

## Institutional Insect Collections in Indiana<sup>1</sup>

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### *Abstract*

A survey was conducted in order to determine the extent and functionality of the entomological collection resource in the State of Indiana. The study was restricted to institutionally owned collections. Inquiries centered primarily around quantitative aspects of the functional, taxonomic, and geographic makeup of the collections. Extensive data are presented in discussion or tabular form. Of 68 contacts made, 42 replies were received, and 33 were affirmative concerning the presence of collections. There are approximately 1 million specimens housed in the state of which approximately 65 percent are representative of Indiana fauna. In terms of functional institutional involvement, teaching predominates; however, over 80 percent of all specimens are for research. Over 50,000 species are represented. Significant systematics collections include type collections, international reference collections, historically unique collections, comprehensive collections of certain groups, and detailed collections of certain local fauna.

Collections of biological specimens have become increasingly recognized as a resource of value to research and education; but also they form a priceless and often irreplaceable heritage of our environment, past and present. Recently there has been a national movement to coordinate museum activities, to gain financial support, and to impress upon the public the importance of these collections (2,5). A national plan is currently underway (4) by the Advisory Committee for Systematic Resources in Entomology of the Entomological Society of America. This plan is concerned with how systematic entomological resources—personnel, collections, data, and facilities—may best be used to serve society and systematics, both now and in the foreseeable future.

The insect collections housed throughout the state of Indiana, from all preliminary indications, had been thought to comprise a significant regional resource, and also in some cases important national and even international systematic resources. Unfortunately, however, little has been known in regards to the extent, distribution, function, and diversity of the various insect collections in Indiana. A symposium on a century of entomology in Indiana in 1955 (3) did not treat the insect collections nor did *Natural Features of Indiana* (1966) (6) which dealt primarily with the natural resources of the state.

In order to help promote the value of systematic entomological collections as they pertain to the natural history of Indiana, but also as an adjunct to the national movements mentioned above, and to provide a needed reference base of information beneficial to scientists, educators, and the general public, a comprehensive study of the institutional insect collections was undertaken. Of particular interest to the several entomologists throughout the state who are currently involved

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in the faunistic analysis of Indiana insect populations is the fact that the information resulting from this study will allow all of us to evaluate needs, coordinate efforts, and help form a state network of cooperation and information retrieval. The data presented herein will also hopefully provide supportive evidence for receiving financial assistance vital to the maintenance and completion of our knowledge of the insects and the environment as is preserved and researched through the entomological collections.

This study is also timely in light of the fact that one of the current aims of the Indiana Revolution Bicentennial Commission is that of inventorying and cataloging holdings of the museums of Indiana.

This study has been based primarily on the response to a survey questionnaire consisting of 29 questions regarding possible insect holdings. The questionnaire was designed so as to provide both qualitative and quantitative data of value as reference material to the increasing numbers of users of insect collections, and to provide a basis for comparative evaluation. It must be stressed that the study deals exclusively with institutionally owned collections. Personal collections, although of great worth in some instances, were not treated due to their often transient nature and also because it would be extremely difficult to survey all of these. The institutional mailing list was compiled with the aid of the Indiana Commission of Higher Education, among others, for the intended purpose of including all institutions either known to house natural history collections or to have any remote possibility of housing insect specimens. Unfortunately, as in all surveys of this type, 100% response was not attained and it is emphasized that quantified findings as presented herein are based solely on the information gained via the questionnaires. As might also be expected, some of the returned questionnaires were incomplete. With this in mind, total numbers given in many cases may be presumed to be low. Questionnaires were mailed in January of 1974, with the final returns having been received in June of 1974. The data herein, therefore, are applicable to the year 1974, with most collections expected to increase their holdings with time.

A total of 68 questionnaires were sent out to various institutions throughout the state. These institutions included private and public colleges and universities, and other post high school educational institutions in the state. Also included were federal, state, and municipal institutions and museums, along with privately supported natural history museums.

