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HISTORY OF THE WORKING GROUP ON GRANIVOROUS BIRDS PRODUCTIVITY TERRESTRIAL SECTION OF THE INTERNATIONAL BIOLOGICAL PROGRAMME (LATER INTERNATIONAL ASSOCIATION FOR ECOLOGY)

Success of the two „International Polar Years 1932-33 and 1982-83" and of the „International Geophysical Year 1957-58" drew the attention of ecologists to advantages of international research. The rapidly growing ability of man to change habitats on the Earth, coupled with rapid changes in the natural environment as a result of human management, further augmented by increasing growth rate of the human population, initiated biological investigation on a global scale. Successive presidents of the International Council for Scientific Union (ICSU) and the International Union of Biological Sciences (IUBS) (R. Peter, G. Montanelli and C.H. Waddington) made the first steps towards this end. After many discussions at the meeting of the ICSU Executive Committee in Lisbon in 1960, a committee was elected with a goal to develop an international research programme named „International Biological Programme" (IBP). This preparatory committee held its first meeting in Cambridge (UK) in March 1961, and drew up a document on possible subjects to be dealt with by the IBP. Successive meetings of the planning committee yielded a detailed IBP programme and its structure. The subject of IBP was defined as „The Biological Basis of Productivity and Human Welfare". Its objective was to ensure the worldwide study of (a) organic production on the land, in fresh waters, and in the seas, and the potentialities and uses of new as well as of existing natural resources and (b) human adaptability to changing conditions. The programme did not range through the entire field of biology but was limited to the basic studies related to biological productivity and human welfare (Worthington 1975).

The IBP was headed by a President and four Vice-Presidents elected for four years, several representatives of different international organisations, several elected activists of

the IBP, and a publishing committee composed of three members. This body formed a Special Committee for IBP (SCIBP) and a Central Office of IBP for administration in London. The IBP was divided into Sections: 1) Productivity Terrestrial (PT); 2) Process Studies (PP); 3) Conservation Terrestrial (CT); 4) Productivity of fresh water; 5) Productivity of Marine; 6) Human Adaptability (HA); 7) Use and Management of Biological Resources (UM). The sections were headed by conveners. The whole decade of the IBP was divided into 3 periods: Phase I – Preparation (1964-1967), Phase II – Operation, and Phase III – Synthesis and Transfer. The Programme was implemented in 98 countries by many thousands of scientists. Thousands of papers were published and many books. The crowning achievement of the IBP was about 40 syntheses issued by the Cambridge University Press (Wortington 1975).

We are most interested in the Section PT „Productivity Terrestrial" as a part of it was the Working Group on Granivorous Birds (WGGB), whose history I present here. The goal of PT Section was focused on the functioning of the major biomes of the world, such as forests, savannas, deserts and tundra, relatively little disturbed by humans, as compared with man-made ecosystems, for example, rice fields. The investigation comprised primary productivity, secondary productivity, trophic chains and energy flux. The results provided a basis for model and system studies in ecology (Worthington 1975). The convener of the PT Section was Professor J.B. Cragg from the Canada IBP.

Poland participated in the IBP very actively from the beginning of the Programme. In 1964, Professor Kazimierz Petrusewicz, Director of the Institute of Ecology PAS, was appointed a Vice-President of the IBP. He prompted the workers of the Institute to join the IBP studies. In 1960, I initiated the study on the ecology of sparrows, in particular on Tree Sparrows *Passer montanus*, as a part of my thesis for Assistant Professor. Both the House Sparrow *Passer domesticus* and the Tree Sparrow are widely spread, so they were convenient objects of international studies. Moreover, as with other species of granivorous birds, they were of great economic importance in many parts of the world. I sent out a proposal for collaboration as a part of the IBP to ornithologists dispersed over different countries and I received more than 100 positive replies from all continents, except South America (Fig. 1).

