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Zoological expeditions to the North Korea organized in the years 1971-1992 by the Cracow Institute of Systematics and Evolution of Animals¹ of the Polish Academy of Sciences

Abstract. Itineraries of fifteen Cracow zoological expeditions to the North Korean provinces, as well as informations about main systematic groups of invertebrates (*Apterygota*, *Orthopteroidea*, *Coleoptera*, *Myrmicidae*, *Lepidoptera*, *Diptera*, *Gastropoda*) and vertebrates (amphibians, reptilians, birds, small mammals) collected and observed in North Korea – are given. Also state of elaboration of all collections is presented.

Key words: North Korea, zoological expeditions, invertebrates, vertebrates, collections

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INTRODUCTION

Polish zoological exploration on the Korean Peninsula started in the end of XIXth century (1885-1888), when the first Kalinowski's expedition was realized. Materials collected by Jan Kalinowski (insects and vertebrates) – for the Branickis' Museum in Warsaw – was elaborated by other prominent Polish² zoologists: Władysław TACZANOWSKI (1887, 1888 – birds, 1888 – one

¹ Between years 1969-1989 an other name – Institute of Systematic and Experimental Zoology – was used.

² All three above mentioned zoologists were the Polish nationally – not Russian; this last wrong information in the KWON'S & LEE'S paper (1994) is a nasty mistake. Also data about E. Reitter is wrong – this coleopterologist was Austrian (or German) nationality and only worked in Moravian territory (Czechoslovakia – as a country – was established later, in 1918).

beetle new for science) as well as Oktawian RADOSZKOWSKI (1887, 1889 – *Hymenoptera: Aculeata*, 27 taxa, including ten new for science).

In the present paper we should inform about zoological exploration in the North Korea (Fig. 1) realized by the Institute of Systematics and Evolution of Animals PAS during the last 25 years. In fifteen expeditions 24 zoologists – staff members of the Institute – were engaged in the field research. Technical survey of expeditions was organized by Korean Academy of Sciences KAS (mainly by staff members of the Zoological Institute in Pyongyang).

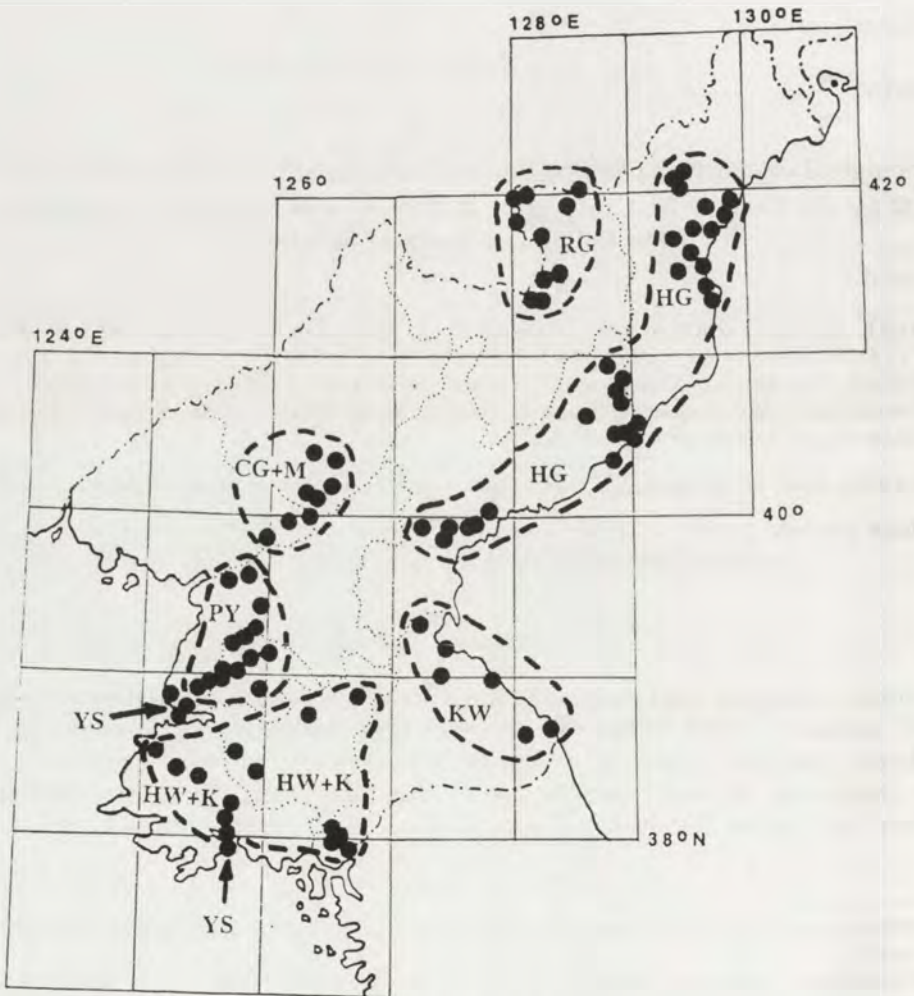


Fig.1. Sites of investigations. HW+K = Hwanghae + Kaesong, KW = Kangwon, YS = Yellow Sea region, PY = Pyongyang + Pyongan (excl. Yellow Sea region), CG+M = Chagang + Myohyangsan, RG = Ryanggang, HG = Hamgyong.

