

A report on a zoological study and collecting trip
to Afghanistan

By

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Abstract: Report on an Afghan collecting tour, possibilities and modes of collecting, list of collected material, detailed list of localities, numerical distribution of the collected animals.

Within the frame of the Hungaro-Afghan Cultural Exchange Program I spent three months in that country studying and collecting insects. On the 27th of March, 1974 I boarded an aeroplane in Budapest and touching Moscow reached Kabul on the 28th. I returned on the 23rd of June and reached Budapest, by the same route, on the following day.

I was the guest of the Zoological and Parasitological Department in the Faculty of Science of the Kabul University. I was provided with an appropriately equipped laboratory where a series of funnels has been set up to obtain soil animals and where I could make preparations in order to conserve the collected animals. The Head of the Department, Prof. Dr. AHMAD SHAH DJALAL and his colleague M. EHSAN ARGHANDEWAL were kind enough to give me all possible help to make my study-tour and collecting trip as successful as possible. Herewith I would like to express my most sincere gratitude to both of them.

Since I was the first Hungarian zoologist to visit Afghanistan, I set as my principal task to realize good personal and scientific connections with the representatives of the Afghan biology. Together with Prof. Dr. AHMAD S. DJALAL we worked out a proposal for a collaboration between Hungarian and Afghan zoologists to explore the invertebrate fauna of Afghanistan; the project would be headed by the Kabul Univer-

sity on the one hand, and by the Hungarian Natural History Museum, Budapest, on the other. Our proposal has been sent to higher authorities in both countries.

The other aim of my trip was to collect as many invertebrate animals as possible both for the Zoological Department of the Hungarian Natural History Museum, Budapest, and for the Kabul University. This country with dry, continental climate since long has been in the focus of interest of many a zoologist, especially because it lies on the borderland of the Palaearctic Region. The investigation of the vertebrate fauna of Afghanistan was started in the last century, and excepting the fish fauna, we may safely say that in broad lines the vertebrate fauna has been explored. (See PALUDAN 1959, KULLMANN 1965, NIETHAMMER 1965, NAUMANN and NOGGE 1973, and others.) On the other hand the investigation of the invertebrate fauna on a larger scale started only 40 years ago (Deutsche Hindukush Expedition der Deutschen Forschungsgemeinschaft 1935, PALUDAN and HAARLOV 1948). Furthermore, J. KLAPPERICH on 1952-1953, Prof. Dr. K. LINDBERG between 1957 and 1962 in four occasions collected very numerous and rather valuable material. The richest data on insects from Afghanistan are based on the latter two collectors' extensive work there. Other significant collecting activity was exerted by a number of Czechoslovakian investigators (O. JAKES 1963-1964, D. POVOLNY 1965, D. POVOLNY and Fr. TENORA 1966, J. SIMEK 1965-1966). Besides the above collectors various students, especially from Germany, spared time and toil in the exploration of the Afghan insect fauna (AMSEL et al. 1956, 1966, W. BÖCKEREL 1973, C. M. NAUMANN 1969-1973, and others, too). In spite of the above list of collectors certain groups of insects, mainly Diptera and Hymenoptera, are rather inadequately known and quite a lot is yet to be done in the investigation of the fauna of this zoogeographically so interesting a country.

Within the scope of this study I do not wish to discuss the natural conditions of Afghanistan, though I feel bound to hint at some characteristic features which directly influenced my collectings. We may almost say that Afghanistan is an overpopulated country. Her climate is so dry that without irrigation not one square metre of land may be cultivated. Consequently, the extent of cultivated areas are the function of the available quantity of water for irrigation purposes. Over the non-irrigated stretches of lands several million nomads exist with their flocks of sheep, goat and herds of camel. Goats graze over neck-breaking steep rocky mountain slopes, sheep, goats and camels are encountered in almost entirely dry semi-deserts with open vegetation. I have to stress that the investigation of soil inhabiting animals was somewhat hampered by the circumstance that in most cases we do not know whether a nowadays uncultivated area had been cultivated 10, 100 or 1000 years ago, or not at all. Apparently, excepting the alpine, high mountain or desert regions, all other areas suffer human influence. At the same time agriculture scarcely started using chemicals (artificial fertilizer, pesticides), therefore, the fringes of weed and the adjacent areas of irrigation canals have a very rich fauna (mainly Diptera and Hymenoptera), especially viewing it with European standards. In spite of the fact that Afghanistan is poor in forests her vegetation is quite versatile, up to now over 8000 species of plants have been ascertained (AMSEL 1957). Since I am not a botanist and have not prepared a herbarium either, I am not able to give vegetation description of my collecting localities.

I arrived in Kabul eight months after the declaration of the republic following the re-

volution, at a time when the economic situation of the country and that of the Kabul University was at a low point. Owing to this fact the Kabul University was unable to provide a car for longer collecting trips. Nevertheless, on five occasions I was lucky enough to go on one-day trips into the country. Thus my collectings concentrated around Kabul and its environs (University Park: Aliabad, Darulaman, Tshelsotun, Tshelheltan, Kotal-e Khair-khana, Pule Charkhi) and also some way off (Paghman Mountains: Paghman, Estalef). These localities are partly cultivated or overgrazed by grazing animals. Some fifty per cent of the material originates from the 50 km environs of Kabul. I feel bound to stress that while the material of all the other animal groups is poor in species, in the University Park, Paghman, and in some other localities Diptera were numerous and very versatile. On the bank of Kabul River and on the shore of Bini Hesar Lake mud treading was especially successful as far as beetles were concerned.

In two occasions I had the opportunity to visit Jalalabad and its environs in a university car. In Dašte Gamberay we placed out 9 soil traps baited with meat in a rather desolate-looking semi-desert, dry gully. All have disappeared by the next time we went to collect them. The animal life of the semi-desert is not rich, nevertheless, it is very versatile. It was especially interesting for me to see Chironomidae in large numbers which in all probability had developed in the waters of Bande Darunta lying several kilometres off. Jalalabad and its environs have much like an Indian climate, by this sharply differing from the rest of Afghanistan. Here even in winter there is no frost and from the end of April the temperature frequently rises above 40 °C (to 48 °C). Near the formerly Royal Park, in another park, where palms, wild fig-trees and orange-trees were mixed with luxuriant subtropical vegetation, on both occasions we collected a vast number of insects with a very good species distribution. On our return route we have stopped at several places in the valley of River Kabul, like in Tangi Garoo, and for a few minutes collected intensively.

