charles N. Watson, Jr.
Aquatic Resources Center
4410 Peytonsville Rd., Franklin, TN 37067

The Tribe Procladiini belongs to the subfamily Tanypodinae. Larvae of Procladiini are of interest to aquatic biologists because they tolerate a wide range of water quality conditions and some species are frequently collected in water quality surveys. The tribe consists of two genera, *Procladius* and *Djalmabatista*. Six species of *Procladius* and one of *Djalmabatista* are known from the southeast. *Procladius* is represented by two subgenera. The subgenus *Holotanypus* is represented by five species. Two are known only from the type localities, and are unlikely to be encountered in routine surveys. Of the others, *Procladius (H.) sublettei* appears to be the most widespread and common species in the southeast. Immatures of *Procladius (H.)* spp. cannot be identified to species. The subgenus *Psilotanypus* is represented by a single widespread species, *Procladius (Ps.) bellus*. Larvae of *Procladius* are found in depositional areas of lakes and streams and prefer a mud or silt substrate. *Djalmabatista* is represented by a single widespread but local species, *D. pulcher*. *Djalmabatista* larvae are found

INTERSTATE HIGHWAYS IN TENNESSEE: CORRIDORS FOR THE SPREAD OF INVASIVE WEEDS AND THEIR NATURAL ENEMIES

Donald L. Sudbrink¹, J. F. Grant² and P. L. Lambdin²

¹USDA-ARS-BCMRRU

Stoneville Research Quarantine Facility
P.O.Box 225, Stoneville, MS 38776-0225

²Department of Entomology and Plant Pathology
The University of Tennessee, Knoxville, TN 7901-1071

Exotic invasive weeds are introduced species that can pose a serious problem in residential and rural areas, where they invade pastures, crops, orchards, nurseries, forests and landscapes, as well as highway and railroad rights-of-way which act as corridors for their spread. Roadside weed management is often difficult and expensive and the widespread use of chemical herbicides to manage exotic weeds poses economical and environmental concerns. Little information is available on the state-wide incidence of exotic and invasive plant species along roadways in Tennessee. Acquisition of this type of information can lead to better management, if necessary, of exotic plants and enable researchers to investigate biological control opportunities. This approach can limit the spread and impact of exotic plant species.

In 1997 and 1998, we conducted a two-year study of exotic and invasive vegetation along highway rights-of-way in Tennessee, with support from Tennessee Department of Transportation and the Federal Highway Administration. The objectives of the study were to: 1) identify exotic and invasive plant species, 2) quantify plant populations, 3) assess potential threat of these plants, and 4) evaluate potential opportunities for biological control. Tennessee's roadsides do provide corridors for spread of exotic or invasive species which were found at more than 220 sample sites along Tennessee highways. About 36% of all species encountered were exotic which is about two times the percentage of exotics in the Tennessee State Flora. In the qualitative survey, about 75% of the list of Tennessee State Noxious weeds were found, and about 60% of the invasive species list of the Tennessee Exotic Pest Plant Council were also found. In quantitative sampling, some of the invasive plant species with greatest % cover included: Japanese honeysuckle, Johnsongrass, buckhorn plantain, and large crabgrass. Several invasive species found are potential biological control targets in Tennessee, including: Canada thistle, bull thistle, spotted knapweed, and purple loosestrife.

Associated herbivorous insect species were collected from Canada thistle, bull thistle, and spotted knapweed that may have an impact on their development and spread. Native weevils of the genus *Baris* were commonly collected from bull thistle and Canada thistle where they damaged shoots and tips and may reduce the reproductive potential of the weeds. *Baris* spp. also feed on native thistles. The rosette weevil, *Trichosirocallus horridus*, an exotic biocontrol agent of musk thistle, was also collected from bull thistle. A tephritid fly of the genus *Urophora* was collected from Canada thistle heads and may be a species released for biocontrol in other states. *Urophora quadrifasciata* was collected from spotted knapweed in northeastern Tennessee and is

a new state record. This biological control agent has been released to control spotted knapweed in Virginia and may have moved into Tennessee along the I-81 corridor. Another new state record collected from spotted knapweed in northeastern Tennessee was *Megalonotus sabulicola*. This Lygaeid seed bug feeds on seeds of knapweeds and may reduce their reproductive potential. It was accidentally released in the northeastern U.S. and has moved down the I-81 corridor. While existing native herbivores and introduced biocontrol agents may reduce reproductive potential, they have not prevented these weed species from reproducing and spreading in roadside corridors. Additional biological control agents may be necessary to reduce populations of these invasive weeds.

CICADAS MAKE THEIR OWN MUSIC IN MUSIC CITY

Frank Hale

Extension Entomology and Plant Pathology
The University of Tennessee, Nashville, TN 37211

The American Indians believed that the large cicada emergence has evil significance. The early American colonists immediately thought a "locust plague" of biblical proportions was punishing them. The distinct black "w" on the outer end of the front wings was said to foretell of war. Prior to the spring emergence of Brood XIX of the periodical cicada, an entomophobic friend borrowed an old honey bee veil from me. This person wore the protective head gear along with a rain coat when dashing from his car to the front entrance of his place of work.

Having never experienced an emergence of the periodical cicada, I was not prepared for the amount of public interest. Several months prior to the May emergence I was receiving phone calls on whether outdoor weddings should be moved indoors. The local media started requesting information in the fourth week of March. Numerous newspaper articles were published and television news segments broadcast prior to the cicada emergence. Also, many small trees were wrapped with protective netting. In a kind of cicada countdown, I reported soil temperatures to the media almost daily starting in the last week of April. It has been reported that when the soil temperature 4 inches deep reaches 64° F that the cicadas should start emerging. I didn't see any emergence at the Ellington Agricultural Center until soil temperatures were at least 66° F. With all the anticipation of the birth of a baby, the cicadas finally emerged over a period of about one week from approximately May 6-13. This most photogenic insect was the toast of the town, especially once the males started "calling". While people complained of the noise and the sheer number of cicadas, many people were fascinated by this mighty display of nature. By the tenth of June, the media was saying goodbye to the cicadas. In another impressive display of nature, torrential wind and rain seemed to knock the cicadas down a bit early. It only lasted a little over a month but what a show it was.

TENNESSEE ENTOMOLOGICAL SOCIETY
Minutes of the Board of Directors Meeting
August 24, 1998

President Steve Murphree convened the meeting at the District Extension Offices at the Ellington Agricultural Center at 10:04 a.m. He welcomed the board members and the committee chairpersons who could attend the mid-summer meeting.

Program Committee Chair Youmans presented the 'Call for Papers' which is to be mailed to the membership shortly. He asked the group if there was a need to offer the Power Point option to prospective presenters. Following a discussion of the benefits and drawbacks, setup of the meeting room and use of LCD panels, the group felt that too much time would be taken in changing from one format to another and the option should not be presented. Length of paper presentation was discussed and it was decided that the papers would be presented in 15-minute intervals. The letter accompanying the 'Call for Papers' will list three hotels. Mannion suggested the Best Western. The meeting facility at the TSU Experiment Station has equipment for coffee and breaks. Youmans indicated that there may be two keynote speakers. Dr. Art Appel of Auburn is committed to being one of the speakers. Dr. Mike Treacy of American Cyanamid was originally scheduled to speak, but a possible conflict has arisen in Australia and he may not be able to make the meeting. In the 'Call for Papers', a request will be made for abstracts to be submitted at the time of presentation on disk and hard copy in either WP or Word.

President Murphree asked for the reading of the minutes of the previous meeting. These were read and approved.

Treasurer Powell presented the financial report. The TES account is now at the Nashville Bank of Commerce. The CD did mature and discussion was presented on setting up another CD. Youmans moved (Haun seconded) that a 2-year \$3,000 CD be purchased. The board was positive about this move, but Powell will check on the length of time. Signatories for the new account will be Powell, Murphree and Hale. A question was raised as to whether a plaque was presented to Dr. Carroll Southards, last year's Outstanding Entomologist and Richard E. Caron Award winner.

Editor Haun reported that some names have been dropped from the membership list. Names are usually dropped following a 2-year absence. He asked if there were any more contributions to the Firefly. He reported that Doris Caldwell is working on the Firefly in her retirement and should some type of honorarium be provided to her? Lentz moved (Youmans seconded) that Doris Caldwell be provided a \$200 honorarium for assembling the Firefly. The motion was discussed. It was decided that this must be considered every year. Mannion suggested that a letter accompany the honorarium. The motion passed. Haun will forward the check and letter to Doris. Haun asked about the term of the Editor. Murphree will contact Nominating Committee Chair Harp about terms and offices that may need to be filled. Pictures

of the Howard Bruer award winner are available for 1996 and 1997. The 1997 picture has been placed on the TES website.

Local Arrangements Chair Mannion reported on motels and availability of rooms for the social activities in McMinnville. Restaurants are available, including a Shoney's. A new cafeteria, Tom's, has opened across from Shoney's. The cafeteria is a buffet for \$7.32 with tax included. There is also a pizza steak house and a barbeque restaurant. There is also a scenic restaurant on top of the mountain, but is some distance from town. After considerable discussion, Mannion agreed to block 30 rooms at the Best Western and make reservations for the group meal at Tom's cafeteria. She also indicated that projection equipment and pointers will be provided. A map to the station will be included in the mailout.

Publicity Chair Latson reported that the TES display was taken to the Insect Expo. Some brochures need to be included in the display for distribution. It would be helpful to have SEMs, microscopes, and other equipment available at the display site.

Membership Chair Grant went over the website. Corrections included Jim 'Eisler'.

Hale reported that the Auditing Committee would meet during the meeting at McMinnville.

Nominating Chair Harp could not attend the meeting. Steve Hamilton discussed nominations and changes in procedures for the R.E. Caron Award. Howard Bruer award nominees formerly came from Harry Williams and in the interim, John Skinner was the contact. Karen Vail may be the contact now. Hamilton reported that John Hammet passed away in April.

Powell called attention to the last paragraph of the 'Call for Papers' letter requesting reports on the insect situation in Tennessee in 1998.

Youmans discussed the TES Questionnaire that is to be distributed at the upcoming meeting.

Operating Procedures chair Burgess asked that changes be discussed at the October board meeting.

The meeting adjourned at 1:00 p.m.

Gary L. Lentz
Secretary
Tennessee Entomological Society

TENNESSEE ENTOMOLOGICAL SOCIETY
Minutes of the Board of Directors Meeting
October 15, 1998

President Steve Murphree welcomed the board and convened the meeting at 10:30 a.m. at the Tennessee State University Nursery Crops Experiment Station at McMinnville. Murphree mentioned the association with the Tennessee Academy of Science. TES is now an affiliated society with TAS. TAS now has a new and revised journal.

Murphree asked Youmans to comment on the Program. Copies of the program were distributed. A committee sign-up sheet was developed and placed at registration. A questionnaire sheet was developed to be distributed to the membership. The selection of the committee chairs was discussed.

Murphree asked Lentz to read the minutes of the past August 24 board meeting. The board asked that the minutes be highlighted. These minutes will be published in the 1999 Firefly. Grant reported that he was sure that Williams received his plaque for the 1996 R.E. Caron Award, but the board was uncertain whether he received his Honorary Member Certificate which was to be prepared by Lambdin. Murphree will check on this matter. Youmans moved (Hale seconded) that the Secretary's report be accepted. The motion passed.

Treasurer Steve Powell presented the Treasurer's report. Grant reportedly cashed the check that was made for reimbursements. One regular membership dues and one student dues were received since the August board meeting. Name tag sleeves were purchased. He reported that the bank where the account is requires a minimum of \$10,000 for the CD. He mentioned the banks charges for the account. The money market account would earn 2.02%. He does have cash on hand for registration. Total assets are over \$4000 as reported on the Treasurer's report. The topic will be discussed at the post meeting board meeting. Some members thought a higher rate could be earned. Hamilton moved (Haun) that the budget be approved. The motion passed.

Haun presented the Editor's report. Most everything went smoothly. Grant took care of copying. Caldwell incorporated The Firefly well. The Ambrosia beetle situation was mentioned. Haun looks for The Firefly to present insect situations since TDA no longer does this. The cost of The Firefly was \$3.65/copy. The most expensive item is binding. Cost of a binding machine is around \$150. Mannion mentioned that TSU has a machine here. Grant indicated that TES should consider becoming a tax exempt organization because taxes were \$30 for The Firefly alone. Murphree mentioned the problems encountered trying to organize a tax-exempt alumni association. Youmans indicated that some work might be conducted through TAPA and its tax-exempt status. He would check with the board. While TAPA pays \$20/year incorporation fee, they benefit by not having to pay taxes at the hotel. Mannion asked if there were guidelines for publishing abstracts in The Firefly. Does a person have to be present to publish an abstract? If it is a late paper, then it may have to be presented as a poster and an abstract would then be considered. Publication of poster abstracts will encourage additional posters to be presented.

Grant indicated that UT students would be discouraged from presenting only a poster. Youmans moved (Grant) that the Editor's report be approved. The motion passed.

Youmans discussed the formation of the program. The keynote paper by Dr. Treacy of American Cyanamid did not work out, but Dr. Appel of Auburn University was able to present, thanks to Gerhardt's suggestion. Four to five papers made the deadline, several on September 18, the deadline, and some on the weekends. Seven days lapsed before more were submitted. The two slots were filled on the Monday after the deadline. Some waited up to two weeks after the deadline to submit titles. The disappointing thing was that the three late papers were from Memphis, but they did not respond to phone calls. There was one paper cancellation (Stumpf and Lambdin).

Local arrangements were discussed. During breaks, individuals are welcome to visit facilities. Coupons are available for a 10% reduction at Tom's restaurant. The pavilion at the Best Western will be available for the mixer tonight at approximately 8-10 p.m. The original block of rooms was 20, but only 13 have been taken at this time. Registration is set up in the West entrance. The questionnaire will be distributed at registration.

Publicity was presented by Latson. There was local newspaper coverage. Procedures were outlined for a Tennessee Entomological Society Proclamation Day. It could be for a week. ESA had done one earlier. Latson will pursue this with a draft to be approved. The TES poster needs to be updated. Latson did some revisions. Grant volunteered to work with him. Murphree wants to take it to the TAS meeting in Cookeville. The group will meet at Ellington to make revisions. Latson needs photos, SEM, brochures and other materials.

