

## Introduction

*When you cut all of the trees,  
catch all of the fish,  
and poison all of the rivers,  
You will find  
that money cannot be eaten.*

(Native American phrase)



The Hungarian Ministry of Defence and the Armed Forces make an effort for paying attention to the protection of the environment during the execution of military training, exercises and other tasks related to defence. The defence of the nation cannot mean the destruction of nature.

The Hungarian Ministry of Defence has been paying increased attention for handling environmental problems since 1994 in order to establish the conditions for applying the best available technique in environmental protection related to military activities. The Hungarian Army has to fulfil strict environmental regulations since the beginning of our NATO/EU membership.

From thematic sub-actions referring to the second planning phase of the National Environmental Program the conservation of biological and landscape diversity deserves highlighted inte-rest. This is not else but the implementation of tasks related to the conservation of natural values occurring at the shooting ranges, and exercise areas of the Hungarian Armed Forces.

More cautious, sustainable utilisation of the ecosystem is a stressed task for the sake of the conservation of biological diversity and landscapes.

Contrary to opinions living in common knowledge - being acknowledged by the national nature conservation - it was proved in the last some years that in many cases there are still such natural values existing on military exercise areas which are far surpass the flora and fauna of similar areas treated by the ci-vil sphere. The enclosure of shooting ranges and exercise areas and the usage order considering zonality have also been contributed to this.

This fact is proved by documented surveys which were focusing on the natural values of more important shooting ranges and exercise areas during the designation of Hungarian areas of the Natura 2000 Ecological Network of the European Union thus deserving protection by the EU.

The Hungarian Army is conscious about to find the answer for that key question, how it is possible to satisfy the needs of the present generation such way not to divest future generations from the possibility of harmonic coexistence with nature and prevent environmental-natural heritage of all of us from irreversible damage.

**Dipl. Eng. Brigadier General Gábor Csák**  
**Hungarian Ministry of Defence**  
**Infrastructure Agency**  
**general director**

## Military usage

The task of the Shooting Range and Exercise Area at Várpalota is to ensure the preparation for and execution of trainings, exercising and shootings by domestic and foreign military troops. The Várpalota Shooting Range and Exercise Area has been fulfilling its present function from the beginning of the 20th century. In 1905 the Common Army Artillery Shooting School at Hajmáskér and the military associations of the Infantry Shooting School operating in Várpalota and at Inota-Hajagospuszta were established. The Commandantship of the



Exercise Field of the Hungarian Royal Soldiers Troop was formed in 1913 in Várpalota. After World War II on March 16, 1949 the Soldier Artilleryman Training Camp was established which can be regarded as a legal predecessor

of the Central Training Area Commandantship established in 1992, later of the Bakony Tactical Training Center of the Hungarian Army (established in 2004) which is operating the shooting- and exercise area. The Central Training Area at Várpalota, being divided into three parts, was established for military exercises of different size and level services, all-arm operations of airplane-, helicopter, and land troops of the Hungarian Armed Forces and foreign military units, as well as for the execution of peacekeeping and commanding exercises with or without live-fire manoeuvres. The exercise area and shooting range at Hajmáskér consisting of Point "0" Shooting Base, the exercise- and shooting field at Kőrös-hegy and the exercise field at Gyulafirátót is suitable for the implementation of different field manoeuvres without live-fire exercises, and for tactical exercises and for the execution of controlled fire guiding with live-fire exercises of different military services and special troops. These areas have camps, the British and the Boundary Forest Camps which serve the placement of the staff and military equipment arriving here. The exercise- and shooting field at Bakonykúti, located east of the training base of Hajmáskér is suitable for the execution of military manoeuvres with live-fire, for base shootings with live-fire; for the execution of individual, collective shootings and shootings performed in formation, for the execution of different tactical and peacekeeping exercises, for the execution of tactical exercises of helicopter units without live-fire, and for bomb-throwing in formations not bigger than a squad.