Note in Table 1 (and others) the institutional categories that will be used for comparative purposes in many cases throughout. Universities with biological research graduate programs are those universities offering post graduate degrees in non-teaching oriented, biological research programs (biology being used in its broadest sense). All other institutions of higher education are included as a second broad category composed of institutions where teaching is the prevailing function. Nonhigher educational institutions include all others such as private museums, governmental agencies, and private firms.

Of the 42 replies received, 33 or 79.0 percent<sup>2</sup> indicated the

TABLE 1. *Response to collection questionnaires.*

Institution	Questionnaires sent	Replies received	% returned
Univ. with Biol. Res. Grad. Prog.	8	8	100.0
Other Inst. of Higher Educ.	38	23	60.5
Total Inst. of Higher Educ.	46	31	67.4
Non-Higher Educ. Inst.	22	11	50.0
Total Inst.	68	42	61.8

presence of a collection or collections of insects. An alphabetical list of these 33 institutions is presented in Table 2. Of the 26 institutions that were queried but did not return the questionnaire, some of them are known or thought to house collections. These probably include such institutions as Goshen College, St. Mary's College, and Wabash College, and possibly a few others. Unfortunately no data can be included concerning these institutions.

TABLE 2. *List of institutions housing collections.*

Aquatic Control	Indianapolis Children's Museum
Ball State University	Manchester College
Bethel College	Marian College
Butler University	Marion College
DePauw University	Joseph B. Moore Museum
Earlham College	Purdue University
Evansville Museum of Arts and Sciences	Purdue University (Hammond)
Fort Wayne Bible College	Purdue University (Westville)
Franklin College	St. Francis College
Hanover College	St. Joseph's College
Huntington College	St. Mary of the Woods College
Indiana Central College	Taylor University
Indiana Department of Natural Resources	USDA (Humid Areas Deciduous Fruit Insects Laboratory)
Indiana State University	University of Evansville
Indiana University	University of Notre Dame
IUPUI-Indianapolis	Valparaiso University
	Vincennes University

The majority of collections or institutions housing collections are involved in more than one function and can be noted in Table 3. The Indianapolis Children's Museum uses its insect collection as a display item only occasionally, and is not included in the table. In numbers of collections, teaching or the combination of teaching and display are by far the most prevalent situations making up 64.5 percent of the possible functions or combinations of functions. This percentage reflects the relatively large number of teaching institutions represented. It should be noted here that under research is also included reference collections for nonsystematic research.

<sup>2</sup> All percentage figures throughout this paper are to the nearest one-tenth percent.

TABLE 3. *Distribution of functionality of collections.*<sup>1</sup>

Function	Univ. with Biol. Res. Grad. Prog.	Other Inst. Higher Educ.	Total Inst. Higher Educ.	Non-Higher Educ. Inst.	Total Inst.
Teaching only	3	7	10	0	10
Research only	0	0	0	2	2
Display only	0	0	0	0	0
Teach. and Res. only	3	2	5	0	5
Teach. and Disp. only	0	9	9	1	10
Res. and Disp. only	0	0	0	1	1
Teach and Res. and Disp.	2	1	3	0	3

<sup>1</sup> Based on 31 institutions indicating presently functional collections.

In total 28 or 90.3 percent of the institutions utilize collections for teaching, 11 or 35.5 percent for research, and 14 or 45.2 percent for display. Although only 11 institutions utilized collections for research purposes, on a specimen per specimen basis many more (80.1 percent) are used for research (see Table 4). Table 4 also indicates the distribution of total specimens according to institutional categories. These totals must be somewhat low since six institutions did not provide any numerical data concerning their specimens. As could be expected research specimens from universities are by far the largest category contributing to the total.