The Membership Committee report was presented by Grant. Mailouts went to ESA members and TAPA members. Shamiyeh solicited funds from industry to support the mixer.

The Auditing Committee will perform the audit this afternoon. The results will be presented at the regular business meeting.

The Nominating Committee has names for the positions of President-elect and the two members-at-large. These will be contacted here at the meeting. The Secretary will be replaced in 1999. The Editor will be replaced in 1999. The position of Historian was to be filled in 1997, but the board failed to act.

The Awards Committee reported that there is a winner for the Howard Bruer Award. The winner is Denise Byrum of Moore Co. Should there be a monetary award with the Bruer Award? There is currently no competition for the award. If there was a monetary award, then there should be statewide competition with certain criteria. As it is now, the 4-H entomology winner is the Bruer Award winner. Hamilton reported that the R.E. Caron Award had a nominee, but the nomination did not make the August 1 deadline and could not be considered at the August board meeting. The nomination will be resubmitted.

The Operating Procedures need some revision according to the committee.

The meeting adjourned shortly after noon for lunch.

Gary L. Lentz
Secretary TES

TENNESSEE ENTOMOLOGICAL SOCIETY
Minutes of the Annual Meeting
October 16, 1998

The business meeting of the 25th annual meeting of the Tennessee Entomological Society was convened by President Steve Murphree at the Tennessee State University Nursery Crop Research Station in McMinnville at 8:10 a.m. on October 16, 1998. President Murphree asked Hamilton to read highlights of the career of John Hammett who passed away this past year. A moment of silence was dedicated to John's memory.

President Murphree called for the reading of the minutes of the previous meeting. Secretary Lentz moved (Gerhardt seconded) that the minutes of the previous meeting be approved as published in The Firefly on pages 26-27. The motion passed.

A Treasurer's report was distributed and presented by Treasurer Powell. The report is published in this issue of The Firefly. Pereira moved (Youmans) that the Treasurer's report be approved as read. The motion passed.

The Auditing Committee reported that the books of the Treasurer were examined yesterday and all receipts and expenses were reconciled. The committee consisted of Hale, Vail and Pereira. Burgess moved (Shamiyeh) that the report be approved. The motion passed.

President-elect and Program Committee Chair Youmans commented on the program after acknowledging the committee of Gerhardt, Ourth and Mannion. He indicated that there were two paper slots available at the paper deadline and eight additional requests came to him over the next two weeks. He felt most of these could have been worked in if the prospective presenters had made the deadline.

Burgess indicated that the Constitution/Operating Procedures committee was contemplating some changes, but did not have them ready at this time.

Local Arrangements Chair Mannion solicited input on the location questionnaire. She also indicated that the society did not have the usual \$350-500 meeting and mixer room costs that were furnished at the McMinnville location this year.

Powell indicated that two reports had been received for the Prediction/Evaluation Committee and requested that any additional reports be sent to Haun.

Publications/Editorial Committee Chair Haun could not be present, but committee member Grant acknowledged the assistance of Doris Caldwell in assembling The Firefly. He also solicited more input for the Prediction/Evaluation section and reminded all that abstracts need to be submitted.

Latson said that the Publicity Committee did contact the local newspaper and TES did receive coverage. He also described briefly the procedures for getting a week next October proclaimed **ENTOMOLOGY WEEK** concurrent with the TES meeting. This can be done each year through the Governor's staff. He also described the use of the TES poster at the annual ESA meeting in Nashville and solicited additional materials to be used with the poster (insect graphics, SEMs, etc.). The poster does need to be updated and committee efforts are underway to renew the poster for activities such as ESA, Tennessee Academy of Science, etc.

Grant acknowledged the Membership Committee (Gerhardt, Bancroft, Lentz, Murphree, Hamilton, Skinner) and pointed out that only 50% of Tennessee ESA members are members of TES. Mailouts were sent to these people as well as industry representatives on the TAPA list. He pointed out that the program was listed on the UT Entomology and Plant Pathology Website and that additional TES materials were included there. If too much is added, it may cost TES \$25, but it would cost several hundred to have a dedicated TES website. The Firefly may also be placed on the website. He recognized Bill Shamiyeh for his solicitation of funds for the mixer. Shamiyeh credited American Cyanamid, AgrEvo, Valent, Dow AgroSciences, Zeneca and Rohm and Haas.

Awards Committee Chair Hamilton thanked the committee members and especially the judges for their service. He also thanked John Skinner for his efforts in getting the Howard Bruer award winner Denise Byrum of Moore Co. and acknowledged her 4-H agent Heath Nokes. He will see that she gets the plaque from TES. Hamilton also said that one nomination was received for the R.E. Caron award, but that it was submitted after the August 1 deadline and the board could not consider it. It will be considered by the board in the August 1999 meeting. Additional nominations are sought for this award. Hamilton announced the student paper winner was Gary Moughler, with Chris Morris placing second and Stephanie French placing third. The students were praised for their outstanding papers.

President Murphree found there was no other 'Old Business' and turned to 'New Business'. He asked Nominations Committee Chair Harp to present the committees slate of officers. These were: President-Elect - Catharine Mannion, Members-at-Large - Karen Vail and Roberto Pereira. Murphree asked for any other nominations. Harp moved (Hamilton) that the nominations be closed and these be elected by acclamation. The motion passed.

Murphree asked that past presidents of TES escort President-Elect Youmans to the podium. There he presented Youmans the TES Presidential Gavel. President Youmans then presented Past-President Murphree a plaque of appreciation for his hard work on behalf of TES.

Gerhardt moved (Harp) that the meeting be adjourned. The motion passed.

Gary L. Lentz
Secretary TES

TENNESSEE ENTOMOLOGICAL SOCIETY
Minutes of the Board of Directors Meeting
October 16, 1998

The post meeting board meeting was convened by President Youmans who welcomed new board members. The first item of business was the presentation of the Treasurer's report. Treasurer Powell indicated that the expenses for the meeting were about \$610 with specific expenses listed as \$68.20-plaques, 39.89-room for speaker, 365.89-The Firefly publication, 138.35-refreshments and other expenses which are shown on the published report. Income from the meeting was \$947 from registration.

The board considered the merits of purchasing a CD or investing the surplus money in a money market fund. On the current account, there is no monthly fee and as of October 1, TES is getting 1% on the account. Hale asked about tax-free bonds. Various interest rates were discussed. Lentz moved (Murphree seconded) that Powell look at a CD up to the amount of \$3000, if it is not available, he is authorized to invest the funds in the money market account. The motion passed. Powell indicated that he needed current board member names on a bank form. Mannion moved (Pereira) that the Treasurer's report be accepted. The motion passed.

Youmans led a discussion of this year's program. The option of 12- vs 15-minute paper slots was considered. The Program Chair should have the option of going to the shorter papers in order to work in more papers. There were six late-submitted papers that could not be accommodated this year. TES members must get papers in by the required deadline. Poster presentations will be welcomed at the meeting any time. The presenters will have to arrange for an easel or a table on which to place the poster.

The meeting location was discussed. The merits of Nashville, Cookeville and Murfreesboro were considered. Within Nashville, the possibility of meeting on the Belmont campus was considered. Cookeville and Murfreesboro would be difficult since there were no active members at either location. Frank Hale agreed to serve as Local Arrangements Chair and will investigate potential sites and report to President Youmans by November 15. The board considered whether there were members that did not attend because of the McMinnville location. A tentative date for the next TES meeting was set for October 21-22, 1999.

Committee chairs (underlined) and members were discussed. The following is a partial list.

Auditing - Lentz, Hale
Local Arrangements - Hale, Mannion, Grant, Murphree
Awards - Hamilton, Mannion, Burgess, Skinner, Shamiyeh, Gerhardt
Program - Mannion, Haun, Lentz, Gerhardt
Constitution - Burgess
Membership - Grant (will be contacted), Hamilton
Nominating - Shamiyeh, Burgess, Eisler

Prediction/Evaluation - Seward, Patrick, Cagle, Shamiyeh, Eisler, Powell
Publicity - Latson

The date of the next board meeting was set for August 9, 1999 at 10:00 a.m. at the District Extension Offices in Nashville.

Among new projects discussed were cooperative insect surveys and a possible new vinyl poster which could be 6 ft by 2 ft with the TES logo.

In other business, Youmans indicated that he will write a letter to Dr. Art Appel, thanking him for his presentation and contribution to the meeting. Youmans also asked about contacts with ESA and the Southeastern Branch. Mannion moved (Youmans) that the meeting be adjourned. The motion passed.

Gary L. Lentz
Secretary TES

TENNESSEE ENTOMOLOGICAL SOCIETY

**Treasurer's Report
October 1997 - October 1998**

Books and Records audited 10-16-97 by Auditing Committee (Cletus Youmans, Chair)

Balance on hand 10-17-97

Checking \$3418.95
CD #16518 (Matured 10-19-97) \$1181.06
TOTAL **\$4600.01**

Number of pins on hand 10-19-97 - 8 -

DISBURSEMENTS

Jerome Grant (Firefly Publication) (\$ 292.50)
Bryan Hed (Student Award) (\$ 50.00)
Jerome Grant (Hospitality) (\$115.00)
Name Tag Sleeves (\$ 25.97)
Ramada Inn (\$ 376.68)

TOTAL DISBURSEMENTS **(\$860.15)**

INCOME

Interest Paid \$.14
42 Regular Dues & Registrations \$1,050.00
1 Corporate Due \$ 25.00
3 Regular Dues \$ 15.00
1 Registration \$ 20.00
22 Student Dues \$ 22.00
Cash Donations \$ 11.00
Cash Donation (Lee Greer) \$ 5.00
5 Pins \$ 50.00

TOTAL INCOME **\$1,193.14**

BALANCE ON HAND (10-15-98)

Checking Account \$2,307.00
Money Market \$1,175.65
(Money Market goes into effect after co-signature of board member)
Cash \$126.00

TOTAL BALANCE ON HAND 10-15-98 **\$4,933.00**

Number of pins on hand - 8 -

Respectfully Submitted

Steve Powell, Treasurer

**ATTENDANCE ROSTER OF THE 1998 ANNUAL MEETING
OF THE TENNESSEE ENTOMOLOGICAL SOCIETY**

MEMBER

AFFILIATION

LOCATION

Regular Members

Bogard, James B.	TN Dept. Agri., retired	Nashville, TN
Burgess, Gene	UT Ag. Extension	Knoxville, TN
Cagle, Jimmy	TN Dept. Agri.	Winchester, TN
Cole, Bruce A.	TN Dept. Agri	McMinnville, TN
Eisler, Jim	TN Dept. Agri.	McMinnville, TN
Follum, Renee	Univ. of TN	Knoxville, TN
Gerhardt, Reid R.	Univ. of TN.	Knoxville, TN
Grant, Jerome F.	Univ. of TN	Knoxville, TN
Hale, Frank	UT Ag. Ext.	Nashville, TN
Hamilton, Steven W.	Austin Peay St. Univ.	Clarksville, TN
Harp, George	Arkansas State Univ.	Jonesboro, AR
Haun, Walker G. (Gray)	TN Dept. Agri.	Nashville, TN
Latson, Larry N.	David Lipscom Univ.	Nashville, TN
Lentz, Gary L.	Univ. of TN	Jackson, TN
Mannion, Catharine	TSU	McMinnville, TN
Murphree, Steven C.	Belmont Univ.	Nashville, TN
Odom, Phillip	AgvEvo USA Co.	Collierville, TN
Patrick, Charles	Univ. of TN	Jackson, TN
Pereira, Roberto	Univ. of TN	Knoxville, TN
Powell, Steve D.	TN Dept. Agri.	Nashville, TN
Seward, Ron	UT Ag. Ext. Service	Jackson, TN
Shamiyeh, N. B.	Univ. of TN	Knoxville, TN
Sudbrink Jr., Don	USDA-ARS	Stoneville, MS
Vail, Karen	Univ. of TN	Knoxville, TN
Watson, Charles	Aquatic Resources Center	Franklin, TN
Woodiel, Neil L.		McMinnville, TN

Student Members

Beld, Drew	Vanderbilt Univ.	Nashville, TN
French, Stephanie	Univ. of TN	Knoxville, TN
Gibbs, Melinda	Univ. of TN	Knoxville, TN

Gottfried, Kristy	Univ. of TN	Knoxville, TN
Harris, Jerry	Univ. of TN	Knoxville, TN
James, Shannon	Univ. of TN	Knoxville, TN
Long, Scotty	MTSU	LaVergne, TN
Morris, Chris	Univ. of TN	Knoxville, TN
Moughler, Gary	Univ. of TN	Knoxville, TN
Parker, Michael	Univ. of Memphis	Memphis, TN
Puckett, Derek	Univ. of TN	Knoxville, TN
Otto, Daniel	Univ. of TN	Knoxville, TN
Vlach, Josh	Univ. of TN	Knoxville, TN

Sustaining/Corporate Members

Clete Youmans	American Cyanamid	Dyersburg, TN
---------------	-------------------	---------------

BOARD OF DIRECTORS

President - Steve Murphree
Past President - Frank Hale
President Elect - Cletus Youmans
Secretary - Gary Lentz
Treasurer - Steve Powell
Editor - Gray Haun
Historian - Harry Williams
Member-at-Large - Larry Latson
Member-at-Large - Catharine Mannion

COMMITTEES: 1997 - 1998

AUDITING

Frank Hale, Chair
Roberto Pereira
Karen Vail

AWARDS

Steve Hamilton, Chair
Gene Burgess
Bill Hendrix
Lynn Snodderly
Karen Vail
Harry Williams

CONSTITUTION/OPERATIONAL

PROCEDURES

Gene Burgess, Chair
Joe Dunn
Karen Vail

LOCAL ARRANGEMENTS

Catharine Mannion, Chair
Jimmy Cagle
Frank Hale
Larry Latson
Don Sudbrink

MEMBERSHIP

Jerome Grant, Chair
Harold Bancroft
Reid Gerhardt
Steve Hamilton
Gary Lentz
Steve Murphree
John Skinner

NOMINATING

George Harp, Chair
Gene Burgess
Jim Eisler
Lynn Snodderly

PREDICTION/EVALUATION

Steve Powell, Chair
Jimmy Cagle
Ron Seward

PROGRAM

Clete Youmans, Chair
Reid Gerhardt
Karl Joplin
Catharine Mannion
Donald Ourth

PUBLICATION/EDITORIAL

Gray Haun, Chair
Jerome Grant
Paris Lambdin
Ray McDonnell
Roberto Pereira
Lynn Snodderly

PUBLICITY

Larry Latson, Chair
Hans Chaudhary
Steve Powell
Don Sudbrink

Tennessee Entomological Society

Prediction and Evaluation

Committee Report

October 15, 1998

Steve Powell - Chair
Committee Members:
Jimmy Cagle
Ron Seward

1998 FOREST AND URBAN TREE INSECT HIGHLIGHTS

Bruce W. Kauffman

Tennessee Department of Agriculture, Div. of Forestry
Box 40627 Melrose Station, Nashville, TN 37204

The 13 year cicadas had the greatest impact on hardwoods in the Nashville Basin.. Counties bordering the eastern portion of the Basin also had more broken twigs of ash, elm, hackberry, oak, and maple. Most larger trees had less than 50 percent damage. Reports from all counties of the State showed cicadas in 12 previously uninfested counties.

