Abstract. The Czech tradition of landscape map compilation is more than 100 years long and developed itself in a close links to the progress in the world presented in a brief overview in the paper. Landscape maps classification overview, methodological approaches to landscape typology and history of the Czech landscape cartography are introduced in the paper. At the present time the adoption of The European Landscape Convention and need for a new landscape typology represents a great challenge for Czech geographers. The completing of the new “Landscape Atlas of The Czech Republic” gives a good opportunity to present results of Czech landscape cartography products. The Atlas should be finished till the end of the year 2007. It consists of a set of traditional and newly composed landscape maps, everyone in a digital form. The content of the Atlas composed of nine sections is briefly described in the paper, as well..

Key words: landscape typology, landscape maps, landscape atlas, natural landscape, cultural landscape, Czech Republic

Introduction

Landscape mapping and classification is one of the chief aims of both geography and landscape ecology. There are many theoretical and practical reasons why to do it. A core of practical applications of landscape mapping and classifications consists of a wide sphere of landscape planning, landscape character assessment, evaluation and protection and landscape management. Different landscape types and regions are characterized by different development potential and limits, natural conditions, vulnerability and other characteristics used as a basis for sound landscape planning (Lipský 2005).

Landscape division and classification has rather long history also in the Czech geographical community. It started already in the 19th century however methods used during the whole period were very different depending on the state of knowledge, technical and professional background and on the purpose of the work, of course. Recently the urgent need for a new, exact and in practice available landscape classification on the European as well as national levels has been emphasized by the adoption and ratification of the European Landscape Convention (Council of Europe 2000). In the Article 6 - Specific measures, Part C Identification and assessment of the Convention there is explicitly specified:

....."with a view to improving knowledge of its landscapes, Party (= country) undertakes:

a.1) to identify its own landscapes throughout its territory;

2) to analyse their characteristics and the forces and pressures transform them;

3) to take note of changes;

b) to assess the landscapes thus identified...." (Council of Europe 2000)

The adoption and ratification of the European Landscape Convention have eventuated a financing and solution of a number of research projects both on the European and national level to fulfill obligations resulting from
the acceptance of the Convention. From the European projects, the ELCAI (European Landscape Character Assessment Initiative) project (Wascher 2005) and the new Pan-European landscape typology (Mücher et al. 2003) have to be mentioned at least. Also in The Czech Republic a new landscape typology initiated by the European Landscape Convention has been elaborated in the beginning of the 3rd Millenium (Lőw et al., 2005). A completely new national landscape atlas containing a set of landscape maps is preparing just now.

Landscape maps concept and classification overview

Various approaches are hidden behind the title „landscape mapping“ (even landscape ecological mapping), and among them also commonly very specific ways of landscape survey. It was noticed by Maly (1994), who commented, that „some so called landscape maps produced by non geographers (by ecologists, biologists, planners) are not a true landscape maps, because they display only selected landscape components and the other ones are totally neglected or suppressed. Such maps do nothing with the synthetic approach typical for the landscape maps in true sense of this word“ (Maly 1994).

The landscape is for more than hundred years a subject of scientific interests. Regardless to unfixed terminology the basic research principle is based on the holistic and systematic landscape approach. This basic working principle is transferred into the landscape documentation where the key role is being played by landscape maps. In comparison with pragmatic and this way not totally understood homogeneous units in standard thematic (analytic) maps (e.g. in geological, geomorphological, botanical, ecological, social, economic-geographical etc. maps), the landscape mapping identifies homogeneous natural and/or human influenced areas reflecting their genetic homogeneity and complexity. Such approach is very well defined by the Zonneveld’s concept of landscape territorial unit (land unit - Zonnenveld 1995). Landscape units represent various levels of territorial division and depend on the mapping scale and resolution. A detailed classification and surveying methods of chorological landscape units on different hierarchical levels (topochorae, nanochorae, microchorae, mezochorae, macrochorae, megachorae) were developed by the German geoecological school (e.g. Haase 1964).