TABLE 4. *Numbers of specimens according to function.*<sup>1</sup>

Institution	Teaching Spec.	Research spec.	Display spec.	Total spec.
Univ. with Biol. Res. Grad. Prog.	131,200	737,500	1,300	870,000
Other Inst. of Higher Educ.	53,126	2,000	5,650	60,476 <sup>2</sup>
Total Inst. Higher Educ.	184,326	739,500	6,950	930,476
Non-Higher Educ. Inst.	0	39,800	3,000	42,800
Total Inst.	184,326 (18.9%)	779,300 (80.1%)	9,950 (1.0%)	973,276

<sup>1</sup> Only 27 of the 33 institutions which indicated the presence of collections provided information on the number of specimens.

<sup>2</sup> 300 of these specimens were used for both teaching and display.

Eight of 19 institutions maintain separate collections for separate functions, and this situation is more prevalent in institutions with graduate research programs where large research collections are maintained and also in the non-higher educational institutions. This is a matter of policy, however, it is felt that separateness helps ensure the longevity of the important research collections.

Table 5 is very enlightening as to the kinds of courses for which insect collections are being used in Indiana. To illustrate the tables usage, 18 institutions indicated that their collections were used in

teaching general entomology. These 18 institutions made up 66.6 percent of the institutions that indicated any course usage. Of the 18 institutions, 14 indicated that general entomology was the primary subject area for which specimens were being utilized either in numbers of specimens or frequency of usage. Two institutions indicated that the specimens were of more importance in one other course, and two other institutions indicated that the specimens were of more importance in two subject areas other than general entomology. The high ranking of zoology is accounted for by those teaching institutions not offering general entomology in their curriculum. Since the greatest usage is coming from general rather than specialized courses it can be assumed that the teaching specimens are being utilized by a relatively large number of Indiana students.

TABLE 5. *Subject areas of educational usage.*<sup>1</sup>

Subject area	No. of Inst.	(%)	Of 1st import.	Of 2nd import.	Of 3rd import.	Of 4th import.
General entomology	18	(66.6)	14	2	2	—
General zoology	12	(44.4)	10	2	—	—
General biology	11	(40.7)	4	6	1	—
General nature study	7	(25.9)	—	4	2	1
Specialized entomology	5	(18.5)	—	1	3	1
Ecology	2	(7.4)	—	1	1	—
Invertebrate zoology	2	(7.4)	—	2	—	—
Systematic entomology	1	(3.7)	—	1	—	—
Parasitology	1	(3.7)	—	1	—	—

<sup>1</sup> Based on 27 responding institutions.

Two-thirds of the institutions indicating the presence of collections possess collections which are taxonomically comprehensive. Taxonomically comprehensive in this instance is taken to mean that all major orders and most orders of insects are represented in the collections. This is the case at all universities with a biological research graduate program, while non-higher educational institutions tended to be much more taxonomically specialized. No direct correlation with the size of the collections could be made although this might be expected.

Table 6 deals with the ordinal areas of research as was surveyed. Institutions involving their collections in research were asked to list up to five orders of insects in order of decreasing usage. To illustrate the table's usage, five institutions indicated that research involving insects of the order Diptera was currently being undertaken, and Diptera was the second most commonly mentioned order as far as research is concerned. Of the five institutions listing Diptera, two listed this order first, none listed it second, none listed it third, two listed it fourth, and one listed it fifth. It may be of passing interest to note that the relationship of the usage of the first four major orders listed reflects their relationship in terms of number of species for North America.

Since Blatchley's time the Coleoptera have received a relatively great deal of systematic attention in Indiana and the associated re-

searchers have contributed and continue to contribute a great deal concerning the systematics of beetles. Although the Odonata have received attention for some time, only in the last few years have other aquatic groups, particularly the Ephemeroptera, received considerable attention in Indiana. Purdue University, for example, now possesses one of the largest and best identified collections of North American mayflies. It is fair to say that much of the future complexion of Indiana collections (as has been the case in the past) will reflect the interests and expertise of the entomologists in this state. Hopefully, however, the present study will help guide workers as to areas of potential and need at least in terms of the state collections and faunistics.