White pine weevils damaged scattered trees in the northern half of East Tennessee. The loblolly pine sawfly defoliation increased in the northern half of the Nashville Basin (Wilson, Smith, Rutherford, Maury, and Davidson Counties).

A dry August and September stressed pines in southwestern Tennessee allowing infestations of Ips and southern pine beetle to develop in scattered locations in Chester, Henderson, and McNairy Counties (one spot had 160 trees). In some sites in northern East Tennessee, bark beetles were also a problem. Ips attacked pine logs waiting to be processed in Scott County. Up to 5 acres of pine stands in Morgan and Roane Counties were infested by the southern pine beetle.

Nantucket pine tip moths had an unprecedented fourth generation in northern Middle Tennessee at the first of September, causing some spectacular damage to susceptible shortleaf and Virginia pines from Knoxville to Nashville.

Although most eastern tent caterpillar defoliation was under 50 percent statewide, moderate to heavy defoliation was common with locust leaf miner on black locust in the eastern half of the State. A few large trees (persimmon, pecan, black walnut) were over 50 percent defoliated by the fall webworm in Franklin, Rutherford, and Williamson Counties. Hackberry butterfly defoliation was light to moderate in Bedford, Lincoln, Marshall, and Rutherford Counties.

Bagworms lightly defoliated red cedar, spruce, and white pine from Knoxville to Nashville. Oak lacebug infestations were high along white, chestnut, and chinkapin oak ridges and slopes scattered throughout the eastern third of the State including the Eastern Highland Rim. Sycamore and basswood lacebugs were also at higher levels from Nashville east.

Light variable oakleaf caterpillar defoliation began to show up this fall along the Western highland Rim and some adjacent Tennessee River counties (Decatur, Dickson, and Henderson Counties) as in 1996. Walkingsticks were light to moderate on oaks in the northern Cumberland Plateau.

The exotic ambrosia beetle (*Xylosandrus crassivellus*) attacked winter damaged deciduous magnolias in northern Middle Tennessee. Tulip tree scales killed twigs of yellow poplar in four West Tennessee counties. Jumping seed galls (*Neuroterus saltarius*) caused leaf spotting and defoliation of post oaks in scattered locations statewide. White oak is also infested.

GYPSY MOTH DELIMITING SITES -1999			
COUNTY	SITE	1998MOTHS	1998 TRAP LOCATIONS WITH MOTHS
EAST TENNESSEE			
ANDERSON	DALE ROAD AND WEST NORRIS ROAD - NORRIS	2	1
ANDERSON	BELGRADE ROAD - OAK RIDGE	1	1
ANDERSON	KINGSLEY STREET - OAK RIDGE (WEST MAGNOLIA AVE.)	12	3
BLOUNT	FOOTHILLS PARKWAY - TALLASSEE	1	1
BLOUNT	LITTLE RIVER VILLAGE CAMPGROUND - TOWNSEND	1	1
CAMPBELL	HWY 25 TO DAVIS CREEK ROAD - DUFF	1	1
CAMPBELL	GLADES SPRINGS ROAD - LAFOLLETTE	1	1
CUMBERLAND	PLATEAU ROAD GRID - ISOLINE	2	1
CUMBERLAND	INTERSECTION OF HWY 392 AND DUNBAR LAND - CROSSVILLE	1	1
CUMBERLAND	HERTFORD DRIVE - FAIRFIELD GLADE	1	1
CUMBERLAND	FAIRFIELD GLADE	1	1
HAMILTON	TEXAS AND OAK STREEST - SIGNAL POINT	1	1
HAMILTON	CLIFF DRIVE - COLLEGDAL	1	1
HAMILTON	46 TH AVENUE - ST. ELMO	1	1
HAMILTON	WHITE OAK DRIVE - COLLEGDAL	1	1
JOHNSON	HWY 99/FAITH GOSPEL CHURCH - LAUREL BLOOMERY	1	1
JOHNSON	SHADY VALLEY CAMPGROUND	1	1
JOHNSON	RURAL RESIDENTIAL - SHADY VALLEY	1	1
KNOX	FLYING J TRUCSTOP - KNOXVILLE	1	11
KNOX	215 STOOKSBURY ROAD - KNOXVILLE	1	1
KNOX	211 ALCOA HIGHWAY - KNOXVILLE	1	1
KNOX	1101 ATLANTIC AVENUE - KNOXVILLE	1	1
KNOX	BOX 484 CHEROKEE BLVD. - KNOXVILLE	2	1
KNOX	NEAR INTERSECTION OF MAPLE HILL AND SPRING HILL ROADS - KNOXVILLE	1	1
LOUDON	OFF HWY 321 TO OAK GROVE ROAD - LENOIR CITY	1	1
MCMINN	KOA CAMPGROUND -THENS	1	1
MONROE	OLD FURANCE AND HOLDER ROADS - COKER CREEK	2	1
POLK	HWY 411 AND RAILROAD TRACKS - DELANO	1	1
ROANE	SHADY ROAD -KINGSTON	1	1
SCOTT	RIVER ROAD BRIDGE - HUNTSVILLE	125	53
SCOTT	HWY 27 - GLENMARY	24	11
SCOTT	WOLF CREEK ROAD - ELGIN	64	16
SCOTT	HWY 27 AT FIRST BAPTIST CHURCH - ROBBINS	1	1
SCOTT	REED HOLLOW - NEW RIVER	8	4
SCOTT	HWY 63 - STRAIGHT FORK	1	1
SCOTT	MOUNTAIN APPARTMENTS - HUNTSVILLE1	1	1
SEVIER	RIVERBEND CAMPGROUND -PIGEON FORGE	1	1
SEVIER	SEVIER COUNTY PARK CAMPGROUND - UNION GROVE	1	1
SEVIER	PIGEON FORGE KOA CAMPGROUND	2	2
SEVIER	SOURDOUGH HOLLOW GRID (BYRD DRIVE/BLUEBIRD LAND) - KODAK	2	2
SEVIER	GOOSE GAP GRID - WALDEN CREEK	24	10
SEVIER	RIVER PLANTATION CAMPGROUND - SEVIERVILLE	1	1
SEVIER	HWY 441 AT BURNETT LANDE - SEYMOUR	1	1
SEVIER	HWY 21 EAST AT TEXAS LANE - ROCKY GROVE	1	1
SEVIER	HWY321 EAST AT APPLE TREE LANE - ROCKY GROVE	1	1
SEVIER	FT. WEAR CAMPGROUND - PIGEON FORGE	1	1
SEVIER	EAGLES NEST CAMPGROUND - WALDEN CREEK	1	1
UNICOI	NOLICHUCKY RETREAT - UNAKA SPRINGS	3	3
UNICOI	ROCK CREEK CAMPGROUND - ERWIN	1	1
MIDDLE TENNESSEE			
DAVIDSON	NORTH SHORES CAMPGROUND - HERMITAGE	1	1
DAVIDSON	OPRYLAND KOA CAMPGROUND - NASHVILLE	9	3
FENTRESS	ELMORE ROAD - CLARKRANGE	71	29
MONTGOMERY	CLARKSVILLE CAMPGROUND - TYLERTOWN ROAD	1	1
ROBERTSON	DARBY STREET TRAILER PARK - MILLERSVILLE	1	1
ROBERTSON	I-65 AND HIGHWAY 257 JUNCTION - MILLERSVILLE	1	1
RUTHERFORD	182 SANDFORD ROAD - LAVERGNE	1	1
RUTHERFORD	IRBY LANE - MURFREESBORO	1	1
VAN BUREN	FALL CREEK FALLS STATE PARK	1	1
WILLIAMSON	BUCKNER ROAD - SPRING HILL	1	1
WILLIAMSON	ARROWHEAD DRIVE -BRENTWOOD	1	1
TOTALS		397	185

application recorded as high as 40% punctured squares early. Threshold infestations developed earlier in the southern versus the northern counties. For example, Fayette county (along the Mississippi border) reported 68% of scouted acreage at treatable levels during the last two weeks of July while Gibson county reported 14% during this same time.

TENNESSEE COTTON INSECT SUMMARY

1998

Ron Steward
University of Tennessee
Extension Entomologist

Tennessee growers planted about 450,000 acres in 1998 which was a reduction of 50,000 acres from 1997. Corn followed by soybeans were the primary crops planted in place of cotton. 1998 was a significant year with insects in general in all row crops but especially cotton. A mild winter by anybody's standards for this part of the "cotton belt" seemed to unleash a multitude of insects which rivaled the now famous 1995 season. Weather, like so many areas of the belt, was a significant contributor to yield loss but was not devastating. In fact, insect losses would place a very close second to weather for losses estimates.

Ninety-eight percent of Tennessee's cotton acreage is planted in 19 West Tennessee counties. Most of the crop was planted the first half of May. Temperatures for May at Jackson, which is centrally located, were 4.5 degrees above normal (72.4) while rainfall was 1.24 inches above normal (6.71). An acrea across the southern counties experienced an extremely dry period during June and early July. Cotton as well as other crops suffered from lack of moisture. July and August saw above normal rainfall which was good and bad. The crop needed the moisture but took a fruit shed with excess moisture and cloudy days. Insect control was also hampered during this time.

Cutworms were spotty and limited to a few hundred no-till acres. Treatment was minimal.

Thrips infestations were normal and required additional foliar treatments (20% of acreage) although about 85% of the acreage receives in-furrow or seed treatments.

Overwintered boll weevil survival in West Tennessee was the highest on record, based on pheromone traps. Peak emergence occurred the last week of May. The average number of weevils per trap per week was 141 with a range of 21 in Lake county (along Kentucky border) to 344 in South Haywood county. Some individual traps captured 700-800 weevils in a week. Multiple pinhead applications were recommended for most counties. Growers responded to this alert. Approximately 68% of the acreage received two insecticide applications, 18% received one, and 4 received three. This area-wide effort held weevil development below treatment level on 80-90% of the acreage until first bloom. Isolated fields or farms which did not receive a pinhead application recorded as high as 40% punctured squares early. Threshold infestations developed earlier in the southern versus the northern counties. For example, Fayette county (along the Mississippi border) reported 68% of scouted acreage at treatable levels during the last two weeks of July while Gibson county reported 14% during this same time.

August began the long awaited start of boll weevil eradication in six southern West Tennessee counties and a portion of a seventh (Haywood) south of the Hatchie River. Diapause applications, using 10 oz. Of malathion, were initiated on a five day schedule starting the first week. Three applications on a five day schedule, five on a seven day and four to five on a ten day were made on about 113,000 acres. Pheromone traps indicated a 10 X increase in weevil numbers outside the spray zone versus inside during nine weeks of fall trapping. Peak trap captures were recorded the last few days of September with an average of 480 weevils/trap/week outside the spray area.

Middle Tennessee counties planted approximately 9800 acres of the state total. This area was enjoying being weevil free since late 1996 and finishing their last year of eradication when nine weevils were detected in September in two counties, Rutherford and Lawrence. At the present time, this re-infestation has involved four fields and 1060 total acres being treated.

Plant bug numbers were abundant on alternate host around field borders early. As adults moved into early squaring cotton, pinhead applications held infestations in check. Some damage was attributed to plant bugs mid to late season but in comparison to most years will be minimal. Weekly monitoring of square retention has helped make better management decisions regarding plant bug control.

Pre-bloom economic infestations of bollworm and tobacco budworm were above normal. These developed primarily in the southern counties on non-*B.t.* cotton. Some pyrethroid products were used at this time with mixed results. A few acres required a second application of non-pyrethroid chemistry to achieve satisfactory control. Second generation oviposition started July 14, peaked in 10-14 days, but never completely diminished before an August generation started. July populations were mixed bollworm/budworm but August populations changed to a higher budworm ratio. Pyrethroid tank mixtures, which had been working, were not giving satisfactory control. Most treatments, in the southern counties, which have experienced resistance to tobacco budworm in the past, switched to phosphates, carbamates, or mixtures of both. Central and northern counties, which had not experienced resistance problems before, saw 40-50% control with pyrethroids used alone. Larvae from several of these locations were verified to be 75-100% tobacco budworm.

B.t. cotton increased to approximately 60,000 acres. These varieties continue to be among the top producers. Tobacco budworm control has been excellent while bollworm would rate very good with estimates of about 30% being oversprayed for bollworm control.

Aphids infested more acres in 1998. Approximated 30,000 acres were treated.

European corn borer infested more acres and contributed to higher yield losses than previously seen in Tennessee. Individual field surveys recorded 30-40% boll damage with yield losses estimated at 200-300 lbs. Increased corn acreage is thought to have contributed to higher corn borer populations.

Fall armyworm was present in more acres during mid and late season than previous years. Few acres were treated specifically for this pest but were considered in insecticide selection when treating for bollworm/budworm or other pest.

Stink bugs were observed more in late season this year after boll weevil and "worm" sprays subsided. They contributed a small amount to yield loss but will become increasingly important as *B.t.* cotton acres increase and the boll weevil is eradicated.

Other pests which were present but required minimal treatment were: spidermites, loopers, whiteflies and beet armyworm.

In summary, 1998 was a busy insect year and experienced less than ideal weather but, in comparison to other areas of the cotton belt, survived with an average plus crop. Statewide average yields will be in the 615-625 range. Yield losses to insects are estimated at 13-14% which will compare back to the "insect years" of 1993 and 1995. This loss is slightly above the 14 year average estimate of 10%. Boll weevil and bollworm-budworm will rank number one and two for yield loss followed by European corn borer, plant bugs, thrips, aphids and stink bugs.