The multi-parametric homogeneous natural landscape units (both of the reconstructed and/or potential landscape) are commonly called as “geosystems” or “geocomplexes”. On the global level such homogeneous units are represented by landscape belts of the „landscape sphere”, on regional level by “geoms”, on choric or „landscape level“ by “geochorae” it means “own landscapes” and on the local level by “geomers”, or “geotops“, etc. Their human made modifications are commonly defined using their present appearance, especially present land use/land cover. The holistic approach needs all the mapping landscape units have to be described using parameters of all landscape components (geology, terrain, soils, humidity conditions, climate-energy, vegetation, land use). Components of the primary (natural) structure of the landscape can be arranged into a consequence from the most stable (conservative) components to the most active ones. One example of the arrangement of the natural landscape components is presented by help of the „dependency pyramid“ (fig. 1). The homogeneity requirements are set up as well if human impacts are to be displayed. Any area has to be represented with one land use form or by a predefined combination of land use forms and their pattern.

The analytic data overlay and its integration represent the simplest concept of the synthesis of component geodata. The final output is represented by a landscape map. Its areas carry multi-parametric information. All parts of this information are mutually balanced as it is in a real territory. Any synthetic landscape map can be disintegrated into a set of analytic layers logically and geometrically aligned. The landscape map simulates a multi-parametric data set in GIS open to other inputs and applicable for many purposes. This way, the landscape maps demonstrate the territorial distribution of multi-parametric homogeneous landscape units (geosystems) and present a synthetic idea about the nature and its transformation by humans in a certain territory (Kolejkowá et Kolejka 1992). The intention to implicite a total character of a territory, regardless if natural or cultural, using a spatial synthesis represents the main reason of landscape maps. Landscape maps are synthetic maps always presenting multi-parametric information.

In general terms, the synthetic map (after Pravda 1983) presents a certain phenomenon as a complex system while its components originated as consequences of an integration, higher level of abstraction of more elementary (analytic) or complex phenomena or parameters. The concept of landscape maps represents the
most general criterion of their classification. This way two basic map groups can be distinguished (Kolejka 1999, Lipsky 1998):

1 - landscape typological maps (with respect to certain generalisation they present similar but distributed territorial units repeating themselves in the time and space),

2 - landscape division maps (emphasizing certain oneness or unique individual features of identified units; these landscape units are expressed by their geographical names).

The scale plays a very important role in the classification of landscape maps. The scale defines the map resolution and this way the opportunity to display landscape units of different taxonomic levels:

1 - topical landscape maps demonstrate homogeneous elementary landscape units; they are usually products of field mapping of landscape units or their components (soils, geology, vegetation, etc.). Aerial imagery is used as supporting data source for mapping. Topical landscape map scale varies between 1:5 000 and 1:25 000.

2 – choric landscape maps, or own landscape maps present more heterogeneous territorial units. Their identification requires a certain prospect what is necessary for generalised processing of field data, aerial and satellite imagery. Homogeneity criteria reflect individual levels of choric landscape division (micro, mezo, macro, mega) and represent 3 data integration about the soil and forest canopy classes, land forms and later relief classes, geotectonic structure and climate represented by plant formation. The dominant role in the unit definition is played by the terrain because it operates on the choric level as the main distribution factor of energy, water and solid matter. Maps are being compiled at the scales between 1:25 000 and 1:500 000 (exceptionally at smaller ones).

3 – regional landscape maps present territorial units with an extend and position reflecting impacts effects of zonal geographic (both vertical and horizontal) factors of landscape division. The water/energy balance is the most important among them. The plant formation (geom or biom) plays the role of an identification criteria and homogeneity indicator together with the genetic unity and general physiognomy given by terrain megaforms, as well as general land use pattern. Map scales regard the continental/regional resolution level and vary from 1:1 million to 1:10 millions (exceptionally at bigger ones)

4 – global landscape maps represent highly generalised synthetic models of the whole Earth landscape sphere (or hemispheres) and within their contents display landscape belts as results of decisive climatic impact on most landscape forming processes through the primary distribution of the solar energy. Units identified on the global level are similar to climate-morphogenetic planetary belts and presented at the scale less than 1: 25 millions.

Modern landscape maps represent a classical cartographic synthesis with a polycomponental content and multilayer organisation. The digital landscape maps linked with a GIS database offer on one hand various opportunities for their purpose oriented applications and use, on the other hand also unlimited options for cartographic presentation of their content. It is possible to realize it in a 2D form (traditional), as a 3D model (using digital elevation model or model of a statistic surface), eventually in a 4D form (as animations of 2D or 3D models or processes inside the model). Digital landscape maps simulate multi-parametric GIS databases and if necessary it is possible to disintegrate them into „original“ analytical layers, now geometrically and logically
The latest integrated landscape database is represented by a digital landscape model (Kolejka 2003), consisting of three integrated multi-parametric data layers on the primary, secondary and tertiary landscape structure and DEM. Using it an unlimited number of analytic, assessment, modelling and visualizing operations is possible (fig. 2). Traditional (e.g. one-layer) land use maps and various derivatives from them cannot be accepted as real „maps of present landscape“ because of the information about the natural background as the landscape merit is missing.

