The Firefly

Proceedings of the 1994 (Twenty-First) Annual Meeting of the Tennessee Entomological Society

October 20 - 21 , 1994
Drury Inn I-24 & Harding Road
Nashville, Tennessee

Volume Nine

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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 awarded 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

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Name of Nominator _____

Phone Number of Nominee: Area Code ( )_____

Please submit your nomination at least two weeks before the TES annual meeting to:

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

PROCEEDINGS OF THE TWENTY-FIRST ANNUAL MEETING
October 20 - 21, 1994

Drury Inn I-24 & Harding Place
Nashville, Tennessee

THE GYPSY MOTH, TEN YEARS IN SHENANDOAH

Keith Watson
National Park Service

CANCELLED

A TWO-YEAR STUDY OF LARVAL LEPIDOPTERAN TREE USE IN A BOTTOMLAND HARDWOOD FOREST

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A current forestry and wildlife management practice in bottomland hardwood forests consists of promoting oaks (*Quercus* spp.) for increased mast production and economic value. This practice may not be best suited for insects or the birds that feed on them. Four types of bottomland hardwood trees (*Acer* spp., *Celtis* spp. and *Ulmus* spp., *Liquidambar styraciflua*, and *Quercus* spp.) and two vine species (*Toxicodendron radicans* and *Parthenocissus quinquefolia*) were sampled for lepidopteran larvae, an important dietary item for many forest birds. Results of this two-year study show that caterpillars were found most often on vines and *Acer* spp. in 1993, and on *Acer* spp. and *Ulmus* spp. in 1994. Caterpillar abundance on *Quercus* spp. was low in both years of the study, which suggests that managing for oaks may not be the best management strategy for insectivorous birds inhabiting bottomland hardwood forest ecosystems.

SOYBEAN OIL DORMANT SPRAYS FOR MANAGEMENT OF SAN JOSE SCALE (HOMOPTERA: DIASPIDAE) ON APPLE TREES IN TENNESSEE

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Petroleum oil dormant sprays have been used to manage San Jose Scale (SJS), *Quadraspidiotus perniciosus* (Comstock), on apple trees since the introduction of SJS into the United States in the 1870's. Although studies have shown that cottonseed or soybean oil could be used to control several aphid, whitefly and mite species on vegetables and cotton, few studies have examined the use of soybean oil as dormant sprays on fruit trees.

The objectives of this study were to determine: 1) efficacy of soybean oil dormant sprays for management of SJS on apple trees, and 2) life cycles of SJS and its predominant parasitoid, *Aphytis* sp. (Hymenoptera: Aphelinidae), in Tennessee.

Dormant oils were applied to 'Bounty' apple trees in a commercial orchard on 14 February 1994. Treatment units were single trees with five replications in a completely randomized design. The following treatments were applied to runoff with a handgun at 60 psi: 1) 6.0% (v/v) degummed soybean oil with 0.6% (v/v) Latron B-1956 spreader-sticker (Rohm & Haas, Philadelphia, Pennsylvania) as an emulsifier; 2) 3.0% degummed soybean oil with 0.6% Latron B-1956; 3) 3.0% 6E Volck Supreme petroleum oil (Valent Corporation), prepackaged with X-77 emulsifier, and 4) and untreated control.

SJS crawlers and Adult *Aphytis* sp.on bark were counted for three min per tree weekly during the growing season with a 16X lens. Male scale emergence was monitored from 8 March until 10 November using pheromone traps. All data were analyzed using ANOVA and, when appropriate, Tukey's HSD (P=0.05).

Male SJS flight periods occurred during 15 April-17 May, 14 June-29 July, and 1 August-26 September. Crawler emergence periods occurred during 17 May-28 June, 7 July-30 August, and 7 September-24 October. Peak numbers of *Aphytis* occurred between 24 August and 26 September.

Both 3.0% petroleum oil and 6.0% soybean oil sprays reduced first and second generation SJS crawler numbers by >93%. The 3.0% soybean oil treatment reduced first and second generation numbers by 60%.

This study demonstrated that degummed soybean oil sprays were effective for management of SJS on apple trees. Data from this study suggest that SJS had three generations in eastern Tennessee in 1994. Abundance of *Aphytis*, compared to that of other parasitoids, suggests that this wasp was the major parasitoid of SJS in this study.

ENVIRONMENTAL FACTORS AFFECTING LARVAL MORTALITY AND ADULT POPULATIONS OF THE FACE FLY, *MUSCA AUTUMNALIS* (DeGeer), IN EASTERN TENNESSEE

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The distribution and prevalence of the nematode *Paraiotonchium autumnale* in *Musca autumnalis* was studied at five sties in eastern Tennessee during 1993 and 1994. *Paraiotonchium autumnale* parasitized face flies at all sites in 1993 with a seasonal prevalence of 1.66%. Parasitized face flies were collected from four of the five study sites in 1994 and had a lower seasonal prevalence of 0.48%. Prevalence at the eastern Tennessee sites during 1993 and 1994 were the lowest reported in the United States, although Ontario had similar levels of parasitism in 1971 of less than 2%. *Paraiotonchium autumnale* appeared to have no effect on the numbers of face flies collected during 1993 or 1994. Experiments to examine the effect of simulated rainfall on larval mortality in *Musca autumnalis* were conducted by apply 0, 6, 12, and 24 mm of simulated rainfall to 24, 48, and 96 hr postoviposited larvae in artificial dung pats. Survival of 24 hr postoviposited larvae was significantly affected by simulated rainfall. Unexpected decreases in the numbers of face flies collected were not related to the application of insecticidal eartags. Numbers of face flies were correlated with rainfall of 8 mm or more prior to collections.

PREY SEARCHING BEHAVIOR OF *CRYPTOLAEMUS MONTROUZIERI* ON *PLANOCOCCUS CITRI*

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Large populations of mealybugs damage the host by sap extraction which result in a loss of plant vigor, limb die-back, destruction of aesthetic beauty, and eventual death of the plant, if infestations are not controlled. One of the most common and damaging species of greenhouse grown plants is the citrus mealybug, *Planococcus citri* (Risso). For the control of this pest, the mealybug destroyer, *Cryptolaemus montrouzieri* Mulsant, and the encyrtid, *Leptomastidea abnormis* (Girault), have been successfully introduced in glasshouses throughout the world. To determine prey searching behavior for *C. montrouzieri*, a rearing method was developed for the citrus mealybug and the lady beetle. In experiments to test the attractiveness of mealybugs to the lady beetles, no direct behavioral response to any of the stimuli provided was recorded. However, predators exhibit a random prey searching behavior that enables them to stay on a leaf infested with mealybugs. Lady beetles appear to have a 1:1 sex ratio. Also, both sexes of the lady beetles exhibited similar searching behavior.

USE OF IVERMECTIN-TREATED BAITS AS A FIELD TRIAL FOR THE CONTROL OF LONE STAR TICKS, *AMBLYOMMA AMERICANUM*

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Ivermectin-treated corn was fed to deer from March to August 1994 in a tick-infested area of Fairfield Glade, Cumberland County, Tennessee. All life stages of *Amblyomma americanum* L. were collected from an Ivermectin-treated and a non-treated area. Approximately 2 times as many nymphs and 1.6 times as many larval masses were collected in the non-treated area. Adults were 1.7 times and nymphs were 1.5 times more numerous in the treated area as compared to the non-treated area. The number of larval masses collected in the treated area was 4 times less than what would have been expected when compared to the high numbers of females collected earlier in the season and the number of masses collected in the non-treated area. Though no significant reductions were found, Ivermectin may be causing a slow reduction in free-living tick populations in the treated area. An extended study and treatment schedule could further reveal the effects of Ivermectin treatment.

BIOLOGICAL CONTROL OF ALFALFA WEEVIL IN TENNESSEE: ASSESSMENT AND STATE-WIDE DISTRIBUTION

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The alfalfa weevil, *Hypera postica* (Gyllenhal), is the most important pest of alfalfa, *Medicago sativa* L., in North America since its introduction into Utah in 1904. By the mid-1950s, the alfalfa weevil had spread into the northeastern United States. In Tennessee, the alfalfa weevil was first detected in 1959, and within five years, the weevil had spread throughout the entire state.

In alfalfa weevil-infested fields, the first cutting of alfalfa is significantly affected. Alfalfa weevil larvae inflict the most extensive damage to alfalfa. Chemical insecticides are the main method of control of alfalfa weevil. However, insecticides also kill natural enemies of pest insects in the field. Insecticides must be used as a management tool incorporated with the use of other control tactics, such as biological control. Several introduced species of parasitoids have been released against alfalfa weevil. However, little information is available on establishment and success of these parasitoids in Tennessee. The objective of this research is to determine the role of these introduced parasitoids in regulating populations of alfalfa weevil in Tennessee.

An intensive study was conducted in Giles County and McMinn County with weekly collections of alfalfa weevil from April through October 1994. A state-wide survey also was conducted in nine counties across the state. In each county, three alfalfa fields were sampled twice during early season (April and May) 1994. On each sampling date, 100 sweep-net (15 cm diameter) samples were taken in each field. Samples were taken in four sets of 25 sweeps each. The contents of each set of sweeps were placed into a labeled paper bag (35 x 17 cm), placed in a cooler, and taken to the laboratory, and processed.

In Tennessee, two of the most commonly recovered parasitoids, *Bathyplectes curculionis* (Thomson) and *Bathyplectes anurus* (Thomson), attack only larvae of alfalfa weevil. The only successfully introduced parasitoid species that attacks adult alfalfa weevils is *Microctonus aethiopoides* (Loan). Low numbers of *M. aethiopoides* were recovered in Tennessee. *Microctonus aethiopoides* is considered to be one of the most important biological control agents of alfalfa weevil. This research will be continued during 1995 and will provide a better understanding of biological control of alfalfa weevil in Tennessee.

SEASONAL INCIDENCE AND COMPOSITION OF INSECTS IN A NORTHERN RED OAK SEED ORCHARD

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The Watauga northern red oak (NRO) (*Quercus rubra* L.) seed orchard was established in 1987 by the USDA Forest Service in Johnson County, TN. Originally a genetic test of 220 open-pollinated families, these trees now serve as a seed source for oak reforestation efforts. Acorn production in the seed orchard has been partially limited due to premature abscission of flowers and immature acorns. The cause of this production loss is unknown, although canopy-dwelling insects have been implicated.

To better understand the insect communities existing in the canopy of the seed orchard, a two-year insect diversity study was conducted in 1992 and 1993. The crowns of 20 trees in five genetic families were sampled for insects approximately every two weeks from March to November. Adult insect populations collected on each NRO family were analyzed statistically for significant differences.

In the two years, 26,536 adult insect specimens were collected, representing 15 orders. Within these orders, 143 families and 541 species have been identified, suggesting a diverse, well-established insect community within the seed orchard.

Of the insects collected, the Asiatic oak weevil (*Cyrtepistomus castaneus* Roelofs) was the most abundant species, composing 25% of all specimens collected. Other important pests found in the seed orchard were acorn weevils in the genus *Curculio* and the oak treehopper, *Playcotis vitta* F.

The overall insect communities collected from each NRO genetic family did not differ significantly. Significant differences, however, were found in populations of certain pest species among NRO families. These variations indicate that genetic differences among NRO families do have an effect on pest populations. NRO Family #200, originating in Limestone Co., AL, demonstrated the most potential for use in regeneration and reforestation of NRO in the southern Appalachians.

This research has documented a diverse insect community in the canopy of a NRO seed orchard in eastern Tennessee. Of these insect species, relatively few (ca. 8%) are pests on the trees. These pest populations did differ among the NRO families, suggesting that NRO genetics influence pest densities. Further research is needed to determine how these insect pests affect the trees and how NRO genetics affect the pests.

EVALUATION OF RESISTANCE IN *LYGUS LINEOLARIS* TO SELECTED INSECTICIDES IN WEST TENNESSEE

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A study was conducted in West Tennessee to evaluate the resistance of *Lygus lineolaris*, the tarnished plant bug (TPB), to selected insecticides (Azinphos-methyl, Malathion, Methyl parathion, Chlorpyrifos, Acephate, and Baythroid). Technical grade insecticide was serially diluted using acetone. Five microliters of dilution was pipetted and distributed into small plastic zip-lock bags. A hair dryer was used to evaporate the acetone leaving an insecticide residue of a known concentration. The concentrations tested ranged from 0.1-50 micrograms per bag. A bean was placed in each bag to provide room for movement of the TPB.

Three sites were sampled for TPB adults based on the level of insecticide use in that area. Puryear was chosen as a low-use cotton insecticide site due to small acreages of cotton produced in that area. The West Tennessee Experiment Station at Jackson was chosen as the medium-use site. A cotton field near Brownsville was selected as the high-use cotton insecticide site. TPB adults were collected using a sweep net. Five adult TPB were transferred into the bag with an aspirating tube. Eight hours after collection the number of dead TPB per bag was recorded. Data were corrected for mortality in the untreated control using Abbott's formula and analyzed using SAS Probit analysis. Each chemical was analyzed by site.

