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FAUNISTIC INVENTORY—BYU ECOLOGICAL STUDIES AT THE NEVADA TEST SITE

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Introduction

These studies were initiated June 1, 1959, and continued until officially terminated December 31, 1966. They were conducted as cooperative research projects between the United States Atomic Energy Commission and the Department of Zoology and Entomology, Brigham Young University, Provo, Utah. The AEC grants-in-aid were AT(11-1)-786, AT(11-1)-1326, AT(11-1)-1335, and AT(11-1)-1336.

Although December 31, 1966 is the date when AEC sponsorship ceased, data for many aspects of those studies which remain to be completed are available for those specialists who may be interested in the different animal groups.

The main objective of the research projects was to make a faunistic inventory of the test site. The test site was surveyed to determine plant communities characteristic of the areas of our studies. A description of these biotic communities was discussed by Allred, Beck, and Jorgensen (1963a). Studies were then made of areas where nuclear detonations had been conducted and compared with areas where no detonations had taken place. With such baseline data gathered on a year-round basis, better standards of measurement could then be applied to the effects of nuclear testing in this area.

The Nevada Test Site is located in the southeastern part of Nye County, Nevada. It is about 70 miles northwest of Las Vegas, just north of the Las Vegas-Tonopah Highway (U.S. 95). The test site is divided in almost equal north-south halves by a biotic line of demarcation with the Great Basin Province to the north and the Mojave Desert to the south. At the southwestern edge of the site near Forty-mile Canyon the elevation is approximately 2800 feet. At Rainier Mesa in the northcentral region, the elevation is 7694 feet, with some of the surrounding mountains reaching slightly above this level.

Practically all portions of the test site were visited and some surveys conducted. However, the major portions of the site where systematic year-around surveys were made are the lowland desert valleys, basins, playas, and foothills. Much yet remains to be done in a similar manner with the uplands, mesas, and mountainous situations.

Deposition of Collections

Specimens were submitted to specialists for identification from our laboratory at Brigham Young University, Provo, Utah. Upon

1. This report was initially written but not fully completed by the senior author before his untimely death on August 9, 1967. The junior author was concerned mainly in directing the inventory and compiling the data included in Table 1. Condensation and minor changes have been made in the context as initially written by the senior author.

request some specimens were retained by the specialists for further study. We have asked all specialists to recommend institutions and organizations where duplicate specimens of their specialty may be deposited. Priority, of course, is given to Brigham Young University and the USNM.

A complete record of the deposition of all specimens has been maintained, and with the exception of type specimens, all are considered as permanent loans to depositories. This is interpreted as permanent so long as the specimens are properly curated. If at any time these collections are no longer considered useful to the depository, they are to be returned to the United States National Museum. These permanent loans are considered to be continuously available to visiting scientists.

Publications

Schultz (1966) listed the publications dealing with ecological studies at the Nevada Test Site between the years 1953 and 1966. In his listing, those published as part of the Brigham Young University project number over 60. Allred, Beck, and Jorgensen (1966) reported those related to our project in the Proceedings of the Utah Academy of Sciences, Arts, and Letters. After the reports mentioned above were published, three other reports have been prepared —Spiders of the Nevada Test Site (Allred and Beck, 1967), Male Sphaeropthalmine Mutillid Wasps of the Nevada Test Site (Ferguson, 1967), and Miridae of the Nevada Test Site (Knight, 1968). Additional reports will be prepared periodically when identification of additional groups are completed.

Taxonomic Inventory

The following discussion is designed to clarify the data in Table 1.

Column 1. The column on the extreme left, *Group*, refers to the general category in which a group of organisms was tentatively placed for study. It is obvious that some major animal groupings are not shown. This was due to the fact that we had neither the manpower nor facilities to include them in our surveys.

Columns 2 and 3. *Total no. of specimens* and *No. specimens identified* refer to an actual count in some instances and an estimate in others. The numbers in parentheses in these columns refer to actual or estimated numbers of species for each animal group. Some specialists elected only to classify the specimens sent to them, not desiring to publish a report, although in most instances the specialist agreed to make the appropriate descriptions of new genera and species.

Column 4. *Data published* refers to published data, e.g., Barnum (1964), or the specialist who identified or is currently working with the particular taxonomic group. An asterisk indicates that the unidentified specimens have been deposited at the Smithsonian Institution of the USNM pending the availability of a specialist willing to work with that specific group.

