



Operational plan for IMPP

Hármashatár Hill

City of Budapest

Content

1	INTRODUCTION	3
	1.1. The aim and purpose of OP	3
	1.2. The design of the plan, obligations and validity of OP	3
2	THE IMPORTANCE OF URBAN FORESTS AND MAIN MANAGEMENT OBJECTIVES	10
	2.1. Purpose of UPF	10
3	STATE OF FORESTS AND FOREST USE	14
	3.1. State of forests and forest management	14
	3.2. Visit to UPF and infrastructure	19
	3.3. Important objects in UPF	22
	3.4. Assessment of use, changes and influencing factors	26
4	GUIDELINES FOR FOREST MANAGEMENT	28
	4.1. Subordinated guidelines	28
	4.2. Fundamental / basic concepts	29
	4.3. Guidelines for allocations with priority ES	31
	4.4. Detailed forest zoning	32
5	ACTIVITIES	33
	5.1. Short description of the planned activities	33
	5.1.1. Activities based on the underlying principles	35
	5.1.2. Short-term developments	35
	5.1.3. Medium-term developments	37
	5.1.4. Long-term developments	38
	5.2. A detailed plan for each of the activities listed above	39
6	GOVERNANCE	67
	6.1. Implementation / responsibility	67
7	MONITORING	68
	7.1. Indicators of monitoring and control	68
	7.2. Revision of the plan	68
8	COSTS AND FINANCING	69

1. INTRODUCTION

1.1. The aim and purpose of the OP

As part of the URBforDAN project, Budapest has reached the phase of preparing the operational plan (OP) for Hármashatár Hill. Since June 2018 the Municipality of Budapest and FŐKERT Non-profit Ltd. involved stakeholders in the participatory planning process. Based on the analysis of ecosystem services the strategic part of the Integrated Multi-use Management Plan has been completed on a wider area of about 555 hectares.

Currently, the OP for a focus area of 16 hectares in the heart of the strategic area is being prepared. The activities and measures in the smaller area are aiming at improving ecosystem services in the wider vicinity of Hármashatár Hill.

It is an absolute priority to prevent construction of new buildings in the focus area and preserve natural heritage – while insuring multipurpose, socially inclusive, ecologically regenerative and sustainable use of local peri-urban forests. In the focus area of Hármashatár Hill, the suggested measures concentrate on recreational activities to educate and gently direct the hikers and sportspersons. The restoration of natural habitats of the degraded segments of the 16 hectare focus area is also necessary. By creating a new, attractive forest destination, the severe ecological impacts caused by the massive crowds in popular forests (especially Normafa) can be alleviated.

The purpose of the OP is to create a basic document for several stakeholders. After being approved by the General Assembly of Budapest and the 2nd District, it will serve as a basic document for local landowners and forest administration.

1.2. The design of the plan, obligations and validity of OP

- Basis for OP

Forestry plans

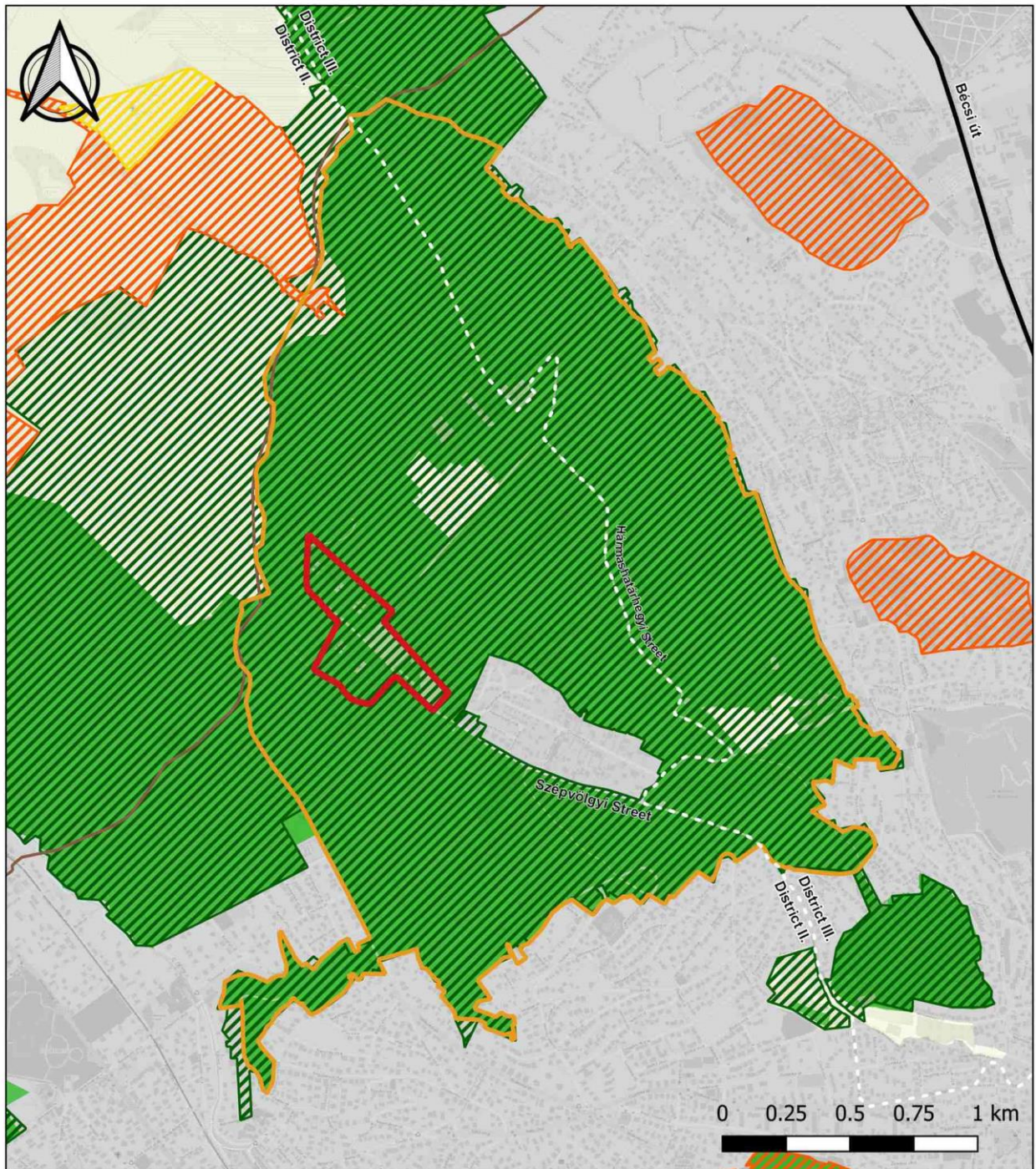
Forest management planning has a more than three-hundred-year-old tradition in Hungary. The principles of forest management planning remain, however the institutional background has changed a lot even in the past three decades. The latest reorganization took place in 2019. Currently Forestry Department operates under the National Land Centre, a public administration. The forest management planners of the Centre make 10-year management plans in all forests of Hungary. The forestry management plan valid for the strategic area and most parts of the focus area has been prepared in 2013. Some recently afforested parcels of the focus area will be inserted into the management plan of the public administration in 2022.

Spatial plans

The most important document is effective from 16 March 2019 Act CXXXIX of 2018 on Spatial plan of Hungary and some priority areas. Figure 1, simply referred to as the National Spatial Plan illustrates the land use planning categories of the region. It is evident that except residential areas the entire strategic area falls within the category of ‘area of forest management’.

The same Act defines the core area of the National Ecological Network. The total focus area is part of the Network – as it can be seen in Figure 1.

Figure 1: National Spatial Plan



Map Legend

- Focus Area
- Strategic area
- National Ecological Network – core area
- National Ecological Network – ecological corridor
- National Ecological Network – buffer zone
- Border of 2nd and 3rd District

- Highway
- Natural gas pipeline
- Land use categories
- Forest area
- Agricultural area
- Residential zone

The 3rd part of the abovementioned act refers to the Land Use Plan of the Budapest Agglomeration. As it can be seen in the Appendix (App Figure 1: Land Use Plan of Budapest Agglomeration) a large proportion of the strategic area belongs to the 'zone of forest management' a smaller part to the 'zone of agriculture' and 'residential zone'.

Land use plans

We researched the two-level land use regulation operative in the administrative area of Budapest. The short summary is that the strategic area (including focus area) of the URBforDAN project is part of the land use planning category 'forest'.

There is one plan we have to pay special attention to. The Regulatory Plan of the Small Plots of Forested Lands at the end of Szépvölgyi Street, 2nd District of Budapest was made in 2008 exactly for the focus area. The plan wasn't approved 11 years ago, but this November it was submitted again to the body of representatives of the 2nd District. Essentially the OP is in line with the plans of the 2nd District, but the regulatory plan assigns the reception of the tourists not on our Birders' Clearing, but in a different place, opposite of the bus terminus. Therefore we have to initiate negotiations with the 2nd District, as soon as after the local elections decision makers on both sides will be in place. You can see the map of the Regulatory Plan in the Appendix, App Figure 2.

Urban development documents and large-scale strategical plans

The OP is also in harmony with the Budapest 2030 Long-Term Urban Development Concept and the Integrated Urban Development Strategy of the 2nd District. Both documents urge enlargement of forested area.

Among the relevant documents the following documents were also reviewed: the National biodiversity strategy, the Climate Strategy of Budapest, the Environmental program of Budapest and two nature conservation documents: the Management plan of the Buda Landscape Protection Area and Management of Natura 2000 Sites. Operational Plan is in harmony with all the above mentioned documents.

- Relation to forest management and other planning bases

Major part of the OP belongs to Budapest 2nd district 161A, 161 B and 161 C subcompartments, where the last planning period happened in 2013. There is an official management plan valid until 2023, but in the document for above mentioned subcompartments the forest manager is not specified. URBforDAN project is a good chance to arrange it. It is true also for the smaller part of the OP which is not included in the system of forest management planning. The fact that there are only 2 owners (Municipality of Budapest and the 2nd District) will make easier to solve the administrative task.

- Obligation

It can be achieved that at the time of the next forest management planning (2023) the OP will be fully consistent with the content of the FMPs. For this purpose first the OP has to be approved by the Municipality of Budapest and the 2nd District, and the focus area of 16 hectares has to be declared nature conservation area of local importance (based on Act No.

LIII. of 1996 on Nature Conservation in Hungary). Forests of the focus area already managed by the Municipality of Budapest. The nature conservation area status is important, because in that case the maintenance of the focus area can be fitted into the system of FŐKERT Ltd, manager of the locally protected nature conservation areas in Budapest. It means that together with the institutional background the finances also will be provided. When those two main points had been arranged the Municipality can submit the OP to the Forest Directorate's Department of Forest Supervision and Forest Protection Service together with the application to approve FŐKERT as the manager of the given forest subcompartments. That is the way how finally OP will become part of a binding document.

Of course with an OP officially approved by the Assembly of Budapest and the 2nd District, fundraising becomes much easier.

In the case of other stakeholders there is no mandatory character of the OP. There are no private forest owners in the area. The main partners are the visitors of the focus area for recreational purposes. For them the OP is not 'a law', in the project we have to convince them about the virtues of the OP. That is already prepared by the stakeholder meetings.

- Preparation of the plan

OP of the URBforDAN project was put together by an external expert of FŐKERT, György P. Gadó, forest engineer, graduated nature conservationist with NGO and communication background. His co-workers were professional landscape-architects, Zsombor Boromissza and Tímea Erdei, mainly focusing on graphical analysis. The work of the team was based on the former documents of the URBforDAN project (minutes of the stakeholder-meetings, research on ecosystem services, strategic plan, etc.) and also on the continuous communication with the project contributors in the Municipality and FŐKERT. The communication went on with forestry administration, Pilis Park Forest Company (manager of forests of the strategic area around the focus area) and the Duna-Ipoly National Park Directorate (in charge of nature conservation in the whole region).

- Time validity

The OP is made on a 10 year period which means it is valid until end of 2029. The field works begin in spring 2020. The plan will be revised in the mid-term that is in May 2025. In the end of November, 2019 we can not say who will be the person responsible for the plan revision. The situation is described in the next point. The system of control is detailed in the end of the OP on page 77.

- Difficulties in operational planning and beginning of implementation

On 13 October, 2019 there were local elections in Hungary, which had a significant effect on our project, because changes were expected and actually happened in the governance of both owners, the Municipality of Budapest and 2nd District of Budapest.

Because of the elections in the autumn of 2019 neither the Municipality nor District mayors were sure if they will continue their work after the elections. As a result Hungarian participants of the URBforDAN project could negotiate with the experts of the administration but it was impossible to make agreements with the leaders of the local governments.

Right now there is a major change in the governance of both local governments. From environmental point of view the change is definitely for better, but it takes some time until the institutional structure becomes clear. In the beginning of December we just guess that Green Territories Division will be part of the Environmental Department, the names of the Heads has not been known yet. Anyway the persons directly involved in the URBforDAN project will probably remain in their position.

We can be optimistic about the future of the project, hopefully the realization will speed up in second part of January. It is a realistic plan that negotiations of the Municipality and the 2nd District can be launched in the end of January. As a result modifications in the OP can happen. It is expected that in February 2020 the OP can be submitted to the Assembly of Budapest and the resolution will speed up the whole process.

In the OP main directions, planned measures and even planned facilities are clear. We expect that some important steps will be realized during the URBforDAN project period, and others will continue according to the approved OP after the end of the URBforDAN project.

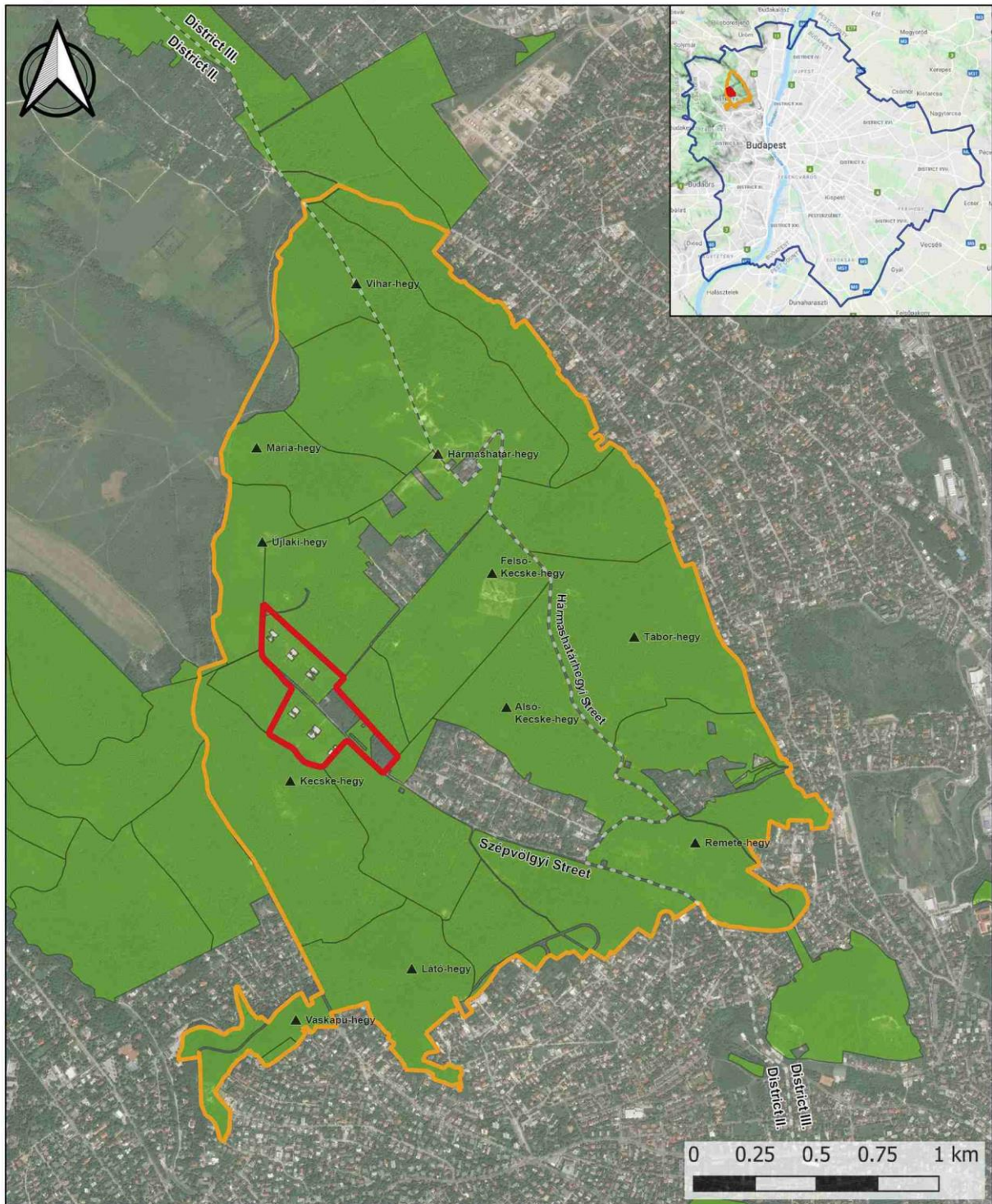
- OP area

The position of the focus area in the strategic area and the strategic area in Budapest you can see in Figure 2.