Probability values of the dosage slope greater than 0.05 indicate that the slope is not significant, suggesting that mortality remains constant regardless of the dosage of the chemical. This indicates possible resistance. Probability values of the dosage slope less than 0.05 suggest that the slope is significant. From these lines, LC_{50} values can be predicted. If estimated values are lower or higher than the range of the data, the prediction has no data to support it. At the Puryear site, Malathion, Chlorpyrifos, and Methyl parathion had slopes with probability values greater than 0.05, suggesting that chemical resistance is possible. The estimate for Azinphos-methyl is significant but out of our data range. Baythroid, Chlorpyrifos, and Methyl parathion, at the WTES site, had slopes with probabilities suggesting resistance. As expected, the possibility of resistance was much greater at the Brownsville site. Those chemicals with slopes suggesting resistance were Azinphos-methyl, Chlorpyrifos, Malathion, and Methyl parathion, the same ones showing possible resistance at the other two sites. LC_{50} values were determined for each insecticide at each site. TPB displayed no resistance to Acephate at any site. Predicted LC_{50} values were fairly close for Acephate at each site, but did not follow the expected trend of higher concentrations needed at the Brownsville site and lower at the Puryear site. The location of the Puryear site adjacent to tobacco may be an explanation for the greater concentration needed to kill 50% of that sample because Acephate is heavily used in tobacco. This in turn could lead to Acephate resistance in that area.

From this study, technique and baseline information regarding resistance among TPB in West Tennessee has been established. It appears that resistance is developing in high use areas as well as the threat of resistance in low-use cotton insecticide crops, such as tobacco, for control of other pests.

BEECH BARK DISEASE AND *CRYPTOCOCCUS FAGISUGA* IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK

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Beech bark disease and associated organisms, the beech scale, *Cryptococcus fagisuga*, and species of *Nectria* fungus, were recently discovered in the Great Smoky Mountains National Park (GSMNP). This discovery has prompted the need for investigation into several aspects of this disease in the GSMNP. The objectives of this research are to: 1) monitor long-term progression of beech bark disease, 2) determine life history and seasonal incidence of beech scale, and 3) monitor natural enemies of beech scale.

To monitor long-term progression of beech bark disease, nine permanent plots (20m x 20m) were established at various locations in the park. At each plot, site and tree characteristic data were taken, as well as ratings for incidence and density of beech scale and *Nectria* spp. on each beech tree.

To determine life history and seasonal incidence of beech scale, samples of scale-infested bark were collected at approximately 2-wk intervals from March 1994 to September 1994 from two sites in the GSMNP. Sampling will continue as weather permits. In the laboratory, samples are examined to determine the presence of beech scale. When present, the individuals in each developmental stage are counted and recorded.

Monitoring of natural enemies of beech scale was conducted at four sites in the park. Parasitoids were monitored with emergence traps, and predators were monitored by visual observations. Trapping and observations were conducted from May 1994 to September 1994.

Preliminary data from the permanent plots indicate that 54.3% of 350 live beech trees rated were infested with beech scale and 10.45% of 421 living and dead beech trees in the plots were infected with the fungal pathogen. Preliminary results of the seasonal incidence and life history investigation show that beech scale eggs were first found in June and the crawlers were found in August. After five months of monitoring natural enemies of beech scale, no parasitoids have been recovered from the scale and only one predator, velvet mite, *Trombidium* sp., was observed to feed on beech scale.

This research will be continued in 1995 to further define the incidence of beech scale, *Nectria* spp., and beech bark disease in the GSMNP. This information will provide a better understanding of the spread of beech bark disease and its potential impact on beech in the GSMNP.

INSECTS AS DISSEMINATORS OF *DISCULA DESTRUCTIVA*, CAUSATIVE AGENT OF DOGWOOD ANTHRACNOSE

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Dogwood anthracnose, a fungal disease of dogwoods, has spread throughout much of the eastern United States. The potential loss of the dogwood as an integral component of the economy, the landscape, and forest ecosystem has caused much public concern. Wind, rain, and insects have been implicated in the dissemination of conidia of *D. destructiva*. The objectives of this research were to: 1) assess the incidence and seasonality of conidia-infested insects on diseased understory dogwoods and 2) determine the duration of survival of conidia on field-collected insects.

Insects and related organisms were sampled from six diseased dogwoods at three sites in the Great Smoky Mountains National Park. Dogwoods were sampled using two sampling methods, hand picking and canopy agitation, about every 3-4 wks from June through September 1994. Collected insects were placed into culture tubes, transported to the laboratory, and processed. Duration of viable conidia of *D. destructiva* was monitored in nylon-screened cages (0.9m x 1.2m x 1.8m) in the field. Treatments consisted of two levels of light intensity (full sun and shade) and two infestation levels (*Discula*-contaminated and non-infested insects) and were replicated three times. Our model insect was the convergent lady beetle (CLB), *Hippodamia convergens* Guérin-Méneville. Adult CLBs (195/cage, infested or non-infested) were released onto healthy dogwoods (3/cage) within the cages. Ten CLBs were collected from each cage at intervals of 1, 2, 4, 8 and 16 d following release. CLBs were placed in individual vials, labeled, and transported to the laboratory, where all insects were transferred through a dilution series, and *D. destructiva* was verified microscopically.

About 7% of all field-collected insects and related organisms were infested with conidia of *D. destructiva*. Seasonal incidence of conidia closely followed levels of disease severity of dogwood anthracnose. The highest incidence (ca. 14%) of insect infestation occurred in June and dropped significantly during the remainder of the season. During June, incidence (22%) of insects infested with viable conidia was greatest at Rich Mountain, where severity of dogwood anthracnose also was greatest. Infested arthropods may intensify the severity of dogwood anthracnose in a localized area but may not effect the spread of dogwood anthracnose to healthy stands at a substantial rate. Infestation levels of conidia on beetles collected from shaded cages 1 d after release were greater than those in sunlight (20 and 3.3%, respectively). In addition, beetles in the shade transported viable conidia longer than those in the sun (16 and 1 d, respectively). Conditions, such as low light intensity and reduced wind velocity, which favor increased levels of disease severity, also were conducive to conidial viability on CLBs sampled from cages in the shade.

More than one arthropod species can carry viable conidia of *D. destructiva* in the natural environment. Because a large, diverse number of insects visit dogwoods, insects may play an important role in the epidemiology of dogwood anthracnose.

IMPACT OF DOGWOOD ANTHRACNOSE SEVERITY ON ARTHROPOD DIVERSITY WITHIN THE GREAT SMOKY MOUNTAINS NATIONAL PARK

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In the last decade the flowering dogwood, *Cornus florida* Link., has become threatened by a fungal disease, dogwood anthracnose (caused by *Discula destructiva* Redlin). Mortality of the flowering dogwood is extremely high in forested areas, where dogwood density has declined in recent years. Little information is available about environmental conditions that may predispose a tree to conidia of *D. destructiva*. Researchers have suggested that insect species may play an important role in the epidemiology of dogwood anthracnose. Because of concern about the possible loss of dogwoods from the forest ecosystem and the lack of information on insects on dogwoods, a two-year research project was initiated to: 1) identify insect taxa associated with anthracnose-infected (diseased) and non-infected (healthy) dogwoods in natural settings, 2) monitor the seasonality of selected insects, and 3) compare insect densities on anthracnose-infected and non-infected dogwoods.

The most abundant insect orders collected in the Great Smoky Mountains National Park were Coleoptera, Hymenoptera, and Diptera. Significant differences in densities of Coleoptera, Diptera and Homoptera, as well as the total number of insects and arthropods, were found among sampling dates, sites, and tree types. Greater numbers of insects were observed in 1993, when Diptera comprised approximately 50% of all taxa.

In 1993, insect densities generally peaked in June; however, peak densities were observed during July in 1994. Seasonal abundance varied among sites. In 1993, insect densities peaked in mid to late June at Cades Cove and Rich Mountain, and in July at Mt. Sterling. In 1994, insect densities were greatest in early June at Rich Mountain and in mid July at Cades Cove, and in July at Mt. Sterling. Environmental conditions, such as harsh weather and cooler temperatures, may have contributed to delays in peak densities of insects at Mt. Sterling, the high elevation site. In this study, insect densities were greatest early in the season when incidence of *D. destructiva* occurs at its highest levels. Percent composition of insect orders was similar for healthy and diseased trees. More insects, numerically, were collected from healthy than diseased trees, but no significant differences were documented between tree types within a year.

Previous greenhouse, laboratory, and field studies have demonstrated that insects can transport and disseminate viable conidia of *D. destructiva* to healthy dogwood foliage and that the foliage can develop lesions symptomatic of dogwood anthracnose. Because insect densities are greatest when incidence of conidia of *D. destructiva* are present, insects may play an important role in the epidemiology of dogwood anthracnose. This research will provide a better understanding of the insect taxa associated with dogwood and may be useful in the development and implementation of management programs, especially in nursery environments.

INTRODUCED PINE SAWFLY, NEW PEST IN MIDDLE TENNESSEE

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The introduced pine sawfly (IPS), *Diprion similis,* was found in western North Carolina in 1977 after movement from the northeastern and midwestern states where it had become established following European introduction into Connecticut in 1914. IPS has moved down the Southern Appalachians at the rate of 20 - 30 miles per year where its eastern white pine host has continuous distribution. In 1992, it was reported for the first time in northern Kentucky in two counties. In 1993 and 1994, IPS was detected on eastern white pines in the urban landscape of Davidson and Williamson Counties and in an eastern white pine Christmas tree plantation in Rutherford County. The biology of the insect was outlined, emphasizing that cocoons are spun on eastern white pine as well as on non-host tree species.

Eastern white pine, the primary host for the IPS, may dieback following one year's late season defoliation. The second year's defoliation may involve further branch mortality or tree death. Trees in exposed locations are most severely affected. This mortality could impact the State's wood industry and forest recreational areas since Tennessee has the third largest timber volume of eastern white pine in the southeastern area. To combat this threat, a wasp parasite (*Monodontomerus dentipes*) was introduced into western North Carolina from 1979 to 1981 by the USDA Forest Service. It was responsible for a 45 percent parasitism rate for IPS cocoons in 1980 and dropped the insect population to manageable levels within the native range of eastern white pine. Hopefully this successful natural control will follow the IPS in its movement into Middle Tennessee.

AGRICULTURE AND APICULTURE IN EGYPT

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Egyptian Agriculture is primitive and modern in scope. Animal powered water wheels are yet in use for furrow irrigation. More irrigation utilizes small gasoline powered pumps. All water used in this country is derived from the Nile river. Much feed food and fiber is even now moved from field to market by donkey. It was observed that grain is moved by donkey to small local mud storage bins near each village home by donkey. This process is recorded on wall paintings in tombs from 5,000 years ago.

Egyptian beekeepers produce an annual average of 6 kg of honey per hive. This is much less than a 30 kg. average yield produced in these United States. Reasons for this difference include, in order of severity: 1. robbing honey from the brood nest; 2. overpopulation apiaries in close proximity to one another; 3. lack of floral sources and inadequate feeding; 4. varroa mite infestations; 5. poorly timed insecticide applications in cotton where crops are treated when bees are present; 6. absence of shade in very hot sun.

Ancient mud tube hives were observed. These hives represent man's first attempt at beekeeping. Tube hives 1 meter long by 15 cm. round were stacked in a wall 2 m high. The wall was made solid with mud mortar. Bees all had one entrance on one side of the wall. A plug for each hive in the back of the wall could be removed for taking honey. These mud tube wall were frequently build on boats. A line drawn parallel with the water was an indicator. If the boat began to sink, the bees were harvesting nectar. If no change in measure between the line on side of the boat occurred then that vessel was navigated up or down river in search of a honey flow. Thus Egypt was also the cradle of migratory beekeeping.

ISLAND BIOGEOGRAPHY OF BOT FLIES ON ISLANDS IN LAKE BARKLEY KY AND TN

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The present study analyzes the affect of six abiotic and seven biotic variables on the presence of *Cuterebra* on islands in Lake Barkley. Abiotic factors were: area, length, distance to mainland, distance to nearest island, elevation, and last inundation. Biotic factors were: tree, shrub, vine, and herbaceous species diversity, percent herbaceous cover, percent tree cover, and small mammal species diversity. A *Cuterebra*, probably *C. f. fontinella*, infested white-footed mice on two islands and house mice on one island. Six other small mammal species were not infested. There was not significant difference between infestation rate and sex of host. No correlation between the presence of *Cuterebra* and biotic or abiotic factors was found ($p > 0.05$). The presence of house mice did not determine the presence of *Cuterebra* on islands. Only the presence of white-footed mice determined the presence of *Cuterebra* on islands ($Rsq = 0.85$, $p < 0.05$).

1994 TENNESSEE BOLL WEEVIL TRAPPING PROGRAM

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The University of Tennessee sponsored an intensive pheromone trapping program to monitor the density and distribution of emerging boll weevils in the spring of 1994. Approximately 6,000 boll weevil traps were distributed to local County Extension Offices at a rate of one trap per 100 acres of cotton. Producers, consultants, and other interested parties monitored trap catches for 4-6 weeks prior to cotton squaring and reported data back to local Count Extension Offices.

Pheromone trap captures were summarized for 5 mile by 5 mile sections in West Tennessee. Cooperators reported location of trap (section), trapping period, and number of weevil captures. A geographic information system (GIS) which links tabular data with maps was used for data presentation. Sections of West Tennessee were color coded based on boll weevil density. Special thanks to Mr. Jack McCarty of the Mississippi Boll Weevil Management Corporation for GIS operations.

Information gained from this program will aid in the development of more efficient boll weevil management programs and/or eradication efforts in West Tennessee. This program was sponsored in part by Cotton Incorporated.

