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THE PROBLEM OF INSECT IDENTIFICATION AND THE UNIVERSITY OF ARKANSAS REFERENCE COLLECTION

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The problems of insect identification, research, and control are so closely associated that they are almost inseparable. Research without identification of the insect involved would either become meaningless, or impossible. Thus, a readily accessible reference collection is necessary to support these activities. For example, after carefully keying an insect to the species, one cannot always be sure of the identification unless he can compare it to known material determined by a specialist.

The University of Arkansas Entomology Museum houses such a collection. Previous workers contributed to it as early as 1897. However, the collection was started on an organized basis in 1952, and finally consolidated into a single unit in the spring of 1964. At that time an inventory was taken. At the end of 1966 another inventory was made to determine the number of species added. The results are listed in Table 1.

Notable additions to the collection in the past two years are: Orthoptera, 37 species; Homoptera, 28 species; Hemiptera, 119 species; Lepidoptera, 478 species; Coleoptera, 497 species; Hymenoptera, 671 species; and Diptera, 1158 species, for a total of 2988 species added.

Table 1. Species added 1965-1966, by order¹

Order	End 1964	End 1966	Added 1965-66
Ephemeroptera	24	24	—
Trichoptera	83	83	—
Orthoptera	116	153	37
Odonata	50	50	—
Plecoptera	25	25	—
Homoptera	93	121	28
Neuroptera	54	54	—
Hemiptera	209	328	119
Coleoptera	1784	2281	497
Diptera	504	1662	1158
Hymenoptera	520	1191	671
Lepidoptera	706	1184	478
Total	4168	7156	2988

¹Additions to alcohol preserved specimens are not included.

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There are now a total of 7156 species represented by approximately 65,000 specimens of pinned and labeled insects. Many taxonomic specialists have provided much material aid in the development of this reference collection.

The Sarcophagidae² (Diptera) of the state have been extensively collected but not very well reported. Since it is felt that all of the species of this family likely to be encountered by the ordinary collector are present in the collection, a check list of the species taken in Arkansas is given below.

FAMILY SARCOPHAGIDAE

SUBFAMILY MILTOGRAMMINAE

TRIBE MILTOGRAMMINI

- Amobia (Sarcomacronychia) floridensis** (Townsend)
- Eumacronychia nigricornis** Allen
- Gymnoprosope argentifrons** Townsend
- Hilarella hilarella** (Zetterstedt)
- Macronychia** sp.
- Macronychia aurata** (Coquillett)
- Metopia (Allenanicia) lateralis** (Macquart)
- Metopia (Metopia) argyrocephala** (Meigen)
- Opsidia gonioides** Coquillett
- Senotainia flavicornis** (Townsend)
- Senotainia litoralis** Allen
- Senotainia trilineata** (Wulp)
- Senotainia** sp.
- Sphenometopa** sp.

TRIBE PARAMACRONYCHINI

- Sarcofahria ravinia** Parker

SUBFAMILY SARCOPHAGINAE

- Blaesoxipha (Acanthodotheca) alcedo** (Aldrich)
- Blaesoxipha** nr. **alcedo** (Aldrich)
- Blaesoxipha (Acridiophaga) aculeata** (Aldrich)
- Blaesoxipha (Acridiophaga) angustifrons** (Aldrich)
- Blaesoxipha (Acridiophaga) caridei** (Brethes)
- Blaesoxipha (Blaesoxipha) hunteri** (Hough)
- Blaesoxipha (Blaesoxipha) opifera** (Coquillett)
- Blaesoxipha (Blaesoxipha) spatulata** (Aldrich)
- Blaesoxipha (Kellymyia) plinthopyga** (Wiedemann)
- Blaesoxipha (Kellymyia) impar** (Aldrich)
- Blaesoxipha (Servaisia) uncata** (Wulp)

²Identifications were made or verified by Dr. H. R. Dodge and Curtis W. Sabrosky.

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- Blaesoxipha (Spirobolomyia) basalis** (Walker)
Blaesoxipha (Spirobolomyia) flavipalpis (Aldrich)
Blaesoxipha (Spirobolomyia) singularis (Aldrich)
Blaesoxipha sp.
Boettcheria bisetosa Parker
Boettcheria cimbicis (Townsend)
Boettcheria latisterna Parker
Camptops unicolor Aldrich
Helicobia rapax (Walker)
Mecynocorpus salvum (Aldrich)
Metoposarcophaga conabilis (Reinhard)
Metoposarcophaga importuna (Walker)
Microcerella scrofa (Aldrich)
Neophyto sheldoni (Coquillett)
Oxysarcodexia (Oxysarcodexia) cingarus (Aldrich)
Oxysarcodexia galeata (Aldrich)
Oxysarcodexia ventricosa (Wulp)
Ravinia (Chaetoravinia) anandra (Dodge)
Ravinia (Chaetoravinia) derelicta (Walker)
Ravinia (Chaetoravinia) laakei (Hall)
Ravinia (Chaetoravinia) latisetosa Parker
Ravinia (Ravinia) lherminieri (Robineau-Desvoidy)
Ravinia (Ravinia) ochracea (Aldrich)
Ravinia (Ravinia) pectinata (Aldrich)
Ravinia (Ravinia) planifrons (Aldrich)
Sarcophaga argyrostoma (Robineau-Desvoidy)
Sarcophaga bullata Parker
Sarcophaga carinata (Dodge)
Sarcophaga crassipalpis Macquart
Sarcophaga haemorrhoidalis (Fallen)
Sarcophaga houghi Aldrich
Sarcophaga libera Aldrich
Sarcophaga mimoris Reinhard
Sarcophaga polistensis Hall
Sarcophaga sabroskyi (Dodge)
Sarcophaga sarracenioides Aldrich
Sarcophaga sima Aldrich
Sarcophaga snyderi (Dodge)
Sarcophaga triplasia Wulp
Sarcophaga utilis Aldrich

Sources of material for the collection include the insects involved in research for the Entomology Department, collections made by museum personnel, visiting specialists or other agricultural workers in the state. Most of these insects are routinely identified by museum personnel or the staff in the Department of Entomology, when they are common, or are the pest species currently receiving attention in department research. Others not so well known are submitted to specialists for confirmation or identification. The departmental staff and museum personnel can handle with some certainty the following groups: all bees belonging

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to the Apoidea; the ants of the state; Lepidoptera belonging to the Macrolepidoptera; predaceous ground beetles or Carabidae; the predaceous bugs in the family Reduviidae. Also included are **Phyllophaga** sp. or May beetles; the ladybeetles; and many of the biting flies and ticks.

A study of the biology of the fauna of the state is a goal of prime importance to entomologists, state and national. Knowledge of species present, the host upon which the species feed, the ecological habitat and the location within the state, provide an excellent basis for research being conducted.

It then becomes important to get representative specimens of all the insect species in the state and the surrounding area, both beneficial and destructive. This also provides a quick and ready reference for making determinations for all persons desiring such a service, namely, high school biology teachers, County Agents and other agricultural personnel, government workers, and private citizens.

The systematic collection of insects provides ample opportunity for discovering new and potentially destructive species not previously known to be in the state. Early detection and recognition of potentially destructive pests makes possible the initiation of research and development of control measures before economic or wide-spread losses are incurred.