**DIGITAL LANDSCAPE MODEL**

![Digital Landscape Model Scheme](image)

**Fig. 2. Digital landscape model scheme**

**Brief review of European landscape maps**

General maps of natural landscape types commonly exist in many European countries, usually as a part of national atlases. Methodical procedure of their compilation is similar as a rule, based on the methods of overlapping of partial thematic maps or data classifying single natural components of the landscape (like geomorphology - relief, soils and their parent material, climate, potential vegetation). Differences are in the emphasis assigned to single components and also used terminology. Single typological attributes corresponding to landscape components have got different significance in different landscape types. In the Alpine countries, for example, the greatest significance has been traditionally predicated to relief combined with the altitude, whilst in the Scandinavian countries bioclimatic conditions are the most important.

The map of primary (= natural) landscape structure on the scale 1: 500 000 is a part of the *Landscape Atlas of The Slovak Republic* (2002).

The system approach of the Slovak geocological school is expressed in the term of mapped landscape units: **potential geosystems**. They are complex, synthetic natural landscape units with emphasis laid on natural potential vegetation. In the new *Atlas of Representative Geocosystems of the Slovakia* (Miklós, Izakkovičova et al., 2006), the country territory is divided into 85 geocological regions. The regions represent individual landscape units, mostly corresponding with geomorphological units of individual geomorphological division. Typological units of natural landscape are represented by 120 “representative geocosystems”, mapped and defined on the basis of combination of zonal (bioclimatic) and azonal (geology and relief) conditions. Natural landscape types in Poland were mapped on the scale 1: 500 000 using systematic physicogeographical approach, synthetizing single components of natural landscape into complex natural (geocological) units (Richling 1984). The map of natural landscapes compiled by Metnen and Schmitthüsen (1953-1962) has become for long time the most reputable landscape division in Germany. Newly more detailed classifications and divisions combined with regionalization link up to Meyen and Schmitthüsen’s typology in single federal countries of Germany. The first complex, not only to components oriented natural landscape classification in Scandinavia was published...
in 1977 (Werner 1989). The division is on the first level based on characteristics of natural vegetation (i.e. forest types), but reflects morphological features of the relief as well. Similar examples are known from more European countries like Hungary, Romania, Bulgaria, Ireland and others.

Traditionally biophysically and ecosystem oriented approach with the emphasis given to zonal vegetation depending on climatic conditions have been applied to map so called ecoregions in the United States and Canada (Bailey 1976, Omemik 1987).

**Maps of the present cultural landscapes** represent a wide spectrum of different approaches, used data and methods of mapping and map compilation. Mapping of the secondary landscape structure which dominantly influences some features and character of the present landscape is the most common. Maps are compiled using data on functional land use or data on land cover. Recently digital data from the European CORINE Land Cover database are used in a routine way. Maps of land(scape) use and maps of land cover are common in many European countries now, however classification systems and legends of the maps can be different. Accordingly several datasets like CORINE or PELCOM based on a uniform interpretation of satellite images have been created on the Pan-European level (Lipský et Romportl 2007).

The cultural landscape is a complex of both natural and cultural elements and both layers of the present landscape - primary as well as secondary landscape structure - influence its visual features and further significant characteristics. A complex map of the present landscape shall be accordingly created as an inventive cartographic synthesis composed of both layers. The map “Types of present landscape” on the scale 1: 500 000 from the Slovak national atlas (ATLAS SSR 1980) is one of the first examples of such map. The map was created as a result of a combination of natural landscape types and present landscape use. A similar two-layer physiognomic approach has been also applied to compile the map of landscape ecological complexes in The Landscape Atlas of The Slovak Republic (2002) distinguishing 53 types of the present cultural landscape associated into 13 classes of the types of natural geocomplexes.

A method of mapping of the British landscape using GIS has been developed in The Institute of Terrestrial Ecology (U.K.). The method is based on the analysis of the existing data on land use, actual and potential vegetation, soils and relief in squares 1x1 km. 32 land classes have been defined on the territory of The United Kingdom (Bunce et al. 1991).