CHRONOLOGICAL REVIEW OF EXPLORATION

First expedition - 1971

From August 11th to September 20th the field investigations were conducted by J. Pawłowski (head of expedition), J. Razowski and A. Szeptycki; Korean staff: Kim Jong Sam (guide) and Ku Wan Son (translator). The material was collected in the following periods and provinces:

- I. August 12-29th. Prov. Pyongyang-si and Pyongan-namdo (localities: Taesongsan, Mankyongdae, Sunha-gang, Ryongaksan, Sogam, Jamosan, Taesong-ho);
- II. From August 31st to September 12th. Prov. Ryanggang, environments of Hyesan (localities: Jedongryong, Naegok-ri, Dongha-ri) and Samjiyon (localities: Paekdusan Mt., Namphothae Mt., Poso-ri, Soroyin-san, as well as valleys of the rivers Sohongdan-su and Tuman-gang).
- III. September 15-19th (Pawłowski and Szeptycki only). Prov. Hwanghae-namdo (loc.: Sinchon); prov. Hwanghae-pukdo (Sariwon and its environments); prov. Pyongan-namdo (Wauda ad Nampho on Yellow Sea); City of Pyongyang.

Results of collecting: over 14 000 specimens of invertebrates, including: *Apterygota* - 4600, *Coleoptera* - 3800, *Lepidoptera* - 3600, other insects (*Ephemeroptera*, *Trichoptera*, *Corixidae*) - 700; other *Invertebrata* (*Isopoda*, *Opiliones*, *Pseudoscorpionidea*, *Acarina*, *Gastropoda*) - 400; also 21 samples of mosses with *Tardigrada* (over 900 specimens).

Second Expedition - 1974

From May 14th to June 25th investigations were conducted by J. Pawłowski (head of expedition), Z. Stebnicka and A. Szeptycki; Korean staff: Choi Dae Won (guide) and Kim Hyong Sok (translator). The material was collected in the following periods and provinces:

- I. May 15-20th. Prov. Pyongyang-si: city of Pyongyang (Taedong-gang river banks, Moran-bong city park) and environments (Taesongsan).
- II. May 21st-25th. Prov. Hamgyong-pukdo (city of Chongjin and its environments, as well as other localities: Puyun, Onpho-ri, Kwanmobong Mt., Ryonghyon).
- III. May 27th - June 1st. Prov. Pyongyang-si (city and localities: Ryongaksan, Sogam, Ponghva-ri).
- IV. June 1-8th. Prov. Hwanghae-namdo (Haeju and its environments, Suyang-san Mts.); prov. Hwanghae-pukdo (Sariwon and its environments); prov. Kaesong-si (Kaesong, Pagon waterfall, Pamnunjom).
- V. June 9-14th. Prov. Pyongan-namdo (Nampho and its environments, Taesong-ho).
- VI. June 15-19th. Prov. Kangwon-do (Wonsan, Kosong, Kumgangsan Mts., Samil-pho Lake).
- VII. June 20-23th. Prov. Pyongan-namdo (Nampho-Wauda, Kiyong); City of Pyongyang.

Results of collecting: over 6000 *Collembola*, 5100 *Coleoptera* and few hundred other *Invertebrata* (*Acarina*, *Pseudoscorpionidea*, *Opiliones*, *Gastropoda*).

Third expedition - 1978

From September 18th to October 31st the field investigations were conducted by Z. Bocheński (head of expedition), T. Tomek and T. Oleś; Korean staff: RYU Kyong Sun (guide) and SOK Ha Ryong (translator). The material was collected and observed in the following periods and provinces:

- I. September 19th – October 1st. Prov. Pyongyang-si (Ryongaksan Hill and environments of the town of Pyongyang, Ponghva-ri); prov. Hwanghae-namdo (town of Haeju and its vicinities, Suyangsan); prov. Hwanghae-pukdo (town of Sariwon, Sohung-ho Lake); prov. Pyongan-namdo (vicinity of Nampho, Yonphung-ho Lake).
- II. October 2nd–6th. City of Pyongyang.
- III. October 7–13th. Prov. Kangwon-do (Kumgangsan Mts., Samil-pho Lake, Onjong-ri, vicinity of Wonsan, Sokwangsa), prov. Hwanghae-pukdo (Sinpyong).
- IV. October 14–18th. City of Pyongyang and prov. Pyongan-namdo (Taesong-ho Lake).
- V. October 19–25th. Prov. Ryanggang (Paekdusan Mt. and vicinities of Samjiyon and Hyesan).
- VI. October 27th. Prov. Pyongan-namdo (Taesong-ho Lake).