To my knowledge, F. J. Turček (Czechoslovakia) sent my appeal to Margaret M. Nice (USA), who conveyed it to Professor S.C. Kendeigh (USA). This had important consequences for the WGGB. Prof. Kendeigh had conducted studies on various aspects of the ecology of the House Sparrow since 1922, especially on bioenergetics of this species,

and he enthusiastically supported the inclusion of Passer to the IBP. Kendeigh was one of the pioneers of nature conservation and ecology in the USA. He had several thousand students, including 57 post-graduate students, and among them such distinguished scientists as the two Odums, Whittaker and Zar, working in different parts of the USA. The involvement of this eminent scientist in WGGB encouraged other scientists to join the Group. On 31 May 1966, the Group obtained its official approval as a project of the International Biological Programme. A central steering committee was organized at the Fourteenth International Ornithological Congress, on 27 July 1966, in Oxford, England. The committee included Professors R.F. R.F Johnston and S.C. Kendeigh of the USA, Dr. J.D. Summers-Smith of England, Dr. F.J. Turček of Czechoslovakia and Dr. J. Pinowski of Poland as chairman.

In order to develop and encourage the work of the Group, and to serve as a medium for the exchange of ideas and reports, the Ecological Committee of the Polish Academy of Sciences began issuing a periodical entitled „International Studies on Sparrows". This bulleting was published in 31 volumes, most recent of which appeared in 2006. This bulletin began under the auspices of IBP, continued under the Institute of Ecology and from volume 32 is issued through the Faculty of Biological Sciences, University of Zielona Góra.

More than one hundred investigators in 25 different countries participated in this Working Group. During the IBP, the WGGB paid more attention to productivity of granivorous birds in various ecosystems. The productivity, measured as the number of fledglings per female per year, changed from year to year, and from place to place. The most variable elements of productivity were mortality of eggs and nestlings. Emphasis was placed on analyzes of the components in the daily energy budget throughout the year and on attempts to provide equations of general application. Current efforts to document and understand the structure and function of ecosystems are founded on population dynamics, on energy flow patterns and rates, and on the relevant environmental parameters. These factors were modeled by computer, which makes possible the quantification of energy demands, food consumption and the potential impact of avian consumers in ecosystems. We also investigated methods of evaluating the economic impact of birds on cereals grains, conditions under which bird species become destructive, management techniques and control strategies.

Interest in the program has also been maintained by a number of national and international conferences. On 3 September 1969, Prof. S.C. Kendeigh chaired a half-day

symposium at the meeting of the American Ornithologists' Union at Fayetteville, Arkansas, USA (Kendeigh 1973). The first general meeting of the WGGB was held on 6-8 September 1970 at the Hague and at Arnhem in the Netherlands. The proceedings were published in book form in Poland under the edithorship of the late Prof. S.C. Kendeigh and Dr. J. Pinowski (Kendeigh & Pinowski 1973).The second general meeting of the WGGB was held at the Institute of Ecology of the Polish Academy of Sciences at Dziekanów Leśny near Warsaw, on 3-7 September 1973. The purpose of this session was to organize and begin to work on a synthesis volume covering the research findings of the WGGB over the seven year span in which the IBP Programme had been active. Preliminary outlines of chapters were prepared, chapter editors selected, and chapter contents discussed. Dr. J. Wiens organized the next working session at Oregon State University, Cornwallis, Oregon, USA, on 10-12 July 1974. This meeting was intended to consolidate and integrate the thinking of North American collaborators from the USA and Canada. This meeting was followed by one arranged by Dr. M.I. Dyer at Colorado State University, Fort Collins, Colorado, USA on 7 – 12 October 1974. Thirteen collaborators from seven countries participated. The last meeting of chapter authors, during the IBP, to prepare and coordinate the synthesis book manuscript was held at Szymbark, Poland, on 17-21 March 1975. The synthesis book was published by Cambridge University Press in 1977 with title „Granivorous Birds in Ecosystems" under the editorship of J. Pinowski and S.C. Kendeigh (Pinowski & Kendeigh 1977).

After the end of the IBP Programme, WGGB remained together and became part of the International Association for Ecology (INTECOL) in 1976 (Fig. 2). The bulletin „International Studies on Sparrows" was revived and international cooperation reinstituted. A symposium on the ecology of Passer was held by the WGGB during the 17th International Ornithological Congress in 1978 in West Berlin, organized by Professors R.F. Johnston and J. Pinowski, chaired by Professor C.R. Blem. The material from this symposium was published in the Proceedings of the Ornithological Congress. At the 18th Ornithological Congress from 16 – 24 August, 1982 in Moscow, the WGGB organized a round table discussion entitled „Granivorous Birds in Ecosystems", but proceedings were not published.