CONTROL OF HORN FLIES AND NEMATODES OF PASTURED CATTLE WITH NOVEL APPLICATION REGIMES OF IVERMECTIN

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Two herds of mixed-breed beef cattle were treated with ivermectin pour-on to control horn flies and intestinal nematodes. Horn flies on all cows and calves were controlled below economic threshold levels by standard doses of ivermectin on one-third of the adult cows for ca. 30 days. Horn flies from adjacent pastures quickly reinfested treated cows after 30 days. Nematode infestation levels in calves of cows treated with ivermectin were not adversely affected.

PHILIP HENRY GOSSE AND THE "ENTOMOLOGIA ALABAMENSIS"

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Department of Biology,
Bellmont University, Nashville, Tennessee 37212-3757

Philip Henry Gosse (1810-1888), a prominent British naturalist, spent 8 months in Dallas Co., Alabama in 1838. While working as a schoolmaster, he studied the natural history of the then frontier area and later published his Letters from Alabama (U.S.) Chiefly Relating to Natural History after returning to England. Using his skills in miniature painting, Gosse painted numerous illustrations of Alabama insects, the "Entomologia Alabamensis", but these were never published. Color transparencies of Gosse's original insect paintings have recently been obtained from a descendant of Philip Gosse. Selected paintings will be presented.

REGULATORY INSECT UPDATE FOR 1994

Steve Powell
Tennessee Department of Agriculture
Plant Industries Division, P.O. Box 40627
Nashville, Tennessee 37204

Five Middle Tennessee counties were included in the 1994 Boll Weevil Eradication Program: Franklin, Giles, Lawrence, Lincoln, and Wayne.

Aerial spray projects performed in 1994 for eradication of gypsy moth populations were 6000 acres in Grainger County (Joppa) and 1854 acres in Unicoi/Carter Counties (Scioto Road). A total of 13,101 gypsy moth traps were placed in Tennessee by state and federal agencies during 1994 with 1300 moths caught in 29 counties in 611 traps (240 of which were multiple catch traps). Five counties (Clay, Lawrence, Putnam, Warren, and White) trapped gypsy moths (each were single catches) for the first time.

The Imported Fire Ant (IFA) continues to slowly spread. Portions of Bradley, Hamilton, and McMinn Counties were added to the state IFA quarantine as well as additional portions of Fayette, Hardeman, Hardin, McNairy, and Wayne.

The Japanese Beetle continues its westward movement. Seven additional Middle Tennessee counties are considered to be generally infested (Bedford, Dickson, Hickman, Lincoln, Maury, Moore, and Rutherford) with isolated infestations in the Bells area (Crockett/Haywood Counties) and near an I-40 parking area west of Jackson (Madison County).

Four areas, each covering a 1.5 mile radius, are regulated for Pink Bollworn in West Tennessee with three of them in Dyer County and the fourth in portions of both Dyer and Lauderdale County.

ANTIBACTERIAL ACTIVITY BY *HELIOTHIS VIRESCENS* LARVAE

Donald D. Qurth and Timothy D. Lockey
Department of Biology, Division of Molecular Sciences
and Microbiology, The University of Memphis,
Memphis, Tennessee 38152

Lepidopteran insects produce antibacterial factors in the hemolymph in response to bacterial infections. The best defined antibacterial factors have been inducible proteins called cecropins (M.W. 4,000-7,000) which are bactericidal and attacins (M.W. 20,000-23,000) which have limited antibacterial activity. Lysozyme (M.W. 14,000-16,000) is also an inducible protein whose main function is hydrolysis of the peptidoglycan cell wall after bacteria have already been killed by other insect defensive proteins and phagocytosis. Cecropin, attacin and lysozyme proteins were isolated and characterized from vaccinated *Heliothis virescens* larvae and their bactericidal activities determined against several Gram-positive and Gram-negative bacteria. The experimental data obtained from the *Heliothis* defensive proteins will be discussed in this presentation.

HAWAII: AN ENTOMOLOGIST'S DREAM OR NIGHTMARE

Jerome F. Grant
Department of Entomology and Plant Pathology,
The University of Tennessee, Knoxville, TN 37901-1071

During June 1994, I attended the Hymenoptera Training Workshop held in Honolulu, Hawaii. This intensive 10-day workshop, sponsored by the Bishop Museum and the University of Hawaii, was led by world-renowned experts and focused on parasitic hymenopterans. This subject is extremely interesting to me as I am especially fond of parasitoids and plan to develop a collection of parasitic hymenoptera of Tennessee. Please forward any unusual parasitoids to me and I will include them in this collection [remember to provide any available collection data, especially host information if known]. Parasitoids are important members of our diverse insect fauna and host-specific parasitoids are important in regulation of populations of some pest insects.

The diverse insect fauna of Hawaii provides a paradox for entomologists. The insect diversity [about 10,000 species] provides countless hours of fascination and wonderment but, on the other hand, poses tremendous problems for agriculture. For example, the 600 species of *Drosophila* alone stir panic for both taxonomists and producers. About 2,700 [ca. 25%] of all of their insect species are introduced or exotic organisms, which generate pest management and ecological concerns. Ecologically, these introduced species compete directly or indirectly with indigenous organisms. Several introduced ant species have been implicated in the extinction of several indigenous ants. Interestingly, 950 species of moths are native to Hawaii while there are only two native species of butterflies. Among the most interesting arthropods in Hawaii are the predatory caterpillars [genus *Eupithecia*] and the happy face spider [*Theridion grallator*].

Entomologically, Hawaii is an exciting place, and I hope to return one day to further explore their entomological fauna. Oh yeah, I also would not pass on the opportunity to explore the mountains, the countryside, the beaches, the ocean, ... I already long for those colorful Hawaiian sunsets. Aloha!!

EVALUATION OF IMIDACLOPRID (NTN-33893) FOR CONTROL OF RED TOBACCO APHID IN TENNESSEE

Alan Hopkins and Bill Shamiyeh
Miles Inc., Little Rock, Arkansas 72207
and Department of Entomology and Plant Pathology,
The University of Tennessee, Knoxville, Tennessee 37901-1071

Imidacloprid is a new systemic insecticide being developed worldwide by Bayer AG and by Miles Inc., Agriculture Division in the U.S. for control of several insect pests in numerous crops. Imidacloprid belongs to a new class of chemistry known as phloronicotinyl and is especially effective for control of sucking insects such as aphids.

Experiments conducted in Burley tobacco at the University of Tennessee in 1992, 1993 and 1994 indicated excellent residual control of red tobacco aphid (*Myzus nicotianae*) when imidacloprid was applied in transplant water solution. Combinations of imidacloprid and Orthene 75 WP insecticide were also effective for control of red tobacco aphid. Good aphid control was observed with foliar applications. However, since transplant water treatments provide season-long control or red tobacco aphid, foliar treatment with Imidacloprid may be used as needed. Based upon results from Tennessee, Imidacloprid may be used at a minimum dosage of 0.0025 g ai/plant in transplant water for control of red tobacco aphid. However, data from a larger geographic area indicate a higher rate of 0.005 g ai/plant is required for consistent control of this pest.

TENNESSEE ENTOMOLOGICAL SOCIETY

Minutes of the Board of Directors Meeting
October 20, 1994

President Patrick convened the meeting of the Board at 10:00 a.m. at the Drury Inn in Nashville, Tennessee. Minutes of the previous Board meeting were read by Secretary Lentz. Grant moved (Barton seconded) that the minutes be approved as read. The motion passed.

A Program Committee Report was presented by Program Chairman Snodderly. At least one additional paper will be presented. Since the students will likely not take all their allotted time, the additional paper will be given in the first session. The invited speaker, Keith Watson, is to arrive 10:xx a.m. on NW airlines. Lentz suggested we move to 12-minute papers instead of the 15-minute ones. With full programs, we need to have more paper slots. Grant suggested two alternatives: shorter papers or longer sessions, with the latter not too feasible. Some papers need more time, as "Agriculture in Egypt" or "Entomology in Thailand" in 1993. Participation should be encouraged. A large number of entomology students are at UT now but that's a cyclic phenomenon. Only one student paper this year is non-UT. This paper presentation topic will be brought up at the business meeting. The Program Committee could adjust the program if the Call for Papers goes out earlier. The Operating Procedures don't dictate the call for papers. That needs evaluation. Generally the Call for Papers goes out two weeks after the summer Board meeting. The Call for Papers went to TACA and forestry industry members. While some could not come, financial support was excellent from the agricultural chemical industry. The program on Thursday could be extended to 6:00 p.m. The invited speaker feature began last year. The Thursday extension appeared to be the best option. All papers would be 12 minutes except for the "invited" paper.

The Local Arrangements Report from Jim Bogard reported that rooms in the hotel were not the same as last year. Double rooms would be made available. Coffee will be provided by the hotel. Miles (A. Hopkins) is providing soft drinks. Screen and projector were made available by TES members, reducing costs to TES. The hotel is under new management. The Pear Tree is co-owned and will provide rooms. The Hospitality Hour will open after supper in the Board Room. Luby's Cafeteria will be utilized for the group meal.

Frank Hale and Carroll Southards are on the Auditing Committee but need to be replaced for this afternoon's audit.

The Treasurer's Report was presented by Harvey Barton. A $1,000 12-month CD was obtained a couple of days ago. Its annual yield is 5.7%. This was obtained from the Arkansas Bank in Jonesboro.

Lynn Snodderly told of the pamphlet that Gray Haun has put together.

The Operating Procedures Manual which was distributed last year has not been changed this year. Joe Dunn asked if it would be put in with the Constitution or would it be distributed annually. Its changes would be performed through the 'Constitution and Operating Procedures

Committee'. A few years ago Dunn checked to see if TES should be a 'non-profit'. Dunn indicated it would be better not to incorporate.

Bill Shamiyeh asked if the Hospitality Hour should fall under a specific committee. Getting the money was not a problem. Local Arrangements should oversee the function.

A message was received from Keith Watson that he would not be able to make the meeting. Alan Hopkins will fill the slot Ray Nabors was slated to use and Ray will utilize the invited speaker slot.

The Nominating Committee Report was presented by Bill Shamiyeh. The slate to be presented is as follows: President-Elect -- Paris Lambdin, Treasurer -- Harvey Barton, Members-At-Large -- Ray Nabors, Alan Hopkins. The Historian will be elected in 1997.

Harry Williams reported for the Publicity Committee that only one notice was sent out. He indicated that we need an updated list of entomologists across the state. Schools and Companies are both lacking on the lists.

Jerome Grant asked Student Representative Mark Carder if there were any student-related problems that the Board needs to address. Carder mentioned that the students were accommodated well by TES. It was a good experience for the students. He expressed appreciation for being able to serve on the Board.

Shamiyeh moved (Nabors seconded) that the meeting be adjourned. The time was 11:20 a.m.

Gary L. Lentz
Secretary, TES

TENNESSEE ENTOMOLOGICAL SOCIETY

Minutes of the Business Meeting
October 21, 1994

President Russ Patrick convened the 21st annual business meeting of the Tennessee Entomological Society at the Drury Inn in Nashville, Tennessee on October 21, 1994 at 8:30 a.m. A list of contributors to the Social Hour was presented which included Jimmy Pendergrass (Cheminova), Randy Huckaba (Dow), Steve Williams (DuPont), Alan Hopkins (Miles), Larry Walton (Rohm and Haas), Lee Greer (Valent), Dan Smith (Zeneca) and Harry Williams. Student dinners were provided by Cletus Youmans (American Cyanamid). A student Room was provided by Lee Greer (Valent).

Minutes of the previous Board meeting held on August 16, 1994 were read. Other previous minutes were published in the Firefly. Burgess moved the minutes be approved as published or read. Patrick seconded the motion; the motion passed.

The Treasurer's Report was presented by Harvey Barton. Copies of the report were distributed. One CD ($1,000) is not listed on the report. The 12 month CD purchased a couple of days ago, has a 5.7% yield. The audit was completed yesterday by Gary Lentz, Gene Burgess and Steve Powell. The motion to approve the report, made by Christof Stumpf (seconded by Jim Bogard) passed.

The Local Arrangements Committee chairman Jim Bogard thanked those who assisted with the meeting (Steve Murphree, Lee Greer and Steve Powell). The Auditing Report was presented by Gary Lentz. The books were audited yesterday. Bank statements were reconciled with the Treasurer's books and all receipts were present.

Alan Hopkins presented a report for the Membership Committee. Letters were sent out targeting primarily those in the Forestry industry on a list from Jerome Grant. Also a list of TACA members not previously involved with TES was provided. The Membership List is published in the Firefly.

The Prediction and Evaluation Report was presented by Phillip Roberts. A letter was sent to several past contributors to the former reports. TES members were encouraged to submit reports in their respective areas since this serves as a historical account of insect activity during the year.

Joe Dunn reported from the Constitution Committee.

The Awards Committee Report was presented by Reid Gerhardt. The Howard Bruer award was presented to Jeremy Smith from Savannah. He was an outstanding participant in the 4-H program. A plaque will be sent to the Hardin County Extension Office for presentation at a 4-H honors banquet. The Outstanding Paper Award ($50) for the meeting was presented to Lee Holt. A plaque was presented to outgoing President Patrick.

The Nominating Committee Report was presented by Bill Shamiyeh. The following slate of nominees was presented: President-Elect--Paris Lambdin - Lentz moved (Patrick seconded) that he be elected by acclamation. The motion passed. Treasurer--Harvey Barton - Nabors moved (Hopkins seconded) that he be elected by acclamation. The motion passed. Members-at-Large--Nabors and Hopkins - Lentz moved (Burgess seconded) that they be elected by acclamation. The motion passed.

