

## Contents

<u>INTRODUCTION - J. BOHÁČ</u>	9
<u>SECTION 1. Bioindication and ecological monitoring: general aspects</u>	
MEJSTŘÍK V., POSPÍŠIL J. - Theoretical principles of biomonitoring	10
GUSEV A., BELIAKOV V., BOHÁČ J. - The current problems of ecological monitoring in biosphere reserves	15
VINOGRADOV B. V. - Remote sensing of bioindicators of deterioration sites	20
STEPANOV A. M. - Generalization of global monitoring data according to the knotty-cell division of the terrestrial ecosystems	24
BESEL V. S. - Natural environment quality: populational criteria	28
DOLEŽAL V. - Graphic analysis of correlation structures with applications in ecology	32
ZIEGELBECKER R. CH. - Lognormal distributions - a theoretical model for biomonitoring	37
<u>SECTION 2. Organisms as indicators: plants</u>	
REBELE F. - Ruderal plants as bioindicators in the industrial areas of Westberlin	44
ZIMNY G., ZUKOWSKA-WIESZCZEK D. - Pflanzen als Weiser der Verunreinigung des Regens in Warszawa	55
PYŠEK P., PYŠEK A. - Indication of nitrogen fertilization by weeds	60
RYSIN L. P. - The resistance of forest plants and communities to the recreation	65
PAPP M., JAKUCS P., TÓTHMÉRÉSZ B. - Herb layer deterioration in a forest (North Hungary)	67
TÓTHMÉRÉSZ B., JAKUCS P. - Damage estimation of an oak forest ( <i>Quercetum petraeae-cerris</i> )	72
HANOUSKOVÁ I., HADAČ E., LEPŠ J. - Phytoindication stand evaluation of Medvědí skála and Liščí vrch in the Krušné hory (Ore Mts.)	78
LIŠKA J., PIŠÚT I. - An example of bioindication on a large scale: mapping of Lichens in Czechoslovakia	81
STEPANOV, A. M., CHERNENKOVA T. V., BUTUSOV O. B. - Anthropogenic change of forest biocenoses assessed on space photographs obtained from subsatellite experiments	87
<u>SECTION 3. Organisms as indicators: soil organisms</u>	
EDWARDS C. A. - The assessment of the ecological effects of soil pollution by chemicals	93
STARZECKA A., BEDNARZ T. - The effect of industrial dust on the activity of soil micro- organisms in the Niepołomice forest (southern Poland)	105
GORDIENKO S., VOŘÍŠEK J. - Chlorella vulg. as bioindicator on soil herbicides	110
TARBA Z. M. - Influence of fertilizers on microarthropods in erosion-free and erosion- -affected soil of tobacco plantations	115
TROJANOWSKI H., BALUK A. - Einfluss der Stickstoffdüngung auf die kleinen wirbellosen Bodentiere - Acarina und Collembola	122
STEBAEVA S. K. - The structure of collembolan communities under different types of recultivation of technogenic landscapes of Siberia	126

