Bibliography for Biodiversity section of EIA

* * * (1952-1976): "Flora României", Vol.1-13, Ed. Acad. Rom., Bucureşti.
* * * (1966): "Atlasul climatologic al României", Ed. Acad. Rom., Bucureşti.
* * * (1979): "Directiva 79/409 CEE Păsări", www.europa.eu.int/environment
* * * (1992): "Directiva 92/43 CEE Habitate", www.europa.eu.int/environment
* * * (1993): “Larousse de la Nature”, Vol. I: La Planete de la Vie, Vol. II: La Flore et la Fauna, Ed. Larousse, Paris
* * * (1994): "Legea 58 pentru ratificarea Conventiei privind diversitatea biologica, semnata la Rio de Janeiro la 5 iunie", Publicată în Monitorul Oficial, Partea I nr. 199 din 2 august 1994
* * * (1994): "Legea nr. 69 pentru aderarea Romaniei la Conventia privind comertul international cu specii salbatice de fauna si flora pe cale de disparitie, adoptat la Washington la 3 martie 1973", pblicatăîn Monitorul Oficial, Partea I nr. 211 din 12 august 1994
* * * (1995): "Europe’s Environment – The Dobris Assessment", European Environment Agency, Ed. David Stanners & Philippe Bourdeau, Copenhagga 1995
* * * (1995): "Hotărârea nr 921 privind unele masuri pentru stimularea practicarii apiculturii si asigurarea protectiei familiilor de albine" Publicată în Monitorul Oficial al României Partea I. 281 din 4 decembrie 1995
* * * (1995): "Legea nr. 13 pentru aderarea Romaniei la Conventia privind conservarea vietii salbatice si a habitatelor naturale din Europa, adoptata la Berna la 19 septembrie 1979", Publicat în Monitorul Oficial, Partea I nr. 62 din 25 martie 1993
* * * (1996):"National Strategy şi Action Plan for Biodiversity Conservation şi Sustainable Use of its Components" IUCN, 49pp
* * * (1998): "Legea nr. 13 pentru aderarea Romaniei la Conventia privind conservarea speciilor migratoare de animale salbatice, adoptate la Bonn la 23 iunie 1979" publicată în Monitorul Oficial, Partea I nr. 24 din 26 ianuarie 1998
* * * (2000): "Legea nr. 90 pentru aderarea României la Acordul privind conservarea liliecilor în Europa, adoptat la Londra la 4 decembrie 1991", pblicatăîn Monitorul Oficial, Partea I nr. 228 din 23 mai 2000
* * * (2000): "Legea nr.89 pentru ratificarea Acordului privind conservarea păsărilor de apă migratoare african-eurasiatice, adoptat la Haga la 16 iunie 1995", publicată în Monitorul Oficial, Partea I nr. 236 din 30 mai 2000
* * * (2000): Legea 5 privind aprobarea Planului de amenajare a teritoriului - Secțiunea a III-a Arii Protejate", Publicată în Monitorul Oficial al României Partea I nr. 152 din 12 aprilie 2000
* * * (2001): "Legea nr. 22 pentru ratificarea Convenției privind evaluarea impactului asupra mediului în context transfrontieră, adoptată la Espoo la 25 februarie 1991", publicată în Monitorul Oficial, Partea I nr. 105 din 1 martie 2001
* * * (2002): "Legea 451 pentru ratificarea Convenției europene a peisajului, adoptată la Florența la 20 octombrie 2000", publicată în Monitorul Oficial, Partea I nr. 536 din 23 iulie 2002
* * * (2003): "Interpretation Manual of European Union Habitats", European Commission, DG Environment, Nature and Biodiversity,
* * * (2004-2006): "The implementation of the EU Nature Conservation Legislation in Romania", MMGA, Ameco, EVD project: PPA03/RM/7/5
* * * (2005): "Ordinul nr. 1198 pentru reactualizarea anexelor 2, 3, 4 şi 5 la Ordonanța de urgență a Guvernului nr. 236/2000 privind regimul ariilor naturale protejate, conservarea habitatelor naturale, a florei şi faunei sălbatice, aprobată cu modificări şi completări prin Legea nr. 462/2001", publicatîn Monitorul Oficial, Partea I nr. 1097 din 06 decembrie 2005
Arad, V., D. (2004): “Rock Mechanics”, “Didactica si pedagogica” Publishing House, Bucharest
Bănăduc, D., (2006): "Important Areas for Fish in Romania - The implementation of EU Nature Conservation Legislation in Romania", Final Report, Bureau Waardenburg bv. & Ecotur Sibiu
Bărbulescu, C. (1987): "Hill meadows from Romania", Bucharest

Bibby, C., J., Burgess, N., D, Hill, D., A., Mustone, S., H. (2000): "Bird census Techniques", Academic Pres

Biber, J., -P. (1988): “Hedges”, Steering Committee for the Conservation and Management of the Environment and Natural Habitats, Planning and Management Series, No. 1, Strasbourg

Biebighauser, T., R. (2002): “A Guide to Creating Vernal Ponds”, USDA Forest Service, Ducks Unlimited, Inc. & I. Walton League of America, S. Morehead, KY 40351, USA

Borza, Al., Boşcaiu, N. (1965): "Introduction in vegetal cover", “Romanian Academy” Publishing House, Bucharest.

Bradley, G., A. (1995): “Urban Forest Landscapes – Integrating Multidisciplinary Perspectives”, University of Washington Press, Nature/Field Guide Books, USA

Carolien M., B., Nicholas P., and Hagemeijer E. J. M. (2000): "European bird populations: estimates şi trends" (Bird Life Conservation Series No. 10). Bird Life International/European Bird Census Council, Cambridge, UK.

Cheremisinoff, N. P., Bendavid-Val, A. (2001): “Green Profits”, The Manager`s Handbook for ISO 14001 and Pollution Prevetion, Butterworth-Heinemann,Woburn, MA

Chifu, Th. (1995): "Contributions to the phytotaxonomy of the vegetation from classes Molinio-Arrhenatheretea Tx. 37 and Agrostietea stoloniferae Oberd. et all. 67 from territory of Moldova ", Bulletin of Iaşi Botanical Garden, 5: 125-135.

Ciocârlan, V. (2000): "Illustrated flora of Romania", “Ceres” Publishing House, Bucharest.

Ciplea, L., I., Ciplea, Al. (1978): “Ambient environment pollution”, “Technical” Publishing House, Bucharest

Coldea, Gh. (1997): “Les associations vegetales de Roumanie”, Ed. Presses Univ.

Coste, I. (1982): “People, Biosphere and natural resources”, “Facla” Publishing House, Timisoara,

Cristea, V. (1993): "Phyto-sociology and Romania’s vegetation", Mimeographed course of lectures, “Babeş-Bolyai” University, Cluj-Napoca.

Cristea, V. (1993): “Phyto-sociology and Romania’s vegetation”, Course of lectures, “Babeş-Bolyai” University, Cluj-Napoca

Csürös, Şt. (1972): “About grass vegetation of the river meadows from Transylvania”, Botanical contributions, “Babeş-Bolyai” University, Cluj-Napoca

Csürös, Şt., Csürös-Káptalan, M. (1953): "Researches on vegetation of the terrains inclined to erosion and eroded from Transylvania Plain ", Scientific studies and researches (Cluj), 4 (1-2), p. 208-230.

Csürös, Şt., Csürös-Káptalan, M., Resmeriță, I. (1967-1970):"Ecological indices: humidity, temperature, soil reaction and fodder value of the most important species from Transylvania’s meadows ", (1), Biological studies, brochure 1, 1967, p. 21-27; (2), Biological studies, brochure 1, 1970, p. 9-14.

Csürös, Şt., Gergely, I.,Csürös-Káptalan, M. (1985): "Phyto-cenologic studies on meadows of Deschampsia caespitosa (L.) D. Beauv. from R.S.România", Botanical contributions. (Cluj-Napoca), p. 141-160.

Csürös, Şt., Resmeriță, I., Csürös-Káptalan, M., Gergely, I. (1961): "Contributions to the knowledge of the meadows from Transylvanian Plain and some considerations regarding the arranging of terrains ", University studies. Babeş-Bolyai, Biology, (Cluj), 6 (2), p. 15-61.

Csürös-Káptalan, M. (1964): "Geo-botanical researches on hill meadows from Turcului valley basin", University studies, Babeş-Bolyai, Biology, 9 (2), p. 19-28.

Csürös-Káptalan, M. (1964): "Phytocenologic ecological researches in Valea Fânațului (Turda District)", Biological studies and researches, Biology and Vegetation series, 16 (6), p. 497-502

Csürös-Káptalan, M. (1971): "About Agrosteto-Festucetum sulcatae and its taxonomic framing", Botanical contributions, Cluj-Napoca, p. 123-201.

Csürös-Káptalan, M., Mocanu, M. (1968): "Aspects from the vegetation surrounding the Sânnicoară – Cluj locality ", University studies, Babeş-Bolyai, Biology, 13 (2), p.19-24.

Davis, L., S., Johnson, K., N., Bettinger, P., S., Howard, Th., E. (2001): “Forest Management”, IVth Ed., Mc. Graw Hill Eds.

Delbaere, B. (2002): “Biodiversity Indicators and Monitoring: Moving Towards Implementation”, ECNC, Tilburg, Netherlands
Doniță, N., Popescu, A., Paucă-Comănescu, M., Mihăilescu, S., Biriş, I. -A. (2005) a: "Habitats from Romania", “ Tehnica Silvică” Publishing House, Bucharest
Doniță, N., Popescu, A., Paucă-Comănescu, M., Mihăilescu, S., Biriş, I. -A. (2005) b: "Habitats from Romania – Modifications according to the amendments proposed by Romania and Bulgaria at Habitat Directive (92/43/EEC) - 2006" -, “Tehnică Silvică” Publishing House, Bucharest
Fabian, A., Onaca, R. (1999): “Applied Ecology – Who is afraid of ecology ?”, “Sarmis” Publishing House, Cluj-Napoca,
Frink, J. P. (2006): "Structure and ecology of semi-natural meadows on the middle and inferior course of Aries river ", Doctorate Paper, “Babeş-Bolyai”, University, Faculty of Biology and Geology.
Fuhn, I. (1960): "Fauna of Romania", vol XIV, fascicle 1 Amphibia, “Academia Română” Publishing House, Bucharest
Fuhn, I., Vancea, Şt. (1961): " Fauna of Romania ", vol XIV, fascicle 2 Reptilia, “Academia Română” Publishing House, Bucharest
Geczi, R., Bodis, K. (2003): "Kornyezeti monitoring Verespatak kornyeken", Erdelyi Muzeum Egyesulet, Ed. Kriterion
Ghinea, L. (1978): “Nature defense”, “Stiintifica si enciclopedica” Publishing House, Bucharest
Gilbert, G., Gibbons, D., W., Evans, J. (1995): “Bird Monitoring Methods”, RSPB
Grigorescu, A. (2000): “Management of Environmental Projects”, Dacia Europa Nova Publishing House, Lugoj
Gruin, M. (1996-1997): “Environment Impact Assessment”, post-university course , Industrial Eco-management, Cluj –Napoca Technical University
Hodişan, I. (1968): "Phyto-cenological researches on meadows from Fenesului basin (Alba County)", Botanical contributions, p. 210-229.
Hodişan, I., Pop, I. (1976): "Systematic Botany ", EDP Publishing House, Bucharest.
Hodişan, V. (1970): “General considerations on vegetation from Runcu basin (Alba County)”, Botanical contributions , “Babeş-Bolyai” University, Cluj-Napoca
Iancu, I., Iancu, V. (1984): “Forest and water”, Stiintifica si enciclopedica Publishing House, Bucharest
Ichim, R. (1994): “Ecological bases of the game management in forests from mountainous area”, Ceres Publishing House, Bucharest
Ilie, M. (1958): " Transylvania’s Plateau", Stiintifica Publshing House, Bucharest
Ionel, A., Manoliu, Al., Zanoschi, V. (1986): “The knowledge and protection of rare plants”, Ceres Publishing House, Bucharest
Ionescu, Al., Barabas, N., Lungu, V. (1992): “Ecology and Environment Protection”, “Imprimeria Ceres” Publishing House”, Bucharest
Ionescu, M., Cusa, V. (1988): “Methodological guidelines of aquatic toxicology”, Water National Council, Research and Designing Institute for Water Management
Ivan, D., Doniță, N., Coldea, Gh., et col. (1993): "Vegetation potentielle de la Roumanie". Braun-Blanquetia, Camerino, 9: 3-97.
Jonsson, L. (1996): "Birds of Europe, North Africa and the Middle East", Cristofer Helm A&C Black. London.
Kovacs, A.J. (1979): "Biological, ecological and economic indicators of meadow flora ", Scientific works of the Research and Production Institute for Meadow culture, Măgurele,Braşov.
Kudrna, O. (1986): „Aspects of the Conservation of Butterflies in Europe” – In: Butterflies of Europe 8, Kudrna, O. (ed.), Aula-Verlag, Wiesbaden, pp. 323
Mâciu, M., Chioreanu, A., Văcaru, V. şi Colab. (1982): “Geographical Encyclopedia of Romania”, Stiintifică. şi EnciclopedicăPublishing House, Bucharest
Manescu, Al. (1977): “Environment protection, post-university course, Water protection and treatment ”, Institute of Constructions, Bucharest,
Marinescu, D. (2003): “Dissertation on Environment Right”, All Beck Publishing House, Bucharest

Mihut S., Stan, G., Rakosy L. (1996): “Study of Macrolepidoptera (Heterocera) fauna on the basis of data collected with glowing traps in Cluj-Floreşti (Transylvania) area”, Informative bulletin of Lepidoptera Society of Romania, 7 (3-4): 205-209.
Mihuț, S. (1996): “Ecological aspects regarding the influence of Lepidoptera fauna distribution from the east of Transylvania Plain”, Museum studies and researches, Bistrita Vol.1
Mihuț, S. (1997): “Lepidoptera fauna from Mahaceni Plateau”, Bul. Inf. SLR. Vol.
Mihuț, S., Dincă, V., E. (2006): "Important Areas for Butterflies - The implementation of EU Nature Conservation Legislation in Romania", Final Report, Bureau Waardenburg bv. & CFMCB
Mohan, Gh., Ardelean, A. (1993): “Ecology and environment protection”, Handbook , “Scaiul” Publishing House, Bucuresti,
Morariu, T., Savu, Al. (1970): " Cluj County", Academy Publishing House, Bucharest
Mullarney, K., L. Svensson, et al. (1999): "The complete guide to the birds of Europe". HarperCollins Publishers, London
Murariu, D. (2000): "Fauna of Romania", vol XVI, fascicle 1 Insectivore, Romanian Academy Publishing House, Bucharest
Niculescu, E., König, Fr. (1970): “Fauna of R.S.R., Insects, Lepidoptera – General part”, Vol.XI., Fascicle 10, Academy of R.S.R Publishing House, Bucharest
Novak, I., Severa, Fr. (1983): “Papillons d’Europe”, Bordas, Paris
Nyarady, E. I. (1939): “Enumeration of Vascular Plants from Cheia Turzii”, National Gazette Company., Official Gazette Publishing House , “State Imprimerii” Publishing House, Bucharest
Oarcea, Z. (1999): “Nature Protection”, Philosophy and achievements , National parks, “Presa Universitara Romana” Publishing House, Timisoara,
Palm, E. (1986): “Nordeuropas Pyralider”, Fauna Boger, Copenhaga
Platon, V. (1997): “Environment Protection and Economic Development”, Institutions and Mechanisms during the transition period, “Didactica si pedagogica” Publishing House, Bucharest,
Pop I. (1976): "Contributions to the knowledge of foothill vegetation from the Abrud surroundings (Alba County)", Botanical contributions, Cluj, 123-132 (1392).
Pop, I. (1971): “Hill Vegetation from Baia de Arieş (Alba County) with some phyto-cetogenic comparative considerations regarding acidophilic oak groves from Romania, Botanical contributions , “Babeş-Bolyai” University, Cluj-Napoca
Pop, I. (1977): "Comparative study on Botriochloa iscaemum meadows from Romania", Botanical contributions., Cluj-Napoca, p. 111-120.
Pop, I. (1982): "Spontaneous and sub-spontaneous plants with economic value from flora of RS Romania ", Botanical contributions, Cluj-Napoca.
Pop, I., Cristea, V., Hodişan, I. (2002): "Vegetație of Cluj", Botanical contributions Botany, XXXV, (2), Cluj-Napoca, p. 5-254.
Pop, I., Cristea, V., Hodişan, I., Gergely, I. (1998): "Le conspectus des associations vegetales sur l’etendue de departement de Cluj", Botanical contributions., Cluj-Napoca, p. 9-23
Pop, I., Csuros, St., Kovacs, A., Hodişan, I., Moldovan, I. (1964): “Flora and Vegetație from Runc Gorges (Cluj Region, Turda District)”, Botanical contributions, “Babeş-Bolyai” University, Cluj-Napoca
Pop, T. (1996-1997): “Environment monitoring and pollution control”, Post-university perfection course, Eco-industrial management, Technical University from Cluj –Napoca,
Popescu, A. şi Murariu, D. 2001, “Fauna of Romania”, vol XVI, fascicle Rodentia, “Academia Română” Publishing House, Bucharest
Popescu, A., Sanda, V. (1992): "Structure of xerothermal meadows of Festuco-Brometea Br.-Bl. et Tx. 43 class from Romania", Botanical contributions, Cluj-Napoca, 1991-1992, p. 37-47.
Popescu, A., Sanda, V. (1998): "Synopsis of spontaneous cormophyte flora from Romania", Acta Botanica Horti Bucurestiensis, Bucharest
Popescu-Argeşel, I. (1984): “Aries valley”, Sport-Turism Publishing House, Bucharest

Popse, C., Vrabete, M. (1996-1997): “Legislation and environment ethics”, Post-university course, Eco- industrial management, Technical University from Cluj –Napoca,
Preda, V., Soran, V., Nemes, M. (1978): “Artificial Eco-systems and their importance for mankind”, Symposium proceedings from January 14 1977, Academy of Socialist Republic of Romania, Cluj-Napoca Subsidiary, Sub-commission People and Nature
Radu, D. (1967): "Birds from Carpati", “Academiei” Publishing House, Bucharest.
Rakosy, L. & Viehman, I. (1991c): “Arguments in favor of a natural reserve in Cheile Turului”, Nature Protection and Surrounding Environment., Romanian Academy Publishing House 35 (1-2): 15-25
Rakosy, L. (1991): “History of researches of Lepidoptera in Romania”, Bul. Inf. SLR., Cluj-Napoca vol. 1(1-4); 2(1-4)
Rakosy, L. (1993): “Micro-Lepidoptera from Retezat Național Park” “Retezat Național Park – ecological studies”, West Side Publishing House, Braşov:254-280
Rákosy, L., Goia, M. & Z. Kovács (2003): "Catalog of Lepidoptera of Romania/ Verzeichnis der Schmetterlinge Rumäniens". – Romanian Lepidoptera Society, Cluj-Napoca, 446 pp.
Rakosy, L., Laszloffy, Z. (1997): “Fauna of macro-Lepidoptera from Fânațele Clujului (Lepidoptera) (Cluj, România)”, Bul. Inf. SLR., 8 (3-4):165-186
Rosetti-Balanescu, C. (1961): “Traces of wild animals ”, “Stiintifica” Publishing House,
Rosu, Al., Ungureanu, I. (1977): “Geography of Surrounding Environment”, “Didactica si Pedagogica”, Publishing House, Bucharest
Rusti, D. (1994): “Additional data to the checklist of Romanian Lepidoptera (Insect: Lepidoptera)”, Trav. Mus. Hist. Nat. “Gr. Antipa”, Bucureşti 34:81-93
Rusu, T. (1996-1997): “Nonpolluting technologies”, Post-university perfection course , Industrial Eco-management, Technical University from Cluj –Napoca,
Sanda, V., (2002): " Ceno-structural guide book regarding vegetal cover from Romania", Bucharest
Sanda, V., Popescu, A., Stanciu, D.I. (2001): "Cenotic structure and ecological characterization of phytocenotes from Romania".
Sanda,V., Popescu, A., Arcuş, M. (1999): "Critic revue of plant communities from Romania", Tilia Press International Publishing House, Constanța.
Sanda,V., Popescu, A., Barabaş, N. (1998): "Cenotaxonomy and characterization of vegetal groups from Romania", Museum Complex of Nature Sciences, Studies and comunications14, Bacău.
Sârbu, A., & Colab. (2006): "Important Areas for Plants - The implementation of EU Nature Conservation Legislation in Romania", Final Report, Bureau Waardenburg bv. & Ecotur Sibiu Stugren, B. (1994): “Ecologie teoretica”, Ed. “Sarmis”, Cluj-Napoca
Schell, L., M., Smith, M., T., Bilborough, A (1993): "Urban ecology and health in the Third World", Cambridge University Press
Sendzimir, J., Kibert, C., J., Bradley Guy, G. (2002): "Construction Ecology - Nature as the basis for green buildings", Spon Press, UK
Seppelt, R., (2003): “Computer-Based Environmental Management”, Wiley-VCH Eds., USA
Soran V., 1962, Cercetări asupra buruienilor şi asocierii lor în Munții Apuseni, Probleme de Biol., Ed. Acad. R.P.R. Buc., 299-345 (1929).
Stugren, B. (1982): “Bases of General Ecology”, Scientific Encyclopedic Publishing House, Bucharest, pg. 18
Suciu, I. (1981), mai: “Ecological consequences of polluting with heavy metals”, People-Biosphere, Scientific works and syntheses, “Intreprinderea poligrafica” Publishing House, Sibiu
Toader, T., Dumitru, I., & Colab. (2004): "Forests of Romania – Național Parks,Natural Parks", RNP - Romsilva
Treweek, J., 1999, Ecological impact assessment, Blackwell Science, 351 pages.
Tucker, G. M. and Evans, M.I. (1997): "Habitats for birds in Europe: a conservation strategy for the wider environment. Cambridge", U.K.: BirdLife International
Tufescu, V., Tufescu, M. (1981): “Ecology and human activity”, Albatros Publishing House, Bucharest

Tumanov, S. (1989): “Air Quality”, Tehnica Publishing House, Bucharest
Valenciuc, N. (2002): "Fauna of Romania", vol XVI, fascicle 3 Chiropters, Romanian Academy Publishing House, Bucharest
Vaughan, D. J., Wogelius, R. A. (2000): “Enviromental Mineralogy”, volume 2, Eotvos University Press, Budapest,
Zamfir, Gh. (1979): “Efectele unor poluanți si prevenirea lor”, Ed. Academiei Republicii Socialiste Romania, Bucuresti

Overview on the

Report

Prepared by: John Akeroyd and Andrew Jones
entitled:

Roşia Montana case: protection and not destruction

Translated by Dan Mercea

The report that will be discussed here has been presented within the press conference organized by "Alburnus Maior" Association in Bucharest on 24th of August 2006.

This document is intended to be an official highly scientific position that wants to bring strong opposed arguments to the gold and silver mining project developed at Roşia Montană by Roşia Montană Gold Corporation.

Because it benefits from an expert translation and from a scientific contribution of several experts contracted by Alburnus Maior, we will look at this document as being a scientific document, refraining ourselves from appealing to juvenile excuses that might be invoked like „typos" or „*poor translation*". Taking into account the importance and the desired status of this document, we believe that such excuses must be excluded.
The report starts with a presentation of the authors from which one can see their extensive experience on conservation management of biodiversity, of landscape, of sustainable development, of friendly agricultural practices, etc. Therefore, we will not question in any way the expertise of those two botanists from Great Britain, although we can see that they are not certified persons as required by current in force law that governs the preparation of environmental impact assessments or the preparation of environmental technical surveys, at least here in Romania.

Taking into account the fact that the expertise of Mr. John Akeroyd, PhD is mentioned for „*Great Britain, Ireland, Europe and Mediterranean region*", we notice that both Great Britain and Ireland are part of Europe both from geographical and political point of view, and the Mediterranean region on its turn partially is part of the same territory. Moreover, we would like to draw attention on the fact that the paper of monumental relevance that describes the European flora which was prepared by the above mentioned individual as a partner is not called „*Flora Zeuropaea*" but „*Flora Europaea".*
The question marks that raise above the report's reliability, a report intended to be a base of scientific documentation, occur even from the initial phrase of the introductory chapter where the period of investigation is stipulated as being 1-2 of July (!!?), i.e. no more or less than 2 days of investigation, stating the fact that this period was „*an optimum time for investigating the flora"*. Moreover, it is also stated the fact that flora's investigation was conducted regardless of the „*bad weather"*.
Therefore, the large quantity of information that is said to be the base of the report remains from our point of view rather improbable considering the collection of such complex data and the period of investigation of just 2 days as well as the bad weather that will transform the botanic observations in a difficult task to be completed. To all these, we may add the enclosed pictures, which are taken during good weather conditions, possible in other locations than Roşia Montana, or they have been downloaded from the Internet.

The report contains meaningless statements and statements with no scientific base that attempt to induce one-sided and false conclusions, desperately trying to impose the conclusion that the area has a paradisiacal nature with a matchless patrimonial value throughout Europe.
The scientific support includes long and empty declamations of some scientific names of at least common species in their attempt to secure some recognition for this investigation. Because some objective arguments are missing, this reports steps away from its initial topic, it is drained out of its content and appeals to some lyrical-theatrical techniques that try to induce emotional states to the unknowing public.
In order to avoid potential polemics on this topic and because I tried not to bring any damages to the authors that might be interpreted as personal, I believed that it would be more adequate to analyze the text as it is presented together with some comments that result naturally.