Results of collectings and observations: 111 specimens of vertebrates were collected, including 50 small mammals (seven species), 52 birds, 6 reptilians and 3 amphibians; 86 bird species were observed and noted.

Fourth expedition – 1980

From May 19th to June 14th the field investigations were conducted by A. Nadachowski (head of expedition), T. Tomek and Z. Szyndlar; Korean staff: Lim Chu Yon (guide) and Chong Hon Do (translator). The material was collected and observed in the following periods and provinces:

- I. May 19–29th. Prov. Pyongyang-si and Pyongan-namdo (localities: Moran-bong city park, Mankyongdae, Taesongsan, Ryongaksan, Nampho, Taesong-ho, Myohyang-san Mts.).
- II. May 30–31st. Prov. Hwanghae-namdo (town of Haeju and its environments, mainly Suyang-san).
- III. June 1–7th. Prov. Ryanggang (localities: town of Hyesan, Pochon, Jong-bong, Konjang, Pekebong, Samjiyon and its environments).
- IV. June 10–14th. Prov. Kangwon-do (localities: town of Wonsan, Samil-pho, Onjong-ri, Kumgangsan Mts., Sijung-ho).

Results of collectings and observations: 186 specimens of vertebrates were collected or captured, including: 45 small mammals (12 species), 14 birds, 35 reptilians (incl. four live specimens), 92 amphibians (incl. 30 live specimens); 88 bird species were observed and noted, and 8 bird nests were collected.

Fifth expedition – 1981

From June 10th to July 18th the field investigations were conducted by A. Szeptycki (head of expedition), W. Krzemiński, Z. Stebnicka and W. M. Weiner; Korean staff: Chong Hon Do (guide and translator). Materials were collected in the following periods and provinces:

- I. June 10–15th. Prov. Pyongyang-si and Pyongan-namdo (localities: Pyongyang: Taedong-gang River banks, Taesongsan, Taesong-ho, Ryongaksan, Paeksong-ri).
- II. June 16–18th. Prov. Hwanghae-namdo (Kvail-gun, Samchon).
- III. June 20–25th. Prov. Pyongan-pukdo/namdo (Myohyang-san Mts.).
- IV. June 28th – July 4th. Prov. Kangwon-do (Kumgangsan Mts., Wonsan).
- V. July 5–11th. Prov. Pyongyang-si and Pyongan-namdo (Pyongyang: Fotong-gang River banks, Moran-bong city park, Botanical Garden), Sogam, Nampho and Waudo, Paeksong-ri).
- VI. July 13–17th. Prov. Hwanghae-namdo (Sohung-ho), Kaesong-si (town Kaesong and its vicinities, Pagon waterfall).

Results of collectings: 5 000 specimens of *Coleoptera*, 1500 *Diptera*, 154 soil and humus samples for *Apterygota*, *Acarina* and other small invertebrates (Tullgren's apparatus was used).

Sixth expedition - 1983

From June 3th to July 16th investigations were conducted by J. Pawłowski (head of expedition), E. Palik, E. Stworzewicz, T. Tomek; Korean staff: Lim Chu Yon (guide) and Li Sun Kwon (translator). Material was collected and observed in the following periods and provinces:

- I. June 4-5th, Prov. Pyongyang-si (Pyongyang: Moran-bong).
- II. June 6-21th, Prov. Pyongan-pukdo/namdo (Myohyang-san Mts.).
- III. June 22-26th - as I.
- IV. June 26th - July 11th, Prov. Hamgyong-pukdo (Chongjin and its environments, Orpho-ri, Mehyang-ri, Dongsa-kol, Chayuryong, Kwanmo-bong Mt. and lakes: Ryongje-ho, Jangyong-ho, Mayang).

Results of collectings and observations: more than 13.000 specimens of invertebrates were collected (including: *Coleoptera* - 4300, *Lepidoptera* - 4300, *Diptera* - 2500, *Ephemeroptera* - 600, other *Arthropoda* - 200, *Gastropoda* - 1200); also same samples of mosses (for *Tardigrada*) were taken, as well as few specimens of crayfish (with epibionting *Branchiobdellidae*) were captured; 80 species of birds were observed and noted; 41 specimens of vertebrates were collected (including 5 small mammals, 17 birds, 10 reptilians and 9 amphibians).

