21st
SOUTHERN FOREST
INSECT WORK
CONFERENCE

NANTUCKET PINE TIP MoTH
-- MINUTES --

TWENTYFIRST ANNUAL
SOUTHERN FOREST INSECT WORK CONFERENCE

Atlanta, Georgia
August 15-17, 1976
G. D. Hertel, Program Chairman

Unedited

OFFICERS - 1975-76

Chairman --------------------------------- J. E. Coster
Secretary-Treasurer ---------------------- F. P. Hain
Counselors ------------------------------- J. D. Solomon
                                             J. D. Walstad
                                             J. A. Copony

OFFICERS - 1976-77

Chairman --------------------------------- J. E. Coster
Secretary-Treasurer ---------------------- F. P. Hain
Counselors ------------------------------- H. J. Heikkenen
                                             J. A. Copony
                                             J. C. Nord

Prepared at
North Carolina State University
Raleigh, N. C. 27607
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### PROGRAM:

21st Southern Forest Insect Work Conference  

### KEYNOTE ADDRESS:

H. J. Heikkenen  
A Preliminary Report of the Educational Status of  
Forest Entomology, 1976  

### WORKSHOP:

- **The Value, Use and Limitations of Southern Pine Beetle Operations Data Collected by Forest Pest Control Agencies**  
  R. F. Billings, Moderator  
  
- **Tip Moths—Are They Compatible with Intensive Forest Management?**  
  J. D. Walstad, Moderator  
  
- **Some Interrelationships of Pine Seed Development, Physiology, and Insects**  
  G. L. DeBarr, Moderator  
  
- **Southern Pine Beetle Host Selection**  
  H. J. Heikkenen, Moderator  
  
- **Integrated Pest Management--A Useable Tool for Forest Entomologists?**  
  F. M. Stephen, Moderator  
  
- **How to Justify Pest Control Expenditures--An Insight into Benefit-Cost Analysis**  
  W. A. Leuschner, Moderator  
  
- **The Role of Experimental Design and Nonparametric Statistics in Forest Entomology**  
  R. L. Hedden, Moderator  
  
- **The Development of Stand Rating Systems for Managing Bark Beetle Populations--Is it Practical?**  
  P. L. Lorio and R. L. Porterfield, Moderators  

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*WORKSHOP: Pesticide Use Permits, EPA Registrations, Certifications of Applicators - An Update

W. Stevenson, Moderator ---------------------------------------------

BUSINESS MEETINGS ---------------------------------------------------- 35

MEMBERSHIP ------------------------------------------------------------- 41

*Abstract not submitted
Program
21st Southern Forest Insect Work Conference
August 15-17, 1976
Stouffer's Inn
Atlanta, Georgia

Sunday, August 15
6:00 - 9:00 p.m. Registration

Monday, August 16
8:00 - 9:00 a.m. Registration
9:00 - 9:20 a.m. Welcome
A. E. Landgraf
U. S. Forest Service
Atlanta, Georgia
9:20 - 10:00 a.m. Keynote Speaker
H. J. Heikkenen
Virginia Polytechnic Institute and State University
Blacksburg, Virginia "The Current status of education in forest entomology"
10:00 - 10:30 a.m. Coffee
10:30 - 11:30 a.m. Business Meeting
11:30 - 12:00 noon Presentation of Outstanding Contribution Paper
12:00 - 1:30 p.m. Lunch
1:30 - 4:30 p.m. Workshops

I. The value, use, and limitations of southern pine beetle operations data collected by forest pest control agencies.
R. F. Billings
Texas Forest Service
Lufkin, Texas

II. Tip moths - Are they compatible with intensive forest management?
J. D. Walstad
Weyerhaeuser Company
Hot Springs, Arkansas

III. Some interrelationships of pine seed development, physiology, and insects.
G. L. DeBarr
S. E. Forest Expt. Station
Athens, Georgia
4:30 - Special Workshop
Discussion - Southern pine beetle host
selection
H. J. Heikkenen
Virginia Polytechnic Institute and State
University
Blacksburg, Virginia