TABLE 1. Inventory of arthropods collected at the Nevada Test Site, 1959-1965. (The numbers are based on actual count or visual approximations. Numbers in parentheses indicate the species represented.)

Group	Total no. specimens, all or partly identified	No. specimens unidentified and available	Data published (name and date), specimens in possession of or identified by (name and address), and/or available for study (*)
Insecta			
Thysanura		340	*
Collembola		1700	*
Ephemeroptera (immature)	100		George F. Edmunds, Univ. Utah, Salt Lake City
Odonata			
Anisoptera		160(4)	*
Zygoptera		275(8)	*
Orthoptera	8330(58)		Barnum (1964)
Isoptera		300	*
Embioptera		5	*
Psocoptera		300	*
Mallophaga and Anoplura		530 lots (308 vials, 222 slides)	*
Thysanoptera	6340	280	Lewis J. Stannard, Illinois Nat. Hist., Surv., Urbana
Hemiptera	14,300		
Corixidae		10	*
Notonectidae		10(3)	*
Naucoridae		23(2)	*
Veliidae		65	*
Anthocoridae		40	*
Miridae	315	65	Knight (1967)
Phymatidae		17(8)	*
Reduviidae		100(8)	*
Ploiariidae		10	*
Nabidae		110(3)	*
Tingidae	190(5)	6	Beck and Allred (1966)
Neididae	310(3)	170	ditto
Lygaeidae		3900(18)	*
Coreidae		240(12)	*
Saldidae		1	*
Cydnidae		1	*
Corimelaenidae		46	*
Pentatomidae	250(8)	50	Beck and Allred (1966)
Miscellaneous		486	Carl J. Drake, U.S. Nat. Mus., Washington, D. C.
Immatures		8380	*
Homoptera			
Cicadidae		70(3)	*
Membracidae		225(10)	*
Cicadellidae		1230(40)	*
Cercopidae		5(2)	*
Fulgoroidae		400(30)	*
Psyllidae		240(7)	*
Aphididae	970	140	Clyde Smith, N. Carolina State Univ., Raleigh
Coccoidae		45	*
Immatures		2250	*
Neuroptera			
Myrmeleontidae		200(5)	*
Chrysopidae		150(2)	*
Raphidiidae		15(2)	*

Table 1 (continued)

Group	Total no. specimens, all or partly identified	No. specimens unidentified and available	Data published (name and date), specimens in possession of or identified by (name and address), and/or available for study (*)
Hemerobiidae		12(2)	*
Berothidae		1	*
Immatures		10	*
Coleoptera			
Scarabaeidae	845(20)	33(8)	Allred and Beck (1965)
Curculionidae	315(43)		Tanner (1966)
Platystomidae		6(3)	*
Tenebrionidae	15,675(46)		Tanner and Packham (1965)
Coccinellidae		315(15)	*
Melyridae		400(18)	*
Meloidae		70(8)	*
Dytiscidae		80(3)	*
Hydrophilidae		35(2)	*
Elateridae		425(8)	*
Histeridae		1263(5)	*
Carabidae		575(8)	*
Leptodiridae		375(1)	*
Lathridiidae		110(1)	*
Ptinidae		55(1)	*
Silphidae		65(1)	*
Dermestidae		50(4)	*
Bostrichidae		15(2)	*
Oedemeridae		25(2)	*
Anobiidae		25(4)	*
Cleridae	115(8)	35(7)	William F. Barr, Univ. Idaho, Moscow
Anthicidae		30(4)	*
Chrysomelidae		500(18)	*
Nitidulidae		120(3)	*
Bruchidae		15(4)	*
Mordellidae		20(2)	*
Phengodidae		25(1)	*
Alleculidae		55(3)	*
Silvanidae		25(1)	*
Cryptophagidae		7(1)	*
Elmidae		50(1)	*
Staphylinidae		20(5)	*
Cantharidae		1	*
Ostomidae		1	*
Buprestidae	45(15)	2(1)	William F. Barr, Univ. Idaho, Moscow
Cucujidae		5(1)	*
Pselaphidae		2(1)	*
Lagriidae		1	*
Leiodidae		1	*
Lampyridae		2(1)	*
Cerambycidae		115(15)	*
Miscellaneous		730	*
Immatures		370	*
Trichoptera		135	*
Lepidoptera			
Adults	1413	783(83)	Jerry A. Powell, Univ. Calif., Berkeley
Immatures		270	*
Diptera			

Table 1 (continued)

