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"The Butterflies of Jasper Ridge"

Paul R. Ehrlich

This area is grassland of serpentine soil on the Stamford Campus.

This research by Mr. Ehrlich has been on the checker-spot butterfly, Euphydryas editha, started in 1960 to discover unanswered problems of population biology. Two questions of inquiry; what were controls of populations and supplies of plants? What were the pressures that caused evolution or changes in animals or plants.

Since the work started it was discovered that the caterpillar of E. editha hatch in late spring and they feed on Plantago erecta, a native plantain where it dies for the summer and the caterpillars go into a resting period. When new plantains grow again the larva start feeding again. Then they mature and mate. The next March or April they emerge as a new generation.

Since 1960 it has been discovered that there are three separate populations and each behave as an independant group. One population has since become extinct. These populations and their extent were discovered by capturing individuals and marking, in code, their wings with colored ink spots. Recaptures were noted and it was found that each population kept itself separate.

Another food plant was discovered known as Owls clover, (Othocarpus densiflora). This plant insured that the larva would survive when no plantago was available. This plant grows only on serpentine soil.

In 1966, a new operation by Richard C. Lewontin, Harvard, and J.L. Hubby, Univ. 1 of Chicago, used the techneque to gel electrophoresis, which detects genetic variants of enzymes (allozymes). The electric field separates the variants and moves them different distances.

By this procedure it was found that there was little or no gene flow between most populations. Individuals mostly stay put and a migrant's contribution genetically is low.

Females in a population mate first with males they hatch with.

By results in this way of examinations of enzme patterns it is now evident that population to population enzme variation is under selection control.

Because of these discoveries the species is not an ecological unit nor is it a genetic unit.

A speculation of the Author is that the general answer will be that factors controlling the distribution and abundance of organizims varies greatly from population to population, selection is the overiding evolutionary force.

P.J.H.Jr.

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Editorial

An article on Checker Spot butterflies was not included in the June issue of the Journal. It had to do with genetics among the butterflies in their ecological populations near Davis, California.

It was a surprise and a pleasure to hear the talk given by Dr. Nunamaker on his work identifying various strains and regional bees all over the world. One of the surprises, as I understood the talk, was that the U.S. has no purebred stocks of bees anywhere. They are genetically mixed and as many as eight variants can be in one hive.

The report by Mr. Gamber about honey adulteration is really serious and bad for consumers of honey. He asked beekeepers to purchase suspected samples of honey and send them to be analysed.

The Varroa mite was pictured as worse than any of the foul broods and that by all means available should be used to keep it out of the U.S. There has been no remedy as yet to get rid of it once it shows up.

Mr. Weiss admonished all beekeepers to attend these conventions as a means to replenish their spirits and to know whats going on in beekeeping everywhere.

P.J. Hewitt, Jr. Editor

EAS Journal:

Advertisements and material for publication should be received by the 15th of the month previous to publication; Feb., April, June, July, October, December.

EAS Convention Highlights

Several highlights were: the barbeque at the Carriage barn on the family farm of the Webb's, owners of the Shelbourne Museum. It rained so the meal was held inside the buildings which formed a quadrangle. No one had to be out in the rain. The Mansion on the hill was open for visitors who toured the house and grounds.

Dr. Eric Ericson from the Univ. of Wisconsin gave an evening showing of slides which were micro-photos of various external views of bee anatomy. The subjects were vacuum dried and then dusted with metalic gold to bring out minute details. These pictures will sometime be published as a book.

Mr. Ralph Gamber reported on work done to catch and stop packers from adulterating honey with corn syrup.

Mrs. Besse Clark gave a very nice talk on cooking with honey in various recipes.

Mr. Edward Weiss gave a short talk on his entry into beekeeping and what it meant to him. Slides and statistics were shown on treatment of arthritic conditions in dogs and horses and their recovery from the symptoms.

The turnout for State Newsletters was better than last year. Nine were shown.