The territory of the focus area is approximately 15,6 hectars. More exactly 156 414 m². The division of the area by owners can be found in 3.1 (State of forests and forest management).

We can characterize the focus area with a good quality ortophoto which was taken for the purposes of the URBforDAN project in October, 2019. (Figure 3)

Figure 2: Borders of strategic area and focus area



Map Legend

- Border of focus area
- Border of strategic area
- Forest according to management plan
- - - Border of 2nd and 3rd District

Figure 3: Ortophoto of the Focus Area (October 12, 2019)



1. THE IMPORTANCE OF URBAN FORESTS AND MAIN MANAGEMENT OBJECTIVES

2.1. Purpose of UPF

- Ecosystem services / forest functions / importance of UPF

Similarly to other cities in the Danube region Urban and Peri-urban Forests (UPF) play extremely important role also in Budapest in preserving biodiversity. The capital city of Hungary has a unique geographic location. It didn't happen by accident that humans have settled down in this particular place. At the meeting of the Hungarian Plain, the river Danube and the Buda Hills people have found wonderful nature values. Fortune for the humans became clearly a misfortune for the nature. Through the centuries a huge city grew out from the earth.

People generally think that human development results in continuous devastation of forests. If we compare the forest cover of Buda Hills in the prehistoric times and nowadays of course this theory can be justified. However it is very exiting to see the change of Buda's forest cover in the last 200 years. Harvest for firewood, pasturing, grape and wine production, grape phylloxera and reforestation for multipurpose forest management determined the changes. You can see the result in the appendix (App Figure 2: Landscape History of the strategic area) Perhaps surprising but there are much more forests now than 2 centuries ago.

The almost 16 hectare focus area is strongly degraded but still valuable from biodiversity point of view. Most parts of the 555 hectare strategic area is quite exiting from geological, botanical and zoological point of you. The whole strategic area around the focus area is part of the Buda Hills Landscape Protection Area established in 1978 on 10 500 hectares. The forests are quite rich in nature values but we must not forget about the mosaic of grasslands among the forests which are even more diverse.

In the Strategic parts of the IMPP it was calculated that for the whole strategic area the most important ecosystem services are 2.1 Local climate mitigation (94%), 3.1 Nature protection (80 %), and 4.1 Recreation and tourism (68%). In the small focus area the converted and degraded surfaces modify the numbers a little bit. However the potential is there, after rehabilitating the area (thanks to the operational plan and initial fund from the URBforDAN project) the ES percentages for the strategic area will be valid for the focus area, too.

- Target groups/users

As a part of the URBforDAN project stakeholder meetings were held in November 27, 2018, March 11 and September 24, 2019. Beside that a comprehensive questionnaire-based survey was conducted and smaller traffic count happened. The following stakeholder groups were identified and involved in the process:

Users:

Cyclists, runners, hikers, paragliders, dog walkers, families with children. We have just a few questionnaires filled in by an important group, the schoolchildren and their teachers. We need more data about them. The order of the stakeholder groups in the spreadsheet is based on the survey and the traffic count however the rank is expected to change in the future. E.g. number of paragliders is more or less constant while number of cyclists and schoolchildren will grow significantly.

Organizations interested in the management of the focus area of the UPF:

Owners (municipality and 2nd District, manager of the surrounding forests (Pilis Park Forest Company, in charge of the nature conservation (Duna-Ipoly National Park Directorate), utility companies.

Users		
	hikers and walkers	Most numerous user group. They (and the next group) can be easily involved in our education work.
	families with children	Important target group with special needs. Of course they want benches, drinking fountains and playgrounds.
	runners	Car users but otherwise their negative impact on nature is very small. They want drinking fountains and in the questionnaires expressed their interest in bird-watching but it can be hardly connected to running. Perhaps if they return as walkers...
	dog walkers	Their environmental awareness is relatively high but it will be an important task to educate them about dog walking rules in nature.
	cyclists	Mainly graduated young adults. More than half of them arrives to the area by car. Few of them realizes the conflicts with other users. It won't be easy to make them walk on our nature trail.
	paragliders	It is not a surprise that their number was high in the upper parking lot close to their departure place. In the questionnaires many of them didn't like the idea of afforesting parking lots but in a stakeholder meeting leader of their organization told it is not a problem for them to walk more from a good parking lot some hundred meters down.
	schoolchildren	They are the potential visitors of our future classrooms in nature, nature trail and

		birdwatching point. There are at least 8 schools and kindergartens in the near vicinity of the strategic area but groups of children will arrive from a bigger distance, too.
Managers	Municipality of Budapest	The City owns the bigger part of the focus area, namely 10,7 hectares – mainly forests and grasslands. Partner in the URBforDAN project, engine of the whole process on the Hármashatár Hill.
	2 nd District	The rate of afforested areas in the 2 nd District of Budapest is 26,6 % which is quite a good number in a big city. Those forests are mainly state owned. Compared to that the 4,9 hectares of the focus area is not a big deal, but converting the parking lots and the ruins into real nature areas will have a positive effect on the whole territory.
	Pilis Park Forest Company	Pilis Park Forest Company manages 65 thousand hectares in and around Budapest, plays leading role in close-to-nature management in Hungary. All the forests around the focus area belong to them, including a big hiking centre on the top of Hármashatár Hill.
	Duna-Ipoly National Park Directorate	Beside the Duna-Ipoly National Park Buda Landscape Protection Area is also a treasure for the Directorate. They experience day by day the growing number of visitors therefore it is very important for them to make extra efforts to defend the most valuable nature values.
	Public utilities	From the utility companies on the focus area the most important is the Budapest Waterworks. There is a water system in the parking lots, which helps a lot, but also have to be managed carefully in the process of afforestation. There is a small fenced waterworks facility about 100 m north of the upper corner of the focus area. Accessibility has to be provided after building the metal barrier.

3. STATE OF FORESTS AND FOREST USE

3.1. State of forests and forest management

- Forest area

The whole focus area is just 16 hectares. The official forest map of the focus area is presented in Figure 4 on the previous page. The area of the subcompartements in the management plan of the forest administration is 161 A – 5,23 ha, 161 B – 0,90 ha, 161 C – 5,24 ha. However on both sides of subcompartment 161 B there are forests which can not be found in the management plan in force. In one of them the forest canopy cover is bigger than in subcompartment 161 B, in the other one smaller. It is not quite clear why they haven't been included in the forest management plan of the forest administration, they are the same types of forests. The aim of the URBforDAN project is to include the whole focus area in the forest management plan of the forest administration until the beginning of the next planning period (2023).

Based on the ortophoto of the focus area (Figure 3) the area of the parking lots can be determined. It is 0,875 ha. Deducted from the total area (15,64 ha), the biologically active surface (14,765 ha) is received, which can be called the total area of forests. The medium-term purpose of the URBforDAN project is to convert some of the parking lots to forest-covered areas.

- Ownership of forests

Total area is 156 414 m²

The whole area belongs to one category: public – local communities. Namely:

Municipality of Budapest	107 362 m ²
Local Government of 2 nd District	49 052 m ²

The lands owned by the Local Government of 2nd District are occupied by parking lots and ruins (mostly concrete bases) of small houses. There are 12 concrete remains identified on the focus area, all of them belong to the 2nd District of Budapest.

- Forests, site conditions, forest types, stand types

Before listing the most important data about the state of the forests, it is important to mention that 50 years ago practically the whole area of the present forest was an abandoned agricultural area. An aerial photo from 1962 shows there was only one bigger group of (black pine) trees in the present subcompartment 161B and a narrow forest belt along the main road.

Figure 5: Aerial photo of the focus area, 1962



On the aerial photo from 1976 one can see some bushes and groups of trees but the main change is that parking lots and weekend cottages appeared.

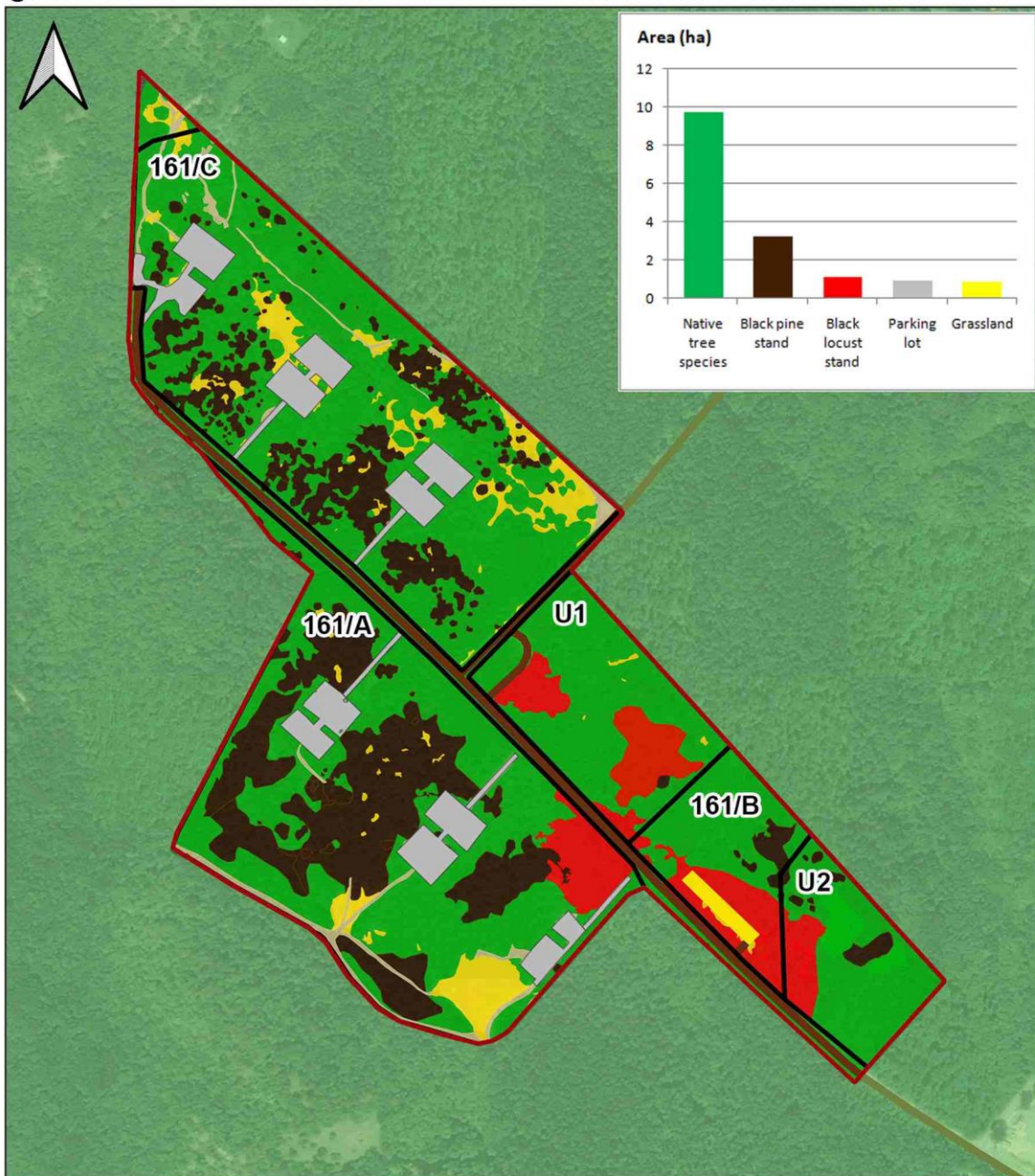
Figure 6: Aerial photo of the focus area, 1976



The parking lots were probably built for the running competition of the 1969 World Modern Pentathlon Championships. Some years later the arable land was divided up to parcels. Some parcels were already sold when the Municipal Council decided to prevent the development of the area. They bought back the building sites. Some weekend cottages were already built up, they were demolished. There are no signs of tree planting, the propagation material probably came from the surrounding forests and in the case of black locust (*Robinia*) unfortunately from the road traffic. Present forests stem from a natural forest succession in an urbanized area.

Because of the above mentioned historical background the most important data characterizing the state of the forests are not growing stock and increment. The rate of the invasive tree species (black locust), non-invasive exotic species (black pine) and native tree species are more important. These data determine the interventions needed in the forest stands. In October 2019 Interspect Ltd., a small remote sensing firm made high resolution ortophotos about the focus area. After the analysis of the ortophotos Figure 7 was made.

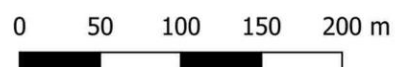
Figure 7: Rate of native species, black pine and black locust forests, grasslands and converted surfaces calculated for the whole focus area



Map Legend

- Native tree species
- Black locust stand
- Black pine stand
- Grassland
- Parking lot
- Paved road

Data source:



- Forest operations

In the management plan the primary function of all forests in the focus area is nature conservation. Beside that there are further functions mentioned in the case of subcompartment 161A, namely soil protection and protection of urban area. In the present forest management period until 2023 no logging operation is prescribed. However in Figure 7 we signed two forest spots, U1 and U2, which are not included in the forest management plan. In those pieces of forests the rate of black locust (*Robinia*) is quite high, it is really important to get rid of the invasive species as soon as possible. The logging of black locust will be launched in U1 in 2021, continued in U2 in 2022 and finished in 161/A and 161/B according to the new forest management plan valid from 2023. We are not in hurry in the case of black pine (*Pinus nigra*) stands, because they don't infest the surrounding native forests. The forest manager of the area (FÖKERT) will take part in the negotiations of the new forest management plan, and initiate step by step removal of black pine.

- Wood production

Because of the small area and low intensity of logging the wood production will be completed by chain saw.

- Forest accessibility

Forwarders will not be used in such small and sensitive forests. Skidding happens manually or with a so-called 'ironhorse', a small tracked skidding machine. Unfortunately in Buda Hills real skidding horses are not available any more. As it will be described later most of the parking lots will be afforested in the long run but one small parking lot on the left side of the paved road and another one on the right side will be left for wood loading and other logistical purposes. However most of the harvested wood will be firewood therefore there is no need for big wood loading space.

- Impacts, problems

Damage of ungulates is an important issue in the focus area. You can see the traces of wild boar activity on the soil of the forest stands and also of the openings. Recently wild boar population is seriously effected by African swine fever virus, but the long term effects can hardly be predicted. Because of wild boars' damage effectiveness of future acorn sowing is questionable. The other potentially damaging ungulate is roe-deer. They bite off the top of the seedlings therefore it is advisable to plant small trees higher than 1 metre.