6:00 p.m. Mixer

Tuesday, August 17
8:45 - 11:00 a.m. Workshops

IV. Integrated pest management - A useable tool for forest
entomologists?

F. M. Stephen
University of Arkansas
Fayetteville, Arkansas

V. How to justify pest control expenditures - an insight into
benefit-cost analysis.

W. A. Leuschner
Virginia Polytechnic Institute and State University
Blacksburg, Virginia

VI. The role of experimental design and nonparametric statistics
in forest entomology.

R. L. Hedden
Texas Forest Service
Lufkin, Texas

12:30 - 3:30 p.m. Workshops

VII. The development of stand rating systems for managing bark
beetle populations - is it practical?

P. L. Lorio
Pineville, Louisiana

and

R. L. Porterfield
Mississippi State University
Mississippi State, Mississippi

VIII. Pesticide use permits, EPA registrations, certifications of
applicators - An update.

W. Stevenson
Pesticide Specialist
State & Private Forestry
Atlanta, Georgia
3:30 - 3:45 p.m. Coffee
3:45 - 5:00 p.m. Final business meeting
7:00 p.m. Review of SFIWC slide series

Wednesday, August 18
A.M. Special interest groups
KEYNOTE ADDRESS TO THE
SOUTHERN FOREST INSECT WORK CONFERENCE


H. J. Heikkenen, Assoc. Professor of Entomology
Virginia Polytechnic Institute and State University

What is the status of forest entomology in the education of American foresters? This question prompted the Society of American Foresters’ Science Working Group in Forest Entomology to conduct this survey during 1976. The country was divided into 6 regions, and the survey subcontracted to: (figure 1).

North
NE: Barbosa
C : Giese

South
SE: Heikkenen
S : Coster

West
NW: Berryman
W : Dahlsten

The preliminary results are herein expressed with regional and national totals, as follows (see Index for complete data):

Forestry Schools (Table 1).

A total of 52 forestry schools in 39 states were surveyed; only one school did not reply. There are 57 professors teaching forest entomology in 50 forest schools. However there are no professors employed at Harvard Univ., Yale Univ. and University of Ill. There are two forest entomology professors at the Universities of Io., Ga., Ida., Org. St., N.C. St. and Humbolt St.

Forest Entomology:

Pre-requisites (Table 2) Students are usually required to have a pre-requisite course before taking forest entomology in about 70% of the schools. These pre-requisites range from Biology (30%) and Forestry (30%) to only 8% needing an entomology course.

When Offered: (Table 3) The forestry schools appear to be about 60% on the quarter system (F,W,S - 10 weeks) and 40% on the semester system (F,S - 16 weeks). However forest entomology is taught about equally between the fall, winter and spring quarters (50-25-25%) or the fall and spring semesters (50-50%). The course is usually offered once a year. Only 4 professors offer their course more than once a year: Jewell-La. Tech. Nebeker-Miss. St., Coster-S.F. Austin, and Wilson-Humbolt St.
Credits (Table 4): The majority of forest entomology courses on the quarter system offer 3 or 4 credits. Most courses on the semester system offer 3 hours of credit, only 4 courses offer 2 credits and one 5 credits.

Laboratory (Table 5): The majority of forest entomology courses, 80% require a laboratory session offering one credit.

Forestry Curriculum (Table 6)

Forest entomology is a required course for foresters in about 60% of the forestry schools. Also, a few schools require forest entomology for majors in wildlife (1), recreation (7) or wood technology (5).

Student Enrollment (Table 7)

During 1975, about 2,441 students enrolled in forest entomology, this is about 80% of the 3041 students who graduated from the forestry schools in 1975 (Theoe, 1975).

Reduced Programs (Table 8)

The possibility of reduced programs in forest entomology may be reflected in the titles of the courses offered. The most common title is "Forest Entomology" in 30 courses (60%). Also, the noun "Entomology" is included in the title of 11 more courses. Thus 41 courses (80%) involve entomology, in either horticulture, shade tree, range or forestry. The possibility of reduced programs may also exist in the remaining 12 courses (25%) which combine entomology with pathology.

In forestry schools where forest entomology has been combined or made an elective, comments were received from 7 professors, for example:

"to combine entomology - pathology - fire into a "protection course", (why not) mesuration silviculture and dendrology into a single course, "Forest Management".

"because of revised...forestry courses...foresters receive 5 weeks of forest entomology...is this adequate?"

"(forest entomology)...formally given FWS quarters for 120-150 foresters, no longer required, enrollment dropped to 6."

"...until 1976 forest entomology was required...usual number of students was 150-170...however curriculum redesigned and course dropped...enrollment dropped to 30."
SAF Accreditation

During the past decade there have been changes in the accreditation standards of the Society of American Foresters. Regarding forest entomology, in 1967 the SAF Council approved definitions of areas of knowledge contained (Webster and Duncan, 1971):

"Forest Protection-importance, principles, and practice of protecting forests from natural enemies such as fire, insects, disease and wildlife. The field is so comprehensive that perhaps it should be more on the broader aspects than on the detailed techniques.