Seventh expedition - 1984

In October, from 2nd to 30th, the field investigations were conducted by T. Tomek (head of expedition) and Z. Szyndlar; Korean staff: Li Chin Kuk (guide) and Han Hyon Ju (translator). The material were collected and observed in the following periods and provinces:

- I. October 2-11th, Prov. Pyongyang-si (Pyongyang: Moranbong and Taedong-gang River; Mankyongdae, Ryongaksan, Taesongsan), prov. Pyongan-namdo (Taesong-ho lake). Also collections of birds and reptilians in Zoological Institute KAS were studied.
- II. October 12-14th, Prov. Hwanghae-namdo (localities: Haeju, Suyang-san, Hyongche-som Isl., Changsu Lake).
- III. October 15-19th, Pyongyang; continuation of collections study.
- IV. October 20-22th, Prov. Kaesong-si (Kaesong and its vicinity, Pagyon, Kongminghang).
- V. October 23-30th, Prov. Pyongyang-si (Pyongyang: Zoological Garden and Botanical Garden, Sogam lake, Ponghwa-ri); also inventarization study of collections KAS were continued and finished;

Results of collectings and observations: 59 species of birds were observed and noted; 32 specimens of vertebrates were collected (including: 4 small mammals, 4 birds, 14 reptilians, 10 amphibians); a little number of invertebrates were taken (including *Coleoptera* and *Lepidoptera*, as well as some crayfish with *Branchiobdellidae*). In collections of Zoological Institute determination of 283 reptilian specimens (22 species) and over 1000 bird specimens (164 species) were revised and some determinations of species were corrected.

Eighth expedition - 1985

From June 10th to July 23rd the field investigations were conducted by A. Szeptycki (head of expedition), M. Woyciechowski, J. Kozielec and E. Palik; Korean staff: Hong Ryong The (guide) and Pe The Hion (translator). Materials were collected in the following periods and provinces:

- I. June 10-13th. Prov. Pyongyang-si (Pyongyang; Taedong-gang river banks, Botanical Garden; Ryongaksan).
- II. June 14-19th. Prov. Hwanghae-namdo (Haeju and environments; Suyang-san).
- III. June 21-28th. Prov. Pyongan-pukdo/namdo (Myohyang-san Mts.).
- IV. June 29-30th. Prov. Pyongyang-si (Jonyang-san, Pyongyang).
- V. July 1st-12th. Prov. Ryanggang (Samjiyon, Paekdusan, Mupo, Pochon, Jong-bong, Rimyongsu, Yukok, Hyesan vicinity).
- VI. July 13-15th. Prov. Pyongyang-si and Pyongan-namdo (Jonyang-san, Taesong-ho lake).
- VII. July 16-20th. Prov. Kangwon-do (Kumgangsán: Manmulsan, Onjong-ri vicinity; Wonsan).

Results of collectings: about 10 thousand *Lepidoptera* specimens, more than 20 thousand ants (in 724 samples), 1200 specimens of beetles, few tens of bugs (*Heteroptera*) and 57 soil and humus samples for *Apterygota*, *Acarina* and other small invertebrates (Tullgren's apparatus was used).

Ninth Expedition - 1986

From September 18th to October 26th investigations were conducted by K. Kowalski (head of expedition), B. Rzebiak-Kowalska, T. Tomek and W. Kochan; Korean staff: Hong Ryong The (guide) and Li Chin Kuk (translator). Collecting and observations were made in the following periods and provinces:

- I. September 18-22nd. Prov. Pyongyang-si and Pyongan-namdo (Pyongyang; Moran-bong, Potong-gang river banks; Ryongaksan, Taesongsan, Tongmyongwang, Komun-moru, Nampho and Waudo).
- II. September 24-27th. Prov. Kaesong-si (Kaesong and vicinity; Pagyon, Kongminghang).
- III. September 30th and October 1st. Prov. Pyongyang-si and Pyongan-namdo (Mankyongdae, Taesong-ho).
- IV. October 2nd-8th. Prov. Pyongan-pukdo/namdo (Myohyang-san Mts.).
- V. October 11-20th. Prov. Ryanggang (Hyesan, Naegok-ri, Samjiyon, Paekdusan, Namphothae-san).
- VI. October 22nd-25th. Prov. Hwanghae-namdo (Haeju, Hyongche-som island).
- VII. October 26th. Pyongyang (Potong-gang river banks, Moran-bong).

Results of collecting and observations: more than 500 specimens of vertebrates (including: 337 small mammals, 157 birds, 10 reptilians and 8 amphibians) were collected and conserved; also a little number of invertebrates was taken (including: crayfishes with *Branchiobdellidae*, *Siphonaptera* parasiting on small mammals, some butterflies); 67 species of birds were observed and noted. In the collections of the Zoological Institute KAS about 200 specimens of small mammals (bats and rodents) and 1357 specimens of birds (*Passeriformes*) were measured; some determinations of species were corrected.