The Editor's Report was presented by Gray Haun. Copies of the brochure were distributed to the members. He asked for suggestions in the next 30 days so it would be available to the Membership Committee to be sent to students at universities and other entomologically related fields. Jim Keener, Lynn Snodderly and John Skinner were thanked for their contributions. The Firefly was printed for $149. He thanked Jerome Grant for editorial work on the publication. Doris Caldwell was complimented for her work on producing the Firefly. Carroll Southards and Paris Lambdin were acknowledged for their contributions.

President Patrick called for an Old Business. None was reported, so New Business was considered. Phillip Roberts volunteered to coordinate a photo salon. Joe Dunn asked if we should consider a poster session.

Past Presidents escorted President-Elect Lynn Snodderly to the podium where President Patrick turned over the TES gavel. Nabors moved (Shamiyeh seconded) the meeting be adjourned. The motion passed.

Gary L. Lentz

Secretary, TES

TENNESSEE ENTOMOLOGICAL SOCIETY

Minutes of the Board of Directors Meeting
October 21, 1994

President Snodderly convened the Board meeting at 11:50 a.m. at the Drury Inn following the TES meeting. Committee chair were appointed as follows: Nominating Committee - Harvey Barton, Publicity Committee - Harry Williams, Program Committee - Paris Lambdin. Membership Committee - Russ Patrick, Awards Committee - Steve Murphree. Other committee appointments were discussed. A guest speaker for next year's meeting will be Dr. William Bass.

The length of the meeting was discussed. Should it be longer or should the papers be shorter? Lambdin suggested compressing the papers to ten to twelve (10-12) minutes from fifteen (15). Nabors emphasized that the decision should be up to the Program Committee. The meeting could be extended one hour the first day and accommodate four extra papers. Hopkins asked if the call for papers could go out earlier allowing the mailout of the program prior to the meeting. Discussion focussed on the call for papers being sent in late July or early August. There would be extra costs for the extra mailing. The Board approved the earlier mailing.

There was a mix up in the communication of needs for a podium, screen and projector. This should be worked out in advance.

The date for the July-August 1995 Board meeting will be determined by whether UT staff are going to Thailand in the summer of 1995. The TES meeting should be set on the third Thursday of October. Shortly after the first of the year, the summer Board meeting date could be set.

Barton indicated sixteen (16) new members needed approval by the Board. This includes twelve (12) regular and four (4) student members. Barton moved (Nabors seconded) that the Board approve these new members. The motion passed.

Problems with the hotel and facilities were discussed. More chairs could have been placed in the meeting room. Single vs. double rooms was discussed. TES paid for the meeting room ($125) and for the coffee.

Gray Haun suggested a plaque of recognition be presented to Doris Caldwell for her support of the TES. The chairman of the awards committee will write a letter of appreciation and obtain a plaque to present to her. Lambdin moved (Haun seconded) that the letter and plaque be obtained. The motion passed.

The proposed meeting date for 1995 will be October 19-20. Bogard will examine other potential facilities in the Nashville area. Other potential members will be contacted about the meeting.

Lentz suggested the registration form and membership form should go in the back of the Firefly. Also the Operating Procedures should go right behind the Constitution.

Hopkins moved (Barton seconded) the motion that the meeting be adjourned. The motion passed. The meeting adjourned at 12:27.

Gary L. Lentz
Secretary, TES

TENNESSEE ENTOMOLOGICAL SOCIETY

Minutes of the Board of Directors Meeting
August 16, 1994

Present: Jerome Grant, Alan Hopkins, Jim Bogard, Russ Patrick, Gray Haun, Lynn Snodderly, Gary Lentz

President Patrick convened the meeting at 10:50 a.m. at the District II Conference room. A discussion ensued on the local arrangements and ways the society could improve efficiency in holding the meeting. Communication among committees and individuals was identified as a key element. Grant indicated he would check with UT Communications to determine if a speaker stand/podium with a light would be available. Hopkins volunteered to supply soft drinks at the breaks and contribute to the hospitality suite. The hotel would be asked to provide coffee.

Program Chair Snodderly reported on contacts with the invited speaker, Keith Watson. Since it was not known what support Watson would have for his travel, Snodderly proposed we supply mileage, three meals and a motel room. Hopkins so moved, Lentz seconded and the motion passed.

The Board discussed the group evening meal. The 1993 participation was outstanding. Bogard was asked to arrange a similar function at Luby's Cafeteria on the first night of the meeting. Students who present papers will have their meals provided.

The Awards guidelines were discussed briefly. Gerhardt is chairman of the Awards Committee but was not present.

Bogard indicated that the meeting room will be provided with 20 room reservations. The additional one-half of the room will cost TES $100.

A Membership Committee Report was presented by Hopkins. To increase the potential membership, the TACA membership list will be obtained from Jim Wills. Forestry (State and National) and Medical-Veterinary entomologists from the Tennessee Pest Control Association will be invited to join TES through a display put up by Harry Williams at the PCO school annually. Grant will work with Williams to prepare the display. Dr. James Hilty was suggested as a contact with the Tennessee Academy of Science. Williams could provide the PCO mailing list for possible new members.

Grant presented Committee reports from chairmen not present. Nominating Committee - (Shamiyeh) - the slate is being developed. Awards Committee - (Gerhardt) -nothing to report yet. No Auditing Committee report was presented. The auditing is done at the annual meeting. Lentz commented that no updates had been provided for the TES Operating Procedures Guide.

Hopkins moved, Lentz seconded, that the meeting be adjourned. The motion passed.

Gary L. Lentz
Secretary, TES

TENNESSEE ENTOMOLOGICAL SOCIETY

Treasurer's Report

August 11, 1994 - August 16, 1995

Balance on hand 8-27-94	$ 3948.57
Number of pins on hand 8-27-94	18

DISBURSEMENTS

The Arkansas Bank (CD #16518)	($ 1000.00)
(12 month CD, Purchase Date 10-19-94. APR 5.56%, Compounded Monthly, APY 5.70%)	
Expenses (October 1994 Meeting)	
Kinko's (Dues receipts & Treas. Rpt)	($ 29.28)
Reid Gerhardt (Plaque and Engraving)	($ 33.99)
H. Lee Holt (Student Award)	($ 50.00)
Drury Inn (Meeting Room, Coffee)	($ 328.62)
Walker G. Haun (Firefly Printing)	($ 149.00)
Total Expenses for Oct. 1994 Meeting	($ 590.89)
TOTAL DISBURSEMENTS	**($ 1590.89)**

INCOME

October 1994 Meeting	
42 Reg. Member Registration & Dues	$ 1050.00
1 Reg. Dues (Sent by another member)	$ 5.00
1 Reg. past dues	$ 5.00
11 Student Dues	$ 11.00
1 Corporate Dues & Registration)	$ 45.00
1 Corporate Dues	$ 25.00
2 Pins @ $10.00	$ 20.00
1 Cash Contribution (Joe Dunn)	$ 5.00
Total Income for Oct. 1994 Meeting	$ 1166.00
2 Reg. Dues received since Oct. 1994 Meeting	$ 10.00
TOTAL INCOME	**$ 1176.00**

BALANCE ON HAND

Number of pins on hand	16
Checking Account	$ 3533.68
CD #16518	*$ 1000.00
TOTAL ASSETS (8-16-95)	**$ 4533.68**

* CD will have earned $57.00 interest at maturity (10-19-95).

Submitted August 16, 1995

Harvey Barton, Treasurer

ATTENDANCE ROSTER OF THE 1994 ANNUAL MEETING OF THE TENNESSEE ENTOMOLOGICAL SOCIETY

MEMBER	AFFILIATION	LOCATION
	Honorary Members	
Dunn, Joe C.	American Cyanamid (Ret.)	Nashville, TN
	Regular Members	
Austin, Nancy	Univ. of TN	Jackson, TN
Barton, Harvey E.	Arkansas State Univ.	Jonesboro, AR
Bogard, James B.	TN Dept. Agri.	Nashville, TN
Burgess, E. E. (Gene)	Univ of TN	Knoxville, TN
Cagle, Jimmy	TN Dept. Agri.	Winchester, TN
Chaudhary, Hans R.	TN Dept. Agri.	Harriman, TN
Cole, Bruce A.	TN Dept. Agri	McMinnville, TN
Culp, Joe		Atoka, TN
Datillo, Jim	APHIS-PPQ	Goodiettsville, TN
Davis, Sylvester	TN Dept. Agri.	Nashville, TN
Eisler, Jim	TN Dept. Agri.	McMinnville, TN
Farrell, John E.	Univ. of Memphis	Memphis, TN
Gallimore, Dale	TDA	Cottage Grove, TN
Gerhardt, Reid R.	Univ. of TN	Knoxville, TN
Grant, Jerome F.	Univ. of TN	Knoxville, TN
Haun, Walker G. (Gray)	TN Dept. Agri.	Louisville, TN
Heery, Frank	TN Dept. Agri.	Harrison, TN
Ishikawa, Sharon S.	APHIS-PPQ	Nashville, TN
Kauffman, Bruce W.	TN Dept. Ag. (Forestry)	Nashville, TN
Keener, Jim	TN Dept. Agri.	Maryville, TN
Keeton, Dana M.		Bruceton, TN
King, Nancy Elaine	APHIS-PPQ	Nashville, TN
Lamdin, Paris	Univ of TN	Knoxville, TN
Latson, Larry N.	David Lipscom Univ.	Nashville, TN
Lentz, Gary L.	Univ. of TN	Jackson, TN
Murphree, Steven C.	Belmont Univ.	Nashville, TN
Nabors, Ray A.	Univ. of MO	Portageville,MO
Ourth, Donald D.	Memphis State Univ.	Memphis, TN
Patrick, Russ	Univ. of TN	Jackson, TN
Pendergrass, Jimmy	Cheminova Inc.	Jackson, TN
Powell, Steve D.	TN Dept. Agri.	Nashville, TN
Roberts, Phillip M.	Univ. of TN	Jackson, TN

Regular Members (Cont.)

Shamiyeh, N. B.	Univ. of TN	Knoxville, TN
Simms, G. Renee	TDA	East Ridge, TN
Skinner, John	Univ. of TN	Knoxville, TN
Smith, J. Dan	Zeneca Ag. Prods.	Jackson, TN
Snodderly, Lynn J.	TN Dept. Agri.	Strawberry Plains, TN
Stewart, Randall T.	TN Dept. Agri.	Manchester, TN
Warren, Gerald	TN Dept. Agri.	McKinzie, TN
Williams, Harry E.	Univ. of TN	Knoxville, TN
Williams, Steve	DuPont	Jackson, TN
Youmans, Clete	American Cyanamid	Dyersburg, TN

Student Members

Bannister, Jennifer M.	Univ. of TN	Knoxville, TN
Carder, Mark C.	Univ. of TN	Knoxville, TN
Copley, Kenneth J.	Univ. of TN	Lyles, TN
Hix, Raymond	Univ. of TN	Knoxville, TN
Holt, Lee	Univ. of TN	Seymour, TN
Hutchison, Kimberly R.	Univ. of TN	Knoxville, TN
Long, Lewis Scotty	MTSU	Murfreesboro,TN
McCasland, Curt	Memphis St. Univ.	Memphis, TN
Neitch, Scott	Univ. of TN	Knoxville, TN
Stumpf, Christof	Univ. of TN	Knoxville, TN
Vance, Rob	Univ. of TN	Knoxville, TN

Sustaining/Corporate Members

Hopkins, Alan	Miles, Inc.	Little Rock, AR

BOARD OF DIRECTORS

President - Russ Patrick
Past President - Jerome Grant
President-Elect - Lynn Snodderly
Secretary - Gary Lentz
Treasurer - Harvey Barton
Editor - Gray Haun
Historian - Harry Williams
Member-at-Large - Mark Carder
Member-at-Large - Rich Emerson

COMMITTEES: 1993 - 1994

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Gary Lentz, Chairman
Carroll Southards
Frank Hale

AWARDS
Reid Gerhardt, Chairman
Steve Murphree
Paris Lambdin
John Skinner

CONSTITUTION
Joe Dunn, Chairman
Charles Pless
Gene Burgess

LOCAL ARRANGEMENTS
Jim Bogard, Chairman
Steve Murphree
Lee Greer
Steve Powell

MEMBERSHIP
Alan Hopkins, Chairman
Harold Bancroft
Carl Brown
Ray Nabors
Russ Patrick

NOMINATION
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Hans R. Chaudhary
Reid Gerhardt
Harold Bancroft

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Lynn Snodderly, Chairman
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Jim Keener
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Gray Haun
Rich Emerson
Steve Powell
John Skinner
Bruce Kauffman
Jim Eisler
Charles Watson

Tennessee Entomological Society

Prediction and Evaluation

Committee Report

October 20, 1994

Phillip Roberts - Chairman
Committee Members:
Jimmy Cagle
Jim Eisler
Rich Emerson
Gray Haun
Bruce Kauffman
Steve Powell
Bill Shamiyeh
John Skinner
Charles Watson

INSECT PROBLEMS-1994

BILL SHAMIYEH
UNIVERSITY OF TENNESSEE
ENTOMOLOGY AND PLANT PATHOLOGY

SMALL GRAINS - WHEAT

Cereal Leaf Beetle: Infestation levels were moderate in Knox County averaging 1.0 larvae/stem. Populations in other counties were very light.

Aphids: Populations were light.