At the 19th Ornithological Congress, held on 22-29 June, 1986 in Ottawa, Canada, the WGGB held a round table discussion entitled „The role of granivorous birds in ecosystems". On 10-16 August during the IV International Ecological Congress in Syracuse, New York, USA, the WGGB also held a symposium. The materials from both

meetings were published in 1990 under the title „Granivorous birds in the agricultural landscape", edited by J. Pinowski and J.D. Summers-Smith, and printed by the Polish Scientific Publisher Pinowski & Summers-Smith 1990).

In 1990 two symposia were organized. The 11th symposium of WGGB was held in Yokohama, Japan in 23-30 August, as part of the V International Congress of Ecology. This was organized in cooperation between J. Pinowski and K. Nakamura (Japan) and was entitled „Granivorous Birds as agricultural pests and epidemiological vectors". The next symposium of WGGB was held in New Zealand in December (2-9) to coincide with the 20th International Ornithological Congress in Christchurch . This meeting was entitled „Granivorous birds in arid, sub-arid and agricultural landscapes". It was organized by J. Pinowski and R.E. Mac Millen (USA).

In the Soviet Union, research on many aspects of the biology of the Tree Sparrow was begun in 1970 in order to produce a monograph on this species. The Tree Sparrow is common and present in high densities and can have important interactions with man, especially in Asian countries. Within the Soviet Union, 43 institutions have participated in this research. The Biological Institute of the Leningrad University organized special expeditions to Crimea, Azerbaydzhan, Astrakhan region, Kirgizia, Central Yakutsk, Primorsk and South Sakhalin. These studies included researchers from Bulgaria and Poland. The results of these studies were published by Leningrad University in a 281-page monograph in 1981 under the editorship of Dr. G. A. Noskov (Noskov 1981).

The symposium of the Group entitled „Effect of nestling history on survival of birds" was held at the VII International Congress of Ecology (Florence, 19-25 July, 1998). At the XXII International Ecological Congress (Durban, 16-22, 1998, South Africa), J. Pinowski and J. Cooper (England) organized a Round Table Discussion on „Zoonoses: diseases of human spread by birds; are they on the increase".

After the end of the IBP, when the WGGB became a part of the INTECOL, the programme of the Group was continued with emphasis on some problems. Little was hitherto known on the mortality of granivorous birds and its causes. That is why we decided to pay special attention to the mortality in future coordinated research, especially to predation, diseases, and pollution and their combined impact. Between 1986 and 1995, an investigation was carried out in city parks and suburban villages of Warsaw (Poland). Factors influencing mortality of eggs and nestling sparrows were investigated. The results of these studies were published in the form of two books (Pinowski, Kavanagh & Górski 1971, Pinowski, Kavanagh & Pinowska 1995).

The studies conducted as a part of WGGB by R.F. Johnson and his Colleagues provided strong circumstantial evidence that natural selection has operated on the introduced populations of House Sparrows and that winter weather can act as a powerful selective agent (Anderson 2006, review).

Over the 21 symposia of WGGB, including Yokohama 1990, Vienna 1994 and Durban 1998, the WGGB drew the attention of ecologists, veterinarians and physicians to the role of birds as vectors of zoonoses. This was many years before the epidemiological problems caused by the Western Nile virus and avian influenza. This appeal resulted in many studies sparrows in this respect (e.g. Juřicová et al. 1998). In summary, the Group organised 23 symposia or Round Table Discussions and the results were published in 7 books and several hundred scientific papers.

The Group has been concerned not only with scientific research but also with finances of the organisation and attendance at symposia. Many time-consuming activities of the Group are anecdotic now. For example, a charter airplane of the Polish Airlines „LOT" was to fly to New Zealand with participants of the symposium for a lower price than the regular airplane. Colleagues from western countries were to pay in their currency and those from the COMICON countries in their currency, thus enabling the participation of the latter. But history played a trick. If I remember well, Australia forbid flights over its territory without oxygen-masks, and the chartered airplane had no such device. Then the socialistic system collapsed in Poland, and the problem of charge in not exchangeable currency disappeared (Fig. 3).