However, by 1976 the subject of forest entomology may be considered under (Anon, 1976):

"d) Forest Ecosystem Management. The science and art of managing the forest to attain desired results. Included here are understanding of silvicultural practices as applied to representative forest types under various goals, analytical techniques for comparing management alternatives in terms of benefits and costs, principles of protecting forest resources against natural and man-caused deterioration, and harvesting methods and utilization standards for sustainable yields of forest products."

Conclusion:

A reduction in the emphasis on forest entomology may be underway. Also there may be reduced training in forest entomology and pathology when the courses are combined in about 25% of the forestry schools. Why this deemphasis and reductions may exist is beyond this survey. However, the conclusion is submitted: The Society of American Foresters should conduct a study of forestry education in America similar to the previous study of Dana and Johnson (1963), to include curriculum demands and changes which may provide an understanding of the changing status of forest entomology in the education of our foresters.
Literature Cited


Fig. 1. The six regions surveyed regarding the status of forest entomology education, 1976.
Table I. The States, Universities and Professors Teaching Forest Entomology.

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a/ No reply from Lowe, U. Mont.
b/ No For. Ent at Hard. U. or U. Ill.
c/ Two professors at Io., S.U.N.Y., N.C. St., Ga., Id., Org. St. and Humbolt St.
Table 2. The Pre-requisite Courses for Forest Entomology

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Table 3. The Scheduling of Forest Entomology

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|       | 23     | 32     |
Table 4. The Credits Offered in Forest Entomology

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|         | 4       | 5       | 6       | 7       |

19 32

Table 5. The Laboratory and Laboratory Credits in Forest Entomology

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9 42
Table 6. Forest Entomology as a Required Course.

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Table 7. Student Enrollment in Forest Entomology

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Table 8. The Course Titles of Forest Entomology, and Allied Courses.

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b/ Includes 2 hrs Sum. Camp.
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\(^a\) U.S.F.S.
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<sup>b/</sup> accepted appointment, 1976

<sup>c/</sup> one course For. prot.
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Gen. Econ. Ent (4hr) required For. & Wildlife Majors
Forest Entomology in American Forestry, 1976

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Total 5 7 8 31 10 3 4 0 1 1 310

\(a^f\) first year offered
WORKSHOP: THE VALUE, USE AND LIMITATIONS OF SOUTHERN PINE BEETLE OPERATIONS DATA COLLECTED BY FOREST PEST CONTROL AGENCIES

R. F. Billings, Moderator
Texas Forest Service
Lufkin, Texas

Each year in the course of detecting, ground checking and controlling southern pine beetle infestations, a large volume of data is collected by State and Federal Pest Control agencies throughout the south. The purpose of this workshop was to 1) review the nature and extent of data collected in individual states 2) discuss the present and potential limitations of this information both for facilitating control operations and for research purposes.

Prior to the work conference, the moderator distributed a questionnaire to the state entomologists in 12 southern states having a S.P.B. problem to determine the nature of operations data being collected. Results of this questionnaire (Table 1) formed the basis for informal discussion.

It was concluded from this table that essentially the same type of information is collected on SPB infestations in all 12 states, but the manner in which the data is stored and used for purposes other than the operations varies widely among states. Most states store the year-end records in written files - not in a form that is readily accessible for post-season analysis. In contrast, Georgia and Texas transfer their records to computer cards, although Texas is the only state that has begun to examine the records for research purposes. The experience in Texas has served to identify the following advantages and disadvantages of using operations data for research.

ADVANTAGES

1. A large volume of data is available on the temporal and spatial distribution of infestations and the history of control action at no cost to the researcher.

2. A historical record of infestation patterns for several consecutive years may yield valuable and unique insights to population dynamics, dispersal, seasonal infestation patterns and impact and effectiveness of control techniques.

3. This data provides area-wide coverage, giving a different perspective to understanding SPB than is available by studying one tree or one infestation at a time.

DISADVANTAGES

1. The extent of data is limited to the minimum required for operations, and does not necessarily include all detailed information a researcher would like to have.
2. Reliability or accuracy of certain types of data (acreages, volumes, 
# trees/infestation) may contain considerable and unavoidable errors, 
although other variables are more precise (dates, locations, types of 
control, etc.)

The manner in which the Texas Forest Service is attempting to utilize 
computerized operations data to facilitate control and to evaluate the 
effectiveness of control tactics was discussed.