On another two occasions south-east of Gardéz passing through the valley of Logar and the Pass of Kotal Tera we drove to the forest region of Paktya. The easternmost regions of Afghanistan are under the influence of the monsoon from India which significantly raises the annual precipitation. This much supports the development of sparse woods, primarily that of pineries. In such a sparse pine-cedar-thuya wood, in a valley with steep sides I have placed out 8 soil traps, of which 6 were intact when next time I visited the place. The material was not rich but very valuable. (In other three localities I placed out soil traps: near Paghman and Estalef and in a semi-desert in Logar Province. These soil traps brought in extremely valuable results, thus, in the future the collectors will have to undertake the risk that only a part of the traps will be in situ even only one week after deposition. Out of the 37 soil traps only 15 were recovered, the others disappeared entirely.) On the way back with a sweeping net I collected on the slopes of the Kotal Tera and in the valley of Logar. On one occasion we visited in a car the semi-desert of Dašte Moqur in Ghazni Province. Originally our plan was to reach a salt lake named Ab-Estadah, but our Afghan guide lost his way and we ran short of time. But to make the best out of things we collected around the opening of subterranean canals (karéz) and on the banks of these waters, where we secured some very useful Diptera and Hymenoptera material, this was mainly because when we were there (beginning of June) the whole area was entirely dry.

On the 23rd of April I travelled to Mazar-e Sharif in a bus. There I was able to collect only in the regency park. Far more interesting are my experiences gained en route. While traversing the superb Salang Pass, on the northern side we saw some very promising alpine meadows and steep juniper groves (*Juniperus macropoda*). From this place on right down to Tashkurgan almost every locality seems interesting from entomological viewpoint; unfortunately, I had no opportunity to collect in any of these places. Again I travelled in bus to Herat and Kandahar. The south facing sides of Paropamisus Mts. toward Herat are bare with scattered tussocks of grass and other vegetation (many spiny compositae), but here too goats graze about. At this place I mainly collected Hymenoptera. On the bank of River Hari Rud, at two places, at some distance from each other, I had opportunity to collect. On the sandy banks the dominant plants were tamarisk and sallow thorn, in willow grove skirting the river and in the Herat parks I collected a large number of fly material but of low species composition. Besides I had access to some gardens and orchards in the town of Herat where numerous insects were collected. The riparian vegetation of River Hari Rud and that of River Arghandab near Kandahar is very much alike, but the collected material of the latter is more numerous, mainly flies. Near Kandahar in some semi-desert areas we also tried to make collectings. But the dry and very warm weather by the end of May compels the majority of insect life into diapause. Thus a combined sweeping with dislocation of grass tussocks may result in one hour only c. 30 insect specimens.

Out of my 89 days spent in Afghanistan in 50 I was able to collect. A longer illness at the end of my stay there much hindered my performing collecting activity. During my travels I covered some 6500 km in Afghanistan (cf. sketch of map). Most of it was made in buses, accordingly I collected in a few localities, and there too in frequented places, known before. Quite a number of insect groups have their flying period in other seasons or at other times than when I visited the particular locality. I sincerely hope that my experiences gained there may help future Hungarian collectors to find the appropriate places for collecting insects and other animals.

Through the kindness of Dr. JELANI BAKHTARI, Ministry of Agriculture and Irrigation, I had the opportunity in a car of the ministry to visit state farms lying outside of Kabul. On 4 occasions I visited 2 cattle farms (Kareze Mir; Bini Hesar: twice) and one sheep farm (Tshemtala) where I collected dung samples in order to study the development of flies therein. The ultimate aim was to give advice how to work out protective measures which are cheap and efficient. These trips were realized through the selfless and precise organizing activity of some ministry officials. Hereby I feel it my pleasant duty to thank Dr. J. BAKHTARI, minister, and Dr. G. ABU BAKR (President of Veterinary and Animal Science of the Ministry of Agriculture) who made it possible for me to carry out my research work.

While staying in Kabul I visited the Zoo and the Zoological Museum, in the latter besides some systematic work I refilled the collection preserved in liquid and renewed the poisons in the insect collection.

The collected material fall into the following groups

Lumbricidae	157	Thysanoptera	486
Mollusca	7	Lepidoptera	238
Crustacea	2096	Neuropteroidea	85
Chilopoda	30	Hymenoptera	3250
Collembola	161	Diptera	45741
Thysanura	6	Rhynchota	3368
Ephemeropteroidea	58	Arachnoidea	858
Orthopteroidea	227	Acari*	23
Coleoptera	2791	Scorpiones	7
		Total:	59589 ex.