Some of these pseudo-scientific assertions cause a natural hilarious state in addition to the concern to a potential unworthy financial effort that has been paid by the beneficiary of the report.
For an objective reasoning, such assertions (without presenting an exhausting summary of them) are set forth in the following table together with the comments and questions resulted for the respective contexts in a way that seems natural to us:

Stated Assertions (quotations)	**Naturally Resulted Comment/Question**
Considerable richness of habitats	How considerable?
Roşia Montană represents a national wealth, an area with a considerable value that in other parts of Europe would have been a major candidate for protection and conservation within an international context	What are then Danube's Delta, The National and Natural Parks (Retezat, Valea Cernei, Munții Apuseni, etc.), or the perimeters that currently have no protection status but have a certain natural value from the immediate vicinity like: the Trascău Mountains, the Vulcan Mountain, etc.?
possible puddle habitat unique in Romania	Aside the potential affiliation to a certain type of habitat, is this habitat unique or not in Romania?
puddle habitats	What is the scoping or at least the correspondence with the European Handbook for Habitats Interpretation (CE DG Env. Oct. 2003) or with the *Habitatele din România* (Habitats from Romania) (Doniță & Colab. 2005-2006) of these formations that are empirically established?
Burgeoning areas	
pastures [...] have been proved to be rich in species	How many species? They are rich because they are compared to what? How was this proved?
Superb exhibits of colors of wild flowers	Are the colors of habitats a criterion for quantitative assessment? When the man managed to domesticate flowers and how come these ones remain wild at Roşia Montana?
Number of pasture plants, rare or endangered communities respectively	Pseudo-scientific assertion with no support. How many?
Eight species of orchids	There are only 6 such species, all frequently appear in Romania (Ciocârlan, 2000). They have no legal protection status; one is included in the list of plants of the EIA Study. The *Orchis ustulata* specie, although it is quoted 2 times, the specie blooms in May or in June, therefore outside the period of investigation conducted by the two botanists, and its presence is difficult to be proved based on its other parts that may be present (leafs, stem, tuberous roots, etc.)
Habitat of Sphagnum in valleys associated with acid wetland and in	Aside the "scientific" assertion, the habitats that include species of *Sphagnum* are listed in the paper *Habitatele*

blooming flooded wetlands and in pastures habitats	*din România* (Habitats from Romania) (Doniță & Colab. 2005-2006) and their distribution is set forth below: 7110* (R5101) Occidental Carpaths: Blăjoaia, Stâna de Vale, Lacul Frumos – Mosoroasa (R5102): Apuseni Mountains: Gilău, Bihor, Izbucul Mare; all are having *facies* of oligotrophe wetlands developed on a sublayer of moss and hysto-soils and their presence couldn't have been established at Roşia Montana. Which valleys? Is it about all valleys from Roşia Montana area? What „*blooming flooded wetlands"* and where are these wetlands located? Is it about blooming wetlands (unseen in Romania) or is it about hygrophilous pastures that are totally different type of habitat? What kind of pasture habitats? In conclusion, is it about pasture habitats or is it about the initially called „*Habitats of Sphagnum*"?
Dry and wet oligotrophic pastures	Maybe oligotrophe pastures, which cannot be under any circumstances dry and wet at the same time!
Steep slopes, crossed by rock outcrops, boulders and stable rock-debris blocks have been presented in various options	The stipulation regarding the „options" highlights the instability of the cenosis and not its stability. Aren't the "*Rock-debris blocks"* just rocks?
Bushwood/coppice of May Bush Crataegus monogyna, Juniper Juniperus communis, Field Ash Sorbus aucuparia and Spiraea ulmifolia that are relatively rich from floristic point of view	Aside the association between bushwood and coppices there's an assertion "*relatively rich"* from floristic point of view. How rich are they, compared with whom or with what? Based on what observations have the richness been established? Is relativity an illustrative parameter within this context?
Other flora species, mostly located on or around molehills indicated an elevated diversity of species	This is a stipulation of a common aspect well-known in ecology under the term *sinusoids*, but mentioned in a school like, pseudo-scientific expression.
Within a passions area from the vicinity of a lake	What "passions", because this lyrical term appears in more than 10 different places in this report? This term sometimes appears together in the same phrase with the term "pastures", and increases our confusion. Nonetheless, we admit the fact that generally speaking Roşia Montana continues to gather passions. However, it would be interesting to locate this lake that is nearby a passions area...
*Forms here (the habitat) *6230*	The 6230* habitat is relatively common for the Romanian Carpati Mountains (it is rare within the rest of Europe) and which according to the Annex I of the Directive 92/43/CEE has a strict protection within the Continental eco-region (the Project is located within the Alpine eco-region); in order to benefit from a certain protection status within Romania, a differentiation and a correlation have been made with the national system of classification of habitats (Habitats from Romania – Doniță et al. 2005-2006), and the R3608 and R3609 habitats are integrated within this type of habitat; these habitats are located only in the South Eastern Carpathians (these are proved by the presence of the *Tozzia carpathica* species). Therefore, at least from bio-geographic and administrative points of view this

	particular habitat does not exist and consequently is not necessary to be protected within the Project's implementation area. Where "here" is located?
Botrychium lunaria as well as Planthatera bifolia, rare species on the passions/pastures of Romania	What pastures (if we think that it is about vegetal formations and not feelings because we admit that these two species are rarely directly related to feelings)? *Botrychium lunaria* remains a frequent species in Romania and not in any case rare.
Extensive sub-mountainous pastures, mezotrphic and mezophilic mountainous pastures, fertilized with manure and they are adjacent to passions, and colorful and rich in species formed from the associations …	This is totally unintelligible and betrays the pseudo-scientific foundation of the approach; they try to blend the scientific language with the lyrical one. The correct terms are totally different (*mezotrophe, mezophile*).
Variations close to the association	The vegetal associations either belong to one of the described category or they have transitory forms but under no circumstances they may be "*variations close to*"
Many species of cereal crops	How many?
Species of grass	Pseudo-scientific assertion
The 6520. Habitat. This type of pasture habitat with an "Elevated Natural Value"	The Romanian equivalent of this habitat according to the paper "Habitats from Romania" (Doniță et al. 2005-2006) is located usually on the lower and middle benches of Carpathians Mountains and has a low conservation value. Because we have no priorities for conservation that could be given by the European Handbook for Habitats Interpretation or by the paper "Habitats from Romania", to award an elevated natural value to this habitat, maybe this is the personal opinion of the author due to the fact that there are no sufficient comparison terms.
The Red List of Plants from Romania	This document has a guiding value and has 4 distinctive forms, which present different opinions of Romanian botanists. Which of these lists is that particular one?
Colchicum autumnale	Like the case of *Orchis ustulata*, this specie is blooming in September and October, again outside the period dedicated for their investigation by the two authors and also its presence is difficult to be certified based on other the other parts present (identification performed on leafs or bulbs, etc.)
A flooded wetland presents degradation layers of the sheathed cottonsedge (Eriophorum vaginatum) in more acidic communities	A wetland may be flooded. Or during 1st and 2nd of July the wetland was flooded by the pluvial waters considering the bad weather they have mentioned. Which wetland are we talking about? How acidic? More acidic than what?
Drosera rotundifolia	This is a carnivorous plant, and we highly question its presence. Because its distribution is limited (approx 25 of towns are stipulated for Romania), taking into account the scientific interest caused by its presence in Roşia Montana we will highly appreciate if you provide us with its exact location to take the potential conservation measures.

From the experience of Mr. John Akeroyd PhD [...], this wetland habitat can be unique for Romania	Is or is not a unique habitat for Romania? Is it a new type of habitat described by the British scientist, because as highlighted above there is no equivalent with current habitats described in the widely accepted handbooks?
Pastures that are adjacent to the village	Again a type of habitat that has been stated empirically, with no scientific support or equivalent. Which village do they spoke about: Corna, Roşia Montană, etc., or about Romanian village, generally speaking? Although it is said that these do not contain rare floristic elements, the specific components have been exhaustively presented. (on more than 2 of the 15 pages of the report).
Some of the rock were distinctively calcareous	How calcareous? Are there rocks that are not distinctively calcareous and they hide their own morphogenesis?
Empty or open rocks, naturally formed	Are there some geodes within Roşia Montana area that could hide under the vernacular name of "empty rocks"? Are there any closed rocks beside the open ones? Who is staying to open and close them? Are there some synthetic rocks, perhaps?
These are probably associated with metal ores	Are there some drillings performed or are they provided as bio-indicators species or what arguments support such assertion?
The rocky and bald natural land	Is it admitted that there are natural impacts that lead to the maintenance of some rock exposures perimeters? Have these areas occurred following antrophic impacts? Is it about the planet Earth in an initial formation phase (due to the fact that remains rocky and bald) or is it in fact about soil?
6130 Habitat	This habitat does not exist in Romania because the relevant specie *Viola calaminaria* is missing from the national flora. These types of habitats occur for sure within Britannic Islands where the two botanists have expertise and from there they have presented several examples. Is the report presenting Rosia Montana area?
Ling (as a popular etymology for this specie) Calluna vulgaris	In Romanian the popular etymology of this specie is "dark grass", that term is not even included in the Ethno-Botanic Dictionary.
Inclination to Calamariane Associations	Again, a pseudo-scientific term (inclination) through which it is attempted a forced relationship with a vegetal specie that does not exist in Romania, as it was the case with the term: "variations close to"
Ensemble of rare and special species that can be found within these places	What species are rare and compared to what flora? From which point of view are they special?
Some of the Roşia Montana species present an inclination to adapt and to produce subspecies, ecotopic local variations	Compared with other studied areas? Is the Romanian experience or the comparative scientific data that have been consulted relevant on this? What are surfaces for which the comparison was performed? Is Roşia Montana a potential new and exceptional center of genesis, eventually comparable with the Retezat Mountain or why not with the Galapagos Islands?
Flow bed that is traveling downhill to a	What flow bed and lake, specifically?

lake	
91E0 Habitat*	High reserves as to the existence of this habitat within its natural *facies*. Despite all these we would like to have an exact location in order to take adequate conservation measures.
Pastures rich with flowers [...] are a national, ecologic and cultural priceless wealth	An assertion that tries to blend the pseudo-scientific language with the lyric-dramatic one.
Similar pastures, for sure the ones encountered below 1000m altitude have vanished from most parts of Europe [...] an important European habitat.	Are there any arguments to support this or is it again an unsubstantiated assertion? If they are so endangered, what is the equivalent habitat that has an elevated conservation level and that could support their maintenance at European level? Again, attempts to forcedly exceed the conservation value with no scientific and objective arguments, attempts that are powerfully anchored in lyricism in order to cause tears and sentimental reactions.
Maybe we should all take the example of Sweden where Lady's Slipper orchid (Cypripedium calceolus) is extremely strictly protected. This remarkable and representative specie disappeared from Europe can only be found locally in Sweden, but the persons in charge with its conservation are preserving it as if it was a resource for all Europeans.	An assertion full of empty ensamples that has no relevance considering the context of the topic. Can people take the example of a country or he is referring to a certain successful fortune teller unknown to us that has a garden where the respective specie is valued? The botanist scientist, partner for the development of *Flora Europaea* should have been familiar with the respective specie of certain European interest, which besides Sweden it is also located in other different European countries like: Austria, Czech Republic, Denmark, Italy, Norway, Poland, Romania, etc. At the level of all these countries the respective species has a status of strict protection (although the *extremely strictly protected* term was not yet been defined by IUCN).
Ombrogenesis characteristics of the wetlands	A pseudo-scientific assertion that appeals to terms (ombrogenesis) unidentified by any of the Biology Dictionaries and with no intuitive value because wetlands could not provide any shadows …
Belonging to Lepidoptera family or birds	Lepidoptera Family is in fact an Order of the Insects Class, different from the Aves Class, i.e. birds
Dacic Mines	Such facilities have not been identified within Roşia Montana area. Their existence is probably based on personal intuitions.
The rural indigenous architecture and infrastructure (barns with roofs made of straws)	These barns do not exist within Roşia Montana area. While reading the list containing the species associated with this, one can see that the area is taken for other perimeters from Apuseni Mountains or from Europe.
The landscape is also special and of a particular beauty	We support the idea that the landscape is special (the evidence of impacts are found everywhere like nowhere in Romania), but we cannot be convinced by its beauty

Some of the species mentioned within the study are set fort below:
Anthyllis vulneraria ssp. *carpatica* var. *pseudovulneraria* – a common specie for Romania's flora, its taxonomic scoping proves the lack of several concise and pertinent arguments. Both the sub-specie

and the mentioned type are not recognized by relevant scientific papers of this field (Ciocârlan, 2000).
Arnica montana – remains a widely common species of Occidentals Carpathian Mountains, it is plant that can be economically developed, up to 60t of its dry mass being annually exported.
Centaurea nemoralis is the synonym name of *Centaurea debeauxii* Gren. & Godr. subsp. *nemoralis* (Jord.) Dostál as per the *Flora Europaea,* which is not included in the Romania's Flora.
Centaurea erythrea is a specie that is not present both in the Europe and Romania's floras, the species were not identified in *Flora Europaea.*
Crepis vesicaria – is a specie that is not present within Romania's flora, it occurs only in Germany, France, Spain, Portugal, Italy, and it was introduced in England.
Galium mollugo – does not have any described sub-species within Romania (Ciocârlan, 2000).
Pedicularis exaltata – (lousewort) is calciphile specie. It occurs within Cluj County at Cheile Turzii, Sântioana and Făget Forest. Within Alba County it occurs between Aiud and Rimetea, and between Intregalde and Piatra Cetii. Due to the fact that at Roşia Montana no lime-stones have been identified we highly question the existence of this plant.
Phyteuma scorzonerifolia is a specie not present either in the Romanian or in the European floras. The specie was not identified by the *Flora Europaea.*
Scorzonera purpurea ssp. *rosea*. This particular specie as a Siberian element occurs where fir occurs, its existence is at least uncertain at Rosia Montana.
Trifolium pannonicum – is a frequent specie for Romania, being a Black-Mediterranean element.
Anthyllis vulneraria ssp. *carpatica* – this sub-specie is not a component of the Romania's flora (Ciocârlan, 2000). However, the specie is frequent in Romania and not by far rare as stated.
Caltha palustris, Colchicum autumnale, Deschampsia caespitosa, Filipendula ulmaria, Anthyllis vulneraria, Geranium sylvaticum, Botrychium lunaria, Geum rivale, Veratrum nigrum are not rare species for Romania, but rather frequent.
Antennaria dioica – is a bio-indicator specie that confirms the reduced content of layers. It frequently occurs in poor pastures, with low productivity, developed on sandy-gravel skeletal sub-layers. Therefore, the statements emphasizing the idyllic pastures from the patriarchal landscape of Roşia Montana are rebutted by the very presence of this particular element.
Dianthus armeria, Inula salicina – these are species that occur in steppe-like habitats and their presence remains at least uncertain at Roşia Montana.
Dianthus carthusiana – there is no such specie, probably was mistaken with *D. carthusianorum* that is a common specie for Romania.
Lychnis viscaria, *Trifolium alpestre* – these are species that occur on fir's levels, their existence being at least uncertain at Roşia Montană.
Leontodon taraxacoides (syn. *Leontodon saxatilis*) – indeed occurs as a rare specie of Romania's flora being mentioned within several towns (under 10); for Alba county, the City of Ocna Mureş is mentioned. Taking into account that the particular scientific interest caused by the existence of this specie at Roşia Montana, we would appreciate if you are so kind as to provide us with an exact location of this specie in order to take adequate conservation measures.
Alchemilla monticola – this is not by far a rare specie as stipulated in the study, but rather frequent and ruderal one, which occurs within the weeds growing within grazing and sheltering areas of livestock. It is a bio-indicator specie for overgrazed areas. Again, the statements regarding the idyllic pastures from patriarchal landscape of Roşia Montana are contradicted by the presence of this particular element.
Hieracium pilosella – it is not a rare specie as stated, this specie frequently occurs under various forms and varieties for a pioneer species, which prefers oligotrophe areas.
Leucanthemum vulgare (current name: *Chrysanthemum leucanthemum*) – it is a very common specie and not a rare one.

After conducting an overview of all these elements obtained after reading some of the pages of the report, we will refrain from scientifically comment because we believe that it would be futile within

this phantasmagoric context. We will renounce to issue conclusions even though several aspects emerge as evident:

1. This study has no scientific thoroughness or base, remaining powerfully anchored in a lyrical – sentimental status and at the same time servile to its beneficiary.
2. Even though it is attempted to support the view according to which the nature of Roşia Montana is loaded with values, their own arguments (listing the bio-indicator species that prove the existence of some major impacts) come to contradict these assertions, and clearly support the conclusions of the EIA.
3. The study include a huge amount of erroneous, false and incomplete data that can only be caused by two factors: lack of expertise at least within Romania's territory, and ill-will born from blind mercenary practices that are motivated by material interests respectively.
4. Roşia Montana remains a perimeter with elevated emotional load; many pseudo-scientists would like to attach their name to this *brand*, desperately to satisfy several personal aims and to cheaply put themselves into the open within a conservative crusade that has no objective scientific arguments. Where scientific arguments cannot be identified, the lyricisms and feelings are invoked but these are far from resolving the complex issues existing in Roşia Montana.
5. We cannot refrain from stating our surprise caused by the lack of reaction of this "class" of fighters with respect to the major aggressions faced by the Romania's nature, which is really valuable. The relation established between promotion and personal-material interest is obvious. Where this motivation is missing, any reaction of this kind is also missing.
6. Although the report is called "*Roşia Montana case: protection and not destruction*" there are no arguments through which adequate solutions are proposed for the conservation of relevant habitats/species. These species on which a scientific reasoning is attempted remain illusions. Species that do not exist are mentioned, species that have not been mentioned for Romania's flora and many species with uncertain/improbable or potential presences at Roşia Montana. Moreover, most of the habitats mentioned within the report cannot be identified at Roşia Montana; some are even missing from Romania.
7. Taking into account the assertion according to which during those two days of investigation all habitats included in the report have been visited on foot and the route had been intuitively identified and reported to the period of natural light that occurs during 1st and 2nd of July and applying a simple calculation we can see that the traveling speed of the two scientists was approx. 17.6 Km/hour. Maybe this is the only sensational scientific discovery of this study, namely the Olympic endurance and traveling speed of the two that will make any marathon participant look inferior. Maybe speed and endurance on hilly terrains have been the main issues studied and not the issue of natural capital from Roşia Montana area, which as presented above have not included even the most clement standards.
8. The entire document can be depicted by the legal term of "deception".

The inventory of Flora species from Roşia Montană Project area

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	**Genera, specie**				
Division PTERIDOPHYTA						
Class LYCOPODIOPSIDA						
Order LYCOPODIALES						
1	**LYCOPODIACEAE**	*Lycopodium selago*	(L.) Bernh. ex Schrank & Mart.	sporadic	perennial	Grass covered spots, wet, forests, scrubs, bogs.
2		*Lycopodium annotinum*	L.	sporadic	perennial	Grass covered spots, wetlands, forests, bogs.
Class EQUISETOPSIDA						
Order EQUISETALES						
3	**EQUISETACEAE**	*Equisetum arvense*	L.	frequent	perennial	Meadows, sandy spots, arable fields
4		*Equisetum telmateia*	Ehrh.	frequent	perennial	Forests, groves, pastures, water banks.
5		*Equisetum fluviatile*	L.	frequent	perennial	Sloughing pastures, water banks.
6		*Equsetum palustre*	L.	frequent	perennial	Sloughing pastures, bogs.
Class POLYPODIACEAE						
Order POLYPODIALES						
7	**POLYPODIACEAE**	*Polypodium vulgare*	L.	frequent	perennial	forests, shady rocks
8	**BLECHNACEAE**	*Blechnum spicant*	(L.) Roth	sporadic	perennial	pastures, scrubs, tertiary relict
9	**DENNSTAEDTIACEAE**	*Pteridium aquilinum*	(L.)Kuhn	frequent	perennial	The edges and the clearings of forests, pastures,

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						sandy soils, skeletal
10	**ASPLENIACEAE**	*Asplenium scolopendrium*	(L.) Newman	sporadic	perennial	Saxatilis and calciphile specie
11		*Asplenium septentrionale*	(L.) Hoffm.	frequent	perennial	On rocks, a specie that doesn't grows on limestone soil
12		*Asplenium trichomanes*	L.	frequent	perennial	Rocky areas
13		*Athyrium filix-femina*	(L.) Roth	frequent	perennial	forests, weedy
14		*Cystopteris fragilis*	(L.) Bernh.	frequent	perennial	Rocky areas
15		*Dryopteris filix-mas*	(L.) Schott	frecvanta	perennial	forests, scrubs, weedy
16		*Dryopteris carthusiana*	(Vill.)H. P. Fuchs	frequent	perennial	groves, scrubs, bogs edges
17		*Gymnocarpium dryopteris*	(L.) Newman	frequent	perennial	forests, weedy.
18		*Phegopteris connectilis*	(Michx.) Watt	frequent	perennial	forests, scrubs
Division SPERMATOPHYTA						
Class PINOPSIDA						
Order PINALES						
19	**PINACEAE**	*Abies alba*	Mill.	frequent	tree	Mountainous areas
20		*Picea abies*	(L.) Karsten	frequent	tree	Mountainous areas
21		*Pinus sylvestris*	L.	frequent	tree	-
22	**CUPRESSACEAE**	*Juniperus communis*	L.	frequent	shrub	Edges and clearings of woods, pastures
Class MAGNOLIOPSIDA						
Order BERBERIDALES						
23	**BERBERIDACEAE**	*Berberis vulgaris*	L.	sporadic	shrub	Sunny scrubs
Order ARISTOLOCHIALES						

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
24	**ARISTOLOCHIACEAE**	*Asarum europaeum*	L.	frequent	perennial	On weak acidic soils, reach in humus
Order RANUNCULALES						
25	**RANUNCULACEAE**	*Actaea spicata*	L.	sporadic	perennial	weedy, forests
26		*Helleborus purpurascens*	Waldst. & Kit.	frequent	perennial	Edges of forests
27		*Caltha palustis*	L.	frequent	perennial	sloughing pastures
28		*Trollius europaeus*	L.	frequent	perennial	On pastures
29		*Anemone nemorosa*	L.	frequent	perennial	forests, scrubs
30		*Picaulsatilla montana*	(Hoppe.) Reichenb.	sporadic	perennial	Mountainous area and silvosteppe
31		*Hepatica nobilis*	Schreber	sporadic	perennial	forests, scrubs
32		*Clematis vitalba*	L.	frequent	liana	Edges of forests, scrubs, groves
33		*Ranunculus repens*	L.	very frequent	perennial	Moist spots
34		*Ranunculus ficaria*	L.	frequent	perennial	forests, groves, orchards.
35		*Ranunculus sceleratus*	L.	frequent	annual	Wetlands
36		*Adonis vernalis*	L.	frequent	perennial	Pastures
Order PAPAVERALES						
37	**PAPAVERACEAE**	*Papaver rhoeas*	L.	frequent	annual	within straw cereal crops and in ruderal areas
38		*Chelidonium majus*	L.	frequent	perennial	Ruderal areas located around human settlements
Order URTICALES						
39	**ULMACEAE**	*Ulmus laevis*	Pallas	sporadic	tree	Meadows
40	**CANNABACEAE**	*Humulus lupulus*	L.	sporadic	perennial	meadows, groves

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
41		*Cannabis sativa ssp spontanea*	L. (Serebr.)	sporadic	annual	weedy, ruderal areas
42	**URTICACEAE**	*Urtica urens*	L.	frequent	annual	Ruderal areas, predisposed to nitrogen
43		*Urtica dioica*	L.	frequent	perennial	Ruderal areas, tarlite
Order FAGALES						
44	**FAGACEAE**	*Fagus sylvatica*	L.	frequent	tree	Durmast level – Beech level
45		*Quercus petraea*	(Matt.) Liebl.	frequent	tree	Durmast level
46		*Quercus robur*	L.	frequent	tree	Oak forests areas
47	**BETULACEAE**	*Betula pendula*	Roth	frequent	tree	Pioneer specis, within sunny sareas, forests clearings.
48		*Alnus viridis*	(Chaix) DC.	frequent	shrub	Within valleys and depressions being cultibvated to fix degraded lands
49		*Alnus glutinosa*	(L.) Gaertn.	frequent	tree	meadows, sloughing pastures, water banks
50		*Alnus incana*	(L. Moench)	frequent	tree	groves, meadows, specie that is used to fix soils, being a pioneer specie
51	CORYLACEAE	*Corylus avellana*	L.	frequent	shrub	groves, edges of forests, on damp soils.
52		*Carpinus betulus*	L.	frequent	tree	Mix forests
Order CARYOPHYLLALES						

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
53	**PHYTOLACACEAE**	*Phytolacca americana*	L.	cultivated	perennial	cultivated and under-spontaneous through gardens
54	**CARYOPHYLLACEAE**	*Scleranthus annuus*	L.	frequent	annual	Sandy, stony, poor in lime spots.
55		*Sagina procumbens*	L.	frequent	perennial	On the creek banks, sandy spots
56		*Arenaria serpyllifolia*	L.	frequent	annual	arable fields, sandy spots
57		*Moehringia trinervia*	(L.) Clairv	frequent	annual	Shady, moist areas, forests, groves.
58		*Moehringia muscosa*	L.	frequent	perennial	Shady and moist spots
59		*Stellaria nemorum*	L.	frequent	perennial	forests, groves
60		*Stellaria media*	(L.) Cyr.	frequent	annual	Cultivated and ruderal spots
61		*Stellaria graminea*	L.	frequent	perennial	Pastures
62		*Cerastium holosteoides*	Baumg.	frequent	perennial	Pastures
63		*Cerastium arvense*	L.	frequent	perennial	Pastures
64		*Gypsophila muralis*	L.	sporadic	annual	Temporary flooded spots, crovuri, accepts weak saturation.
65		*Dianthus armeria*	L.	sporadic	annual	pastures, scrubs
66		*Dianthus carthusianorum*	L.	frequent	perennial	Pastures
67		*Silene alba*	(Miller) Krause	frequent	annual	ruderal pastures
68		*Silene vulgaris*	(Mnch) Garcke	sporadic	perennial	Pioneer specie, grows on eroded

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						soils.
69		*Silene nutans*	L.	frequent	perennial	pastures
70		*Lychnis flos-cuculi*	L.	frequent	perennial	Moist sloughing pastures
71		*Lychnis viscaria*	L.	sporadic	perennial	pastures, on stony areas
72		*Spergula arvensis*	L.	frequent	annual	in weedy areas and sometime in crops.
73	**AMARANTHACEAE**	*Amaranthus retroflexus*	L.	very frequent	annual	in cultivated areas with rows.
74	**CHENOPODIACEAE**	*Chenopodium botrys*	L.	sporadic	annual	Alluvial sands and gravels
75		*Chenopodium polyspermum*	L.	frequent	annual	Ruderal weedy areas.
76		*Chenopodium album*	L.	very frequent	annual	ruderal areas and row cultures
77		*Atriplex patula*	*L.*	frequent	annual	Ruderal and cultivated areas
Order POLYGONALES						
78	**POLYGONACEAE**	*Polygonum aviculare*	L.	frequent	annual	Ruderal areas and in strawy crops
79		*Polygonum amphibium*	L.	sporadic	annual	On alluvial soils
80		*Polygonum persicaria*	L.	frequent	annual	Ruderal areas
81		*Polygonum hydropiper*	L.	frequent	annual	Ruderal, moist, flooded areas and wetlands
82		*Polygonum mite*	Schrank	frequent	annual	Moist areas, trenches
83		*Polygonum convolvulus*	L.	frequent	annual	weed in a straw and row culture
84		*Polygonum dumetorum*	L.	sporadic	annual	Forest clearings, on water banks.