Dr. Richard Nunamaker from the Univ. of Wyoming, receipient of the Student Award, associated with the Hamilton Award Fund, gave a talk and slide show on "ISELECTRIC FOCUSING AS A MEANS OF IDENTIFYING RACES OF HONEYBEES."

The Varroa mite was discussed by Dr. Roger Morse and the consequences of its presence.

The Banquet was well attended with a program of awarding silver trays and pewter bowls for the various departments in the Honey and Wax Show and related subjects.

P.J. Hewitt Jr.

1980 - Vermont Conference
State by State Attendance
Burlington, Vermont

California	6	New York	63
Connecticut	39	North Carolina	2
Delaware	4	Ohio	18
Florida	2	Pennsylvania	50
Louisiana	1	Texas	1
Maine	13	Rhode Island	32
Maryland	31	West Virginia	3
Massachusetts	109	Wyoming	1
Michigan	7	Vermont	74
Missouri	1	Virginia	18
New Hampshire	8	Canada	28
New Jersey	69		

TOTAL - 580 - 22 STATES AND 2 CANADIAN PROVINCES

Honey Show Awards 1980

1. THE DADANT & SONS, INC. Award for Beeswax	SUZANNE WOJCIK Lambertville, N.J.	(Silver Tray)
2. THE A.I. ROOT COMPANY Award for Comb Honey	HAROLD GREEN Palmerton, PA	(Silver Tray)
3. THE SPEEDY BEE AWARD For Extracted Honey	MRS. ELOISE DAVIS Fairfax, Virginia	(Silver Tray)
4. THE THOMAS E. RANEY AWARD For Honey Cookery	MRS. ROBERTA GLATZ Feura Bush, N.J.	(Silver Tray)
5. THE PRESIDENTS AWARD For Chunk Honey	MR. SANFORD MOSS Newport, Mass.	(Silver Tray)
6. THE DIRECTORS AWARD For Gadget Show	MR. NORMAN BANTZ Yonkers, N.Y.	(Silver Tray)
7. THE CARLTON SLATER AWARD For Mead	MR. JOSEPH UTTARO Arlington, Mass.	(Silver Tray)
8. THE ROSS ROUNDS AWARD For Circular Comb Honey	MRS. HELEN LIGHT Feeding Hills, Mass.	(Golden Bee)
9. THE HUGH MACLEOD AWARD For Honey Show	MRS. ELOISE DAVIS Fairfax, Virginia	(Pewter Bowl)
10. EAS SWEEPSTAKES AWARD For Honey Cookery	MRS. NORMA WRIGHT Chester, Conn.	(Pewter Bowl)

Bees Don't Discriminate They Like All Kinds Of Plants

Elbert R. Jaycox, Extension Beekeeping Specialist
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Illinois Natural History Survey
Urbana, Illinois 61801

Honey bees take advantage of whichever plants offer them worthwhile quantities of nectar, pollen, or propolis. The bees do not discriminate between plants that humans cultivate or those they try to destroy. As a result, there is a fairly long list of plants that beekeepers readily tolerate or encourage, while other people may be working hard to eradicate them. The list includes such plants as star thistle, knapweed, purple loosestrife, Canada thistle, climbing milkweek, poison oak, dandelion, ragweed, mesquite, tamarisk, Brazilian pepper tree, and the Australian Melaleuca tree.

The last 2 species are particular problems in Florida, where they provide nectar for bees and bring harsh words for beekeepers who defend the presence of these plants. The Melaleuca tree has very showy white blossoms with considerable nectar and a volatile odor that causes allergic reactions and respiratory problems in some people. The plant is easily spread and is taking over in some areas of the Everglades where it uses large quantities of water. Studies are underway to find uses for the wood in making products such as wood oil, char, and gas.

The Brazilian pepper tree is a far worse pest than the Melaleuca, and its continued cultivation can hardly be justified, even by beekeepers. In a paper in **Economic Botany** in 1978, Julia F. Morton vividly described the impact of the tree on people, animals, and the environment.