TENNESSEE SOYBEAN INSECT SUMMARY 1998

Ron Steward
University of Tennessee
Extension Entomologist

Tennessee planted 1.2 million acres of soybeans in 1998 which was approximately an 80,000 acre decrease from 1997. Insect pressure was above average throughout the season.

Grasshoppers were a common problem which persisted most of the season. These were usually concentrated along field borders or grassy areas and moved across the field in search of new foliage. Some treatments were made for this pest.

Armyworms, mostly yellow striped, were reported on more acres than usual which required chemical control. Some fall and true armyworm species were also reported. Most other foliage feeding was done by green clover worm.

Three-corner alfalfa hoppers were common but remained below treatment level.

Damage from pod feeders (corn earworm) was minimal.

Pests Affecting Nursery, Sod and Agricultural Crops in Tennessee – 1998

Asian Longhorn Beetle

In August USDA personnel made an interception of Asian Longhorn Beetle (ALB) (*Anoplophora glabripennis*) at a warehouse in Nashville.

The TDA Entomologist and one plant inspector spent two weeks in Chicago participating in the survey for ALB within the quarantine area.

Two surveys were conducted in areas where dunnage from China was known to have been imported. These surveys were negative.

Boll Weevil

The boll weevil (*Anthonomus grandis* Boheman) has been a serious agricultural pest of Tennessee cotton since the early 1900's, and 1998 was no exception. Record numbers of weevils were captured in the major cotton producing areas of West Tennessee, particularly in the northern counties of West Tennessee. However, such was not the case in Middle Tennessee where the Boll Weevil Eradication Program (BWEP) has been operational since 1994. A total of 9,240 acres of cotton were certified in Middle Tennessee in Coffee, Franklin, Giles, Lawrence, Lincoln, and Rutherford counties. Two minor re-infestations were detected and treated in Lawrence and Rutherford counties.

Region 1 in West Tennessee was the site of the major portion of BWEP activity in 1998 as the program was ushered in with a diapause spray program that was initiated in August. A total of 118,681 acres were certified in Region 1, which consists of Fayette, Hardeman, Hardin, McNairy, Shelby, and Tipton Counties in their entirety, and that portion of Haywood County that lies south of the Hatchie River. The early success of the program won several converts as they witnessed a "top crop" that had previously been non-existent. A late fall contributed to this phenomenon that became evident in the absence of the boll weevil.

In January of 1999, a referendum was held in the rest of West Tennessee (Regions 2 & 3) on the question of expanding the BWEP into the remainder of the state. As was the case in Region 1, assessment rates were presented to these growers which would cover the entire cost of the program, and ranged up to \$174 per acre over a seven-year period of time. 77.7% of those voting cast a ballot in favor of the program with the hopes that the program could start in August of 1999. However, these plans were preempted by the decision in the Mississippi Delta Region to finally join the eradication effort. Therefore, the Mississippi Delta Region, which is sequenced to start eradication before West Tennessee, will start in August of 1999, with Northwest Tennessee waiting until August of 2000.

A containment referendum was held in Middle Tennessee in February of 1999. 87.9% of the 58 ballots cast favored the continuation of the program. All seven negative votes were registered in Rutherford County, the northernmost cotton-producing county in Middle Tennessee.

According to the Tennessee Agricultural Statistics Service, cotton production in Tennessee slipped to the lowest level in ten years with a total of 445,000 acres being harvested in 1998. Lint production, consisting of 545,000 bales, was valued at \$166 million, with cottonseed production valued at \$28.2 million. (*See map 1*)

Exotic Moth Survey

Three species of exotic moths, African Cotton Leafworm (*Spodoptera litura*), Egyptian Cotton Leafworm (*Spodoptera littoralis*), False Codling Moth (*Cryptophlebia leucotreta*) were surveyed for in 1998.

Forty traps were placed in eighteen counties for the African Cotton Leafworm. (*See map 2*)

Thirty-two traps were placed in eleven counties for the Egyptian Cotton Leafworm. (*See map 3*)

Forty-one traps were placed in eighteen counties for the False Codling Moth. (*See map 4*)

All of these surveys were negative.

Gypsy Moth Program

Executive Summary

Traps

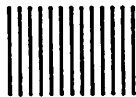
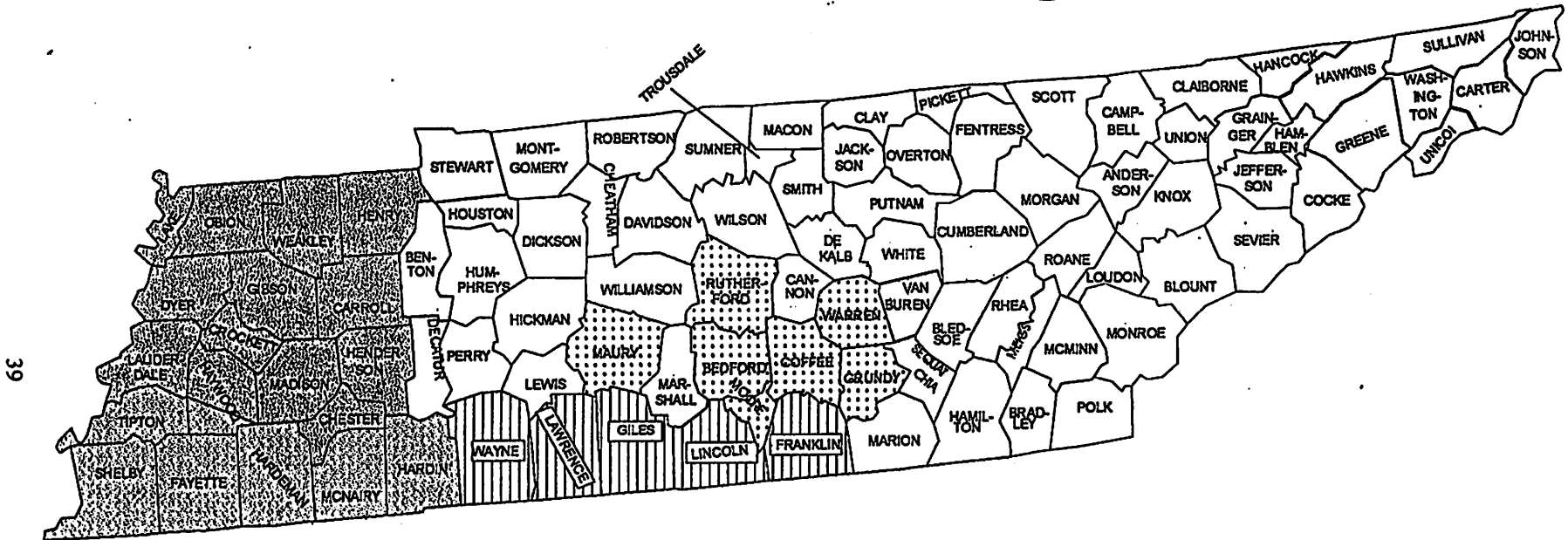
A total of 19,406 traps were placed in Tennessee for gypsy moth in 1998, including 2,763 eradication, 15,220 detection and 1,423 delimiting traps (*See map 5*).

Moths

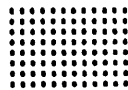
A total of 397 moths were caught in 1998 in 22 counties (*See map 6*). This total reflected an increase in the number of moths caught in comparison to 1997 (221 moths).

TENNESSEE

Boll Weevil Eradication Program Sequence



1994 - Fall Diapause - Lower Middle Tennessee



1995 - Spring Trapping Program - Central Middle Tennessee



1998 - Fall Diapause - West Tennessee Region 1



2000 - Remainder of West Tennessee

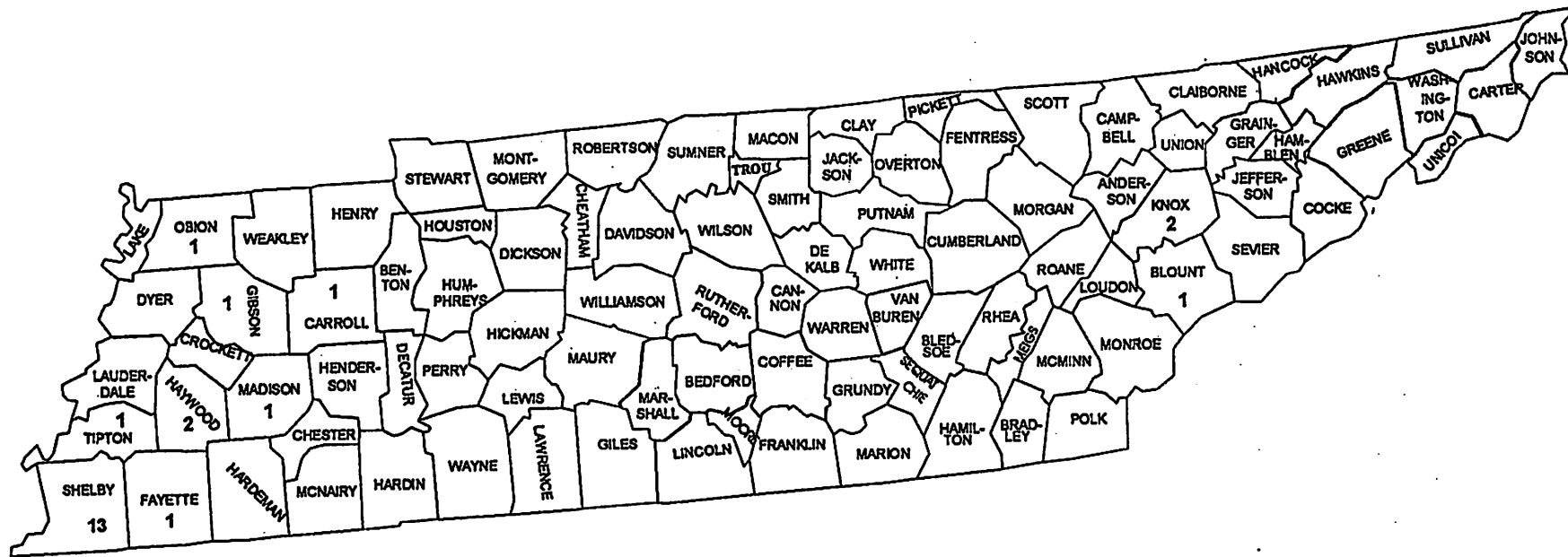
Map 1

COOPERATIVE SURVEY

AFRICAN COTTON LEAFWORM - *Spodoptera litura*

FY 1998

TRAPS/COUNTY TENNESSEE

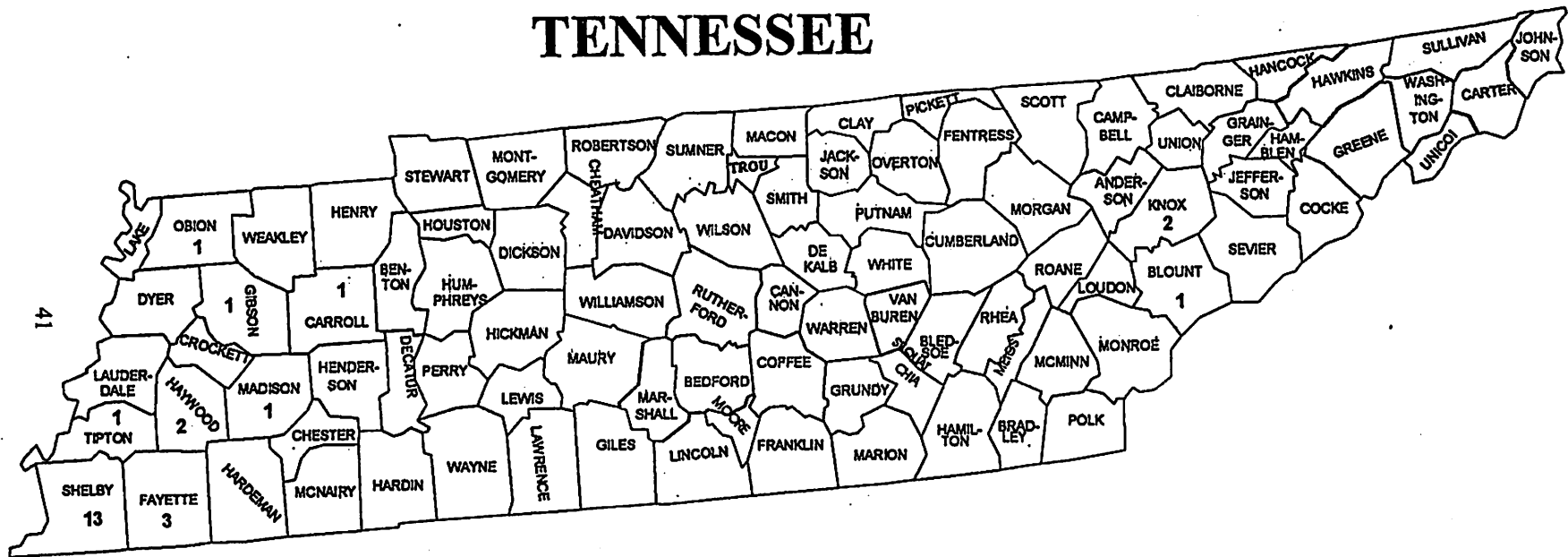


Each number represents the number of traps placed :

Cooperators consist of USDA-APHIS,
Tennessee Department of Agriculture
& University of Tennessee Extension

Map 2

COOPERATIVE EGYPTIAN COTTON LEAFWORM SURVEY FY 1998 TRAPS/COUNTY TENNESSEE



Each number represents the number of traps placed for detection of:

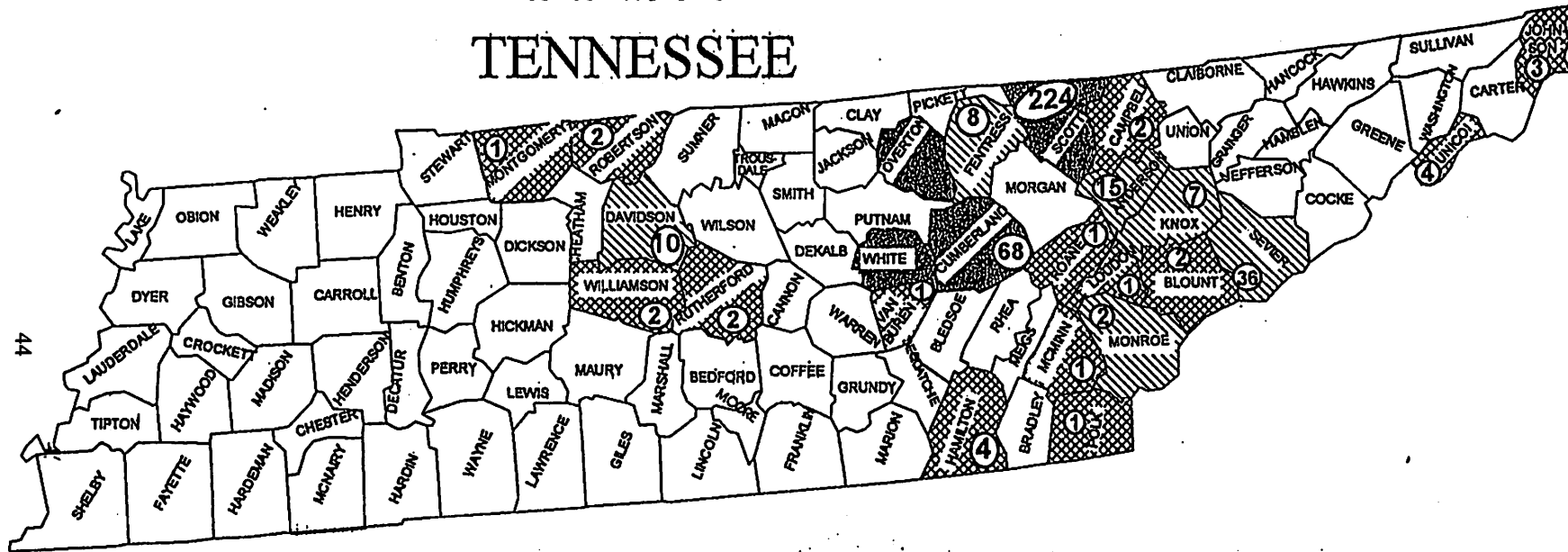
EGYPTIAN COTTON LEAFWORM - *Spodoptera littoralis*

Cooperators consist of USDA-APHIS,
Tennessee Department of Agriculture
& University of Tennessee Extension

COOPERATIVE GYPSY MOTH SURVEY

FY 1998

TENNESSEE



Gypsy Moth Catches by County - 1998

397 Moths

Traps with Multiple Catches

Anderson - 4	Knox - 1
Cumberland - 12	Monroe - 1
Davidson - 2	Scott - 41
Fentress - 1	Sevier - 3

- = Number of Gypsy moths caught
- = Known Infested Counties
- ▨ = Single trap gypsy moth catches
- ▧ = Multiple gypsy moth catches in trap(s)

Known Infestations

Cumberland
Overton
Scott
White

19,406 = Total Number of Traps set

Table 1. Gypsy Moth Trap Catches - 1992 through 1998

	Total Catch Areas	New Catch Areas	# Moths	#Moths/ Area	#Traps	Program Costs
1992	36	23	227	6.3	8,376	\$287,520
1993	53	41	4,654	87.8	9,662	\$235,240
1994	63	44	1,304	20.7	13,101	\$662,000
1995	75	56	295	3.9	19,366	\$815,486
1996	49	45	2,549	52.0	18,279	\$324,558
1997	53	40	221	4.0	18,369	\$431,901
1998	60	44	397	6.6	19,406	\$286,904

Eradication Sites

Of the six areas that were infested in the State in April, 1998, one site required ground treatment. A mist blower sprayer treated one acre with diflubenzuron twice in Overton County (Cooktown Road). This treatment resulted in zero moth catches in this area. Following an aerial treatment with BtK in May, 1997 in Scott County (Elgin) more moths (224) were caught than in 1997 (97). Aerial treatment plans are being made with the USDA Forest Service in May, 1999 for about 1,800 acres in five locations to be sprayed twice with BtK. Three sites had no catches for two years in a row and were declared eradicated (Hamilton, Sullivan and Unicoi Counties). A new infestation was detected in Cumberland County (Elmore Road) this September. Plans are underway to treat egg masses this winter and spray the infested trees from the ground with a mist blower in May, 1999. There are four known infestations as of November 1, 1998 (Cumberland, Overton, Scott and White Counties).

Tennessee Cooperative Gypsy Moth Program - 1998

Egg Mass Surveys

Egg mass surveys were carried out at nine locations in six counties during the winter of 1997-98 (Fentress, Overton, Sevier (2), Scott (3), White and Van Buren). One site in Overton County (Cooktown Road) was positive.

Eradication Sites

A total of 2,763 traps were placed in 6 eradication sites in 1998, totaling 161 square miles. These traps caught 224 moths (104 moths in 1997). One ground spray location was conducted in May, 1998. Three sites had zero moth catches for two years in a row and were declared eradicated. Burlap banding was placed in one area. Mass trapping occurred on four sites.

Following an aerial treatment of pheromone flakes (Disrupt II Hercon) in 1996, no moths were trapped for the second consecutive year in the Unicoi/Carter County (Scioto Road) infestation in 1998. The area was declared eradicated.

In White County (Eastland/Todd Town), a two square mile delimiting area plus mass trapping (79 traps) detected no moths for the first year. Mass trapping and delimiting trapping will continue in 1999 at the same level (16 - 36 traps/square mile).

The Avoca School in Bristol (Sullivan County) had a nine square mile grid (16 - 36 traps per square mile plus mass trapping) with 188 traps detecting no moths for the second consecutive year. Trapping was also extended for 13 square miles north to the Virginia line, and this grid caught no moths. The area was declared eradicated.

A six square mile grid in Hamilton County (Signal Mountain) with 107 traps (9 - 36 traps per square mile) caught no moths for the second year in a row. The area was declared eradicated.

No aerial or ground treatments were conducted in Scott County (Elgin) in 1998. However, mass trapping around the largest moth concentration (40) in 1997 caught 125 moths, and three other sites also had moth increases (224 moths total). These four locations (Glenmary, Huntsville and Wolf Creek Road 1 and 2) were proposed along with Reed Hollow for two aerial treatments with BtK in May, 1999 (1,800 acres). Similar trap coverage to 1998 will be done over 100 square miles using 2000 traps (1 - 36 traps/square mile plus mass trapping).

Following egg mass removal and soybean oil treatments on 2 egg masses in Overton County (Cooktown Road), a one acre area was sprayed twice with diflubenzuron in May, 1998. Burlap banding (25 bands) caught no larvae. No moths were trapped for the first year in one square mile with 75 traps (36 traps/square mile plus mass trapping).

Trapping

TDA Regulatory Services (TDARS) under a cooperative agreement with USDA APHIS PPQ provided assistance with one ground treatment location and hired 26 individuals to trap four existing infestations (Hamilton, Overton, Sullivan and White Counties) and urban areas (1 trap/square mile), campgrounds, mobile home sites and sawmills (selective trapping rates) statewide. In addition, they delimited 52 sites covering 59 square miles. TDARS hired an additional eight persons under an agreement with the USDA Forest Service (USDAFS) to delimit existing infestations in Scott and Unicoi Counties. An additional ten persons were to be hired by TDARS with state money to do detection trapping. TDA Forestry (TDAF) under a cooperative agreement with USDA APHIS PPQ trapped one half of each of 93 counties in the state at the rate of one trap per four square miles. USDA APHIS PPQ personnel trapped Davidson and Shelby Counties exclusively. Other cooperating trapping agencies include USDA Forest Service, USDI National Park Service, Tennessee Valley Authority, US Corps of Engineers, US Army, USDI Fish and Wildlife Service, US Air Force and US Department of Energy. They placed 547 traps of the state detection trap total.

Detection Site Trapping

A total of 15,220 traps were placed statewide in 1998 to discover introductions of the gypsy moth into the State. These traps caught 46 moths, a total less than 1997 (65 moths). The State had more introductions (44) this year than last (40). Over two-thirds (63) of the 95 counties in the State have had at least one moth trapped in them since the first moths were caught in 1972 in Cocke (1 moth) and Sevier (1 moth) Counties.

Three areas of multiple moth sites caught 6 moths. Two locations were in urban grids (1 trap/square mile), and the other was in a rural grid (1 trap/4 square miles). There were no multiple catches in campgrounds this year.

Delimiting Site Trapping

A total of 1,423 traps were placed in 47 delimiting sites in 1998 (16 traps/square mile). These locations evaluate sites where the gypsy moth was found in 1997 but was not established (no other life stages were found). Eleven (11) areas were positive with 127 moths caught in a total of 14 square miles (52 moths in 1997).

A new infestation was discovered in northwestern Cumberland County (Elmore Road) in September, 1998. At least 15 egg masses were found in one post oak following catches of 71 moths this year in 29 locations. Plans are being made for soybean oil treatments of egg masses this winter and a ground treatment with two applications of diflubenzuron on this core area in May, 1999. Burlap banding will also be conducted followed by mass trapping and grid trapping similar to 1998 (223 traps) over seven square miles (16 - 36 traps/square mile).

Another rural residential delimiting site in Sevier County (Goose Gap Road) caught 24 moths in four square miles in a time-share housing area, while in Oak Ridge, 12 moths in one square mile were trapped. Other multiple catch sites involved two to nine moths trapped in Cumberland (two locations - rural residential), Davidson (one campground), and Sevier (one campground and one rural residential site) Counties.

In 1999, 51 sites are proposed for delimiting trapping. Seven areas in four counties (Anderson, Cumberland, Scott (4), and Sevier) will have egg mass surveys during the fall and winter of 1998-1999.

Eradication Site Trapping

Four sites will be trapped in 1999 involving 110 square miles where gypsy moths were caught since 1996 and the insect was established (two or more life stages of the gypsy moth present). Additional sites may be added pending the results of the egg mass surveys.

Imported Fire Ant

Two species of the imported fire ant, *Solenopsis invicta* (red species) and *Solenopsis richteri* (black species), as well as their hybrid are established in parts of Tennessee. Inspections of nurseries, greenhouses, and plant dealers are made by the Tennessee Department of Agriculture (TDA), Plant Certification Section. This section also participates in survey, eradication, and suppression efforts against imported fire ants.

The following areas are under federal and state quarantine regulations to prevent the artificial spread of the imported fire ant into non-infested areas: (*See map 7*)

Bradley County. The entire county.

Chester County. The entire county.

Decatur County. That portion of the county lying south of Tennessee State Highway 100.

Fayette County. That portion of the county south of U.S. Highway 64. That portion also of the county lying east of Tennessee State Highway 76.

Franklin County. That portion of the county lying south of latitude 35° 05'".

Giles County. That portion of the county lying south of U.S. Highway 64.

Hamilton County. That portion of the county lying south of U.S. Highway 64.

Hardeman County. The entire county.

Hardin County. The entire county.

Henderson County. That portion of the county lying south of Tennessee State Highway 100.

Lawrence County. That portion of the county lying south of U.S. Highway 64.

Lincoln County. That portion of the county lying south of latitude 35° 05'".

Madison County. That portion of the county lying south of Interstate 40.

Marion County. That portion of the county lying south of latitude 35° 10'".

McMinn County. That portion of the county lying south of latitude 35° 20'".

McNairy County. The entire county.

Polk County. The entire county.

Shelby County. That portion of the county lying south of latitude 35° 13'".

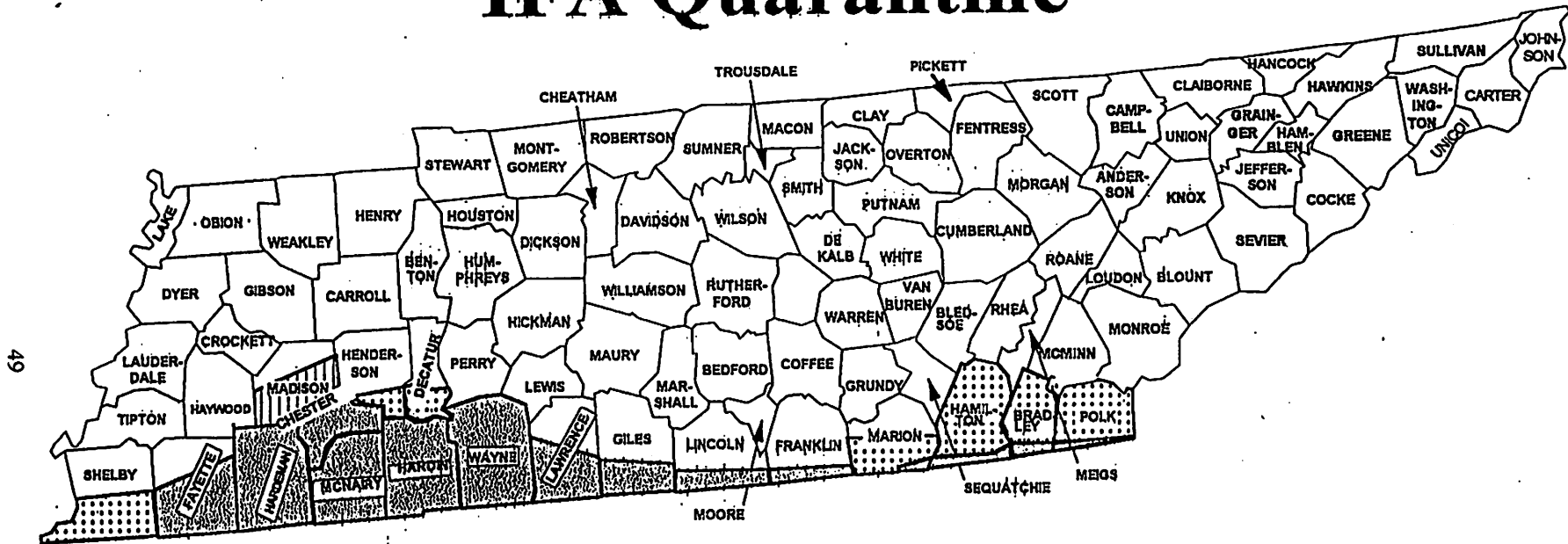
Wayne County. The entire county.

Since 1994, new introductions of imported fire ants in counties other than those listed in the quarantine include the following: Anderson, Benton, Blount, Coffee, Davidson, Decatur, Dyer, Gibson, Haywood, Humphreys, Knox, Lewis, Marshall, Maury, Meigs, Monroe, Moore, Montgomery, Perry, Rutherford, Sequatchie, Sevier, Sumner, Unicoi, Warren, Washington, and Williamson.