It was concluded that the operations data available throughout the south 
represents a valuable yet untapped resource. There is a need to further 
utilize this voluminous data bank although careful consideration must be 
given to its inherent limitations.
TABLE I: Summary of southern pine beetle detection, ground check and control operations data

collected by state pest control agents in the Southern U.S.
Approximately 35 scientists attended this workshop, which was designed to summarize our current understanding of pine-tip moth relationships. A great deal of information was exchanged among the participants, and specific problems were identified which warrant further study and resolution. Space limitations will not permit a full description of the workshop, but the following outline encompasses the topics that were discussed. Further information can be obtained from the appropriate discussion leaders.

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<td>E. Sampling &amp; population dynamics</td>
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<td>2. The tree's point of view:</td>
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<td>A. Growth impact studies</td>
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<td>B. Financial implications</td>
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<td>A. Silvicultural control</td>
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<td>1. Plantations</td>
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<td>4. The entomologist's point of view:</td>
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<td>A. Critical path</td>
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<td>B. Research direction/coordination</td>
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To understand the subtle effects of insects on seed production, a good working knowledge of normal seed development and physiology is essential. Dr. David Bramlett, USDA Forest Service plant physiologist, reviewed female strobili and ovule development of the southern pines. He illustrated what happens both macro and microscopically during pollination, fertilization, and ovule development. Fertilization in pines occurs one year after pollination, and the integument (seedcoat) and ovule change dramatically during seed development. Unpollinated ovules abort. Insufficiently pollinated conelets also abort. Bramlett reminded us that pine seeds lack an endosperm but have a female gametophyte, and that some fertilized ovules develop into empty seed because of combinations of lethal genes.

Bramlett introduced a technique for estimating potential production and categorizing seed losses in cones. He showed us fertile and infertile cone scales and first- and second-year aborted ovules. He then discussed some physiological causes. Finally, he illustrated the concepts of seed potential and seed efficiency. DeBarr and Bramlett emphasized that insects, primarily the seedbug Leptoglossus coeruleus (Say), abort first- and second-year ovules, cause empty seeds, and abort conelets and cones. Macroscopically, seed destroyed by insects are indistinguishable from those resulting from physiological causes.

Bob Karrfalt, USDA Forest Service Eastern Tree Seed Laboratory, outlined two service programs offered by the Lab. Seed Orchard Evaluation Tests (SOSET) are the testing services used from 1971-1973 in the Seed Orchard Survey (SOS). The Cone Analysis Service (CAS) is an operational application of Bramlett's research techniques. Forest entomologists should find these services valuable for estimating the seed potential and efficiency, as well as categorizing seed losses. These procedures along with the crop life table approach suggested by DeBarr and Barber and the procedures developed by Carl Fatzinger's seed orchard sampling committee will provide data essential to impact studies or evaluations of chemicals or biological controls for seed orchard insects.

1Principal Research Entomologist, Southeastern Forest Experiment Station, USDA Forest Service, Athens, Georgia.
Several related topics were also discussed. Larry Barber, S&PF, had observed inadequate patterns of spray droplet distribution in several operational seed orchards. DeBarr announced that the Southern Seed Orchard Pest Committee had registered Furadan® for cone and seed insect control. Barber and Jim McGraw, N. C. State University, showed slides of the John Deere 1500 no-till pasture seeder under evaluation of Furadan® application in seed orchards. Harold Greenbaum, University of Arkansas, showed slides of lepidopterous larvae associated with cones.
WORKSHOP: INTEGRATED PEST MANAGEMENT--
A USEABLE TOOL FOR FOREST ENTOMOLOGISTS?

F. M. Stephen, Moderator
University of Arkansas
Fayetteville, Arkansas

This workshop was conducted in an informal manner. No speakers were asked to present prepared statements, but instead spontaneous interaction among all individuals present was encouraged.

It was generally agreed that integrated pest management was the employment of all suitable techniques to reduce pest populations below an economically damaging level. Included in the criteria necessary for the development of a satisfactory pest management system were: that the ecological consequences, both with regard to the pest and the environment, of the control strategies involved be understood; that realistic economic thresholds be developed which accurately reflect insect population levels and plant damage; that clearly defined forest management objectives exist for the situation in question; and that methods be available for the clear transfer of the knowledge necessary for the system to function.

The question was raised as to whether or not any pest management systems were in existence for forest insect pests in the south. Following a long pause, Jack Walstad claimed that Weyerhaeuser felt they had a functional pest management system now developed for Pales weevil. The discussion which followed touched on the aspects of the Pales weevil management program which fitted the above criteria. Many of the criteria of an integrated pest management system were indeed met by their project.

