President Address

NEEDED—PUBLICATIONS ON FLORIDA INSECTS

F.E.S. Presidential Address

DALE H. HADECK
Dept. of Entomology and Nematology
IFAS University of Florida
Gainesville, FL 32611

How many times have you tried to identify an insect and then discovered that there wasn't any publication you could go to for a key or description? Or even if there was, it wasn't available and you had to order it on interlibrary loan. By the time the publication arrived, the identification had become of secondary importance and you were busy with other problems. Or supposing the publication did arrive and then you discovered that there was no key to species, or maybe not even to genera, or maybe there were no illustrations or no information on biology or hosts or distribution. By this time you have invested considerable time and effort and you are left wholly disgusted and frustrated. So this specimen is discarded or set aside to be eaten by other insects or destroyed through neglect. Of course there is another solution. Preserve it, label it and send it to a taxonomist at the Florida Department of Agriculture and Consumer Services Division of Plant Industry's Bureau of Entomology or to the United States Department of Agriculture's Systematic Entomology Laboratory at Beltsville, Maryland. You may get a name back within a week especially from DPI or you may not get an answer for weeks, months or maybe never. When the identification arrives, it may be only to genus and more often than not will have very little information along with the identification. Why is this? First of all, taxonomists are usually very busy and most of them already have more projects underway than they can possibly complete. Frequently, they are responsible for making identifications on very large groups of insects often including a group or two that they are not particularly interested in. The taxonomists at the Systematic Entomology Laboratory are primarily rewarded by the number and quality of research publications they produce so that usually gets a higher priority than identifying specimens. They simply do not have time to provide you with information on biology, hosts, etc. Besides, if they provide you with an identification you should be able to look up the other information yourself. Also, the taxonomists know that however noble your reasons for wanting this information, it is quite likely that it will never be published or result in anything very useful. This is certainly true when you send in an insect simply because you have never seen it before or it looks interesting. Even then it may be of some value, if it results in a new county or host record.

If you as a professional entomologist have problems with insect identification and finding out what information is available, think of the novice who has just discovered how interesting and fascinating insects are and who wants names for the insects he has collected and observed. I am using he as an example, but remember that it is just as likely to be a she. Now I am not talking here about the amateur who collects insects as a hobby. The amateurs usually specialize in butterflies, larger moths and the more showy beetles. It has been my experience that these amateurs are usually as knowledgeable (or more) about their groups as professional entomologists, especially after they have been at it for awhile. We need to encourage them in their studies because they frequently have inordinate amounts of dedication and enthusiasm and they pursue their interests with unbridled fervor.

Let's consider the high school student who has just discovered insects. Where can he turn for information? He will probably be very frustrated unless he lives near a
collection or unless he is interested in butterflies. There are quite a few good books which illustrate all of the butterflies in the United States and provide information on host plants, biology, immature stages and distribution. With the aid of one or more of these books he should be able to identify almost any butterfly he collects. But supposing his interest lies with some other group of insects—dragonflies, katydids, cicadas, wasps, hover flies or some other group—where does he go for information? There are very few comprehensive treatments of insects, other than butterflies, available. Those that do exist are frequently out of date, inadequately illustrated or very incomplete. And even if they are available, would he be able to find out about them or get access to them. Most of the treatments available are field guides which must appeal to a widespread audience so they only contain common, widely distributed species as well as some of the more common or interesting regional species. Insects unique to Florida, especially south Florida, are omitted unless they are exceptionally pretty, large, or otherwise different. These books are simply inadequate for the identification of Florida insects.

Just what then is available and useful for identification of Florida insects? In two words—very little. There is as far as I know only one book—"Florida Insects" by Lewis Maxwell. This small book is inexpensive and illustrates with black and white photos each species that is discussed. It includes many of the injurious species and others which are large and likely to be encountered including some of the larvae. However the number of included species is small. The next best possibility for identification and information of Florida insects would appear to be the series Arthropods of Florida and Neighboring Land Areas. This continuing series published by the Florida Department of Agriculture and Consumer Services, Division of Plant Industry began in 1965 and so far consists of 11 volumes with number 12 in press. The 12 volumes vary widely in content and coverage. Vol. 1, The Lepidoptera of Florida has 363 pages and includes nearly 2500 species, while Volume 2 on the widow spiders covers 4 species in 5 pages. Most of the volumes cover Florida species and perhaps a few additional species from surrounding states that might be found in Florida at some future time, but Volume 5 covers the Solpugida of North and Central America as well as the West Indies. The Lepidoptera of Florida is essentially a check list with distribution and host information, but it contains no keys or descriptions to help with identification. About 880 or one fourth of the species included in the book are illustrated in 6 colored and 20 black and white plates. In contrast. Volume 8 on the Laparosticti Scarabaeidae includes keys to and descriptions of genera and species, distribution maps and much biological information.

**ARTHROPODS OF FLORIDA SERIES**

12. Coreidae—Baranowski & Slater, in press.
At the present rate of publication, it will take many centuries to cover the insects of Florida and even more to do all the arthropods. I hope that there is some way to speed up the publication of these volumes. If more volumes were written, I feel sure that some way would be found to get them published. No volumes were produced from 1979-1983. Instead of a gap in publication, there ought to be 2-3 volumes each year. This would increase interest in the series and provide much needed information.

It may appear that I am being overly critical of the "Arthropods of Florida" series. I am simply pointing out what I see as some of the shortcomings of the series. Despite the problems of Volume 1 on Lepidoptera, I have worn one copy completely out and am working on two more copies, one at the laboratory and one at home. Also, I must admit that I am one of the entomologists with a taxonomic interest who has not produced any of these volumes.