TABLE 6. *Ordinal areas of primary research usage.*

Group	No. of Inst.	Of 1st import.	Of 2nd import.	Of 3rd import.	Of 4th import.	Of 5th import.
Coleoptera	6	5	1	—	—	—
Diptera	5	2	—	—	2	1
Hymenoptera	4	—	4	—	—	—
Lepidoptera	2	1	—	—	1	—
Hemi-Homoptera	1	1	—	—	—	—
Collembola	1	1	—	—	—	—
Siphonaptera	1	1	—	—	—	—
Ephemeroptera	1	—	1	—	—	—
Odonata	1	—	—	1	—	—
Orthoptera	1	—	—	—	—	1
Aquatic immatures	1	1	—	—	—	—

As a reference guide, Table 7 lists alphabetically under each taxonomic group the localities of research activity that was reported. It should be noted that other orders are the subject of research at Purdue University, such as the Hymenoptera, but only the five currently receiving the most emphasis were included according to the questionnaire.

Most institutions in the state that are involved in collection related research are concerned with state-oriented faunistic studies rather than revisionary work applicable to broad geographic areas, as follows: Among the universities with graduate research programs, three are involved in state-oriented faunistics, one with broad geographically applicable revisionary work, and three institutions (Indiana University, Purdue University, University of Notre Dame) are involved in both categories of systematic research. Among other institutions of higher education, three are involved in state-oriented faunistics, and two are involved with broad geographically applicable revisionary work. Among the non-higher education institutions, two are involved in state-oriented faunistics, and one with revisionary work. In total 53.3 percent of these institutions are involved with state-oriented faunistics, 26.7 percent with broad geographical revisionary work, and 20.0 percent with both areas; Although only 11 institutions had indicated that their collections were used in research, 15 chose to reply to this particular subject. Nevertheless, there is a good mix of both types of systematic endeavors currently in the state.

Twenty-two institutions make their insect specimens available on a loan basis for scientific purposes, and only eight institutions do not. A total of nine institutions have made such loans in the past 10 years and thus their resources are being recognized and called upon for usage by outside researchers throughout the world. As a reference, it should be noted that the following institutions will not loan specimens: Fort Wayne Bible College, Franklin College, Marian College, Purdue University (Hammond), Purdue University (Westville), St. Joseph's College, and Vincennes University.

TABLE 7. *Localities of primary research areas.*

COLEOPTERA	HEMI-HOMOPTERA
Indiana University	Manchester College
Manchester College	
Purdue University	COLLEMBOLA
Purdue Univ. (Westville)	J. B. Moore Museum
St. Francis College	
Valparaiso University	SIPHONAPTERA
	J. B. Moore Museum
DIPTERA	EPHEMEROPTERA
Hanover College	Purdue University
Manchester College	
Notre Dame University	ODONATA
Purdue University	Purdue University
St. Francis College	
HYMENOPTERA	ORTHOPTERA
DePauw University	Purdue University
Indiana State University	
Manchester College	AQUATIC IMMATURES
St. Francis College	DePauw University
LEPIDOPTERA	
Manchester College	
St. Francis College	

Do these collections serve as a reference base for persons (scientists or otherwise) who may require species identification of specimens? Based on 27 replies, four or 57.1 percent of the universities with biological research graduate programs indicated this activity, two or 12.5 percent of other institutions of higher education indicated the activity, and three or 75.0 percent of the non-higher education institutions indicated the activity. In total one-third of the institutions are involved in this vital service. A correlation between these particular institutions and the degree to which their collections are identified will be seen later.

Entomological collections are extremely important for the training of future researchers and so derive value not only from classroom utility but also from their usage for student research whether it be undergraduate or graduate. Based on 30 replies regarding student research usage, the following data was obtained concerning Indiana's role in this area. Specimens and associated data are so used at five or 41.7 percent of the universities with biological research graduate

programs, six or 35.3 percent of other higher education institutions are so involved, and only one or 16.7 percent of the non-higher education institutions are so involved. In total 40.0 percent of the institutions have student research associated with their collections. It should be pointed out here that student research associated with entomological collections is not necessarily systematic in nature but may involve many aspects of experimental and applied entomology.