FORAGE CROPS - ALFALFA

Alfalfa Weevil: Alfalfa weevil larval counts were low in plots in Springfield averaging 15 larvae/sweep and low in Springhill averaging 10 larvae/sweep.

FIELD CROPS - FIELD CORN

European Corn Borer: Infestation levels were very light in Middle and East Tennessee.

Fall Armyworm: Populations were well below the economic threshold in Springfield and Greeneville. No insecticide applications were necessary.

TOBACCO

Tobacco Aphid: Population densities of the red form were high in East Tennessee with the development of sooty mold fungus. In Middle Tennessee aphid populations were moderate requiring only one insecticide application.

Flea Beetles: Populations reached threshold densities during the growing season at both locations.

Budworms & Hornworms: Budworm populations were above the economic threshold in Greeneville and Springfield requiring one insecticide application.

VEGETABLE CROPS: Snap Beans

Mexican Bean Beetle: Population densities were very low early in the season becoming heavier in late July and early August.

European Corn Borer: Corn borer population densities were light during the growing season.

Broccoli And Cabbage

Worm Complex: Pre-treatment counts at Crossville averaged 2.2 worms/plants in broccoli and 1.5 larvae/plant in cabbage late in the growing season.

Sweet Corn

Corn Earworm: Earworm populations at Crossville were very light this growing season.

Tomato

Early and Late Blight: Early blight disease incidence and severity were very high; the disease was more destructive than late blight and was hard to control with conventional control measures and weekly spray schedules. Late Blight incidence was also severe but was controllable.

Fruit Trees

Japanese Beetle: Beetle populations were very light at Crossville with very little defoliation of apple trees and grape vines.

Mites: Two-spotted spider mite populations were moderate on apple trees late in the season averaging about 7.7 mites/leaf. One miticide application was sufficient.

INSECT PROBLEMS--1994

Russ Patrick
Extension Entomologist
The University of Tennessee

CORN

European Corn Borer - Fewer infestations in 1994. No serious levels that required treatment.

Cutworm - Black Cutworm - Several locations across the state reported threshold levels of cutworms. Some fields were treated with insecticides over the top.

Fall Armyworm - No serious damage was reported in corn.

WHEAT

Cereal Leaf Beetle - Only a few counties reported any activity. Very few locations required any treatment.

STORED GRAIN

Rice Weevil, Granary Weevil - Several bins of corn and wheat were reported with damaging numbers of these insects.

Indian Meal Moth - Most grain bins across the state reported some activity of this pest.

Lesser Grain Borer - No reports of this serious pest of wheat and corn were reported.

TENNESSEE SOYBEAN INSECT PESTS REPORT - 1994

Phillip M. Roberts
Extension Entomologist
The University of Tennessee

Insect pest pressure was relatively light on the 1994 Tennessee soybean crop. With the exception of early season grasshopper infestations on double-cropped soybeans, very few pest infestations required treatment with insecticide.

Grasshopper infestations were unusually high in northern West Tennessee and Middle Tennessee. Infestations tended to be more severe on double-cropped soybeans following harvest of wheat. Control of grasshoppers was difficult due to such high infestations.

Foliage feeding caterpillars were present most of the season but populations were suppressed below damaging levels by beneficial organisms (parasites, predators, and pathogens). A severe outbreak of soybean loopers was observed in Lawrence County. Looper feeding was more severe when cotton was planted adjacent to the soybeans. Soybean loopers are a migratory pest and are rarely of economic concern in most years.

Dectes stem borer was observed at economic levels in Dyer and Lake Counties. Over 50% infested plants and 10% lodged plants were observed in a Lake County production field. Differences in varietal susceptibility to Dectes was observed in a Group V variety trial. Although Dectes is not considered an economic pest, infestations appear to be becoming more widespread.

Tennessee Agricultural Statistics reports that 1.05 million acres of soybeans will be harvested and projects yields at 34 bushels per acre.

MEDICAL/VETERINARY ENTOMOLOGY–1994

Reid R. Gerhardt
The University of Tennessee
Entomology and Plant Pathology

For the second year in a row, face flies (*Musca autumnalis* DeGeer) have been very numerous in the spring and early summer. Early season counts in 1993 and 1994 frequently exceeded 40 per head. Protracted drought and high temperatures in 1993 caused reductions to 1-3/head in August. Unusually high rainfall in mid-summer 1994 had the same result.

In both years horn flies were moderately high on untreated cattle, 300-500.

Lone Star ticks (*Amblyomma americanum*) were especially numerous this year. Many were brought or sent to our laboratory for identification. We hope to establish a multi-year monitoring program in some of the hyperendemic areas of this state.

TENNESSEE COTTON INSECT PESTS REPORT - 1994

Phillip M. Roberts
Extension Entomologist
The University of Tennessee

Tennessee cotton producers welcomed the light insect pests populations experienced in 1994. Coupled with good growing conditions throughout most of the growing season, producers harvested an above average crop.

Cutworm infestations were more widespread than in past years. Most problems were observed in no-till plantings. The most severe infestations occurred in low, wet areas and following legume cover crops. Some replanting was necessary.

Thrips infestations were moderate. In-furrow insecticides provided good control.

Spring boll weevil pheromone trap catches indicated the need of properly timed pinhead square insecticide applications. Pinhead treatments suppressed weevils below economically damaging levels for the majority of the season. Boll weevil emergence appeared to peak just prior to squaring. Fields which did not receive pinhead treatments reached threshold levels in August.

Tarnished plant bug populations were higher than normal throughout Tennessee. Very high populations were observed in localized areas. All recommended plant bug insecticides gave acceptable control but large populations caused some control difficulty.

Aphids did not reach treatable levels. The entomopathogenic fungus was observed during the second week of July and aphid populations were reduced to very low numbers by the end of July.

Bollworm and tobacco budworm pressure was very light compared to the 1993 season. High beneficial populations aided in suppression of these pests. Pyrethroids provided very good control due in large part to the low percentage of tobacco budworm in the "bollworm complex." Oviposition by moths was often observed down in the plant canopy and on bloom tags.

Beet armyworms were captured in pheromone traps all season. Moths were captured at multiple locations the first week traps were installed (early May). However, economic infestations never developed.

Stink bugs built to damaging levels late in the season in some fields. The lack of insecticide sprays for other pests allowed populations to build in mid to late season. More spider mite infestations than expected were observed since we never experienced droughty conditions. No pink bollworms were detected in 1994, 11 moths were trapped in 1993.

Tennessee Agricultural Statistics reports that 585,000 acres of cotton will be harvested in Tennessee and projects yields of 656 lbs. lint per acre.

COTTON INSECTICIDE RECOMMENDATION CHANGES FOR 1995

Phillip M. Roberts and Gary L. Lentz
The University of Tennessee

	Product	Pest
Added:	Ammo 2.5EC	Cutworms
	Scout X-TRA	Cutworms
	Karate 1EC	Cutworms
	MVP	Tobacco Budworm
	Ovasyn	Ovicide
Removed:	Ambush 2EC	All Uses
	Pounce 3.2EC	All Uses
	Guthion 2L, 3F	Plant Bugs, Thrips
	Cymbush 3E	All Uses

IMPORTED FIRE ANTS

Rick Joyce and Rich Emerson
Tennessee Department of Agriculture
Division of Plant Industries
Ellington Agricultural Center
Nashville, Tennessee 37204

In spite of the very cold temperatures this past winter, Imported Fire Ants (IFA) are still alive and well in Tennessee. Tennessee Department of Agriculture inspectors are, however, reporting population reductions in many of the infested areas and this may help slow the natural migration of IFA this year. A slowdown would be a welcomed occurrence, as quarantine lines were expanded last year to include portions of Fayette and Wayne Counties as well as all of Hardeman, Hardin and McNairy Counties.

Extensive surveys were conducted by TDA inspectors during the first quarter of this year in an attempt to establish the leading edge and extent of the IFA infestation. In West Tennessee the southern portion of Madison County has several areas which were found to be infested. Some areas of Chester County were also identified as IFA infested. This seems to be the northern most peak of the natural migration in Tennessee.

Middle Tennessee is experiencing some natural migration, but this is reported to be scattered and mostly confined to the lower portions of the southern tier counties.

In East Tennessee, most of the infestations seem to be the result of IFA hitchhiking into our state from other infested areas. The exception of this is in Hamilton County and McMinn County where natural migration is occurring. None of these areas are under general quarantine at this time.

The species most often encountered where natural migration occurs is the Black Imported Fire Ant (*Solenopsis richteri*), while those found hitchhiking into the state are usually the Red Imported Fire Ant (*Solenopsis invicta*). To further complicate the identification process, these two species are crossbreeding to produce a hybrid. Fortunately for our nursery industry, the same treatment procedures are used to control all three species.

Imported Fire Ants are a liability to nursery growers as the law requires all nursery stock to be treated before it can be shipped outside of an infested area. Growers of containerized nursery stock may want to participate in the IFA free program which involves incorporation of Talstar in the potting media and use of one of the two approved baits (Amdro or Award) at least once every six months. This program provides continuous certification for shipment of plants from the infested area. Other options are available, such as dip or drench methods using Diazinon or Dursban. These methods result in certification periods of various lengths depending on the method used. Ball and Burlap operations will

require a different approach using immersion, drenching or in-field application of Chlorpyrifos (Dursban) in conjunction with use of one of the approved baits.

Nursery growers who need help identifying IFA or needing information on treatment options should contact a TDA inspector in their area.

SUMMARIES OF REGULATED INSECTS IN TENNESSEE FOR 1994

Steve Powell, Entomologist
Tennessee Department of Agriculture
Nashville, Tennessee

JAPANESE BEETLE

The following counties were added to the list of those considered generally infested with Japanese Beetle: Bedford, Dickson, Hickman, Lincoln, Maury, Moore, and Rutherford. For a complete listing, please refer to attached map. Isolated Japanese Beetle infestations were detected in the area of Bells, TN (Crockett and Haywood Counties), and in an interstate parking area west of Jackson (Madison County).

PINK BOLLWORM

Three areas each covering a 1.5 mile radius are regulated for Pink Bollworm in Dyer County. A fourth area covering a 1.5 mile radius in Dyer and Lauderdale Counties is also regulated for Pink Bollworm (please refer to attached maps).

BOLL WEEVIL

A total of 10,454 acres were included in the 1994 Boll Weevil Eradication Program in Middle Tennessee. The five participating counties were Franklin, Giles, Lawrence, Lincoln, and Wayne (see attached map).

A total of 8,160 acres are expected to be included in the 1995 Boll Weevil Eradication Program in Middle Tennessee. The six participating counties will be Coffee, Grundy, Maury, Robertson, Rutherford, and Warren (see attached map).

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 Plant Certification Section. This section also participates in survey, eradication, and suppression efforts against imported fire ants.

The following areas in Tennessee are under quarantine regulations for the prevention of the artificial spread of the imported fire ant into non-infested areas:

(1) Bradley County. The portion of the county southeast of Interstate Highway 75, southwest of the Hiwassee River, northwest of U.S. Highway 11, and northeast of Tennessee State Highway 308.

(2) Fayette County. The portion of the county south of U.S. Highway 64.

(3) Hamilton County. The portion of the county east of U.S. Highway 27, south of Interstate Highway 24, and west of Interstate Highway 75. Also, the portion of the county south of U.S. Highways 41, 64, and 72, and west of Tennessee State Road 38.

(4) Hardeman County. The entire county.

(5) Hardin County. The entire county.

(6) McMinn County. The portion of the county southeast of Interstate Highway 75, southwest of Tennessee State Highway 163, northwest of U.S. Highway 11, and northeast of the Hiwassee River.

(7) McNairy County. The entire county.

(8) Wayne County. The portion of the county south of U.S. Highway 64. Also, the portion of the county west of longitude 87 degrees 55 minutes.

Since 1994, artificial infestations of imported fire ants have been reported in the following counties: Bradley, Chester, Coffee, Davidson, Decatur, Gibson, Hamilton, Madison, Marion, Monroe, Montgomery, Polk, Rutherford, Shelby, Washington, and Warren. Natural migration of imported fire ants now occurs in the following counties: Bradley, Chester, Decatur, Fayette, Franklin, Giles, Hamilton, Hardeman, Hardin, Lawrence, Lincoln, McNairy, McMinn, Shelby, and Wayne.

GYPSY MOTH

Bruce Kauffman, Division of Forestry

Egg mass surveys were carried out at ten locations during the winter of 1993-94 (Blount, Cocke, Davidson, Giles, McNairy, Morgan, Rhea, Rutherford, Sevier, and Unicoi Counties). These areas had multiple moth catches in 1993. All sites were negative except Blount and Unicoi Counties.

The Blount County infestation (Townsend) had one viable egg mass removed from a fence post at a residence. This location was adjacent to a driveway where an infested pop-up camper from Michigan was parked. Selected trees within one acre were sprayed with

Bacillus thuringiensis (Bt) (Foray 48B) with a mist blower on April 29 and May 6, 1994. he spray project was coordinated by the State Department of Agriculture (TDA), PlantIndustries Division with technical assistance provided by USDA, APHIS, PPQ. Burlap bands (50) were monitored prior to and following the treatments. No larvae were recovered.