Jack Walstad, Weyerhaeuser, and Fred Stephen, University of Arkansas, then presented for comment and criticism a conceptual outline of their intended research efforts designed at the development and implementation of an integrated pest management system for Nantucket pine tip moth in the intensively managed pine plantations of Arkansas. Discussions followed on the type of data needed for the successful development of the system, the economic impact of Nantucket pine tip moth as determined by Weyerhaeuser, and the importance of both short- and long-term research efforts in the successful implementation of the system.

The question was raised as to whether or not integrated pest management will ever become a reality with pest problems of a nature similar to the southern pine beetle situation. The point was brought out that given the complexities of the southern pine beetle problem (eg. diversified ownership patterns, varied management objectives, differences in access, timber types, soil and site conditions, climate, and financial status of the various owners) a "pest management system" was not feasible. Rather, pest management strategies would most likely differ greatly, dependent in part, on the above variables. It was agreed that we are most certainly a long way from attainment of these goals.
Other situations were outlined in which integrated pest management was more of an imminent reality. These were primarily where management objectives and other related variables were more clearly identified, such as with the growing of Christmas trees, or production of seed in seed orchards.

A further point that was brought out was that some, in the desire to embrace the currently popular pest management philosophy, are perhaps just giving lip service via the proper terminology, yet in reality are doing little different than was previously the case.
WORKSHOP: HOW TO JUSTIFY PEST CONTROL EXPENDITURES - AN INSIGHT INTO BENEFIT-COST ANALYSIS

A. Leuschner, V.P.I & S.U., Moderator
E. Gunter, S & PP, Northern Region - Panel Member
W. Wisdom, V.P.I. & S.U. - Panel Member

Individual abstracts were not submitted because the workshop was informal. The discussion was wide-ranging and covered items from technical aspects of B-C analysis to general decision making procedures and needs. Specific points discussed included:

- Benefit-Cost analysis can be defined by the formula:

\[
\sum_{n} B_n \frac{1}{(1+i)^n} - \sum_{n} C_n \frac{1}{(1+i)^n}
\]

where: \( B_n \) = the benefits occurring in the \( n \)th year

\( C_n \) = the costs occurring in the \( n \)th year

\( i \) = the discount rate, usually set at 0.10 by OMB for most federal projects.

- Benefits should include both timber and non-timber products such as recreation and esthetic values. However, some non-timber benefits are hard to evaluate because they are not sold in a market and hence they are often omitted.

- B-C analyses are used as decision guidelines. For example, any project where the benefits are less than the costs (the ratio of B/C is less than 1.0) is usually not undertaken. Another guideline, where there are several projects to choose between, is to calculate the net benefits (B minus C) for each project and then undertake the project which is the largest, positive net benefit.

- B-C Analyses require a lot of basic information about damages. Often, this information is unknown or would take manpower and funds away from control activities to obtain it. This is particularly true in state agencies where the largest staff consists of six men.

- B-C analyses are not needed for decision guidelines for many agencies because they do not have enough money and manpower to do even the obvious control activities such as control where basal area and beetle numbers are high. (Moderator's Note: B-C
analysis could help allocate funds to those control activities where they would do the most good).

- Many agencies have basic decision philosophies or policies. These include minimizing losses as they recognize they can't eradicate insects and controlling outbreaks while they are small.

- Reporting only those SPB spots having more than a minimum number of trees (e.g. spots ten trees or more) may have ethical overtones, because some landowners will not be told they have spots on their land. However, this practice is followed because it is costly to field check smaller spots and because smaller spots often die out naturally. This practice reflects a form of B-C analysis because it has been found the costs of field checking small spots are greater than the benefits of knowing whether the spot is active, particularly considering that small spots tend to go inactive naturally.

- There are likely to be more B-C analyses required in the future because of the Resources Planning Act and other congressional actions to control federal spending.

- B-C analyses can be helpful because they can make decision making more explicit and can lead to refined estimates.
WORKSHOP: THE ROLE OF EXPERIMENTAL DESIGN AND
NONPARAMETRIC STATISTICS IN FOREST ENTOMOLOGY

R. L. Hedden
Texas Forest Service
Lufkin, Texas

The workshop began with a general discussion by Ms. Janey Pederson of nonparametric statistics. Topics which were discussed included the advantages and disadvantages of using nonparametric techniques, the role of experimental design in the use of nonparametric statistics, and the scope of nonparametric and nondistribution methods. This discussion was concluded with an example of a nonparametric technique for comparing two regression lines.

The next discussion dealt with the problems of experimental design in evaluating pheromone trap catches. Sources of variation which were mentioned included trap location, trap size, time of day, season, etc. The consensus of the group was that elimination of noise in pheromone experiments was extremely difficult and that the appropriate experimental design depended on the target species and the level of resolution necessary to detect differences in trap catch.