Methods of landscape typologies and landscape mapping, aimed at landscape character assessment in different European countries, have been reviewed in the European ELCAI project (European Landscape Character Assessment Initiative, Wascher 2005). In the framework of the ELCAI project, a comparison of methodological approaches to landscape mapping have been done based on national inputs from 15 European countries: Austria, Belgium, The Czech Republic, Denmark, Estonia, France, Germany, Italy, Norway, The Netherlands, Portugal, Spain, Switzerland, Slovakia, United Kingdom. Mapping of the present cultural landscape is directly connected to mapping and assessment of landscape character. The different national and regional landscape typologies form a patchwork of classification models, which are conceptually rather incompatible at the international level.

In contrast to natural landscapes mapping, where methodological approaches are similar, the more complicated maps of cultural landscapes are compiled in single European countries by help of diverse and often non-repeatable methods. The methodologies can differ substantially depending on traditions of geographical and landscape research, the practical purpose of the mapping and landscape characteristics of the country. The emphasis is given to factors influencing the character of the present landscape and forming its specific regional features. The account given to single factors is very different in single countries. As a result, the boundaries of landscape types and land units of neighbouring countries are not linked over state boundaries.

More details concerning the methodologies of existing national landscape mappings and classifications in European countries are described in the ELCAI Final Project Report (Wascher 2005; www://elcai.org).

The first Pan-European typology of the present cultural landscape has been developed by the Dutch landscape architect Meeus (1995). As a result of the long-term expert work, Meeus identified 30 main European rural landscape types on the map of the small scale 1: 25 millions. The typology is multi-dimensional, using typological criteria like relief, bioclimatic and vegetation zones, land use and regionally specific landscape patterns and also visual aspect of landscape scenery. This typology was published in the report Europe’s Environment: The Dobřiš Assessment (Bourdeau et Stanners, 1995) and has become known also in The Czech Republic (Lipský...
Demands of the European Landscape Convention (Council of Europe, 2000) and the generally increasing policy needs for a more detailed and accurate data on present landscape types at the European level initiated a new approach to the identification and mapping of European landscapes. The new Pan-European landscape typological map was elaborated in the research centre Alterra (Wageningen, The Netherlands) using computer based GIS methods of processing digital data of the Pan-European coverage. In the first version (Mücher et al. 2003), three core data layers were selected to compile the landscape map and identify landscape types:
1 - topography (the digital elevation model GTOPO30)
2 - soils and their parent material (European Soil Map on the scale 1: 1 million)
3 - landscape use (CORINE Land Cover database)

In its second version (LANMAP2, Mücher et al., 2005), the environmental stratification of Europe related to climatic zones, aggregated into 8 types of environmental zones has been used as the fourth data layer. The resulting European Landscape Typology Map LANMAP2 contains 375 European landscape types sorted into eight environmental zones. The map should be applicable both for scientific and practical policy oriented purposes of strategic planning and landscape character protection at the European level. More details of the methods of elaboration of the map are provided in works Mücher et al. (2003; 2005), Wascher (2005), Lipský et Romportl (2007) and also on the website www.elcai.org, www.alterra-research.nl.

Development of the Czech landscape cartography

The holistic landscape research and assessment enjoyed more than one-hundred-years long tradition in the Czech lands. The economic requirements were at the beginning of such activities in the year 1885 when the delimitation of Natural landscape units of the Kingdom of Bohemia was completed. Karel Kofrštka - the famous Czech geographer of that time expressed the idea of a synthetic assessment of individual landscape regions what was a very progressive approach both in European and world science context. The landscape units were understood as naturally divided units with specific natural features implicating and influencing together the ways of economic utilizing of the territory. Later the divisional approach (regionalism) became dominating and so called „natural landscapes“ have been identified in the Czech lands after the First World War (Koláček 1924; Král 1930; Vincent 1927). Similarly so called „natural regions“ (Dědina 1927) or “native areas” (Dvorský 1918, Král 1930) were distinguished. Especially geographers Král and Dědina boosted the holistic approach in the acceptance both of natural and cultural landscapes. Král (1930) expressed the idea, that the „native area“ is being formed by natural factors without sharp delimitations by borders. In opposite, “cultural areas” have been developed from native areas by the „coexistence of humans and the nature“ during the process of mutual influencing. Regionalisational efforts made by Korčák (1936) and Moschelesová (1936) were precociously terminated by the Second World War which badly cut up the Czech scientific community.