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
85		*Rumex acetosella*	L.	frequent	perennial	pastures, on poor soils, weakly acid
86		*Rumex acetosa*	L.	frequent	perennial	On deep and damp soils
Order SAXIFRAGALES						
87	**GROSSULARIACEAE**	*Ribes grossularia*	L.	cultivated	shrub	Edges of forests, gardens
88	**CRASSULACEAE**	*Sedum album*	L.	sporadic	perennial	rocks, gravel
89		*Sedum acre*	L.	frequent	perennial	Rare, dry pastures; on skeletal soils, walls, sands, gravels
90						
91	**SAXIFRAGACEAE**	*Saxifraga paniculata*	Miller	frequent	perennial	Rocks, skeletal rocky soils.
Order ROSALES						
92	**ROSACEAE**	*Spiraea ulmifolia*	Scop.	frecvent	shrub	skeletal soils, rocks covered with grass
93		*Rubus caesius*	L.	frecvent	shrub	Edges of forests, meadows, arable fields.
94		*Rubus hirtus*	Waldst. & Kit.	frecvent	shrub	forests, shady spots
95		*Rubus idaeus*	L.	frecvent	shrub	Edges and clearings of forests, groves, pioneer specie.
96		*Fragaria vesca*	L.	frequent	perennial	Wood groves
97		*Fragaria viridis*	Weston.	frequent	perennial	pastures, sunny spots
98		*Potentilla erecta*	(L.) Raeusch.	frequent	perennial	pastures umee, bogs
99		*Potentilla argentea*	L.	frequent	perennial	Weak acid

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						pastures.
100		*Potentilla recta*	L.	frequent	perennial	pastures, brushwood.
101		*Geum urbanum*	L.	frequent	perennial	Edges and clearing of forests, ruderal areas.
102		*Filipendula hexapetala*	(L.) Gilib.	frequent	perennial	pastures, scrubs
103		*Filipendula ulmaria*	(L.) Maxim.	frequent	perennial	pastures, weedy, groves.
104		*Alchemilla vulgaris*	L. Frohner.	frequent	perennial	pastures
105		*Agrimonia eupatoria*	L.	frequent	perennial	Edges and clearing of forests, ruderal areas, on loose soils.
106		*Sanguisorba officinalis*	L.	frequent	perennial	Moist pastures
107		*Sanguisorba minor*	Scop.	frequent	perennial	Calciphile specie, being a pioneer specie.
108		*Rosa canina*	L.	frequent	shrub	Edges of the forests, pastures.
109		*Cotoneaster integerrimus*	Medik.	sporadic	shrub	Grooves and edges of forests, on skeletal soils.
110		*Crataegus monogyna*	Jacq.	frecvent	shrub	Edges and grooves of forests.
111		*Prunus spinosa*	L.	frecvent	shrub	Edges of forests, scrubs.
112		*Sorbus aucuparia*	L.	frecvent	tree	Grooves and clearings of forests, mostly on

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						skeletal soils
113		*Sorbus torminalis*	(L.) Crantz	sporadic	tree	Grooves and clearings of forests, mostly on skeletal soils
114		*Cerasus avium*	(L.) Mnch.	sporadic	tree	forests, edges of forests.
Order FABALES						
115	**FABACEAE**	*Genista tinctoria*	L.	frecvent	subshrub	Degraded, sunny pastures
116		*Ononis arvensis*	L.	frequent	perennial	pastures, meadows
117		*Medicago lupulina*	L.	frequent	annual	pastures, scrubs, groves
118		*Melilotus albus*	Medic.	frequent	bisannual	pastures, ruderal areas
119		*Melilotus officinalis*	(L.) Medic.	frequent	bisannual	pastures, ruderal areas
120		*Trifolium repens*	L.	frequent	perennial	pastures, well drained areas
121		*Trifolium montanum*	L.	frequent	perennial	pastures, edges of the forest
122		*Trifolium pratense*	L.	frecvanta	perennial	pastures, grooves of the forests
123		*Trifolium medium*	L.	frequent	perennial	pastures, edges of forests
124		*Trifolium arvense*	L.	frecvanta	annual	stubbles, arable fields, sandy soils
125		*Anthyllis vulneraria*	L.	frequent	perennial	pastures, limestone
126		*Lotus corniculatus*	L.	frecvanta	perennial	pastures, scrubs
127		*Robinia pseudacacia*	L.	frequent	tree	Under spontaneous , naturalized, is fixing the soil

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
128		*Astragalus glycyphyllus*	L.	frequent	perennial	Edges of forests, scrubs
129		*Vicia cracca*	L.	frequent	perennial	pastures, scrubs, edges of forests
130		*Lathyrus pratensis*	L	frequent	perennial	pastures, scrubs, groves
131		*Lathyrus sylvestris*	L	frequent	perennial	scrubs, ruderal areas
132		*Lathyrus niger*	(L.) Bernh	frequent	perennial	pastures, scrubs
133		*Vicia dumetorum*	L.	frequent	perennial	pastures
Order MYRTALES						
134	**LYTHRACEAE**	*Lythrum salicaria*	L.	frequent	perennial	sloughing pastures, water banks, groves
135	**ONAGRACEAE**	*Oenothera biennis*	L.	frequent	biannual	sandy spots, water banks
136		*Epilobium montanum*	L.	frequent	perennial	edges and clearings of forests
137		*Epilobium angustifolium*	(L.) Scop.	frequent	perennial	edges and clearings of forests, grooves, logs, burnts of forests
Order THYMELEALES						
138	**THYMELEACEAE**	*Daphne mezereum*	L.	frequent	shrub	Grooves of forests
Order CORNACEAE						
139	**CORNACEAE**	*Cornus mas*	L.	frecvent	shrub	Forests, scrubs
Order SANTALALES						
140	**LORANTHACEAE**	*Viscum album*	L.	-	shrub	Trees parasite of Dicotyledonatae Class
Order CELASTRALES						
141	**CELASTRACEAE**	*Euonymus*	L.	frecvent	shrub	forests, scrubs

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
		europaeus				
Order EUPHORBIALES						
142	**EUPHORBIACEAE**	*Euphorbia amygdaloides*	L.	freacventa	perennial	forests, scrubs
143		*Euphorbia cyparissias*	L.	frequent	perennial	pastures, ruderal areas
144		*Mercurialis perennis*	L.	frequent	perna	pastures, on humus rich areas
Order RHAMNALES						
145	**RHAMNACEAE**	*Rhamnus cathartica*	L.	frecvent	shrub	Edges of forests, scrubs
146		*Frangula alnus*	Miller	frecvent	shrub	forests, groves, meadows, wetlands
Order SAPINDALES						
147	**ACERACEAE**	*Acer campestre*	L.	frecvent	tree	forests, edges of forests
148		*Acer platanoides*	L.	frecvent	tree	forests, cultivated
149		*Acer pseudoplatanus*	L.	frecvent	tree	forests, grooves of forests
Order GERANIALES						
150	**OXALIDACEAE**	*Oxalis acetosella*	L.	frequent	perennial	forests, shady spots
151	**GERANIACEAE**	*Geranium robertianum*	L.	frequent	annual	forests, scrubs, weedy
152		*Geranium molle*	Burm.	frequent	annual	forests, scrubs, weedy
153		*Geranium pratense*	L.	frequent	perennial	pastures, edges of forests
154		*Geranium phaeum*	L.	frequent	annual	Moist areas, edges of forests
155	**BALSAMINACEAE**	*Impatiens glandulifera*	Royle	-	annual	cultivated, originates from India
156		*Impatiens balsamina*	L.	-	annual	cultivated,

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						originates from India
157		*Impatiens noli-tangere*	L.	frequent	annual	Moist areas, shady spots, groves, located nearby streams
Order LINALES						
158	**LINACEAE**	*Linum catharticum*	L.	sporadic	annual	pastures, scrubs, moist spots
Order POLYGALALES						
159	**POLYGALACEAE**	*Polygala vulgaris*	L.	frequent	perennial	pastures, scrubs
Order APIALES						
160	**ARALIACEAE**	*Hedera helix*	L.	frecvent	liana	groves, shady spots
161	**APIACEAE**	*Sanicula europaea*	L.	frequent	perennial	forests, groves
162		*Torilis arvensis*	(Hudson.) Link.	frequent	annual	ruderal and cultivated areas, plantations of locust tree
163		*Astrantia major*	L.	frequent	perennial	scrubs, weedy, pastures
164		*Anthriscus sylvestris*	(L.) Hoffm.	frequent	biannual	edges of forests, groves
165		*Daucus carota* ssp *carota*	L.	frequent	annual	ruderal areas
166		*Carum carvi*	L.	frequent	biannual	pastures, fertilized areas
167		*Aegopodium podagraria*	L.	frequent	perennial	Grooves and edges of forests, moist pastures, orchards
168		*Pimpinella saxifraga*	L.	frequent	perennial	pastures
169		*Angelica silvestris*	L.	frequent	biannual	Sloughing pastures, on water banks

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
170		*Ferulago sylvatica*	(Bess.) Rchb.	frequent	perennial	edges of forests
171		*Peucedanum oreoselinum*	(L.) Mnch.	frequent	perennial	scrubs, edges of forests
172		*Heracleum sphondylium*	L.	frequent	biannual	pastures, weedy, groves
173		*Pastinaca sativa*	L.	frequent	biannual	pastures, weedy, groves
Order THEALES						
174	**HYPERICACEAE**	*Hypericum perforatum*	L.	frequent	perennial	pastures, scrubs
Order MALVALES						
175	**TILIACEAE**	*Tilia platyphyllos*	Scop.	sporadic	tree	forests, cultivated, ornamental
176		*Tilia tomentosa*	Moench	frecvent	tree	forests, cultivated, ornamental
177	**MALVACEAE**	*Malva neglecta*	Wallr.	frequent	annual	ruderal areas, nearby fences, yards
Order VIOLALES						
178	**VIOLACEAE**	*Viola tricolor*	L.	frequent	annual	pastures, cultivated areas
179	**CISTACEAE**	*Helianthemum nummularium*	(L.) Mill.	frequent	subshrub	pastures, scrubs, rocks covered with grass
Order CAPPARALES						
180	**BRASSICACEAE**	*Sisymbrium officinale*	(L.) Scop.	frequent	annual	ruderal areas
181		*Sisymbrium loeselli*	Jusl.	frequent	annual	ruderal areas
182		*Alliaria petiolata*	Andrz.	frequent	biannual	shady spots, forests, edges of forests
183		*Bunias orientalis*	L.	frequent	biannual	pastures, orchards
184		*Erysimum*	L.	sporadic	annual	ruderal areas,

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
		canyionsranthoides				water banks
185		*Hesperis matronalis*	L.	sporadic	biannual	edges of forests, along valleys
186		*Barbarea vulgaris*	R.Br.	frequent	biannual	moist spots, groves, water banks
187		*Rorippa silvestris*	(L.) Bess.	frequent	perennial	moist spots, groves, water banks
188		*Armoracia rusticana*	(Lam.) G.M.Sch.	-	perennial	Under-spontaneous , cultivated
189		*Cardamine hirsuta*	L.	frequent	annual	ruderal areas, cultivated, scrubs
190		*Lunaria rediviva*	L.	sporadic	perennial	valleys, canyions, on soils rich in humus
191		*Capsella bursa-pastoris*	(L.) Medic.	very frequent	annual	ruderal and cultivated areas
192		*Thlaspi arvense*	L.	frequent	annual	ruderal areas and crops
193		*Lepidium campestre*	(L.) R.Br.	frequent	annual	ruderal and cultivated areas
194		*Sinapis arvensis*	L.	very frequent	annual	ruderal areas and crops
195		*Raphanus raphanistrum*	L.	frequent	annual	ruderal areas and crops
196		*Dentaria bulbifera*	L.	frequent	perennial	Forests
Order SALICALES						
197	**SALICACEAE**	*Salix purpurea*	L.	frequent	shrub	On waters pebbles, alluvial and skeletal soils
198		*Salix silesiaca*	Willd.	frequent	shrub	Grooves and clearings of forests, moist

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						soils
199		*Salix caprea*	L.	frequent	tree	Groves and clearings of forests
200		*Salix viminalis*	L.	sporadic	shrub	groves, on water banks
201		*Populus nigra*	L.	frequent	tree	meadows, groves, depression
202		*Populus tremula*	L.	frequent	tree	edges and clearings of forests
Order ERICALES						
203	**ERICACEAE**	*Bruckenthalia spiculifolia*	(Salisb.) Rchb.	frequent	shrub	pastures and clearings of forests
204		*Calluna vulgaris*	(L.) Hull	sporadic	shrub	pastures clearings of forests, pioneer specie, on limestone soil
205		*Vaccinium vitis-idaea*	L.	frequent	subshrub	pastures, groves of forests
206		*Vaccinium myrtillus*	L.	frequent	subshrub	grooves and clearings of forests
Order PRIMULALES						
207	**PRIMULACEAE**	*Primula elatior*	(L.) Grufb.	sporadic	perennial	Sunny pastures, stony sub-layer
208		*Primula officinalis*	(L.) Hil	frequent	perennial	Edges and grooves of forests
209		*Lysimachia nummularia*	L.	frequent	perennial	Moist pastures, trenches
210		*Lysimachia punctata*	L.	frequent	perennial	on water banks, wetlands, scrubs

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
211		*Anagallis arvensis*	L.	frequent	annual	ruderal and cultivated areas
Order GENTIANALES						
212	**GENTIANACEAE**	*Gentiana asclepiadea*	L.	frequent	perennial	Edges and grooves of forests
213		*Gentiana ciliata*	L.	sporadic	biannual	scrubs, edges of forests
214	**APOCYNACEAE**	*Vinca minor*	L.	sporadic	perennial	edges of forests, scrubs
215	**ASCLEPIADACEAE**	*Cynanchum vincetoxicum*	(L.) Pers.	frequent	perennial	edges of forests, scrubs
Order OLEALES						
216	**OLEACEAE**	*Fraxinus excelsior*	L.	frequent	tree	forests, meadows, groves
217		*Syringa vulgaris*	L.	sporadic	shrub	Rocky slopes, groves
218		*Ligustrum vulgare*	L.	frequent	shrub	forests, scrubs, cultivated for green fences
Order SOLANALES						
219	**SOLANACEAE**	*Datura stramonium*	L.	frequent	annual	ruderal and cultivated areas
220	**CONVOLVULACEAE**	*Convolvulus arvensis*	L.	frequent	perennial	ruderal and cultivated areas
221	**CUSCUTACEAE**	*Cuscuta lupuliformis*	Krock.	sporadic	annual	Parasite of woody plants along waters
Order LAMIALES						
222	**BORAGINACEAE**	*Myosotis sylvatica*	(Ehrh.) Hoffm.	frequent	biannual	forests, groves, pastures, wet woodlands
223		*Pulmonaria officinalis*	L.	frequent	perennial	forests
224		*Symphytum tuberosum*	L.	frequent	perennial	forests, groves, moist pastures
225		*Symphytum*	Waldst. & Kit.	frequent	perennial	Forests, weedy

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
		*cordatu*m	ex Willd.			
226	**LAMIACEAE**	*Ajuga reptans*	L.	frequent	perennial	scrubs, edges of forests
227		*Teucrium chamaedrys*	L.	frequent	bush	Sunny dry pastures
228		*Scutellaria galericulata*	L.	frequent	perennial	Sloughing pastures, water banks
229		*Prunella laciniata*	(L.) Nathhorst.	sporadic	perennial	pastures, sunny spots
230		*Prunella vulgaris*	L.	frequent	perennial	pastures, scrubs
231		*Glechoma hederacea*	L.	frequent	perennial	edges of forests, moist and shady spots
232		*Melittis melissophyllum*	L.	sporadic	perennial	edges of forests
233		*Lamium galeobdolon*	(L.) Ehrend. & Polatschek	frequent	perennial	edges of forests, moist and shady spots
234		*Lamium album*	L.	frequent	perennial	edges of forests, fertilized spots
235		*Galeopsis speciosa*	Mill.	frequent	annual	Clearings of forests, alongside streams
236		*Galeopsis tetrahit*	L.	frequent	annual	edges of forests, cultivated and ruderal areas
237		*Leonurus cardiaca*	L.	frequent	perennial	ruderal areas
238		*Stachys sylvatica*	L.	frequent	perennial	edges of forests
239		*Salvia glutinosa*	L.	frequent	perennial	forests, groves
240		*Thymus pulegioides*	L.	frequent	perennial	On poor, skeletal soils
241		*Origanum vulgare*	L.	frequent	perennial	scrubs, edges of forests, pastures
242		*Lycopus europaeus*	L.	frequent	perennial,	wetlands, on

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						water banks
243		*Mentha arvensis*	L.	frequent	perennial	moist spots
244		*Mentha longifolia*	(L.) Huds.	very frequent	perennial	Moist pastures
Order PLANTAGINALES						
245	**PLANTAGINACEAE**	*Plantago major*	L.	frequent	perennial	pastures, Lucerne areas, non-saturated areas
246		*Plantago lanceolata*	L.	frequent	perennial	pastures, clover areas, ruderal areas
247		*Plantago media*	L.	frequent	perennial	Dry pastures, ruderal areas
Order SCROPHULARIALES						
248	**SCROPHULARIACEAE**	*Linaria vulgaris*	Mill.	frequent	perennial	cultivated and ruderal areas
249		*Scrophularia nodosa*	L.	frequent	perennial	edges of forests, moist spots
250		*Verbascum phlomoides*	L.	frequent	biannual	Sunny and dry spots
251		*Verbascum thapsus*	L.	frequent	biannual	Rocky and sunny areas
252		*Verbascum nigrum*	L.	frequent	perennial	forests
253		*Veronica anagallis-aquatica*	L.	frequent	perennial	sloughing pastures, trenches
254		*Veronica beccabunga*	L.	frequent	perennial	water banks, wetlands and trenches
255		*Veronica chamaedrys*	L.	frequent	perennial	edges of forests
256		*Veronica montana*	L.	sporadic	perennial	shady and wet spots
257		*Veronica officinalis*	L.	frequent	perennial	edges and

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						clearings of forests, pastures
258		*Veronica persica*	Poir.	frequent	annual	cultivated and ruderal areas
259		*Veronica scutellata*	L.	frequent	perennial	sloughing pastures
260		*Veronica spicata*	L.	frequent	perennial	pastures, scrubs, dry areas
261		*Veronica teucrium*	L.	frequent	perennial	pastures, scrubs
262		*Veronica urticifolia*	Jacq.	frequent	perennial	moist and shady spots, valleys
263		*Digitalis grandiflora*	Mill.	frequent	perennial	Groves and edges of forests
264		*Euphrasia stricta*	J.P.Wolff ex J.F.Lehm.	frequent	annual	pastures, scrubs
265		*Pedicularis comosa*	L.	sporadic	perennial	rocks covered with grass
266		*Rhinanthus minor*	L.	frequent	annual	pastures
267		*Melampyrum bihariense*	A.Kern.	frequent	annual	pastures, scrubs
268		*Melampyrum sylvaticum*	L.	frequent	annual	edges of forest
Order CAMPANULALES						
269	**CAMPANULACEAE**	*Campanula persicifolia*	L.	frequent	perennial	pastures, groves of forests
270		*Campanula patula*	L.	frequent	biannual	pastures, edges of forests
271		*Campanula abietina*	Griseb.	frequent	perennial	pastures, edges of forests
272		*Campanula rapunculoides*	L.	frequent	perennial	pastures, cultivated areas
273		*Campanula trachelium*	L.	frecvnta	perennial	Semi-shady spots from forests
274		*Phyteuma orbiculare*	L.	frequent	perennial	Rocky pastures
Order RUBIALES						

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
275	**RUBIACEAE**	*Galium aparine*	L.	frequent	annual	Cultivated, ruderal areas, edges of forests
276		*Galum cruciata*	(L.) Scop.	frequent	perennial	pastures
277		*Galium mollugo*	L.	frequent	perennial	scrubs, edges of forests
278		*Galium schultesii*	Vest.	frequent	perennial	Clearings and clearances of forests
279		*Galium vernum*	Scop.	frequent	perennial	pastures
Order DIPSACALES						
280	**CAPRIFOLIACEAE**	*Sambucus nigra*	L.	frequent	shrub	edges of forests, scrubs, groves
281		*Viburnum opulus*	L.	frequent	shrub	edges of forests, scrubs, groves
282		*Lonicera nigra*	L.	sporadic	shrub	Forests, scrubs
283		*Lonicera xylosteum*	L.	frequent	shrub	Edges and groves of forests
284		*Symphoricarpos albus*	Blake	-	shrub	Cultivated ornamental
285	**VALERIANACEAE**	*Valeriana officinalis*	L.	frequent	perennial	Moist pastures, edges of forests
286	**DIPSACACEAE**	*Dipsacus laciniatus*	L.	frequent	biannual	edges of forests, edges of ape
287		*Knautia arvensis*	(L.) Coult.	frequent	perennial	scrubs, edges of forests
288		*Succisa pratensis*	Mnch.	sporadic	perennial	Moist pastures and scrubs
289		*Scabiosa columbaria*	L.	sporadic	perennial	scrubs, edges of forests, on skeletal soil
290		*Scabiosa ochroleuca*	L.	frequent	biannual	pastures, ruderal areas
Order ASTERALES						
291	**ASTERACEAE**	*Solidago virgaurea*	L.	frequent	perennial	edges of forests,

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						pastures
292		*Bellis perennis*	L.	frequent	perennial	Pastures
293		*Erigeron canadensis*	L.	very frequent	annual	ruderal areas, edges of forests
294		*Antennaria dioica*	(L.) Gaertn.	frequent	perennial	Poor pastures, sandy-gravel sub-layer
295		*Inula hirta*	L.	frequent	perennial	pastures, scrubs, edges of forests
296		*Telekia speciosa*	(Schreb.) Baumg.	frequent	perennial	Moist and shady spots alongside streams
297		*Bidens cernua*	L.	frequent	annual	Wetlands alongside water streams
298		*Bidens tripartita*	L.	frequent	annual	moist spots, groves, wetlands, alongside water streams
299		*Galinsoga parviflora*	Cav.	frequent	annual	cultivated and ruderal areas, especially on alluvial soils
300		*Galinsoga ciliata*	(Rafin.)Blake	sporadic	annual	cultivated and ruderal areas
301		*Achillea collina*	Becker ex Rchb.	frequent	perennial	pastures, scrubs, sometimes brackish areas
302		*Achillea millefolium*	L.	frequent	perennial	pastures, scrubs
303		*Chrysanthemum laucanthemum*	L.	frequent	perennial	pastures, scrubs, edges of forests
304		*Tanacetum vulgare*	L.	frequent	perennial	groves, ruderal areas
305		*Artemisia absinthium*	L.	frequent	perennial	ruderal areas
306		*Artemisia vulgaris*	L.	frequent	perennial	scrubs, ruderal

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						areas
307		*Tussilago farfara*	L.	frequent	perennial	on water banks, trenches, ravine
308		*Petasites hybridus*	(L.)Gaertner	frequent	perennial	water banks, groves, weedy
309		*Petasites albus*	(L.)Gaertner	frequent	perennial	Along streams, weedy areas
310		*Arnica montana*	L.	frequent	perennial	Pastures
311		*Doronicum austriacum*	Jacq.	frequent	perennial	Along streams, weedy areas, groves
312		*Senecio jacobaea*	L.	frequent	perennial	edges of forests, ruderal pastures
313		*Senecio viscosus*	L.	sporadic	annual	Groves and clearings of forests, pioneer specie
314		*Senecio vulgaris*	L.	frequent	annual	Non-cultivated and ruderal areas
315		*Carlina acaulis*	L.	frequent	monocarpica	Pastures
316		*Carlina vulgaris*	L.	frequent	biannual	Dry spots, pastures
317		*Arctium lappa*	L.	frequent	biannual	ruderal areas
318		*Arctium minus*	Bernh.	frequent	biannual	ruderal areas
319		*Arctium tomentosum*	Mill.	frequent	biannual	ruderal areas
320		*Carduus personatus*	(L.) Jacq.	frequent	perennial	Weedy areas, along streams
321		*Cirsium arvense*	(L.) Scop.	frequent	perennial	ruedral and cultivated areas, groves of forests, ruderal pastures
322		*Cirsium vulgare*	(Savi) Airy-Jav.	frequent	biannual	ruderal areas, scrubs
323		*Serratula tinctoria*	L.	frequent	perennial	pastures, scrubs, edges of forests

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
324		*Centaurea phrygia*	L.	frequent	perennial	edges of forests, pastures
325		*Cichorium intybus*	L.	very frequent	perennial	ruderal and cultivated areas
326		*Lapsana communis*	L.	frequent	annual	shady spots, clearings of forests, ruderal areas
327		*Aposeris foetida*	(L.) Less.	sporadic	perennial	forests, especially in beechwoods
328		*Hypochaeris maculata*	*L.*	frequent	perennial	pastures, edges of forest
329		*Hypochaeris radicata*	L.	frequent	perennial	pastures, specie growing on limestone soil
330		*Leontodon autumnalis*	L.	frequent	perennial	pastures
331		*Leontodon hispidus*	L.	frequent	perennial	pastures
332		*Tragopogon orientalis*	L.	frequent	biannual	pastures, scrubs, ruderal areas
333		*Scorzonera rosea*	W. et K.	sporadic	perennial	Moist and shady pastures
334		*Taraxacum officinale*	Weber	very frequent	perennial	cultivated and ruderal areas
335		*Mycelis muralis*	(L.) Dumort.	frequent	perennial	forests, scrubs, weedy areas
336		*Sonchus arvensis*	L.	very frequent	perennial	cultivated and ruderal areas
337		*Sonchus asper*	(L.) Hill.	frequent	annual	cultivated areas on rows
338		*Sonchus oleraceus*	L.	frequent	annual	cultivated and ruderal areas
339		*Crepis tectorum*	L.	frequent	annual	Dry and poor spots
340		*Prenanthes purpurea*	L.	frequent	perennial	forests, groves of

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						forests
341		*Hieracium aurantiacum*	L.	frequent	perennial	Pastures
342		*Hieracium pilosella*	L.	very frequent	perennial	Sunny pastures, pioneer specie
Order ALISMATALES						
343	**ALISMATACEAE**	*Alisma plantago-aquatica* .	L.	frequent	perennial	wetlands, on water banks, ponds
344		*Sagittaria sagittifolia*	L.	frequent	perennial	ponds, still and smooth running waters
Order NAJADALES						
345	**POTAMOGETONACEAE**	*Potamogeton crispus*	L.	very frequent	perennial	Still and smooth running waters
Order LILIALES						
346	**LILIACEAE**	*Colchicum autumnale*	L.	frequent	perennial	Oak forests and pastures
347		*Lilium martagon*	L.	frequent	perennial	scrubs, forests, edges of forests
348		*Convallaria maialis*	L.	fecventa	perennial	forests, scrubs, mountain pastures
349		*Polygonatum verticillatum*	(L.) All.	frequent	perennial	forests, scrubs
350		*Maianthemum bifolium*	(L.) F.W.Schmidt	frequent	perennial	forests, scrubs, rocks
351	**ALLIACEAE**	*Allium ursinum*	L.	frequent	perennial	forests of deciduous trees
352	**AMARYLLIDACEAE**	*Galanthus nivalis*	L.	frequent	perennial	forests, scrubs, pastures
353	**IRIDACEAE**	*Crocus heuffelianus*	Herbert	frequent	perennial	Groves of forests, pastures
Order ORCHIDALES						
354	**ORCHIDACEAE**	*Dactylorhiza*	L. Soo	frequent	perennial	pastures, groves

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
		maculata				and edges of forests
355		*Gymnadenia conopsea*	(L.) R.Br.	frequent	perennial	pastures, scrubs, edges of forests
356		*Epipactis helleborine*	(L.)Crantz	frequent	perennial	forests, scrubs
Order JUNCALES						
357	**JUNCACEAE**	*Juncus articulatus*	L.	frequent	perennial	Moist pastures, sandy alluviums
358		*Juncus bufonius*	L.	frequent	perennial	moist spots, sometimes saturated
359		*Juncus conglomeratus*	L.	frequent	perennial	sloughing pastures
360		*Juncus effusus*	L.	frequent	perennial	sloughing pastures, trenches
361		*Juncus gerardi*	Lois.	frequent	perennial	Moist and saturated pastures, on sandy soils
362		*Juncus tenuis*.	Willd	frequent	perennial	Moist pastures, edges of roads
363		*Luzula campestris*	(L.) DC.	frequent	perennial	pastures, edges of forests
364		*Luzula luzuloides*	(Lam.) Dandy & Wilmott	frequent	perennial	forests, clearings of forests, pastures
365		*Luzula multiflora*	(Retz.) Lej.	frequent	perennial	Groves of forests
366		*Luzula pilosa*	(L.) Willd.	sporadic	perennial	Forests
367		*Luzula sylvatica*	(Huds.) Gaudin	frequent	perennial	forests, clearings of forests
Order CYPERALES						
368	**CYPERACEAE**	*Scirpus sylvaticus*	L.	frequent	perennial	Wet and shady lands
369		*Eriophorum latifolium*	Hoppe.	frequent	perennial	sloughing

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						pastures
370		*Eleocharis palustris*	(L.) Roem et Schult.	frequent	perennial	wetlands, alongside waters
371		*Carex hirta*	L.	frequent	perennial	Nearby ponds, moist pastures
372		*Carex pallescens*	L.	frequent	perennial	Moist pastures, groves and edges of forests
373		*Carex pilosa*.	Scop	frequent	perennial	forests, groves
374		*Carex silvatica*.	Huds	frequent	perennial	forests, groves
Order POALES						
375	**POACEAE**	*Festuca ovina*	L.	frequent	perennial	Pastures
376		*Festuca pratensis*	Huds.	frequent	perennial	Pastures
377		*Festuca rubra*	L.	frequent	perennial	pastures, groves of forests
378		*Lolium perenne*	L.	frequent	perennial	pastures, cultivated and ruderal areas
379		*Poa annua*	L.	very frequent	annual-perennial	cultivated and ruderal areas, moist pastures
380		*Poa nemoralis*	L.	frequent	perennial	forests, scrubs, rocks covered with grass
381		*Poa pratensis*	L.	frequent	perennial	pastures, edges of forests, ruderal areas
382		*Dactylis glomerata*	L.	frequent	perennial	pastures, edges of forests
383		*Cynosurus cristatus*	L.	frequent	perennial	pastures
384		*Briza media*	L.	frequent	perennial	pastures, scrubs, edges of forests
385		*Melica nutans*	L.	frequent	perennial	forests
386		*Bromus inermis*	Leyss.	frequent	perennial	pastures, on sunny and dry

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						slopes
387		*Brachypodium sylvaticum*	(Huds.) P.Beauv.	frequent	perennial	pastures, shady spots
388		*Arrhenatherum elatius*	(L.) J. et C. Presl.	frequent	perennial	pastures, scrubs
389		*Deschampsia caespitosa*	(L.) Beauv.	frequent	perennial	pastures, weedy areas, groves of forests
390		*Deschampsia flexuosa*	(L.) Trin.	frequent	perennial	forests, groves (especially spruce forests)
391		*Anthoxantum odoratum*	L.	frequent	perennial	pastures, scrubs
392		*Holcus lanatus*	L.	frequent	perennial	pastures, edges and clearings of forests
393		*Agrostis capillaris*	L.	frequent	perennial	pastures, scrubs, groves of forests
394		*Calamagrostis arundinacea*	(L.) Roth	frequent	perennial	weedy, groves and clearings of forests
395		*Calamagrostis epigejos*	(L.) Roth	frequent	perennial	pastures on alluviums, sands, disturbed lands
396		*Milium effusum*	L.	frequent	perennial	forests, weedy areas
397		*Nardus stricta*	L.	frequent	perennial	Acid mountain pastures, a specie growing on limestone soil
398		*Echinochloa crus-galli*	(L.) P.B.	very frequent	annual	in rows crops, on irrigated or alluvium soils
Order TYPHALES						
399	**SPARGANIACEAE**	*Sparganium erectum*	L.	frequent	perennial	On the edge of

No.	Scientific name		Author	Distribution	Life expectancy	Distribution
	Family	Genera, specie				
						still or smooth running waters
400	**TYPHACEAE**	*Typha angustifolia*	L.	frequent	perennial	On the edge of still or smooth running waters
401		*Typha latifolia*	L.	frequent	perennial	On the edge of still or smooth running waters, scrubs, wetlands
Order ARALES						
402	**ARACEAE**	*Arum maculatum*	L.	frequent	perennial	forests, on soils rich in humus
403	**LEMNACEAE**	*Lemna minor*	L.	frequent	perennial	Still waters

List of potential Lepidoptera species from Roşia Montana area

Abbreviations:
Types of identified habitats:
1. Cum; **2**. Cuw; Cum+Cuw; **3.** Cup, Foc; **4.** Cut; **5.** Fod; **6.** Fod; **7.** Mas; **8.** NV; **9.** a zoogeographic element, preference towards habitat, larvae foodchain spectrum
SA - Siberian-Atlantic; Pm – Ponto (Black Sea)-Mediterranean; Vam – Vest-Asian-Mediterranean; H – Holarctic; E – European; Str – Subtropical; C – Euritope
1. Consumers of dicotyledonous plants; 2. Consumers of cereal crops; 3. Defoliators of shrubs; 4. Defoliators of deciduous trees 5. Defoliators of coniferous trees; 8. Consumers of inferior plants (mosses and lichens) and ferny; 9. other food chain basis.