An egg mass survey along Scioto Road near the Carter County line in Unicoi County located 28 egg masses on USDA Forest Service (USDA FS) land and on private land surrounding a rural residence. Eighteen of these egg masses were sprayed with a soybean oil product with the remaining being inaccessible from a 40 foot ladder. An area of 1,854 acres (700 acres on private land) in Unicoi County and adjacent Carter County involved two applications of Bt (Dipel 6AF) at 24 BIU's per acre undiluted sprayed from a Bell 212 helicopter on May 5 and May 10, 1994. The project was coordinated by the USDA FS with assistance from TDA. Burlap bands (10) were monitored before and after the treatment. Over 100 larvae were removed from the bands. Three sticky bands were also employed.

The Grainger County infestation (Joppa) had 716 egg masses located primarily on a two acre area. Approximately 500 egg masses were treated with a soybean oil product where the masses were accessible by ladder or bucket truck. An area of 6,000 acres was treated with two applications of Bt (Thuricide 48LV) at 24 BIU's per acre undiluted from a DC-3 on May 2 and May 5, 1994. Burlap bands (73) were monitored before and after the treatment, and 1,069 larvae were removed from them. Ten sticky bands were also employed. Ground treatment of the most heavily infested areas with a mist blower using Bt (Foray 48B) was also accomplished prior to and after aerial treatments.

TDA, under a cooperative agreement with USDA APHIS PPQ, hired 20 individuals to place traps in nine western counties, 32 central counties, and eight eastern counties. Traps were placed at the rate of one per four square miles. TDA hired an additional six individuals under an agreement with the USDA FS to delimit existing infestations in seven eastern counties. USDA APHIS PPQ personnel placed traps at the rate of one per one square mile within the city limits of towns in ten western counties. In Davidson County and portions of Sevier and Shelby Counties, the trapping rate was one per square mile. Delimiting surveys were carried out by TDA personnel on 19 sites in portions of 16 counties (Blount, Carter, Cocke, Giles, Grainger, Knox, McNairy, Maury, Morgan, Rhea, Rutherford, Sequatchie, Sullivan, Washington, Unicoi, and Wilson) (9 to 36 traps per square mile).

There was an aggregate of 13,101 traps placed in 92 counties by several cooperating state and federal agencies during 1994. A total of 1,300 moths were caught in 29 counties in 611 traps (250 multiple catch traps -- see attached map). This total reflected a reduction in the number of moth catches over 1993 (4,654 moths). The greatest decrease was in Grainger County where an infestation was treated. Five counties (Clay, Lawrence, Putnam, Warren, and White) trapped gypsy moths (each were single catches) for the first time.

In the infested portion of Rhea County, nine square miles were trapped at the rate of 16 traps per square mile by TDA. A delimiting grid of two traps per acre over 40 acres was employed in the center of the area. Forty-two (42) moths were trapped in 17 traps. Three hundred twenty (320) acres are to be treated with Gypchek, a gypsy moth specific insecticide, by USDA in the spring of 1995. The main ingredient in Gypchek is the virus that causes natural gypsy moth populations to decline.

No moths were caught in the Lewis Chapel area of Sequatchie County for the second successive year. Trapping was conducted over a four square mile area at the rate of 16 traps per square mile. A 20 acre area was trapped at the rate of nine traps per acre in the center of the infestation.

In the Fall Branch Community of Washington County, one moth was caught in the delimiting grid of nine square miles (16 traps per square mile).

The Grainger County infestation (Joppa) was delimited by 1,760 traps (1 to 16 per square mile) over 139 square miles. The total of 1,031 moths caught in 1994 following treatment of 6,000 acres represented a 75% reduction over 1993 (4,469 moths). Plans are to treat 37,754 acres with Bt in the spring of 1995 (see attached map). A state quarantine for a large part of Grainger County is expected to go into effect in late May 1995 (see attached map).

Following treatment of the Unicoi/Carter County infestation (Scioto Road), three moths were caught which represented more than a 90% reduction over 1993 (52 moths). Trapping will continue over the nine square mile area (16 traps per square mile).

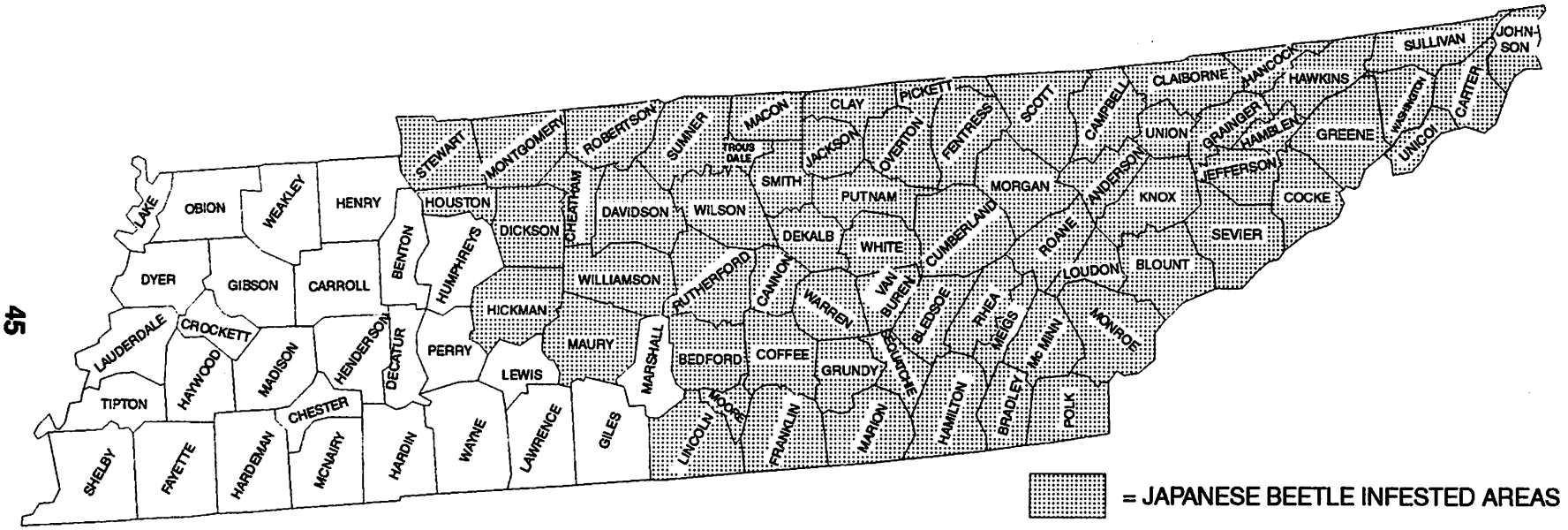
A one square mile delimiting grid in another location in Unicoi County (Erwin) caught 64 moths in 20 traps. Plans are being made to treat 961 acres with Bt and to extend the delimiting grid to nine square miles (16 traps per square mile).

Trapping of nine square miles (16 traps per square mile) in Blount County caught four moths in 1994. Trapping will continue. No moths were caught in a nine square mile grid (16 traps per square mile) in McNairy County for the first time in two years.

The Smyrna area of Rutherford County caught 35 moths in 22 traps in 1994 which represented an increase over 1993 (16 moths). A four square mile grid (16 traps per square mile) with 9 traps per acre in the center was in place in 1994. Trapping will continue there as well as the Newport KOA in Cocke County. In this campground, 21 moths were caught in 14 traps. All catches were the result of introductions in 1994 despite catches of 17 moths in 5 traps in 1993. The delimiting grid for trapping will be expanded in 1995.

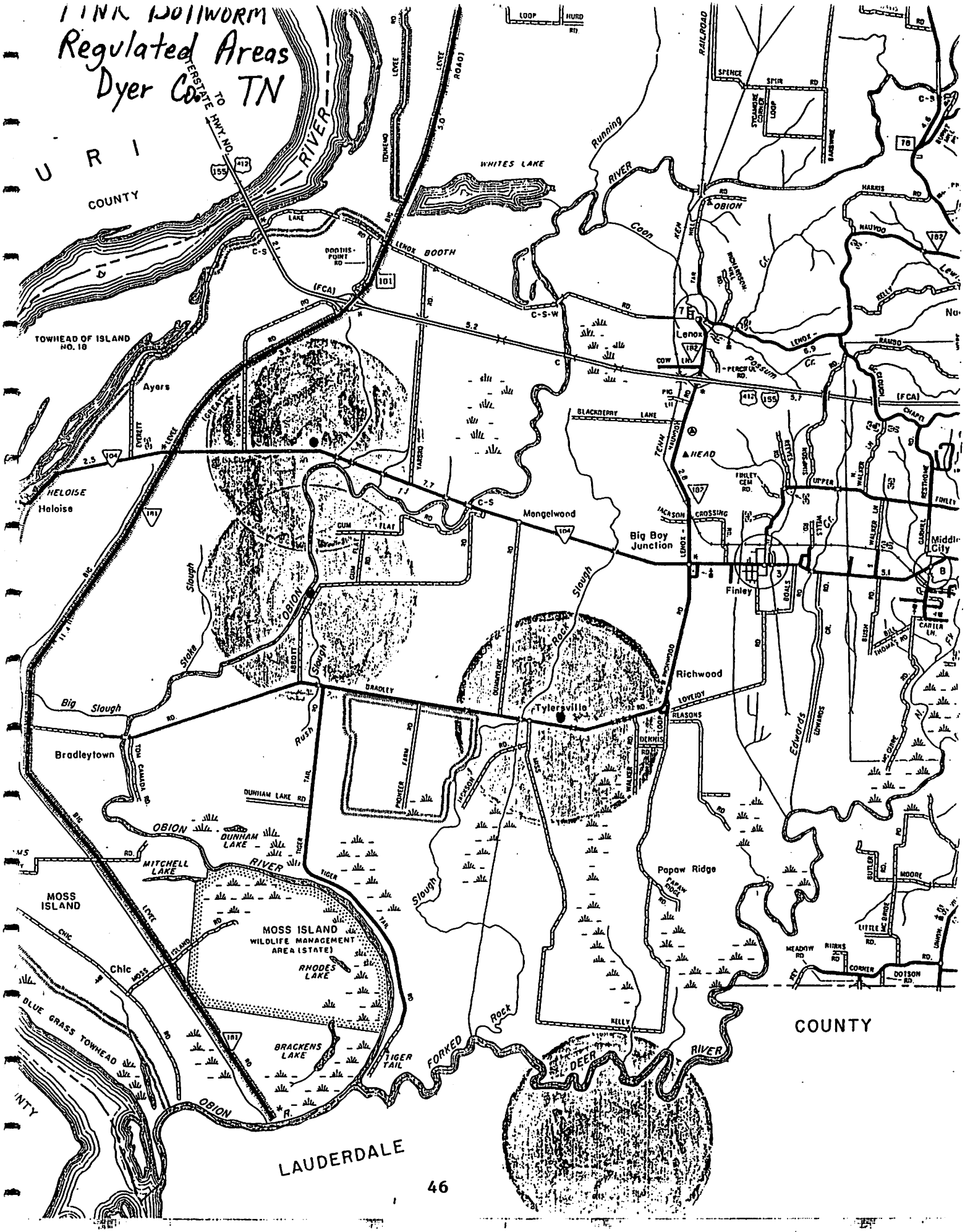
Sixty sites have been targeted for delimiting trapping in 1995. Nine areas in eight counties (Cocke, Davidson, Grainger, Rhea, Rutherford, Sevier, Sullivan, and Unicoi) were scheduled for egg mass surveys during the fall and winter of 1994-95.