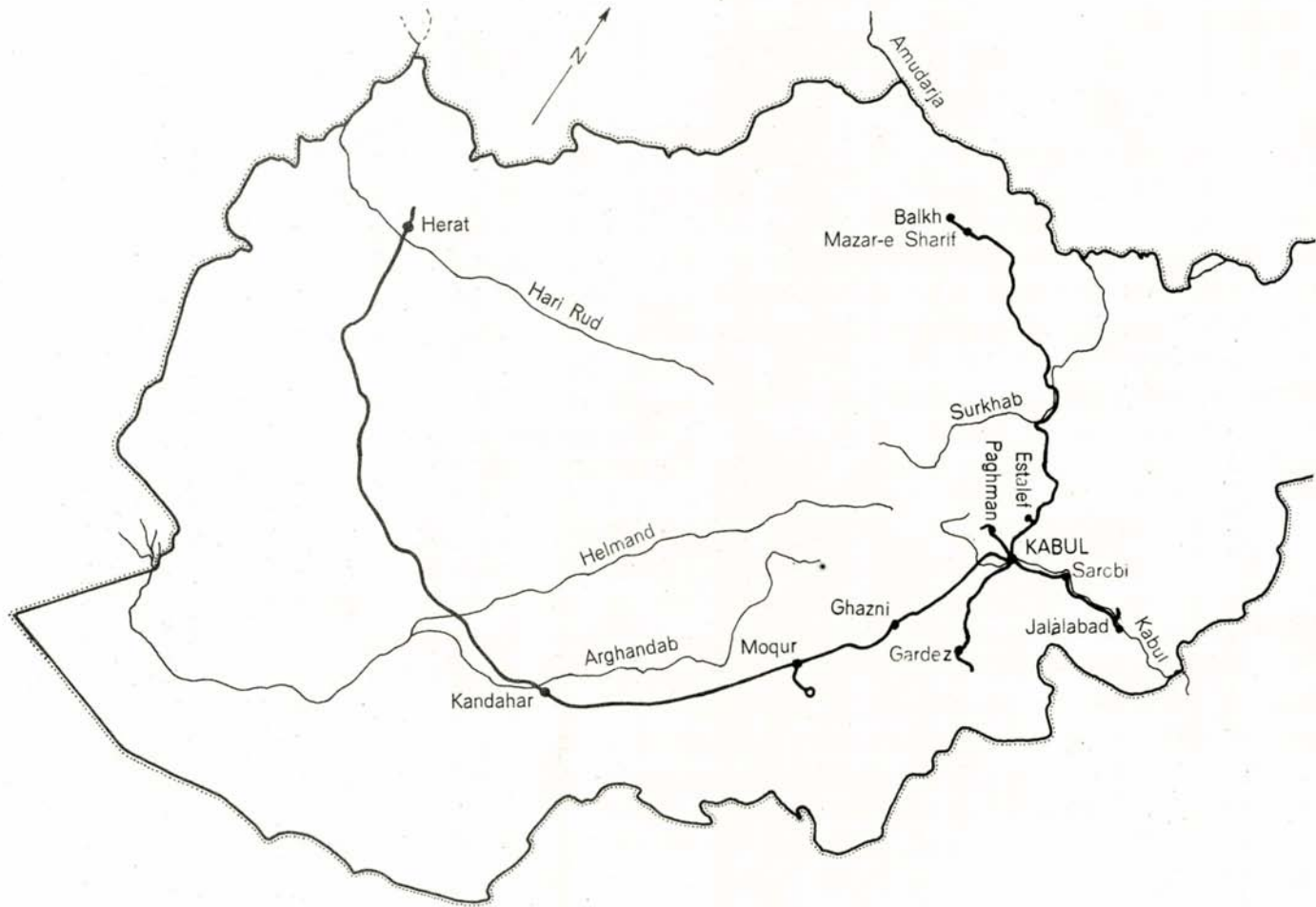
To this number we should add a further 21341 flies, which were collected in the cattle farms (mainly in Bini Hesar) (see PAPP 1975), and the material of 49 Berlese samples, in which a large proportion is Collembola. The above list clearly shows that some important insect groups like the Ephemeropteroidea, Lepidoptera, Neuropteroidea are hardly represented in my collectings. Apart from one occasion I had no opportunity to use lamps to collect nocturnal animals, primarily Lepidoptera. The number of Coleoptera is not insignificant, nevertheless, it is hardly expected that the material contains new species since most of my localities have been frequented before me by other collectors. The material of Thysanoptera, Hymenoptera, Rhynchota and Arachnoidea (primarily Araneae) appears to be fairly rich in species. The Diptera material is not only large in number but in species it is also rather versatile. Some 60 families are represented in my material, several of them are new to the fauna of Afghanistan.

We agreed with the authorities of the Kabul University that from all identified species we are to send back representatives for the insect collection housed in the Zoological and Parasitological Department of the Kabul University. Accordingly, herewith I request all specialists working on the materials collected by me to mark species by species that at least one specimen (in cases of long series more specimens) is to be deposited in the Kabul University. These specimens will be sent to the Kabul University at a future date by me.

Finally, I should like to sincerely thank Dr. CLAS M. NAUMANN and Dr. A. ALIM KAYUMI for having helped me in the preliminary preparations of the trips, and also MIAN AHMAD, engineer, (Kabul) for his very kind and friendly support.

European collectors in Afghanistan have always found great difficulties in the orthography of Afghan locality names. The hereunder given locality list is based in all possible cases on the maps issued by the Afghan Cartographic Institute in 1969 at a scale of 1:250000. Consequently, all other transcriptions used by my predecessors in Afghanistan I leave out of consideration.

*Without the Berlese-samples



Collecting localities

- No. 1. Kabul, Hotel Jamil; 28 March, 1974 - Singled on windows. Col. 1, Hym. 1, Dipt. 29.
- No. 1/a. Kabul, Hotel Jamil; 30 April, 1974 - Singled from outlet tube of bathroom. Dipt. 16 + Acarina.
- No. 2. Prov. Kabul: Paghman, 2500 m; 29 March, 1974 - Berlese sample from deposit of Paghman river.
- No. 3. Prov. Kabul: Paghman, 2 km E from centre of town, near Isakhel, 2400 m; 29 March, 1974 - Berlese sample from litter and soil of a poplar (*Populus alba*) plantation.
- No. 4. Same as for No. 3 - Earthworms collected by digging, soil of a poplar plantation. Lumbr. 21.
- No. 5. Prov. Kabul: Paghman, 2500 m; 29 March, 1974 - Singled on riverside. Ephem. 1, Col. 17, Hym. 7, Arachn. 10.
- No. 6. Same as for No. 5. - Earthworms digged from riverside soil. Lumbr. 7.
- No. 7. Kabul, Aliabad; 30 March - 1 April, 1974 - Singled on windows and in university park. Crust. 2, Orth. 1, Lep. 2.
- No. 8. Kabul, Aliabad, 1800 m; 3-4 April, 1974 - Netted along gutter on outskirts of city, dense weeds on soil mixed with refuse and manure. Dipt. 279.
- No. 9. Kabul, Aliabad, 1850-1920 m; 3 April, 1974 - On stony hillside above Kabul University, netted on donkey droppings. Dipt. 107.
- No. 10. Same as for No. 9 - Singled material. Col. 10, Dipt. 105.
- No. 11. Same as for No. 9. - Berlese sample from small ant nest.
- No. 12. Same as for No. 9 - Berlese sample from soil among *Verbascum* roots.
- No. 13. Same as for No. 9 - Berlese sample of mosses and soil substrate.
- No. 14. Same as for No. 9 - Berlese sample from soil of shady places on hillside.
- No. 15. Same as for No. 9 - Berlese sample from soil under old donkey droppings.
- No. 16. Kabul, Aliabad; 9-11 April, 1974 - University park, singled. Thysan. 2, Neur. 1, Hym. 25, Dipt. 120, Rhynch. 1, Arachn. 15.
- No. 17. Kabul, Darulaman, 1820 m; 9 April, 1974 - Palace park: netted and singled under stones. Crust. 2, Ephem. 3, Orth. 3, Col. 13, Lep. 4, Dipt. 167, Arachn. 3.
- No. 18. Same as for No. 17 - Earthworms collected on muddy bottom of small irrigation canal. Lumbr. 45.
- No. 19. Same as for No. 17 - Berlese sample from nest of small black ants.
- No. 20. Same as for No. 17 - Berlese sample from nest of very small red ants.
- No. 21. Same as for No. 17 - Berlese sample from soil under stones.
- No. 22. Same as for No. 17 - Berlese sample from soil of flower beds.
- No. 23. Same as for No. 17 - Berlese sample from soil among grass roots.
- No. 24. Same as for No. 17 - A small mushroom for Berlese extraction.
- No. 25. Prov. Kabul: Paghman, 2500 m; 10 April, 1974 - Riverside, singled and netted material. Orth. 7, Col. 33, Lep. 2, Hym. 72, Dipt. 241, Rhynch. 3, Arachn. 6.
- No. 26. Prov. Kabul: Paghman, 2550 m; 10 April, 1974 - A small mushroom for Berlese extraction. Col. 12 + numerous Collembola.
- No. 27. Kabul, Darulaman, 1820 m; 11 April, 1974 - Netted and singled in a poplar plantation. Lumbr. 10, Crust. 8, Col. 1, Hym. 3, Dipt. 365, Arachn. 13.