KHANISLAMOVA G. M., KABIROV R. R. - Some pedobiont biodynamic changes affected by surfactant soil pollution	130
GRISCHINA L. G. - Hornmilben der Salzbüden Westsibiriens	132
<u>SECTION 4. Organisms as indicators: animals and man</u>	
VAKKARI P. - Melanism of Oligia moths in Finland	134
NOVÁK I., SPITZER K. - Melanism in Lepidoptera as indicator of Landscape changes	138
KRIVOLUCKIJ D., BOHÁČ J. - Life forms and morphogenesis of animals: the use in bio-indication of the environmental quality (on example of staphylinid beetles)	142
SPITZER K. - Bionomic strategies of Lepidoptera and their bioindicator value	147
GROSSER N. - Struktur- und Stabilitätsveränderungen in Lepidopterenzünsen als indikator anthropogener Massnahmen	149
RŮŽIČKA V., ANTUŠ M. - 25-year changes in steppe spider communities in the surroundings of Lochkov at Prague	154
BOHÁČ J. - Die Ausnutzung von Raubkäfergemeinschaften (Coleoptera, Staphylinidae) für die Indikation der Umweltqualität	160
MORDKOWITSCH W. G. - Laufkäfer und Indikation von Sukzessionrichtungen in technogenen Ökosystemen in Westsibirien	165
GALLÉ L., GYÖRFFY G., HORNUNG E., KURMUCZI L. - Indication of environmental heteromorphy and habitat fragmentation by invertebrate communities in grasslands	167
ŠIMEK L. - Use of bird communities for ecological evaluation of small wood patches in agricultural landscape	171
BEJČEK V., ŠŤASTNÝ K. - Small mammal communities as bioindicators of man's interference with wetland ecosystems	175
NEWMAN J. R., NOVÁKOVÁ E., McCALVE J. - The use of the house martin, <i>Delichon urbica</i> , as a bioindicator of air pollution	179
ŠVECOVÁ Z. - Decrease in the clutch size of the black-headed gull ( <i>Larus ridibundus</i> ) as an indicator of the environmental reproductionotoxic potential	183
ZIMA J. - Small mammals as indicators of environmental mutagenesis	194
VELEK O., HODKOVÁ Z., HLAVÁČEK J., DOLEŽAL V. - Blood cholinesterase activities in natural and experimental population of Rodentia after an exposure to organophosphates	201
ZIEGELBECKER R. - Belastung durch Fluorid im Trinkwasser - Zusammenhang mit Krebs und Leberzirrhose	204
VALACH R. - Environmental risk factors in AIDS?	212
<u>SECTION 5. Air and water pollution</u>	
KULIG A. - The emission indicators of microbiological pollutants from sewage treatment plants	218
VASANDER H., MIKKOLA J. - Use of moss bags to monitor air pollution in Vantaa, southern Finland	226
BERKI I., JAKUCS P., HOLES L. - Effect of local air pollution on element concentration in soil and sessile oak leaves in the vicinity of industrial districts	235
KOVÁCS M., TURCSÁNYI G., KOTLAY A., TÓTH S., KASZAB L. - Indication of air pollutants by means of the chemical analysis of <i>Robinia pseudo-acacia</i> leaves	243

DIERMANN J., FRANKENFELD M. - Plant surfaces as bioindicators of air pollution	247
MAREK M., KRATOCHVÍLOVÁ I., JANOUŠ D. An example of selected spruce stands reactions to air pollution	253
SKÁCEL A., ŘÍHA V. - The influence of Ostrava's industrial agglomeration on the quality and toxicity of the Ostravice and Odra in Czechoslovakia	257
ISERENTANT R., VERSAILLES A. - A comparison between artifical and natural substrates for estimation water quality indices from diatom communities analysis	262
<u>SECTION 6. Indication of specific factors: metals</u>	
PETŘÍKOVÁ V., ZÁLEŠKÁ I. - Contamination of agricultural crops with toxic elements	269
BALUK A. - Der Wurzelwuchs als biologischer Anzeiger für die toxische Wirksamkeit der Schwermetalle im Boden	273
KULAGIN A. YU., BATALOV A. A. - Contents of some metals in Salicaceae leaves of tethnogenical ecotopes	278
MONDSPIEGEL K. - Effect of cadmium on the growth of bean ( <i>Vicia faba</i> )	279
FÁBIÁN G., DÉVAY M., KOVÁCS M. - Ecophysiological changes caused by heavy metals in wheat seedlings	284
KUDIBZNÁKOVÁ J., LÁZNIČKA P., BURÍČOVÁ B. - Biological monitoring in deteriorated Sokolov district	290
TURCSÁNYI G., KOVÁCS M., KASZAB L., TÓTH S., KÖTLAY A. - Accumulative indicator plants on Hungarian spoils	294
RACLAVSKÝ K., RACLAVSKÁ H., RYCHTAŘÍK P. - Heavy metals in spruce needles and soils in polymetallic ore district of Zlaté hory (Czechoslovakia)	298
KALETA M. - Mg-immission effect on natural ecosystems	303
NUORTEVA P. - The role of metals in the multistress disease killing forests in Europe	306
WEI-CHUN MA - Soil macrofauna and small mammals as animal indicators of the biological availability of heavy metals in terrestrial environment	309
CLAUSEN I. H. S. - On the dynamics of cadmium and lead in <i>Steatoda bipunctata</i> (Araneae)	315
DOHÁČ J. - Accumulation of heavy metals in the bodies of staphylinid beetles (Coleoptera, Staphylinidae)	319
RANTATARO M., LAINE J., KOSKINEN P., NUORTEVA P. - Metal contents in the scots pine feeding moths <i>Dendrolimus pini</i> L. (Lep., Lasiocampidae), <i>Bupalus piniarius</i> L. and <i>Thera obeliscata</i> L. (Lep., Geometridae)	322
SALÁNKI J., BALOGH K. V. - Mussels as indicators of heavy metal pollution in the region of lake Balaton (Hungary)	327
MIGULA P. - Combined and separate effects of heavy metals on oxidative phosphorylation and mitochondrial respiration of the house cricket ( <i>Acheta domesticus</i> L.)	331
MIGULA P., BINKOWSKA K., KAFEL A., KEDZIORSKI A., NAKONIECZNY M. - Heavy metal contents and adenylate energy charge in insects from industrialized region as indices of environmental stress	340
REICHERTOVÁ E., TAKÁČ L., ŠULIČOVÁ L., VESELÁ A. - Bioindication of air pollution from nickel refinery dump	350