The topic of pheromone trap catches led to a discussion of "biological" versus "statistical" significance. It was pointed out that statistics are merely a tool to allow a scientist to make an unbiased decision about a specific hypothesis and that it is permissible for an investigator to make such a decision based upon experience without the aid of statistics. Non-statistical decisions should be made with extreme caution.

The last topic discussed dealt with the development and analysis of insect life tables. The discussion primarily dealt with the problem of overlapping life stages and overlapping generations. The impact of re-emerging and re-attacking female southern pine beetles on life table analysis was also mentioned.
WORKSHOP: THE DEVELOPMENT OF STAND RATING SYSTEMS FOR MANAGING BARK BEETLE POPULATIONS—IS IT PRACTICAL?

P. L. Lorio and R. L. Porterfield, Moderators
Southern Forest Experiment Stn. Mississippi State University
Pineville, Louisiana Mississippi State, Miss.

STAND RATING SYSTEM — T. R. Dell, Southern Forest Experiment Station,
New Orleans, LA

What do we mean by "a stand rating system"?

My assignment was to guide our discussion on the topics of data requirements for establishing a stand rating system and methods of evaluating such a system. My efforts to develop these topics were hampered by the recurring question: What do we really mean by a "stand rating system"? So as a preliminary, let's talk to that question and begin by attempting to bracket this target.

What are the likely variables to define rating differences?

To initiate the discussion let me present the following variables that were given by Pete Lorio in a recent research proposal: species, age, size, density, landform, soil texture and water regime. In addition, let's review the variables and approaches that were used by various groups working with the mountain pine beetle.

How can we evaluate a stand rating system?

To a great extent the mechanics of evaluation will depend upon the nature of the variable we are predicting. Thus, if the system is designed to simply classify a stand into say one of three broad classes (low, medium, and high) our validation effort would be different than if we required the system to predict the dollar value of losses in a given stand over a specified period. However, we might still try to outline some broad features that would be desired in any evaluation or validation effort.

USEFULNESS OF HAZARD RATING SYSTEMS — Clifford A. Meyers, Southern Forest Experiment Station, Nacogdoches, Texas

Usefulness of rating systems can be evaluated by examining several western examples. Factors used in ratings include:
1. Spruce beetle in Engelmann spruce, Central Rockies—Physiography (site index and topography), average d.b.h, stand basal area, percentage of spruce in canopy.

2. Mountain pine beetle in lodgepole pine, Northern Rockies—Habitat type, range of stand diameters (related to phloem thickness and food availability).


Variables worthy of examination in setting up a rating system for the southern pine beetle include: (1) average stand of d.b.h., (2) stand basal area, (3) soil drainage, (4) site quality using site index or other index that correlates with soil depth, and (5) amount and type of stand disturbance. A practical system will be based on factors that are or can be measured readily by inventory crews.
Jack Coster, SFIWC Chairman, called the meeting to order. He announced that 99 entomologists had registered at the work conference. Wayne Berisford, Department of Entomology, University of Georgia, was named Program Chairman for the 1977 work conference.

Fred Hain, SFIWC Secretary-Treasurer, discussed the format of the minutes and reminded the work conference moderators of the new format adopted at the 1975 meeting.

Jack Coster announced two vacancies for SFIWC counselor. Jim Solomon's term expired and Jack Walstad resigned due to a transfer outside the region. Cal Morris was named Chairman of the Nominating Committee for replacements.

The Ethical Awards Chairman warned the conference that his committee was present and would be observing and evaluating the moral fiber of the conference participants.

Jim McGraw, Chairman of the Common Names Committee, submitted a list of 11 names for consideration. All were approved by the conference. The following names were submitted to the ESA for approval to be added to the list of "ESA Approved Common Names of Forest Insects in the South" which appears in the 1975 SFIWC minutes:

<table>
<thead>
<tr>
<th>Proposed Common Name</th>
<th>Scientific Name</th>
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<tr>
<td>leaffooted pine seedbug</td>
<td>Leptoglossus corculus (Say)</td>
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<tr>
<td>shieldback pine seedbug</td>
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<td>slash pine flower thrips</td>
<td>Gnaphothis fuscus (Morgan)</td>
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<td>pine conelet looper</td>
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<td>white pine coneborer</td>
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<td>longleaf pine seedworm</td>
<td>Laspeyresia ingens Heinrich</td>
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<td>eastern pine seedworm</td>
<td>Laspeyresia toreuta (Grote)</td>
</tr>
<tr>
<td>scarlet oak sawfly</td>
<td>Caliroa quercuscoccinea (Dyar)</td>
</tr>
</tbody>
</table>

If anyone has a common name that he or she would like the conference to consider, please contact Jim McGraw.