## Forestry management

From the end of the 19th century due to the increased usage of the area the Forest Guardianship of Army Treasury had been operating which tasks were the treatment of the shooting and exercise fields, supplying the barracks with firewood, ensuring wooden parts for military carts, cannons, ammu-nition cases and for stables for military horses and cavalymen. Army treasury (state) forest management has more than a 100-year tradition in Hungary. Today this area of the



Bakony is managed by the HM VERGA Co. Its tasks is to professionally organize, manage and perform works related to forests, game and agriculture. It has to take care of the maintenance of present forests and afforestations, and of the establishment of new forests and afforestations.

Afforestation happens in natural way, from seed in the shooting field. In spite of careful and indulgent wood cutting it is necessary to replenish and replace the renewed forests. With continuous human intervention creation of such forests is the task which mostly satisfy people's demand (primary function) in the given natural environment.

The area is water deficient due to limestone, dolomite base rocks and the thin covering soil layer. Living running water, in which there is water all-year-round cannot be found. It is basically important to ensure enough water for the significant game stock living in the forests (deer, roe, wild-boar, moufflon etc.). The HM VERGA Co. has been making significant efforts since 1993 for this. The water management works performed by itself and the planned ones beyond their direct aim, with the creation of wetlands and influencing the microclimate have a positive effect on forests; they also decrease the damages caused by overflowing waters and provide favourable landscape elements with their open-water surfaces.

Hunttable game species constitute an irrecoverable part of renewable natural resources of Hungary. They possesses aesthetic, scientific, cultural, economic and genetic values, therefore - as national treasures - they must be conserved in natural state for future generations. The Company performs such game management in the area of the shooting field that with conscious skilled work done in the planned management of habitats it ensures the improvement of trophy quality of big game.

To be a forester provides an opportunity to let our children know the forests and the related works. Therefore nature trails, relaxation forests are created, and hiking routes are designated. Together with public authorities sleigh- and ski tracks are operated. Where it is possible, lookout towers, playgrounds, shelters against rain and places for laying the fire are established.



**Special tasks in national defence and nature conservation**

Conciliatory negotiations conducted with the Ministry of Defence in 2004 in relation to the designation of NATURA 2000 areas initiated a cooperation process with competent national park directorates, in which course preparation and discussion of nature conservation management plans became possible.

The aim of the preparation of management plans is to establish harmony between nature conservation and military utilisation of areas managed by the Ministry of Defence, moreover - for the sake of conserving natural values occurring in NATURA 2000 areas -, the maintenance of the ecological network of the small region according to unified management principles.

In military areas for the long-term survival of natural habitat types and species habitats not only the achievements of the Hungarian nature conservation are used, but with the use of the knowledge gained on international forums held by the participation of EU defence organisations we plan to ensure the execution of military trainings in a "nature friendly" way.

These nature conservation management plans reviewed and accepted by national park directorates from professional point of view will serve the basis for individual Area Utilisation Agreements to be concluded the Minister of Defence and the Minister of Environment and Water. Management tasks and the way of their execution will be laid down in these documents.

## Our nature conservation objectives

- To ensure long-term survival of natural and landscape values of the dolomite vegetation, forest vegetation and grasses (pastures) characteristic for the Eastern-Bakony.
- To satisfy the ecological demands of protected species living in the area.
- Preservation of dolomite vegetation presently being in good condition.
- Prevention of degraded dolomite grasses and mixed karst forests from further degradation, elimination of the causes of degradation.
- Preservation of forests being in semi-natural state.
- Conservation of the biological diversity of forests, continuous elimination of alien wood species.
- Conservation and improvement of biological diversity of grasses.
- Regular treatment of degraded and shrubbing grasses, grazing.
- Elimination of alien and invasive species and weeds endangering the natural flora and fauna.
- Conservation of landscape values, and mosaic structure of the landscape.
- Elaborate the conservation plan of species having national or international importance.
- Elimination of illegal rubbish-dumps.