AŠMERA J., RACLAVSKÝ K., RACLAVSKÁ H. - Heavy metals in hair of hoofed game from Beskydy Mountains and their submontane area (Czechoslovakia) ——————	354
<b>SECTION 7. Indication of specific factors: radionuclides</b>	
ŠVADLENKOVÁ M. - Water plants as a bioindicator of radioactive pollution of surface water - application of a mathematical model ——————	337
TASKAYEV A. I., POPOVA O. N., SHERSHUNOVA V. I., BOHÁČ J. - Influence of pollution with uranium and radium on population of <i>Vicia cracca</i> L. ——————	361
KONEČNÝ J., MEJSTŘÍK V., LEPŠOVÁ A. - The use of basidiomycete fruiting bodies for bioindication of radionuclides ——————	365
TOMÁŠEK M., RYDÁČEK K., DVOŘÁK Z., WILHELMOVÁ L. - Observation of <sup>131</sup> I retention in bee-collected pollen ——————	370
SOKOLOV V. E., KRIVOLUTSKY D. A., USACHEV V. E. - Principles of using wild animals as bioindicators of global radioactive pollution ——————	373
HAUKKA J. K. - The accumulation of Cs-137 in earthworms and its transport in soil by earthworms ——————	377
VIKTOROV A. G. - Earthworms as bioindicators of radioactive pollution ——————	381
TATARUCHI F. - Freilebende Wildtiere als Bioindikatoren der radioaktiven Belastung ——————	383
<b>SECTION 8. Acidification of environment</b>	
TICKLE A. K., ASHMORE M. R. - The indication of broad patterns of acidification in the United Kingdom using critical load theory ——————	393
STRAŠKRABOVÁ V., FUKSA J., KOPÁČEK N., STUCHLÍK E., ŠIMEK K., VRDÁ J., VYHNÁLEK V. - Bacterial activity in mountain lakes sensitive to acidification ——————	400
BLÁHA L. - Influence of low pH (acid rain) on root: shoot relationship and yield of wheat ( <i>T. aestivum</i> L.) ——————	406
SPÁLENÝ J., ZVÁRA P. - The influence of simulated acid rain on the leaves and on the formation of biomass of some higher plants ——————	408
RASK M. - Roach, <i>Rutilus rutilus</i> L., populations as an indicator of lake acidification ——————	411
LACROIX G. L. - Physiological responses of salmonids as indicators of sublethal stress in acidified organic rivers of atlantic Canada ——————	418
<b>FINAL ORATION - P. NUORTEVA</b> ——————	429
<b>AUTHOR INDEX</b> ——————	431