TENNESSEE MAP INDICATING THE DISTRIBUTION OF JAPANESE BEETLE INFESTED AREA 1994

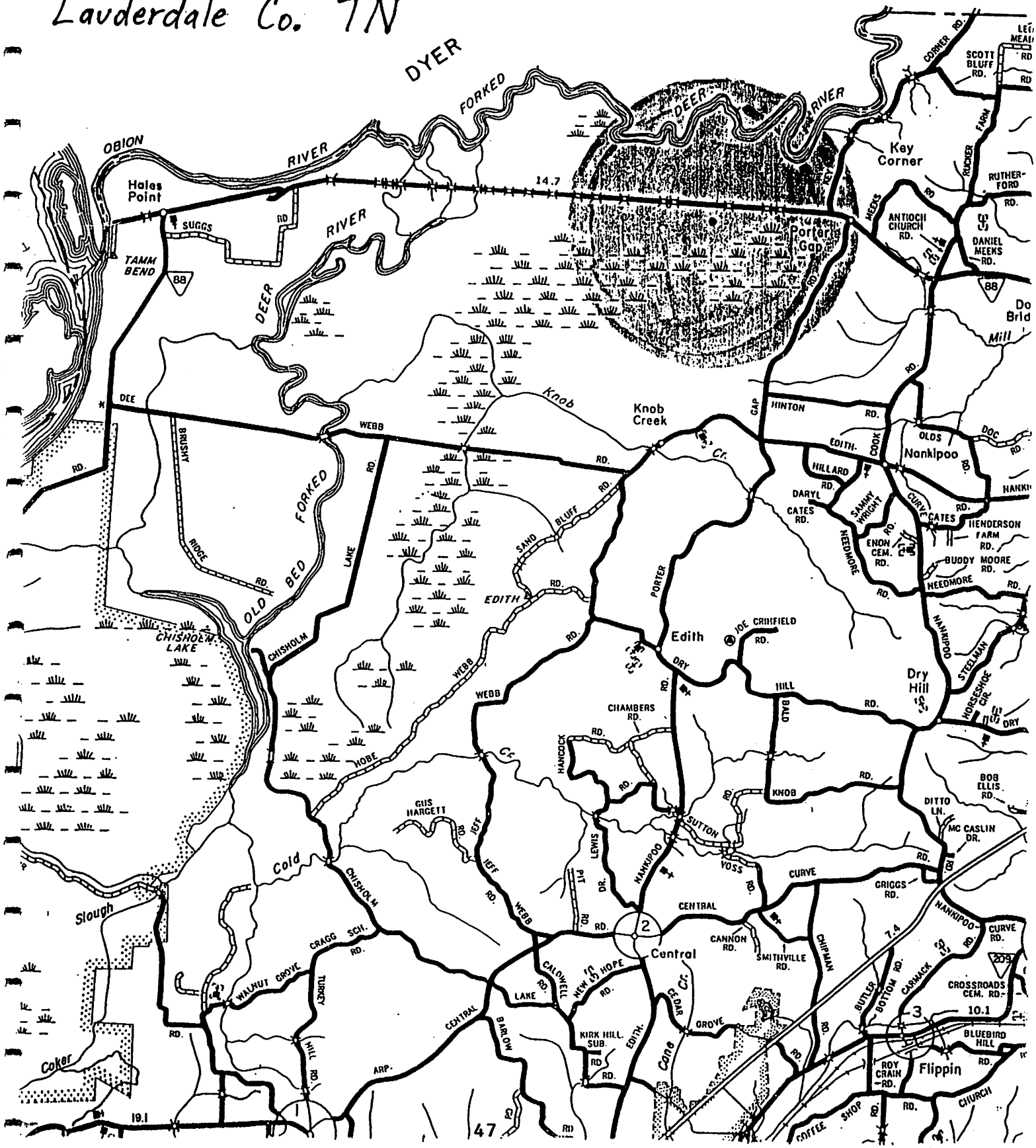


COUNTIES LISTED BELOW ARE GENERALLY INFESTED WITH JAPANESE BEETLE

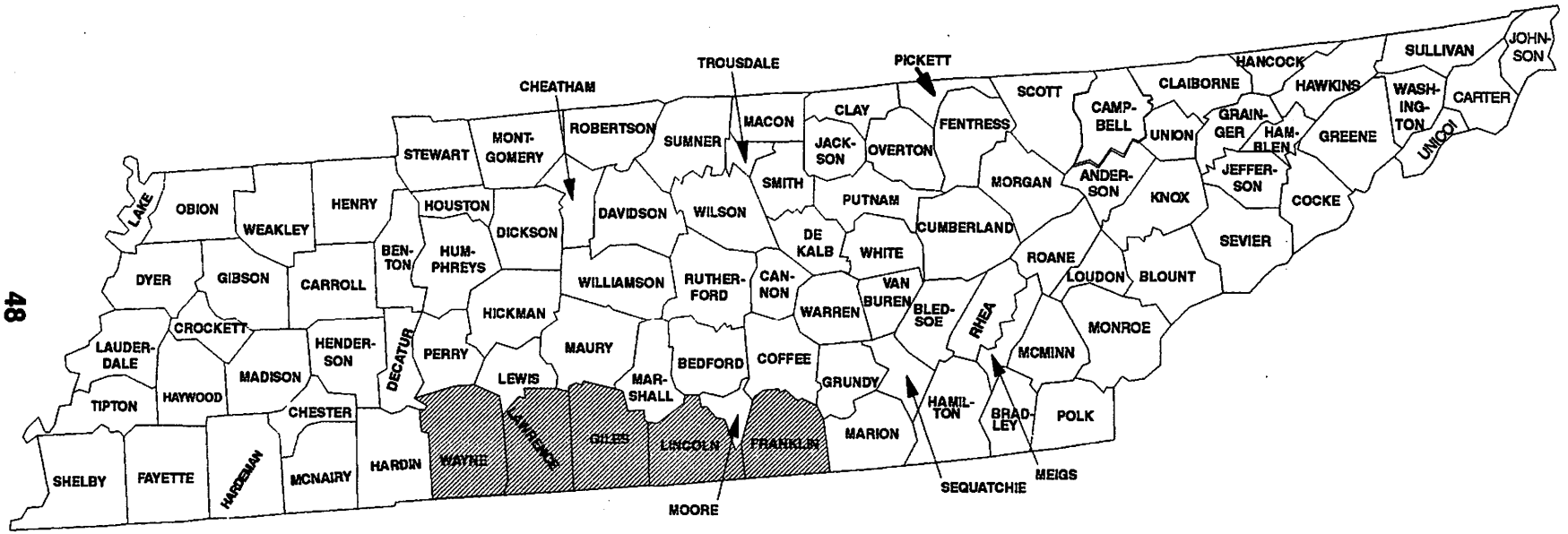
ANDERSON	CHEATHAM	DICKSON	HANCOCK	LINCOLN	MONROE	PUTNUM	SEVIER	UNION
BEDFORD	CLAIBORNE	FENTRESS	HAWKINS	LOUDON	MONTGOMERY	RHEA	SMITH	VAN BUREN
BLEDSOE	CLAY	FRANKLIN	HICKMAN	McMINN	MOORE	ROANE	STEWART	WARREN
BLOUNT	COCKE	GRAINGER	HOUSTON	MACON	MORGAN	ROBERTSON	SULLIVAN	WASHINGTON
BRADLEY	COFFEE	GREENE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


TN Boll Worm
Regulated Areas
Dyer Co. TN
COUNTY
RIVER
INTERSTATE TO HWY. NO. 155 412
WHITES LAKE
Running
RIVER
Coon
OBION
TOWHEAD OF ISLAND NO. 18
Ayers
HELOISE
Heloise
Mangelwood
Big Boy Junction
Finley
Richwood
Tylersville
Bradleytown
DUNHAM LAKE
MITCHELL LAKE
MOSS ISLAND
MOSS ISLAND WILDLIFE MANAGEMENT AREA (STATE)
RHODES LAKE
BRACKENS LAKE
TIGER TAIL
Chic
BLUE GRASS TOWNHEAD
Papaw Ridge
Rock
Slough
Big Slough
Stake
Edwards
FORKED DEER RIVER
COUNTY
LAUDERDALE
46

Pink Bollworm Regulated Area Lauderdale Co. TN



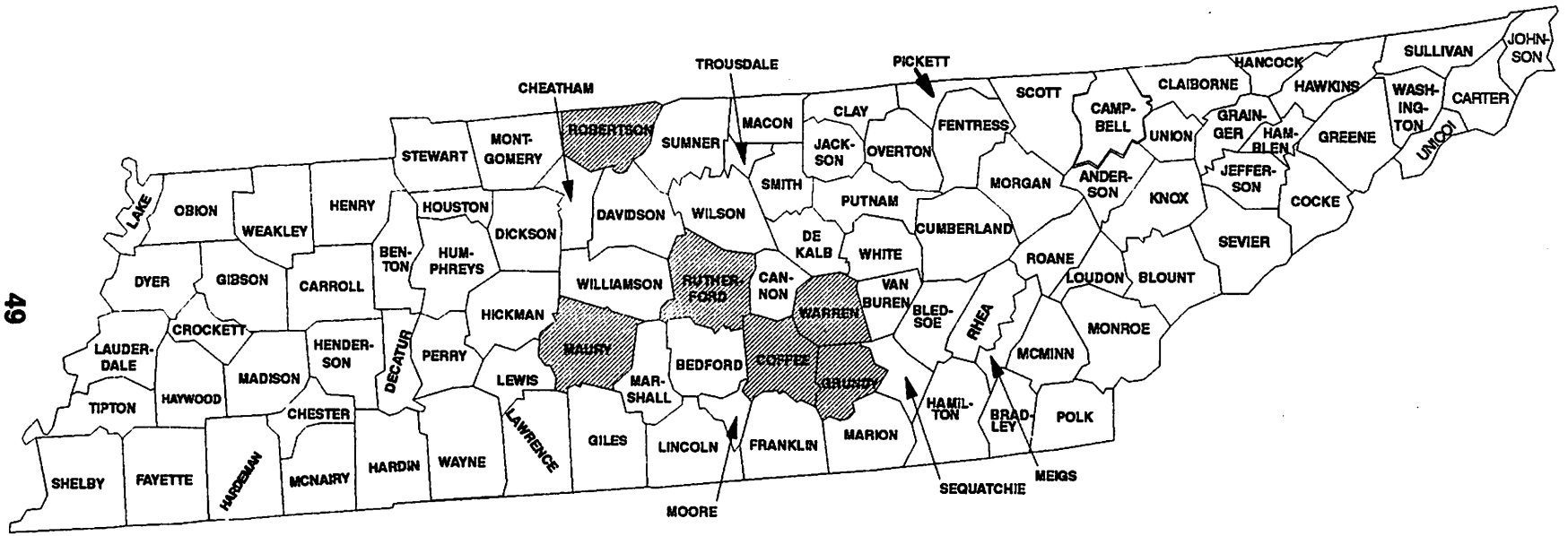
Boll Weevil Eradication Program
Middle Tennessee - 1994



Franklin County - 2,797 acres ; 91 fields
Giles County - 1,659 acres ; 26 fields
Lawrence County - 2,135 acres ; 86 fields
Lincoln County - 3,563 acres ; 177 fields
Wayne County - 300 acres ; 9 fields

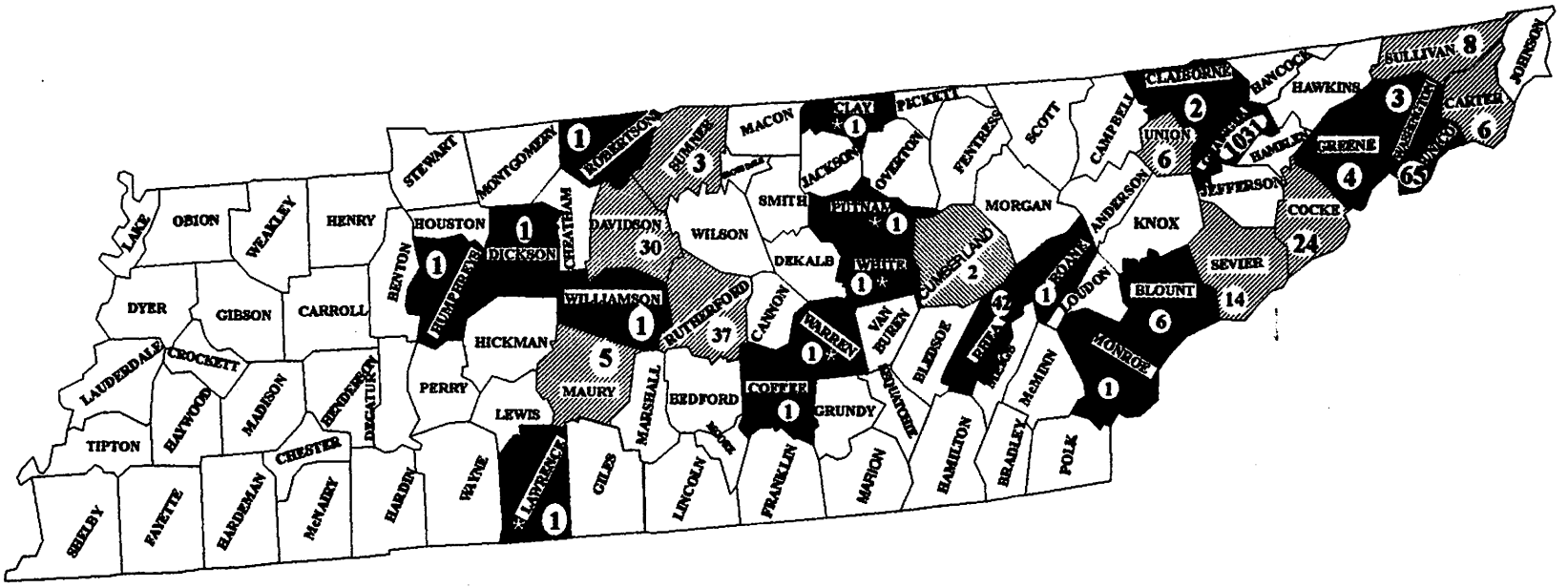
Total Number of Program Acres and Fields = 10,454 acres ; 399 fields

Boll Weevil Eradication Program - 1995
New Counties Anticipated - Middle Tennessee



Coffee County	**2,000 acres**
Grundy County	**80 acres**
Maury County	**1,000 acres**
Robertson County	**700 acres**
Rutherford County	**4,200 acres**
Warren County	**180 acres**
Total Number of Acres =	**8,160 acres**

TENNESSEE DEPARTMENT of AGRICULTURE
Division of Plant Industries
Gypsy Moth Catches - 1994



1300 GYPSY MOTHS CAUGHT

Multiple Trap Catches/ County

Blount -1	Grainger -204	Sullivan -1
Carter -2	Maury -1	Sumner -1
Cocke -5	Rhea -7	Unicoi -14
Cumberland -1	Rutherford -6	Union -1
Davidson -4	Sevier -2	

= New county record

= Number of Gypsy moths caught

= Known infested Counties with multiple gypsy moth catches in trap(s)

= Multiple gypsy moth catches in trap(s)

= Single trap gypsy moth catches

Known Infestations

Blount	Rhea
Grainger	Unicoi

HISTORICAL NOTES
Presidents of the Tennessee Entomological Society (1973 - Present)

President	Term	Affiliation
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 Landingha	'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

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

Secretary-Treasurer	Term	Affiliation
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 - '88	University of Tennessee
Richard Caron	'88 - '91	University of Tennessee

Secretary of the Tennessee Entomological Society

Secretary	Term	Affiliation
Gary Lentz	'91 - '93	University of Tennessee
Gary Lentz	'93 - '96	University of Tennessee

Treasurer of the Tennessee Entomological Society

Treasurer	Term	Affiliation
Harvey Barton	'91 - '94	Arkansas State University
Harvey Barton	'94 - '97	Arkansas State University

Editor of the Tennessee Entomological Society

Editor	Term	Affiliation
Gray Haun	'91 - '92	TN Dept. of Agriculture
Gray Haun	'92 - '95	TN Dept. of Agriculture

Board of Directors
Members at Large

Member	Term	Affiliation
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

Historians of the Tennessee Entomological Society (1973 - Present)

Historian	Term	Affiliation
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 - '97	Univ. of Tennessee

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

Honorary Member	Year	Affiliation
Myron Smith	1982	Hill-Smith Pest Control
Jimmy White	1982	Tenn. Dept. of Agric.
Howard Bruer	1983	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

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

Recipient	Year	Location
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.