Family

No.	*Specie*	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Lasiocampidae										
1.	*Poecilocampa populi*	+	+	-	-	-	-	-	-	SA, m, 4
2.	*Trichiura crataegi*	+	-	-	-	-	-	-	-	E, mh, 3
3.	*Macrothylacia rubi*	+	+	-	-	+	-	-	-	SA, m, 1
4.	*Eriogaster lanestris*	+	-	+	-	-	-	-	-	SA, m, 4
5.	*Malacosoma neustria*	+	-	+	-	-	-	-	-	SA, m, 4
6.	*Lasiocampa trifolii*	+	-	-	-	-	-	-	-	Vam, m, 1
7.	*L. quercus*	+	+	-	-	-	-	-	-	SA, mh, 4
8.	*Phyllodesma tremulifolia*	+	+	-	-	-	-	-	-	E, xt, 4
9.	*Gastropacha quercifolia*	+	+	+	-	+	-	-	-	SA, m, 4
10.	*Odonestis pruni*	+	+	+	-	+	+	-	+	SA, m, 4
Lemonidae-										
11.	*Lemonia taraxaci*	**+**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	SA, mt, 1
Notodontidae										
12.	*Phalera bucephala*	-	+	+	-	-	+	-	-	SA, m, 4
13.	*P. bucephaloides*	-	+	-	-	-	-	-	-	E, mx, 4
14.	*Cerura vinula*	-	+	-	-	-	-	-	-	SA, m, 4
15.	*C. erminea*	-	+	-	-	-	-	-	-	SA, m, 4
16.	*Furcula bicuspis*	-	+	-	-	-	-	-	-	SA, m, 4
17.	*F. furcula*	-	+	-	-	-	-	-	-	H, mh, 4
18.	*F. bifida*	-	+	-	-	+	-	-	-	E, mh, 4
19.	*Stauropus fagi*	-	+	-	-	+	+	-	+	SA, m, 4
20.	*Notodonta dromedarius*	-	+	+	-	+	+	-	-	SA, m, 4
21.	*N. ziczac*	-	+	-	+	+	-	-	-	SA, m, 4
22.	*N. tritopha*	-	+	-	-	-	-	-	-	Vam, mh, 4
23.	*Drymonia dodonea*	-	+	-	+	-	-	-	-	SA, mh, 4
24.	*D. ruficornis*	-	+	-	-	-	-	-	-	SA, mx, 4
25.	*D. melagona*	-	-	+	-	-	-	-	-	SA, mt, 4
26.	*Pheosia tremula*	-	+	+	-	-	-	-	-	SA, mh, 4
27.	*P. gnoma*	-	-	+	-	-	+	-	-	SA, mh, 4
28.	*Ptilophora plumigera*	-	+	-	-	-	-	-	-	Vam, mh, 4
29.	*Pterostoma palpina*	-	+	+	-	+	-	-	+	SA, mh, 4
30.	*Ptilodon capucina*	-	+	-	-	-	-	-	+	SA, m, 4
31.	*Ptilodontella cucullina*	-	+	-	-	-	-	-	-	SA, m, 4
32.	*Spatalia argentina*	-	+	+	-	+	+	-	+	SA, mt, 4
33.	*Clostera anachoreta*	-	+	-	-	-	-	-	-	SA, mh, 4
34.	*C. curtula*	-	+	-	-	-	-	-	+	SA, mh, 4
35.	*C. anastomosis*	-	+	-	-	-	-	-	-	SA, hg, 4

36.	*C. pigra*	-	+	-	-	-	-	-	+	SA, mh, 4
Drepanidae										
37.	*Watsonalla binaria*	-	-	+	-	-	-	-	-	SA, mt, 4
38.	*Drepana falcataria*	+	-	+	-	-	-	-	-	SA, mh, 4
39.	*D. binaria*	-	+	-	-	-	+	-	-	Vam, mt, 4
40.	*Sabra harpagula*	-	-	+	-	+	-	-	+	SA, mh, 4
41.	*Cilix glaucatus*	+	+	+	-	+	+	-	-	SA, mt, 4
Thyatiridae										
42.	*Thyatira batis*	+	+	+	-	+	+	-	-	SA, mh, 1
43.	*Habrosyne pyritoides*	+	+	+	-	+	-	-	-	SA, mh, 1
44.	*Tethea ocularis*	+	-	+	-	-	-	-	-	SA, mh, 4
45.	*T. or*	-	+	+	-	-	-	-	-	SA, mh, 4
46.	*Ocropacha duplaris*	-	-	+	-	-	-	-	-	SA, mh, 4
Geometridae										
47.	*Archiearis notha*	+	-	-	-	-	-	-	-	SA, mh, 4
48.	*Alsophila aescularia*	+	+	+	-	-	-	-	-	SA, m, 4
49.	*Comibaena bajularia*	-	-	+	-	-	-	-	-	SA, xt, 4
50.	*Chlorissa viridata*	+	+	+	+	+	-	-	+	SA, mt, 4
51.	*Thalera fimbrialis*	+	-	-	-	-	-	-	-	SA, mx, 1
52.	*Hemistola chrysoprasaria*	+	+	+	-	+	+	-	+	SA, m, 3
53.	*Euchloris smaragdaria*	+	+	-	-	+	-	-	-	Pm, xt, 4
54.	*Jodis lactearia*	+	-	-	-	-	-	-	-	SA, mh, 4
55.	*J. putata*	-	+	-	-	-	-	-	-	SA, mh, 4
56.	*Cyclophora pendularia*	-	+	-	-	-	-	-	-	SA, mt, 4
57.	*C. quercimontaria*	-	-	+	-	+	-	-	-	SA, mt, 4
58.	*C. annulata*	+	-	-	+	-	-	-	-	SA, mt, 4
59.	*C. linearia*	+	-	-	+	-	+	-	-	SA, m, 4
60.	*Timandra griseata*	+	+	+	-	+	+	-	-	SA, mt, 1
61.	*Scopula immorata*	+	+	+	-	-	-	-	-	SA, mt, 1
62.	*S. ornata*	+	-	-	-	-	+	-	-	SA, mx, 1
63.	*S. nemoraria*	-	-	-	+	-	-	-	-	
64.	*S. immutata*	+	-	-	-	-	-	-	-	SA, mh, 1
65.	*S. marginepunctata*	+	-	-	-	-	-	-	-	SA, mx, 1
66.	*S. incanata*	+	-	+	-	-	-	-	-	SA, xt, 1
67.	*S. ternata*	+	-	-	-	-	-	-	-	SA, m, 1
68.	*S. decorata*	+	-	-	-	-	-	-	-	SA, mx, 1
69.	*S. rubiginata*	+	+	-	-	-	-	-	-	SA, mx, 1
70.	*S. umbelaria*	-	+	-	-	-	+	-	-	SA, m, 1
71.	*S. virgulata*	+	+	-	-	-	-	-	-	Pm, t, 1
72.	*Idaea rufaria*	+	+	-	-	-	-	-	-	mx, 1
73.	*I. ochrata*	+	+	+	-	-	-	-	-	SA, xt, 1
74.	*I. macilentaria*	+	-	-	-	-	-	-	-	mt, 1
75.	*I. muricata*	+	-	-	-	-	-	-	-	SA, mh, 1
76.	*I. vulpinaria*	+	-	-	+	-	-	-	-	SA, xt, 8
77.	*I. sylvestraria*	+	-	-	-	-	-	-	-	mt, 1
78.	*I. bisselata*	+	-	-	-	-	-	-	-	SA, mh, 1
79.	*I. trigeminata*	+	-	-	-	-	-	-	-	Pm, xt, 1
80.	*I. inquinata*	+	-	-	-	-	-	-	-	Pm, xt, 8
81.	*I. subsericeata*	-	-	-	+	-	-	-	-	
82.	*I. serpentata*	+	-	+	-	-	-	-	-	SA, mt, 1
83.	*I. laevigata*	-	-	+	-	-	-	-	-	Pm, xt, 8
84.	*I. seriata*	+	-	-	-	-	-	-	-	Pm, xt, 8
85.	*I. dimidiata*	+	-	+	-	-	-	-	-	Pm, mt, 1
86.	*I. emarginata*	+	-	-	-	-	-	-	-	SA, mt, 1

87.	*I. aversata*	+	-	+	+	-	+	-	-	SA, mt, 1
88.	*I. straminata*	+	-	+	-	-	-	-	-	SA, mt, 1
89.	*I. aureolaria*	+	+	-	-	-	-	-	-	xt, 1
90.	*I. moniliata*	+	-	-	-	-	-	-	-	mx, 1
91.	*I. humiliata*	+	-	-	-	-	-	-	-	xt, 1
92.	*I. dilutaria*	+	+	-	-	-	-	-	-	Pm, xt, 8
93.	*I. pallidata*	+	-	-	-	-	-	-	-	SA, mt, 1
94.	*Rhodostrophia vibicaria*	+	+	+	-	-	-	-	-	SA, mx, 1
95.	*Cataclysme riguata*	+	-	-	-	-	-	-	-	mx, 1
96.	*Lythria purpuraria*	+	-	+	-	-	-	-	-	SA, mt, 1
97.	*Scotopteryx subvicinaria*	+	-	-	-	-	-	-	-	
98.	*S. bipunctaria*	+	-	-	-	+	-	-	-	Pm, xt, 1
99.	*S. chenopodiata*	+	-	-	-	-	-	-	-	SA, m, 2
100.	*S. moeniata*	+	-	+	-	-	-	-	-	Pm, mx, 3
101.	*S. mucronata*	+	-	-	-	-	-	-	-	SA, mt, 1
102.	*S. luridata*	+	-	-	-	-	-	-	-	mt, 1
103.	*S. coarctaria*	+	-	-	-	-	-	-	-	mt, 3
104.	*Phibalapteryx virgata*	+	-	+	-	-	-	-	-	mt, 1
105.	*Orthonama obstipata*	+	-	+	-	-	-	-	-	mt, 1
106.	*Xanthorhoe biriviata*	+	-	-	-	-	-	-	-	SA, mh, 1
107.	*X. designata*	+	-	-	-	-	-	-	-	H, mh, 1
108.	*X. spadicearia*	+	-	-	-	-	-	-	-	SA, m, 1
109.	*X. ferrugata*	+	-	+	+	+	+	-	+	SA, m, 1
110.	*X. quadrifasciata*	+	-	-	-	-	-	-	-	SA, m, 1
111.	*X. montanata*	+	+	-	-	+	+	-	-	SA, m, 1
112.	*X. fluctuata*	+	-	+	+	-	-	-	-	H, m, 1
113.	*X. incursata*	-	-	+	-	-	-	-	-	SA, mh, 1
114.	*Catarhoe cuculata*	+	+	+	-	-	-	-	-	SA, mt, 1
115.	*C. rubidata*	+	-	-	-	-	-	-	-	SA, mt, 1
116.	*Epirrhoe tristata*	+	-	+	-	-	-	-	-	SA, mh, 1
117.	*E. rivata*	+	-	+	+	-	-	-	-	SA, mh, 1
118.	*E. alternata*	+	-	-	-	-	-	-	-	SA, mh, 1
119.	*E. galiata*	+	-	-	+	-	+	-	-	SA, mx, 1
120.	*Lampropteryx suffumata*	-	-	-	+	-	-	-	-	
121.	*Costaconvexa polygrammata*	+	-	-	-	-	-	-	-	mh, 1
122.	*Camptogramma bilineatum*	+	+	+	-	+	+	-	+	SA, m, 1
123.	*Larentia clavaria*	-	+	-	-	+	+	-	-	, 1
124.	*Mesoleuca albicillata*	-	-	+	-	-	-	-	-	SA, mh, 1
125.	*Pelurga comitata*	+	-	+	-	+	-	-	-	SA, m, 1
126.	*Cosmorhoe ocellata*	+	-	+	-	-	-	-	-	SA, m, 4
127.	*Coenotephria salicata*	+	-	-	-	-	-	-	-	Pm, mx, 1
128.	*Eulithis prunata*	+	-	-	+	-	-	-	-	SA, m, 4
129.	*E. mellinata*	-	-	+	+	-	-	-	-	SA, m, 4
130.	*E. pyraliata*	+	-	+	-	-	-	-	-	SA, m, 4
131.	*Ecliptopera silaceata*	-	-	+	+	-	-	-	-	SA, mh, 1
132.	*Chloroclysta siterata*	-	-	+	-	-	-	-	-	Pm, m, 3
133.	*C. citrata*	-	-	+	-	-	-	-	-	H, m, 1
134.	*C. truncata*	+	-	-	+	-	-	-	-	SA, m, 1
135.	*Cidaria fulvata*	+	-	+	+	-	-	-	-	SA, m, 5
136.	*Thera obeliscata*	-	-	+	-	-	-	-	-	SA, m, 5
137.	*T. variata*	-	-	+	-	-	-	-	-	SA, m, 4
138.	*Electrophaes corylata*	-	-	+	-	-	-	-	-	SA, m, 3
139.	*Plemyria rubiginata*	+	-	-	-	-	-	-	-	SA, mh, 4
140.	*Colostygia pectinataria*	+	-	+	-	-	-	-	-	SA, m, 4
141.	*Hydriomena furcata*	-	-	+	-	-	-	-	-	SA, m, 1

142.	*Horrisme vitalbata*	+	-	-	-	+	+	-	+	SA, mt, 4
143.	*H. tersata*	+	-	-	-	-	-	-	-	SA, mt, 4
144.	*H. aquata*	+	-	-	-	-	-	-	-	SA, mt, 4
145.	*H. corticata*	+	-	-	-	-	-	-	-	SA, mt, 4
146.	*Melanthia procellata*	+	-	+	+	-	+	-	-	SA, m, 1
147.	*Triphosa dubitata*	+	-	-	-	-	-	-	-	SA, m, 4
148.	*Philereme vetulata*	+	-	-	-	-	-	-	-	m, 3
149.	*P. transversata*	+	-	+	-	-	-	-	-	m, 3
150.	*Euphyia unangulata*	+	-	-	-	-	-	-	-	SA, m, 1
151.	*Epirrita dilutata*	+	-	+	-	-	-	-	-	H, m, 4
152.	*Operophtera brumata*	+	-	+	-	+	-	-	-	SA, m, 4
153.	*Perizoma taeniata*	-	-	+	-	-	-	-	-	SA, mh, 1
154.	*P. alchemillatum*	+	-	-	-	+	-	-	-	SA, m,1
155.	*P. ludgunaria*	-	-	+	+	-	-	-	-	m, 1
156.	*P. affinitata*	-	-	-	+	+	-	-	-	
157.	*P. blandiatum*	+	-	-	-	-	-	-	-	SA, m, 1
158.	*P. albulatum*	+	-	-	-	+	-	-	-	SA, mh, 1
159.	*P. flavofasciatum*	+	-	+	-	+	-	-	-	SA, mh, 1
160.	*P. parallelolineatum*	+	-	-	-	-	-	-	-	SA, mh, 1
161.	*Eupithecia inturbata clujensis*	+	-	-	-	+	-	-	-	SA, xt, 4
162.	*E. plumbeolata*	+	-	-	-	-	-	-	-	SA, mh, 1
163.	*E. abietaria*	-	-	+	-	-	-	-	-	SA, m, 5
164.	*E. linariata*	+	-	-	-	-	-	-	-	mt, 1
165.	*E. pulchellata*	-	-	+	-	-	-	-	-	m, 1
166.	*E. exiguata*	+	-	-	-	-	-	-	-	SA, m, 4
167.	*E. castigata*	+	-	-	-	-	-	-	-	mh, 1
168.	*E. pygmaeata*	-	-	+	-	-	-	-	-	m, 1
169.	*E. venosata*	+	-	-	-	-	-	-	-	mt, 1
170.	*E. centaureata*	+	+	+	+	+	+	-	+	SA, m, 1
171.	*E. gratiosata*	+	-	-	-	-	-	-	-	SA, xt, 1
172.	*E.satyrata*	+	-	-	-	+	-	-	-	SA, m, 1
173.	*E. absinthiata*	-	-	+	-	-	-	-	-	SA, m, 1
174.	*E. assimilata*	+	-	-	-	-	-	-	-	SA, m, 1
175.	*E. vulgata*	+	-	-	-	-	-	-	-	SA, m, 1
176.	*E. icterata*	+	-	-	-	-	-	-	-	SA, m, 1
177.	*E. semigraphata*	+	-	-	-	-	-	-	-	m, 1
178.	*E. albipunctata*	+	-	-	-	-	-	-	-	SA, xt, 4
179.	*E. subnotata*	+	-	-	-	-	-	-	-	mt, 1
180.	*E. abbreviata*	+	-	-	-	-	-	-	-	mh, 4
181.	*E. subfuscata*	-	-	-	+	+	-	-	-	
182.	*E. innotata*	-	-	+	-	-	-	-	-	SA, xt, 1
183.	*Gymnoscelis rufifasciaria*	-	-	-	+	-	+	-	-	
184.	*Chloroclystis v-ata*	+	-	+	+	+	-	-	-	SA, m, 4
185.	*Rhinoprora rectangulata*	+	-	-	-	-	-	-	-	mh, 4
186.	*R. chloreata*	+	-	-	-	-	-	-	-	m, 1
187.	*Anticollix sparsatum*	+	-	-	-	-	-	-	-	m, 1
188.	*Aplocera praeformata*	+	-	-	-	-	-	-	-	SA, m, 1
189.	*Lithostege farinata*	+	-	+	-	-	-	-	-	SA, m, 1
190.	*Euchoeca nebulata*	+	-	-	-	-	-	-	-	SA, mh, 4
191.	*Asthena albulata*	+	-	-	-	-	-	-	-	SA, m, 4
192.	*Hydrelia flammeolaria*	+	-	+	-	-	-	-	-	SA, m, 4
193.	*Minoa muricata*	+	-	-	+	-	-	-	-	SA, mx, 1
194.	*Lobophora halterata*	+	-	+	-	-	-	-	-	SA, mh, 4
195.	*L. sexalata*	+	-	-	-	-	-	-	-	m, 4
196.	*Abraxas grossulariata*	+	-	+	-	+	-	-	-	SA, m, 3

197.	*Lomaspilis marginata*	+	-	+	-	-	+	-	-	SA, m, 3
198.	*Ligdia adustata*	+	-	+	+	+	+	-	+	SA, m, 1
199.	*Stegania cararia*	+	-	+	-	+	-	-	-	mh, 4
200.	*Semiothisa notata*	+	+	+	-	+	-	-	+	SA, m, 1
201.	*S. alternaria*	+	+	+	+	+	-	-	+	SA, m, 4
202.	*S. clathrata*	+	+	+	+	+	+	-	+	SA, m, 1
203.	*S. glarearia*	+	+	-	-	+	-	-	-	SA, xt, 1
204.	*S. liturata*	+	-	-	-	-	-	-	-	SA, m, 1
205.	*S. artesiaria*	+	+	-	-	+	-	-	-	mx, 9
206.	*Itame wauaria*	+	-	+	-	-	-	-	-	SA, m, 1
207.	*Tephrina murinaria*	+	+	-	-	-	-	-	-	E, xt, 4
208.	*T. arenacearia*	-	+	-	-	-	-	-	-	E, xt, 4
209.	*Petrophora chlorosata*	-	-	+	-	-	-	-	-	SA, m, 4
210.	*Plagodis pulveraria*	+	+	+	-	+	+	-	-	SA, m, 4
211.	*P. dolobraria*	+	+	+	+	+	-	-	-	SA, m, 1
212.	*Opisthograptis luteolata*	+	+	+	-	-	-	-	-	SA, m, 4
213.	*Epione repandaria*	+	-	+	-	-	-	-	-	SA, mh, 4
214.	*Pseudopanthera macularia*	+	-	-	-	+	+	-	-	SA, m, 1
215.	*Ennomos autumnarius*	+	+	+	-	-	+	-	-	SA, m, 4
216.	*E. quercinarius*	-	-	+	-	-	-	-	-	Pm, m, 4
217.	*E. fuscantaria*	-	-	-	+	-	-	-	-	
218.	*E. erosaria*	-	-	-	+	-	+	-	-	
219.	*Apeira syringaria*	+	-	-	-	+	-	-	-	SA, mt, 4
220.	*Selenia lunularia*	+	-	+	-	+	-	-	-	SA, m, 4
221.	*S. dentaria*	-	+	-	-	-	-	-	-	SA, m, 4
222.	*Crocalis elinguaria*	+	-	+	-	-	-	-	-	SA, m, 4
223.	*Ourapteryx sambuccaria*	+	-	+	-	+	-	-	-	SA, m, 4
224.	*Colotois pennaria*	+	+	+	-	-	-	-	-	SA, mx, 4
225.	*Angeronia prunaria*	+	-	-	-	+	-	-	-	SA, m, 4
226.	*Apocheima pilosaria*	+	+	+	-	-	-	-	-	SA, m, 4
227.	*A. hispidaria*	-	+	+	-	-	-	-	-	SA, mh, 4
228.	*Lycia hirtaria*	+	+	+	-	-	-	-	-	SA, m, 4
229.	*L. zonaria*	+	+	-	-	-	-	-	-	SA, mh, 1
230.	*L. pomonaria*	+	-	-	-	-	-	-	-	Vam, mt, 4
231.	*Biston strataria*	+	+	+	-	+	-	-	-	SA, mt, 4
232.	*B. betularia*	+	+	+	+	+	+	-	+	SA, m, 4
233.	*Agriopis leucophearia*	+	-	-	-	-	-	-	-	mh, 4
234.	*A. bajaria*	+	-	-	-	-	-	-	-	SA, m, 3
235.	*A. aurantiaria*	+	-	+	-	-	-	-	-	Pm, m, 4
236.	*A. marginaria*	+	+	+	-	-	-	-	-	Vam, m, 4
237.	*Erannis defoliaria*	+	-	-	-	-	-	-	-	Vam, m, 4
238.	*Synopsia sociaria*	+	-	-	-	-	-	-	-	SA, m, 1
239.	*Peribatodes rhomboidarius*	+	-	+	-	-	-	-	-	SA, m, 4
240.	*P. secundarius*	-	+	+	-	-	-	-	-	m, 4
241.	*Cleora cinctaria*	+	-	+	-	-	-	-	-	SA, m, 1
242.	*Deileptenia ribeata*	+	-	-	-	-	-	-	-	SA, m, 4
243.	*Alcis repandatus*	+	-	+	-	-	-	-	-	SA, m, 5
244.	*A. jubatus*	-	-	+	-	-	-	-	-	m, 4
245.	*Boarmia roboraria*	+	-	+	-	-	-	-	-	SA, m, 4
246.	*B. punctinalis*	+	-	-	-	-	-	-	-	mh, 4
247.	*B. maculata bastelbergeri*	-	-	-	+	-	-	-	-	
248.	*Ascotis selenaria*	+	+	+	-	-	+	-	-	SA, m, 1
249.	*Ectropis crepuscularia*	+	-	-	+	-	-	-	-	SA, mh, 1
250.	*E. bistortata*	-	+	+	+	+	-	-	-	SA, mh, 1