In Table 8 can be seen the distribution of personnel associated in some way with the various collections. In addition to this data is the fact that only three institutions employ systematic entomologists primarily as such. Only four such individuals are located at institutions in the state currently (three at universities and one at a college), and all have additional duties besides systematics. This presents a rather meager ratio of workers to specimens held (see Table 4).

TABLE 8. *Institutions with collections employing persons with some working knowledge of systematic entomology.*

Institution	No. having associated personnel	% having associated personnel	No. with 1 person	No. with 2 persons	No. with >2 persons	Total asso. personnel
Univ. with Biol. Res. Grad. Prog.	5	71.4	4	0	1	11
Other Inst. of Higher Educ.	10	55.5	8	2	0	12
Total Inst. of Higher Educ.	15	60.0	12	2	1	23
Non-Higher Educ. Inst.	2	33.3	2	0	0	2
Total Inst.	17	54.8	14	2	1	25

<sup>1</sup> Based on 31 replies and 17 institutions with associated personnel.

Data were also ascertained concerning exhibits of insects at institutions around the state. At six of the 15 institutions which maintain collection displays, these specimens are part of larger more comprehensive natural history exhibits. This is the case at both non-higher educational institutions involved. In total also, 13 or 86.7 percent of the institutions indicated that their displays were intended primarily for the general public.

A considerable amount of information is available in Table 9 concerning institutions that provided data on specimen make-up. The percent the specimens contribute to the total is calculated from Table 4. Note the six institutions that indicated the presence of more than 10,000 specimens. These six institutions hold 95.1 percent of the specimens in Indiana. As far as the proportion of specimens from Indiana goes, the range for all institutions is from 30.0 to 100.0 percent with the average percent being 80.1. Also, it can be calculated from the data that over 626,000 specimens or 64.6 percent of the total specimens accounted for were collected in Indiana. These specimens are an invaluable heritage of Indiana and must be so maintained.



TABLE 9. *Specimen make-up of collections.*<sup>1</sup>

Institution	No. of specimens	% of total inst. spec.	No. collected in Indiana	% specimens collected in Indiana
Ball State University	3,000	0.3	2,700	90.0
Butler University	6,000	0.6	5,700	95.0
DePauw University	52,000	5.3	46,800	90.0
Earlham College	3,000	0.3	2,400	80.0
Fort Wayne Bible College	120	<0.1	120	100.0
Franklin College	3,000	0.3	900	30.0
Hanover College	700	0.1	693	99.0
Huntington College	300	<0.1	297	99.0
Indiana Department of Natural Resources	2,000	0.2	1,600	80.0
Indiana State University	9,300	1.0	9,114	98.0
Indiana University	80,500	8.3	—	—
IUPUI-Indianapolis	1,800	0.2	1,710	95.0
Indianapolis Children's Museum	3,000	0.3	—	—
Manchester College	500	0.1	400	80.0
Marion College	1,634	0.2	654	40.0
Joseph B. Moore Museum	33,800	3.5	27,040	80.0
Purdue University	659,000	67.7	461,300	70.0
Purdue University (Hammond)	200	<0.1	180	90.0
Purdue University (Westville)	1,400	0.1	560	40.0
St. Francis College	40,000	4.1	28,000	70.0
St. Joseph's College	950	0.1	931	98.0
Taylor University	1,000	0.1	—	—
University of Evansville	2,000	0.2	1,960	98.0
University of Notre Dame	60,000	6.2	30,000	50.0
USDA (Humid Areas Deciduous Fruit Insects Laboratory)	4,000	0.4	3,200	80.0
Valparaiso University	4,000	0.4	2,800	70.0
Vincennes University	72	<0.1	72	100.0

<sup>1</sup> Applies only to institutions providing information on this subject.