Group	Total no. specimens, all or partly identified	No. specimens unidentified and available	Data published (name and date), specimens in possession of or identified by (name and address), and/or available for study (*)
Bombyliidae	2630(111)	60	Allred, Johnson, and Beck (1965)
Hippoboscidae		20(1)	*
Sarcophagidae		120(2)	*
Ephydridae		50(2)	*
Tachinidae		160(10)	*
Muscidae		25(1)	*
Bibionidae		30(1)	*
Calliphoridae		65(4)	*
Asilidae		Many	*
Therevidae		8(3)	*
Anthomyiidae		6(1)	*
Dolichopodidae		4(2)	*
Tephritidae		175(8)	*
Cuterebridae		3(1)	*
Chironomidae		65(4)	*
Pipunculidae		2(1)	*
Tipulidae		13(4)	*
Sepsidae		1	*
Syrphidae		55(2)	*
Scenopinidae		3(1)	*
Chloropidae		50(3)	*
Otitidae		1	*
Culicidae		4(1)	*
Conopidae		14(2)	*
Mydidae		2(1)	*
Heleomyzidae		13(4)	*
Miscellaneous		885(60)	*
Immatures		1230	*
Siphonaptera	3720(33)	9	Beck and Allred (1966)
Hymenoptera			
Formicidae	4500(53)	1050	Cole (1966)
Mutillidae	120	8	Ferguson (1967)
Tiphiidae	575		Marius Wasbauer, Calif. Dept. Agr., Sacramento
Apoidae	353		George E. Bohart, Utah State Univ., Logan
Miscellaneous		925(90)	*
Immatures		1100	*
Crustaceans			
Isopoda	500(2)	15	*
Branchiopoda	120		George F. Edmunds, Univ. Utah, Salt Lake City
Ostracoda	90	40	ditto
Diplopoda	156(4)	4	R. V. Chamberlin, Univ. Utah, Salt Lake City
Chilopoda	85(5)	3	ditto
Symphyla		1	*
Pauropoda		1	*
Scorpionida	1710(9)	240	Gertsch and Allred (1965)
Solpugida	1000(28)	45	Muma (1963)
Pseudoscorpionida		77	*
Phalangida	1700(2)		Allred (1965)
Acarina			
Mites	15,800(200)	172 lots (vials)	Allred (1963a; 1963b; 1963c); Allred and Beck

Table 1 (continued)

Group	Total no. specimens, all or partly identified	No. specimens unidentified and available	Data published (name and date), specimens in possession of or identified by (name and address), and/or available for study (*)
			(1962; 1964); Allred and Goates (1964a; 1964b); Goates (1963) C. D. Jorgensen, Brigham Young Univ., Provo, Utah
Ticks	1900(11)		Beck, Allred and Brinton (1963)
Araneida	5600(91)	370	Allred and Beck (1967)
Reptilia	700(29)		Tanner and Jorgensen (1963)
Aves	900(187)		Hayward, Killpack, and Richards (1963)
Mammalia	954(46)		Jorgensen and Hayward (1965)

List of Depositories of Nevava Test Site Specimens

American Museum of Natural History
(Dr. Willis Gertsch)
Central Park West at 79th Street
New York, New York 10000
Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera, Scorpions

Arizona State University
(Dr. Mont A. Cazier)
Department of Zoology
Arizona State University
Tempe, Arizona 85281
Coleoptera, Diptera, Hymenoptera, Isopods, Orthoptera, Solpugids, Scorpions

Bishop Museum
(Dr. Nixon Wilson)
Department of Entomology
Honolulu, Hawaii 96800
Coleoptera, Hymenoptera, Mites, Orthoptera

Brigham Young University
(Dr. Dorald M. Allred)
Department of Zoology and Entomology
Provo, Utah 84601
Birds, Chilopods, Coleoptera, Diplopods, Diptera, Ephemeroptera, Hemiptera, Hymenoptera, Isopods, Lepidoptera, Mammals, Mites, Orthoptera, Phalangids, Reptiles, Scorpions, Solpugids, Spiders, Trichoptera

California Academy of Science
(Mr. Hugh B. Leech)
Golden Gate Park
San Francisco, California 94100
Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera, Scorpions

Chicago Natural History Museum
Coleoptera, Hymenoptera, Isopods, Orthoptera, Scorpions, Mites

Colorado State University
(Dr. Tyler A. Woolley)
Department of Zoology
Ft. Collins, Colorado 80521
Coleoptera, Hymenoptera, Mites, Orthoptera