251.	*E. consonaria*	-	-	-	+	-	-	-	-	
252.	*Paradarsia extersata*	+	-	+	-	-	-	-	-	m, 4
253.	*Ematurga atomaria*	+	+	+	-	+	+	-	-	SA, m, 1
254.	*Cabera pusaria*	+	-	+	-	-	+	-	-	SA, m, 4
255.	*C. exanthemata*	+	-	+	-	+	-	-	-	m, 4
256.	*Lomographa bimaculata*	+	-	+	-	-	-	-	-	SA, mh, 4
257.	*L. temerata*	+	-	-	-	-	-	-	-	SA, m, 4
258.	*Theria rupicapraria*	+	-	-	-	-	-	-	-	mh
259.	*Campaea margaritata*	+	-	+	+	-	-	-	-	SA, m, 4
260.	*Hylaea fasciaria*	-	-	+	+	-	-	-	-	SA, m, 4
261.	*Siona lineata*	+	+	+	-	+	-	-	+	SA, mt, 1
262.	*Charissa obscurata*	-	-	+	-	-	-	-	-	mh, 1
263.	*Dyscia conspersaria*	+	-	-	-	-	-	-	-	1
264.	*Aspitates gilvaria*	+	+	-	-	-	-	-	-	SA, m, 1
265.	*Perconia strigillaria*	+	-	-	-	-	-	-	-	SA, mt, 1
Sphingidae										
266.	*Agrius convolvuli*	+	+	+	+	+	+	-	-	Str, mh, 1
267.	*Sphinx ligustri*	+	+	+	+	+	+	-	-	SA, m, 1
268.	*Mimas tiliae*	+	+	+	-	+	-	+	-	SA, m, 1
269.	*Smerinthus ocellatus*	+	+	+	-	+	-	-	-	SA, mh, 4
270.	*Laothoe populi*	-	+	+	-	+	-	-	+	SA, m, 4
271.	*Hemaris tityus*	+	-	-	-	-	-	-	-	SA, mx, 1
272.	*Macroglossum stellatarum*	+	+	+	-	+	+	-	-	SA, mx, 1
273.	*Proserpinus proserpina*	+	+	-	-	-	-	-	-	Vam, mt, 1
274.	*Hyles euphorbiae*	+	+	+	-	+	-	-	-	SA, mx, 1
275.	*H. galii*	+	-	-	-	-	-	-	-	H, mt, 1
276.	*Deilephila elpenor*	+	+	+	-	+	-	-	-	Pm, m, 3
277.	*D. porcellus*	+	+	+	-	+	+	-	+	Pm, m, 1
Lymantriidae										
278.	*Dicallomera fascelina*	+	+	+	-	-	-	-	-	SA, m, 1
279.	*Dasychira pudibunda*	+	+	+	-	-	-	-	-	SA, m, 4
280.	*Orgya antiqua*	-	+	-	-	-	-	-	-	H, mh, 4
281.	*O. recens*	-	+	-	-	-	-	-	-	SA, mh, 4
282.	*Euproctis chrysorrhoea*	+	+	+	-	+	-	-	-	SA, m, 4
283.	*E. similis*	+	+	+	-	+	+	-	+	SA, hg, 4
284.	*Leucoma salicis*	+	+	+	-	+	-	-	-	SA, mh, 4
285.	*Arctornis l-nigrum*	+	-	-	-	-	+	-	-	SA, m, 4
286.	*Lymantria dispar*	+	+	+	-	+	+	-	-	H, m, 1
287.	*Hypogymna morio*	+	+	-	-	+	+	-	-	SA, mx, 2
Arctiidae										
288.	*Milthocrista miniata*	+	+	+	-	+	+	-	+	SA, m, 1
289.	*Atomis rubricolis*	+	+	+	+	+	-	-	-	SA, m, 8
290.	*Cybosia mesomella*	+	+	-	-	-	-	-	-	SA, ht, 1
291.	*Pelosia muscerda*	+	-	-	-	-	-	-	-	SA, mh, 8
292.	*Eilema sororcula*	+	+	+	-	+	-	-	-	SA, mh, 8
293.	*E. griseola*	+	+	-	-	+	-	-	-	SA, mh, 4
294.	*E. lutarella*	+	-	-	-	-	+	-	-	SA, mt, 8
295.	*E. pygmaeola*	+	-	-	-	-	-	-	-	SA, m, 2
296.	*E. complana*	+	+	-	-	+	+	-	-	SA, m, 8
297.	*E. lurideola*	+	+	+	-	+	+	-	-	SA, mt, 8
298.	*E. deplana*	+	+	-	-	-	-	-	-	SA, m,
299.	*Lithosia quadra*	+	+	+	-	+	-	-	-	SA, m, 4
300.	*Arctia caja*	+	+	+	+	+	+	-	-	SA, m, 1
301.	*A. villica*	+	+	-	-	-	-	-	-	SA, mt, 1

302.	*Hyphantria cunea*	+	-	+	-	-	-	-	-	H, m, 4
303.	*Diaphora mendica*	-	+	+	-	-	-	-	-	SA, mh, 1
304.	*Rhyparia purpurata*	-	+	-	-	+	-	-	-	SA, mt, 1
305.	*Diacrisia sannio*	+	+	-	-	+	+	-	-	SA, m, 1
306.	*Spilosoma lubricipeda*	+	+	+	-	+	+	-	+	SA, m, 1
307.	*S. luteum*	+	+	+	+	+	+	-	-	SA, m, 1
308.	*S. urticae*	-	+	+	-	-	-	-	-	SA, m, 1
309.	*Phragmatobia fuliginosa*	+	+	+	+	+	+	-	+	SA, m, 1
310.	*Arctinia caesarea*	+	+	+	-	-	-	-	-	SA, mx, 1
311.	*Chelis maculosa*	+	+	-	-	-	-	-	-	Vam, mt, 1
312.	*Callimorpha dominula*	+	-	-	-	-	-	-	-	SA, mh, 1
313.	*Euplagia quadripunctaria*	-	+	+	-	-	-	-	-	SA, m, 1
314.	*Thyria jacobeae*	-	+	-	-	-	-	-	-	H, mt, 1
315.	*Dysauxes ancilla*	+	+	-	-	+	-	-	-	Pm, xt, 1
Saturnidae										
316.	*Saturnia pyri*	-	-	?	-	-	-	-	-	E, mt, 4
317.	*S. pavonia*	+	+	-	-	+	+	-	-	SA, mt,3
318.	*Aglia tau*	-	-	-	-	+	+	-	-	
Noctuidae										
319	*Idia calvaria*	+	-	+	-	-	-	-	-	Vam, mh, 4
320	*Herminia tarsicrinalis*	+	+	+	+	-	-	-	-	SA, mh, 3
321	*H. tarsipennalis*	+	+	+	+	-	-	-	-	SA, mh, 2
322	*Quaramia grisealis*	+	-	+	+	-	-	-	-	SA, m, 4
323	*Polypogon tentacularia*	+	+	+	+	+	-	-	-	SA, mh, 2
324	*Pechipogo strigilata*	+	-	+	-	-	-	-	-	SA, m, 4
325	*Zanclognatha lunalis*	+	-	+	-	-	-	-	-	SA, xt, 4
326	*Rivula sericealis*	+	+	+	+	+	+	-	-	SA, mh, 2
327	*Parascotia fuliginaria*	-	-	+	-	-	-	-	-	Pm, mh, 3
328	*Colobochyla salicalis*	+	+	+	-	-	-	-	-	SA, mh, 4
329	*Hypena proboscidalis*	+	+	+	+	-	-	-	-	SA, mh, 1
330	*H. rostralis*	+	-	+	+	-	-	-	-	SA, m, 1
331	*Phytometra viridaria*	+	+	+	-	-	-	-	-	SA, m, 1
332	*Trisateles emortualis*	-	+	+	-	-	-	-	-	SA, mh,
333	*Scoliopteryx libatryx*	+	+	+	-	+	-	-	-	H, mh, 4
334	*Catocala sponsa*	+	-	+	-	-	-	-	-	Vam, m, 4
335	*C. fraxini*	-	+	-	-	-	-	-	-	SA, m, 4
336	*C. nupta*	+	+	+	-	-	-	-	-	SA, mh, 4
337	*C. elocata*	+	-	+	-	+	-	-	-	Pm, mt, 4
338	*C. promissa*	-	-	+	-	-	-	-	-	Vam, m, 4
339	*C. fulminea*	+	+	+	-	+	+	-	-	SA, mt, 3
340	*Lygephila pastinum*	+	+	+	-	-	-	-	-	SA, t, 1
341	*L. viciae*	+	-	-	-	-	-	-	-	SA, mt, 1
342	*L. craccae*	+	-	+	-	+	-	-	-	SA, xt, 1
343	*Aedia funesta*	+	+	+	+	+	+	-	-	Pm, mt, 1
344	*Tyta luctuosa*	+	+	+	+	+	+	-	+	SA, xt, 1
345	*Callistege mi*	+	-	-	+	+	+	-	-	SA, m, 1
346	*Euclydia glyphica*	+	+	-	-	+	+	-	-	SA, mx, 1
347	*Gonospileia triquetra*	+	-	-	-	-	-	-	-	SA, xt, 1
348	*Laspeyria flexula*	+	+	+	+	+	-	-	+	SA, m, 4
349	*Meganola strigula*	+	-	-	-	-	-	-	-	SA, mx, 4
350	*M. albula*	+	-	-	-	-	-	-	-	SA, mh, 3
351	*Nola cucullatella*	+	-	-	-	-	-	-	-	SA, mx, 3
352	*N. aerugula*	-	-	-	+	-	-	-	-	

353	*Nycteola revayana*	+	-	+	-	-	-	-	-	Vam, m, 4
354	*N. asiatica*	+	-	+	-	-	-	-	-	SA, m, 4
355	*Bena prasinana*	+	+	+	-	+	-	-	-	Pm, xt, 4
356	*Pseudoips fagana*	+	-	+	-	-	-	-	-	Pm, mt, 4
357	*Colocasia coryli*	+	+	+	-	+	-	-	-	SA, m, 4
358	*Diloba caerulocephala*	+	+	-	-	-	-	-	-	SA, m, 4
359	*Acronicta psi*	+	-	-	-	-	-	-	-	SA, m, 4
360	*A. tridens*	+	+	+	-	-	-	-	-	SA, m, 4
361	*A. leporina*	+	+	+	-	-	-	-	-	H, m, 4
362	*A. alni*	+	+	-	-	+	-	-	-	SA, mt, 4
363	*A. auricoma*	+	+	-	-	-	+	-	-	SA, mh, 1
364	*Calaena leucostigma*	-	+	-	-	-	-	-	-	SA, hg, 1
365	*Subacronicta megacephala*	+	+	+	-	+	+	-	+	SA, mh, 4
366	*Apatele strigosa*	-	+	-	-	-	-	-	-	SA, mh, 4
367	*Viminia euphorbiae*	-	-	+	-	+	-	-	-	SA, xt, 1
368	*V. rumicis*	+	+	+	+	-	-	-	-	SA, mh, 1
369	*Craniophora ligustri*	+	+	+	-	+	-	-	-	SA, m, 4
370	*Symira nervosa*	+	+	-	+	-	-	-	-	SA, xt, 1
371	*Arsilonche albovenosa*	+	+	-	-	-	-	-	-	SA, hg, 1
372	*Cryphia algae*	+	-	+	-	+	+	-	+	SA, xt, 4
373	*C. raptricula*	-	+	+	-	-	-	-	-	SA, xt,
374	*C. fraudatricula*	+	-	+	-	-	-	-	-	Vam, xt, 1
375	*Emmelia trabealis*	+	+	-	-	+	+	-	-	SA, mx, 1
376	*Acontia lucida*	+	+	-	-	-	-	-	-	SA, xt, 1
377	*Phyllophila obliterata*	+	-	-	-	-	-	-	-	Pm, t, 1
378	*Protodeltote pygarga*	+	-	+	-	-	-	-	-	SA, mh, 3
379	*Deltote uncula*	+	-	-	-	-	-	-	-	SA, mh, 3
380	*Pseudeustrotia candidula*	+	+	+	-	-	-	-	-	SA, mh, 1
381	*Calymma communimacula*	+	-	+	-	-	-	-	-	SA, xt, 9
382	*Eublemma purpurina*	+	+	-	-	-	-	-	-	Pm, xt, 1
383	*Panchrysia deaurata*	+	-	-	-	-	-	-	-	Vam, mt, 1
384	*Euchalcia variabilis*	-	+	-	-	-	-	-	-	SA, mh, 1
385	*Lamprotes c-aureum*	+	+	-	-	-	-	-	-	SA, mh, 1
386	*Diachrysia chrysitis*	+	+	+	+	+	+	-	-	SA, m, 1
387	*D. tutti*	+	+	+	-	+	+	-	-	SA, mt, 1
388	*Macdonoughia confusa*	+	+	+	-	+	-	-	-	SA, mt, 1
389	*Plusia festucae*	-	+	-	-	-	-	-	-	SA, hg, 1
390	*Autographa gamma*	+	+	+	+	+	+	-	+	SA, u, 1
391	*A. pulchrina*	+	+	+	-	-	-	-	-	SA, mh, 1
392	*A. jota*	-	+	-	-	-	-	-	-	SA, mh, 1
393	*Abrostola triplasia*	+	+	+	-	-	-	-	-	SA, m, 1
394	*A. asclepiadis*	+	+	+	-	-	-	-	-	SA, mx, 1
395	*A. trigemina*	+	+	-	+	-	-	-	-	SA, m, 1
396	*Cucullia fraudatrix*	+	+	-	-	-	-	-	-	SA, xt, 1
397	*C. absinthii*	+	-	+	-	-	-	-	-	SA, mt, 1
398	*C. artemisiae*	+	+	-	-	-	-	-	-	SA, xt, 1
399	*C. xeranthemi*	+	-	-	-	-	-	-	-	SA, xt, 1
400	*C. lucifuga*	+	-	+	-	-	-	-	-	SA, m, 1
401	*C. umbratica*	+	+	+	+	-	+	-	-	SA, m, 1
402	*C. gnaphalii*	+	-	-	-	-	-	-	-	SA, mx, 1
403	*C. tanaceti*	+	-	-	-	-	-	-	-	SA, xt, 1
404	*Shargacucullia scrophulariae*	+	+	-	-	-	-	-	-	E, m, 1
405	*S. lychnitis*	+	-	-	-	-	-	-	-	SA, mt, 1
406	*S. verbasci*	+	-	-	-	-	-	-	-	SA, mt, 1

407	*Calophasia lunula*	+	+	+	-	-	-	-	-	H, xt, 1
408	*Omphalophana antirrhinii*	+	+	-	-	-	-	-	-	SA, xt, 1
409	*Lamprosticta culta*	+	-	+	-	+	-	-	-	SA, t, 4
410	*Pyramidcampa pyramidea*	+	+	+	+	-	-	-	-	SA, m, 4
411	*P. berbera svenssoni*	+	-	-	-	-	-	-	-	SA, mt, 4
412	*P. perflua*	+	-	-	-	-	-	-	-	H, mt, 1
413	*Adamphipyra livida*	+	-	+	-	+	-	-	-	SA, mt, 1
414	*Amphipyra tragopogonis*	+	+	+	-	+	-	-	-	H, m, 4
415	*Heliothis viriplaca*	+	+	+	-	-	+	-	-	SA, xt,
416	*H. maritima bulgarica*	+	+	+	-	+	+	-	-	SA, xt, 1
417	*H. ononis*	+	+	-	-	-	-	-	-	H, mt, 1
418	*H. peltigera*	+	+	-	-	-	-	-	-	St, xt, 1
419	*Helicoverpa armigera*	+	+	+	-	-	+	-	-	C, t, 1
420	*Protoschinia scutosa*	+	+	+	-	-	-	-	-	H, xt, 1
421	*Pyrrhia umbra*	+	+	+	+	+	+	-	-	H, mt, 4
422	*Periphanes delphinii*	+	-	-	-	-	-	-	-	Vam, xt, 1
423	*Elaphria venustula*	+	-	-	-	-	+	-	-	SA, mt, 1
424	*Panemeria tenebrata*	+	+	-	-	-	-	-	-	Pm, mt, 1
425	*Acosmetia caliginosa*	+	-	-	-	-	-	-	-	SA, mh, 1
426	*Caradrina morpheus*	+	+	+	-	-	-	-	-	SA, mh, 1
427	*Paradrina clavipalpis*	+	+	+	-	+	+	-	+	SA, mt, 1
428	*Hoplodrina blanda*	+	+	+	+	-	+	-	-	SA, m, 1
429	*H. ambigua*	+	+	-	-	+	+	-	-	SA, m, 1
430	*H. octogenaria*	+	+	-	-	+	+	-	-	SA, m, 1
431	*H. superstes*	+	-	+	-	-	+	-	-	SA, xt, 1
432	*Atypha pulmonaris*	+	+	+	-	-	-	-	-	Pm, mt, 1
433	*Athetis gluteosa*	+	+	+	-	+	+	-	-	SA, xt, 1
434	*A. palustris*	-	+	-	-	-	-	-	-	SA, hg, 1
435	*A. furvula*	+	-	-	-	-	-	-	-	SA, mx, 1
436	*Dyptarygia scabriuscula*	+	+	+	-	-	-	-	-	SA, mh, 1
437	*Rusina ferruginea*	+	+	+	-	+	+	-	-	E, mh, 1
438	*Polyphaenis sericata*	+	-	-	-	-	-	-	-	E, xt, 1
439	*Thalpophila matura*	+	+	-	-	-	-	-	-	SA, m, 2
440	*Trachea atriplicis*	+	+	+	+	+	+	-	+	SA, m, 1
441	*Euplexia lucipara*	+	+	+	-	-	-	-	-	SA, mh, 1
442	*Phlogophora meticulosa*	+	+	+	-	-	-	-	-	Vam, m, 1
443	*Auchmis detersa*	-	+	-	-	-	-	-	-	Vam, xt, 1
444	*Actinotia polyodon*	+	+	+	-	+	-	-	-	SA, m, 1
445	*Cloantha hyperici*	+	-	-	-	-	-	-	-	Vam, mx, 1
446	*Eucarta virgo*	-	+	-	-	-	-	-	-	SA, mt, 1
447	*Ipimorpha retusa*	+	+	-	-	-	-	-	-	SA, mh,
448	*I. subtusa*	+	+	+	-	-	-	-	-	SA, mh,
449	*Parastichtis ypsilon*	+	+	-	-	-	-	-	-	SA, mh, 4
450	*Enargia paleacea*	-	+	-	-	-	-	-	-	SA, mh, 4
451	*Mesogona acetosellae*	+	+	-	-	-	-	-	-	SA, xt, 4
452	*M. oxalina*	+	+	+	-	-	-	-	-	SA, mh, 4
453	*Cosmia diffinis*	+	+	-	-	-	-	-	-	SA, mt, 4
454	*C. pyralina*	+	+	+	-	-	-	-	-	SA, mh, 4
455	*C. affinis*	+	-	-	-	-	-	-	-	SA, mt, 4
456	*C. trapezina*	+	+	+	+	-	-	-	-	Pm, m, 4
457	*Athetmia centrago*	-	-	+	-	-	-	-	-	Vam, t, 4
458	*Xanthia togata*	-	+	-	-	-	-	-	-	H, m, 4
459	*X. aurago*	+	+	+	-	-	-	-	-	SA, m, 4
460	*X. sulphurago*	+	+	+	-	-	+	-	-	SA, mt, 4

461	*X. icteritia*	+	+	+	-	-	-	-	-	SA, mh, 4
462	*X. gilvago*	-	+	+	-	-	-	-	-	SA, mh, 4
463	*X. ocellaris*	-	+	+	-	-	-	-	-	Vam, mt, 4
464	*X. citrago*	+	-	+	-	-	-	-	-	SA, m, 4
465	*Agrochola lychnidis*	+	-	+	-	-	-	-	-	Vam, m, 4
466	*A. circellaris*	+	+	+	-	-	-	-	-	SA, m, 4
467	*A. lota*	+	+	-	-	+	-	-	-	SA, mh, 4
468	*A. macilenta*	+	+	+	-	-	-	-	-	SA, m, 4
469	*A. nitida*	+	+	-	-	-	-	-	-	Pm, m, 4
470	*A. humilis*	-	+	-	-	+	+	-	-	Pm, mt, 4
471	*A. litura*	+	+	+	-	-	-	-	-	SA, mh, 4
472	*A. laevis*	-	-	+	-	-	-	-	-	Vam, t, 4
473	*Eupsilia transversa*	+	+	+	-	+	+	-	-	SA, u, 9
474	*Jodia croceago*	-	+	-	-	-	-	-	-	Vam, mt, 4
475	*Conistra vaccinii*	+	+	+	-	-	-	-	-	SA, u, 4
476	*C. rubiginosa*	+	-	+	-	-	-	-	-	Pm, xt, 4
477	*C. rubiginea*	+	+	+	-	+	+	-	-	Pm, mt, 4
478	*C. erythrocephala*	+	+	+	-	-	+	-	-	Pm, m, 4
479	*Episema glaucina*	+	+	-	-	-	-	-	-	Vam, xt, 1
480	*Brachylomia viminalis*	+	+	+	-	-	-	-	-	SA, mh, 4
481	*Brachionycha sphinx*	-	+	-	-	-	-	-	-	SA, m, 4
482	*B. nubeculosa*	-	+	+	-	-	-	-	-	SA, mh, 4
483	*Aporophyla lutulenta*	-	+	-	-	-	-	-	-	SA, mh, 1
484	*Lithophane socia*	-	-	+	-	-	-	-	-	SA, m, 4
485	*L. ornitopus*	+	+	+	-	-	-	-	-	SA, m, 4
486	*L. furcifera*	-	-	+	-	-	-	-	-	SA, mh, 4
487	*Xylena vetusta*	+	+	+	-	-	+	-	-	SA, mh, 1
488	*X. exoleta*	+	+	+	-	-	-	-	-	SA, mt, 1
489	*Allophyes oxyacanthae*	+	+	-	-	-	-	-	-	Pm, mx, 4
490	*Valeria oleagina*	+	-	+	-	-	-	-	-	Vam, mx, 3
491	*Dichonia aprilina*	-	+	-	-	-	-	-	-	SA, mt, 4
492	*D. convergens*	-	+	+	-	-	-	-	-	Vam, xt, 4
493	*D. aeruginea*	-	+	-	-	-	-	-	-	Vam, xt, 4
494	*Dryobotodes eremita*	-	+	-	-	-	-	-	-	Vam, xt, 4
495	*Antitype chi*	+	-	-	-	-	-	-	-	SA, m,
496	*Ammoconia caecimacula*	+	+	-	-	-	-	-	-	SA, mt, 4
497	*Polymixis polymita*	-	+	+	-	-	-	-	-	SA, mx, 1
498	*Blepharita satura*	+	+	+	-	-	-	-	-	SA, m, 3
499	*Mniotype adusta*	-	+	-	-	-	-	-	-	SA, m, 1
500	*Apamea monoglypha*	+	+	+	+	+	-	-	+	SA, u, 9
501	*A. oblonga*	+	+	+	-	-	-	-	-	SA, m, 9
502	*A. unanimis*	-	+	-	-	-	-	-	-	SA, mh,
503	*A. lithoxylea*	+	+	+	-	-	-	-	-	SA, mt, 9
504	*A. sublustris*	+	-	+	-	-	+	-	-	SA, mh, 9
505	*A. crenata*	+	+	+	-	-	-	-	-	SA, m, 9
506	*A. characterea*	+	-	-	-	-	-	-	-	SA, m, 4
507	*A. furva*	+	-	-	-	-	-	-	-	SA, xt, 9
508	*A. anceps*	+	+	+	-	-	-	-	-	SA, m, 9
509	*A. sordens*	+	+	+	+	+	+	-	-	SA, u, 2
510	*Loscopia scolopacina*	-	+	-	-	-	-	-	-	SA, m, 3
511	*Leucapamea ophiogramma*	-	+	+	-	-	-	-	-	SA, mh, 9
512	*Oligia strigilis*	+	+	+	+	+	+	-	-	SA, m, 2

513	*O. versicolor*	+	+	+	+	+	+	-	-	SA, m, 2
514	*O. latruncula*	+	+	+	-	+	+	-	-	SA, m, 2
515	*Mesoligia furuncula*	+	+	+	-	-	-	-	-	SA, m, 2
516	*M. literosa*	+	+	+	-	-	-	-	-	SA, m, 2
517	*Mesapamea secalis*	+	+	+	-	+	-	-	-	SA, m, 2
518	*M. dydima*	+	-	-	-	-	-	-	-	SA, m, 2
519	*Photedes minima*	-	-	+	-	-	-	-	-	SA, mh, 2
520	*P. fluxa*	-	-	+	-	-	-	-	-	SA, mh, 2
521	*Luperina testacea*	+	+	+	-	-	-	-	-	Pm, m, 2
522	*Rhizedra lutosa*	-	+	+	-	-	-	-	-	SA, hg, 2
523	*Amphipoea ocullea nictitans*	-	+	+	-	+	+	-	-	SA, mh, 2
524	*A. fucosa*	+	+	+	-	-	-	-	-	SA, m, 2
525	*Hydraecia micacea*	-	+	+	-	-	-	-	-	H, mh, 1
526	*Gortyna flavago*	+	+	-	-	+	-	-	-	SA, mh, 1
527	*Callamia tridens*	+	+	-	-	-	-	-	-	SA, mt,1
528	*Nonagria typhae*	-	+	-	-	-	+	-	-	SA, hg, 9
529	*Archanara geminipuncta*	-	+	-	-	-	-	-	-	Vam, hg, 2
530	*A. dissoluta*	-	-	+	-	-	-	-	-	SA, hg, 2
531	*A. sparganii*	+	+	+	-	-	-	-	-	SA, hg, 2
532	*Sedina buettneri*	-	+	-	-	-	-	-	-	SA, mh, 2
533	*Chortodes fluxa*	+	-	-	-	-	-	-	-	SA, mh, 2
534	*C. extrema*	+	-	-	-	-	-	-	-	SA, mh, 2
535	*C. pygmina*	+	-	-	-	-	-	-	-	SA, mh, 2
536	*Charanyca trigrammica*	+	+	+	+	+	+	-	-	SA, m, 2
537	*Discestra microdon*	-	+	-	-	-	-	-	-	SA, mx, 1
538	*D. trifolii*	+	+	+	-	-	-	-	-	H, m, 1
539	*L. splendens*	-	+	-	-	-	-	-	-	SA, ht, 2
540	*Lacanobia oleracea*	+	+	+	+	+	-	-	-	SA, m, 2
541	*L. suasa*	+	+	+	-	+	+	-	-	SA, mh, 2
542	*L. contigua*	+	+	+	+	+	+	-	+	SA, m, 2
543	*L. w-latinum*	+	+	+	-	+	+	-	-	SA, mx, 2
544	*L. aliena*	+	+	+	-	-	-	-	-	SA, m, 2
545	*L. blenna*	-	-	+	-	-	-	-	-	Vam, xt, 2
546	*L. thalassina*	+	+	+	-	+	-	-	-	SA, mh, 9
547	*Hada nana*	+	+	-	-	-	+	-	-	SA, u, 2
548	*Hecatera bicolorata*	+	+	+	-	-	-	-	-	SA, mt, 1
549	*Hadena dysodea*	+	-	+	+	-	-	-	-	SA, m, 2
550	*H. compta*	+	+	-	-	-	-	-	-	SA, m, 1
551	*H. confusa*	+	-	-	-	-	-	-	-	SA, m, 1
552	*H. albimacula*	+	-	-	-	-	-	-	-	SA, xt, 1
553	*H. bicruris*	-	+	-	-	-	-	-	-	SA, m, 1
554	*H. luteago*	+	+	+	-	+	+	-	-	Pm, mt, 1
555	*H. irregularis*	+	-	-	-	-	-	-	-	SA, xt, 1
556	*H. perplexa*	+	-	-	-	-	-	-	-	SA, mx, 1
557	*Aneda rivularis*	+	+	+	+	+	-	-	-	SA, m, 1
558	*Sideritis lampra*	+	-	-	-	-	-	-	-	Vam, xt, 1
559	*S. albicolon*	+	+	+	-	-	-	-	-	Vam, xt, 1
560	*Heliophobus reticulata*	+	+	+	-	+	-	-	-	SA, mx, 1
561	*Conisania poelli ostrogovichi*	+	-	-	-	-	-	-	-	SA, xt, 1
562	*Melanchra persicariae*	+	+	+	+	+	+	-	+	SA, mh, 1
563	*Ceramica pisi*	-	+	+	-	-	-	-	-	SA, m, 1
564	*Mamestra brassicae*	+	+	+	+	+	+	-	-	SA, u, 1
565	*Polia bombycina*	+	+	+	-	-	+	-	-	SA, m, 1
566	*P. tricoma*	+	+	-	-	-	-	-	-	SA, mh, 4