The results also had a practical aspect as they helped to reduce damages caused by granivorous birds in Africa and India. The group was a convenient forum for discussions and negotiations among representatives of different governmental and non-governmental organisations dealing with the reduction of damage caused by granivorous birds in agriculture (e.g. Quelea). The group was a good school of international co-operation, facilitated the knowledge of culture of different countries, as J. B. Cragg put it at the end of the Introduction to the synthesis of the Group, "those who were present at the final editorial meeting of the Granivorous birds theme will long remember one of Czechoslovakia's scientists on the dynamics of *Passer domesticus* and *Passer montanus*, giving a recital which included selections from Dvořák and Chopin, on a violin constructed by one of the staff of Polish Research Station from wood grown in the grounds of the station".

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Warsaw, 1965

It would be extremely useful to undertake under the supervision of the International Biological Programme the comparative studies on the energy flow in populations of widely distributed species which are easily studied, often live under extremal climatic conditions and are the components of most divergent communities. Such studies could provide some knowledge on the factors controlling the secondary production in nature. They could show as well the ways of the energy flow in extremely different communities, harbouring these widely distributed species.

Sparrows esp. the House Sparrow /Passer domesticus/ Tree Sparrow /Passer montanus/ and Spanish Sparrow /Passer hispaniolensis/ seem to be the most suitable group for these studies. It would be relatively easy to produce simple and comparable methods for the study of energy flow in populations of these species. Because of their connections with man it would be much more difficult to estimate the amount of energy taken in from the primary production level and from other links of the secondary production level as well as to find out where do they transfer the energy.

Beside the above mentioned points the international cooperation in sparrow-study would enable further research work on e.g. evolution of sparrows in territory recently occupied by them. Apart of the many results on theoretical problems, that could be obtained in this way, some of them could possible be of direct practical meaning.

Would you yourself and/or your Institute be interested in starting such studies and if so, which problems, methods and way of cooperation would you advise.

Yours sincerely

/Dr.Jan Pinowski/

Figure 1. The letter sent to ornithologists with proposal for collaboration within the framework of the International Biological Programme.

NEWS FROM INTECOL WORKING GROUPS

Working Group on Agro-ecosystems

Chairman: Dr. Lech Ryszkowski, Research Center for Agricultural and Forest Environment, 60-809 Poznan, Bukowska 19, POLAND. The INTECOL Working Group on Agroecosystems, along with the Man and Biosphere Network on Landscape changes in Europe, organized a workshop on Fluxes in Agricultural Landscapes, held 13-17 October 1992 in Poznan, Poland. The goal of the seminar was to analyze the control mechanisms of physical (energy and matter) and chemical (plant nutrient, water and pollutant) fluxes, as well as the dispersion of biota, caused by changes in land-use patterns. The impact of socio-economical factors on land-use changes was also addressed. Topics were: 1) the influence of landscape structure on heat and water balance of watersheds; 2) the influence of landscape structure and land-use changes on dispersion and diversity of plant and animal communities; and 3) land-use changes caused by political and economic trends in Europe and possibilities of nature protection provided by application of landscape planning tools. Proceedings of the workshop will be published by the end of 1993 as Functional Apprisal of Agricultural Landscapes in Europe. Copies of the proceedings will be distributed by the Research Centre for Agricultural and Forest Environment, 60-809 Poznan, Bukowska 19, POLAND. The next symposium of the Working Group, "Functional Analysis of the Agricultural Landscapes", will occur during the VIth International Congress of Ecology in Manchester, UK in 1994. Contact persons are Dr. Frank B. Golley, Institute of Ecology, University of Georgia, Athens, GA 30602 USA and Dr. Lech Ryszkowski.