Ron Billings, Chairman of the SFIWC Slide Series Committee mentioned that a letter was sent out to the conference membership asking for new slides that could be incorporated into the slide series. These slides were on hand and would be reviewed at 7 p.m. Tuesday, August 17. Because of the revision, the cost of the slide series was not established but Ron could be contacted at a later date.
Mike Remion discussed the data collected by the Committee on Losses Caused by Forest Insects. His report was distributed to those in attendance. Additional copies are available upon request to Mike.

Harry Yates reported that Arnie Drooz of the U. S. Forest Service, Research Triangle Park, NC, has been assigned the task of revising Baker's book of Insect Enemies of Eastern Forests. 26 reviewers had been contacted and 16 reviews had been finished. Poor quality of the keys and photographs were the chief complaints. The keys may be dropped from the book. The goal for completing the revision is January 1, 1977. It was mentioned that Keen's book on western forest insects is being edited and should become available soon.

Old business: None

New business:

Lloyd Warren, Arkansas Experiment Station Director, announced the proposed region project on seed and cone insects was approved by the committee of nine as S-118. He also advised the group that the Southern Directors of Experiment Stations did not approve of the meeting policy established in Baton Rouge to alternate the meeting site between Atlanta and New Orleans. He urged the conference to rotate the site, as in the past, with special consideration to land grant colleges.

Harry Yates agreed with Lloyd Warren's comments. Harry had sent a letter to selected members of the conference voicing his disagreement with the meeting policy established at Baton Rouge. The letter made the following points: 1) Local arrangements would be a burden to the same people under the Baton Rouge policy. 2) The value of visiting different locations would be lost. 3) Attendance of graduate students would be poor. 4) Costs in Atlanta or New Orleans would be high.

Harry moved that the annual meeting date and site of the SFIWC be selected by the executive committee from invitations by conference attendees wishing to host the conference. Furthermore, in the spirit of established precedent the annual conference location should be alternated from east to west thereby more equitably sharing the travel cost and travel time between attendees.

Bill Leuschner spoke against the motion. He said that in the past we have not visited universities or other entomological installations, and the expense of meeting in Atlanta or New Orleans would not be greater because of reduced travel time.

Ken Swaine said that the policy of the Western Forest Insect Work Conference is to keep one day in the program open for field trips. It was emphasized that the meeting is a work conference and not a scientific convention.

Paul Buffum pointed out that voting on this issue has not been satisfactory because it has been done at the final business meeting where attendance is generally poor. Jack Walstad asked that the vote
be made now and this was agreed to.

Harry Yates repeated the motion. The vote was 72 in favor, 5 against, and the motion passed.

Ken Lewis, Chairman of the Outstanding Awards Committee, introduced the members of his committee. He announced the changes in procedures initiated by the committee for establishing the award. This involved a greater distribution of the letter soliciting papers to include administrative supervisors and a review of the winning paper to be given by the author(s) at the work conference. Ten papers were submitted. "Seed and cone insects of southern pines" by B. H. Ebel, T. H. Flavell, L. E. Drake, H. O. Yates III, and G. L. DeBarr was selected. Plaques were presented to the authors and Bernie Ebel reviewed the publication for those in attendance. The meeting was adjourned by Jack Coster.
MINUTES--FINAL BUSINESS MEETING
OF SFIWC ON AUGUST 17, 1976

The meeting was called to order by Jack Coster, Chairman SFIWC.

Gus Nachod announced a meeting of the state forest entomologist to be held Wednesday morning.

Ron Billings reminded the conference of the slide series review to be held this evening at 7 p.m.

Fred Hain gave the treasurers report which is attached to these minutes.

Cal Morris, Chairman of the Nominating Committee, nominated Jack Heikkenen for senior counselor, and Jack Nord and Iral Regenovich as first year counselors. No nominations were received from the floor. Elections were held by secret ballot and the results were:

Jack Heikkenen    Senior Counselor
Jack Nord          First Year Counselor

No ethical award was granted this year due to the exemplary conduct of the conference members, or due to the constant inebriated state of the Ethical Awards Committee which was unable to function as unbiased observers (take your pick.)

Jack Coster gave thanks to the workshop moderators for their help at the conference.

New Business:

Jim Richmond pointed out the low participation of minorities in the work conference and expressed a hope for more minority involvement especially blacks and women. He suggested that the work conference address the topic of minority participation in agro-forestry.