567	*P. nebulosa*	+	+	+	+	-	-	-	-	SA, m, 1
568	*Mythimna albipuncta*	+	+	+	+	+	-	-	-	Pm, mt, 2
569	*M. straminea*	-	+	-	-	-	-	-	-	SA, hg, 2
570	*M. impura*	+	+	+	-	-	-	-	-	SA, hg, 2
571	*M. pallens*	+	+	-	+	+	+	-	-	SA, m, 2
572	*M. conigera*	+	+	-	-	-	-	-	-	SA, m, 2
573	*M. ferrago*	+	+	+	-	-	+	-	-	SA, m, 2
574	*M. vitellina*	+	+	-	-	+	-	-	-	Pm, xt, 2
575	*M. pudorina*	-	+	+	-	-	-	-	-	SA, hg, 2
576	*M. l-album*	+	+	+	-	+	+	-	-	SA, mt, 2
577	*M. turca*	+	+	-	-	-	-	-	-	SA, mh, 2
578	*Orthosia gothica*	+	+	+	-	+	+	+	-	SA, m, 1
579	*O. incerta*	+	+	+	-	+	-	-	-	SA, m, 4
580	*O. opima*	+	-	+	-	-	-	-	-	SA, mh, 4
581	*O. gracilis*	+	+	+	-	+	+	-	-	SA, m, 1
582	*O. cruda*	+	+	+	-	+	+	+	-	Pm, m, 4
583	*O. populeti*	+	+	+	-	+	-	-	-	SA, m, 1
584	*O. cerasi*	+	+	+	-	+	-	-	-	SA, m, 4
585	*O. munda*	+	+	-	-	+	+	-	-	SA, m, 4
586	*Egira conspicillaris*	+	+	+	-	+	+	-	-	SA, m, 1
587	*Perigrapha i-cinctum*	+	+	-	-	-	-	-	-	SA, m, 2
588	*Cerapterix graminis*	+	+	-	-	+	+	-	-	H, mh, 1
589	*Tholera cespitis*	+	+	+	-	+	-	-	-	SA, m, 2
590	*T. decimalis*	+	+	-	-	+	-	-	-	SA, m, 9
591	*Pachetra sagittigera*	+	+	-	-	-	-	-	-	SA, m, 2
592	*Eriopygodes imbecilla*	+	+	+	-	-	-	-	-	SA, mh, 1
593	*Axylia putris*	+	+	+	+	+	+	-	+	SA, m, 1
594	*Ochropleura plecta*	+	+	+	+	+	+	-	-	H, m, 1
595	*Diarsia mendica*	+	+	-	-	-	-	-	-	H, mh, 2
596	*D. brunnea*	+	+	-	-	-	-	-	-	H, mh, 2
597	*D. rubi*	-	+	-	-	-	-	-	-	SA, m, 2
598	*D. florida*	-	+	-	-	-	-	-	-	SA, mh, 1
599	*Noctua comes*	-	+	+	-	-	-	-	-	Pm, m, 1
600	*N. fimbriata*	+	+	+	-	+	-	-	-	Pm, mt, 1
601	*N. pronuba*	+	+	+	+	+	+	-	-	SA, mh, 1
602	*N. orbona*	+	+	+	-	-	-	-	-	SA, m, 1
603	*N. interposita*	-	+	-	-	-	-	-	-	Vam, m, 1
604	*N. janthina*	+	-	+	+	-	+	-	-	E, mx, 1
605	*N. tertia*	-	-	+	-	-	-	-	-	Vam, m, 1
606	*Epilecta linogrisea*	+	-	-	-	-	-	-	-	SA, xt, 1
607	*Chersotis multangula*	+	-	-	-	-	-	-	-	Vam, xt, 1
608	*C. rectangula*	+	-	+	-	-	-	-	-	SA, xt, 1
609	*C. margaritacea*	+	-	-	-	-	-	-	-	SA, xt, 1
610	*Rhyacia simulans*	+	-	+	-	-	-	-	-	SA, m, 2
611	*Eurois occulta*	-	+	-	-	-	-	-	-	H, mh, 1
612	*Spaelotis ravida*	+	-	-	-	-	-	-	-	SA, m, 2
613	*Opigena polygona*	-	+	-	-	-	-	-	-	SA, m, 2
614	*Graphiphora augur*	+	+	-	-	-	-	-	-	H, m, 1
615	*Eugraphe sigma*	+	-	+	-	-	-	-	-	SA, m, 1
616	*Xestia c-nigrum*	+	+	+	+	+	+	-	+	SA, m, 1
617	*X. ditrapezium*	+	+	+	-	+	-	-	-	SA, m, 4
618	*X. triangulum*	+	+	-	+	+	+	-	-	SA, m, 1
619	*X. rhomboidea*	+	+	+	-	+	+	-	-	SA, m, 1
620	*X. castanea*	-	+	-	-	-	-	-	-	SA, xt, 1
621	*X. ashworthii*	-	-	+	-	-	-	-	-	SA, mx, 3

622	*X. baja*	+	+	+	-	-	-	-	-	SA, m, 1
623	*X. xanthographa*	+	-	-	-	-	-	-	-	SA, m, 1
624	*Cerastis rubricosa*	+	+	+	-	+	+	-	-	SA, mh, 1
625	*C. leucographa*	+	+	-	-	-	-	-	-	SA, m, 1
626	*Naenia typica*	-	+	-	-	-	-	-	-	SA, m, 4
627	*Anaplectoides prasina*	+	-	+	-	-	+	-	-	H, m, 1
628	*Peridroma saucia*	+	-	+	-	-	-	-	-	C, u, 1
629	*Euxoa tritici*	-	-	+	-	-	-	-	-	SA, m, 1
630	*E. obelisca*	+	+	+	-	-	-	-	-	SA, mx, 1
631	*E. crypta*	+	-	-	-	-	-	-	-	E, m, 1?
632	*E. nigricans*	+	-	+	-	-	+	-	-	SA, m, 1
633	*E. hastifera*	+	-	-	-	-	-	-	-	Vam, xt, 1
634	*E. temera*	-	-	+	-	-	-	-	-	Vam, xt, 1
635	*E. distinguenda*	+	-	-	-	-	-	-	-	SA, xt, 1
636	*E. aquilina*	+	+	+	-	-	-	-	-	SA, xt, 9
637	*Yigoga forcipula*	+	+	+	-	-	-	-	-	Vam, xt, 1
638	*Y. signifera*	+	-	-	-	-	-	-	-	SA, xt, 1
639	*Agrotis crassa*	-	+	+	-	-	-	-	-	Pm, xt, 9
640	*A. segetum*	+	+	+	+	+	-	-	-	SA, u, 1
641	*A. exclammationis*	+	+	+	+	+	+	-	+	SA, u, 1
642	*A. ipsilon*	+	+	+	+	+	+	-	-	E, u, 1
643	*A. cinerea*	+	+	+	+	+	+	-	-	SA, mx, 1
644	*A. clavis*	+	+	-	-	-	+	-	-	SA, m, 1
645	*Earis chlorana*	-	+	+	-	-	-	-	-	SA, mh, 4

Hesperidae

646.	*Carterocephalus palaemon*	+	+	-	-	+	-	-	-	H, mh, 2
647.	*Thymelicus acteon*	+	-	-	-	-	-	-	-	Vam, m, 2
648.	*T. sylvestris*	+	+	-	-	+	-	-	-	Pm, mx, 2
649.	*T. comma*	+	-	-	-	+	-	-	-	SA, mh, 2
650.	*T. lineolus*	+	+	-	-	+	+	-	-	H, m, 2
651.	*Erynnis tages*	+	+	+	-	+	+	-	+	SA, mx, 1
652.	*Carcharodus alceae*	+	-	-	-	-	-	-	-	SA, mx, 1
653.	*C. lavatherae*	+	-	-	-	-	-	-	-	Vam, mx, 1
654.	*C. flocciferus*	+	+	-	-	-	-	-	-	E, m, 1
655.	*Pyrgus malvae*	+	-	-	-	+	-	-	-	SA, m, 1
656.	*P. alveus*	+	-	-	-	-	-	-	-	Vam, m, 1
657.	*P. carthami*	+	+	-	-	+	+	-	-	SA, m, 1
658.	*P. serratulae*	+	-	-	-	-	-	-	-	SA, m, 1
659.	*P. armoricanus*	+	-	-	-	-	-	-	-	Vam, mt, 1
660.	*P. sidae*	+	-	-	-	-	-	-	-	Vam, m, 1
661.	*Ochlodes venatus faunus*	+	+	-	-	+	+	-	-	SA, mh, 2

Riodinidae

662.	*Hamearis lucina*	+	+	+	-	+	+	-	-	SA, m, 1

Lycaenidae

663.	*Thecla betulae*	+	+	+	-	+	-	-	-	SA, m, 4
664.	*Nordmania ilicis*	+	-	-	-	-	-	-	-	Vam, mt, 4
665.	*N. acaciae*	+	-	-	-	-	-	-	-	SA, mt, 3
666.	*Strymonia spini*	+	-	-	-	-	-	-	-	Vam, mt, 3
667.	*S. pruni*	+	-	-	-	+	-	-	-	SA, m, 3
668.	*Callophrys rubi*	+	+	-	-	+	+	-	+	SA, m, 1
669.	*Lycaena phlaeas*	+	+	+	-	+	-	-	-	H, mx, 1

670.	*L. virgaureae balcanicola*	+	+	+	-	-	-	-	-	SA, mh, 1
671.	*L. alciphron*	+	+	+	-	-	-	-	-	Vam, mh, 1
672.	*L. tityrus argentifex*	+	+	+	-	-	-	-	-	SA, m, 1
673.	*L. dispar rutila*	+	+	+	-	-	-	-	-	Pm, hg, 1
674.	*Thersamonia thersamon*	+	+	+	-	+	-	-	-	Vam, mh, 1
675.	*Cupido minimus*	+	+	-	-	-	-	-	-	SA, m, 1
676.	*C. osiris*	+	-	-	-	-	-	-	-	SA, m, 1
677.	*Everes argiades*	+	+	+	-	-	-	-	-	SA, mh, 1
678.	*Celastrina argiolus*	+	+	+	-	+	+	-	-	H, mh, 1
679.	*Pseudophilotes schiffermueleri*	+	-	-	-	-	-	-	-	SA, mx, 1
680.	*P. bavius hungaricus*	+	-	-	-	-	-	-	-	SA, mx, 1
681.	*Scoliantides orion*	+	-	-	-	-	-	-	-	SA, mx, 1
682.	*Glaucopsyche alexis*	+	+	+	-	+	+	-	-	SA, mh, 1
683.	*Maculinea alcon*	+	-	-	-	-	-	-	-	SA, hg, 1
684.	*M. telejus*	+	-	-	-	+	-	-	-	SA, hg, 1
685.	*Plebejus argus*	+	+	+	-	+	+	-	-	SA, m, 1
686.	*P. sephirus proximus*	+	+	-	-	-	-	-	-	SA, m, 1
687.	*P. argyronomon*	+	-	-	-	-	-	-	-	H, m, 1
688.	*P. idas*	+	+	+	-	+	+	-	-	SA, m, 1
689.	*Aricia agestis*	+	+	+	-	-	-	-	-	SA, m, 1
690.	*Eumedonia eumedon*	+	+	+	-	+	-	-	-	SA, m, 1
691.	*Cyaniris semiargus*	+	+	+	-	+	-	-	-	SA, m, 1
692.	*Meleageria daphnis*	+	+	-	-	+	-	-	-	SA, mx, 1
693.	*Lysandra coridon*	+	+	+	-	+	+	-	-	E, mx, 1
694.	*Polyommatus icarus*	+	+	+	-	+	+	-	+	SA, m, 1
695.	*P. dorylas magna*	+	+	-	-	-	-	-	-	SA, m, 1
696.	*P. thersites*	+	+	-	-	+	+	-	-	SA, m, 1
697.	*P. amandus*	+	+	-	-	-	-	-	-	Vam, m, 1
698.	*P. bellargus*	+	+	-	-	-	+	-	-	Pm, mx, 1
Nymphalidae										
699.	*Hipparchia semele*	+	+	-	-	+	-	-	-	SA, mx, 2
700.	*H. briseis*	+	+	-	-	-	-	-	-	SA, mx, 2
701.	*Satyrus dryas*	+	+	+	-	+	+	-	-	SA, mx, 2
702.	*Maniola jurtina*	+	+	+	-	+	+	-	+	SA, m, 2
703.	*Aphantopus hyperantus*	+	+	+	-	+	+	-	+	SA, m, 2
704.	*Coenonympha arcania*	+	+	+	-	+	+	-	-	SA, mh, 2
705.	*C. glycerion*	+	+	-	-	-	-	-	-	Pm, m, 2
706.	*C. pamphilus*	+	+	+	-	+	+	-	+	SA, m, 2
707.	*Pararge aegeria*	+	+	+	-	+	+	-	-	E, m, 2
708.	*P. maera*	+	+	+	-	+	-	-	-	SA, m, 2
709.	*P. megera*	+	+	+	-	+	-	-	-	SA, m, 2
710.	*Melanargia galathea*	+	+	+	-	+	+	-	+	Pm, mt, 2
711.	*Erebia medusa*	+	+	+	-	+	-	-	-	SA, m, 2
712.	*Clossiana selene*	+	+	-	-	+	-	-	-	SA, m, 1
713.	*C. dia*	+	+	+	-	+	+	-	-	SA, m, 1
714.	*C. euphrosyne*	+	+	-	-	+	-	-	-	SA, m, 1
715.	*Argynnis lathonia*	+	+	+	-	+	+	-	-	SA, m, 1
716.	*A. aglaja*	+	+	-	-	+	-	-	-	SA, m, 1
717.	*A. niobe*	+	+	-	-	+	-	-	-	SA, mh, 1
718.	*A. hecate*	+	+	-	-	+	-	-	-	SA, m, 1
719.	*A. adippe*	+	+	-	-	+	+	-	-	SA, mh, 1
720.	*Melitaea didyma*	+	+	+	-	+	+	-	+	SA, mx, 1
721.	*M. cinxia*	+	+	-	-	+	+	-	-	SA, mx, 1

722.	*M. athalia*	+	+	-	-	+	+	-	-	E, m, 1
723.	*M. aurelia*	+	+	-	-	+	+	-	-	SA, m, 1
724.	*M. phoebe*	+	+	-	-	+	-	-	-	SA, m, 1
725.	*M. trivia*	+	+	-	-	+	-	-	-	SA, m, 1
726.	*Vanessa atalanta*	+	+	+	-	+	+	-	-	SA, mx, 1
727.	*Cynthia cardui*	+	+	+	-	+	+	-	+	C, u, 1
728.	*Inachis io*	+	+	+	-	+	+	-	+	SA, m, 1
729.	*Nymphalis polychloros*	+	+	-	-	-	-	-	-	SA, m, 4
730.	*Polygonia c-album*	+	+	+	-	+	+	-	+	C, u, 1
731.	*N. vau-album*	+	-	-	-	-	-	-	-	SA, m, 4
732.	*Araschnia levana*	+	+	+	-	+	+	-	+	SA, hg, 1
733.	*Apatura iris*	+	+	+	-	+	-	-	+	SA, mh, 4
734.	*A. ilia*	+	+	+	-	+	-	-	+	SA, mh, 4
735.	*Neptis sappho*	+	+	-	-	+	-	-	-	SA, mh, 1
736.	*N. rivularis*	+	+	+	+	+	-	-	+	SA, mh, 3
737.	*Aglais urticae*	+	+	+	-	+	+	-	+	SA, m, 1
Papilionidae										
738.	*Parnassius mnemosyne*	-	+	-	-	+	-	-	-	Pm, xt, 1
739.	*Papilio machaon*	+	+	+	-	+	+	-	-	H, m, 1
740.	*Iphiclides podalirius*	+	+	+	-	+	+	-	+	SA, mx, 3
Pieridae										
741.	*Leptidea sinapis*	+	+	+	-	+	+	-	+	SA, m, 1
742.	*Aporia crataegi*	+	+	+	-	+	+	-	+	SA, m, 1
743.	*Pieris brassicae*	+	+	+	-	+	-	-	-	SA, m, 1
744.	*P. rapae*	+	+	+	-	+	+	-	+	H, hg, 1
745.	*P. napi*	+	+	+	-	+	+	-	+	SA, m, 1
746.	*Pontia daplidice*	+	+	+	-	+	-	-	-	SA, xt, 1
747.	*Anthocaris cardamines*	+	+	+	-	+	+	-	+	SA, m, 1
748.	*Gonepteryx rhamni*	+	+	+	-	+	+	-	+	SA, m, 1
749.	*Colias hyale*	+	+	+	-	+	+	-	-	SA, m, 1
750.	*C. australis*	+	+	+	-	+	-	-	-	SA, m, 1
751.	*C. chrysotheme*	+	+	-	-	+	-	-	-	SA, m, 1
752.	*C. erate*	+	+	-	-	+	-	-	-	SA, mx, 1
753.	*C. croceus*	+	+	+	-	+	-	-	-	SA, mx, 1

Answer to Mr. Joszef SZABO's study

1. Comments upon the note entitled "An assessment of the Environmental Impact Study prepared for *Rosia Montana Project,* emphasizing the biodiversity aspects" – vertebrates

Fish

It is claimed that the presence of fish in rivers not only in lakes, as claimed by Environmental Impact Assessment (EIA), is proven by the presence of otters. However, within the short paragraph regarding otters from the note entitled: "**An assessment of the Environmental Impact Study prepared for *Rosia Montana Project,* emphasizing the biodiversity aspects**", it is claimed: "The otter is a speciess seen by the locals in the **lakes** located around the town. From the data secured from AJVPS only 2 specimens are reported". The existence of otters in the rivers is not stipulated in the note. In fact, these speciess do not exist within Project's impact area; this issue is addressed within the chapter on mammals.

Amphibians and reptiles

Firstly, it can be seen that together with the data secured from direct observations or from bibliography, data secured from locals are also stipulated. Being aware of the fact that some amphibians (*Rana temporaria, Rana dalmatina*) or some reptiles like lizards or snakes are difficult to be identified in the field without a proper herpetological training, we would like then to express our serious reserves towards the accuracy of these kinds of data.
Authors of this note, herpetologists with an undisputable professionalism, have managed to discover only 6 speciess of amphibians, and the authors of EIA managed to find 8 speciess for Project's impact area.
Three of these five speciess of reptiles that have been discovered by the authors of this note, have been also confirmed by the EIA. We do not contest the presence in the impact area of *Zootoca vivipara*. We would like to thank the authors of this note for this information, and we would like to assure them that we will include it in the management plan, particularly if future studies confirm its presence. On the other hand, we were expressing our strong reserves towards the presence within Project's area of *Vipera berus*. Probably this is one of the most doubtful data that was secured from locals. Moreover, the authors of the EIA have discovered for the impact area the speciess of *Anguis fragilis.*
This speciess is still included in a table together with other 6 speciess of amphibians and two speciess of reptiles that may occur within an undefined proximity. The authors claim that they have found these speciess within a radius lower than 10Km of impact area, even though it is common knowledge that they are not going to be impacted on such a distance. This is proven exactly by the potential presence of these speciess, considering the fact that a destructive mining operation with no methods of mitigating these impacts has been operated in the area. Găneşti is also included within the same radius, a village located at approximately 20K away on a straight line from the area potentially impacted. We are glad that the authors have limited themselves only to several tens of kilometers, because otherwise the *Testudo graeca* and *Erix jaculus* species from Dobrogea would have been identified.

We found it highly unfair to state the fact that species of amphibians have been found in the trenches excavated by archaeologists, without reminding the fact that following the reports on this incident the company has decided to construct a dirt ramp for every trench, similar to the model provided by the authors of this note. Moreover, the approval messages issued by these specialists on this issue exist and can be made public. We would be happy to see the same care for other archaeological or industrial sites from areas with an elevated value from herpetofauna's point of view, for instance, Dobrogea, which have been designated as special protection areas for reptiles and amphibians, but unfortunately we have acknowledged that this was not the case. The archaeological sites from Roşia Montană are unique, considering the care paid to amphibians.

Due to the fact that we have acknowledged the concern of the authors of this note on the herpetofauna within project's impact area, and that in their view there are populations of several (7) species capable of meeting the Natura 2000 criteria, we are surprised by the fact that these specialists have not submitted any proposals for these sites that include hereptofauna. There is no such site presented in the official map of proposals of sites of community interest pSCI. This is a public map that may be accessed at http://maps.biodiversity.ro/sci/viewer.htm.
Moreover, we would like to express our surprise that only 5 days (21-25 September 2004) have been assigned to conduct a field survey on herpetofauna during more than 7 years of strong oppositions against the mining project proposed by RMGC SA.

If the richness of herpetofauna is real, than these specialists are responsible for the fact that there are no management measures in place, which are specific to Natura 2000 sites. These specialists should have made the proposals to designate the respective sites because they had the relevant information on this issue.

Birds

The professionalism of Mr. Szabo Joszef Msc Drd cannot be disputed; he is the professional leader of young generation. That is why the difference of 8 species between our lists (91 SJ; 83 CH) is honoring us, especially because for the EIA we have used only observations performed during nesting period.

However, some of the species (Black Stork, Hornets Nest, Lesser Spotted Eagle, and Brambling) do not nest within the project's impact area, they could have been observed during migration or, as it is the case of brambling, during winter.

For the remaining species we do not exclude the fact that they may nest within general impact area or in the proximity. For these species, detailed researches are scheduled for 2007 spring and if they are discovered to be nesting species, they will be included in the scope of Biodiversity Management Plan. One of the species included only on SJ list, *Dendrocopos minor* has been already observed during January 2007 nearby Tăul Găuri. Therefore, we support the idea expressed by Mr. Szabo Joszef and we consider the list as being incomplete, but a document that is being already used as base for the development of a biodiversity management within project's impact area.

The presence of the listed species within the annexes of Romanian and European laws, species also honestly listed within the tables of the EIA, cannot be challenged, but populations in the area cannot meet the criteria required for designating an SPA or an IBA respectively. The best evidence for supporting this is the fact that there is no proposal to designate such an aviafaunistic special protection area. If Mr. Szabo or Otus organization, which he is leading, have not made any proposals on this matter, this would stand for the best evidence that the impact area does not include populations that will justify taking such measures.

We are also honored by the fact that the quantitative estimations of the study are considered as being tendentious, but their realism and accuracy is not questioned.

Although we have always accepted real and reasonable opinions, especially if they are issued by the best experts, unreasonable accusations like "all lists included in the EIA are distorted…" are considered to be pointless, probably being justified by the emotional loads and the desire to make this note particularly tasteful for the sponsor who has contracted a "opposing study".

Mammals

Chiroptera

The EIA prepared for RMGC SA is probably the first in Romania where bats species are included within the description of baseline conditions and where measures to mitigate the impact on them are also included.
All 9 species are included in the study.

The fact that no special protection areas for bats have been designated, contrary to what has bee stated: “Following future investigations we hope that we will manage to designate Special Protection Areas for the threatened species from the region”, clearly shows the fact that the species populations from impact area do not meet the criteria of designating Natura 2000 sites, other areas from Apuseni Mountains being viewed as more appropriate on this matter.

The mammals considered to be “the most important”
If the other chapters contain mostly direct observations and accepted references with credible data, this chapter excels in inadequacies and proves on one hand the rush of the authors to prepare the note, and on the other hand the rather inadequate knowledge of the authors on the biology of Carpathians large carnivores and otter.

Firstly, most of the arguments are void, being based on data secured from AJVPS Abrud.
We must emphasize the fact that this institution **does not exist!** The only hunting club existing in the area is a branch of AJVPS Alba and it is based in Câmpeni! There are no references included in the EIA regarding the term “AJVPS Abrud” but only the term AJVPS Câmpeni, contrary to what it has been asserted in this note.

This major confusion between these two towns clearly shows the seriousness paid by the experts and the fact that they have not even went to this hunting club to collect their data.

However, we will consider this huge mistake as being merely a “confusion” caused by their rush and we will answer every issue generated by the information secured from “AJVPS Abrud”.
We would also like to emphasize that the impacted surface is approx. 1600 ha, and the surface of these two hunting grounds is approx. 26404 ha. Approx. 94% of the surface of these two hunting grounds will not be impacted by the project.

- The bear / *Ursus arctos*

The existence of “one single bear” within Detunata area is stipulated by the note. We would like to state that “Detunata area” will not be impacted in any way by RMGC’s Project.

- The wolf / *Canis lupus*

The fact that wolf is a frequent species in the area is asserted. If it hadn’t been so hilarious, we would be glad that there are large populations of wolf on two hunting grounds from Romania. It is also stated the fact that wolves packs of 10 to 12 wolves are attacking sheep. The quoted source on this would be David E. This individual, although has not been listed, is probably one of the “independent experts” who have prepared this note.

Returning to a serious interpretation, although the hilarity of the assertions is preventing us from being serious, we may state that wolf is a rather lonely species easily driven away by the human activities like the ones developed within project area. Young wolves may accidentally visit the area taking into account the fact that project’s perimeter is located within a mountain area. Information on the presence of large wolves packs of approx. 10-12 specimens are pure speculations that emphasize the reduced knowledge of wolf biology both from Europe and Romania. To allow comparison, during a period of 10 years when the “Carpathian Large Carnivore Project” has been developed, most of registered packs have consisted of 2 to 7 members, the packs having over 10 members have been extremely rare and considered as being exceptions. This project has been developed in a wild area, not impacted by human activity that is located in Braşov County, to include

large areas from Bucegi, Piatra Craiului and Făgăraş, together with the valleys separating these mountains. Therefore we are expressing our doubts that around Roşia Montana, the areas would be more appropriate for the development of large carnivores populations compared to the abovementioned ones.
The mere presence of those 5 wolves found by the authors within the documents obtained from AJVPS Abrud (Sic!) is uncertain due to the lack of food chain base. The number of roebucks estimated for the hunting grounds is 5-10 specimens and the number of wild boars is 1-3. Therefore we are expressing our doubts that such a reduced population of *Artiodactyla* may support a stable population of large carnivores, even though it consists only from 5 specimens.

- The otter / *Lutra lutra*

The note states that two otters exist as resulted from the data secured from AJVPS Abrud (Sic!), and from what the locals have been said. Recently (January-February 2007), new researches have been conducted during adequate weather conditions to observe tracks on the snow and other activities of otters. No signs have been observed to confirm their presence around lakes from Roşia Montană. We do not believe that these two assumed otters exist, and if they exist they could not form a minimum viable population n the area.
In case these two otters still exist, they may use the lakes that are not going to be impacted which are totaling 70% of current lake surface.

- Wild cats /*Felis silvestris*

6 specimens of wild cats appear from the documents of the very inexistent hunting club, as being encountered within the area of Roşia Montană mine. Being very aware of the fact that female needs a territory covering areas between 264 and 1275 ha and male's territories cover an area between 812 and 2165 ha, we strongly believe that wild cats' populations from Roşia Montană are highly overestimated. We do not exclude the presence of this species within the hunting grounds totaling (no.7 Ciuruleasa – total sourface 12 347ha and no.8 Detunata – total sourface 14 057ha, therefore at a total of 26 404, 1481ha are being impacted - 10% - out of the first hunting fund, namely 164ha – 1%- out of the second), but no specimens of these species nor even their tracks have been encountered within project's impact area.

- Eurasian **Lynx** / *Lynx lynx*

The data regarding this species have been secured also from the inexistent AJVPS Abrud.
Lynx may exist within the hunting ground of the Câmpeni club, but under no circumstance it can be located nearby an area that is strongly impacted by anthropic activities, where the presence of humans has been permanent and the trouble caused by gold and copper pits from Roşia Montană and Roşia Poieni became apparent, especially because the note states the fact that this species is the most cryptic one from the area's carnivores. We have characterized it as a species sensitive to any kind of human intervention.

Moreover, we would like to express our surprise regarding the fact that the authors of the note state that 3 lynxes may cover an area of approx. 16 km^2, as the potential impacted area is. The studies conducted for Europe by using telemetry have clearly shown that males cover a territory between 180 and 2780 km^2 and females a territory between 98 and 759 km^2.