Working Group on Urban Ecology

Chairman: George Barker, English Nature, Northminster House, Peterborough PE1 1 UA, UK. The Working Group is part of the INTECOL-UNESCO-MAB International Network for Urban Ecology. In December 1992 an east-west European meeting was organized by the Polish Academy of Sciences and the Warsaw Agricultural University in conjunction with the Group. The aims were to review recent research in urban ecology and its practical application in Europe, and to look particularly at how countries in eastern Europe could be brought more closely into the Network's activities. Participants from Poland were joined by scientists from Byelorussia, Czechoslovakia, Finland, Germany, Italy, Sweden, Russia, the UK and Ukraine. The meeting looked at four themes: urban ecology in planning and education; research into and management of urban ecosystems; urban vegetation; and urban animals. Discussions concentrated on the theory of urban biocoenoses and the future activities of the Network in Europe. A volume of proceedings including the 21 papers and a selection of the 11 posters presented at the meeting will be published. Anyone establishing a national, regional or local group of the International Network is advised to contact George Barker to ensure that the group is registered and included on the Network mailing list and the distribution list for *Urban Wildlife News*, the working group's newsletter.

Working Group on Granivorous Birds

Chairman: Prof. Jan Pinowski, Institute of Ecology PAS, Dziekanów L. near Warsaw, 05-092 Lomianki, POLAND. The activity of the Working Group in 1992 centered on: 1. preparing for printing Granivorous Birds in Polluted Environments (edited by J. Pinowski and B. Kavanagh, 1993), the synthesis of studies on the effects of various factors (pesticides, heavy metals, pathogenic microorganisms) on mortality and development of eggs and nestlings of sparrows; 2. preparing, along with the Working Group on Diseases Transmitted to People and Livestock, the Symposium "Environmental Change and Disease Transmission from Birds to People and Livestock" for the XXIst International Ornithological Congress (IOC) in Vienna, Austria, August 21-27 1994. (Convenors are J. E. Cooper and J. Pinowski); 3. planning international studies on mortality of granivorous birds in the period from fledgling to maturity; and 4. publishing a volume of *International Studies on Sparrows* (Vol. 18, No 1-2, 1991) containing "Bibliography of the Genus Passer. XIV".

Plankton Ecology Group (PEG)

Chairman: Pr. Dr. Nicole Lair, Hydrobiologie des Eaux Douces, 63177 Aubiére Cedex - FRANCE. The last PEG meeting was held during the SIL Congress in Barcelona. Contributions to the PEG Workshop on "Diel Vertical Migrations" will be printed in the *Arch. Hydrobiol. Beth. Ergebn. Limnol.* at the beginning of 1993, and the

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Figure 2. INTECOL (International Association for Ecology) Newsletter often provided information on the activity of the WGGB.

POLISH ACADEMY OF SCIENCES,
INSTITUTE OF ECOLOGY.
Department of Vertebrate Ecology

Dziekanów Leśny near Warsaw,
P.O. Łomianki, 05-150 POLAND

Our Ref. _____

Dziekanów Leśny, 20.04. 1990

Dear Colleague,

Polish Airlines LOT offer a cheap flight from Warsaw to Christchurch. A two-way ticket will cost 17018680 zł/ 9310 zł x 1828 USA dollar = 17018680zł/ in Polish złotych. In Poland it is possible to exchange forints, roubel czechisch crown etc money to into Polish zlot es at any foreign exchange office / inany corner of stret/. Participation from localities other than Warsaw from abroad can get a largely reduced ticket for flight to Warsaw.

Departure from Warsaw on 28 November 1990 at 20.00 pm arrive to Sydney Australia, on 30 November at 0.52, departure from Sydney at 0935am, arrive to Christchurch at 14.30 pm.

Departure from Christchurch on 15 December at 07.00 am, arrival to Sydney at 8.20 am., departure from Sydney on 15 December at 22.00 pm arrive to Warsaw at 14 December at 12.20 pm.

This cheap ticket will be available only on the condition that a group of at least 10 people will declare buying it.

I am waiting for your answer.

Sincerely yours
Jan Pinowski
Professor of Ecology

Figure 3. The letter sent to ornithologists with information about a charter flight to the WGGB symposium at the 20th International Ornithological Congress held in Christchurch, New Zealand.