Table 10 deals with the species make-up of the collections, and therefore, is in many instances based on the best estimates of the institutions replying. Interestingly, 31 institutions provided some numerical data concerning species holdings while only 27 institutions provided any numerical data on specimen holdings. In comparing Tables 9 and 10, it may be noted that four of the six institutions indicating over 1,000 or more species were also institutions that had indicated the presence of over 10,000 specimens. To reiterate, these four institutions are Indiana University, the Joseph B. Moore Museum, Purdue University, and St. Francis College. Obviously from the data it cannot be calculated how many different species in total are held in Indiana Institutions since there is undoubtedly some overlap. It can only be said that there is with certainty over 50,000 different species held and over 32,500 of these are from Indiana. The range of percent of species from Indiana among the institutions was from 10.0 to 100.0 percent with an average percent of 79.1.

TABLE 10. *Species make-up of collections.*<sup>1</sup>

Institution	No. of estimated species	% of specimens identified to species	No. of species collected in Indiana	% species from Indiana
Aquatic Control	200	25.0	20	10.0
Ball State University	500	10.0	300	90.0
Bethel College	750	<1.0	563	95.0
Butler University	—	5.0	—	—
DePauw University	200	25.0	180	90.0
Earlham College	400	50.0	380	95.0
Evansville Museum of Arts and Sciences	—	100.0	—	—
Fort Wayne Bible College	100	10.0	100	100.0
Franklin College	700	0.0	140	20.0
Hanover College	—	<10.0	—	—
Huntington College	100	20.0	99	99.0
Indiana Department of Natural Resources	—	60.0	—	70.0
Indiana State University	1,500	10.0	1,425	95.0
Indiana University	4,000	60.0	2,400	60.0
IUPUI-Indianapolis	500	5.0	475	95.0
Manchester College	350	2.0	343	98.0
Marian College	—	—	—	75.0
Marion College	1,000	—	500	50.0
Joseph B. Moore Museum	4,600	50.0	4,370	95.0
Purdue University	50,000	90.0	32,500	65.0
Purdue University (Hammond)	150	100.0	150	100.0
Purdue University (Westville)	300	60.0	240	80.0
St. Francis College	30,000	75.0	21,000	70.0
St. Joseph College	300	50.0	294	98.0
St. Mary of the Woods	—	—	—	75.0
Taylor University	—	1.0	—	90.0
University of Evansville	250	<2.0	248	99.0
University of Notre Dame <sup>2</sup>	200	50.0	50	25.0
USDA (Humid Areas Deciduous Fruit Insects Laboratory)	700	50.0	665	95.0
Valparaiso University	500	30.0	400	80.0
Vincennes University	72	100.0	72	100.0

<sup>1</sup> Based on data from 31 institutions.<sup>2</sup> Numbers available only for the Culicidae.

The survey also revealed that only two institutions in the state housed type specimens. Purdue University houses approximately 900 type specimens on a permanent basis and is available as a type depository. Indiana University presently houses between 700-1000 type specimens but only on a temporary basis.

Some institutions chose to indicate that their collections were primarily specialized in certain groups. Aquatic Control indicated immature aquatic insects for reference purposes; DePauw University also indicated immature aquatic insects; Indiana University indicated aquatic Coleoptera; Marion College indicated tropical Lepidoptera; Purdue University at Westville indicated aquatic Coleoptera; and the University of Notre Dame indicated arthropods of medical importance.

TABLE 11. *Taxonomic make-up of collections.<sup>1</sup>*

Order	Univ. with Biol. Res. Grad. Prog.	Other Inst. of Higher Educ.	Total Inst. of Higher Educ.	Non-Higher Educ. Inst.	Total Inst.	% of specimens accounted for
Coleoptera	368,243	19,546	387,789	10,602	398,391	41.1
Diptera	126,935	9,898	136,833	7,898	144,731	14.9
Hymenoptera	88,353	9,739	98,092	5,194	103,286	10.7
Hemi-Homoptera	90,477	5,165	95,642	7,560	103,202	10.6
Lepidoptera	79,673	20,533	100,206	2,424	102,630	10.6
Orthoptera	38,921	4,394	43,315	1,214	44,529	4.6
All others	66,898	3,205	70,103	2,904	73,007	7.5

<sup>1</sup> Based on data provided by 24 institutions.