The fact that there aren't any large populations of large carnivores on these two hunting grounds that may be impacted on 6.5% of their surface can be circumstantially proved by the fact that between 2002 and 2006 only one authorization to hunt Eurasian Lynx *Lynx lynx* has been issued, as well as by the fact that project's opponents have not submitted any proposals to create special protection areas for carnivores.

Conclusions

- The statement according to which the authors of the EIA have claimed that this is a scientific study is totally unsubstantiated. The authors of the biodiversity chapter have claimed the fact that this is a technical study prepared according to current in force law. The importance of this project and the sensitivity of a part of the civil society regarding this project have made us do more than it is currently included in the relevant Romanian legislation governing preparation of EIAs, especially the Order 863/2002
- The fact that EIA specialists have included in the document 8 species of amphibians, 3 species of reptiles, 83 species of birds, and 31 species of mammals is a clear indicator of the fact that the information has not been distorted.
- The accusations regarding the non-introduction or distorted introduction of data secured from AJVPS Abrud are void due to the fact that the respective institution does not exist.
- Some of the data used as base for preparing the note are obtained from "locals' observations". These observations cannot be taken into account. Except for data related to birds, the data are based in a very low number of days spent in the filed.

The fact that no clear proposals to designate sites as Natura 2000 sites have been submitted for the protection of species that need special conservation areas, i.e. avifaunistic protection areas or as it is the case for Țarina site, for which the proposal has been denied as being unfounded by the Committee of Technical Experts from the Ministry of Environment and Water Management. This is the best evidence for the fact that although species listed in the annexes of the directives are present within the impact area, their populations do not meet the criteria necessary to designate these sites because these populations are way to low compared to Romania's populations and to populations existing in other areas.

CURRICULUM VITAE

Personal data:

Family Name: MIHUȚ
First Name: Sergiu Ioan-Nicolae
Date of birth: 21.11.1973
Birthplace: Cluj-Napoca, ROMANIA
Nationality: Romanian
Marital Status: divorced
Children: 1 (date of birth: 23.04.2001)
Other social obligations: none
Home address: 2/33, Băița Alley, Cluj-Napoca
Correspondence Adress: 1/9, Horea Street, Cluj-Napoca, ROMANIA
Telephone/Fax: 0364-111732; Mobile Phone: 0744-826619
Email: smihut2000@yahoo.ro

Occupation: biologist
Profession: biologist
Workplace: SC Unitatea de Suport pentru Integrare SRL
Headquarters: Str. Horea nr. 1/9, Cluj-Napoca
Field of activity (area of expertise): entomology (Lepidoptera), systematic ecology, taxonomy, zoogeography, evolution and phylogeny, biology issues (growth), environmental impact assessment – biodiversity

PhD in Biology

Certifications – Ministry of Environment and Water management: position 126 EIM-02-207/01.07.2005; Fields: 1, 11 Expert assessor of environment; BM-02-206/01.07.2005 Fields 1, 11 Expert auditor of environment.

Education:

1980-1982: Music High-School (Piano), Cluj-Napoca, ROMANIA
1983-1992: "Emil Racoviță" High-School, Cluj-Napoca, ROMANIA
1992-1997: Faculty of Biology and Geology, Biology, "Babeş-Bolyai" University, Cluj-Napoca, ROMANIA
1997: Bachelor Degree on Biology
1997: Initiation of PhD studies
2004: Biology PhD (Taxonomic and zoogeographic studies on fauna of *Pyraloidea* Lepidoptera Arieş River watershed)

Languages: French (written, spoken, reading), English (written, spoken, reading), Italian (written, spoken, reading), advance level.

Other skills: computer software literacy (Microsoft OFFICE, Windows, Corel, etc.), driver's license

Courses and trainings:

February 2000, Training Course: **Spatial and temporal organization of rural areas for agricultural production, for the control of distributed pollution and for the conservation of biodiversity** – Sinaia, ROMANIA. The course has been organized by Bucharest University, the department of systemic ecology and management of natural capital

May 2000, Training Course: **Environmental Mineralogy** – Budapest, Hungary. The course has been organized by Eotvos Lorand University and European Union of Mineralogy.

May 2000, "**Biogenic Minerals**" workshop – Tihany, Hungary
September 2000, International Seminar on **Conservation and Development of Natural and Urban Sites of Romania**, Bistrița-Năsăud.
October 2000, **Management of Environmental Projects**, Târgovişte, Peştera/Piatra Craiului Hotel.
July 2005 (14-15), Training Session **Funding Instruments within the 6th Framework Programme**, FIMAN – ERA-ENV – IFAK, Buchares, Chamber of Commerce and Industry

Participation in symposiums and conferences:

1993, 26-27 November 1993 – Symposium "Civilization and Culture in Transylvania": *Data regarding Macro-Lepidoptera from Bădeni (Cluj County)*, Deva.
1994, 21 May – Scientific Anniversary Symposium of Faculty of Biology, Geography and Geology, "Babeş-Bolyai" University: *Lepidoptera from Bădeni area –Cluj County*, Cluj-Napoca.
1994, 9-11 December – National Students Symposium: "Ecology – Science, Culture, Education", Sibiu University: *Ecologic issues regarding the distribution of Lepidoptera fauna from western Transylvanian Plain"*, Sibiu.
1995, 28-29 April – Symposium: "Insects – bio-indicators of environment's quality", Lepidopterological Society, *Oligia HBN. 1821 Genus – taxonomic issues (Lepidoptera, Noctuidae)*, Cluj-Napoca.
1995, 27-28 October – Annual Session of Communications: "Culture and civilization in Northeastern Transylvania": *Ecologic issues regarding distribution of Lepidoptera fauna western Transylvanian Plain*, Bistrița.
1995, 27-29 October – The VIth International Conference on General and Applied Entomology, Institute of Biological Research and "Al. I. Cuza" University, Iaşi: *Preliminary note regarding Lepidoptera fauna from around Bădeni –Cluj County*, Iaşi
1996, 16 June – International Symposium "Formation of leaders": *On Humanization*, Cluj-Napoca
1997, 18-19 April – The VIIth Meeting of members of Lepidopterological society from Romania: *An interesting case of lateral gynandromorphous for Autographa gamma L,* Cluj-Napoca
1999, 29-30 April – Scientific Symposium: „Entomo-fauna of natural ecosystems from southeastern Carpathians": *Considerations on several Lepidoptera species from Transylvania, their preference towards habitat and their ecologic characterization*, Deva
2005, 8-10 April – The Vth International Symposium: "Lepidoptera as Indicators of Biodiversity Conservation" – Southampton, England: *Integration of Prime Butterfly Areas within Romania's National Network of Protected Areas*
2005, 23-24 April – Scientific Symposium: "Protection and conservation of entomo-fauna of Romania" – Cluj-Napoca: *BIMS Applications (Biodiversity Information Management System*) used to study the distribution of Lepidoptera fauna; Indication of several rare and interesting species of Lepidoptera from Romania (cooperation with V. Dincă, G. Szabo)
2005, 8-10 June – International Symposium „The Implementation of the EU Nature Conservation Legislation in Romania" – Cheile Buții, Parcul Național Retezat
2005, 15-16 July – International Symposium "Safeguarding a Regional Ecological Network for the Carpathians" – ICAS Braşov
2006, 29-30 April – Scientific Symposium: „Entomo-fauna of Romania and Natura 2000 Network". Presentation: *Prime Areas of Protection for Butterfly, a stage in the development of Natura2000 Network in România*.
2006, 22-25 October – International Congress – The Central and Eastern European Congress on Health and Environment: "New Challenges and Perspectives in Health and Environment". Presentation: *The dimension of Roşia Montana ecological rehabilitation.*

Other relevant activities:

1998 – Participation in a project developed by the European Community to publish the paper: "Red data Book of European Butterflies", Strasbourg, 1999 (CE no. 99)

2000 – Participation as group leader in the fauna inventory from Retezat National Park, a project financed by World Bank

2001 – Appointed as a national authority and responsible person form Romania within Prime Butterflies Areas, a program of Romanian Committee

2001 – Elected in the Experts Committee of Cluj County Council (official letter 3662/II/24.04.2001); this committee has been established in order to prepare and draft project that would be funded by the European Union.

2003 – Head of a Contract concluded to mitigate the impact occurred after using several allochthonous species of fish within water dams in order to reduce the algae. The beneficiary was Hidroelectrica.

2003 – Head of a Contract concluded to make an inventory of the natural capital existing within Năruja Private Forest Fund in order to certify forestry management. The beneficiary was AOV Năruja.

2004 – Head of a Contract concluded to prevent incidents caused by birds on LEA in critical migration areas. The beneficiary was Transelectrica.

2005 – Head of a Contract for provision of consultancy on biodiversity. The beneficiary was Roşia Montana Gold Corporation.

Relevant funding secured:

2000 – Project: *Rehabilitation of Suatu Reservations*. Project's Sponsor: KNIP Program of Embassy of Netherlands from Bucharest, value: US$10,000. The beneficiary was APM Cluj;

2001 – Project: *Functional Ecologic Network established in the center of Transylvania Plain.* Project's Sponsor: European Commission, LIFE – III – Natura Program, value Euro 600,000. The beneficiary was APM Cluj;

2002 – Project: *Monitoring the quality of Urban Environment based on the monitoring of bioindicators.* Project's Sponsor: Partnership Foundation Miercurea-Ciuc, value Lei 140,000,000. The beneficiary was SOR;

2002 – Project: *Promoting an act in order to admit the protection status of A.I.A.*. Project's Sponsor: REC Romania, value US$10,000. The beneficiary was SOR;

2002 – *STAR* Project – *Land Relay Unit for satellite real-time data, a Functional Model.* The Project was developed in partnership with SC Bitnet SRL. Project's sponsor: CNCSIS, value Lei110,000,000 lei. The beneficiary was SOR;

2003 – Project: *Local Forum for monitoring and conservation of biodiversity*; Project's Sponsor: The Program for Technical Assistance of the Embassy of Canada from Bucharest, value US$ 6650. The beneficiary was CFMCB;

2003 – Project: *Reabilitation of Fânațele Clujului Reservations and rescue of the sole Romanian population of Maculinea nausithous specie*. Project's Sponsor: Rufford Foundation, England, value GBP 5000. The beneficiary was CFMCB;

2004 – Project: *Integration of Prime Butterfly Areas within Romania's National Network of Protected Areas*. Project's Sponsor: KNIP/MATRA of the Embassy of Netherlands from Bucharest, value: Euro4500. The beneficiary was CFMCB

Cluj-Napoca
20.01.2007

Additional Information on the Potential Impact on the Forest Fund Generated by the Development of the Rosia Montana Mining Project and Proposed Measures for Impact Prevention/Minimisation/Elimination

1 General Information

1.1. General Project Description

ROSIA MONTANA PROJECT – Definitive exclusion from the national forestry resource of 248.05 ha followed by clear cutting of forest vegetation in 4 successive stages (year 0-46.08 ha, year 7-135.29 ha, year 1447.87 ha and year 1618.81 ha) in order to develop the gold-silver ore mining project at Rosia Montana. The forest land area within the future industrial zone site is 433 ha. These stands belong to the Forest District Alba Iulia (UP II Detunata) and Forest District Abrud RA.

The development of the mining project will affect an area of 1645 ha, of which 433 ha forest fund, the footprint of the industrial facilities affecting 248 ha of the forest fund.

1.2. Description of the project for exploitation of forests within the facility site

Forest logging is a complex process involving a specific technology governed by a series of rules and consisting of a sequence of well defined operations. Forest logging within the Roşia Montană Project industrial zone will be subject to a process which includes the following operations.

- timber harvesting;
- collection at the harvesting site and transport to a permanent road;
- primary processing.

Harvesting, collection and primary processing are carried out within the logging site. In terms of territory, the logging site will include the felling area (the area hosting the trees selected for logging), roads and primary platforms (one or more). In addition, the site will include the constructions, installations and facilities required to carry out logging operations.

Summary description of logging activities:

- harvesting – includes felling, branch clean up and selection;
- Collection is the process where the wood is moved from the harvesting site and transport (from the stump) to a permanent road and includes gathering and arranging with an intermediary operation, called “take out" often being required. Gathering is the first operation involving moving of the wood from the collection site, either to directly create the loads with a mechanised collection equipment or for a previous temporary storage. Gathering is typically carried out over short distances, generally less than 100 m. Drawing near involves wood transportation over specifically designated paths from the gathering sited to the primary platform. The distances that need to be narrowed are generally long, this operation generating most of the environmental damages. These operations are conducted by using forestry tractors, funiculars or carts.
- primary processing includes clean up of remaining branches, cutting to lengths that can be accommodated by trucks, handling, loading and stockpiling, etc.

The employed logging method will be the tree length system or short wood system or a mixture of the two methods depending on the silvotechnical procedure, terrain, equipment, accessibility.

During collection, the intense traffic of tractors on the plots area, as well as dragging and semi-dragging of loads results in soil damages. The tractors have the following specific impacts on soil: soil stripping, wheel track cutting and excessive compaction. In order to ensure the soil protection the following engineering provisions should be observed:

- route gradients should comply with the permissible limits, they should preferably be under 20% particularly on the slopes;

- routes should be designed on solid rocky ground avoiding the portions with reduced supporting surface.
- distances for removal -draw near should be as short as possible;
- steep descending slopes should be avoided;
- comprehensive earthworks should be avoided.

Given that some of the stands in question are rated into functional group I, i.e. sub-groups 1-2A – depending on the lands and soils on lands with slopes > de 30-35 degrees and 1-2H – protection function for sliding lands, logging in these plots will take into consideration the special requirements for soil protection in these areas. This is an issue mainly when collecting wood that may disturb the environment. Given the circumstances of these plots, tractor collection should be restricted and be employed only along routes with slope less than 20% on rocky, hard, dry or frozen soil and only for short distances. Accordingly, tractors should be driven only along roads that run lateral to valley floor routes outside the stream channels, at 1 -1.5 m above water level and under no circumstance through the stream bed. Collection by funiculars is preferred because it causes far less damage than the tractors.

For these plots where collection is done via funiculars, it is recommended that where possible, the funicular line be installed at about 450 from the prevailing wind direction and under the same angle also against the highest inclination line. This way, given that cutting is concentrated along the funicular line, the hazard for wind felling and the adverse effect caused by wood collection on soil are mitigated, with the air currents and storm water thus having a much smaller area to pass through the plot in comparison with an installation of the funicular that is longitudinal to the two directions.

For the protection of the standing trees both on boundaries and where through the collection routes will pass the followings are recommended:

- The logging routes will be marked in paint to be as visible as possible and also to be followed;
- The routes should have long alignments;
- The curve radius should be above 12 m to allow transport of the loads without damaging the trees on the road sides;
- the ramifications of the collection routes should form very acute angles;
- considerable attention should be given to sowing protection where applicable;
- protection of trees located on the sides of the access roads will be made using specific systems such as wood or rubber sleeves;

Selection of the areas where the primary platforms will be located will ensure that these are sufficiently large for the area to allow stockpiling and processing of the timber and the loading onto trucks. Development of a primary platform includes land grading by bulldozer or forestry tractor that is equipped with a blade, leveling by hand, installing frames for timber stockpiling, constructing a handling road. In the valley areas of rough terrain, the primary platform will be sited across creeks, stockpiling timber on top of two transversally placed logs or by lateral support against the standing trees that will be cut down towards the end of the logging operation. When selecting the location of these platforms care will be given that they are located at the intersection of logging routes with the permanent haul roads, in areas protected from floods which do not require high volumes of earthworks.

Specific prevention measures will be implemented to prevent the attack by various harmful parasites or germs. Thus, the wood will not be kept for longer times in plots and primary platforms to prevent occurrence of ligninolytic fungus. The coniferous stands will be logged only outside the vegetation season and where logging is conducted during the vegetation season, the wood will be immediately removed and disbarked to avoid the risk of attack by Ipidae. Accordingly, the stubs will be disbarked and treated with various substances for preventing wood-boring's attacks.

The logging remains will be stockpiled and transported to primary platforms or another approved location where they will be ground and composted. The land cleared of wood material will be scarified to extract the roots, which will also be ground and composted.

All technical instructions in force regarding logging site development, technological processes and logging periods will be complied with.

Specific logging solutions will be defined according to the characteristics of each work site.

Logging will be carried out by specialised companies authorised for logging activities based on an operating process endorsed by the Forestry Authority.

1.3. Information on the volume of logged wood and resources employed

All age categories are contained within the stands to be logged in order to develop the Project, therefore there will be exploitable stands planned to be cut in the current decade and also stands cut before they reached the exploitable age (sacrificial logging). Consequently, the resulting wood sorts will be diverse, workable wood of various sizes (generally sorts of medium size) which will be processed as well as a large volume of firewood will be generated.

Out of an estimated volume of some 61,500 cubic meters representing the total amount of investigated stands, approximately 27,000 cubic meters will be logged over a period of 16 years.

In order to log this volume of wood a total of some 11,000 operating hours are required for the equipment servicing the logging sites, which are consuming significant amounts of fuel: some 15,000 l of petrol, some 21,000 l of diesel, 100 l of mineral oils etc.

2 Predicted impact and impact mitigation measures

2.1 Water

2.1.1 Impact Forecast

Given the nature of clear cutting operation there are no critical issues related to groundwater or surface water pollution with chemicals.

However, given the scale of the works the storm water is expected to load higher than normal the water courses with suspended particles. The suspended particles are generated by erosion of soil strata from the cleared hillsides.

This pollution source of the environmental media water will be considered to have a significant impact on the affected watersheds; a plan containing impact mitigation measures will be applied throughout the works.

The land disturbance level after clear cutting activities may result in an increase of the sediment loads, particularly during storm events, thus increasing the amounts of suspended solids in receivers.

At local level, forest exploitation may create disequilibrium in the surface water and groundwater conditions. Consequently, the surface water flow will become more rapid and the flow rate will increase along the respective corridors which amplifies their torrential character with negative impacts on soil and social-economic facilities in the area.

The groundwater conditions are disturbed as the drainage ensured by the trees through the roots absorption process is cancelled and swampy areas may occur on flat sites.

Partial removal of the vegetation cover may generate local negative impacts consisting in:

- disturbance of hydrological regime (which is currently consistent);
- intensification of the uncontrolled surface water runoff on the slopes with an increase of the number of existing valleys and gullies.
- rise of the phreatic surface or surface water infiltration.

The underground water springs, potable water basins, potable water distribution pipelines will not be affected by the logging activity as they are located outside the deforested area away from and protected by the remaining forestry vegetation. Therefore, there is not predictable impact on aquatic ecosystems.

During operation of equipment within the logging sites, accidental and localized emissions may occur which may contaminate the water and soil. The emissions comprise suspended particles, fuels, oils and residues thereof which may be improperly handled, stored or discharged during the equipment operation (sawing machines, forestry tractors, bulldozers for land grading and vehicles for wood transportation). Another pollution source is human excrement from the employed personnel.

2.1.2 Impact Mitigation Measures

The predicted impact on the environmental factor - water - can be mitigated provided that during logging the followings are complied with:

- limitation of the forestry tractor access avoiding stream crossings;
- location of the collection roads approximately 1-1.5 m above the valley floor;
- sawdust and wood remains should be stored outside the flooded areas and torrential valleys;
- primary platforms will be located along the valleys providing sufficient height to prevent the wood mass from being carried away in case of natural calamities.

The risks associated with accidental spills of fuels, oils and residues thereof can be removed through the measures defined during the setting up of the logging site and work safety rules;

- progressive logging activities on plots with minimum use of machinery, material and labour;
- construction of a toilet with impermeable septic tank, recoverable to collect the human excrement.

2.2 Air

2.2.1 Air Pollution Forecast

The survey carried out within the study as well as the information held from similar situations (plots in exploitation, wooden material transportation etc.) indicate that the air on the site and around the site will not be affected at local, regional or transboundary level.

Emissions from internal combustion engines of forestry equipment and motor tools will form the suite of emissions associated with their operation and will be technically suitable.

The noise and vibration sources are those associated with forestry equipment and motor tools operation.

With respect to vibrations, given the design of the motor vehicles used and their size which falls in the medium size category, vibrations cannot be considered a major impact source.

Noise levels will have a localised impact, the personnel involved in clear cutting activities is the most exposed to this type of impact. In this regard, compensatory measures will be taken by applying the technical norms for labour protection and safety.

The machinery working within the logging site are equipped with Diesel engines, the main toxic emissions released to the atmosphere are generated by the exhaust gases, i.e. nitrogen oxides, sulphur oxides, carbon monoxide, organic compounds, suspended particles.

The amount of exhaust gas released into the air vary depending on the equipment number of operating hours thereof.

The average fuel consumption during one equipment operation hour at average operational capacity is estimated at 2 l per machine.

Taking into consideration that average emissions generated by the consumption of one liter of diesel are:

- NO 25 g
- SO 5.6 g
- CO 11g
- COV 12,2 g

The result is that given the hourly average fuel consumption (diesel) the followings will be released into the air:

- NO 98.0 g
- SO 22.4 g
- CO 42.6 g
- COV 48.0 g

As the exhaust gas emissions into the air are not governed by Order 462/1993, the level of compliance of the estimated values with the provisions of this Order can not be determined.

2.2.2 Impact Mitigation Measures

No.	Activity	Mitigation Measures
	During deforestation	
1	Equipment Operation	Use of modern equipment, periodically inspected and provided with pollutant mitigation systems
2	Transport of materials	Optimal routes Road watering

Although the scale of the clear cutting works is very large, no modifications of the air composition are expected as there are no industrial facilities or significant polluters in the immediate vicinity whose toxic emissions could generate regional accumulations with impact on the local population health. In addition, clear cutting works are planned over an extended period according to a phased schedule so that during each phase relatively reduced forestry areas are affected and particle loading (particularly dust from roads and mining areas) is minimised by applying logging plans.

2.3 Soil

2.3.1 Impact Forecast

Given its specific nature, the project under review will not generate soil pollution.

During deforestation activities, the substances which may accidentally and locally contaminate the soil are fuels, lubricants and residues thereof which may be improperly handled, stored or discharged during the equipment operation (sawing machines, forestry tractors, bulldozers for land grading and vehicles for wood transportation). Another pollution source is human excrement from the employed personnel.

The most significant soil impact will be generated by the stub removal operation using special machinery which causes soil compaction and track cutting. The impact of deforestation on soil will be on a short-term and cancelled by the impact of the stripping operation within the mining project.

The land use on the project site will permanently change, the industrial facilities and access roads within the mining project will replace the forestry fund entirely covered by forests, without aiming at producing wood mass.

By the tree cutting, stub removal, land grading works, excavations, transport of soil and construction material using heavy machinery a major impact will be generated on the soil and subsoil and various morpho-dynamic processes may occur, as follows:

- land slides occurring particularly during wet periods and on steep slope areas. Deep excavations in these areas may generate physical-geological processes if appropriate measures for land stabilisation are not taken;
- intensification of hidric erosion (creation of tracks, gullies as a result of uncontrolled water runoff) due to the removal of the vegetation cover and litter which provide significant protection.

The forecasted impact will only be local:

- **permanent**
    - o permanent stripping of the vegetation over the built area and its stockpiling for subsequent use for revegetation purposes.

- **temporary (during deforestation)**
    - o compacting and consolidation during logging as a result of machinery traffic (cutting, processing and transport of wood mass, land grading, construction of access roads);
    - o superficial erosion or land slides in wet areas with infiltrations or surface run-off (particularly during wet seasons) if prior torrent rehabilitation works are not completed and foundation conditions recommended by the geologist for each facility are not complied with.

- **Accidentally, during deforestation, pollutant spillages may occur as follows:**
    - o fuels, lubricants and residues thereof improperly handled;
    - o human excrement from the deforestation personnel;

These risks can be eliminated through the measures defined during the setting up of the work site.

2.3.2 Impact Mitigation Measures

As the land use is changed by permanent removal from the forestry fund, the soil does not have a productive function. The soil will be preserved or restored only in the empty areas between industrial facilities and access roads in order to install grass and bush-tree vegetation or trees for soil stabilisation. Upon completion of the construction works, part of the stripped and stockpiled vegetation will be replaced on the areas free of constructions and graded.

Application of measures to maintain the hydrological balance and correction of torrent potential results in the mitigation of the soil predicted impact.

The potential spillage of petroleum product on the soil will be removed by stripping and storage in compost areas where they will be treated in order to be reclaimed.

A number of soil protection measures are provided for deforested areas, as follows:

- clearing of vegetal detritus from tree cutting;

- construction of temporary silt fences on the steep slopes or in areas with potential for storm event occurrence;
- stripping and stockpiling of fertile topsoil from the sites that will be affected by the industrial activities or associated infrastructure;

At completion of works a comprehensive environmental reconstruction program is designed to be implemented in accordance with the Mine Closure Plan and Biodiversity Management Plan.
The vegetal material will be processed (grinding) and stored in compost areas for re-use as topsoil.

A primary sorting of the topsoil will be conducted during stripping by separating as much as possible the organic soil from the parental sublayer (layers of clay, weathered parental rock). The composted vegetation will be mixed with the parental sublayer in order to increase the organic substance.

The logging activities will be conducted so as to ensure that the soil to be stripped maintains its biological properties which characterize the forestry soils and meets the purposes of the mine closure and rehabilitation plan.

The areas disturbed by the mining activities will be progressively rehabilitated to reduce the impact, particularly the soil erosion after the construction or operational period. Starting from Year 9 of the project development, the areas where mining ceases will be subject to rehabilitation comprising the reconstruction of the soil cover and revegetation. Final rehabilitation will take place at the end of the mine's life when the mine is closed and all equipment and facilities are decommissioned.

Soil Rehabilitation Plan

The objective of the soil rehabilitation is to reconstruct the soil profile in order to restore the land at a quality class equivalent to the period prior to the mine construction (soil stripping). The reconstructed soil is a mineral and organic mixture able to initially sustain an anti-erosion layer and support the nearby vegetal species, both forestry and arable (pastures, hay meadow). For this purpose the reconstructed soil should ensure the following:

- Suitable moisture conditions;
- Suitable nutrition conditions;
- Capability to support an anti-erosion vegetation cover.

The soil quality for agricultural use (suitable for the most common crops in the area) and forestry use is a priority for the development of the soil rehabilitation plan.

The stripped soil, stockpiled for a number of years in specially designed storage will be used in restoring the soil cover on the areas where the rock and overburden were stripped for construction or ore extraction purposes.

The soil will be used in the last reclamation stage, after waste rock has been used to fill the pits and other excavations.

Thus, in the case of the pits, once filled with rock up to a convenient level, and based on the available amount of rock, the soil profile will be rebuilt by the installation of 20-30 cm deep lower horizons topped by 10-15 cm of fertile soil. Should the waste rock in the stockpile be acidic, a 20-30 cm thick layer of compacted clay will be built over it, followed by lower and upper soil horizon materials. The clay should be mixed with lime in order to create a buffer zone between the acidic material and upper soil layers. The same fertile horizon will be built along the berms, which will be re-sown, first with grass, and, in a year or two, with bushes or trees. In the stone quarries, the berms will be covered with 20 cm of material from lower horizons and 10 cm of the upper, humus generating horizon.

For the ecological restoration of the land used in the building of the TMF, a base will be built on top of the residual cyanide containing tailings, made of a 30 cm thick layer of compacted clay, followed by 80 cm of predominantly mineral lower soil horizons, topped by 10 cm of humus rich soil. This will be sown with various species of common native grass.

On the process plant site, after decommissioning, the land will be graded, covered with a 20-30 cm thick layer of lower soil horizons and topped with 10-15 cm of humus-rich soil. This will be sown with various species of grass and bushes.

The lower grade ore heaps will be covered with 20 cm of material from lower horizons and 10 cm of the upper, humus generating horizon, then grassed over.