Evan Nebeker mentioned the poor attendance of graduate students and expressed the hope that this situation would be corrected in future meetings.

Evan also asked that conference members be notified in advance of changes in the conference schedule so that individuals could plan accordingly.

Jack Heikkenen suggested that the conference provide an open-paper session for those, including graduate students, who have some information or ideas they would like to convey to the conference.

Jack Coster asked for opinions on the new procedures for establishing and presenting the Outstanding Award. All comments were favorable.
Invitations for Next Year's Meeting Site:

Jack Heikkenen invited the conference to Blacksburg, Virginia in 1978. He said he needed one year to arrange transportation. For 1977 Roy Hedden invited the conference to Hot Springs, Arkansas where the Weyerhaeuser Research Center is located. Fred Stephen supported the invitation. No other invitations were given.

Wayne Berisford, Program Chairman for 1977, called for program suggestions. He said he would be available after the meeting or could be contacted by mail or phone.

Jack Coster closed the meeting by recognizing the outstanding program for 1976 which was orchestrated by Gerry Hertel.
TREASURER'S REPORT

August 1975 - August 1976

Balance 8-1-75 $519.93

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Balance August 1, 1976 ...........$997.53
**MEMBERSHIP**

**SOUTHERN FOREST INSECT WORK CONFERENCE**

Note: Members registering at Baton Rouge, Louisiana are indicated by an *

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<th>Name &amp; Title</th>
<th>SFIWC Organization</th>
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<tr>
<td>Larry Abrahamson</td>
<td>U. S. Forest Service</td>
<td>Forest insect</td>
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<tr>
<td>Pesticide Specialist</td>
<td>Federal Building</td>
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</tr>
<tr>
<td></td>
<td>324 25th Street</td>
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<tr>
<td></td>
<td>Ogden, Utah 84401</td>
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<tr>
<td></td>
<td>(801)399-6394</td>
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<tr>
<td>Larry Alger</td>
<td>Dept. of Entomology</td>
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<td>VPISU</td>
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<td></td>
<td>Blacksburg, VA 24015</td>
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<tr>
<td></td>
<td>(703)951-5712</td>
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<tr>
<td>*Larry R. Barber</td>
<td>S &amp; PF</td>
<td>Cone &amp; seed insects</td>
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<tr>
<td>Entomologist</td>
<td>P. O. Box 5895</td>
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<td></td>
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<tr>
<td>*Patrick J. Barry</td>
<td>U. S. Forest Service</td>
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<tr>
<td>*C. Wayne Berlisford</td>
<td>Dept. of Entomology</td>
<td>Bark beetle parasites, pheromones,</td>
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<tr>
<td>Associate Professor</td>
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<td>and toxicants.</td>
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<td>Tip moth biology,</td>
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<td>Alan A. Berryman</td>
<td>Washington State Univ.</td>
<td>Bark beetle ecology</td>
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<td>Professor</td>
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<tr>
<td>*Ron Billings</td>
<td>Texas Forest Service</td>
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<tr>
<td>Martin Birch</td>
<td>Dept. of Entomology</td>
<td>Behavior of insects,</td>
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<tr>
<td></td>
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<td>bark beetles</td>
</tr>
</tbody>
</table>
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Auburn, Alabama 36830
(205)824-4680
Pine Bark beetles
<table>
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<td>Jim Hylwzd</td>
<td>Alabama Forestry Comm.</td>
<td>Montgomery, Alabama</td>
<td>All &quot;forest&quot; insects</td>
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<td>Chief, Pest Control</td>
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<td>Paul C. Johnson</td>
<td>Stephen F. Austin St. University</td>
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<td>Bruce Kauffman</td>
<td>Tenn. Div. of Forestry</td>
<td>Nashville, Tennessee</td>
<td>SPB, seed &amp; cone insects, pales</td>
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<td>William Lambert</td>
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<td>Bill Leuschner</td>
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<td>VPI &amp; SU</td>
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<td>Kenneth R. Lewis</td>
<td>Texas Ag. Ext. Service</td>
<td>Overton, Texas 75684</td>
<td>Continuing education, forest insects</td>
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<td>Area Entomologist</td>
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<td>P. L. Lorio, Jr.</td>
<td>USDA, Forest Serv., SFES</td>
<td>Pineville, Louisiana</td>
<td>Soil and stand conditions associated with SPB infestations</td>
</tr>
<tr>
<td>Principal Soil Scientist</td>
<td>2500 Shreveport Highway</td>
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ESPBRAP - species competition
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<th>Position</th>
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