Tenth expedition - 1987

From May 11th to June 9th the field investigations were conducted by J. Pawłowski (head of expedition), E. Stworzewicz, A. Szeptycki and T. Tomek;

Korean staff: Sin Hyon Jun (guide) and Choi Song Ryong (translator). Collectings and observations were made in the following periods and provinces:

- I. May 11–12th. Prov. Pyongyang-si (city of Pyongyang).
- II. May 13–18th. Prov. Chagang-do (Huichon and environments: Mason-ri, Chongsan, Wongung-ri, Myongmun Pass).
- III. May 19th–22nd. Prov. Pyongyang-si, Pyongan-namdo and Hwanghae-pukdo (Sangwon, Ahopiryong-san, Yonsan, Sohung-ho Lake.).
- IV. May 23rd – June 3rd. Prov. Hamgyong-namdo (Tanchon, Yomsongdok Mts., Machonryong, Pukdae-chon river valley, Jongdong-ri).
- V. June 4–7th. Prov. Pyongyang-si and Pyongan-namdo (Ponghwa-ri, Usan-ri, Yonphung-ho, Chongchon river valley).

Results of collectings and observations: more than 3500 specimens of beetles, about 4100 specimens of *Lepidoptera*, 500 *Gastropoda* (about 30 species), 50 crayfishes with epibionting *Branchiobdellidae*, 25 specimens of *Grylloblattodea*, 20 specimens of vertebrates (including: rodents, birds, reptilians and amphibians; together 10 species), 32 humus and soil samples for *Apterygota* and *Acarina*, 5 samples of *Siphonaptera* parasiting on rodents and 3 samples of *Diptera*; also 80 species of birds were observed and noted (including 9 species found for first time).

Eleventh expedition – 1988

From September 27th to October 10th collectings and observations were conducted by T. Tomek (head of expedition), W. B. Wołoszyn, M. Wolsan, M. Woyciechowski and W. Kochan; Korean staff: Choi Pyong Ki (guide) and Choi Song Ryong (translator). Materials were collected in the following periods and provinces:

- I. September 27th to October 6th. Prov. Pyongyang-si and Hwanghae-pukdo (Pyongyang, Taesongsan, Ryongaksan, Taesong-ho, Sisan, Suan).
- II. October 7–9th. Prov. Kaesong-si (Kesong and vicinity: Pavyon, Kongminghang).
- III. October 10th. Prov. Pyongyang-si (Mankyongdae).

Results of collectings: over 2000 specimens of ants, 260 *Orthopteroidea*, a little number of other insects, 30 vertebrates (mainly small mammals). In the collection of Zoological Institute KAS determination and inventarization of vertebrates was conducted or continued, including 144 specimens (12 species) of bats, 66 specimens (17 species) of *Carnivora*, 32 specimens (2 species) of *Lagomorpha*; over 1000 birds (48 species) were measured.

Twelfth expedition – 1989

From July 25th to August 14th investigations were conducted by M. Woyciechowski (head of expedition), E. Warchałowska-Śliwa and E. Palik; Korean staff: Hvang Song Lin (guide) and Ko Sun Jong (translator). Materials were collected in the following periods and provinces:

- I. July 24–27th. Prov. Pyongyang-si (Pyongyang: Potong-gang river banks, Zoological Garden; Taesongsan)
- II. July 30th – August 10th. Prov. Ryanggang (Hyesan and vicinity: Zangdok, Paramtec; Samjiyon, Paekdusan, Honilmil, Pektu-mili, Mupo, Homultang, Fagon).
- III. August 13–14th. Prov. Pyongyang-si (Pyongyang, Tongmyongwang).

Results of collectings: more than 3000 specimens of *Lepidoptera*, 1000 ants (from 84 nests) and about 700 *Orthoptera*, as well as few tens of other insects (including *Coleoptera*, *Neuroptera*, *Diptera*).

Thirteenth expedition – 1990

From August 16th to September 18th investigations were conducted by E. Warchałowska-Śliwa (head of expedition), A. Maryańska-Nadachowska and D. Kostia; Korean staff: Kim Chun Kil (guide) and Sin Hyon Jun (translator). Materials were collected in the following periods and provinces:

- I. August 16–20th. Prov. Pyongan-namdo and Pyongyang-si (Taesong-ho lake, Ryongaksan).
- II. August 22–28th. Prov. Pyongan-pukdo and Chagang (Myohyang-san Mts., Hyangsan, Sangwon-am, Huichon, Kujang vicinity).
- III. August 30th – September 5th. Prov. Hamgyong-pukdo (Onpho-ri, Teso-ri, Kyokon-ri).
- IV. September 6–7th. Prov. Pyongyang-si (Tongmyongwang).
- V. September 8–12th. Prov. Kangwon-do (Samil-pho, Onjong-ri, Kuryong waterfall).
- VI. September 15–16th. Prov. Kaesong-si (Kaesong vicinity).