The post-war scientist differentiation and formation of academic institutes caused the preference of analytic research. The biological and geological sciences stood on the top of the landscape research in the Czech lands (Hejný 1961, Veselý et al. 1954). The turning point in geographic landscape research arrived with the pushing of the systematic approach in geography by The Geographical Institute of The Czechoslovak Academy of Sciences in 1970s (Demek 1974). The map „Physico-Geographical Regions of The Czech Socialist Republic“ at the scale of 1:500 000 was published as a part of the set of maps of physico-geographical division of the country (Demek, Quitt et Raušer 1975). It was the first scientifically based map of typological natural landscape units on the territory of The Czech Republic. The physico-geographical regions (using present terminology – natural landscapes) were described by four-digit code, where the first one represents the vertical dissection class of the relief, the second one the genetic class of relief, the third one the climatic region and the last one the vertical forest vegetation stage.

Approximately at the same time, the simple landscape assessment procedure has been developed at the TERPLAN State Planning Institute - predominately for the strategic central planning practice oriented institution. It was based on maps at the scale of 1:50 000 and completed for the whole territory of The Czech Republic (Muranský et al. 1977, Nauman et al. 1977). The national territory was divided into three basic landscape
classes using statistical data (tab. 1) about land use on cadastral level:
* A – anthropogenic landscapes totally transformed by humans,
* B – relatively harmonious (balanced) cultural landscapes with an equilibrium of natural and human made element,
* C – relatively natural landscapes with a dominance of natural elements.
All these objectively and pragmatically defined landscape classes were divided into areas within one of three value levels:
* (+) high or improved landscape value
* (0) basic or average landscape value
* (-) low or reduced landscape value

Table 1. Distribution of basic landscape types according TERPLAN (Muranský et al. 1997, Nauman et al. 1977) in The Czech Republic, in percentage

<table>
<thead>
<tr>
<th>Landscaping value</th>
<th>Total</th>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased</td>
<td>30.4</td>
<td>0.4</td>
<td>23.2</td>
<td>6.8</td>
</tr>
<tr>
<td>Basic</td>
<td>63.9</td>
<td>27.8</td>
<td>35.1</td>
<td>1.0</td>
</tr>
<tr>
<td>Decreased</td>
<td>5.7</td>
<td>3.3</td>
<td>1.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>31.5</td>
<td>59.9</td>
<td>8.6</td>
</tr>
</tbody>
</table>

In 1980s and 1990s other nation wide landscape maps originated as parts of atlas compendia in Czechoslovakia. The maps of natural landscape classes represent the most of them. The map „Natural (Geocological) Landscape Classes“ from the Slovak National Atlas (1980) represented their methodical background. The last federal Czechoslovak work, „The Atlas of the Environment and Population Health“ includes the map “Types of natural landscapes“ at the scale of 1:1 million. Each of the 71 distinguished landscape types is described in the legend as follows: climate, relief, substrate, potential vegetation. In principle, the map represents in the Atlas the whole block of analytical physical-geographical maps (Kolejka 1992). The information derived from the map can be disintegrate into original analytical layers (climate, relief, substrate and potential vegetation).
It is typical that the most landscape maps from the 1970ies-1990ies represented various classes of the natural landscape what does not exist any more on the Czech territory for longer time. These maps show classes of potential natural landscape. The natural landscape mapping is methodically simpler and results are unambiguous. That is why maps of natural landscapes are common parts of many national atlases of countries with developed geography and cartography.
The mapping of present cultural landscapes is much more complex and complicated. All the natural (primary) structures, the human influenced secondary and tertiary landscape structures have to be taken into account when compile the map. Methodological aspects of the cultural landscape mapping were studied by Kolejka and Lipský in the framework of the research project in the 1990ies (Lipský et al. 1997, Kolejka et Lipský 1999). The present landscape maps were constructed at 8 different scales from 1:10 000 to 1:2 millions. Maps at scales of 1:500 000, 1:1 million a 1:2 millions are nation-wide. The map extracts at larger scales (1:10 000, 1:25 000) present topological landscape units, while chorological units are shown in the map at the scale of 1:50 000 and less. These maps have two-layer content structure with regard to the present landscape physiognomy:
1 – a natural background layer (primary structure),
2 – a present land utilising layer (secondary structure).
Both these layers can be integrated into one information layer if the cartographic generalising is strict at smaller scales.
The new landscape typological map is represented by the mapping of Czech “landscape mezotyps“ at the scale of 1:500 000 (Löw et al., 2005). This map has been completed as a part of the project No. VaV/640/1/03 „Typology of Czech Landscape“ supported by the Czech Ministry of the Environment. This output has been required by the European Landscape Convention. Three data layers were applied for the identification of landscape mezotyps:
1 – natural features,
Kolejka J. et al.