- No. 28. Kabul, Darulaman, 1820 m; 11 April, 1974 - Netted above a garbage hole. Col. 19, Hym. 5, Dipt. 10.
- No. 29. Prov. Kabul: Band-e Qargha, 2000-2100 m; 12 April, 1974 - Netted and singled on stony hillside above storage-lake. Chil. 2, Orth. 2, Col. 10, Lep. 3, Dipt. 70, Arachn. 1, Scorp. 2.
- No. 30. Prov. Parwan: Estalef, 1950 m; 15 April, 1974 - Netted on compost mixed with manure. Dipt. 460.
- No. 31. Same as for No. 30 - Netted on flowering Cruciferae on a fallow field. Thysan. 2, Lep. 13, Hym. 31, Dipt. 43.
- No. 32. Prov. Parwan: Estalef, 2000 m; 15 April, 1974 - Netted and singled on side of ditches along road. Col. 7, Dipt. 27.
- No. 33. Same as for No. 30 - Singled on sap of *Morus alba*. Dipt. 2.
- No. 34. Kabul, Darulaman, 1820 m; 16 April, 1974 - Berlese sample of small mushrooms placed five days previously in soil trap in poplar plantation.
- No. 35. Kabul, Darulaman, 1820 m; 16 April, 1974 - Earthworms collected by formol poured on 100 x 50 cm² soil in poplar plantation. Lumbr. 289. (All of them became rotten during storage.)
- No. 36. Prov. Nangarhar: Jalalabad, 560 m; 17 April, 1974 - Netted and singled in a park near Royal Park. Lumbr. 7, Orth. 1, Col. 56, Lep. 3, Hym. 11, Dipt. 220, Rhynch. 18, Arachn. 6.
- No. 37. Prov. Nangarhar: Band-e Darunta, 590 m; 17 April, 1974 - Singled and netted on lake-shore vegetation of storage lake. Chil. 2, Ephem. 7, Orth. 1, Thysan. 9, Dipt. 1, Arachn. 4.
- No. 38. Same as for No. 37 - Berlese sample from soil of grazed wet meadow.
- No. 39. Prov. Kabul: Kotal-e Khair-khana, 8 km NW from Kabul, 2100 m; 18 April, 1974 - Overgrazed, stony area with sparse vegetation, collected on decomposing meat. Dipt. 79.
- No. 40. Same as for No. 39 - Netted and singled (mainly under stones). Moll. 1, Crust. 3, Chil. 10, Thysanura 1, Orth. 2, Col. 32, Hym. 1, Dipt. 19, Arachn. 7, Scorp. 1.
- No. 41. Same as for No. 39 - Berlese sample from nest of small ants.
- No. 42. Same as for No. 39 - Berlese sample from soil under stones and grass roots.
- No. 43. Same as for No. 39 - Berlese sample from decaying (last year) leaves and roots of an Iridaceae species.
- No. 44. Prov. Kabul: Tshelhtan, 17 km WSW from Kabul, 1950-2000 m; 19 April, 1974 - Grazed grassy slopes with some *Ranunculus* and many spiny Compositae; netted and singled material. Chil. 2, Ephem. 1, Col. 58, Lep. 3, Neur. 1, Hym. 120, Dipt. 240, Rhynch. 9, Arachn. 28, Scorp. 3, Acarina 7.
- No. 45. Same as for No. 44 - Berlese sample of old cattle dropping and underlying soil.
- No. 46. Prov. Kabul, Tshelhtan, 17 km WSW from Kabul, 1950 m; 19 April, 1974 - Netted above old decomposed dung heaps. Dipt. 119.
- No. 47. Kabul, Aliabad; 20-21 April, 1974 - University park: netted material. Col. 5, Thysan. 12, Neur. 2, Hym. 36, Dipt. 788, Arachn. 28.
- No. 48. Kabul, Aliabad; 21 April, 1974 - Berlese sample from soil under *Coprinus* sp. mixed with grass roots.
- No. 49. Kabul, Aliabad; 21 April, 1974 - University park: singled on oozing sap of

- Salix and Populus trees, and Berlese sample from sap. Col. 2, Hym. 3, Dipt. 59.
- No. 50. Prov. Balkh: Mazar-e Sharif, 470 m; 24 April, 1974 - Park near offices of Balkh province, dense Lolium and Festuca grass with Trifolium and dandelion, flower beds, etc. Berlese sample from different places.
- No. 51. Same as for No. 50 - Netted in park. Lep. 2, Hym. 202.
- No. 52. Prov. Parwan: Estalef, 1950 m; 26 April, 1974 - Steep slopes with rather dense Cercis griffithii shrub and with very little grass. Soil traps with salted water from 15 April. Moll. 1, Thysanura 1, Col. 3, Hym. 15, Dipt. 4, Rhynch. 1, Collembola 11, Arachn. 7, Acarina 12.
- No. 53. Prov. Kabul, Kotal-e Khair khana, 9 km NW from Kabul, 2050 m; 26 April, 1974 - Singled. Crust. 1, Chil. 4, Thysanura 1, Orth. 2, Col. 27, Lep. 1, Rhynch. 2, Arachn. 3.
- No. 54. Kabul, Aliabad; 28 April, 1974 - Netted in university park. Thysanura 1, Col. 2, Thysan. 29, Neur. 1, Hym. 13, Dipt. 255, Arachn. 15.
- No. 55. Kabul, 1780 m; 29 April, 1974 - Wet pastures, in some places marshy areas under Bagh-e Bala. Berlese sample from soil mixed with grass roots.
- No. 56. Same as for No. 55 - Singled, mainly under sods of grass. Orth. 9, Col. 69, Hym. 1, Dipt. 1, Arachn. 7.
- No. 57. Same locality, 30 April, 1974 - Berlese sample from soil under sods of grass, and singled material. Crust. 3, Col. 267, Hym. 1, Arachn. 20.
- No. 58. Same as for No. 57 - Plankton net sample from a watercourse. Crust. 2000, Col. 1, Dipt. (larvae) 4.
- No. 59. Same as for No. 57 - Netted material. Col. 2, Lep. 1, Dipt. 775.
- No. 60. Same as for No. 57 - On donkey droppings. Dipt. 506.
- No. 61. Same as for No. 57 - On cattle droppings. Dipt. 134.
- No. 62. Prov. Kabul: Paghman river, 16 km W from Kabul city centre, 1850 m; May, 1975 - Netted and singled on riverside and in dry riverbed. Orth. 30, Col. 34, Thysan. 19, Hym. 87, Dipt. 740, Rhynch. 34, Arachn. 2.
- No. 63. Same as for No. 62 - Netted on sheep and donkey droppings. Col. 49, Dipt. 38, Rhynch. 1.
- No. 64. Same as for No. 62 - Earthworms collected by formol poured on soil of a poplar (*Populus alba*) plantation with rather dense grass, *Potentilla* sp. and *Cruciferae*. Lumb. 11.
- No. 65. Same as for No. 62 - Berlese sample from soil of poplar plantation.
- No. 66. Same as for No. 62 - Berlese sample from soil under stones.
- No. 67. Same as for No. 62 - Berlese sample from old donkey droppings and underlying soil.
- No. 68. Prov. Kabul: Pul-e Charkhi, 22 km ENE from Kabul city centre, 1780 m; 2 May, 1974 - Berlese sample from soil of flood basin of Kabul river.
- No. 69. Same as for No. 68 - Flood basin of Kabul river, *Tamarix*, willows and spiny herbs, sparse, overgrazed undergrowth. Netted and singled (also from split of a young willow). Crust. 60, Ephem. 3, Col. 45, Neur. 1, Hym. 8, Diptera 97, Rhynch. 10, Arachn. 2.
- No. 70. Same as for No. 68 - Netted and singled on donkey droppings. Col. 80, Dipt. 4.
- No. 71. Kabul, Darulaman, 1820 m; 3 May, 1974 - Netted on donkey droppings in a poplar plantation. Dipt. 153.