Results of collecting: over 3000 specimens (about 60 species) of *Orthoptera* as well as a little number of *Diptera* and *Coleoptera*. Material for caryological study (30 species – mainly *Tettigoniidae* and *Gryllidae*) was collected and conserved.

Fourteenth expedition – 1991

From September 20th to October 19th the field investigations were conducted by J. Pawłowski (head of expedition), E. Stworzewicz and T. Tomek; Korean staff: Kim Kyong Suk (guide) and Li Chin Kuk (translator). Collectings and observations were made in the following periods and provinces:

- I. September 20–23th. Prov. Pyongyang-si (Pyongyang; Potong-gang river vicinity, Taedong-gang river banks, Mansude hill; Ryongaksan, Taesongsan).
- II. September 24th – October 1st. Prov. Ryanggang (Hyesan and vicinity, Samjityon, Paekdusan, Hyongje waterfall, Jongbong, Homultang, Sobaek-chon, Mupo, Rimyongsu).
- III. October 2nd–6th. Prov. Hamgyong-pukdo (Kumgang-ri, Sokmak-dong, Oyu-ri, Onpho-ri, Orang vicinity).
- IV. October 7–8th. Prov. Pyongyang-si (Ryongaksan).
- V. October 9–14th. Prov. Kangwon-do (Onjong-ri, Samil-pho).
- VI. October 15–19th. Prov. Pyongyang-si (Pyongyang; Potong-gang vicinity; Tongmyongwang).

Results of collectings and observations: over 1400 *Coleoptera*, 600 *Orthoptera*, 1000 *Gastropoda* (27 species), a little number of other insects (*Mantodea*, *Dermaptera*, *Notoptera*, *Diptera-Nematocera*, *Trichoptera*, *Lepidoptera*, *Neuroptera*), 11 specimens of vertebrates (small mammals, reptilians, amphibians) were collected; some soil and humus samples for *Apterygota* and *Acarina* were taken; 58 species of birds were observed and noted.

Fifteenth expedition – 1992

From July 27th to August 29th the field investigations were conducted by E. Warchałowska (head of expedition), A. Palaczyk and D. Kostia; Korean staff: Kim Chun Gil (guide) and Han Yong Hye (translator). Materials were collected in the following periods and provinces:

- I. July 29th. Prov. Pyongyang-si (Ryongaksan).
- II. August 1st–6th. Prov. Kangwon-do (Kumgangsán Mts.: Kosong, Samil-pho, Tanghon-rin, Manmulsan; Wonsan).
- III. August 6–7th. Prov. Pyongyang-si (Mankyongdae, Ryong-song).
- IV. August 8–13th. Prov. Pyongan-pukdo/namdo. (Myohyang-san Mts.: Piro-bong, Sangwon-am), Prov. Chagang (Huichon).
- V. August 14–17th. Prov. Pyongyang-si (Pyongyang, Taesong-ho)
- VI. August 18–26th. Prov. Ryanggang (Samjiyon, Homultang, Paekdusan, Mupo, Pochon).

Results of collectings: 1500 *Orthoptera* (including 250 specimens taken for the caryological study) and 5000 other insects (including: *Diptera*, *Hymenoptera*, *Coleoptera*, *Lepidoptera*, *Heteroptera*).

STATE OF INVENTARIZATION OF THE PARTICULATED GROUPS OF ANIMALS

Annelida and Crustacea

Materials concerning the crayfish *Cambaroides similis* (about 200 specimens) and its branchiobdellid parasites (over 2600 specimens) were collected occasionally mainly by T. Tomek during five expeditions (1983–1988) in nine provinces of North Korea. All materials were transferred to the Institute of Zoology of the Bulgarian Academy of Sciences, Sofia, and elaborated by M. A. Subchev. 3 genus and 7 species (including one species new for science) of *Branchiobdellidae* are described (SUBCHEV 1986, SUBCHEV et al. 1991).

Pauropoda

Among the materials collected in soil and litter samples (also selected with Tullgren apparatus) was found also a small number of *Pauropoda*. This material was transferred to the Department of Animal Morphology collection, University of Poznań, for elaboration by the late Professor J. Rafalski, who published before his death only description of one species new for science (RAFALSKI 1990).

Apterygota

Materials (over 21 thousand specimens) were collected during five expeditions (1971–1987) – mainly by A. Szeptycki and W. M. Weiner – and contains three groups: *Collembola* (majority of all materials), *Protura* and “*Thysanura*” (= *Microcoryphia* + *Zygentoma*).