2 – social-economic conditions,
3 – cultural objects.

(these information layers were interpreted pragmatically and do not respect standard terminology). A consequent „synthetic map of framing landscape view classes” presents 160 classes of units at the scale of 1:200 000. Every landscape unit is identified by three-digit-code. The first position represents the class of settlement area, the second one gives information about land use, and the third one shows the georelief class (Löw et al., 2006). Also these classes were defined and identified using an untraditional and systems less approach.

Landscape maps in The Landscape Atlas of the Czech Republic

The absence of a comprehensive cartographic product depicting the present state of scientific landscape knowledge was being felt in The Czech Republic for longer time. The formulation and elaboration of the new landscape atlas of the country has been inspired by The Landscape Atlas of The Slovak Republic published in 2002. Since 2003, The Landscape Atlas of the Czech Republic is being compiled in our country under the support of The Czech Ministry of the Environment as a scientific geoinformation and cartographic project. Tens of academic, governmental and private subjects take a part in the project completing, among others hundreds of specialists, authors and reviewers of single maps. The Atlas shall be completed and published now in 2007.

Digital geoinformation technologies play a dominant role in the atlas compilation and finally in the use as well. Map originals presented by authors are mostly in digital form as GIS data sets compiled using standard whole country topographic base at four main scales: 1:500 000, 1:1 mi., 1:1,5 mi. and 1:2 mi. These maps or cartograms covering the total national territory are accompanied with local and regional map extracts at bigger scales (1:10 000, 1:25 000, 1:50 000, 1:100 000 and 1:200 000). The Landscape Atlas of The Czech Republic will consist of about 800 maps, cartograms, aerial and satellite photographs and other graphics after completing. The most of them will be of analytic concept, describing and depicting specific aspects and features of landscapes on the territory of The Czech Republic from viewpoints of different scientific and applied disciplines. Basically, any atlas chapter, regardless to the domination of analytic maps, will raticiniate into synthetic pericope presenting in mutual relationships the key content of given chapter. Such kind of synthesis will form the content of various classes of landscape maps.

The Atlas is divided into 9 sections:
1. Landscape and methods of its study
2. Geographical position of The Czech Republic in Europe and in the World
3. Historical landscape
4. Natural landscape
5. Present (cultural) landscape
6. Landscape as heritage
7. Landscape as environment
8. Landscape of the future
9. Landscape in the art

The aim of this division is to cover the whole spectrum of Czech landscape understanding as much wide as possible. However some topics could seem to be abstract, they are reasoned because the present landscape is a product of interactions and space of conflicts both past and present natural and anthropogenic processes. Then the atlas is composed to cover the extremely wide range of approaches to landscape - from naturalist, sociologist, economist and specialists in history view over artistic perception and interpretation of the landscape up to its inhabitants, makers and stakeholders.

Section 1 „Landscape and methods of its study“ is aimed at the interpretation of the term „landscape“ from different viewpoints. Various methods of landscape research and landscape interpretation and assessment for both scientific and practical purposes are presented in maps, graphs and profiles, computer based models, GIS methods etc. Demonstrations of mapping of the Czech landscape from the end of the Middle Ages till present, including old military, topographic and cadastral maps, atlas works, orthophotomaps and contemporary computer maps compiled using information technologies, are presented in the section as well.
Section 2 „Geographical position of The Czech Republic“ is focused at relations of the Czech landscape to European conditions. The Czech landscape and geographic environment is classified in the natural, economic, demographic and political frameworks of the Old continent. Maps on the scale 1: 20 millions demonstrate links our territory to neighbouring countries and in the European context.

Section 3 „Historical landscape“ shall document landscape development on the territory of The Czech Republic. It concerns development of both the natural landscape during the Ice Age and Holocene and the cultural landscape from the Neolithic time. Important development stages including phases of landscape colonization and periods with specific and significant features of landscape use as well as landscape changes are showed in maps and other graphics. As a final synthetic map, a typology of the state territory from the point of view of landscape changes and developments is presented.