Some homeless people live in the focus area. Around their tents there are trash, aggressive dogs and noise. Expertise, patience and empathy is needed to find solution for them. It is not the task of the foresters or nature conservationists, experts of the Municipality and social NGOs have to be involved.

In the lower part of the focus area there is an abandoned parking space with ruderal vegetation and dumped garbage. It looks very bad. The place is shown in Figure 20. Among the activities on page 37 (Establishing coordinated parking system) it is also described that the abandoned parking space will become the new parking lot of the focus area.

3.2. Visit to UPF and infrastructure

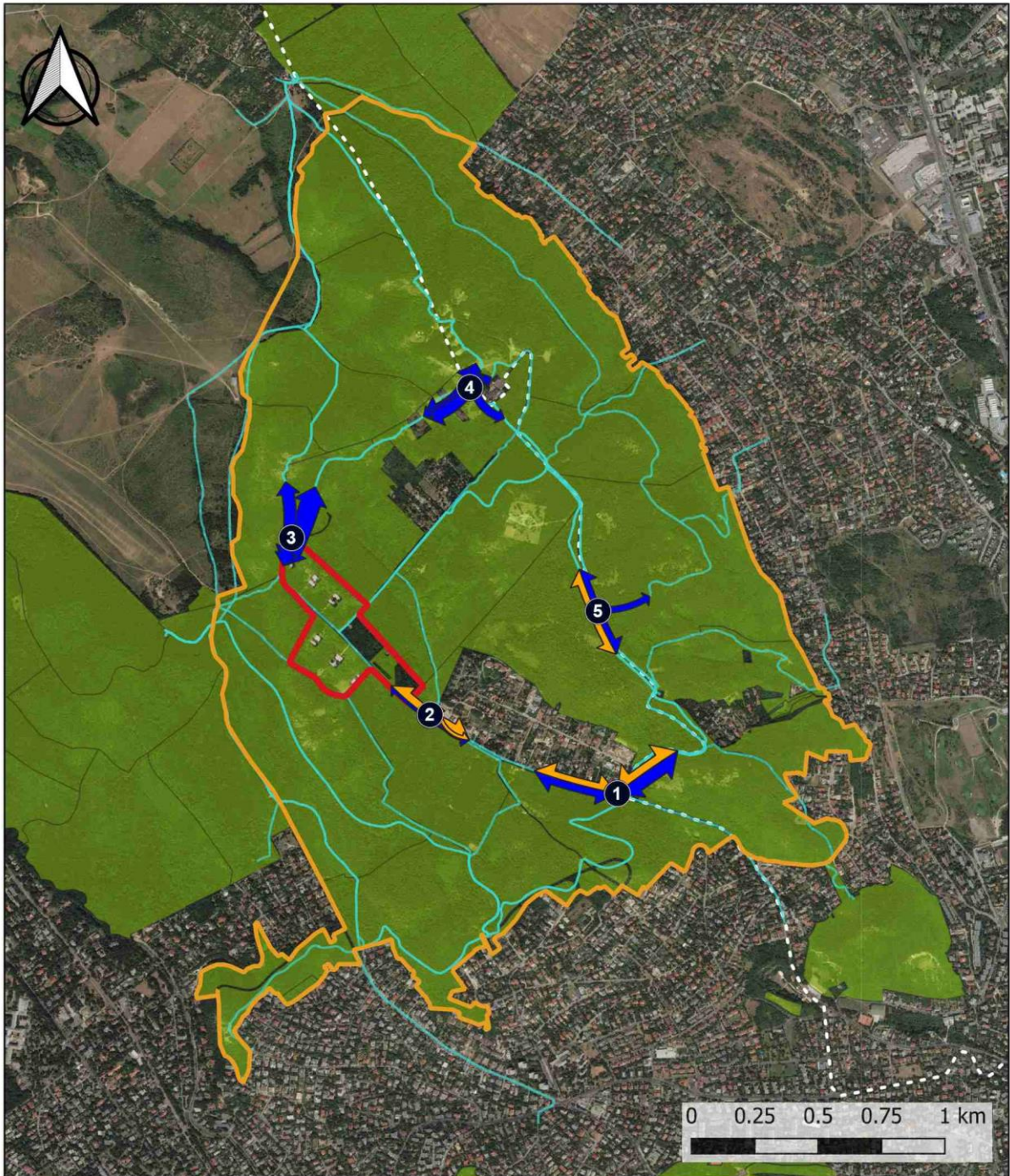
- Visit to forest

The number of the visitors in the forests around Budapest is huge, the most overcrowded forest is called Normafa, is about 3 km far from the southeastern corner of the strategic area. Pilis Park Forest Company in its press releases speaks about 25 million visits/year. The number includes Pilis Hills which is a little bit out of Budapest. But the trend is clear: in a decade number of visits has doubled.

The focus area is very small, we don't have reliable numbers about the visits. Most visitors arrive in snowy winter days when there are parking cars all along the 1,5 km road from the Fenyőgyöngye Restaurant to the end of the Szépvölgyi street. And of course there are rainy days when one can meet only the most determined runners on the focus area. We didn't have data about the number of visitors therefore on 14 September, 2019, a sunny Saturday we organized a 1 day traffic counting. Actually it was a 30-minute counting on 5 characteristic points of the strategic area. We didn't have enough time and manpower for an extensive survey, the counting has to be organized again next spring. Anyway, the first survey was a good start to see the basic directions.

The 5 selected points were in crossings of hiking trails. The duration of each counting was 30 minutes. 3 data were collected: number of visitors, their activity (running, hiking, biking, etc.) and their age group. Along the paved roads the car traffic was also counted. Fig 8 shows the location of the counting points, the arrows represent the direction the visitors left for. In the survey points the width of the arrows are in proportion to visitor numbers, this way we can have an impression about the proportion of 'motorized' and unmotorized' visitors.

Figure 8: Survey points of the visitors' counting, September, 2019

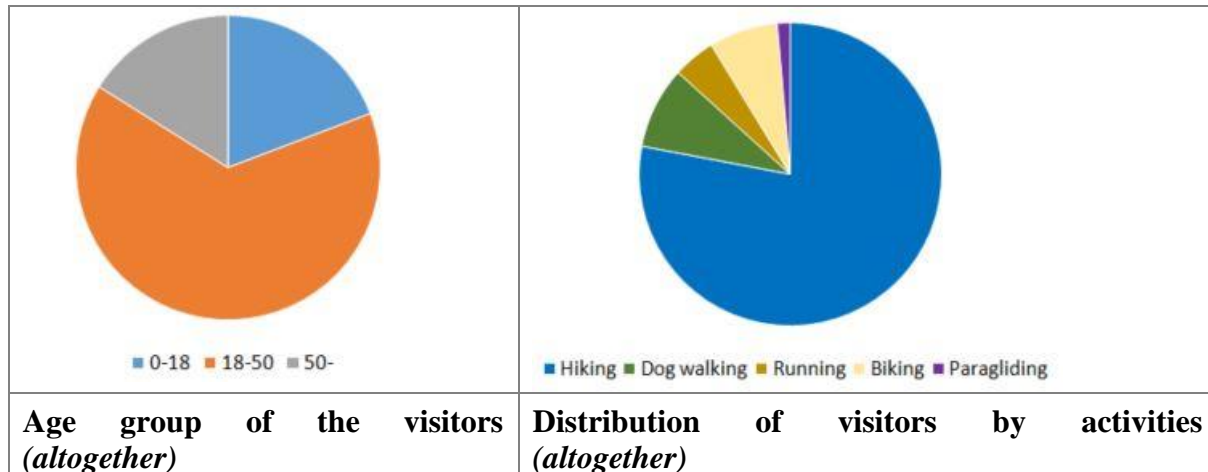


Map Legend

- Focus Area
- Strategic Area
- ② Survey point
- ↔ Extent of hikers
- ↔ Scale of hikers (blue) and cars (orange)

One of the main results was that on Saturday afternoon there were very few visitors on most of the parking lots while quite many of them at the most remote parking lot. The main reason is that the paragliders try to approach their departure point by car. A very short summary of the survey you can see in 2 pie charts. Figure 9

Figure 9: Pie charts summarizing the results of the visitors' count



- Already available infrastructure

Because the focus area is very small we could summarize very shortly the already available infrastructure. However the issue is very important therefore we rather extend our attention to the whole strategic area.

Accessibility

Visitors arriving by public transport, car or bicycle can reach the heart of the strategic area from South, using two main roads: Szépvölgyi street and Hármashatárhegyi street. There is a parking lot for 10 cars at Fenyőgyöngye, some other parking lots at the top of Hármashatár Hill, and a relatively big place for parking at the end of the Görgényi street. All the other parking lots are in the focus area. Therefore OP plays a key role in accessibility of the area by car. Public transport is not bad (and can be easily improved). Bus No 65 traditionally terminates at Fenyőgyöngye but because of the recent development of the area at the right side of Szépvölgyi street, buses optionally go further until the bus terminus in the heart of the focus area. (You have to tell the driver that you want to travel further). However at the moment on weekdays there are only 2 buses/hour and only one of them optionally goes up to the focus area. In weekends from 3 buses/hour one terminates at the focus area. After creating a logistical, information and environmental education centre on the focus area all the buses No 65 have to come up there.

The best infrastructure of the strategic area is definitely in the Hármashatárhegy Hiking Centre of the Pilis Forestry Company on the top of the Hill. Visitors can find there a nice

look-out building, 2 restaurants, a hostel, a nature education centre for schoolchildren and other attractions. In the southern part of the strategic area there are two other attractions with wonderful panoramic view of Budapest: Árpád Belvedere and Apáthy Rock. In the strategic area the network of hiking trails is quite good. (Figure 10: Available infrastructure – touristic and recreational attractions) Nature trails, fireplaces, view points, benches, drinking fountains and many more can be found on the map.

3.3. Important objects in UPF

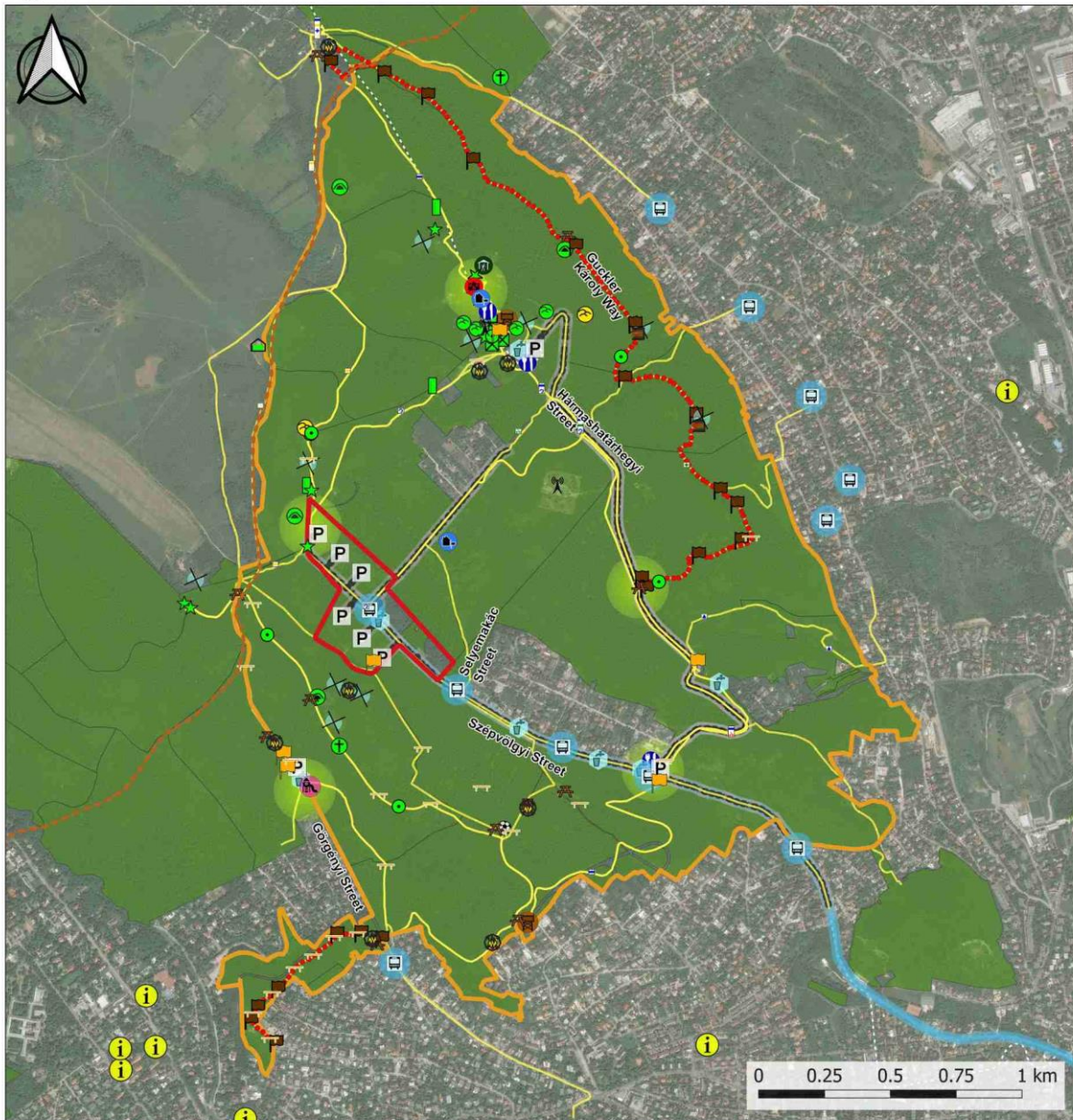
- Nature conservation

At the moment focus area is a non-protected spot in the surrounding ‘sea’ of Buda Hills Landscape Protection Area (also Natura2000 site), locally protected nature values and protected caves. (Figure 11).

In the focus area, in the subcompartment 161C just 2 narrow ribbons of forests are part of Buda Hill landscape protection area and also Natura2000 SCI. But most parts are not protected. However it doesn’t mean that there are no important nature values in the focus area.

In late September and early October 2019 experts and voluntary activists of Birdlife Hungary and some botanists surveyed the botanical values and wildlife of the focus area. The time of the survey was too late to find all the important species. However in the forests and especially on the grasslands inside the forests valuable protected species were found. The field work will go on in the next vegetation period. The species list already consists of 213 plant species, among them 12 protected species. Majority of the protected species – like members of the Caryophyllaceae (Carnation or Pink family) and *Iris pumila* are typical plants of semi-arid habitats, but e.g. species from the Orchidaceae’s *Cephalanthera* and *Epipactis* genus can tolerate a broader range of conditions. In the focus area 60 protected bird species were found, including 2 strictly protected species, the European honey buzzard (*Pernis apivorus*) and European bee-eater (*Merops apiaster*). From other vertebrates until now 2 protected amphibians and 3 protected reptiles were found but the most exiting is a strictly protected reptile *Ablepharus kitaibelii fitzingeri*, called in Hungarian Pannon lizard. The small lizard was described from Buda Hills in 1797, but later found in several countries of the Eastern Mediterranean. Among the 11 protected insects there are butterfly and beetle species quite rare in and around Budapest. The map in Figure 12 can not present all the characteristic species of the focus area, just some flagship species.