For the ecological reconstruction of the decommissioned roads, scarification is recommended on a depth of 50-60 cm, followed by application of 20 cm of lower horizon material and 10 cm of humus-rich soil.

Erosion Control Measures

Where appropriate, the water collection channels will be constructed at the upper part and the bottom of the slope for erosion control purposes. Slope backfilling and filling, portions of the soil stockpiles used for rehabilitation or other areas left uncovered during the construction works and which will not be immediately used for rehabilitation will be seeded with grass, several cereal mixes or other plants from spontaneous local flora that develops a rather strong radicular system, just to minimise erosion.

Until sufficient restored vegetation exists for soil stabilisation there will be an elevated erosion potential for areas used for plant construction, plant access road and other infrastructure. RMGC proposes to implement an erosion control plan using the following techniques:

- Areas with a slope < 30% and short (<30 m) will be sown with grass or other plants from spontaneous local flora that develops a rather strong radicular system, thus ensuring protection against erosion. The area will be fertilised and harrowed to facilitate rapid germination of the vegetation cover and
- On steeper slopes longer than 30 m, grass seeding and fertilisers will still be used, in addition an anti-erosion mat vegetated with a mixture of native grass species (approved by the Ministry of Agriculture, Forests and Rural Development) will be applied on areas where the erosion potential is apparent.

The intention is to stabilise the land as quickly as possible encouraging the invasion of native species from undisturbed adjacent areas while the grass seeds from the species selected in consultation with the experts from Ministry of Agriculture, Forests and Rural Development and Ministry of Environment and Water Management, that will be applicable only if necessary.

Seeding and feritilising will be carried out using a harrow or hydro-harrow, however a helicopter can be used for extended areas (e.g. roads). If the latter is used, the application rate will increase (double up) and ensure the suitable soil cover.

Fertilisation

Fertilisation will be applied on the rehabilitated areas to facilitate the growth of the vegetation cover and invasion of native species. Application of fertilisers in small doses is recommended for areas where maintenance works are required.

If the soil and vegetation monitoring programme indicates defficiencies in nutrient levels, fertilisers will be applied and incorporated at the surface in the prescribed doses on the rehabilitated areas and soil stockpiles. Annual application of fertilisers is not intended to be standard procedure within the revegetation programme in order to prevent grass species from becoming competitive with the invasive species of bushes and trees and restrain weed installation. Where maintenance fertilisers should be applied, the application rate will be

determined based on the annual monitoring results, status of vegetation cover and rehabilitated facility.

The fertiliser application period will be limited to 1-3 years after rehabilitation depending on the revegetation performances.

2.4 Geology and subsoil

2.4.1 Predicted Impact

The environmental impact assessment has considered both the local impacts and impacts generated outside the Project area (including transboundary impacts). Given the immovable character of the geological structure, most of the impacts are generated at local level.
The activities involving definitive exclusion from the forestry use followed by clear cutting activities in 4 successive phases will not generate any impacts on the environmental factor subsoil, on any of the geological substrates.

2.5 Biodiversity

The forests take up 433 ha of the industrial zone site of which clear cutting of 248 ha will be required over a period of 17 years for Project development, as follows:

- in year 1 logging of the wood stands on the future access and industrial roads associated with the Carnic and Cetate pits, processing plant and other facilities will be required for site preparation. 48.08 ha of forest land will be affected in this phase;
- in year 6, in the construction and operation phase, the site preparation works will be continued including construction site development and mining activities. To achieve these aims, clear cutting of 135.29 ha of forest land from the Project site is required;
- in year 14, during operations, clear cutting of another 47.87 ha of forest land will be required;
- in year 16, once the closure and decommissioning phase begins, clear cutting of another 18.81 ha of forest land will be required.

Given the nature of this study, i.e. the impacts generated by forestry logging and deforestation on the Rosia Montana Project area, details are further presented with respect to the impact on the forest fund and effects on biodiversity.

2.5.1 Information on the forest fund within the Project site

From an administration perspective, the stands on the Project industrial zone site belong to the Forest District Alba Iulia, U.P. II Detunata (the Forestry District Campeni having recently been reassigned) and to the Forest District Abrud RA, within the same production division.

The analysis of the wood stands from the forestry resource located within the industrial zone of the Rosia Montana Project indicates that the forest vegetation in the area comprises mostly beech and hornbeam in conjunction with fir, spruce and to a smaller extent maple, ash, pine, alder, etc.

From a phytoclimatic perspective, the respective stands fall into two vegetation tiers, namely:

- mixed Alpine (FM2);
- Alpine - pre-Alpine beech stands (FM1 + FD4).

In terms of the distribution of stands by functional groups, for the investigated area (table), the stands with protection function (1-2A; 1-2H) prevail while the production function (2-1B) is encountered at stands located at the boundary of the investigated area and along the Rosia Valley.

The distribution by species of the stands in the investigated area indicates that the species associated with the naturally fundamental forest types present in the investigated area (beech and horn beam) are dominant. In addition, other valuable dediceous and conifer species are also present (i.e. sycamore maple, cherry, ash, fir, spruce), mixed however sometimes pure, as well as pioneer species established on the waste rock dumps and barren lands (i.e. pine, birch, etc).

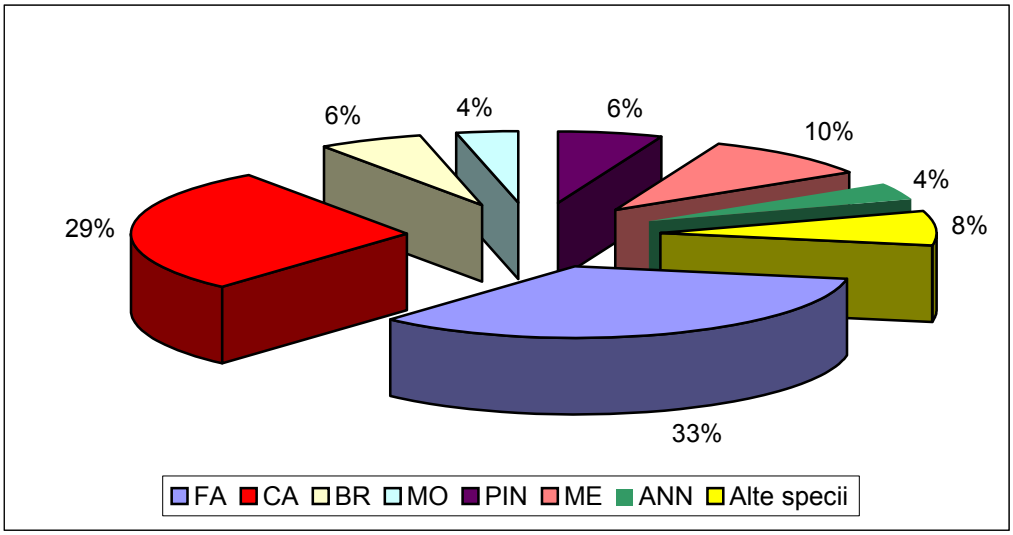

Fig. no. 1 Structure by species

2.5.2 Predicted Impact

Forests will remain one of the most important natural ecosystems, maintaining major ecological equilibriums with impact at regional level and balancing the overall natural events.

Logging of wood stands followed by deforestation over an area of 248 ha will generate major impacts, as follows:

- occurrence of a discontinuity at biostrata level (also known as the “GAP” effect); generation of environmental instability (associated with the discontinuity at biostrata level);
- qualitative and quantitative impact on the river system; facilitation of soil erosion processes and land slides;
- occurrence of climatic changes at local level;
- disappearance of ecological niches per unit area;
- isolation of certain flora and fauna populations;
- increase of pressure on the adjacent natural habitats;
- impact on the forest related functions (services);
- discontinuity at biostrata level, occurred as a result of project implementation is the most relevant impact from the biodiversity conservation standpoint;

Discontinuities, also known as “gaps” generate occurrence of environmental factor reactions (in this case flora and fauna) which differ from the normal reactions, in comparison with the general conditions within the adjacent matrix.

These effects could be compensated by applying a series of environmental reconstruction/rehabilitation practices which should have effect on both the sites within the mining project area and on areas in the close proximity.

Therefore, on the short-term a management aiming at maintaining high biodiversity indicators will be employed for the forestry sites in the immediate vicinity.

On the medium and long-term, this effect will be compensated by comprehensive environmental reconstruction and rehabilitation measures, development of plantation sites (Annex 2.7) aiming at restoration of damaged forestry habitats.

Both strategies will focus on reconstruction of habitats as close as possible to the fundamental natural habitats which characterise the vegetation storey in the Rosia Montana area, with management particularities specifically adapted according to the environmental features of the locality (slope, soil, geology, river system, adjacency, proximal impacts, vegetation cover, target species to support etc.).

In some areas, the plantations and protective screens will be doubled by ecological corridors which will amplify the protective screen functions, all together forming a consistent system designed to increase connectivity.

In order to minimise the impacts generated by the forest habitat loss, approximately 5ha of forest plantations were developed in the Gura Cornei area (Annex 2.7) prior to the commencement of the mining activity, and in Year 0 (2007) an additional 45 ha of forest plantations will be developed which will be managed such as to achieve in a very short time the massive status and take over the eco-protective duties of the cleared trees.

The plantations will form ecological corridors distributed along the perimeter of Project facilities. In addition to the functional role carried out in ensuring the support and dynamics of flora and especially fauna formations, the ecological corridors, through the selected sites, spatial configuration and intimate structure will also play an important role in the mitigation of environmental media with negative impact.

Consequently, the location of these structures along the contour line of the stockpiles to be stabilized will contribute to the stabilization process by blocking the run off and erosion along the slope. In addition, the “green fence” (hays/hedges) appearance within the first years from the plantation will rehabilitate the local landscape.

The placement of ecological corridors is primarily intended to increase the connectivity between elements of type "island" and "reservoir” of the proposed Compensatory Functional Ecological Network, forming real

The structure of the ecological corridors was described previously, replication of pre-existing local model being proposed. However, the intimate structure of each ecological corridor sector will be carefully selected in view of ensuring the ecological niches for the target species for which they were developed.

The ecological corridors will be dominated by the nemoral type consisting essentially of tree species from the basic local spontaneous flora.

Practically, each ecological corridor sector will be individually created as a result of a thorough analysis of the specific ecological requirements, developing in the end a sequence of linear ecosystems complying with the conditions required by the impact factor action on one hand and the dynamics needs of the flora and fauna elements on the other hand.

However, depending on the criterion species for which the corridor is designed eremic or wetland formations will be also included.

In addition to the ecological corridors, small islands will also be selected and developed in unimpacted areas which can not currently be connected to the proposed Compensatory Functional Ecological Network and which will act as „stepping stones”, thus contributing to the improvement of the connectivity and provision of small refuge zones.

Special attention will be given to the development of artificial connection structures of ecoduct type with focus on sub-crossing structures which will allow the storm water flow and transversal movement on the access roads of fauna species.

The ultimate purpose of this action will consist in the development of a biodiversity reservoirs in the proximity of the Project development area which will be connected to the Project Compensatory Functional Ecological Network. A preliminary outline of the most important sites in terms of the proposed reforestation is contained in the Exhibit of Year 0 of the Compensatory Functional Ecological Network development.

Furthermore, the ecological reconstruction of riparian habitats will be initiated which during the peak operational phase will take up most of the impacts.

Therefore, a new major type of ecological corridor will be developed dominated by ecosystems characteristic to riparian areas which will include in addition to rehabilitation and revitalization of watercourses the development of typical forestry screens consisting of the following species: sallow, aspen, ash and particularly alder.

From the total 433 ha of forest land, 248 ha will be deforested during the Project development period, while the compensatory ecological reconstruction measures will provide restoration of sites totaling 335 ha, with 87 ha more than the deforested surface area. An 18% progressive increase of the total forested area compared to the initial area should be noted.

Phasing of the works and forest land balance during the deforestation phases are summarized below.

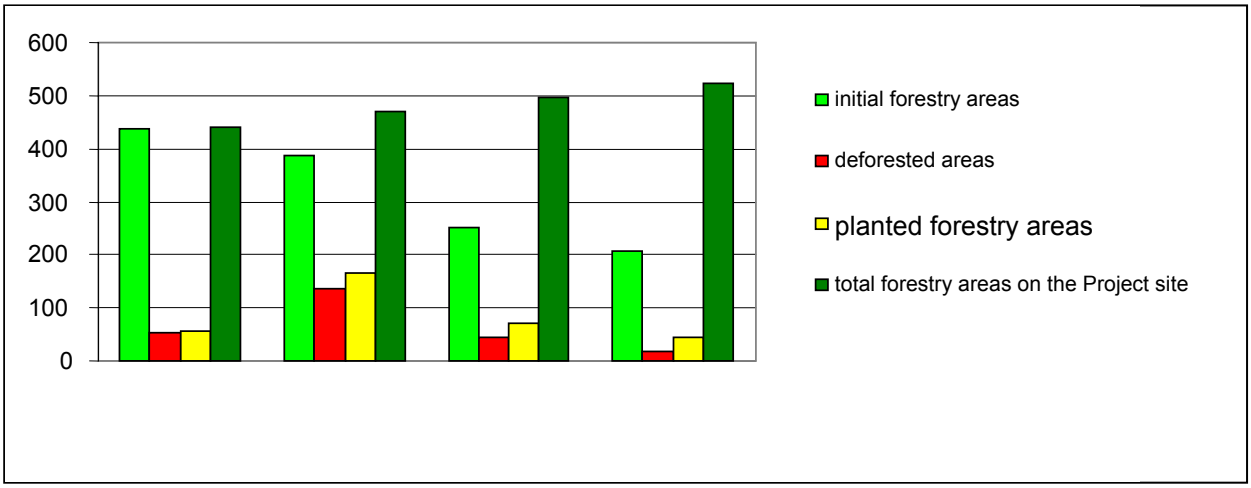

Fig nr. 2 Deforestation Phases

The predicted impacts generated following the implementation of the Project are as follows:
modification of the biotope areas across the site and land use categories;

- modifications of the forest fund by changes in age, composition on species, types of forests;
- habitat loss and modifications;
- modifications/destructions of the populations of plants;
- modifications of the economically important plant species resources;
- modifications of mushroom resources;
- modifications/destructions of the protected animal species;
- alteration of invertebrate species and populations, reptiles, amphibians, mammals, birds;
- dynamics of the resources of game species;
- modification of migration routes;
- modifications/destructions of animal shelters for growing, food, rest and hibernation;

Habitat Loss And Modifications, Including Protected

According to Natura 2000 three types of forestry habitats have been identified in the Project area. On the overall investigated area none of the identified forestry habitats will dissapear because of the Project, however they will be reduced.

The 9130 type of habitat –Asperulo-Fagetum beech forests corresponding as per the Romanian classification to R 4118 type - Dacian beech forests (Fagus sylvatica) and hornbeam (Carpinus betulus) with Dentaria bulbifera is well represented on the site and also outside the site, with the mention that outside it forms compact forest bodies (u.a. 104, 110, 111) instead of isolated trees covering limited areas in Corna Valley which will disappear entirely under the tailings deposition dam.

None of the forest habitats identified within the Project area has the “priority habitat” status according to the Romanian legislation (M.O. 1198 / 25.12.2005) or the Nature 2000 European Network.

Given the considerable anthropic influences, primary natural habitats are almost completely absent, being replaced by secondary habitats, many of which are degraded. Thus, for the project site, correlation with the types of natural habitats according to the Manual of natural habitat interpretation would be risky at best. Description of the vegetation cover and classification of the existing vegetation associations is also a task of very limited relevance to both the final goal of creating a compensatory ecological network, and to the initial assessment which, from the onset, reveals the existence of very limited areas of natural succession.

Natural habitats of deciduous forests with beech or beech with hornbeam will be largely eliminated from the Project site. However, beech, beech and hornbeam forest are common in the Project area and in the region as a whole. While its loss represents a negative local impact, it is not significant on a regional scale. Large beech stands, such as those in the Saliste Valley and in the lower Rosia creek valley will not be impacted by the project and will continue to provide an important measure of protection and preservation for this habitat.

Predicted impact on plant and animal species

It should be noted that the investigated area can be considered a mining area starting from the Roman era, the amount of mining works increased gradually in the Middle Ages and further in the communist period when they reached the maximum development. Gradually, the environmental impact has become more and more apparent.

As currently noted, the communist period caused significant environmental damages by not complying with mining operation rules.

Along with the increase of impacts on the habitats and local species, their normal reaction was to withdraw towards less impacted areas in the vicinity. Other species adapted to the human presence and industrial activities.

Considering the current biodiversity and habitats within the Rosia Montana mining project site, the following impact can be predicted:

A significant impact will be generated by the stripping of the vegetation cover (grass and wood) within the ore processing plant site, tailings decant pond dam and access road routes.

Consequently, disappearance of some habitats will attract the disappearance of fungi species and plants associated with these habitats. Furthermore, an entire series of invertebrate species (Ortoptera, Araneide, Heteroptera, Himenoptera etc.) with reduced mobility will be severely affected.

Mobility of species is a very important factor in the stability of certain populations.

The species less impacted by the deforestation specific works are those with a higher level of independence. These include bird and mammal species.

The period when works are carried out is also very important. During the first development stages, i.e. egg, larval and pupper, the invertebrate species are very sensitive to impacts.

With respect to vertebrate species, the maximum impact occurs during breeding and first development stages.

Considering the main vertebrate groups assessed the following impact can be predicted:

- **Amphibians**
    - The amphibian species identified in the investigated area are strongly related to wet areas. All listed species deposit their eggs in running or standing waters having an aquatic larval state.
    - The presence of a relatively high number of amphibians in the Project area, an area highly impacted by mining activities, including pollution with chemicals, traffic etc. shows that amphibians may survive even in the presence of these activities.
    - In conclusion, we may state that the impact on these species will be significant, however restricted at local level. All mentioned species are common to Romania.

- **Reptiles**
    - The identified reptiles are related to forestry, meadow and rock area habitats.
    - Reptiles are poorly represented in the Project area, however they are present regardless of the damaging mining activity carried out in the and total lack of protection measures. Most of the species are common, therefore disappearance of some small populations in the central area of the Project will not significantly affect the populations in the region or at national level.

- **Birds**
    - As birds are high mobility species they will be less affected by the Project. The critical period is the breeding season when birds are strongly tied to the nest locations. Knowing that 77% of the bird species nest in the forest, the impact during deforestation phases will be major. The ornithic fauna will be disturbed by the working equipment and haul equipment.
    - The birds may also be affected by noise, traffic, toxic emissions, therefore restriction measures will be taken by using modern equipment with high technical performance and by complying with the technical inspection schedules and endorsed operating procedures.
    - Rare woodpecker species are found mainly on the Vartopului valley and will not be affected as these habitats are located outside the Project area.
    - The birds characteristic to other types of forest habitats may suffer by their loss. As there are no species exclusively localised in habitats specific for the Project area and the habitats in the impact zone are largely represented in the region, the species will not be affected at regional and/or national level.
    - In conclusion, a "migration" at local level of the bird species in the damaged or destroyed habitat areas towards surrounding areas providing better living conditions can be predicted.

- **Mammals**
    - Large mammals, anyhow rare and without stable population in the Project area will leave this area settling in the areas surrounding the site. A proper management of the habitats in these areas will mitigate the impact.

- Bats can be particularly affected by destruction of feeding habitats and locations where they form summer or winter colonies.

During closure, once the area is environmentally rehabilitated, the birds will the first to restore their populations in the Project area.

The birds will not actually leave the habitats outside the maximum Project activity area and this is proved by their presence in the area regardless of the destroyed habitats, contaminated waters and current major impacts.

After closure and revegetation the mammal populations in the impact area will be restored naturally or through repopulations.

If necessary, RMGC will bear the cost for restoration of species considered difficult to naturally repopulate.

The relatively high number of plant and animal species makes it impossible to accurately assess the impact of the works on each species. Each species is a special ecological "individual" covering a well defined ecological niche. The exact impact assessment and determination of mitigation measures thereof will require comprehensive monitoring investigations throughout the life of the Project.

Predicted impact on game species

Project site covers the hunting ground no.7 Ciuruleasa (overall area of 12 347 ha) and no. 8 Detunata (overall area of 14 057 ha), impacting 1481 ha (10%) of the first hunting ground, and 164 ha (1%) of the second one, respectively.

Large mammals, anyhow rare and without stable population in the Project area will leave this area.

The toxic air emissions, as well as noise may represent stress factors for mammals in the area. The negative impact may continue, particularly by increase of traffic, vibrations and noise.

After closure and revegetation the mammal populations in the impact area will be restored naturally or through repopulations.

It can be concluded that the modification of the forested areas generated by the proposed Project has a limited impact with respect to game funds by categories of use.

Given the very high antrophic character and the intense activity of the local mines, all these mammals are in an area adjacent to the optimal habitat or at the edge of the living conditions.

This can also be noticed on the plan of the food and salt supplies located in the hunting fund within the investigated area; these are located outside the Project site.

All these species live outside the investigated area, they can be only sporadically or transitorily found within the area.

During operations, traffic along the access road and other roadways creates potential for increased mortality rates from vehicle strikes. The potential for disturbance of fauna from noise, vibration and visual sources is present throughout the Project Area, particularly in areas adjacent to roadways.

Modification of mushroom yields

As a result of forest cutting within the mining area, the forest ecosystem and all its components will be destroyed.

As a result of forest cutting within the mining area the micoritic fungi will entirely disappear being symbiotic species. Xylophage species will increase in number in a first stage - involving forest clearing when the volume of dead wood (stubs, logs, residues) is higher - where after they will significantly reduce their number in correlation with stub decomposition or soil stripping.

In the forests adjacent to the industrial sites, the number and frequency of fungal species will be modified according to the direct polluting effects, increase of direct human activity impact. The influence of the industrial activity will be stronger as the forests are closer to the mining site, gradually decreasing as the distance from the pollution sources increases. The frequency of fructifications of micoritic species will gradually reduce in the forests adjacent to the mine. Xylophage species are normally stimulated by the reduction of forest tree vitality, their frequency increasing in forests damaged by pollution and human activities (various injuries).

Modification of economically important plant resources and under a protective statute

The current important economic plant resources were largely degraded by the uncontrolled exploitation, grazing or mining activity which resulted in the reduction of the productive lands. The resource reduction will continue due to the development of the Rosia Montana Project, however the economic plant species can be found in the adjacent areas, the negative impact is significant at local level only without any impact at national or international level.

General measures and recommendations for impact mitigation

One of the most important impact mitigation measures is the completion of clear-cutting works, to the extent possible, during autumn - winter when the bird species is reduced by 45% and the resident species may withdraw to other areas.

The habitat loss effects will be mitigated by a progressive cutting of the forest, avoiding deforestation during nesting periods and proper management of conservation areas.

Accidental spillage of petroleum products should be prevented by speed limitation within the Project area, thus avoiding crashes, improper operation of vehicles and machinery should also be prevented.

The effects of habitat fragmentation will be mitigated by using ecological tunnels and corridors.

In the forests left at the Project area boundary practices which increase the fauna conditions will be promoted, e.g. dead and old hollow trees will be retained, artificial hollows will be created, sub-stands will be maintained.

The habitat fragmentation particularly for small and medium sized mammals will be partly reduced by using tunnels under roadways and ecological corridors.

In order to reduce the impact on bat populations, bat shelters will be installed in the forests within the protection area, a proper management of all habitats in these areas will be conducted, a mottled structure of the nearby habitats will be maintained.

Several such ecological corridor models are proposed, of which those along the access routes will be most often used, i.e. the property boundary type existing in the Rosia Montana area.

The ecological corridor along the access routes will have the following structure:

- In the immediate vicinity of the roadway a limestone gravel strip of up to 0.5 m wide will be constructed which in addition to the increase of traffic lane visibility (particularly during the night) it will also retain most of the materials on the roadway which are retained by the porous rock.
- excess water will be directed into drains; on the bottom of the drains rock insertions will be placed to reduce the water flow velocity and retain part of the water load, thus

creating a buffer zone on the bottom of the drains which by periodic cleaning will prevent silting of wet areas or contamination of water courses;
    - in connection with the drains a polder system will be constructed to collect the excess water generated by heavy precipitations or floods. They will be sized in accordance with the land availability ranging from a few tens of centimeters in width to few meters.
    - Wet environments will thus be restored which significantly increase the biodiversity indicators and
    - provide a series of extremely valuable services (thermal buffer, particulates retention system, retention of excess water, denitrification role etc.);

Ecological corridors of property boundary type have a complex morphology comprising a series of representative habitats of particular relevance for flora and fauna species. This model was developed based on field observations on habitats developed on property boundaries, many of those established a long time ago which supported the creation of a distinct ecosystem, a local characteristic of the Rosia Montana area. The characteristics of this ecosystem reside in the possibility to repeat some of the main component modules.

The main component modules of this type of corridor are as follows:

- strip of grass vegetation consisting of rich pastures or meadows, their configuration is determined by the type of management: late haymaking, rational grazing, respectively; the preferred width of this area is minimum 3m and optimal 6-7m;
- strip of ruderalised vegetation dotted with hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa) or Cornelian cherry (Cornus mas) shrubs developing in the immediate proximity of the mural component;
- the mural component consists of agglomerates of gravel and cobble forming fences with heights between 30 and 90 cm and widths between 30 and 60 cm, with gaps and collapses in some places, providing many ecological niches, bioschenes and synusy of important value for vertebrate and invertebrate microfauna species; depending on the exposure, the mural component is completed by etrophile, schiaphile, shade loving or even water loving vegetation (moss, ferns etc.) and repentis vegetation (mainly ivy). Association of this component with sempervierens species (Buxus sp., Ligustrum sp., Juniperus sp.) in the critical impact points with suspended particulate matter is a very efficient method for retention of dust particles and a major barrier against wind (prevention of wind blasts, snowdrifts etc.) and most important it provides valuable shelter for bird species throughout the year.
- the nemoral component comprises a diversity of species consisting of the local spontaneous flora with bush-tree species (Corylus avellana) associated with tree species (Tilia cordata, Quercus sp., Fagus sylvatica, Carpinus betulus, Betula pendula, Alnus sp., etc.). Particularly important are the ash (Fraxinus excelsior) and sallow (Salix sp.) species located in wet areas which by pollarding provide an extremely valuable habitat for nesting, shelter etc. The nemoral component may be completed by introduction of native aspen species (Populus tremula) which is a fast growing tree providing improved wind protection.
- at the edge of forest bush-tree species stretch out, rose species (Rosa canina) being preferred. The initiatives regarding the Management of Biodiversity will be summarized by RMGC throughout all phases of the Project in order to minimise impacts to biodiversity and thereby conserve biological diversity in the Project area. A more detailed discussion of these initiatives is presented in the Roşia Montană Environmental and Social Management System Plans, Plan H, Biodiversity Management Plan and is based on the features of ecological significance identified in Ecological Baseline Report. The proposed initiatives have also been developed in accordance with the legal and regulatory framework pertinent to biodiversity conservation in Romania (including international conventions).

2.6 2.6. LANDSCAPE

2.6.1 Impact of deforestation on the landscape

Deforestation of the 248.05 ha of forests in the Project area will generate the following impacts on the landscape:

- modification of the ratio between land use categories;
- modification of the ratio between the natural and antrophic landscape;
- modification of the aesthetic value;
- visual impact.

It should be noted that all these impacts generated by deforestation will be felt only during the pre-construction phase of the Project; the impacts will be subsequently incorporated in the impact generated by the development of the mining project.

2.6.2 Measures for mitigation of landscape related impacts

- only the trees strictly required to clear the site for construction purposes will be cut.
- plots exploitation will be conducted progressively as late as possible before the construction of industrial facilities.
- development of forestry plantations on the Project site and adjacent area prior to or during the implementation of the mining project.

Mitigation of impacts on the landscape will be achieved through the implementation of the mine closure plan which includes the reforestation plan for the area and creation of the Compensatory Functional Ecological Network.