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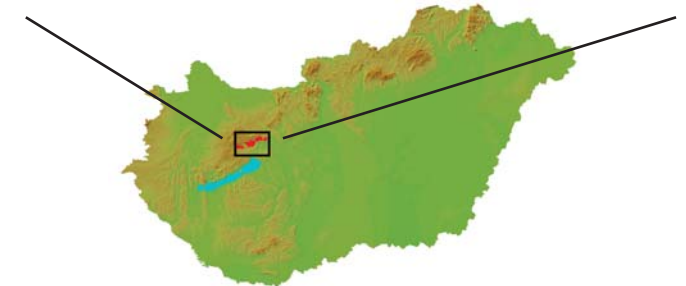
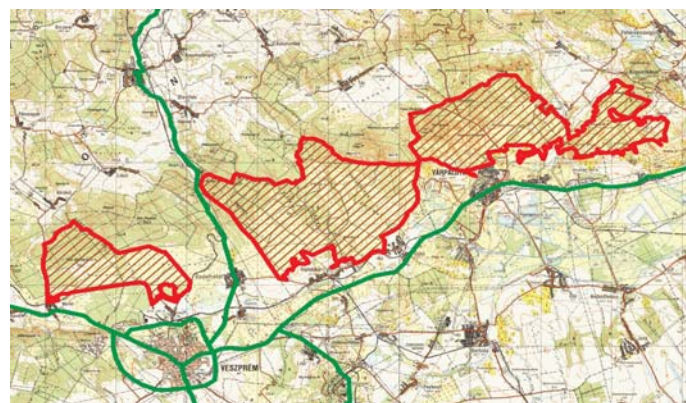
The natural values of the Eastern-Bakony, the treatments, the forest- and game management tasks performed for their conservation and the military activities get on well beside each other. Beside several decade military usage such plant- and animal species survived in the area which prove that different shootings and exercises can be executed parallel with the preservation of natural areas and biological diversity. The Hungarian Army pays special attention to the protection of the environment and nature in its shooting ranges and exercise areas in cooperation with authorities and bodies for nature conservation and the organization managing the forest stands of the exercise field.

Making use of this opportunity, we ask the visitors, soldiers arriving to the area of Eastern-Bakony for being aware of the environment; help us in the conservation of our natural environment. Such way we will be able to conserve the diverse flora and fauna also for future generations.

For further information please contact the Ministry of Defence (<http://www.hm.gov.hu>), the Balaton Uplands National Park Directorate (<http://www.bfnpi.hu>) and the HM Forestry Management Co. Veszprém (VERGA) (<http://www.verga.hu>).



## Map of the Shooting- and Exercise Field at Várpalota



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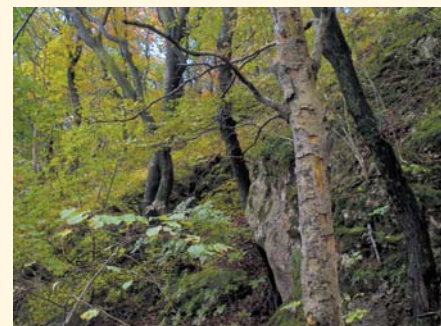
## Treasury of dolomite habitat relicts

In our country the dolomite vegetation has point-like occurrences in smaller areas of the Transdanubian Mountains, therefore the untouched and natural dolomite vegetation occurring in large areas in the Eastern-Bakony has significant importance.

The dolomite and the indented surface characteristic for dolomite let the development of special flora and fauna. On steep dolomite slopes and ridges the base stone gets broken up into small pieces due to the big fluctuation of temperature thus preventing afforestation of the area. Therefore grassy habitats could survive for a long time. These habitats are real original grasses. Relief of the dolomit: the smaller and bigger valleys, sharp ridges, cones with steep slopes result in diverse microclimatic conditions which let the development of associations of species having opposite ecological demands within a relatively tight area. Such can the atlantic beech and the submediterranean manna ash occur in one association (rocky beech forest - Fago-Ornetum).