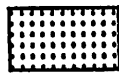
Japanese Beetle

The Japanese beetle (*Popillia japonica*) became permanently established in the northeastern part of the State in the late 1960's. It continues to spread into more counties of West and Middle Tennessee.

1996-1998 TENNESSEE IFA Quarantine



Regulated Areas - 1996



Regulated Areas - 1997



Regulated Areas - 1998

Madison County was added to the quarantine. 895 traps were placed in West and part of Middle Tennessee in 1998. (*See map 8*)

Pine Shoot Beetle

A total of 27 traps were placed in 16 counties in 1998 with all traps negative and 270 site surveys were done by UT Extension in 23 counties. (*See map 9*)

Pink Bollworm

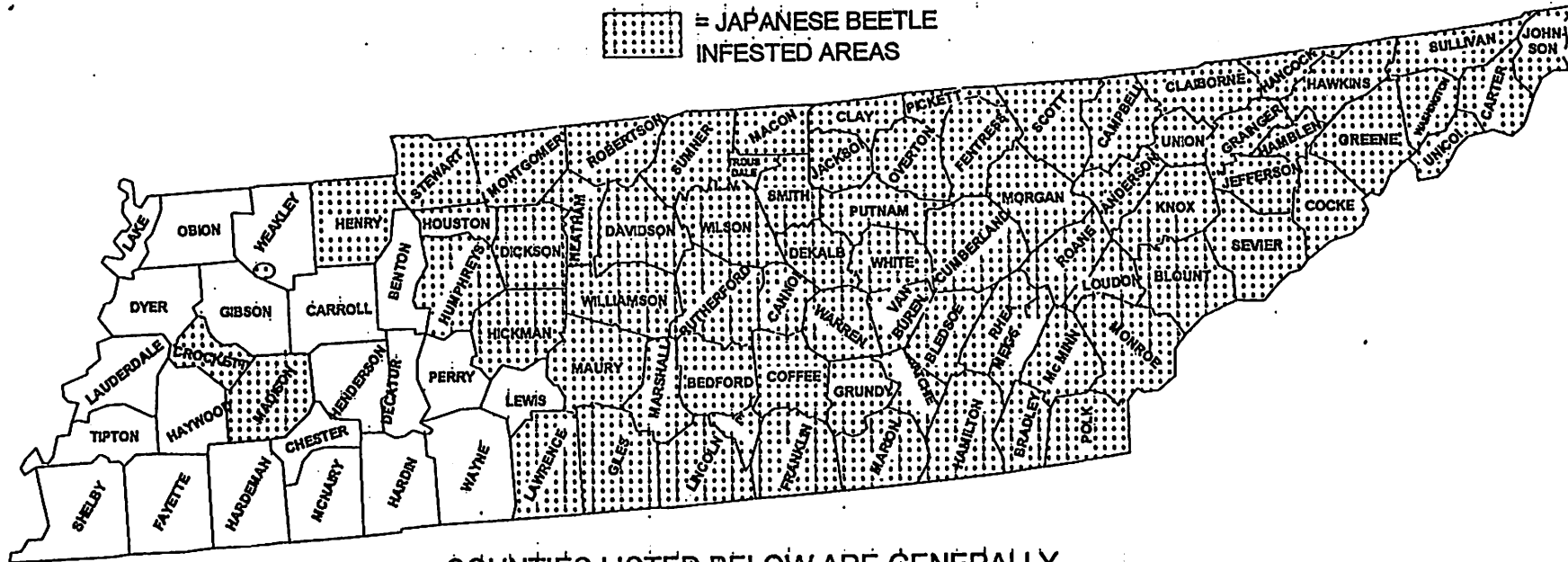
A total of 499 traps were placed in 15 counties in 1998. All traps were negative (*See map 10*)

Sweet Potato Weevil

In 1998, there were 327 acres of sweet potatoes grown in Tennessee. All farmers' markets and wholesale distributors in the state were trapped for Sweet Potato Weevil. Storage facilities for sweet potatoes are trapped on a year round basis.

TENNESSEE MAP INDICATING THE DISTRIBUTION OF JAPANESE BEETLE INFESTED AREA 1998

 = JAPANESE BEETLE
INFESTED AREAS



COUNTIES LISTED BELOW ARE GENERALLY
INFESTED WITH JAPANESE BEETLE

ANDERSON	CLAIBORNE	DICKSON	HAMILTON	JEFFERSON	MARION	OVERTON	SCOTT	UNICOI
BEDFORD	CLAY	FENTRESS	HANCOCK	JOHNSON	MARSHALL	PICKETT	SEQUATCHIE	UNION
BLEDSON	COCKE	FRANKLIN	HAWKINS	KNOX	MAURY	POLK	SEVIER	VAN BUREN
BLOUNT	COFFEE	GILES	HENRY	LAWRENCE	MEIGS	PUTNAM	SMITH	WARREN
BRADLEY	CROCKETT	GRAINGER	HICKMAN	LINCOLN	MONROE	RHEA	STEWART	WASHINGTON
CAMPBELL	CUMBERLAND	GREENE	HOUSTON	LOUDON	MONTGOMERY	ROANE	SULLIVAN	WHITE
CANNON	DAVIDSON	GRUNDY	HUMPHREYS	McMINN	MOORE	ROBERTSON	SUMNER	WILLIAMSON
CARTER	DEKALB	HAMBLEN	JACKSON	MAÇON	MORGAN	RUTHERFORD	TROUSDALE	WILSON
CHEATHAM				MADISON				

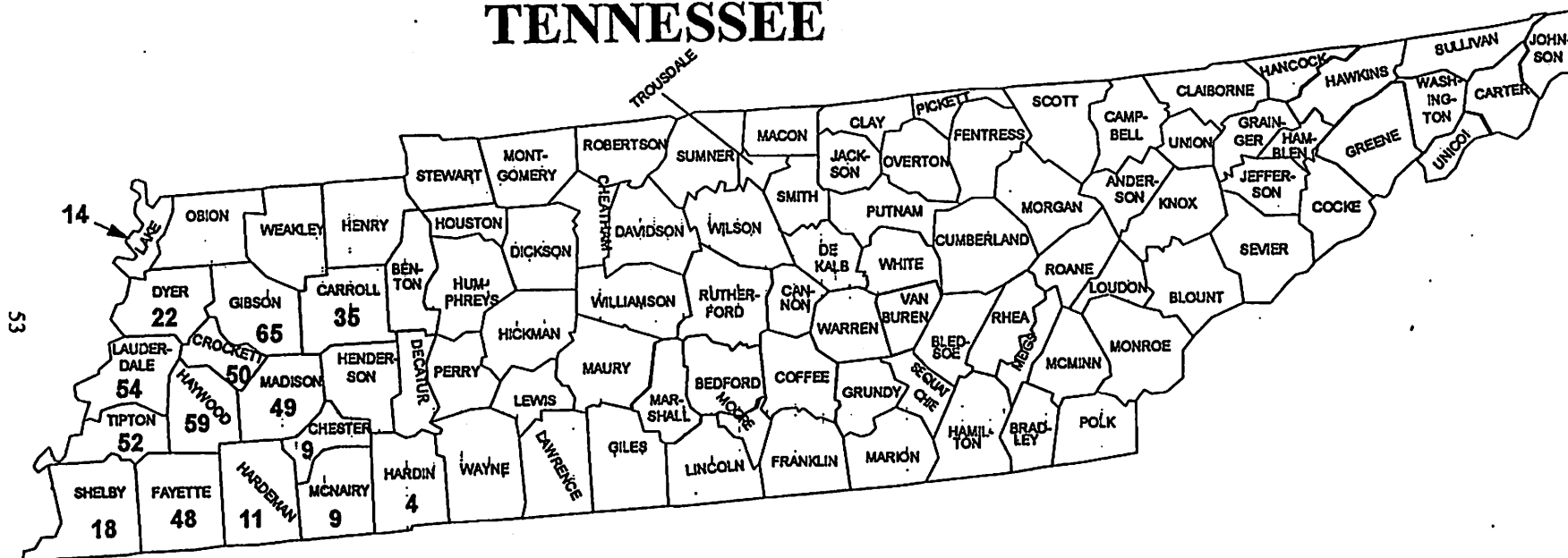
A Portion of - Weakley County - the city limits of Greenfield

COOPERATIVE PINK BOLLWORM SURVEY

FY 1998

TRAPS/COUNTY

TENNESSEE



Each number represents the number of traps placed for detection of:

PINK BOLLWORM - *Pectinophora gossypiella*

A Total of 499 traps were placed

Cooperators consist of USDA-APHIS,
Tennessee Department of Agriculture
& University of Tennessee Extension

APIARY ANNUAL REPORT - 1998

Ray McDonnell, State Apiarist

With regards to colony inspections, in June we found one bee yard with 25 out of 42 colonies infected with AFB and the beekeeper was selling bees (an older gentleman with poor eyesight). We found a few bee yards within 5 miles of this yard that also had cases of AFB. We have found many new cases of AFB this year and attribute it to movement of old equipment, lack of beekeeper attention, reduced usage of Terramycin patties, and the inability of beekeepers to identify the symptoms. In East Tennessee, we have found new cases of AFB in Anderson, Blount, Carter, Cocke, Knox, and Scott Counties. In Middle Tennessee, we have a couple of recurring cases of AFB in Davidson and Williamson Counties. In West Tennessee, we found a case of AFB in Shelby County.

In 1998, we did not see signs of Varroa mites in colonies until mid-August. This was unlike last year when high populations of the mites were found at the end of July.

Our Apiary inspections have shown no infestations of the small hive beetle (*Athina tumida*) in Tennessee.

During the first week in August the Boll Weevil Eradication Program (BWEP; joint USDA and state project) began in southern West Tennessee. The program sprays (mostly by air) Malathion on all cotton fields in the area. This office sent letters to all of the known beekeepers in West Tennessee and advertised in the state beekeeping journals about the program. Beekeepers were urged to work with the field offices and let them know where the honeybees were located, so that spraying would not be done while the bees were foraging. No bee kills due to spraying have been reported yet in this part of the state.

TENNESSEE STATE APIARISTS REPORT: January 1998 - October 1998

Beekeeping Statistics

	<u>1997</u>	<u>1998</u>	<u>Difference</u>
No. State Registered Beekeepers	543	719	+ 175
No. State Registered Apiaries	827	1048	+ 221
No. State Registered Colonies	6575	8096	+ 1521
No. Estimated Beekeepers	2000		
No. Estimated Colonies	24000		

Colony Inspections

<u>Inspections</u>	<u># Apiaries</u>	<u># Colonies</u>
Anderson Co. (Allen, Elwood)	42	401
Blount Co. (Tarwater)	28	746
Davy Crockett Assoc.	21	128
Knox Co. (Arnold)	46	328
Memphis Assoc. (Bush)	2	4
Sevier Co. (John Kelley)	22	98
Washington Co. (Ledford, Coggins, Saylor)	62	305
Wilson Co. (Tom Hart)	12	157
State Apiarist (Ray McDonnell)	56	848
TOTAL	291	3015

American Foulbrood Statistics

<u># Apiaries with AFB</u>	<u># Colonies in Apiaries with AFB</u>	<u># Colonies with AFB</u>
17	136	50

Percent Inspected Colonies with AFB 1.7% (1997 = 4.0%)
 Percent Registered Colonies with AFB 0.6% (1997 = 0.5%)

No. Apiaries Quarantined	17
No. Apiaries Released from Quarantine	6
No. Colonies Destroyed	41
No. Colonies Treated/Saved	9
Colonies entering the State (Certified)	55

New outbreaks of AFB were found in 8 counties:
Anderson, Blount, Cannon, Carter, Cocke, Greene, Knox, and Shelby.

One beekeeper in East Tennessee was surveyed with J. Skinner for resistant Varroa mites. One yard tentatively showed resistance.

USDA APHIS Surveys

European Bark Beetle

Spruce Wood Engraver and Spruce Engraving Beetle

A total of 18 traps were placed in Shelby, Davidson, Williamson, and Blount counties. All traps were negative.

Khapra Beetle

A total of 27 traps were set in Shelby and Davidson counties. All traps were negative.

Africanized Honey Bee – *Apis mellifera scutellata*

A total of 13 traps were placed in Shelby, Davidson, Hamilton, and Knox counties. Two swarms were detected and bees were sent for analysis. All traps were negative for Africanized bees.