- No. 72. Same as for No. 71 - Netted in woods and on margin of poplar plantation. Orth. 12, Col. 2, Thysan. 1, Hym. 12, Dipt. 255, Rhynch. 8, Arachn. 27.
- No. 73. Kabul, Aliabad 1850-1920 m; 4 May, 1974 - On stony hillside above Kabul University, netted and singled material. Col. 20, Thysan. 1, Neur. 1, Hym. 16, Dipt. 50, Arachn. 3.
- No. 74. Same locality as No. 8, 4 May, 1974 - Netted. Dipt. 922.
- No. 75. Kabul, Aliabad; 4 May, 1974 - University park: netted material. Col. 7, Thysan. 4, Hym. 18, Dipt. 360, Rhynch. 6, Arachn. 25.
- No. 76. Prov. Kabul; Paghman, 2500 m; 5 May, 1974 - Netted on cow droppings in a park with dense, high grass. Hym. 67, Dipt. 854.
- No. 76/a. Prov. Kabul: Paghman, 2450 m; 5 May, 1974 - Netted over a stock-yard in the free. Hym. 1, Dipt. 4.
- No. 77. Prov. Kabul: Paghman Mountains, 5 km SW from Paghman, 2700-2950 m; 5 May, 1974 - Stony slopes with sparse tufts of grass, short, dense, green but grazed grass only in small valleys above underground brooklets. Singled and netted. Lumbr. 2, Chil. 3, Orth. 7, Col. 40, Lep. 3, Hym. 36, Dipt. 118, Arachn. 2, Scorp. 1, Collembola 6.
- No. 78. Same as for No. 77 - Berlese sample from soil under dense grass in a small valley.
- No. 79. Same as for No. 77 - Berlese sample from soil and moss watered by a small spring.
- No. 80. Kabul, 1780 m; 6 May, 1974 - Netted and singled on wet pastures under Bagh-e Bala. Col. 29, Dipt. 1070, Rhynch. 23, Arachn. 5.
- No. 81. Prov. Nangarhar: Dašt-e Gamberay, 8 km NNE from Hydroelectric Plant of Band-e Darunta, 650 m; 8 May, 1974 - Stony semidesert in some places with sparse, very low grass with very long, spiny glume. Nine ethylene-glycol soil traps in a dry rainwash with sparse, dry tufts of Carex, deposited on 17 April. (Eight of them were taken away, one was displaced and thrown aside, thus found.) Col. 91.
- No. 82. Same as for No. 81 - Netted and singled material. Ephem. 1, Orth. 6, Col. 15, Thysan. 2, Hym. 8, Diptera 182, Rhynch. 48, Arachn. 5.
- No. 83. Prov. Nangarhar: Jalalabad, 560 m; 8 May, 1974 - Netted in a park near Royal Park. Orth. 4, Col. 9, Thysan. 10, Lep. 2, Neur. 14, Hym. 92, Dipt. 3800, Rhynch. 351, Arachn. 13.
- No. 84. Prov. Nangarhar: Jalalabad, 580 m; 8 May, 1974 - Netted above a horse pen. Dipt.
- No. 85. Same as for No. 84 - Netted on flowering Umbelliferae. Col. 11, Lep. 3, Neur. 2, Hym. 50, Dipt. 1400, Rhynch. 40, Arachn. 25.
- No. 86. Prov. Nangarhar: Band-e Darunta, 590 m; 8 May, 1974 - Netted on lake-shore vegetation of storage lake. Orth. 13, Col. 9, Thysan. 2, Hym. 23, Dipt. 1050, Rhynch. 152.
- No. 87. Prov. Nangarhar: Khayrokhel, 20 km W from Hydroelectric Plant of Band-e Darunta, 670 m; 8 May, 1974 - Netted above donkey pen. Dipt. 190.
- No. 88. Prov. Nangarhar: Dašt-e Seitan, 500 m S from Kabul-Jalalabad road, 710 m; 8 May, 1974 - Stony semi-desert with robust Euphorbia half eaten by locusts. Netted and singled material. Orth. 9, Col. 3, Lep. 1, Hym. 4, Dipt. 3, Rhynch. 8, Arachn. 6.
- No. 89. Prov. Kabul: Kabul River Gorge (Tangi Garoo), 20 km W from Sarobi,