Regarding base rocks, the area is built of carbonate sediments, terrestrial and marine sediment series with diverse development and composition. In smaller areas eluvial - deluvial formations (slope loess, slope debris) moreover eolic sediments (loess, sandy loess) can be found. Regarding soil types mainly redzinas can be found in the area. Name of redzinas, or in other name "base rock affected soils" originates from the closeness of the base rock to the surface. This condition strongly influences the soil development processes resulting in thin soil surface.

Permanently flowing streams cannot be found in the area, predominantly because of the dolomite and limestone base rocks, having good water permeability. Permanent springs are also rare in the area. The catchment area is the Séd-patak (stream) and the Sárvíz. Mining indirectly has affected the area while the level of the karst water was depressed due to bauxite and lignite mining carried on in the surrounding areas. For today, mining has been much less significant in the region; the level of karst water is rising. Lower lying water-holding rocks will slowly become saturated in the future, but the degree and duration of this process is not known now. From phytogeographical point of view the whole area belongs to the flora district called Vespreniense. Its flora is rich in species; the dolomite vegetation is characteristic here, but certain elements of plain loess vegetation also can be found.



association (rocky beech forest - Fago-Ornetum).

The dolomite and the indented surface characteristic for dolomite let the development of a special flora and vegetation. The area is an extraordinarily diverse and mosaic habitat complex. The process of afforestation is very slow under such conditions and on such thin soils. On southern slopes shrub forests dominated by white oak and manna ash, in northern exposure rock beech forests are characteristic. The extension of closed dolomite rock grasses and mixed karst forests developed on the coldest slopes of northern exposure is small, but these are very important associations from the view of nature conservation. Both associations are endemic, they preserve special relict species. Rock grasses, rocky and grassy slopes form diverse mosaics with forest spots. At the border of habitats with different microclimate such relict species may hide which survived from earlier periods of different climate. Hornbeam-oakwoods and beech forests occur only at higher sea level, in northern exposure or at the bottom of valleys. Scree slope forests and dry grasses developed after clearings are also important, which mainly can be found on glades and in smaller openings. On more intensively used parts of the shooting fields degraded, weedy, dry grasses and secondary steppes are the characteristic habitat types. In accordance with climatic and soil conditions, on the largest part of this region the original vegetation was once probably lime-preferring oakwood and karst scrub forest. The extended grasses had developed after deforestations following human settlement. Our ice age relicts occur in the above habitats of cooler climate, like the bear's ear (Primula auricula), the victory onion (Allium victorialis), the Carduus glaucus, the rose daphne (Daphne cneorum).

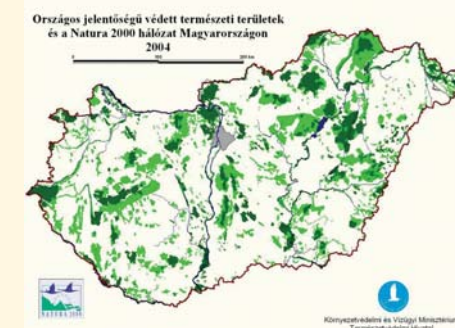
The area is also rich in species of submediterranean-Balkan origin. The predatory bush cricket (Saga pedo) reprocluding with parthenogenesis can be found at several points. Strong populations of a butterfly, the mountain small white (Pieris ergane) living on candy mustard (Aethionema saxatile) also live here.

It is due to the otherwise unfavourable features of the area (from the view of agriculture) that the area has been used as a military exercise field from the 19th century. The military usage has contributed to the conservation of the natural values of the area.