HISTORICAL NOTES

Presidents of the Tennessee Entomological Society (1973 - Present)

<u>President</u>	<u>Term</u>	<u>Affiliation</u>
Mendell Snodgrass	'73 - '74	USDA
Omar Smith	'74 - '75	Memphis State University
Don Clements	'75 - '76	Cook's Pest Control
Gary Lentz	'76 - '77	University of Tennessee
Chester Gordon	'77 - '78	Tenn. Dept. of Agriculture.
Gene Burgess	'78 - '79	University of Tennessee
Reid Gerhardt	'79 - '80	University of Tennessee
Harold Bancroft	'80 - '81	Memphis State University
Joe Dunn	'81 - '82	American Cyanamid Company
Bill Van Landingham	'82 - '83	Tenn. Dept. of Agriculture
Carl Brown	'83 - '84	Memphis State University
Charles Pless	'84 - '85	University of Tennessee
Michael E. Cooper	'85 - '86	Tenn. Dept. of Agriculture
Elmo Shipp	'86 - '87	Mobay
Bill Shamiyeh	'87 - '88	University of Tennessee
Harvey Barton	'88 - '89	Arkansas. State University
Harry Williams	'89 - '90	University of Tennessee
Bruce Kauffman	'90 - '91	Tenn. Dept. of Agriculture
Jamie Yanes, Jr.	'91 - '92	American Cyanamid Company
Jerome Grant	'92 - '93	University of Tennessee
Russ Patrick	'93 - '94	University of Tennessee
Lynn Snodderly	'94 - '95	Tenn. Dept. of Agriculture
Paris Lambdin	'95 - '96	University of Tennessee
Frank Hale	'96 - '97	University of Tennessee
Steve Murphree	'97 - '98	Belmont University

Secretary-Treasurers of the Tennessee Entomological Society (1973 - Present)

<u>Secretary-Treasurer</u>	<u>Term</u>	<u>Affiliation</u>
Jimmy White	'73 - '76	Tenn. Dept. of Agriculture
Harold Bancroft	'76 - '79	Memphis State University
Lyle Klostermeyer	'79 - '82	University of Tennessee
Bill Shamiyeh	'82 - '85	University of Tennessee
Richard Caron	'85 - '91	University of Tennessee

**Secretaries of the Tennessee
Entomological Society (1991 - Present)**

Gary Lentz	'91 - '93	University of Tennessee
Gary Lentz	'93 - '98	University of Tennessee

Treasurers of the Tennessee Entomological Society (1991 - present)

<u>Treasurer</u>	<u>Term</u>	<u>Affiliation</u>
Harvey Barton	'91 - '94	Arkansas State University
Harvey Barton	'94 - '97	Arkansas State University
Steve Powell	'97 - '98	TN Dept. of Agriculture

Editors of the Tennessee Entomological Society (1991 - present)

<u>Editor</u>	<u>Term</u>	<u>Affiliation</u>
Gray Haun	'91 - '98	TN Dept. of Agriculture

**Board of Directors
Members at Large**

<u>Member</u>	<u>Term</u>	<u>Affiliation</u>
Gary Lentz	'87 - '88	University of Tennessee
Blake Bevill	'87 - '88	Arkansas State University
Michael E. Cooper	'88 - '89	TN Dept. Agriculture
Jay P. Avery	'88 - '89	University of Tennessee
Joe Dunn	'89 - '90	American Cyanamid Company
Charles Pless	'89 - '90	University of Tennessee
Paris Lambdin	'90 - '91	University of Tennessee
Jim Keener	'90 - '91	TN Dept. of Agriculture
Steve Powell	'91 - '92	TN Dept. of Agriculture
Lee Greer	'91 - '92	Valent
Alan Hopkins	'92 - '93	Miles, Inc.
Donald Ourth	'92 - '93	University of Memphis
Mark Carder	'93 - '94	University of Tennessee
Rich Emerson	'93 - '94	TN Dept. of Agriculture
Ray Nabors	'94 - '95	Univ. of MO
Alan Hopkins	'94 - '95	Miles, Inc.
Steve Powell	'95 - '96	TN Dept. of Agriculture
Jim Bogard	'95 - '96	TN Dept of Agriculture (Retired)
Hans Chaudhary	'96 - '97	TN Dept. of Agriculture

Cletus Youmans	'96 - '97	American Cyanamid
Larry Latson	'97 - '98	David Lipscomb University
Catharine Mannion	'97 - '98	TN State University

**Historians of the Tennessee
Entomological Society (1973 - Present)**

<u>Historian</u>	<u>Term</u>	<u>Affiliation</u>
Charles Pless	'73 - '76	Univ. of Tennessee
Herb Morgan	'76 - '79	USDA
Mendell Snodgrass	'79 - '82	USDA
Russ Patrick	'82 - '87	Univ. of Tennessee
Russ Patrick	'87 - '92	Univ. of Tennessee
Harry Williams	'92 - '98	Univ. of Tennessee

**Honorary Members of the Tennessee
Entomological Society (1982 - Present)**

<u>Honorary Member</u>	<u>Year</u>	<u>Affiliation</u>
Jimmy White	1982	Tenn. Dept. of Agric.
Mendell Snodgrass	1983	USDA
Carl Brown	1985	Memphis State
Myrtice Snodgrass	1985	Knoxville, TN
John A. Hammett	1987	Tenn. Dept. of Agric.
Joe C. Dunn	1990	American Cyanamid
Harry Williams	1997	Univ. of TN (retired)

**Howard Bruer Award (est. 1975)
Recipients of the Tennessee Entomological Society (1975 - Present)**

<u>Recipient</u>	<u>Year</u>	<u>Location</u>
Whitney Eckler	1975	Memphis, TN
Joe Martin	1976	Bolivar, TN
Bryan Peters	1977	College Grove, TN
Tidus Pollard	1978	Huron, TN
John Bentley	1979	??
Melissa Hart	1980	Watertown, TN
Gary Miller	1981	Knoxville, TN
Harold Glass	1982	Knoxville, TN
-----	1983	(No award given)
-----	1984	(No award given)

Penny Thompson	1985	Davidson County
Matthew Fumich	1986	Munford, TN
Christie Greer	1987	Greene Co.
Dottie Hodges	1988	Hamblen Co.
-----	1989	(No award given)
Tim Gentry	1990	Woodbury, TN
Jennifer Hartsell	1991	Hamblen Co.
Jessica Taylor	1992	Lincoln Co.
Jennifer Lenter	1993	Fayetteville Co.
Jeremy Smith	1994	Savannah Co.
George Carroll	1995	Anderson Co.
Stacy Milhahn	1996	Lincoln Co
Nancy Warden	1997	Marshall Co.
Denise Byrum	1998	Moore Co.

**Outstanding Entomologist (Tennessee Entomologist of the Year)
Award (est. 1981) Recipients of the Tennessee
Entomological Society (1981 - Present)**

<u>Recipient</u>	<u>Year</u>	<u>Affiliation</u>
Myron Smith	1981	Hill Smith Pest Control
Harry Williams	1985	Univ. of Tennessee
John A. Hammett	1987	Tenn. Dept. of Agric.
Joe C. Dunn	1991	American Cyanamid

Richard E. Caron Outstanding Entomologist Award

<u>Recipient</u>	<u>Year</u>	<u>Affiliation</u>
Harry Williams	1995	Univ. of TN (Retired)
Harvey Barton	1996	Arkansas State Univ. (Retired)
Carroll Southards	1997	Univ. of TN (Retired)
-----	1998	

**Graduate Student Award (est. 1986) Recipients of the
Tennessee Entomological Society (1986 - Present)**

<u>Recipient</u>	<u>Year</u>	<u>Location</u>
Jay Avery	1986	Knoxville, TN
Laura Rogers	1987	Knoxville, TN
Jason Oliver	1988	Knoxville, TN
Steve D. Powell	1989	Knoxville, TN

Robert C. Brown	1990	Knoxville, TN
Donald L. Sudbrink, Jr.	1991	Knoxville, TN
Deborah Landau	1992	Knoxville, TN
Deanna Colby	1993	Knoxville, TN
Lee Holt	1994	Knoxville, TN
Kenneth Copley	1995	Knoxville, TN
Dina Roberts	1996	Memphis, TN
Bryan Hed	1997	Knoxville, TN
Gary Moughler	1998	Knoxville, TN

CONSTITUTION
of the
TENNESSEE ENTOMOLOGICAL SOCIETY
(as of October 1991)

Article 1. Name

This Society is formed in the name and style of the "Tennessee Entomological Society", as an educational institution, not contemplating financial gain or profit. It is herein and after called the Society.

Article 2. Purpose

The purpose and object of the Society is to foster entomological accomplishment among its members and to promote the welfare of all of the State of Tennessee through the encouragement of: (1) the preparation, reading, and/or publication of papers, (2) association and free discussion among all members, (3) the dissemination of entomological information to the general public, and (4) cooperative efforts in statewide insect surveys.

Article 3. Membership

Section 1. Original Members: Any person designated at the organizational meeting of the Society to occupy the status of "Member" shall be considered as and be a Charter Member. Thereafter, the organizational membership shall have no authority to name or appoint members of the Society.

Section 2. Membership: Membership shall be open to all persons interested in Entomology.

Section 3. Sustaining Membership: Sustaining Membership is open to commercial or industrial organizations upon meeting approval and requirements of the Board of Directors.

Section 4. Honorary Membership: Honorary Members may be selected from time to time by a majority vote of the Board of Directors.

Section 5. Student Membership: Student Membership is open to students enrolled in any education institution and meeting the requirements of the Board of Directors.

Section 6. Procedure to Obtain Membership: Any person desiring to become a member of the Society shall do so by application and payment of dues to the Treasurer. After approval of the majority of the Board of Directors, said applicant shall become a duly constituted member.

Section 7. Members in Good Standing: A member who is current in payment of dues.

Article 4. Membership Rights

Section 1. Voting: Each member in good standing shall be entitled to one vote at any regular or special meeting or by mail. Voting by proxy shall not be allowed.

Section 2. Privileges: All members in good standing shall have equal privileges in the presentation of papers and discussions at meetings.

Article 5. Membership Certificates

Section 1. Certificates: The Board of Directors shall decide upon what evidence of membership each member in good standing shall be entitled to receive.

Section 2. Transfer: Evidence of membership in the Society will not be transferable or assignable.

Article 6. Dues

Section 1. Annual Dues: The amount of the annual dues for membership in the Society will be established by the Board of Directors from time to time. The use or uses of dues collected shall also be determined by the Board.

Section 2. Time of Payment: The Board of Directors shall set such times during each year as it deems advisable for the payment of annual dues by members. Generally, annual dues shall be paid during registration at the annual meetings. However, a member may mail dues to the Treasurer of the Society if the member cannot attend a given annual meeting. If a member fails to pay dues two (2) years in a row, such member shall be dropped from the rolls.

Section 3. Honorary Members: There shall be no dues required for Honorary Members or others specially designated by the Board of Directors.

Article 7. Meetings of the Society

Section 1. Annual Meetings: The Society shall hold annual meetings at such times and places as may be designated by the Board of Directors and specified in the notice thereof, for the election of officers and any other business as may be properly brought before the meeting.

Section 2. Registration Fee: A registration fee, in the amount to be determined by the Board of Directors, shall be paid at each annual meeting by all members and non-members who attend. The Board of Directors will determine the use of these fees.

Section 3. Special Meetings: Special meetings of the Society shall be held at any time and place as specified in the notice thereof whenever called by the President or any two (2) or more members of the Board of Directors.

Section 4. Notice: Notice of all meetings of the Society, annual or special, stating time, place, and agenda shall be mailed to each member by the President, Secretary, Treasurer, or Directors calling the meeting not less than seven (7) days prior to the meeting.

Article 8. Officers

Section 1. Officers: The officers of the Society shall consist of a President, President-elect, Secretary, Treasurer, Editor, and Historian, all of whom, except the President, shall be elected by and from the membership by a majority vote of members or by mail. The first President of the Society shall be elected by and from the membership at the organizational meeting for a term extending to the beginning of the first annual meeting. Thenceforth, the President-Elect shall automatically accede to the office of President at each annual meeting, or when the President is unable or unwilling to act for any reason. Nominees for each elective office of the Society shall be selected by a nominating committee of three (3) members appointed at the annual meeting by the President. Nominations may also be presented from the floor. The President and President-Elect shall hold office from the date of election at the annual meeting until the election of their successors at the next annual meeting, and shall not be eligible for re-election to the same office for a successive term. The Secretary, Treasurer, and Editor shall hold office from the date of election at the annual meeting until the election of a successor at the third following annual meeting and shall be eligible for re-election. The Historian shall hold office from the date of election at the annual meeting until the election of a successor at the fifth following annual meeting and shall be eligible for re-election. No member shall occupy more than one office at any one time.

Section 2. Duties and Powers of the President: The President shall be the Chief Executive Officer of the Society and shall preside at all meetings of the Society and the Board of Directors, have and exercise general and active management of the Society, execute and enforce all orders and resolutions and regulations duly adopted by the Board of Directors, execute all contracts in the name of the Society, and perform such other duties as assigned by the Board of Directors.

Section 3. Duties and Powers of the President-Elect: In the absence of the President, or in the case of failure to act, the President-Elect shall have all the powers of the President and shall perform such other duties as shall be imposed by the Board of Directors from time to time.

Section 4. Duties and Powers of the Secretary: The Secretary shall attend and keep the minutes of all meetings of the Board of Directors and the Society, shall have charge of the records and seal of the Society, and shall, in general, perform all the duties incident to the office of Secretary of the Society.

Section 5. Duties and Powers of the Treasurer: The Treasurer shall keep full and accurate accounts of the books of the Society and shall deposit all monies and the valuable properties and effects in the name of and to the credit of the Society in such depository or depositories as may be designated by the Board of Directors. The Treasurer shall disperse funds as may be ordered by the Board, getting proper receipts for such disbursements; and shall render to the Board of Directors whenever required by it, an accounting of all transactions as Treasurer. During each annual meeting, the Treasurer shall give a report on the annual financial condition of the Society. The Treasurer shall, in general, perform all the duties incident to the office of Treasurer of the Society.

Section 6. Duties and Powers of the Editor: The Editor shall be a member of the Board of Directors and Chair of the Publication and Editorial Committee and be responsible for editing and publishing such publications as directed by the Board of Directors and passed by the majority of the voting membership at a called meeting.

Section 7. Duties and Powers of the Historian: The Historian shall maintain and be responsible for keeping a complete and accurate history of the activities of the Society from year to year.

Section 8. Vacancies in Office: Any vacancy in the office of President-Elect, Secretary, Treasurer, Editor, or Historian, however occasioned, may be filled, pending the election of a successor by the Society, by a majority vote of the remaining Directors. Should an office be filled by vote of the Board of Directors, the person so elected shall not become the officer upon the next annual meeting unless elected as such by the Society according to the procedures set forth for the election of officers of the Society in Article 8, Section 1, of this Constitution.

Article 9. Board of Directors

Section 1. Makeup and Responsibilities: The Board of Directors shall consist of the immediate past-President, the President, President-Elect, Secretary, Treasurer, Editor, and Historian of the Society and two members-at-large. The members-at-large shall be elected at the Annual Meeting of the Society and shall serve a term of one year. Any three (3) Directors shall constitute a quorum for the transaction of business. All properties, property rights, objects and purposes of the Society shall be managed, promoted, and regulated generally by the Board of Directors.

Section 2. Installation and Term of Office: The members of the Board of Directors shall be installed after their election as officers of the Society as set forth in Article 8, Section 1, of this Constitution, at the annual meeting of the Society, or at any adjourned meeting, or at any special meeting called for that purpose. All installed Directors shall serve for a term corresponding to that of the office in the Society to which each was elected by the members and thereafter until their successors are elected, accept office, and are installed.

Section 3. Annual Meetings: The Board of Directors shall meet immediately after the adjournment of the annual meeting of the members for the transaction of such business as may come before the Board. No notice of such meeting shall be required, and should a majority of the newly-elected Directors fail to be present, those present may adjourn, without further notice to a specified future time.

Section 4. Other Meetings: The Board of Directors shall not be required by this Constitution to hold regular meetings but may, by resolution or otherwise, establish such order of meetings as it deems desirable. Special meetings of the Board shall be held at any time at such places as may be specified in the notice thereof, whenever called by the President or any two (2) or more Directors.