Section 4 „Natural landscape“ is a collection of analytical and synthetic maps, cartograms and graphs concerning natural landscape elements: energy, atmosphere, geological bedrocks, relief, water, soils, biota and landscape as an integral system manifestation of single elements. Quite new is the subsection Energy in the landscape, still missing in landscape maps and atlases. Final synthetic landscape maps are represented by the Map of natural landscapes (typological division) and the Map of natural landscape regions (individual division), both on the scale 1:500 000.

Section 5 „Present landscape“ shows the co-existence of nature and society on the territory of The Czech Republic from many angles of view. Population, settlements, economic, social and cultural aspects and their co-operation and manifestation in the landscape are demonstrated in maps and other graphics. These society’s activities influence the landscape and its functions, characteristics and scenic views in a significant way, which is also documented by many regional examples and orthophotomaps. Map syntheses of the section are represented by the Map of present landscape types (typological division of the present landscape), the Map of landscape regions (individual regionalisation of the present landscape, which was still missing in the country), both on the scale 1:500 000, farther the Map of function landscape types on the scale 1: 1 million and the map Types of landscape character on the scale 1: 500 000.

Section 6 „Landscape as heritage“ presents the natural and cultural values of the landscape. Maps of all landscape and nature protected areas, occurrence of rare and endangered species of flora and fauna, landscape dominants, important landscape segments, biocentres and biocorridors, geological and geomorphological phenomena as well as cultural and historical landmarks form the content of the section. The complex map „Landscape ecological values of the territory“ at the scale 1:500 000 close the section as a synthesis of previous analytical maps.

Section 7 „Landscape as environment“ is dealing with the state of the environment in the country. Analytical maps concern single components of the environment like air, soils, bedrocks, surface and ground waters, forests, vegetation and fauna in terms of their state, recent development and a degree of anthropogenic transformation. Natural and anthropogenic hazards and risks, landscape potential(s) and carrying capacity are mapped as well.

Section 8 „Landscape of the future“ is aimed at development programmes, scenarios, trends and hypotheses concerning expected future developments of our country. The topic shall be discussed both from the viewpoint of single resorts with respect to the impacts in the landscape and from the position of the landscape as a recipient of man activities and their impacts.

Section 9 „Landscape in the art“ shall introduce the Czech landscape in visual art works. Bohemian, Moravian and Silesian landscapes have attracted the attention of painters and other visual artists from of old and its expression in art works is traditionally an integral part of our cultural wealth. Own landscape maps in the Atlas, accordingly synthetic maps of natural and present landscape, will play following roles as:

a) a cartographic document: offering to the user various ways of cartographic presentation of the territory structure, dynamics and/or other complex feature in the past and present, here will be shown map extracts at different scales from selected parts of The Czech Republic

b) a methodological document: demonstrating individual ways of landscape map construction, legend composition and map reading, examples will be given on map extracts usually from one territory only
c) an informational document: giving characteristics of area shown on the map, usually the territory of The Czech Republic in maps of typological (classified) or individual (division) content; maps in extracts provide information about representative examples of typical Czech landscapes
d) an application document: atlas maps are directly applicable for individual levels of landscape planning with regard to their scale and resolution; such maps are presented in chapters depicting environmental options and limits of the landscape and assessing their future development
e) a historical document: any atlas map represents the level of knowledge at a certain time, regardless its wide ability to be updated.

The final product will represent until now relatively rare cartographic work to be distributed on the paper (bound volume and set of single maps), on the Internet and on DVDs or CDs not only in a raster but also in a vector form. It will represent basically a very extend vector/raster database to be applied to solution of many consequent tasks. At the same time, it will be a representative work recently absenting in the Czech cartography. The electronic version makes possible an updating individual data layers.

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References

Dvorský V., 1918. The territory of the Czech nation. Český čtenář (Czech Reader), 10, 6-7, 1-79. (in Czech)
Landscape mapping...


Král J., 1930. Cogitations about the division of the Czechoslovak Carpathians in natural regions and their denomination. Proceedings of The Philosophical Faculty of The Comenius University, Bratislava, 7, 54 (1), 1-33. (in Czech)


Lipský Z., 2005. Landscape typology as a basis for sound landscape planning. ALFA SPECTRA Planning Studies FA STU, 9, Special Issue, 8-14.