Figure 10: Available infrastructure – touristic and recreational attractions



Map Legend

- Border of focus area
- Border of strategic area
- Border of 2nd and 3rd District
- Available infrastructure**
- Traffic, accessibility*
- Public road – car traffic
- P** Parking lot
- Public transport
- Bus stop
- Main entrance points
- Schools, kindergartens
- Utilities*
- Natural gas pipeline

Tourism infrastructure

- Hiking trail
- - - Nature trail
- Station of nature trail
- Information table
- Forest school
- Hikers' hostel
- Restaurant
- Events facility
- Look-out tower
- Panoramic view
- Drinking water
- Forest furniture
- Bench
- Forest fireplace

Sport facilities, playground

- Football field
- Take-off for paragliding
- Playground

Tourist attractions

- ★ Monument, historic site, statue
- Historic site of aviation
- ✕ Site of military history
- Landmark
- + Road (cross)
- Geodetic datum point
- Hangar
- Antenna
- Remarkable rock

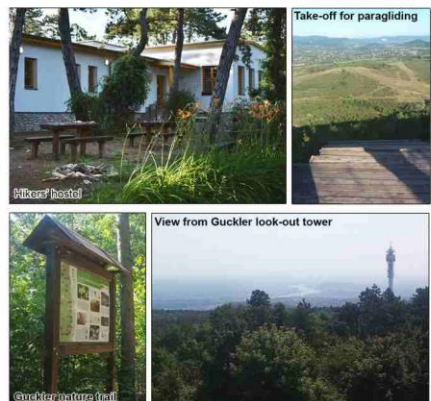
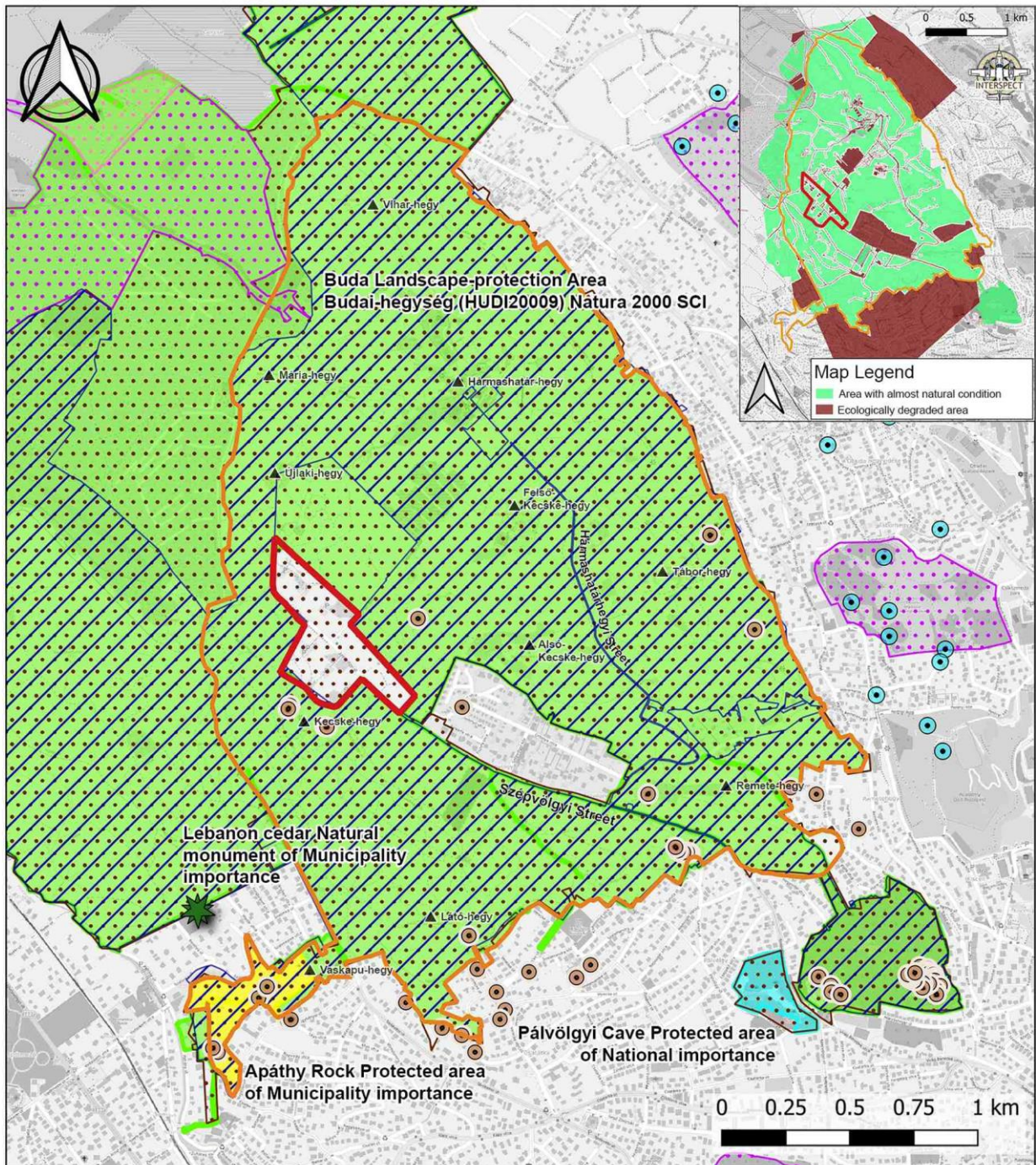


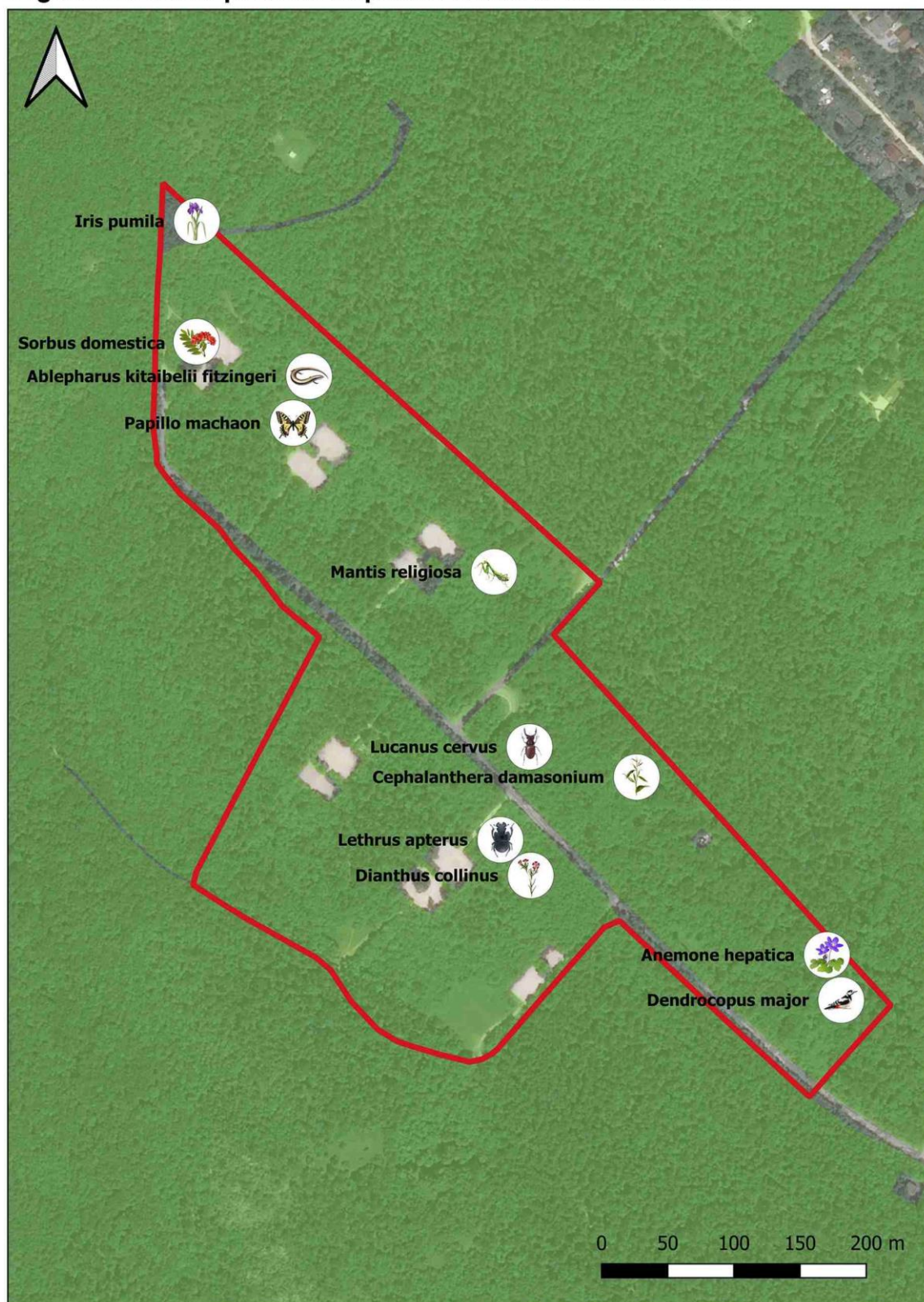
Figure 11: Nature conservation, protected areas



Map Legend

- | | |
|---|---|
| Focus Area | Protected area of National importance |
| Strategic Area | Landscape Protection Area |
| Ex lege protected spring | Natura 2000 SCI |
| Ex lege protected caves | Buffer zone of National Ecological Network |
| Natural monument of Municipality importance | Ecological network of National Ecological Network |
| Protected area of Municipality importance | Core area of National Ecological Network |

Figure 12: Some protected species found in the focus area



- Cultural heritage

As it was mentioned in chapter 3.2 (Visit to UPF and infrastructure) and shown in Figure 10 (Available infrastructure – touristic and recreational attractions) in the strategic area there are quite a number of monuments, historic sites of aviation and military, statues etc. In the focus area one cannot find such a rich heritage. One of the purposes of improving the focus area is to call attention of the visitors to the cultural heritage of the strategic area and help the visitors to reach them. In the focus area the only spectacular piece of cultural heritage is a big landmark stone from 1863, 10 years before Pest, Buda and Óbuda (Old Buda) were unified. The sizeable stone is in a central place along the main road, an information panel of the educational trail will be placed there.

- Other objects

As it was mentioned in the end of the 2nd chapter, there is a water network in the parking lots. The water will be used not only for watering the newly planted seedlings but also for installing drinking fountains for visitors.

3.4. Assessment of use, changes and influencing factors

- Damages, risks

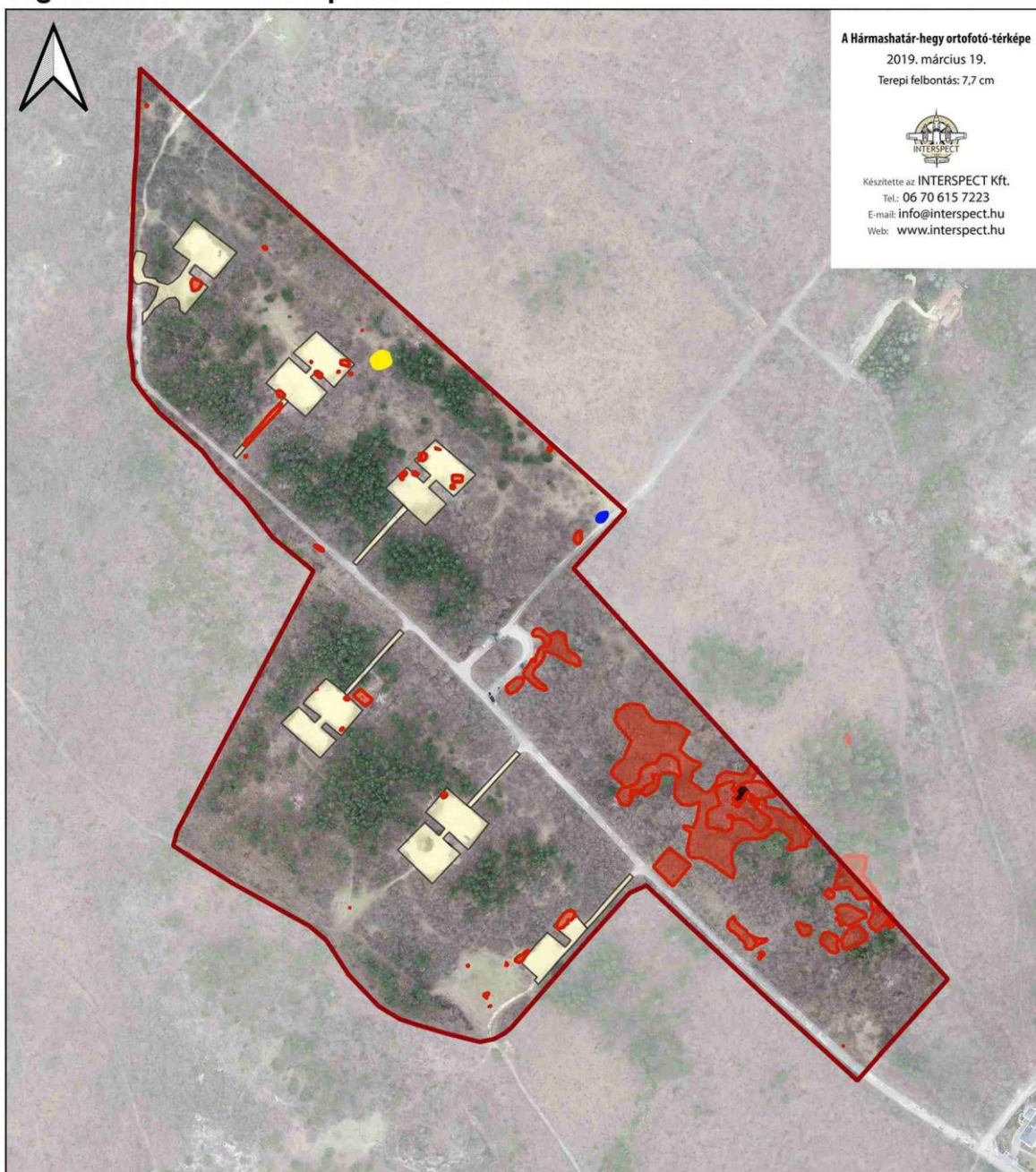
The first damaging factor is climate change. In Hungary it results in warmer and dryer climate with extremely intensive precipitation occasionally. Climate strategy of Budapest emphasizes the internationally accepted concept that beside mitigation adaptation is also a must. The second damaging factor is the strong negative effect of the invasive species. The best possible strategy against the damaging factors is to create healthy native forests.

The ecosystem services of the Hármashatár Hill were mapped by a group of external experts, the Interspect Ltd. Their aerial photographs were supplemented with field survey, and a ‘problem map’ was made about the strategic area. The result can be seen in the Appendix (App Figure 4: Problem map of the Hármashatár Hill)

In the small focus area there is a long list of damages. Some of them are interconnected and take a longer time to terminate, some others can be ceased more easily. To mention just a few:

1. Parking cars and traffic in the (potential) forest area
2. Air pollution
3. Illegal rubbish dumps
4. Ruins of weekend houses
5. Damages caused by homeless people living in the forest
6. Illegal cycling and walking trails
7. Damage of ungulates, especially wild boars

Figure 13: Problem map of the focus area



Map Legend

-  Parking lots
- Problems
-  Scattered rubbish
-  Homeless hovels
-  Plant disease
-  Dumped construction waste

Data source:



Figure 13 concentrates on the problem of the scattered rubbish and dumped construction waste on the edge of the parking lots.

- Issues of forest use

In the long run forest use will not result in conflicts, public will enjoy the continuous forest cover.

However harvesting invasive black locust stands in favour of converting them to native forests may cause conflicts from the 3rd year until the end of the 10 year period of the OP. This issue has to be handled very carefully. The main thing is to give easy-to-understand information in the project area in advance and make it available also online.

Afforestation is a very positive action, conflicts are not expected in connection with it. Forest use is not the main source of conflict in the project – maybe just afforestation of parking lots in an indirect way. Probably most drivers will accept that change of the parking system happens in favour of forests and visitors of the forests. However some car-users may protest. They have to be convinced by good communication.