The taxonomic make-up of the Indiana collections is reflected in numbers of specimens per order as can be seen in Table 11. Total numbers will not correspond to total numbers in Table 4 since fewer institutions provided information on the taxonomic make-up of their collections. The relatively large number indicated for the Hemi-Homoptera is most likely attributable to the large holding of aphids in the state. Also a good deal of the "all others" category is evidently based on aquatic orders such as Ephemeroptera, Trichoptera, and Odonata. An almost direct correlation between numerical representation of the orders and research activity among the orders can be seen (compare Tables 6 and 11).

Regarding financial support for the collections, two institutions indicated that support for their collections was primarily federal, four institutions indicated primarily state support, 19 institutions indicated some type of private support, two institutions indicated no support at all, and six institutions gave no reply concerning support. Unfortunately, collections do not maintain themselves. These collections must be curated and utilized to their fullest, neither of which in most cases can be done under current levels of funding. Hopefully this paper will be the first step in rectifying this situation.

Finally, on the questionnaire institutions were asked to elaborate on any aspect or aspects of their entomological collections that they believed were of particular significance either historically or in terms of scientific value. The results are as follows: The Indiana Department of Natural Resources contains some Blatchley Coleoptera and Orthoptera, some Aldrich Diptera, some H. Morrison Homoptera, and V. Knapp Aphididae. Indiana University has a teaching collection which contains specimens from the A. C. Kinsey and W. S. Blatchley collections. Purdue University houses the major W. S. Blatchley collection of Coleoptera, Orthoptera, and Hemiptera including types, and also contains several other collections of historical value including the Ashton Coleoptera collection, the Adams Diptera collection, the Mitten and Troxler collections of Lepidoptera, and the Monell and Davis aphid collections. For more details concerning named collections at Purdue see Chandler (1). Purdue also houses one of the largest collections of Coleoptera in the United States and possesses the most complete representation of the Indiana insect fauna in existence. St. Francis College possesses a relatively large and well identified collection of foreign specimens. The University of Notre Dame is the designated World Health Organization International Reference Center for *Aedes* mosquitoes, maintaining about 30 species and more than 200 strains. Notre Dame also possesses the world's largest collection of Culicidae. Valparaiso University contains an important research collection of cavernicolous carabids, primarily trechines.

### Summary

Some 33 institutions in Indiana have indicated the presence of entomological collections. In terms of numbers of institutions teaching is the primary function for which insect specimens are maintained, and they are used in several subject areas, general entomology being

the most frequent. Based on numbers of specimens used, however, research is of prime importance. Approximately 1 million specimens and over 50,000 different species are housed in Indiana institutions. Of all the specimens found in the institutions, 64.6 percent were taken from Indiana and therefore are a regional resource.

A total of 25 people who have some knowledge of systematic entomology are associated with 17 of the institutions. Financial support for the collections is private in most cases, and nonexistent in some cases. Research associated with the collections mostly concerns state oriented faunistic studies, but there is also a considerable amount of more broadly applicable revisionary work being carried on at the present.

Several of the institutions possess unique and irreplaceable collections. Those institutions possessing over 10,000 specimens in order of decreasing numbers are Purdue University (659,000), Indiana University (80,000), University of Notre Dame (60,000), DePauw University (52,000), St. Francis College (40,000), and the Joseph B. Moore Museum (33,800). Several institutions either are involved in research dealing with the Coleoptera or have predominant collections of this group. Interestingly, several institutions in Indiana are involved with collections of aquatic insects at the present.

This data will hopefully provide a basis for communication among the institutions involved, and serve as useful reference for entomologists and others in the state of Indiana, and systematic entomologists at large. The worth and utility of these collections illustrates the need for public recognition and financial support.

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