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

Recipient	Year	Affiliation
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

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

Recipient	Year	Location
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	1991	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 Chairman 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 of 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.

OPERATING PROCEDURES OF THE TENNESSEE ENTOMOLOGICAL SOCIETY

The Tennessee Entomological Society (TES) is an organization formed for the purpose of fostering 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. All necessary permanent records are maintained by person or persons designated by the Board of Directors and the President of the Organization.

Changes in Operating Procedures

The Constitution or By-laws may be altered or amended 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; the operating procedures of TES should be more flexible. The Constitution and Operating Procedures Committee is charged with the responsibility of studying these procedures each year to recommend possible improvements. Proposed changes in procedures are recommended to the Board of Directors for final action.

Registration and Dues

Registration and dues shall be set by majority vote of the Board of Directors. Dues for voting members will be collected by the membership committee at the time of the annual meeting.

The Board of Directors

The Board of Directors shall:

1. Consist of the immediate past-President, the President, President-Elect, Secretary, Treasurer, Editor, and Historian of the Society and two members-at-large.

2. Be responsible for management of the TES and conduct the affairs of the organization.

3. Conduct such business of the organization as is not delegated to the officers or committees and receive from the officers and committees reports and recommendations requiring specific board action or requiring recommendation for action by the membership.

4. Be responsible for changes in the manual of operating procedures after study and recommendation by the Constitution and Operating Procedures Committee.

5. Be responsible for transacting any official business.

6. Be responsible for assembling the board meetings.

7. Nominate honorary members to be voted on by membership.

President

The President shall:

1. Serve as Chairman of the Board of Directors, prepare an agenda for meetings of the Board of Directors and preside at such meetings.

2. Be responsible for determining that the decisions of the Board of Directors are correctly enforced within the framework of the organization's Constitution and By-laws.

3. Select chairman of committees at annual meeting and appoint committee members.

4. Serve as ex-officio member of all committees, maintain close liaison with the chairman of the committees, and encourage and assist them with development of program beneficial to the organization.

5. Work with the chairman of the program and local arrangements committees in planning the programs for annual meetings.

6. Preside at the general or introductory session of the annual meeting.

7. Advise all officers and board members on significant activities of the organization and solicit their suggestions.

8. Serve as the official representative for TES, when appropriate.

President-Elect

The President-Elect shall:

1. Perform the duties of the President if he cannot serve.

2. Serve as chairman of the program committee, and select the membership of that committee with the President and Board of Directors' approval.

3. Work with the Local Arrangements Chairman in the planning of all details of the annual meeting.

4. Prepare and mail announcements of the annual meeting. Assist with the printing of programs and mailing of programs.

5. Prepare and have the program of the annual meeting in print.

6. Be responsible for reminding speakers at each annual meeting to prepare papers before the meeting according to prescribed standards of the organization and to have these papers at the time of the presentation.

Secretary

The Secretary shall:

1. Have charge of the records and seal of the TES.

2. Take the minutes of all official business meetings of the association. Supply a copy of these minutes to the membership, Board of Directors and committee chairmen as necessary.

3. Consult with the President and inform all officers and board members of occurrences of any official meetings of the Board of Directors.

4. Maintain current lists of members and provide these along with the minutes of the annual business meeting to those persons with official need to know.

5. Make any mailing to the membership as needed or designated by the President or Board of Directors. Maintain a supply of the organizational supplies and letterhead paper for use by the officers.

6. Maintain a supply of operating procedures and provide copies to officers and board members and committee chairmen.

7. Serve as a member of the membership committee.

Editor

The Editor shall:

1. Chair the Publication and Editorial Committee.

2. Perform or be responsible for all editorial duties of the organization including the newsletter and any other publication of the organization.

Treasurer

The Treasurer shall:

1. Be responsible for the financial affairs of the TES. This includes depositing all money received by the TES into appropriate Association accounts, handling the TES's money for maximum income (upon consultation with the Finance Committee), and paying of all expenses and invoices received by the TES.

2. Serve as a member of the Finance Committee.

3. Provide a written financial report to the Board of Directors at least annually, and for the published business meeting minutes. Make an oral financial report as the annual business meeting and at Board of Director meetings as necessary. Provide the necessary information for the Auditing Committee's activities.

Immediate Past-President

The Immediate Past-President shall:

1. Serve as a member of the Board of Directors during the year following his term of Presidency.

Committees

All committees and members of committees are selected by the President (or President-Elect). Each committee shall attempt to complete his/her assigned duties during the term of their appointment. The chairman of each committee shall solicit the assistance of his/her members as necessary. The standing committees are as follows:

Program Committee

The Program Committee shall:

1. Plan the general program format to fit the annual meeting time established by the general membership.

2. Contact invitational speakers and make arrangements for an honorarium, if appropriate.

3. Request papers from the general membership and establish a deadline for submittal of titles.

4. Prepare a program outline for printing.

5. Arrange to have chairpersons for each session.

6. Compile abstracts from program speakers for the proceedings of the program.

Local Arrangements Committee

The Local Arrangements Committee shall:

1. Be responsible for all physical arrangements for the Annual Meeting, working cooperatively with the Officers.

2. Reserve meeting rooms for estimated attendance at the Annual Meeting.

3. Specific Responsibilities will include:

   a. Arranging for visual and audio equipment, including projectors.

   b. Liaison with Treasurer regarding registration help, convention typewriters, etc.

   c. Signs for sessions and activities; coordinate with Program Chairman.

   d. Helping arrange transportation or lodging of guest speakers if needed; coordinate with Program Chairman.

   e. Preparing a report of activities for inclusion in the minutes of the business meeting.

   f. Approving all expenses incurred in conjunction with the Annual Meeting and forwarding invoices to the Treasurer for payment.

4. In addition to the above, be responsible for special functions carried out in conjunction with the Annual Meeting. This may include such special activities as coordinating exhibits at the Annual Meeting, as well as door prizes, with representatives of other organizations joining in this meeting, if desired. If necessary, the Local Arrangements Committee will be appointed with a sufficient number of members that these functions may be designated as the responsibilities of sub-committees of the overall committee.

5. Insure that sufficient facilities are available for morning and afternoon breaks.

6. A sponsored or dutch banquet and/or mixer could also be in order. Arrangements for banquet facilities, an after-dinner speaker and door prizes may be desired.

Membership Committee

The Membership Committee shall:

1. Encourage any interested person in Entomology to join our Society.

2. Send information about the Society to heads of Biology and Zoology Departments at all colleges and universities in the state, enclosing a few applications.

3. Encourage interested people of Pest Control organizations and other agricultural businesses to join the Society.

4. The Secretary shall send at least two blank membership applications to each member asking them to give to good prospects.

5. Each committee member should make a conscientious effort to enroll as many new members during the year as possible.

6. When notices of annual meetings are sent to major newspapers, television, and radio stations, an invitation to interested people could be given at that time.

7. The Chairman should coordinate this committee's efforts with the publicity and other committees when appropriate.

8. Collect dues at the annual meeting.

Auditing Committee

The Auditing Committee shall:

1. Review and certify the accuracy of the financial records and books of the Treasurer prior to the general business session of each Annual Meeting.

2. Conduct special audits as may be directed by the President or the Board of Directors.

3. Report any mistakes or misuses found by the committee to the President for appropriate action prior to the general business session.

4. Prepare a report of the committee's findings, with recommendations, for presentation at the general business session.

Nominating Committee

The Nominating Committee shall:

1. Present a slate of nominees from the active membership of the TES which will include a nominee for President-elect, and two nominees for members-at-large on the Board of Directors every year. The Secretary, Editor and Treasurer hold office for three years, and shall be eligible for re-election. In each case, it is suggested that the Nominating Committee present more than one nominee for each position.

2. Secure the prior approval of all nominees before their names are put before the membership.

3. Submit a written report to the Board of Directors consisting of current committee actions and suggestions for improvement.

Awards Committee

The Awards Committee shall:

1. Consist of 5-6 TES members including a Chair. who are selected following the business meeting of the annual meeting.

2. Obtain name(s) of state 4-H winner (level II), the entomology winner of the Mid-South Fair (Tennessee resident), or other outstanding young entomologist(s) and select the Howard Bruer Award recipient.[1/]

3. Arrange to have a plaque made honoring the Howard Bruer Award recipient (contact TES treasurer) and deliver the plaque and news release information to the recipient's county agent for presentation/publicity at a later date.[2/]

4. Obtain commitments from 3-5 TES members to serve as judges of the Student Paper Competition at the upcoming annual meeting (It is preferable that none of the judges have students in the competition).

5. Contact the TES Treasurer about preparing a $50.00 check to be given to the Student Paper Competition winner during the business meeting of the annual meeting.

6. Have Student Paper Competition Evaluation Forms (with student names and presentation titles) ready for the judges the morning before the competition and assist in determining the winner following the competition.

7. Arrange to have a plaque made honoring the outgoing TES President (contact the TES Treasurer) and present it to him/her when asked by the new President during the business meeting of the annual meeting.[2/]

8. Determine if it is appropriate to award the Richard E. Caron Outstanding Entomologist Award to a TES member at the upcoming annual meeting and submit for review by the Board of Directors. This award will be given periodically to individuals who have distinguished themselves by making outstanding contributions to entomology in Tennessee during their career. If a recipient is chosen, arrangements should be made to have a plaque made (contact the TES Treasurer) to be presented at the business meeting.[2/]

[1/] Contact Dr. Harry Williams for this information at least one month before the annual meeting.

[2/] Contact either Dr. Reid Gerhardt or Dr. Gary Lentz about having plaques made at least one month before the annual meeting.

9. Have a committee meeting immediately following the second paper session at the annual meeting.

Prediction, Evaluation Committee

The Prediction and Evaluation Committee shall:

1. List major agricultural commodities in Tennessee (Plant & Animal)
   a. Approximate percent commodity loss due to various insect pests.
   b. Approximate monetary loss due to each pest on various crops.
   c. Approximate cost of control for each pest.
2. List insects which face a serious threat and crops which may be affected.
3. Major household, structural, and nuisance insects.
   a. List major insects.
   b. Approximate amount of money spent each year in control.
   c. Approximate damage and loss from pest.

Constitution and Operating Procedures Committee

The Constitution and Operating Procedures Committee shall:

1. Annually review the Constitution and Operating Procedures and develop recommendations for improvements or needed changes and submit these to the Board of Directors for study and approval.
2. The Chairman of the Constitution Committee shall prepare adoption of amendments at any annual or special meeting.
3. The Chairman of the Constitution Committee shall coordinate with the Secretary in inserting such amendments into the notice and proceedings of the meeting.

Publication and Editorial Committee

The publication and Editorial Committee shall:

1. Determine and make recommendations to the Society of the type of publication suitable to the Society's needs and when such a publication should be initiated.

2. Set up guidelines and standards for such a publication, and investigate possible mechanisms for implementation upon decision of the organization.

3. Be responsible for soliciting and gathering of articles for publication.

4. Act as an editorial committee in screening such articles to be published.

5. The chairman will be responsible for the coordination of this committee's responsibilities with the Board, Secretary-Treasurer, and other committees as necessary.

Publicity Committee

The Publicity Committee shall:

1. Be responsible for developing and implementing an effective public relations program for the Tennessee Entomological Society.

2. Prepare general news releases on the society's activities and accomplishments and publicize the meetings. Specifically, these things should be done:

    a. Prepare and release general news release as soon as Program Committee has planned a theme or area of interest for either meeting. Also, include location of meeting and time. This should begin by mid-summer and meeting dates should be sent to magazines and trade publications such as Delta Farm Press, Southeast Farm Press, Tennessee Market Bulletin, Ag Pesticide Notes, newspapers, etc.

    b. A follow-up news release should be issued about one month before each meeting. Location of meeting, date, time, and outstanding invitational speakers could be mentioned.

    c. Prepare follow-up news release after the meeting for use by news media.

    d. Send notice to Entomological Society of America and other state societies.

3. Maintain close liaison with the Program Committee in obtaining early copies of the program of both meetings for publicity purposes.

4. Arrange for radio, television, and press coverage of society's meetings by contacting area radio and TV stations just prior to the meetings and by calling the news rooms of local newspapers on the first day of the meetings.

5. Arrange for group photos of outgoing and in-coming officers and directors of the Association at the Annual meeting.

6. Prepare a report of the year's activities for the committee for presentation at the annual business meeting.

7. Post notices on the bulletin boards of the Entomology, Biology, and Zoology Departments in the colleges and universities across the state.

8. Direct mail to members.

1. Dates ('93), ('94) 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

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