4. GUIDELINES FOR FOREST MANAGEMENT

4.1. Subordinated guidelines

- Forest management plans

The most relevant document is the Welfare Forestry Development Plan of the Budapest Forest Management Region published in 2012. The Plan was made by Act XXXVII of 2009 on Forests, Protection of Forests and Forest Management. The Welfare Forestry Plan says that anybody can visit a forest on his/her own responsibility – if it is not restricted by other measures. In a forest visitors are allowed to ride a horse, ride a bicycle or drive a car only on the forest roads assigned for the given function.

The other important issue introduced on the base of the Forest Law of 2009 is the naturalness of the forests. Based on the research of forest engineers and biologists categories of naturalness were set up and those 5 categories appear in the forest management plans from natural forests (1st category) to plantations (5th category)

- Spatial plans

‘Budapest 2030 Long-Term Urban Development Concept’ says that in order to create healthy environmental conditions, the biologically active surfaces – including forest cover – and the intensity of the green spaces has to be increased.

4.2. Fundamental / basic concepts

- Forest land, forested area

In the 15,6 ha focus area the forest cover has to be increased. It is not a large scale change rather step by step afforestation of most parking lots. The numbers will show just a relatively small increase, but gradual conversion of the parking lots into forests will change the connectivity of habitats. It will improve the recreational potential of the UPF, too.

- Structure and forest composition

Development of the forest stands

- silvicultural systems

In the focus area in the next 10 years the main purpose of the forest management is to improve the naturalness (age structure, stability, recreational value) of the forest stands. Even-aged silvicultural system will be converted into selective logging but it can not happen in a single step.

- from harvesting to continuous cover

The main obstacle is the presence of the invasive black locust, which have to be replaced by native tree species and then the forest can move towards an uneven-aged, mixed, diverse forest with continuous cover. Plan of transition has to be prepared.

- seedlings and natural regeneration

The first task is to remove black locust (practically it means small territory clear-cuts), to treat the stumps with selective chemicals and to plant native seedlings. When choosing tree species it is important to shade the forest floor in a short time with relatively fast-growing native species to prevent returning of black locust.

- black pine: salvage cutting after and thinning

The other non-native species in the area is black pine but it is not a real problem, they can be gradually removed with salvage cutting after and thinning – in those places where there is a good understorey of native broadleaved species.

- damages

The main damaging factor is people. Later it will be described how to manage the crowd. Nature and recreation have to exist in harmony.

- management of forest edges

Edge of the dry oak forests and grasslands is a meeting point of forest species and steppe species even in the small-scale. The final result of the natural succession would be a closed forest but with mowing the small grasslands the process can be halted, diversity can be preserved and presented to the public.

- stability of forest stands

When a mixed, uneven-aged, healthy forest will be in place, in the closed forests of the focus area very few management actions will be needed.

- Technology of wood production

As it was shortly described in chapter 3.1 (State of forests and forest management) because of the small area and short distances from the road there is no need for big machines.

- harvesting and skidding

Harvesting will be completed with chain-saw, skidding realized manually or with a so-called 'iron-horse', a small tracked skidding machine.

- wood concentration

For wood concentration (and other logistical tasks of park forestry) one parking lot on the left side of the main road will be left. However there is no need for big space and huge trucks, most wood will be firewood.

- season

From December to February

- informing, communication

Posters on the site, articles in local newspaper, press conferences for media. It is an important issue.

- Nature conservation

As the surrounding area is part of both Buda Hills Landscape protection area and Buda Hills (HUDI2009) Natura2000 SCI, we know quite a lot about the nature values of the Hármashatár Hill (strategic area). It was not true until now for the focus area. But the URBforDAN project gave new inspiration. In the second part of the 2019 vegetation period experts and voluntary activists of Birdlife Hungary surveyed the botanical values and wildlife of the focus area. In the forests and especially on the grasslands inside the forests valuable protected species were also found. There is a clear plan to initiate the protection of the area on the Municipality level. The URBforDAN planning is completed already in this spirit: to provide the undisturbed state of the sensitive habitats and some other parts make accessible for nature conservation education and recreation.

- Areas with emphasized ES (or forest functions) in the UPF area

The Southwestern part of the focus area can be called a general forest while Northeastern part is selected for ES 31 Nature protection and ES 41 Recreation and tourism.

- The use of forests

The accessibility of the area has to be organized very carefully. Visitors riding their bikes, walking, arriving by bus or parking their cars close to the southern border of the focus area have to find signposts, information boards, QR-codes giving them easy to understand pieces of information.

- Infrastructure in the forest area

In the focus area the road and trail network is dense enough. Only some small stretches of trail will be renewed for the purposes of the educational nature trail. Otherwise the task is rather to rail off some areas from the public. In the end of the paved road there will be a strong barrier but in most places the paths will be blocked by soft methods (e.g. a pile of branches)

- Communication / Informing the public

It is a must to inform the public about cleaning up a trashy area in the beautiful Buda Hills and converting it into an important site of nature conservation and environmental education. After the local elections of October 13 elaboration of communication plans will take some time.

- Cooperation with stakeholders

Until now three formal stakeholder meetings took place: November 27, 2018, March 11, 2019 and September 24, 2019. The number of participants was quite good but there were some shortages. The mountain bikers' association did not take part in the meetings and the individual partners were not represented. Otherwise the atmosphere of the meetings was very cooperative. In the process of planning beside the stakeholders' meeting several other meetings with partner organizations took place.

4.3. Guidelines for allocations with priority ES

In the first Millennium Ecosystem Assessment, 2005 the ecosystem services are classified into 4 main categories: provisioning, regulating, supporting and cultural. Provisioning ES in general give food, water and other products, in the case of forestry: timber. Regulating ES controls the climate and diseases, the role of forests is very important in climate control. Supporting ES gives the material base of any plant and animal growth by oxygen production, nutrient cycles and soil formation. The 4th ES is called Cultural (in a broad sense). Recreational services are also included, they are extremely important in the case of our urban forests.

In the URBforDAN project the relevancy of zoning is probably different. In the case of Budapest Hármashatár Hill the size of the focus area is less than 16 hectare, therefore the chapters 4.3 and 4.4 will be strongly simplified. Based on the strategic plan in the Chapter 2.1 of OP (Purpose of UPF) the 1st and 2nd ranked ecosystem services of the focus area are the following:

Figure 14: Summary of the most important ES

Ecosystem service (ES) – area (ha) and % of entire forest area – only 1 st rank and 2 nd rank	Individual objective/ES	Area (ha) and % of entire forest area
Supporting ES	31_Nature protection / habitats for species	15,6 – 100 %
Cultural ES	41_Recreation and tourism	8,4 ha – 54 %
	42_Scientific / educational	7,2 ha – 46 %

Hectares and percentages in the Cultural ES category reflect the importance of the certain ES in the focus area but can not be identified with forest subcompartments.

Ecosystem service	Justification/explanation
Nature protection	The focus area's diversity is high, especially the grasslands are very rich in species. It is a priority to manage the mosaic of grasslands and also the forests in favour of the native plant communities. The focus area already deserves the 'protected area of local importance' status, and with the spontaneous help of the surrounding natural areas it is a realistic objective to improve biodiversity further.
Recreation and tourism	Both the field survey and the feedback from the questionnaires show that recreational and sport activities are gaining popularity in the focus area. (as it was presented in the ES survey)
Scientific/educational	Species lists show the diversity of the focus area. The scientific research will continue, some grasslands will be accessible only for research. At the same time there is a good chance to create an exiting nature trail in the framework of the URBforDAN project. The balance between nature conservation and presentation to the public has to be found.

4.4. Detailed forest zoning

While forest zoning is a planning instrument to make clear which is the priority land use in a certain area, our focus area on the Hármashatár Hill is a tiny forest with a mixture of different uses. We can not put whole subcompartments into a certain zone. There are differences in the occurrence of certain taxa. For example butterfly species are more numerous in grasslands, while beetles in forests. But it is clear that protected species are scattered in the whole focus area.

We have to harmonize the following two purposes:

- Protect the most valuable habitats
- Educate the public about nature conservation and forestry in general, but also give them an impression of the diversity of the habitats.

In a huge UPF the solution would be zonation, but in our case it looks more effective to direct the visitors by the following tools:

- We create a nature trail which presents real nature values
- The marked nature trail keeps off the most sensitive spots of the forest-grassland mosaic
- There are some clearings and converted parking lots specially designed for recreational activities of children and adults.
- Otherwise it is not allowed to move off the track

5 ACTIVITIES

5.1. Short description of the planned activities

Planning of activities

The management activities listed here and described in detail in the next chapter, are based on the discussions with the stakeholders. The users of the UPF spoke about the problems and gave suggestions to the expected solutions. Of course not all the requests can be fulfilled automatically. However planning of activities happened according to the following principles:

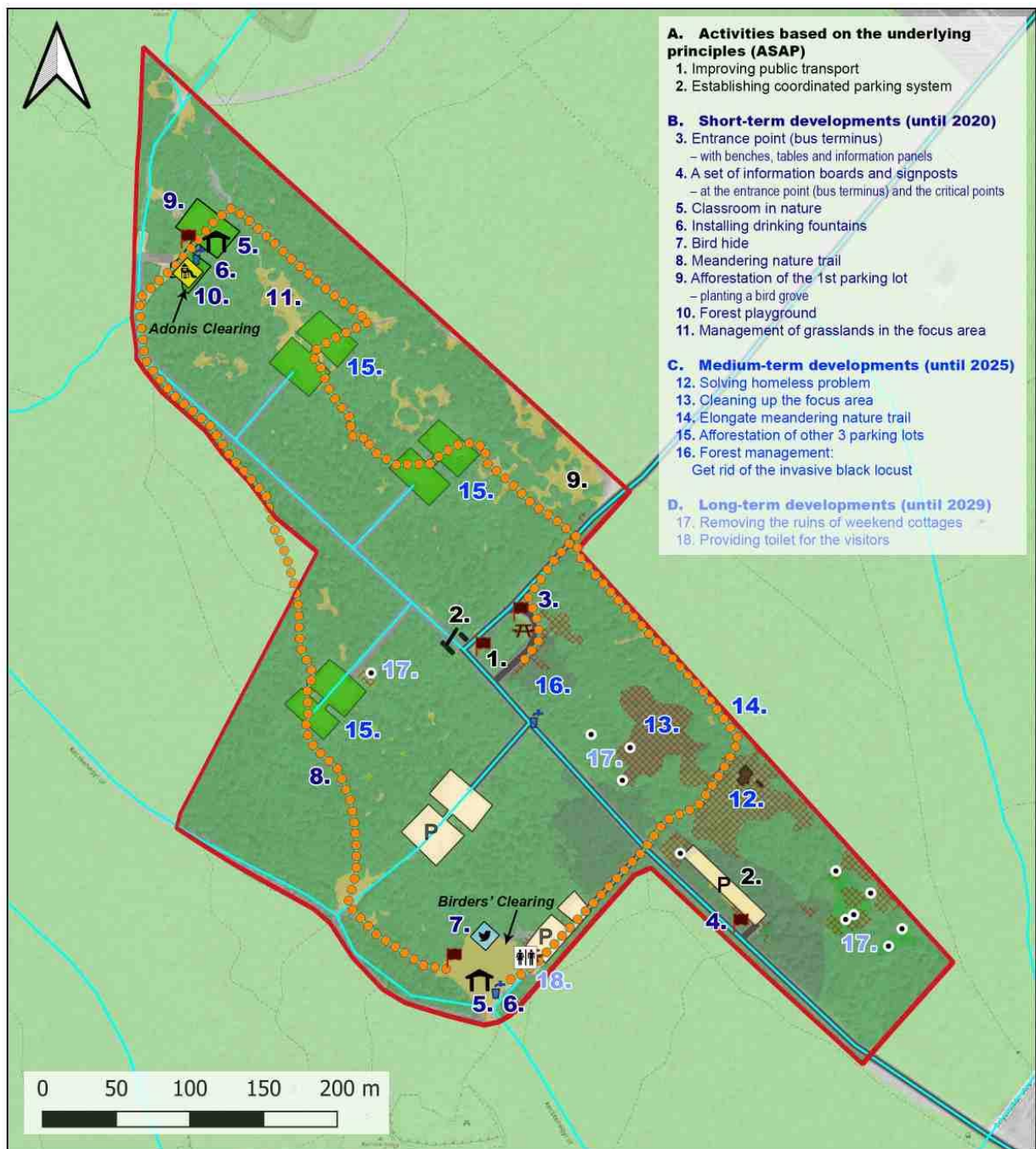
- Fulfilling the requests of the stakeholders as much as possible
- Begin with the most urgent actions
- Go ahead step by step
- Pay attention to the fact that public is always happy to see actions which are understandable and acceptable.

New geographical names in the focus area

Since there are many hikers in Buda Hills, most valleys, hills and caves have a name. However the clearing which we want to turn into an info-centre in the Southern part of the focus area, and especially the uppermost parking lot where a small clearing will be shaped only as a result of the future afforestation, are unnamed at the moment. In Figure 15 and further communication of the project the lower clearing will be called Madarász-tisztás, in English Birders' Clearing, while the upper one at the future playground, Hérics-tisztás, in English Adonis Clearing.

The list of the planned activities and their geographical position is presented on the next page, in Figure 15.

Figure 15: Planned activities in the focus area



Map Legend

- | | | |
|--------------|---------------------------|----------------------------|
| Focus area | Planned activities | Afforestation |
| Hiking trail | Parking lot | Nature Trail |
| Grassland | Metal barrier | Drinking fountain |
| | Ruins of weekend cottages | Cleaning up the focus area |
| | Forest classroom | Playground |
| | Bird hide | Toilet |
| | Info points | |

5.1.1. Activities based on the underlying principles

1. Improving public transport

This activity can not be completed in 2020, during the project period of URBforDAN. However the realization has to be launched. The traffic to the focus area has to be directed towards public transport. It is not a priority to provide parking lots for hundreds of individual car users. Most visitors has to reach the focus area by good quality public bus service.

2. Establishing coordinated parking system

Right up the bus terminus (Szépvölgyi-dűlő) the paved road will be closed down with a strong metal barrier. Cars will not be allowed to move further up the road. The purpose of the measure is to give back the uppermost half kilometre of the valley to nature and unmotorized visitors. The barrier right up the bus terminus will immediately close down 4 parking lots (3 on the right side, 1 on the left side). As an alternative down the valley a new parking lot is offered to the car users.

5.1.2. Short-term developments (until end of 2020, mostly from the URBforDAN budget)

3. Entrance point (bus terminus)

– with benches, tables and information panels

Where the bus 65 turns around there is a small grassy area suitable for entrance point of the area. The aim is to inform the visitors about the chances and direct them to the attractions of the focus area. We also want to offer them benches and tables to sit down while waiting for the bus.

4. A set of information boards and signposts

– at the entrance point (bus terminus) and the critical points

The first information board is planned at Fenyőgyöngye, at a big forest crossroad 2 kilometres down the valley. The second important point is near to the entrance of the focus area, at the new parking lot. More information will be available at the bus terminus, since in the long run most visitors are expected to arrive by bus. From all those 3 places signposts and clearly painted trail marking will lead to the Birders' Clearing. The 4th 'info-centre' will be located at the Northern end of the focus area, at the classroom in forest and a playground created on the place of a present parking lot.

5. Classrooms in nature

There will be two classrooms in nature in the focus area, both of them surrounded with other attractions. The first classroom in forest is located at Birders' Clearing, the second further up

along the future nature trail, on Adonis Clearing. Under the friendly wooden roof there will be space for 30 children at most. At both classrooms in nature visitors will find information on suggested hiking destinations.

6. *Installing drinking fountains*

2 locations are presented in Figure 15. One of them at the Birders' Clearing, the other one on Adonis Clearing, close to the playground.