## The Natura 2000 network

Hungary became the member of the EU on May 1, 2004. Legal harmonisation with EU regulations became an obligation. In accordance with this, areas belonging to the Natura 2000 network had to be designated on the basis of the occurrence of species and habitats of community importance, according to the orders of Council Directive 79/409/EEC on the conservation of wild birds and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. The Natura 2000, established by the EU is such a coherent European Ecological Network which ensures the conservation of biological diversity through the protection of natural habitat types and wild animal- and plant species of community importance and contributes to the maintenance of their favourable conservation condition or to the restoration of it. In case of habitat types and species which occur only in the territory of our country, the so-called "Pannonics", our responsibility is especially high in designating areas being large enough in the respect of the domestic stands of the given habitat type or species. These areas, designated by the help of some hundred experts were published in the appendix of the Governmental Order No. 275/2004. (X. 8.), while the cadastral number list of land portions affected by the Natura 2000 network appeared in Governmental Order 45/2006. (XII. 8.). Designation of domestic areas happened with the consideration of criteria laid in the directives. The designated Natura 2000 sites - special protection areas for birds and special areas of conservation - mount up to 1,95 million hectares, which is 21 % of the area of the country (light green). The Natura 2000 network is built partly on the



existing network of protected natural areas (39 % of the areas, marked with dark green on the map), but areas have not been protected till now also belong to it. With the Natura 2000 network preservation building upon the harmonisation of social, cultural, economic and nature conservation

interests can get emphasis instead of reservation-like protection. Certain forms of management can be continued in the area, if they are reconcilable with conservation. The biggest advantage of the establishment of this network is that natural values of Hungary gain legal protection from the EU, which means a higher level of protection. This considerably supports the efforts and our work in nature conservation, and helps the more effective conservation of our uniquely rich natural values.

## Natura 2000 species and habitats

Typical habitats of the area are the open- and closed dolomite rock grasses (Pannonian rock grasses), slope steppes, rock grass slopes and dolomite grasses with feathergrass (sub-continental steppic grasslands), the karst scrub forest and lime-preferring oakwoods (Pannonian woods with Quercus pubescens), turkey oak - sessile oak forests (Pannonian turkey oakwoods), beech forests (Asperulo-Fagetum beech forests) and the hornbeam-oak forests (Pannonic woods with Quercus petraea and Carpinus betulus). Small, point-like occurrences of rocky beech forests or mixed karst forests (Medio-European limestone beech forests of Cephalanthero-Fagion), forests of slopes, screes and ravines (Tilio-Acerion forests of slopes,



screes and ravines), the continental steppe scrubs and submediterranean scrubs (subcontinental peri-Pannonic scrubs) are extraordinarily important. These habitats are natural, and especially typical for the Eastern-Bakony. Characteristic species of open dolomite rock grasses belonging to Pannonian rock grasses are the endemic Seseli leucospermum and Dianthus plumarius ssp. registephani. A moth, called Phylometra culminaria which occurs in the above habitats and in rock grasses with feathergrass, is one of the most important representa-

tives of steppe relicts of Hungary and even of the whole Carpathian Basin. Extended dry grasses provide home and food also for the tawny pipit (Anthus campestris). Souslik (Spermophilus citellus) can be found at several points of the area in dry, grazed grasses. Appearance of saker falcon (Falco cherrug) and imperial eagle (Aquila heliaca) primarily depends on the population size of the souslik. Two pairs of the short-toed eagle (Circaetus gallicus) breed in the surrounding forests; it prefers areas rich in reptiles. Pannonian woods with Quercus pubescens and turkey oak forests are the most frequent forest habitats. Our rare, forest steppe species is the Serratula lycopifolia, which lives in forest margins and in clearings. The most impressive representative of capricorn beetles living in beech forests and in rocky beech forests is the alpine longhorn (Rosalia alpina). Its larvae are developing in beech trees "drying on their feet".

Bechstein's bat (Myotis bechsteini) is a strictly protected species of Hungary which lives in old forests, in hollows of trees. A bat species of the area, which typically winters in caves, is the lesser horse-shoe bat (Rhinolophus hipposideros).



## National defence and nature conservation in the Eastern-Bakony



2008.