The following list of publications on subfamilies or larger groups of Florida insects was compiled with the assistance of the taxonomic entomologists at the DPI. This list does not include taxonomic treatments covering areas larger than Florida. The publications vary widely in coverage from some that are little more than checklists to those that are very complete. There are undoubtedly other useful publications on Florida insects that I have overlooked or are not included. Even if there are twice as many as are listed, our fauna is poorly covered taxonomically.

**COLEOPTERA**
- Chrysomelidae—Blatchley, 1924.
- Coccinellidae—Merrill, 1922.
- Scarabaeidae—Blatchley, 1927-30.
- Water beetles—Young, 1954.

**DIPTERA**

**MISCELLANEOUS**
- Plecoptera—Stark & Gauzin, 1979.

Scientists are not likely to agree on just what should be included in a taxonomic treatment. In my opinion, the ideal taxonomic work should include the following:
- Scientific name, synonymy and any common names.
- Keys (and illustrations necessary to use them).
- Species treatments with brief descriptions.
- Characteristics to separate it from other similar species.
- Figures
- Distribution (geographic and seasonal).
- Hosts.
- Notes on biology and immatures.

There are many taxonomic treatments which do not include all of these subjects. Many have very few illustrations, or the illustrations that are provided are not useful in using the keys. There is a treatise on a group of Diptera in which there is absolutely no mention of biology or immatures. Obviously this is a very strange group of flies which have only an adult stage.
Fig. 1a Percent of Florida species of Coccidae recorded from each county.

There are many problems in producing good regional taxonomic work. One is access to specimens. Studying the specimens in the Florida State Collection of Arthropods or those in your private collection, may be easy but there are many specimens from Florida in museums all over the country and Canada. Type specimens are often in European museums. To see these specimens and include their records requires a lot of time and money for travel. Another big problem is illustrations. There seem to be plenty of artists willing to do illustrations but funds to pay them are scarce. A final problem that cannot be ignored is that many taxonomists do not consider state or regional treatments of insects to be worthwhile. They argue that taxonomy must be done on a continental or even world-wide basis and that regional treatments add little new information. It is
Fig. 1b. Percent of Florida species of Scarabaeidae recorded from each county.

often impossible to resolve taxonomic problems without looking at species and specimens from outside the area being covered. Even so, those problems can be pointed out in regional treatments without resolving them. That will let the user know that there are some identifications which must be regarded as tentative until further work is done. In most groups the majority of species are clearly defined and the number of problem species is small.

In my opinion, regional or state taxonomic studies are extremely useful particularly for the non-taxonomist or even for a taxonomist whose duties include identification of groups other than the one(s) in which he specializes. Using a key with 50 Florida species is much easier than one with 200 North American species. State treatments also can provide more detailed information on biology, distribution, hosts, etc.
Fig. 1c. Percent of Florida species of Ichneumonidae recorded from each county.

Finally, I want to emphasize that we need to do a lot more collecting in Florida so that taxonomic treatments more completely represent the actual status of the species involved. Many areas and habitats have been inadequately collected. As the urbanization of Florida continues uninterrupted, and native plants are bulldozed, houses, shopping centers and roads are built, and then landscaped most often with exotic plants, the native insects will decrease in numbers. We must collect these insects and record their distributions and hosts while they are still available.

Insect collecting in Florida seems to center in particular geographical areas and varies with the group of insects being collected. Three distribution maps will illustrate what I am talking about. These 3 composite maps have been compiled from the Arthropods of Florida volumes on Coccidae, Scarabaeidae, and Ichneumoninae.
Forty species of Coccidae are recorded from Florida. They are generally collected by hand after being observed on leaves and stems. The frequent inspection of nursery plants by the DPI inspectors has resulted in many records for this group. Half or more of the 40 soft scale species known from Florida have been collected in 19 counties, but none were recorded from Holmes County (Fig. 1a). The Laparosticti Scarabaeidae in Florida number 115 species. The majority of the specimens collected in this group have come from light trap sampling and in bait traps. More than half of the species have been collected in only one county, Alachua (Fig. 1b). Finally the Ichneumoninae represent a group which is less commonly collected. They are collected most often in flight traps or by netting them individually. More than half of the species have been collected only in
Highlands county (Fig 1c) while no Ichneumoninae have been recorded from 30 counties. Although not all insect species occur throughout Florida, these generalizations are accurate enough to show that collecting is spotty and certain areas are rather heavily collected and others almost completely neglected. Dr. Reece Sailer once observed that insect distribution maps really reflect the distribution of entomologists. With that in mind, a fourth map (Fig 1d) shows the distribution of entomologists in Florida based on the Directory of Florida Entomologists published in January 1986. Of the 520 entomologists listed, 212 (40%) were located in Alachua County. Indian River County was second with 38 (7%). Other counties with 20 or more entomologists were Leon 29, Hillsborough, Orange and Palm Beach, 25 each, Dade 23 and Broward 20. No entomologists were listed from 29 counties.

We need more taxonomic work and more publications on the insects of Florida. Such publications increase awareness of our fauna and stimulate interest in insects. Such treatments point out where the gaps in our knowledge are; such as, lack of host information, undescribed immatures, inadequate life cycle information, etc. Many bits of valuable information are lost because we assume that this is probably known so we neglect to record it. We need books on Florida butterflies, mosquitoes, dragonflies, and other insects and when they are published, copies should go into as many Florida libraries as possible where entomologists and non-entomologists will have access to them. We communicate with other entomologists all the time. Let’s start telling others about insects and about entomologists and what they do. It’s overdue. Thank you very much.