- 1200 m; 8 May, 1974 - Netted in a small side gorge. Col. 6, Thysan. 2, Hym. 6, Dipt. 31, Rhynch. 6.
- No. 90. Prov. Kabul: Paghman river, 16 km W from Kabul city centre, 1850 m; 10 May, 1974 - Netted and singled on riverside and in dry riverbed. Lumbr. 3, Crust. 3, Orth. 4, Col. 81, Thysan. 32, Lep. 2, Hym. 57, Dipt. 400, Rhynch. 41, Arachn. 7.
- No. 91. Prov. Kabul: Bini Hesar, 6 km SE from Kabul city centre, State Farm for cow and cattle, 1820 m; 12 May, 1974 -
- Netted in stable of calves;
 - Netted in stable of young cattle with lean-to roof;
 - Netted in stable of cows with lean-to roof;
 - Netted on donkey droppings inside cattle farm;
 - Flies reared from a manure sample collected in calf stable under and beside feedbox;
 - Flies reared from manure sample collected in young cattle stable under cribs;
 - Flies reared from manure sample collected in cow stable under cribs
 - Berlese sample from all the manure samples above after fly rearing.
- No. 92. Prov. Kabul: Bini Hesar, 6 km SE from Kabul city centre, 1820 m; 12 May, 1974 - Netted on weeds (mainly *Sinapis arvensis* and *Lepidium draba*). Col. 44, Thysan. 59, Lep. 4, Neur. 4, Hym. 61, Dipt. 1084, Rhynch. 67, Arachn. 5, Acarina 1.
- No. 93. Prov. Paktya: 22 km SE from Gardez; 2450-2500 m; 14 May, 1974 - Thinly planted wood of cedars, pines and thuya with sparse scrubs and grass. Netted and singled in a steep valley of a creek. Col. 8, Dipt. 60.
- No. 94. Same as for No. 93 - Berlese sample from soil of creek valley.
- No. 95. Same as for No. 93 - Berlese sample from moss collected in creek valley.
- No. 96. Same as for No. 93 - Berlese sample from old camel droppings.
- No. 97. Prov. Paktya: 21 km N from Gardez, Tera Kotal, 2800 m; 14 May, 1974 - Netted on flowering Cruciferae on a steep mountain-side (ridge of mountains with *Juniperus polycarpos*). Col. 17, Hym. 6, Dipt. 47.
- No. 98. Prov. Logar: 45 km N from Gardez, about 2100 m; 14 May, 1974 - Berlese sample from soil of a semi-desert with scattered vegetation of spiny Compositae and grass.
- No. 99. Prov. Logar: Moghulkhel, about 2000 m; 14 May, 1974 - Netted on a clover-field with many weeds (mainly Cruciferae). Col. 11, Thysan. 47, Neur. 2, Hym. 51, Dipt. 330, Rhynch. 13, Arachn. 6.
- No. 100. Prov. Kabul: Paghman Mountains, 5-7 km SW from Paghman, 2750-2950 m; 15 May, 1974 - Same as for No. 77, netted and singled. Chil. 2, Orth. 8, Col. 22, Lep. 3, Dipt. 102, Rhynch. 1, Arachn. 3.
- No. 101. Prov. Kabul: Paghman Mountains, 5 km SE from Paghman, 2800 m; 15 May, 1974 - Earthworms collected by formol poured on grassy soil watered by a small spring. Lumbr. 42.
- No. 102. Same as for No. 101 - Berlese sample from an ant nest.
- No. 103. Same as for No. 101 - Berlese sample from soil and moss watered by a small spring.
- No. 104. Prov. Kabul: Paghman Mountains, 6 km SW from Paghman, 2900 m; 15 May, 1974 - Berlese sample from soil.

- No. 105. Prov. Kabul: Paghman, 2550 m; 15 May, 1974 - Berlese sample from decaying leaves and garbage.
- No. 106. Prov. Kabul: Bini Hesar lake, 5 km SE from Kabul city, 1780 m; 17 May, 1974 - Netted and singled on mud and on lake-shore vegetation. Ephem. 2, Orth. 2, Col. 97, Thysan. 32, Lep. 1, Hym. 23, Dipt. 6786, Rhynchota 785, Arachn. 13.
- No. 107. Prov. Kabul: Tshemtala, 10 km NW from Kabul city centre, 1800 m; 18 May, 1974 - Sheep farm, netted in stables and corrals. Dipt. 80.
- No. 108. Same as for No. 107 - 25 m from sheep farm buildings, netted. Dipt. 67.
- No. 109. Same as for No. 107 - 250-300 m from sheep farm, netted and singled on pastures. Col. 42, Thysan. 30, Hym. 6, Dipt. 27, Rhynch. 4.
- No. 110. Prov. Herat: Hari Rud river, about 8 km SW Herat, 950 m; 20 May, 1974 - Netted on riverside vegetation (reed, Tamarix and Hippophaë). Ephem. 1, Orth. 7, Col. 8, Thysan. 5, Lep. 1, Hym. 15, Dipt. 1190, Rhynch. 69, Arachn. 5.
- No. 111. Same as for No. 110 - Netted on riverside pastures, on grass and low Carex species. Ephem. 1, Orth. 1, Col. 87, Thysan. 1, Neur. 2, Hym. 40, Dipt. 980, Rhynch. 60, Arachn. 150.
- No. 112. Herat, 6 km SW from city centre, 980 m; 20 May, 1974 - Netted in a vineyard and in flower-gardens. Orth. 1, Col. 4, Neur. 2, Hym. 85, Dipt. 275, Rhynch. 45, Arachn. 20.
- No. 113. Same as for No. 112 - Netted on cultivated flowering Umbelliferae sp. Col. 11, Neur. 1, Hym. 8, Dipt. 28.
- No. 114. Herat, Hotel Minarets, 1000 m; 20 May, 1974 - Fly material from lavatory. Dipt. 82.
- No. 115. Prov. Herat: southern slopes of Paropamisus Mts., about 10 km N from Herat, 1150 m; 21 May, 1974 - Sparse vegetation of spiny Compositae, small Boraginaceae sp., etc. Orth. 4, Col. 20, Thysan. 5, Hym. 181, Dipt. 44, Rhynch. 52, Arachn. 15.
- No. 116. Prov. Herat: Hari Rud river, about 15 km SE from Herat city centre, 950 m; 21 May, 1974 - Berlese sample from soil of riverside willows.
- No. 117. Same as for No. 116 - Berlese sample from some days old cattle dropping.
- No. 118. Herat, 1000 m; 21 May, 1974 - Berlese sample from wet soil on side of a canal in a park.
- No. 119. Prov. Herat: Hari Rud river, about 15 km SE from Herat city centre, 950 m; 21 May, 1974 - Netted and singled on riverside. Crust. 1, Ephem. 2, Orth. 1, Col. 39, Thysan. 6, Hym. 22, Dipt. 335, Rhynch. 127, Arachn. 6.
- No. 120. Same as for No. 119 - About 200 m from Hari Rud river, netted in a willows with high grass and Trifolium sp. Crust. 2, Ephem. 2, Orth. 5, Col. 30, Thysan. 7, Lep. 4, Hym. 45, Dipt. 1020, Rhynch. 80, Arachn. 89, Collembola 4.
- No. 121. Herat, 1000 m; 21 May, 1974 - Netted in a city park. Col. 2, Hym. 10, Dipt. 390, Rhynch. 4, Arachn. 8.
- No. 122. Kandahar, 1030 m; 22-23 May, 1974 - On neonlights of Hotel Kandahar. Col. 115, Lep. 121.
- No. 123. Kandahar, Arghandab river, 5 km from Kandahar, 1000 m; 23 May, 1974 - Berlese sample from nest of small ants.