7. *Bird hide*

– with drinking pool and feeding point

Bird hide is a separate item in the budget of the project but it is at the Birders' Clearing, very close to the classroom in nature. The bird-hide is a complex wooden structure equipped with drinking pool and feeding point for winter. The special glass of the bird-hide and the curtain make the bird-watchers invisible for birds.

8. *Educational nature trail*

The name of the narrow path curving in the forest: Meandering Nature Trail. The nature trail starts at the Birders' Clearing and runs on narrow, friendly paths. The length of the trail is 1150 m, the end is at the bus terminus. More exactly in the first year it will end there, later when the forests around the present homeless tents will be cleaned up, the nature trail will be elongated to a distance of 1550 m and return to the starting point at the Birders' Clearing.

9. *Afforestation of the 1st parking lot – planting a bird grove*

The habitat reconstruction will be apparent for the public in 2020. In the North-western corner of the focus area a bird habitat will be reconstructed. (Number 9 in Figure 15). As practically all the parking lots, the uppermost parking area also consists of two parts. The total area to be afforested is slightly more than 1000 m². The size of the bigger, hotter parking lot is 868 m², here drought tolerant shrubs will be planted with attractive fruits for the birds. The actual shrub and tree planting will be completed in the beginning of November 2020.

10. *Forest playground*

The forest playground will be separated from the classroom in nature to provide quiet environment for the latter. It is a legitimate purpose of a forest playground just to amuse children while breathing clean air. But the facility also aims to bring them close to the animals and plants through playing with plants and beetles as playfellows. The playground toys will imitate the characteristic species of the surrounding area.

11. *Management of grasslands in the focus area*

The small grasslands in the focus area preserve a diverse flora and fauna. Maintenance of grasslands require regular nature conservation interventions. Based on the botanical research the grasslands to be maintained in the long run have to be identified. The first mowing will take place after removing the shrubs, later mowing will be a repetitive action every spring.

5.1.3. Medium-term developments (to be realized until the mid-term revision of the OP in 2025)

12. *Solving homeless problem*

To solve this problem the project needs assistance of external experts. It is expected that professional social workers and NGOs will help the work of the local governments. The target date of solution is end of 2021.

13. *Cleaning up the focus area*

The focus area is full of various types of waste. On the ortophoto made 19 March, 2019 huge spots covered with trash and construction waste can be seen. After closing down the main road, most forests, openings and parking lots will be inaccessible for trucks and cars, it will be a rewarding activity to clean them up. But gradually the whole UPF has to get rid of litter.

14. *Elongate meandering nature trail*

After finding good place for the homeless people elsewhere and cleaning up the forests, there will be a good chance to elongate the educational nature trail. The new stretch will go on the border of a nice oak forest with some old trees and other attractions. The nature trail will become a whole circle, leading back to the Birders' Clearing.

15. *Afforestation of other 3 parking lots*

The total area of the 6 existing parking lots in the focus area is 0,875 hectares. However the effect is much bigger than growing the forest cover with 0,8 ha. By afforesting those places indirect effects of traffic (waste disposal, spread of invasive plant species and air pollution) can be prevented. Native oak, ash, maple seedlings and also native shrubs will be planted.

16. *Forest management: Get rid of the invasive black locust*

The most urgent issue of the forest management in the focus area is the invasive black locust. In 2021 the project can be launched with cutting black locust just in the Western edge of U1, saving the common maple (*Acer campestre*) trees. (See Figure 7.) In the following years removal of black locust happens step by step according to the OP and the forest management plan. It can be finished until 2025, the mid-term revision of the OP.

Long-term developments (until end of 2029, the validity of OP)

17. Removing the ruins of weekend cottages

12 concrete remnants were listed. It is quite an expensive work to remove the concrete but necessary to reconstruct the forest ecosystems. If the finances will be available it would be practical and cost-effective to complete it in maximum 2 stages. Most of the ruins are located inside the forest, to cause less harm to the trees works have to be completed in the winter period.

18. Providing toilet for the visitors

Participants of the stakeholder meetings emphasized that lack of toilets is a serious problem for them. In Sweden there is a long tradition of a self-contained, waterless and odourless toilet treatment system. It doesn't use chemicals, heat or water and has no polluting discharge. That solution has to be examined thoroughly.

5.2. A detailed plan for each of activities listed above

Activities based on the underlying principles

1. Improving public transport

- Area and map

In Figure 15 (Planned activities in the focus area) in the case of the 1st action: Improving public transport number 1 is put to the bus terminus. The main question is, how often bus 65 arrives there. It is an extremely important issue for the future of the focus area, which will be decided in the City Hall and the headquarters of the Centre for Budapest Transport.

- Condition / problems

The URBforDAN Hármashatár Hill project is in close connection with the transport issues. It is all right if weekdays some people drive there cars to the hill, run an hour and return to the city. But it is not a realistic aim to provide parking lots in the weekends for hundreds of individual car users. Forest area loss and air pollution are strong arguments against it. Of course bicycle use would be a good solution, but it is not easy to ride your bike up the hills. What is manageable for everyday people is public bus traffic – if it works fine, which means comfortable and environmentally sound buses commute frequently from the present lower terminal. Evidently it requires support from the political level, too. This activity doesn't appear in the budget of the project, but it is a logical and very important basic point which should be realized in the 10 year planning period of the OP.

- Target state

Time interval of the buses No 65 will be decreased to 15 minutes until the end of 2021.

- Purpose

If this activity will be successful the change of the parking system and the reconstruction of forests in the place of parking lots will be justified.

- Priority

Must to achieve it until the end of 2021.

- Infrastructure measures

At the bus terminus benches, tables and information panels will be installed in summer 2020. The photos of the entrance point will help the lobbying activity.

- Costs

The costs of increased bus frequency has to be paid by the Centre for Budapest Transport.

- Financiers

Municipality of Budapest

- Coordinator
Department of Public Transportation of BUD

- Stakeholders
Municipality of Budapest, Centre for Budapest Transport, Clean Air Action Group, Urban and Suburban Transit Association, member of the European Passengers' Federation

- Legal basis
Act LIV of 1996 on Forests and the Protection of Forests
Budapest 2030 Long-Term Urban Development Concept
Climate Strategy of Budapest

2. Establishing coordinated parking system

- Area and map

In Figure 15 (Planned activities in the focus area) number 2. is drawn right up the bus terminus, where the paved road will be closed down with a strong metal barrier. Number 2 appears also down the valley, on the planned new parking lot. The new parking lot will be built in the place of an old one. It was established more than 40 years ago, but later it was abandoned.

- Condition / problems

Closing down the upper parking lots and opening a new one lower in the valley is a good solution. However some conditions have to be fulfilled. First of all the new parking place has to be safe from car break-in and car theft. This is important because it is an understood thing that thieves work regularly in the surroundings. A good video surveillance system has to be installed. The 2nd District of Budapest works with a security firm, they will be asked to solve the problem.

- Target state

A safe parking lot in the Southern part of the valley, one parking lot for disabled persons close to the Birders' Clearing, one further parking lot left for logistical purposes, all other parking lots are afforested. Even in the lower part of the valley the number of cars is low, majority of the visitors arrive by bus.

- Purpose

No wounds in the landscape of the focus area, no cars, no air pollution in the upper part of the valley.

- Priority

In all likelihood in 2021 the renewal of the old parking lot can be completed. As we put down among conditions the installation of the video surveillance system can not be warranted in 2021. The metal barrier and the information about the new parking system will be done only when the safe parking in the renewed parking lot is solved. The latest deadline is end of 2021.

- Infrastructure measures

In Figure 16 you can see the research of the cover of the abandoned parking lot.

Figure 16: Taking sample from the soil cover of the old parking lot



At first glance the picture is frightening with garbage and weeds all around. However the thickness of the dolomite cover is 10 cm on average and the quarry stones around the parking lot are more or less in place. Transporting away the garbage, scraping the surface, reconstructing the stone edge and cover an extra 10 cm layer of dolomite is needed.

- Costs

The estimated cost is 1.500 € + the video security system. The metal barrier with installation costs 800 €.

- Financiers

The reconstruction of the parking lot will be covered by the Municipality of Budapest. The video system probably will be inserted into the security budget of the 2nd District.

- Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Forestry Department of the National Land Centre, 2nd District Police Office, 2nd District of Budapest

Short-term developments (until end of 2020, mostly from the URBforDAN budget)

3. Entrance point (bus terminus)

– with benches, tables and information panels

- Area and map

In Figure 15 the exact place of activity 3 is signed. It is just a few steps further from the bus terminus, a small clearing, no trees, a self-evident site for the entrance point.

- Condition / problems

No problems, just approval from the Centre for Budapest Transport is needed.

- Target state

A very pleasant place to welcome the visitors and say them goodbye while they wait for the bus. 2 tables, 5 benches and a lot of information. Aesthetical wooden fence preventing children from running out into the road.

- Purpose

There are many hikers arriving by bus who have a clear intention where they want to hike. Many others are not sure where they want to go. It is really important to present them information about their chances. It means first of all to direct them to the Birders' Clearing and learn a lot about the hiking destinations, bird hide and educational nature trail.

- Priority

The park forest furnitures and information panels will be installed until the end of 2020.

- Costs

Calculated costs of buying and installing the equipment is 18.500 €

- Financiers

This activity will be fully financed by INTERREG URBforDAN project.

- Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Centre for Budapest Transport, 2nd District of Budapest, Municipality of Budapest

4. A set of information boards and signposts

– at the entrance point (bus terminus) and the critical points

- Area and map

In Figure 15 the place of the information boards is indicated by small flags. Apart from the bus terminus the locations of the info points will be near to the classrooms in nature.

- Condition / problems

The information system will be completed only after the new parking lot has been completed and the educational nature trail has been finished in full length. Since we can not complete everything in one step, in the second, third and fifth year of the validity of the OP new signposts and info boards will be added to the system. However from the very beginning a clear system with many pieces of information will be in place. Information panels are attractive for many hikers but for the young generation it is also important to provide information also in the form of QR-codes. Fortunately in the Szép Valley there is no problem with the smartphone signal.

- Target state

In the focus area an overall and easy-to-understand information system is accomplished. Visitors must not feel that the area is overcrowded with signposts and info panels, they just have to feel themselves comfortable and well-informed about the chances offered for them.

- Purpose

Potential visitors have to know where to go and what to do. Informing the visitors is essential for the success of the project.

- Priority

The information boards and signpost will be bought, prepared and installed until the end of 2020.

- Unwanted or prohibited activities

In the park forests of Budapest in some places vandalism can damage information boards and signposts. The experience of Pilis Park Forest Company and other managers that in the most visited places vandalism practically doesn't happens. Hopefully the focus area will become a popular place with many visitors very soon. In the case of damage, the equipments will be restored in a very short time.

- Costs

The calculated cost of the information boards, signpost and their installation is 5.000 €

- Financiers

This activity will be fully financed by INTERREG URBforDAN project.

Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Hungarian Hikers' Association (MTSZ), Pilis Park Forest Company, Duna-Ipoly National Park Directorate, 2nd District, Municipality of Budapest

5. Classrooms in nature

- Area and map

Number 5 in figure 15. There are two classrooms in nature planned, one of them on Birders' Clearing, the other is on Adonis Clearing.

- Condition / problems

At the moment the selected place of the future Birders' Clearing is popular not only among hikers but also wild boars. Wild boars dig up the topsoil quite often. Irrespectively of our actions the trend is that number of wild boars – because of African Swine Fever – decreases drastically. Probably the signs of their rummage will slowly disappear from the clearing.

- Target state

An attractive classroom in nature is located at Birders' Clearing, with the launching information panel of Meandering nature trail and demonstration of the offered hiking destinations nearby. The classroom in nature with a similar inviting wooden cottage at the Adonis Clearing is also ready and frequently visited.

Close to the forest classrooms three touristic attractions will be offered. They are not unknown for most of the hikers but many of them are not aware that they can easily reach them from the focus area – through very nice landscapes. On the Birders' Clearing we focus on 2 hiking destinations. 1st of them is Árpád lookout (Figure 17).

Figure 17: A nice hiking destination: Árpád lookout



On a nice information the route to Árpád lookout will be presented. It will be also described what they can expect there. From Árpád lookout one can easily reach a public bus line.

Those who are ready for hiking further can easily reach the second hiking destination, Apáthy Rock, a nice dolomite formation with different but also wonderful panorama.

Figure 18: Apáthy Rock: special vegetation, special view



Apáthy Rock is an iconic nature conservation value of Buda, protected since 1977. Thanks to the careful design it can be easily accessed from the direction of Árpád lookout – among protective fences. It is already part of an educational trail, where visitors can find good descriptions about the geological, botanical and zoological values. From the top of the Rock hikers can descend to the tram.

The 3rd hiking destination will be also offered at the Birders' Cleaning, but the detailed description will be found in the Northern end of the focus area on Adonis Clearing near to the second classroom in nature and forest playground. The reason is that the hiking trail to the Guckler-lookout starts from there.

The trail to the Guckler lookout point (Figure 19) runs through nice limestone rocks, forests and grasslands. The special wood structure was built on the top of the Hármashatár Hill just a few years ago. Participants of the Budapest URBforDAN Workshop in the beginning of November, 2019 could enjoy the wonderful 360 degree panorama from 499 meter high.

Figure 19: Guckler lookout-point at the top of Hármashatár Hill



- Purpose

The open air facilities help teachers to show the beauty and vulnerability of nature. Both classrooms in nature are also starting points of visits in the UPF. The purpose is education and orientation, helps also adult visitors to learn about forests.

- Priority

Text-writing, buying and installing equipments will be finished until the end of 2020.

- Most important ES

The area and surroundings of both lower and upper classrooms in nature belong to the Cultural ES (41 Recreation and tourism and 42 Scientific / educational).

- Unwanted and prohibited actions

Potential vandalism might cause problems. Probability level is low.

- Costs

The total costs of 2 classrooms in nature with information panels about the hiking destinations, 2 additional wooden tables and 4 benches altogether 23 400 €

- Financiers

This activity will be fully financed by INTERREG URBforDAN project.

- Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Hungarian Society for Environmental Education, Central Buda Educational District of the Klebelsberg Centre, Hungarian Hikers' Association (MTSZ), 2nd District of Budapest

6. Installing drinking fountains

- Area and map

In Figure the places of the 2 new drinking fountains are presented (Number 6). One fountain has to be placed at the Birders' Clearing, another one at the Adonis Clearing (close to the playground) Both drinking fountains will be placed into places where they are really needed. Close to the classrooms in nature and other attractions.

- Condition / problems

It is a significant advantage of the urban infrastructure that there is drinking water under the parking lots. We can see even the evidence of the aqueduct, an operating water well in the centre of the focus area. The installation of the 2 new drinking fountains seems to be feasible, hopefully it will not cost much money to reactivate the water pipes. The drinking fountains are expected to become very popular. It is always a pleasure for hikers, and especially for children to drink water. From environmental point of view it is very useful if the quantity of plastic bottles can be decreased, because they are not needed if hikers can get clear water.

- Target state

Two nice and well-functioning drinking fountains close to the classrooms in nature. Water efficient solution, no waste of water. Small drinking troughs for dogs in place.

- Purpose

To make the spaces of environmental education pleasant for children. There is no chance to operate a canteen, but fresh drinking water is very useful.

- Priority

The planning process and installation has to be finished until the end of 2020.

- Unwanted or prohibited activities

It would be a problem if the experts of the Budapest Waterworks would find that there are technical problems with the water pipes. Probability level is low.

- Costs

The costs of the 2 drinking fountains and their installation are 4500 €

- Financiers

The drinking fountains will be financed by INTERREG URBforDAN project.

- Coordinators

Head of Nature Conservation Management at FÓKERT Nonprofit Ltd.

- Stakeholders

Budapest Waterworks, 2nd District of Budapest

7. Bird hide – with drinking pool and feeding point

- Area and map

The place of the equipment is drawn in Figure 15 (Number 7). When positioning the bird hide two points were very important. A) To put it into a good and quiet bird habitat frequented by warblers. B) To install the equipment in a place ‘frequented by potential visitors’.