Collembola. Up to now the following families were elaborated (totally or partially): *Entombryidae* (SZEPTYCKI 1973, MARI-MUTT 1983), *Hypogastruridae* (LEE & THIBAUD 1975), *Oncopoduridae* (SZEPTYCKI 1977), *Neanuridae* (DEHARVENG & WEINER 1984, WEINER & NAJT 1985a, b, NAJT & WEINER 1985, 1992), *Onychiuridae* (WEINER 1986a, b, 1989, 1994), *Dicyrtomidae* (BETSCH & WEINER 1987, WEINER & BETSCH 1992). Totally 107 species (including 60 new for science) were listed, 5 new genus were designated.

Protura. Up to now 126 specimens were elaborated and 18 species (including 5 new for science) were listed; one new genus was designated; (IMADATÉ & SZEPTYCKI 1976, SZEPTYCKI & IMADATÉ 1987).

Microcoryphia and *Zygentoma*. Fully elaborated collection contains 154 specimens belonging to four species (including three new for science); one new genus was designated (MENDES 1992, 1993).

Orthopteroidea

Orthoptera. Main materials were collected in the last four expeditions (1989–1992) by E. Warchałowska-Śliwa, A. Maryńska-Nadachowska, D. Kostia, J. Pawłowski, E. Stworzewicz, T. Tomek and A. Palaczyk. Collection comprises over 6 thousand specimens and is under taxonomical elaboration (KOSTIA 1993, 1995, 1996, GOROCHOV & KOSTIA 1993, GOROCHOV STOROZHENKO & KOSTIA 1993). A small part of collected specimens was also elaborated by karyologists (WARCHAŁOWSKA-ŚLIWA, MARYŃSKA-NADACHOWSKA & KOSTIA 1992, 1993, WARCHAŁOWSKA-ŚLIWA & BUGROV in press).

Notoptera. A small collection (33 specimens – probably 3–4 species) of this little known insect group was occasionally created by A. Szeptycki and J. Pawłowski during three expeditions: 1985, 1987 and 1991. Up to now one new for science species was described (SZEPTYCKI 1987).

Coleoptera

A majority of materials (over 21 thousand specimens) was collected during seven expeditions between years 1971–1991 by J. Pawłowski, Z. Stebnicka, A. Szeptycki and occasionally by other staff members (E. Stworzewicz, T. Tomek, W. Krzemiński, D. Kostia). Up to now the following families were elaborated (totally or partially): *Carabidae* (MLYŃAŘ 1974, PAWŁOWSKI 1974, DEUVE 1989), *Scarabaeoidea* (STEBNICKA 1973, 1980, STEBNICKA & GALANTE 1992), *Pselaphidae* (LÖBL 1974, 1977), some *Chrysomelidae* (BOROWIEC 1985). Totally over 220 species were listed (including 19 new for science) and published.

Hymenoptera

A big collection of ants (over 23 thousand specimens) created by M. Woyciechowski during three expeditions in the years 1985, 1988, 1989; now under examination. Other groups were collected occasionally, mainly by A. Palaczyk in the last expedition – '92 (about 200 specimens) belonging to *Aculeata*.

Lepidoptera

The collection (over 25 thousand specimens) was created mainly by J. Razowski, E. Palik and J. Kozielec during four expeditions between the years 1971–1989 (at night also using traps with UV and white light); a little number of specimens was collected occasionally also by few participants of

other expeditions. The most abundant families in the collection are *Noctuidae*, *Pyralidae*, *Nymphalidae*, and less frequent *Sphingidae*, *Lycaenidae*, *Tortricidae*, *Hesperiidae*; (RAZOWSKI 1989). Up to now only three families were elaborated: *Notodontidae* (SCHINTLMEISTER 1989), *Tortricidae* (PARK & RAZOWSKI 1991) and *Lycaenidae* (SIBATANI et al. 1994).

Diptera

Materials (over 6200 specimens) were collected mainly in 1981 by W. Krzemiński, and in 1992 by A. Palaczyk. The most abundante groups in the collection are *Tipuloidea*, *Asilidae*, *Syrphidae*, *Acalyprata*. Up to now only small collection of *Ceratopogonidae* was elaborated and published – 5 species were listed (including 4 taxa new for science) (SZADZIEWSKI 1985 & 1992, SZADZIEWSKI & HAVELKA 1984, BORKENT & GROGAN 1995).

Other insects

During all expeditions were collected occasionally also some small groups of insects, as below:

Ephemeroptera. About 900 adult specimens was collected on UV light by participants of expeditions in the years 1971, 1983, and transferred to the Department of Hydrobiology in Cracow University.

Planipennia. Altogether about 70 specimens belonging mainly to *Myrmeleonidae*, *Hemerobiidae* and *Chrysopidae* collected by participants of the expedition '89 and captured on light were transferred to Upper Silesian Museum, Bytom, for elaboration by R. Dobosz. Up to now one new record for Korea was published (DOBOSZ 1993).