- No. 124. Same as for No. 123 - Berlese sample from some days old cattle droppings.
- No. 125. Same as for No. 123 - Berlese sample from soil of river bed.
- No. 126. Same as for No. 123 - Netted and singled on riverside; sandy river bed with tamarisks, Hippophaë and dry clusters of Carex sp. Mollusca 5, Crust. 2, Ephem. 8, Orth. 8, Col. 21, Thysan. 114, Neur. 5, Hym. 78, Dipt. 2587, Rhynch. 384, Arachn. 5.
- No. 127. Kandahar, 10 km SW from city centre, 1000 m; 23 May, 1974 - Stony, loamy semi-desert with very sparse vegetation. Col. 8, Thysan. 3, Lep. 4, Hym. 4, Dipt. 75, Rhynch. 10, Arachn. 10.
- No. 128. Kandahar, 1000 m; 23 May, 1974 - Netted on flowering Umbelliferae. Col. 23, Thysan. 4, Neur. 18, Hym. 84, Dipt. 3000, Rhynch. 169, Arachn. 8.
- No. 129. Kandahar, 1000 m; 23 May, 1974 - Collected on buffalo and cow droppings. Dipt. 91.
- No. 130. Prov. Kabul: Paghman Mountains, 6-7 km SW from Paghman, 2800-2950 m; 26 May, 1974 - Netted and singled material. Chil. 1, Thysanura 1, Orth. 44, Col. 24, Hym. 12, Dipt. 97, Rhynch. 17, Arachn. 8.
- No. 131. Prov. Kabul: Paghman Mountains, 7 km SW from Paghman, 2850 m; 15 May-26 May, 1974 - Salted water soil traps in soil of a small valley with dense, green grass above an underground brooklet. Lumbr. 1, Chil. 4, Orth. 3, Col. 6, Hym. 45, Dipt. 11, Rhynch. 1, Arachn. 20.
- No. 132. Kabul, Tshelsotun, 1820 m; 27 May, 1974 - Netted and singled in gardens of alfalfa, wheat and fruits. Col. 10, Dipt.
- No. 133. Same as for No. 132 - Berlese sample from soil of gardens.
- No. 134. Same as for No. 132 - Berlese sample from a dung heap made of old cattle and horse dung.
- No. 135. Kabul, Tshelsotun, 1850 m; 27 May, 1974 - Netted and singled on a dry hill-side overgrazed by sheeps and camels. Ephem. 1, Col. 32, Thysan. 1, Neur. 10, Hym. 66, Dipt. 165, Rhynch. 65, Arachn. 10.
- No. 136. Prov. Kabul: Kareze Mir, 15 km NW from Kabul city centre, 1950 m; 28 May, 1974 - State farm, singled in a cow stable from old straw mixed with dung and on windows. Col. 33, Dipt. 55.
- No. 137. Same as for No. 136 - Netted in park of State Farm on flower beds and on grass with some Trifolium. Col. 1, Hym. 11, Dipt. 91, Rhynch. 1.
- No. 138. Same as for No. 136 - Netted on mown and grazed alfalfa fields. Orth. 3, Col. 4, Thysan. 13, Lep. 14, Hym. 191, Dipt. 100, Rhynch. 5, Arachn. 30.
- No. 139. Prov. Kabul: Tshemtala, 10 km NW from Kabul, 1900 m; 30 May, 1974 - Overgrazed steppe vegetation, singled and netted. Orth. 2, Col. 55, Lep. 8, Neur. 1, Hym. 27, Dipt. 30, Rhynch. 15.
- No. 140. Prov. Kabul: Bini Hesar, 6 km SE from Kabul city centre, State Farm for cow and cattle, 1820 m; 1 June, 1974 -
 a. Flies collected on donkey and horse droppings near cow farm;
 b. Netted in stable of calves;
 c. Netted in stables of young cattle and cows with lean-to roof.
- No. 141. Same as for No. 140 - Netted on weeds between wheat fields. Ephem. 10, Lep. 30, Dipt. 27.
- No. 142. Prov. Kabul: Bini Hesar lake, 5 km SE from Kabul city, 1780 m; 1 June, 1974 - Netted on lake-shore vegetation. Thysan. 3, Dipt. 500, Rhynch. 7.