- Condition / problems

A small opening among the hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) shrubs is a good place. A ready-made construction of Birdlife Hungary just has to be installed.

- Target state

Near to the classroom in nature, as a supplementing element of environmental education, a popular bird hide works. Drinking pool is regularly filled up from the nearby drinking fountain. Drinking pool in the vegetation period, bird feeder in wintertime attracts birds into the scope of the bird hide. Wheelchair users can access the hide quite easily. FŐKERT and volunteers of Birdlife Hungary continually take care of the facility.

- Purpose

The purpose of the equipment is to acquaint children and adults with the bird species and teach them how to become silent observers of the nature. As they enter the wooden structure, draw the curtain and settle down behind the special glass, they get excited about watching well-known and unknown bird species.

- Priority

The equipment is ready-made but the water supply of the drinking pool has to be solved. Until the end of 2020 it has to be done.

- Unwanted or prohibited activities

It is one of the most expensive equipments of the project. Vandalism has to be prevented – mainly with well-written explanations and regular attendance of the bird hide.

- Costs

The equipment itself and the installation will cost together 10.000 €

- Financiers

This activity will be fully financed by INTERREG URBforDAN project.

- Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Birdlife Hungary (MME), Birdlife Hungary’s Budapest Local Group

8. Meandering educational nature trail

- Area and map

Figure 15 shows the track of the Meandering educational nature trail. Both the first phase and the final version. The length of the first stretch is 1150 m.

- Condition / problems

The original concept is that following a closed circle the nature trail returns to the Birders' Clearing. At the moment there is no sense to direct the visitors to homeless tents and forests full of garbage, therefore the trail will terminate at the bus stop. However by the time of the mid-time revision the original concept will be completed.

- Target state

A funny meandering narrow nature trail is running through different forest types, sites of newly afforested areas, passing by a children's playground and a classroom in nature. The nature trail will be equipped with 10 information panels with nice pictures, easy-to-understand texts and additional information in the form of QR-codes. The model of the information panels you can see in Figure 20.

Figure 20: Information panel on a Budapest nature trail



- Purpose

The purpose of the activity is to educate the children and adults about the diversity of forests, ever changing nature, background of nature conservation and concrete elements of habitat reconstruction in Szép-völgy (Pretty Valley).

- Priority

First stage of nature trail has to be ready until the end of 2020. Final version of the educational trail has to be done until mid time revision of the OP.

- Unwanted or prohibited activities

Failure in finding solution for the homeless people and cleaning up the area. In case of close cooperation with the Social Department of the Municipality and NGO-s helping homeless people in crisis such a failure can not happen.

- Costs

Total cost of making the 1st stage of the nature trail's 10 info panel is 7.600 €

- Financiers

The 1st stage will be financed by by INTERREG URBforDAN project. The final stretch will be financed later from different source.

- Coordinators

Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Experts of forest ecology, forest management, botany, zoology and geology.

9. Afforestation of the 1st parking lot – planting a bird grove

- Area and map

In Figure 15 number 9 shows the location of the action. Beside Birders' Clearing this is the place where several actions will be concentrated. Classroom in nature and children's playground with drinking fountain also take place here, at the future Adonis Clearing. The newly planted trees and shrubs will turn it into an attractive place in a relatively short time. .

- Condition / problems

The afforestation of a parking lot is much more difficult than a traditional reforestation project. The surface is not covered with fertile topsoil but a 20-30 cm thick dolomite layer. The dolomite is a natural material, but the root system of the young nursery trees can not find the nutrients which are necessary for their initial growth. The quarry stone edge of the parking lot also has to be removed. The trees could live without completing that work, but the stone and the concrete understructure blocks the natural spread of propagation material from the surrounding grasslands to the newly afforested areas.

- Target state

Colourful shrubs and some scattered trees on the upper part of the former parking lot with a classroom in nature, a more closed forest with a playground and drinking fountain in the smaller part of the former parking lot. However after 10 years visitors can hardly recognize the artificial character of the site. The transition to the former forest is continuous, the playground toys fit into the natural landscape.

The shrubs to be planted: common hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), common barberry (*Berberis vulgaris*) and cornelian cherry (*Cornus mas*). Some Turkey oak (*Quercus cerris*) and flowering ash (*Fraxinus ornus*) trees will be also added. In the smaller, shady parking lot next to the playground Turkey oak, flowering ash, field maple (*Acer campestre*) and Norway maple (*Acer platanoides*) seedlings and also trees of 10/12 cm circumference will be planted. The trees and shrubs will be planted into planting wholes filled up with topsoil. Water is also essential for the success of the shrub and tree planting. In the first 2 years plants could hardly survive in the dry and hot summers without watering them. Later it will not be a problem for the selected shrub and tree species to tolerate the dry and hot summers.

- Purpose

Shrubs provide food for birds, but also serve as 'educational materials' for students. It will be a nice place to get acquainted with the typical shrubs of the native flora. The trees and shrubs provide a nice protection and decoration around the classroom in nature and children's playground.

- Priority

The afforestation will be finished just before the end of the URBforDAN project, in November 2020. For 2 or 3 years it will look very new and artificial, only the bigger trees will look like 'ready'. However, slowly the whole place will receive a semi-natural character.

- Costs

Compared to the size it is a relatively expensive afforestation. Some of the trees are sizeable, expensive ones, digging of the planting wholes is a hard work and topsoil is also needed for the initial growth of the roots. The calculated cost for all of these materials is 10.000 €.

The removal of the concrete/stone edge mentioned among conditions/problems costs 1500 €

- Financiers

The costs of trees, shrubs, topsoil and the planting process (10,000.00 €) will be financed by INTERREG URBforDAN project. The preparatory phase, that is the removal of the concrete/stone edge (1500 €) will be covered by the Municipality of Budapest.

- Coordinators

Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

- Stakeholders

Forest ecologist of WWF Hungary, experts of Birdlife Hungary (MME), 2nd District of Budapest,

- Legal basis

Act No. XXXVII of 2009 on forests, on the protection and management of forests

10. Forest playground

- Area and map

The place of the forest playground is attached to the afforestation project described in the 9th activity. The exact place is signed in Figure 15 (number 10).

- Condition / problems

Playground toys have to give information about nature, attract children and at the same time be strong and durable. Fortunately more and more wooden toys can be found on playgrounds in and around Budapest. They gave ideas for the playground of the URBforDAN project.

Figure 21: A wooden stag-beetle in a forest near to Budapest



- Target state

An attractive, safe forest playground with wooden images of characteristic species and easy-to-understand, funny description of the portrayed animals and plants. The trees near to the playground provide a pleasant natural surrounding for the children.

- Purpose

To inspire the children to feel free, keep moving and breathe fresh air. At the same time to raise their interest in wild animals and plants. The description of the wooden animals and plants will be read by parents, but the simple and funny text is tailored for children.

- Priority

The children's playground has to be finished until the end of 2020.

- Unwanted or prohibited activities

Any kind of accident or injury. With careful planning observing the national and EU standards chance of unwanted cases can be minimized.

- Additional plan / sketch, if needed

We still have to work on selection of species to be portrayed. However some flagship species (with good forms to be turned into wood-carvings) are already suggested.

Figure 22: Models for wooden-carvings: Pannon lizard (*Ablepharus kitaibelii*), flightless earth-boring dung beetle (*Lethrus apterus*) and pheasant's eye (*Adonis vernalis*)



- Costs

The total cost of the wooden toys portraying animals and plants and installation is 9000 €

- Financiers

The forest playground will be financed by INTERREG URBforDAN project.

- Coordinators

Head of Nature Conservation Management at FÓKERT Nonprofit Ltd.

- Stakeholders

Ilona Water Mill Workshop, Kapolcs
Boldizsár Kő, graphic artist

11. Management of grasslands in the focus area

- Area and map

In the focus area without human intervention grasslands turn into forests. That is the direction of natural succession. However it is proved that a mosaic of native forests and grasslands preserve a more diverse flora and fauna than a uniform forest. In Figure 15 those grasslands are signed where removal of shrubs and mowing will probably happen.

- Condition / problems

The management of grasslands has to be based on botanical survey. Some preliminary research has already happened but before launching the removal of shrubs an additional 'checking' survey is needed. From the experiences of other dry grasslands of Buda Hills it is already known that after removing the shrubs the grass has to be mowed just once a year.

- Target state

The most valuable grasslands of the focus area are cleaned and mowed once a year. The biodiversity of grasslands shows a growing tendency.

- Purpose

To halt the fast natural reforestation in those small areas where grasslands can maintain more diverse plant and animal communities.

- Priority

The nature conservation management has to be launched in spring 2020.

- Costs

The work will be completed by the nature conservation management group of FÓKERT

- Financiers

The subproject isn't included in the URBforDAN project. The labour costs of the nature conservation management are covered by the Municipality budget.

- Coordinators

Head of Nature Conservation Management at FÓKERT Nonprofit Ltd.
Division of Nature Conservation of the Municipality

- Stakeholders

Volunteers of Birdlife Hungary (MME)

Medium-term developments (to be realized until the mid-term revision of the OP in 2025)

12. Solving homeless problem

- Area and map

The problem is concentrated on the Southern edge of the focus area. In Figure 15 number 12 shows the place where some homeless people stay permanently.

- Condition / problems

The problem is typical in the big cities of Europe. It is a complex social issue, foresters and nature conservationists are not supposed to solve it. The attitude of the new leadership of the City Hall is promising, good experts are applied.

- Target state

There are no homeless people in the focus area, there housing is solved humanely. The forests are cleaned up completely.

- Purpose

Housing of homeless people elsewhere is the only way how the forest can be completely cleaned up, all the concrete remnants can be removed, and the Meandering educational nature trail can be completed.

- Priority

From the perspective of URBforDAN it is a really urgent activity, but the character of social work has to be taken into consideration. Target date is end of 2021.

- Costs

No extra costs from the project side. Just patient and consequent cooperation is needed with other departments of the City Hall and concerned NGOs.

- Financiers

Municipality of Budapest

- Coordinators

Division of Nature Conservation of the Municipality

Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

- Stakeholders

– Social Department of Municipality of Budapest

– The City is for All – a group against institutional discrimination of homeless people

– Budapest Methodological Centre of Social Policy and Its Institutions (BMSZKI) – the largest homeless service provider in Budapest

13. Cleaning up the focus area

- Area and map

The focus area is full of various types of waste. Number 13 in Figure 15 shows just the biggest waste field. Unfortunately it is not the single problematic territory, waste piles can be found in many places.

- Condition / problems

Waste can be collected, but the effect will be long-lasting only if the new supplies of waste are blocked. At the moment unfortunately some citizens and also small companies just drive to the end of an empty parking lot and throw out 1 or 10 bags of litter. That's why it is necessary to block the traffic by a metal barrier up the bus terminus.

- Target state

Clean UPF, only a very few paper tissues and plastic bottles are thrown away, but they are collected regularly.

- Purpose

If the forest is clean most people will preserve cleanness, they will not throw away anything. And of course this is the only way to enjoy the beauty of nature.

- Priority

Constructing of the metal barrier can be found in the medium-term category, but it is not necessary to wait with it until the mid-time revision. End of 2022 is a realistic deadline.

- Costs

The costs of the total cleanup of the area has not been estimated in detail. The rough estimate is 40.000 €

- Financiers

Municipality of Budapest – a one time big cleanup
FÖKERT Nonprofit Ltd. – regular activity

- Coordinators

Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

- Stakeholders

Environmental Department of the Municipality

14. Elongate meandering nature trail

- Area and map

In Figure 15 number 14 marks the new stretch of the Meandering nature trail.

- Condition / problems

Condition is the clean forest after moving out of the homeless people, as it was described in point 12.

- Target state

A whole circle of Meandering nature trail is in place.

- Purpose

The new attractions – like old trees – make the educational trail more exiting, more diverse.

- Priority

If the former activity (cleaning up) is accomplished, the nature trail should be completed by mid-2023.

- Costs

Since the whole concept and context of the educational trail will be ready by the time of the elongation, the costs will not be high. The estimated cost is 2000 Euro.

- Financiers

Environmental Fund of Municipality of Budapest

- Coordinators

Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

- Stakeholders

Hungarian Society for Environmental Education, 2nd District of Budapest,

15. Afforestation of other 3 parking lots

- Area and map

In Figure 15 number 15 is written close to three parking lots which will be afforested in the framework of this activity. Two parking lots are on the right side of the main road, one on the left. From the big 'double' parking lots only one is left out. It will serve the logistics of the projects but finally it will be afforested, too.

- Condition / problems

The climate and especially the soil conditions of the sites are hard. The work will be quite expensive. However, finally the job can be done.

- Target state

The big parking lots are covered with diverse, mixed, uneven aged native forests. Only the experts of landscape history can tell that the levelled parts of the hillside in the 2nd part of the 20th century must have served some strange functions – parking of the cars.

- Purpose

Purpose of the action is to give Szép Valley of Hármashatár Hill back to nature, in other words to reconstruct ecological integrity of the focus area.

- Priority

The work has to be completed until the mid-time revision of the OP that is until mid-2025.

- Most important ES

The new forests in the first 10 years will provide mainly Regulating ecosystem services (21_Local climate mitigation and 22_Local air quality. Later its Cultural ES will become also important

- Unwanted or prohibited activities

If the project goes ahead according to the OP, no prohibited activities are expected

- Silviculture measures

The first cleaning regulating the tree species mixture will be completed after period of validity of the OP.

- Costs

The estimated cost of the preparatory works + seedlings + bigger trees + the afforestation itself for 3 parking lots is 50.000 €

- Financiers

Unknown. Potentially the Ministry of Agriculture and the Municipality of Budapest.

- Coordinators

Forestry official of the Municipality of Budapest

Head of Nature Conservation Management at FÓKERT Nonprofit Ltd.