Section 5. Notice: Notice of all meetings of the Board of Directors, other than the annual meeting, starting time, place, and agenda for which the meeting was called, shall be given to each Director by the President or Directors calling the meeting not less than three (3) days prior to the meeting.

Section 6. Vacancies in Board of Directors: Any vacancy in the office of any Director, however occasioned, may be filled, pending the election of a successor by the Society, by a majority vote of the remaining Directors.

Article 10. Miscellaneous Provisions

Section 1. All checks and drafts shall be signed in such manner as the Board of Directors may from time to time determine.

Section 2. At all duly constituted meetings of the Society or Board of Directors of the Society, 10% of the eligible members, or 3 Directors, respectively, present shall constitute a quorum for the transaction of any business presented at such meetings.

Section 3. All notices required to be given by this Constitution relative to any regular or special meeting of the Society or the Board of Directors may be waived by the Directors or members entitled to such notice, either before or on the date of the meeting and shall be deemed equivalent thereto. Attendance at any meeting of the Society or the Board of Directors shall be deemed a waiver of notice thereof.

Section 4. General Prohibitions: Notwithstanding any provision of this Constitution and By-Laws which might be susceptible to a contrary construction. A. No part of the activities of the Society shall consist of carrying on propaganda, or otherwise attempting to influence legislation. B. This Society shall not participate in, or intervene in, (including the publishing or distribution of statements), any political campaign on behalf of a candidate for public office.

Article 11. Amendments

Section 1. This Constitution may be altered or amended or By-Laws adopted by a majority vote of the quorum present at any annual or special meeting of the Society membership, provided that notice of such proposed amendment or By-Laws shall have been given to the membership prior to the meeting.

1. Dates ('97), ('98) refer to last meeting attendance or last dues payment.
(\$5.00 Regular, \$1.00 Student, \$25.00 Sustaining/Corporate).

2. H = Honorary Member

TENNESSEE ENTOMOLOGICAL SOCIETY

MEMBERSHIP LIST

OCTOBER 1998

- | | | | |
|-----|--|-----|--|
| '97 | Harold Bancroft
Dept. of Biology
University of Memphis
Memphis, TN 38152
(901) 678-2592
Fax (901) 678-4746
bancroft@msuvx1.memphis.edu | '97 | James Bilbrey, Jr.
P.O. Box 148546
Nashville, TN 37214
(615) 316-0543 |
| '97 | Harvey E. Barton
909 Chestnut
Jonesboro, AR 72401
(870) 932-4347
genbar@arkansas.net | '98 | James B. Bogard
3965 Keeley Drive
Nashville, TN 37211
(615) 832-6759 |
| '97 | Steve Baskauf
102 Keri Drive
Pleasant View, TN 37146
(615) 746-2748
Baskausu@ctrvax.vanderbilt.edu | 'H | Carl D. Brown
Dept. of Biology
University of Memphis
Memphis, TN 38152
(901) 678-2963
Fax (901) 678-4746 |
| '98 | Drew Belk <i>db</i>
118 30 th Ave. S. Apt. D
Nashville, TN 37212
(615) 321-3167
andrew.m.beld@vanderbilt.edu | '97 | Scott Nolan Brown
2323 South Virginia St. Apt. A2
Hopkinsville, KY 42240
(502) 885-8130 |
| '97 | Cindy Bilbrey
3032 Kent Road
Nashville, TN 37214
(615) 316-0543 | '98 | Edward E. (Gene) Burgess
Ent. and Plant Pathology
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7138
gburgess1@utk.edu |

- '97 Katrina C. Burns
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
bk1trina@utk.edu
- '97 Jimmy L. Cagle
P.O. Box 341
Winchester, TN 37398
(615) 967-1240
jcagle@edge.net
- '97 Hans R. Chaudhary
313 Carroll Road
Harriman, TN 37748
(423) 882-3144
(423) 594-8900 (FAX)
- '97 Charley A. Chilcote
Ent. and Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-4979
(423) 974-4744 (FAX)
chilcote@utk.edu
- '97 Kyung Tae Chung
Dept. Of Microbiology &
Molecular Cell Sciences
The Univ. Of Memphis
Memphis, TN 38152
(901) 678-2955
ktchung@cc.memphis.edu
- '98 Bruce A. Cole
475 Margaret Circle
McMinnville, TN 37110
(615) 473-4145
- '98 Kenneth J. Copley
6355 Newstone Drive
Bartlett, TN 38135
(901) 380-2024
- '97 Sylvester Davis
922 Kelly-June Drive
Mount Juliet, TN 37122
(615) 754-6095
- '97 Nongpanga Doungkeaw
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
- H Joe C. Dunn
724 Brownlee Drive
Nashville, TN 37205
(615) 352-5669
- '98 James I. Eisler
1081 Wheeler Rd.
McMinnville, TN 37110
(615) 473-4145
- '97 David Ekkens
Southern Adventist Univ.
Biology Dept.
Box 370
Collegedale, TN 37315
dekkens@southern.edu
- '97 Rich Emerson
TN Dept. Agr.
506 Airways Blvd.
Jackson, Tn 38301
(901) 423-5647

- '98 Renee Follum
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
rchagnon@utk.edu
- '98 Stephanie C. French
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-4744 (FAX)
sfrench@utk.edu
- '98 Reid R. Gerhardt
Ent. and Plant Pathology
Univ. of TN,
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-4744 (FAX)
rgerhard@utk.edu
- '98 Melinda M. Gibbs
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
mgibbs2@utk.edu
- '98 Kristy Gottfried
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
kristyL@utk.edu
- '98 Jerome F. Grant
Ent. and Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-3632
(423) 974-8682 (FAX)
jgrant@utk.edu
- '96 Lee Greer
Valent
Box 544
Dunlap, TN 37327
(615) 949-2747
- '97 Frank Hale
PO Box 110019
Nashville, TN 37222
(615) 832-6802
(615) 781-2568
fahale@cru.gw.utk.edu
- '98 Steven W. Hamilton
Dept. Of Biology
Austin Peay St. Univ.
Clarksville, TN 37044
(931) 648-7783
(931) 648-5996 (FAX)
hamiltonsw@apsu.edu
- '98 George Harp
3206 Maplewood Terrace
Jonesboro, AR 72401
(870) 972-3082
(870) 972-2638 (FAX)
glharp@astate.edu
- '98 Walker G. (Gray) Haun
TN Dept. of Ag.
Div. of Regulatory Services
PO Box 40627 Melrose Sta.
Nashville, TN 37204
(615) 837-5338
whaun@mail.state.tn.us

- '97 Bryan Hed
Ent. and Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-8682 (FAX)
mcbhed@utkux.utcc.utk.edu
- '98 Shannon James
9590 Blue Spruce Dr.
Lakeland, TN 38002
perizada@aol.com
- '97 Karl H. Joplin
Dept of Biological Sciences
Box 70703
ETSU
Johnson City, TN 37614
(423) 439-6921
- '97 Bruce W. Kauffman
TDA
Div. of Forestry
Box 40627, Melrose Sta.
Nashville, TN 37204
(615) 360-0176
- '97 Paris L. Lambdin
Ent. & Plant Pathology
Univ. of TN
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-8682 (FAX)
plambdin@utk.edu
- '98 Larry N. Latson
David Lipscomb Univ.
3901 Granny White Pike
Dept. of Biology
Nashville, TN 37204
(615) 269-1000
larry.latson@dlu.edu
- '98 Gary L. Lentz
Ent. and Plant Pathology
605 Airways Blvd.
Jackson, TN 38301
(901) 424-1643
(901) 425-4760
wtes2@aeneas.net
- '98 Scotty Long
153 Meritage Cr.
Lavergne, TN 37086
(615) 355-1619
biol00f3@mtsu.edu
- '98 Catharine Mannion
TN Nursery Crop Res. Stat.
472 Cadillac Lane
McMinnville, TN 37110
(931) 668-3572
(916) 668-3134
entomology@blomand.net
- '97 Raymond E. McDonnell
2354 Walker Ford Rd.
Maynardville, TN
(423) 594-6098
mcdonnel@usit.net
- '97 R. G. Milan
5140 Hilson Rd.
Nashville, TN 37211
(615) 781-5477
- '97 Randy Mizell
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-3631
(423) 974-8682 (FAX)
gaucho@utkux.utcc.utk.edu

- '97 James P. Moore
700 Tylertown Rd.
Clarksville, TN 37040
(931) 553-0119
jpm8910@apsu01.apsu.edu
- '97 Christopher G. Morris
1230 April Dr. Apt. #2
Knoxville, TN 37919
(423) 584-6482
cgmorris@utkux.utcc.utk.edu
- '98 Gary B. Moughler
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-3632
moughler@utk.edu
- '97 Badar Munir
210 Gilley Road
Mt. Juliet, TN 37122
(615) 758-4603
asawan@bellsouth.net
- '97 C. Steven Murphree
Biology Dept.
Belmont University
1900 Belmont Blvd.
Nashville, TN 37212-3757
(615) 460-6221
(615) 460-5458 (FAX)
murphrees@belmont.edu
- '97 William D. Noon
P.O. Box 140851
Nashville, TN 37214
- '97 Peter J. Obenauer
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-4744 (FAX)
pobenaue@utk.edu
- '98 Jason Oliver
TN Nursery Crop Res. Stat.
472 Cadillac Lane
McMinnville, TN 37110
(931) 668-3572
(931) 668-3134 (Fax)
entomology@blomand.net
- '98 Daniel Otto
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
dotto@utk.edu
- '97 Donald D. Ourth
Dept. Microbiology &
Molecular Cell Sci.
Univ. Of Memphis
Memphis, TN 38152
(901) 678-2950
ddourth@mem.edu
- '98 Michael S. Parker
The Univ. of Memphis
Dept. Of Microbiology &
Molecular Cell Sciences
Memphis, TN 38152
(901) 678-2955
michaelsparker@msn.com

- '98 Charles Patrick
605 Airways Blvd.
Jackson, TN 38301
(901) 425-4718
russ1212@pipeline.com
- '98 Roberto Pereira
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7955
(423) 974-4744 (FAX)
rpereira@utk.edu
- '97 Charles D. Pless
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7136
(423) 974-4744 (FAX)
- '98 Steve D. Powell
TDA, Ellington Agri. Center
Div. of Regulatory Services
Box 40627, Melrose Station
Nashville, TN 37204
(615) 837-5139
(615) 837-5246 FAX
spowell@mail.state.tn.us
- '98 Derek Lee Puckett
Ent. & Plant Pathology
Univ. of TN
Knoxville, TN 37901-1071
(423) 974-7135
dpuckett@utux.vtcc.utk.edu
- '98 Ron Seward
605 Airways Blvd.
Jackson, TN 38301
(901) 425-4718
vwseward@gw.cru.utk.edu
- '97 John Skinner
Ent. and Plant Pathology
The Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7138
jskinner@utk.edu
- '97 Lynn J. Snodderly
TDA
Div. of Plant Industries
3211 Alcoa Hwy
Knoxville, TN 37920
(423) 594-6098
bluedot@usit.net
- H Mendell E. Snodgrass, Sr.
228 Pat Road
Knoxville, TN 37922
(423) 966-7259
- '97 Keith Snyder
Biology Dept.
Southern Adventist Univ.
P.O. Box 370
Collegedale, TN 37315
(423) 238-2929
kasnyder@southern.edu
- '97 Christof Stumpf
Dept. Ent. & Pl. Sci.
UT Knoxville
PO Box 1071
Knoxville, TN. 37901
(423) 974-3632
(423) 974-8682 (FAX)
cstumpf@utk.edu
- '98 N. B. Shamiyeh
Ent. and Plant Pathology
Univ. of TN
Knoxville, TN 37901-1071
(423) 974-7135
bshamiye@utk.edu

'98 Don Sudbrink
USDA-ARS-BCMRRU
Stoneville Research Quarantine Fac.
P.O.Box 225
Stoneville, MS 38776-0225
(601) 686-5491
sudbrink@bcmrru.msstate.edu

'98 Kenneth Tennesen
TVA CTR 2P
Muscle Shoals, AL 35662
kjtennesen@tva.gov

'98 Karen Vail
Ext. Ent. & Plant Path.
University of TN
Knoxville, TN 37901-1071
(423) 974-7138
kvail@utk.edu

'97 Nancy Van Tol
427 Arlington Ave.
Jackson, TN 38301
(901) 424-1643
vantol@usit.net

'98 Joshua J. Vlach
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
jvlach@utk.edu

'98 Charles Watson, Jr
Aquatic Resources Center
4410 Peytonsville Rd.
Franklin, TN 37067
(615) 791-6469

H Jimmy R. White
Rt. 5, Box 300
Brownsville, TN 38012
(901) 772-1919

'97 Emily C. Whiteley
Ent. & Plant Pathology
Univ. of TN
P.O. Box 1071
Knoxville, TN 37901-1071
(423) 974-7135
(423) 974-4744 (FAX)
ewhitele@utk.edu

H Harry E. Williams
1005 Francis Road
Knoxville, TN 37909
(423) 690-3069

'97 Robert L. Williams
1850 Fayetteville Hwy.
Belfast, TN 37019
(931) 276-2754

'98 Neil L. Woodiel
851 Indian Mound Dr.
Mc Minnville, TN 37110
(931) 473-6222

'96 Aaron Womble
8577 Cordes Circle
Germantown, TN 38139
(901) 753-6113

Sustaining Members ('98)

Clete Youmans
American Cyanamid
P.O. Box 552
Dyersburg, TN
youmansc@pt.cyanamid.com

**Application for Membership in the
TENNESSEE ENTOMOLOGICAL SOCIETY**

I (we), herewith, submit this application for membership in the Tennessee Entomological Society. Society pins are available to members for \$10.00.

PLEASE PRINT

Name of Prospective Member _____

Affiliation _____

Address _____ Zip Code _____

Phone Number _____ Area Code () _____

FAX Number _____ Area Code () _____

email address _____

Occupation _____

Please Check

Annual Dues \$5.00

Society Pin \$10.00

Annual Due for Students \$1.00

Sustaining Member Dues \$25.00

Amount Enclosed _____

Please Remit to:

Dr. Gary Lentz
Dept. Entomology and Plant Pathology
605 Airways Blvd.
West Tennessee Experiment Station
Jackson, TN 38301