

Preface

The book *Influence of Transport Infrastructure on Nature* is a result of the International Scientific -Technical Conference that was organized on the initiative of the General Directorate of National Roads and Motorways, under the patronage of the Polish Ministry of Transport and Construction, on 13-15 September 2006 in Poznań (Poland). The conference was jointly organized by the Adam Mickiewicz University of Poznań, the Agricultural University of Krakow, and the PKP Polish Railway Lines Company.

About 110 participants from 18 European countries came to the conference. There were 31 oral presentations, concerned with the most important problems associated with the impact of transport infrastructure (roads and railways) on the natural environment. According to the principles presented at the beginning, the oral presentations, discussion, and the field session organized by the Wielkopolska Motorway Company, focused on effects of the infrastructure on the organisms that live in the wild (fauna and flora).

This book is aimed to present the most important problems discussed by the conference participants. It includes 25 reviews and original articles, reflecting the current knowledge of the basic areas of the intensively developing research into the influence of transport infrastructure on nature. The set of articles presented in this book is interesting for several reasons. First of all, because they are devoted to general problems, including methodological ones, depending to a large extent on the geographic location of the study area. On the other hand, several articles describe examples of concrete problems and how they can be solved.

A detailed introduction to the issues discussed in this book is provided by B. IUELL, who summarizes selected problems presented in the book *Wildlife and Traffic: A European Handbook for Identifying Conflicts and Designing Solutions*, which is the major product of the COST 341 project, implemented since 1998 in 16 European countries. In the next article, J. BOX *et al.* explain the goals and guidelines for ecological impact assessment (EcIA), which is developed in the United Kingdom and assumes a wider and deeper consideration of biodiversity within the procedures of environmental impact assessment (EIA). G. MIKUSIŃSKI *et al.* write in the same spirit in their article on a literature search for the species that because of their life history, resources, behavioural patterns, and sensitivity to human impact, are the most predisposed for assessment of the influence of transport infrastructure on biodiversity and ecological balance. The necessity to synchronize spatial planning with the assessments of effects of transport infrastructure on the natural environment is strongly emphasized by M. STOJAN and B. OSTOJIC, on the example of Croatia, which is one of the most environmentally valuable countries in Europe. An article by B. JACKOWIAK *et al.* draws attention to the underestimated importance of vegetation in EIAs, and suggests what actions should be taken at successive steps of the assessment, i.e. identification, environmental valorization, and assessment of the negative impact of the planned motorway, at the level of plant populations, communities, and landscapes. A similar approach is presented by J. MAĆKOWIAK-PANDERA, who compares several methodological proposals for an international methodological model applied at the level of landscape and biotopes. At the end of part I of this book, H. BEKKER *et al.* present the results of the Long-Term Defragmentation Programme implemented in the Netherlands, evaluated during an international workshop that was held in that country.

The detailed, multifarious part II of the book starts with two articles on Collserola Park, located in the Barcelona Metropolitan Area. In the first paper, S. CAHILL *et al.* draw attention to the specificity of habitat fragmentation, resulting from the development of transport infrastructure in the

strongly urbanized area. The second paper (by A. TENÉS *et al.*) presents results of 15-year monitoring of wildlife roadkills in that area. Habitat fragmentation and animal mortality on roads are also the main subjects of the article by V. HLAVÁČ and P. ANDĚL. They show that in the Czech Republic the extent of these phenomena is remarkable. Those authors also emphasize the necessity to implement the currently prepared plan of restoring migration corridors for all the species that are sensitive to habitat fragmentation. The case of the Greek motorway Via Egnatia, presented in the next article, shows that interventions are sometimes necessary even at the final stage of road investments, if an environmentally important solution needs to be introduced (L. GEORGIADIS *et al.*).

The next four articles focus on remedial measures and monitoring. First, B. IUELL and O. STRAND describe the course of large-scale modern monitoring aimed at analysing the influence of road traffic on reindeer in areas along motorway Hw7 in Norway. Next, R. TILMANS discusses problems associated with the control of effectiveness of the mitigation measures applied in the case of a threat to bats, posed by the building of two roads in the Netherlands. The following article presents results of an assessment of effectiveness of the mitigation measures applied to alleviate the negative effects of transport infrastructure on the environment in Germany (U. TEGETHOF). This group of papers is closed by a short communication by N. BAJO and A. DI NOI, who inform about efforts undertaken in Italy to develop guidelines for sustainable urban planning and actions alleviating the effects of habitat fragmentation by linear infrastructure.

In the specialist literature, the impact of railway transport is considered less often. In this book it is discussed in four articles. M. BUSZKO-BRIGGS and P. PAWLACZYK, on the basis of original research, present results and conclusions on effects of modernization of railway lines on the Natura 2000 network in Poland, while R. KUREK summarize the results of research on protection of wild animals and migration corridors along a section of a major railway line (E20, Moscow-Warsaw-Berlin-Paris). The issue of deterring the animals that cross railway lines is discussed theoretically by S. KOSSAK, and practically by M. STOLARSKI. Those two articles together form a self-contained whole and are particularly noteworthy, because they present prototypical equipment for deterring wildlife (UOZ-1).

The last six articles are focused on crossing structures for wildlife. P. SKRIABINE and J. CARSIGNOL present results of over 40-year experiences in the use of wildlife passages in France, and emphasize the importance of their proper management and application of monitoring equipment. B. GEORGII *et al.* write about the use of wildlife crossing structures by medium-sized and large mammals in northern Germany. A. WYSOKOWSKI *et al.* describe the general principles of construction of such crossings as well as advantages of various structures. J. CURZYDŁO and J. KONOPKA show that only well-planned and well-built crossing structures can help to join the separated habitats and populations of animals. The specificity of crossing structures for amphibians, as well as difficulties and possibilities of their effective use are discussed by G. SMIT *et al.* on the basis of Dutch investigations, and by J. CURZYDŁO on the basis of experiences from southern Poland.

The recapitulation at the end of the book presents more general conclusions, resulting from discussions held during the conference. Apparently at least some of them can become subjects of further analyses and debates.

On behalf of authors and myself, I would like to express our gratitude to the General Directorate of National Roads and Motorways for initiation of this very interesting meeting, and to the CE2 Education Centre in Lublin, for coordinating the conference and a substantial contribution to preparation of this book for publication. We thank also all sponsors as well as all people and institutions involved in organizing the conference.

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Editor