- No. 143. Kabul, Aliabad, 1800 m; 1-2 June, 1974 - Netted in University Park. Thysanura 1, Col. 35, Thysan. 16, Neur. 6, Hym. 202, Dipt. 2419, Rhynch. 186, Arachn. 46.
- No. 143/a. Same as for No. 143 - Singled on oozing sap of *Morus alba* and *Populus alba*. Dipt.
- No. 144. Prov. Kabul: Pul-e Charkhi, 22 km ENE from Kabul city centre, 1780 m; 2 June, 1974 - Netted and singled on riverside, collected from under stones, from mud and on riverside vegetation. Ephem. 7, Orth. 28, Col. 299, Hym. 15, Dipt. 1138, Rhynch. 36.
- No. 145. Prov. Ghazni: Dašte Moqur, 30 km SE from Moqur, about 1950 m; 3 June 1974 - Netted in a semi-desert. Col. 8, Thysan. 3, Neur. 3, Hym. 27, Dipt. 19, Rhynch. 5, Arachn. 18.
- No. 146. Prov. Ghazni: 2 km SE from Moqur, 1970 m; 3 June, 1974 - Netted along a small creek rising from a karez, under willows and on sparse tufts of grass. Col. 24, Neur. 3, Hym. 10, Dipt. 588, Rhynch. 27, Arachn. 1.
- No. 147. Prov. Ghazni: 40 km N from Moqur, about 2000 m; 3 June 1974 - Netted on donkey cadaver half eaten by vultures. Dipt. 20.
- No. 148. Kabul, Aliabad; 13 June, 1974 - Netted in University Park. Col. 8, Thysan. 5, Hym. 40, Dipt. 470, Rhynch. 9, Arachn. 10.
- No. 149. Kabul, Aliabad, 1800 m; 13 June, 1974 - Netted along a gutter on outskirts of city, dense weeds on soil mixed with manure. Col. 11, Hym. 8, Dipt. 1540, Rhynch. 40.
- No. 150. Same as for No. 149 - Berlese sample from soil of wet side of gutter.
- No. 151. Kabul, Aliabad, 1800 m; 13 June, 1974 - Berlese sample from soil of University Park.
- No. 152. Same as for No. 151 - Fly larvae from oozing, fermenting sap of *Morus alba*; sap for Berlese extraction. Dipt. (larvae) 22, numerous Acarina.
- No. 153. Prov. Kabul: Bini Hesar lake, 5 km SE from Kabul city centre, 1780 m; 13 June, 1974 - Netted and singled on mud and on lake-shore vegetation. Ephem. 1, Col. 194, Dipt. 353, Rhynch. 8.
- No. 154. Same as for No. 153 - Berlese sample from lake-shore mud mixed with decaying algae.
- No. 155. Prov. Paktya: 22 km SE from Gardez, 2450-2500 m; 14 May - 15 June, 1974 - Eight ethylen-glycol soil traps in a steep slope with cedars, pines and thuya and sparse scrub (mainly *Rosa* sp.). Col. 37, Hym. 394, Dipt. 150, Rhynchota 7, Arachn. 34, Collembola 140.
- No. 156. Prov. Logar: 45 km N from Gardez, about 2100 m; 14 May - 15 June, 1974 - Two ethylen-glycol soil traps in a semi-desert. Crust. 9, Col. 41, Hym. 30, Dipt. 2, Rhynch. 1, Arachn. 3.
- No. 157. Prov. Paktya: 21 km N from Gardez, Tera Kotal, 2800 m; 15 June, 1974 - Netted on a steep mountain-side, mainly on flowering Labiatae (? *Salvia* sp.). Lep. 2, Hym. Dipt.
- No. 158. Kabul, Darulaman, 1820 m; 18 June, 1974 - Berlese sample from soil of Palace park.
- No. 159. Same as for No. 158 - Netted on grass and flower-beds in Palace park. Col. 14, Thysan. 1, Lep. 1, Neur. 5, Hym. 210, Dipt. 880, Rhynch. 50, Arachn. 12, Acarina 3.
- No. 160. Kabul, Darulaman, 1820 m; 18 June, 1974 - Netted in a poplar plantation. Col. 40, Thysan. 1, Hym. 60, Dipt. 97, Rhynch. 16, Arachn. 20.
- No. 161. Same as for No. 160 - Netted along an irrigation canal. Ephem. 2, Orth.

- 1, Hym. 6, Dipt. 140, Rhynch. 15, Arachn. 4.
- No. 162. Prov. Kabul: Pul-e Charkhi, 22-24 km ENE from Kabul city centre, 1780 m; 19 June, 1974 - Singled on donkey droppings in flood basin of Kabul river. Col. 14.
- No. 163. Same as for No. 162 - Netted and singled in flood basin of Kabul river. Ephem. Col. 122, Thysan. 3, Hym. 126, Dipt. 1175, Rhynch. 225, Arachn. 4.

**PAPP, L.: Beszámoló az afganisztáni gyűjtőútamról
és gyűjtéseim lelőhelyjegyzéke**

A szerző az afgán-magyar kulturális csereegyezmény alapján létrejött tanulmány- és gyűjtőútjáról számol be. Utjának legfőbb célja az volt, hogy mint az első magyar zoológus, aki Afganisztánban jár, jó tudományos és baráti kapcsolatokat teremtsen az afgán tudományos élet képviselőivel. E téren utja feltétlenül eredményesnek mondható. A Kabuli Egyetem Természettudományi Fakultása Zoológiai és Parazitológiai Intézetének vendégeként minden lehetséges segítséget megkapott munkájához.

Az utazás másik célja gerinctelen állatok gyűjtése volt a Természettudományi Múzeum Állattára és a Kabuli Egyetem számára. Afganisztán faunája, mivel a Palaearktikum határán terül el, állatföldrajzi szempontból rendkívül érdekes. A mintegy 100 éve elkezdődött kutatás nagyvonalakban már feltárta az afgán gerinces faunát, a gerinctelen fauna összegyűjtése és feldolgozása azonban alig 40 esztendeje kezdődött. Számos rovarcsoportban Afganisztán faunája máig teljesen ismeretlen. A szerző felsorolja a gerinctelen állatvilág megismerésére irányuló eddigi legfontosabb expedíciókat, majd ismerteti a száraz kontinentális éghajlatu ország természeti viszonyait.

A szerző röviddel a királyság megdöntése és a köztársaság kikiáltása után érkezett Kabulba, amikor az ország és természetesen a Kabuli Egyetem gazdasági helyzete is igen nehéz volt. Ezért hosszabb utakra nem tudtak számára gépkocsit biztosítani, ami pedig a zoológiai gyűjtőmunka nélkülözhetetlen eszköze a vasut nélküli és csak kevés jó közúttal rendelkező országban. Őt alkalommal 1-1 napos gyűjtőúton Jala-labadban és környékén, az ország délkeleti határvidékén, Gardéz környékén és a Daste Moqur félsivatagban gyűjtött. A gyűjtött anyagok mintegy fele azonban Kabul 50 km-es környékéről származik. Autóbuszsal ellátogatott Mazar-e Sharifba, Balkhba, Kandaharba és Heratba is. Ezekben az utakon is sikerült jelentős rovaranyagot fognia de a szerző fontosabbnak tartja azokat a tapasztalatokat, melyeket ezen utjai során szerzett. Reméli, hogy gyűjtési tapasztalatait a későbbiekben más magyar kutatók hasznosíthatják.

Az afgán mezőgazdasági és öntözésügyi minisztérium segítségével a szerzőnek lehetősége volt arra, hogy Kabul környéki állami állattartó gazdaságokat keressen fel. A szarvasmarha- és juhtelepeken legyeket és trágyamintákat gyűjtött az ott fejlődő legyek tanulmányozására és az ellenük való védekezés megindítására. A szerző meglátogatta a Kabuli Állatkertet és Zoológiai Múzeumot is, ahol anyagrendező munka mellett elvégezte a szükséges megóvási munkákat.

A gyűjtött anyag állatcsoportok szerinti megoszlása igen egyenetlen. Az anyagban feltűnően kevés a lepke, ami legfőképp abból adódik, hogy a szerzőnek csak egyetlen alkalma volt éjszakai lámpázásra. Néhány csoportban azonban (bogarak, tripszek, hártvászárnyuak, szipókások és pókok, különösen pedig legyek) sikerült olyan anyagot gyűjtenie, mely hozzájárulhat e természeti szépségekben páratlanul gazdag, vendégszerető ország állatvilágának feltárásához.

Cikkének végén a szerző ismerteti az egyes gyűjtőhelyeket és az azokon gyűjtött állatok számát.

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