The material that exudes from the trunk of the Brazilian pepper can cause lesions resembling second-degree burns. Even the "resinous exhalations" of the tree can cause skin eruptions on individuals who might sit for long beneath the tree. It is also risky to cut down or prune the tree. The rashes caused by these actions, and others such as carrying the trimmings away, have not always been properly diagnosed by doctors. The airborne volatile chemicals from the blossoms cause many human reactions, expecially in the main blossoming season but at other times as well. It seems possible that the honey could also cause reactions in sensitive consumers.

Calves and horses have been injured and even killed by the Brazilian pepper. Goats seem to be able to eat it with impunity. There is reason to believe that some massive bird kills, originally blamed on pesticides, may have been caused by heavy ingestion of Brazilian pepper berries by the birds.

The impact of the tree on the environment can be measured, in part, by the number of seedlings that can be found growing on cultivated and uncultivated land. In a 20-acre abandoned tomato field there were 4,200 seedlings over 6 inches tall! The plants outgrow and overwhelm other species and form dense thickets.

Ms. Morton concluded her article by saying, "Concerted efforts are needed to combat this public-health and environmental menace but are meeting opposition by a minority of misguided plant lovers and highly vocal, profit-motivated beekeepers, with no convern for the well-being of fellow men; animals, domesticated or wild; or natural vegetation."

Differences In Bees

Ohio State Beekeepers Assn. Meeting

Report by:

Dr. Malcolm T. Sanford
Extension Apiculturist
22 B & Z Building
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Columbus, Ohio 43210

Dr. Robert Nunamaker, an unannounced speaker from the U.S.D.A. laboratory in Laramie, Wyoming, capped the meeting with a new look at the inherent variability of honey bees.

Dr. Nunamaker uses a technique called isoelectric focusing to establish the kinds of enzymes found in different bees. These enzymes, it seems, all do the same thing for the bees, but fortunately, especially so for Dr. Nunamaker, each is a little different in makeup. This difference is exploited using an old technique called electrophoresis, of which isoelectric focusing is an offshoot. Basically, the enzymes isolated from bees are subjected to an electric charge and each then migrates to a specific position on a bed of jelly used for support. A band is formed of these separate enzymes and they can then be stained for to aid in identifying them.

The technique, however, is not so important as the results. Samples of the same aged bee (those just emerging) have been sent to Dr. Nunamaker from all over the world, and he also spent considerable time in Mexico collecting last year. His results show a great difference in honey bees all over the globe. One focus of the study was to see if it was possible to detect differences between true Africanized honey bees, European subspecies and the volatile cross between these two, the Africanized or Brazilian bee. Preliminary results of the work indicate this is possible using isoelectric focusing. A definite, dominant type of enzyme was found in true African races (the cape bee excepted) and also is preponderant in those tested in Brazil. Some bees in Mexico and Guatemala, however, areas that have never been Africanized to anyone's knowledge, also showed some of the same enzymes.

The results also indicated we have a hodge podge of stock in this country with some bees even from the same colony being extremely different in enzyme makeup. This corraborates what many have believed for a good long time. All bees are not the same, even among so-called pure races. None appear to exist due to the great mobility the insects have enjoyed since their introduction into the United States. These differences in bees account for the reluctance by many to categorically state the value of management techniques preferring instead on occasion to hedge with the adage, "the only way to really know if it works is to let the bees tell you."

Beekeeping In Colleges And Universities

Elbert R. Jaycox, Beekeeping Specialist

In 1979, E.P. Pieters published the results of a survey of entomology courses being taught in the Unites States. As part of entomology, beekeeping classes were included in the survey. Thirty of the 51 schools returning questionnaires offer beekeeping. Only 2 schools require entomology students to take the beekeeping class. A beekeeping laboratory is included at 28 schools and 11 have a special syllabus or workbook for the course. On the average, 50 students per year take the beekeeping class, or about 1500 students altogether.

Beekeeping classes have the third highest enrollment of all entomology classes, being exceeded only be general entomology and economic entomology. There were more students in beekeeping than in insect biology, forest entomology, livestock entomology, and insect pest management.

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Single $3.00 Couple $4.00 Family $6.00 Individual Life Membership $100.00

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