Siphonaptera. A collection of 83 specimens (captured on small mammals) was created by K. Kowalski during the expedition '86; 17 species (including 3 new records for Korean Peninsula) were listed and published (BEAUCORNU & KOWALSKI 1990). Also 5 samples of specimens captured on rodents have been taken by T. Tomek during the expedition '87 (yet are not elaborated up to now).

A very little number of further insect groups was collected also by different staff members. They are: *Trichoptera*, *Heteroptera* (mainly *Corixidae*, *Lygaeidae*, *Pentatomidae*) and *Homoptera* (*Auchenorhyncha*).

Arachnida

Among invertebrates selected occasionally from the soil/litter samples taken for *Apterygota* investigations (during expeditions: '71 '74 '81 '85 '87) found also some groups of *Arachnida* (transferred to the Department of Animal Zoology, Poznań University) as below:

Acari. Only three families of mites were elaborated up to now. A small collection of *Zerconidae* contains 10 listed species (including 9 new for science) collected during the expeditions '71 '74; 4 new genera were designated (BLASZAK 1975, 1976a, b, 1979). Two further families:

Brachychtoniidae and *Phthiracariidae* contain altogether 15 species collected during the expeditions '71 '74 '81 (NIEDBAŁA 1977, 1992).

Pseudoscorpionidea and *Opiliones*. A few collected specimens; but are not elaborated yet up to now.

Tardigrada

Several dozen samples of mosses have been taken by A. Szeptycki in 1971 and transferred to Department of Animal Morphology in Poznań University, for examination. In this material 907 specimens belonging to 27 species were reported; one forme was described as new for science (DASTYCH 1974).

Gastropoda

Materials have been taken mainly by E. Stworzewicz during the expeditions '83 '87 '91, and occasionally also by A. Szeptycki ('71 '74 '85). Altogether whole collection contains about 3000 specimens (probably more then 30 species); a small part of it – only few slugs – was transferred to Zoological Museum of the Wrocław University. Up to now – 17 species are reported (KWON 1990, STWORZEWICZ 1995).

Amphibia and Reptilia

Materials were collected by Z. Szyndlar during the expeditions '80 '84 and by T. Tomek with other participants since 1978 till 1991. Collection contains 212 specimens; 16 species were reported (SURA 1981, 1983, SZYNDLAR 1984, 1985, 1991, SZYNDLAR & O 1987, NILSON et al. 1994).

Aves

Materials were collected by T. Tomek during the expeditions '78 '80 '83 '84 '86 '87 '88 '91 and by Z. Bocheński and T. Oleś ('78). 177 birds were observed; collection contains 246 specimens (including skins and skeletons), further 12 were transferred to other zoological institutions (for a change); also 11 nests were collected. Some results of investigations were partially reported (BOCHEŃSKI et al. 1981, TOMEK 1984, 1985, TOMEK & DONCHEV 1987), but generally are under elaboration by T. TOMEK (in press: first part of the monograph – “*Non-Passeriformes*” with 221 species). Data base at the Institute of Systematics and Evolution of Animals PAS contains records with all observed and collected specimens (including ca. 5000 records from ornithological collection of the Zoological Institute Korean Academy of Science, Pyongyang).

Mammalia

A small mammals materials containing over 500 specimens were collected in majority by K. Kowalski and his colaborators during the expedition '86; other ones have been taken by W. Kochan, A. Nadachowski, T. Tomek, M. Wolsan, W. B. Wołoszyn since 1978 till 1991. Collection comprises four

groups: *Insectivora*, *Chiroptera*, *Lagomorpha*, *Rodentia*; published records concerning only eleven ones (NADACHOWSKI 1984).

* * *

(REMARK: new for science taxa – described from all above mentioned materials – are listed by PAWŁOWSKI (1997).

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STRESZCZENIE

[Tytuł: Ekspedycje zoologiczne Instytutu Systematyki i Ewolucji Zwierząt PAN zrealizowane w latach 1971-1992 do Korei Północnej]

Przedstawiono chronologię i przebieg 15 ekspedycji Instytutu Systematyki i Ewolucji Zwierząt PAN, w których uczestniczyło łącznie 24 pracowników (zarówno naukowych jak technicznych) krakowskiego Instytutu. Zgeneralizowaną mapę stanowisk zawiera Fig.1. Przegląd zebranych kolekcji bezkręgowców (głównie: *Apterygota, Coleoptera, Myrmicidae, Diptera, Lepidoptera, Gastropoda*) oraz kręgowców (płazy, gady, ptaki, drobne ssaki) uzupełniono uwagami o stopniu ich opracowania. Wykaz piśmiennictwa obejmuje głównie opracowania zebranych materiałów.