Communicable Disease Center
(Dr. Harry D. Pratt)

U. S. Public Health Service
50 Seventh Street, N. E.
Atlanta, Georgia 30300
Mites

Death Valley National Monument Museum
(Mr. Dwight T. Warren)
Chief Naturalist
Death Valley Museum
Death Valley, California 92328
Chilopods, Coleoptera, Diptera, Hymenoptera, Isopods, Orthoptera, Scorpions, Sulpugids

Dixie College
(Dr. Andrew H. Barnum)
Department of Biology
St. George, Utah 84770
Coleoptera, Hymenoptera, Orthoptera, Scorpions, Reptiles

Florida Department of Agriculture
(Dr. H. A. Denmark)
P. O. Box 1269
Seagle Building
Gainesville, Florida 32601
Hymenoptera

Long Beach State College
(Dr. Richard B. Loomis)
Department of Biology
Long Beach, California 90800
Mites

Los Angeles County Museum
(Dr. Charles L. Hogue)
Exposition Park
Los Angeles, California 90000
Hymenoptera, Coleoptera, Orthoptera

Museum of Comparative Zoology (Harvard)
(Dr. Howard E. Evans)
Insect Department
15 Divinity Ave.
Cambridge, Massachusetts 02100
Coleoptera, Hymenoptera, Isopods, Orthoptera, Scorpions

New Mexico Highlands University
(Dr. Lora M. Shields)
Department of Biology
Las Vegas, New Mexico 87701
Hymenoptera, Reptiles

Ohio Agriculture Experiment Station
(Dr. Donald E. Johnston)
Institute of Acarology
Department of Zoology and Entomology
Wooster, Ohio 44691
Hymenoptera, Mites

Philadelphia Academy of Natural Science
(Mr. Harold J. Grant, Jr.)
Department of Insects
Nineteenth and the Parkway
Philadelphia, Pennsylvania 19100
Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera, Scorpions

Rocky Mountain Laboratory
(Dr. James M. Brennan)
Hamilton, Montana 59840
Mites

San Jose State College
(Dr. William E. Ferguson)
(Biology Department
San Jose, California 95114
Coleoptera, Hymenoptera, Orthoptera

U. S. National Museum
(Dr. J. F. Gates Clark)
Division of Insects
Washington, D. C. 20260
Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera, Scorpions

University of California (Berkeley)
(Dr. Deane P. Furman)
Department of Entomology and Parasitology
University of California
Berkeley, California 94700
Coleoptera, Hymenoptera, Mites, Orthoptera

University of California (Los Angeles)
Department of Entomology and Parasitology
University of California
Los Angeles, California 90000
Mammals

University of California (San Francisco)
(Dr. J. Ralph Audy)
George Williams Hooper Foundation
San Francisco Medical Center
San Francisco, California 94122
Mites

University of Florida
(Dr. Martin H. Muma)
Citrus Experiment Stations
P. O. Box 1088
Lake Alfred, Florida 33850
Solpugids

University of Kansas
(Dr. Joseph H. Camin)
Department of Entomology
Lawrence, Kansas 66044
Coleoptera, Hymenoptera, Mites, Orthoptera

University of Michigan
(Dr. Theodore H. Hubbell)
Museum of Zoology
Ann Arbor, Michigan 48103
Coleoptera, Hymenoptera, Mites, Orthoptera, Scorpions

University of Nevada (Las Vegas)
(Mr. W. G. Bradley)
Southern Regional Division
Las Vegas, Nevada 89100
Coleoptera, Hymenoptera, Isopods, Mammals, Mites, Orthoptera, Scorpions

University of Nevada (Reno)
(Dr. Ira LaRivers)
Department of Entomology
Reno, Nevada 89507
Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera, Scorpions

University of Tennessee
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Department of Zoology and Entomology
Knoxville, Tennessee 37900
Coleoptera, Hymenoptera, Orthoptera, Mites

University of Utah
(Dr. Don M. Rees)

Department of Biology
Salt Lake City, Utah 84117
Birds, Coleoptera, Hymenoptera, Isopods, Mites, Orthoptera

Utah State University
(Dr. Datus Hammond)
Department of Zoology
Logan, Utah 84321
Coleoptera, Hymenoptera, Mites, Orthoptera, Scorpions

Virginia Polytechnic Institute
(Dr. R. B. Holliman)
Department of Biology
Blacksburg, Virginia 24066
Mites

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