- Stakeholders

2nd District of Budapest, Forestry Department of the National Land Centre

- Legal basis

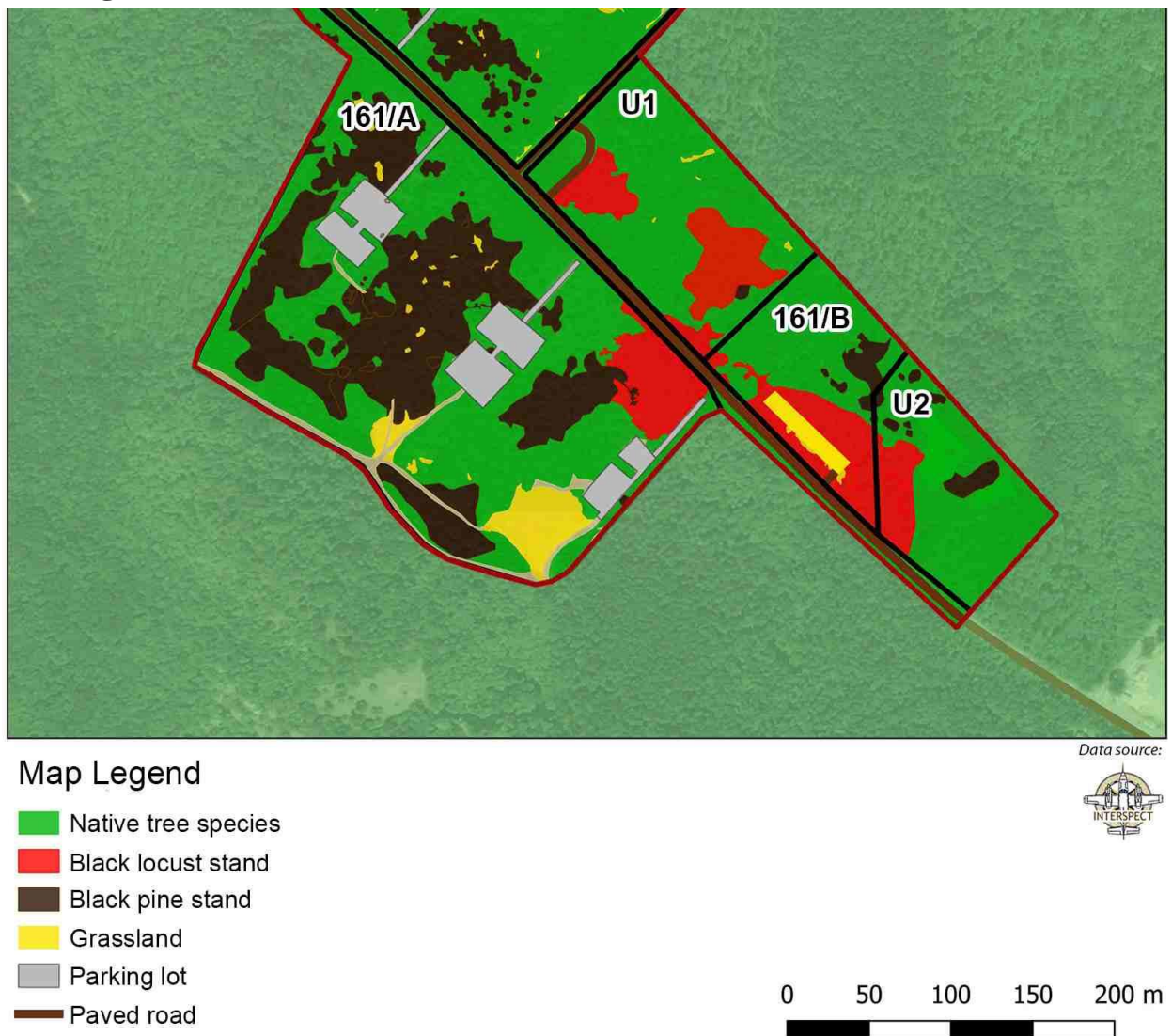
Act No. XXXVII of 2009 on forests, on the protection and management of forests

16. Forest management: Get rid of the invasive black locust

- Area and map

In Figure 15 number 16 shows the centre of the activity. Figure 7 gives a better picture about the present situation. Figure 23 concentrates on lower section of Figure 7, that is the red-coloured Robinia spots.

Figure 23: Black locust invasion in the focus area



- Condition / problems

The intervention is quite urgent but in the forest management plan the manager is not specified, therefore first the administrative tasks have to be arranged, then the silviculture measures can be launched. On page 45 the strategy and the likely dates of measures are specified. The short summary is that the cuttings will be begun in the unplanned U1 in 2021 and step by step all black locust stands will be cut and replaced by native species until 2025, the date of mid-time revision of the OP.

- Target state

Black locust (*Robinia pseudoacacia*) stands are all cut and replaced by native tree species, namely *Quercus cerris*, *Fraxinus ornus*, *Acer campestre* and *Tilia platyphyllos*. In the shadow of those broadleaved species after the chemical treatment the black locust disappeared.

- Purpose

Purpose of the intervention is to grow diverse native forests in the focus area. *Robinia* destroys the soil and the herbaceous plant vegetation as well. Hikers often don't pay attention to the tree species, but they definitely prefer oak forests to black locust forests.

- Priority

Because of administrative obstacles the realistic deadline is 2025 when replacement of black locust by native species can be finished.

- Most important ES

1.1 Timber production of *Robinia pseudoacacia* is quite good. Otherwise all other ecosystem services, like 2.1 Local climate mitigation 3.1 Nature protection and 4.1 Recreation and tourism of mixed oak forests is much better than that of a *Robinia* stand.

- Costs

The described conversion of black locust stands to mixed oak forests has extra costs, but the whole work happens in the framework of the regular forest management works.

- Financiers

Municipality of Budapest
FŐKERT Nonprofit Ltd.

- Coordinators

Forestry official of the Municipality of Budapest
Head of Nature Conservation Management at FŐKERT Nonprofit Ltd.

- Stakeholders

Visitors of the focus area (information campaign will be launched: written information along the paved road and at the Birders' Cleaning, articles and interviews in electronic and print media)

- Legal basis

Act XXXVII of 2009 on Forests, Protection of Forests and Forest Management. Articles on naturalness of forests.

Long-term developments (until end of 2029, the validity of OP)

17. Removing the ruins of weekend cottages

- Area and map

The place of the concrete remnants is signed by number 17 in Figure 15. Most of the ruins are on the right side of the paved road, but there is one large concrete base on the left side, too. Altogether there are 12 concrete remnants.

- Condition / problems

The main problem is that it is a very hard and expensive work to remove the memories of a wrong development concept. It is hard to explain to the potential donors that destroying buildings with a hydraulic breaker is an environmental activity.

- Target state

In ten years in the focus area no ruins or concrete bottoms can be found. The surrealistic semi-industrial character of the landscape will have been disappeared. Visitors can meet only plants and wildlife.

- Purpose

The purpose of demolishing the concrete remnants is to give back space to natural flora and fauna. As a side effect, from esthetical point of view visitors will like the change very much.

- Priority

Relatively urgent but because of the above mentioned financial reasons uncertain.

- Costs

A quick survey of an entrepreneur found that the estimated cost was 75 000 Euro.

- Financiers

Unknown.

- Coordinators

Head of Nature Conservation Management at FÓKERT Nonprofit Ltd.

- Stakeholders

Visitors (It is a must to inform them in advance).

18. Providing composting toilet for the visitors

- Area and map

In Figure 15 at the edge of the Birders' Clearing there is a symbol and number 18. It is the selected place of the biotoilet. A minor change in the exact location may happen, but it is the place where the equipment is needed most.

- Condition, problems

The equipment is quite expensive. Until now only internet research was done. The Swedish biotoilet seems to be a really good solution, but references still have to be collected, experiences of forestries and national parks have to be checked.

- Target state

The composting toilet is installed in the hidden corner of the most frequented Birders' Clearing. Visitors understand that it is their interest to take care of cleanliness. The manager of the area have to check it just twice a week. There is no problem with the maintenance.

- Purpose

The purpose is preserving the order of the focus area, and provide the most necessary comfort for the visitors.

- Priority

It is a really needed equipment, but best solution and financial background have to be found. There are even more urgent tasks that's why it was left for the second half of the OP period.

- Costs

Clivus Multrum is a good technology with long experience in operation. The price of two cabins with freight and installation is about 12.000 €

- Financiers

To be identified later

- Coordinators

Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

- Stakeholders

Visitors. Description of the technology and kind notices to inform the visitors are needed.

6. GOVERNANCE

6.1. Implementation / responsibility

6.1.1. Changes expected in the near future

On the 6th page of the OP we have already mentioned a significant fact: after the local elections of October 13, 2019 the governance of both owners, the Municipality of Budapest and Local Government of the 2nd District has been changed. The institutional changes are still in process. It is expected that in the relevant offices the new green territory units will have more manpower and more effective structure for implementation and control. However at the moment only the present structure can be described.

6.1.2. As if nothing had happened

The highest level governor of the URBforDAN Budapest subproject is the Department for Investment and Project Management of Municipality of Budapest, more exactly the head of department and her co-workers. The professional governance of nature conservation is implemented by the nature conservation officer of Department of Communal Public Services and Environment in the Division of City Management. The URBforDAN project is implemented by the Municipality together with the FŐKERT Nonprofit Ltd, which is the company in charge of green territories management of Budapest, 100 % property of the Municipality. Most likely the assigned tasks will be accomplished by the Municipality and the FŐKERT also in medium- and long-term.

The timely state of the project activities will be controlled by the Municipality regularly, both on professional and project management levels. Beside that the factual interventions accomplished by FŐKERT in the focus area will be supervised, too. The actions will meet the requirements of the project as well as the laws operative in Hungary and the regulations of the competent authorities. The regular maintenance and servicing of the equipments will be accomplished by the Municipality and FŐKERT in common. This is valid also for the period after expiry of the URBforDAN project that is for the period of medium- and long-term developments.

The focus area is the property of two entities, namely the Municipality of Budapest and 2nd District of Budapest. The forests in the focus area are owned by the Municipality. There are no private owners and forest owner associations. Compensation for limiting the private owners is not relevant.

It is a definite aim of the professional leadership of the URBforDAN Budapest project to declare protected status of Municipality importance for the habitats of the focus area. As a result of protection it is expected that the medium-term and long-term development plans (after the expiry of URBforDAN) can be warranted. The reason is that if the project area will have a protected status, the Municipality can fit the area into its nature conservation program, resulting in assigned financial resources. After an operative protected status the governance of the project will be provided by nature conservation and forestry officers of the Department of Communal Public Services and Environment. It won't change after the focus area declared protected that the developments belong to the FŐKERT Nonprofit Ltd., because the Company is mandated by the Municipality to carry out the overall maintenance and development of the protected areas of the Municipality.

7 . MONITORING

7.1. Indicators of monitoring and control

During the URBforDAN project period and also in the following years the owners of the area (Municipality of Budapest and 2nd District of Budapest) and FÖKERT, the main implementer of the project, will control every year if the activities were realized according to the plans. Responsible persons are the Nature Conservation Officer of the Department of Communal Public Services and Environment and Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.

The success of activities and developments are controlled on prescribed field surveys. The controllers have to find answers to the following questions:

- Which developments have already been realized according to the plans?
- Which developments haven't been realized yet?
- What are the discrepancies compared to the original timing?
- Are the permissions and approvals necessary to the accomplishment available?
- How the mistakes can be rectified?
- Does the level of discrepancies make it necessary to revise the plan?

The dates of the prescribed large controls:

December 2020, May 2023, May 2025 (mid-time revision), May 2027, December 2029

The 2020 control in the end of URBforDAN is quite evident. The timing of mid-time revision and December 2029 control is clear. The importance of the 2023 and 2027 large controls is the following: There is a 20 % indicator. If more than 20 percent of the activities are not realized until the deadline, revision of the plan is needed.

Beside the large controls there are field surveys in every intervening year, too. (May 2021, May 2022, May 2026, May 2028). Every year in the field surveys the state of the habitats and equipments is diagnosed. The need of maintenance and repair is determined.

Every second year a questionnaire about the developments will be compiled for the visitors of the focus area. (responsible for the survey: Head of Nature Conservation Management at FÖKERT Nonprofit Ltd.) During the validity of the OP it is also crucial to maintain regular contact with the schools, kindergartens and NGOs using the UPF, since through their opinion it is easier to judge the usefulness of the developments. The potential modifications of the interventions have to be based on their opinions.

On the homepage of the focus area continuous updating is necessary, including the programs attracting many people to the area. The internet communication is a common task of the Municipality and the FÖKERT.

7.2. Revision of the plan

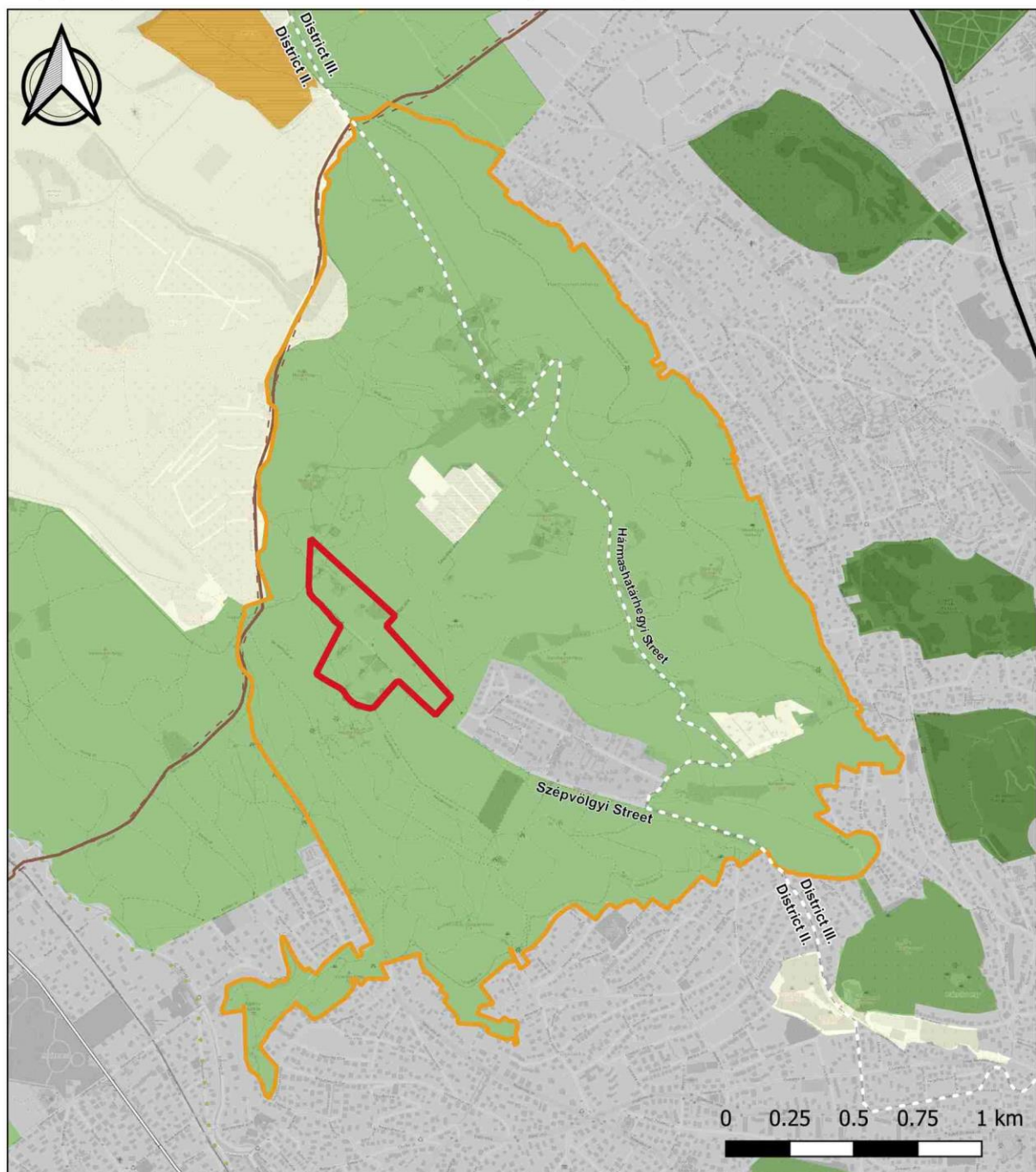
As it was described in 7.1. mid-time revision (May 2025 is compulsory. Beside that if large controls of 2023 and 2027 find that the problem indicator is higher than 20 %, the extra revision of the OP has to be completed until June 30th of the given year.

8. COSTS AND FINANCING

Number	Activity	Until the end of 2020 from URBforDAN	Until the end of 2020 from other source	2021-2029 from other source
1	Improving public transport			
2	Establishing coordinated parking system		1.500	800
3	Entrance point (bus terminus)	18.500		
4	A set of information boards and signposts	5.000		
5	Classrooms in nature (2 pieces)	23.400		
6	Installing drinking fountains	4.500		
7	Bird hide – with drinking pool	10.000		
8	Meandering educational mature trail	7.600		
9	Afforestation of the first parking lot	10.000	1.500	
10	Forest playground (Adonis Clearing)	9.000		
11	Management of grasslands			
12	Solving homeless problem			
13	Cleaning up the focus area			cca. 40.000
14	Elongate Meandering educational nature trail			2000
15	Afforestation of other 3 parking lots			cca. 50.000
16	Get rid of the invasive black locust			
17	Removing the ruins of the weekend cottages			cca. 75.000
18	Providing compost toilet for the visitors			12.000
	Total	88.000 €	3.000 €	cca. 182.000 €

Appendix of the OP

App Figure 1: Land Use Plan of Budapest Agglomeration



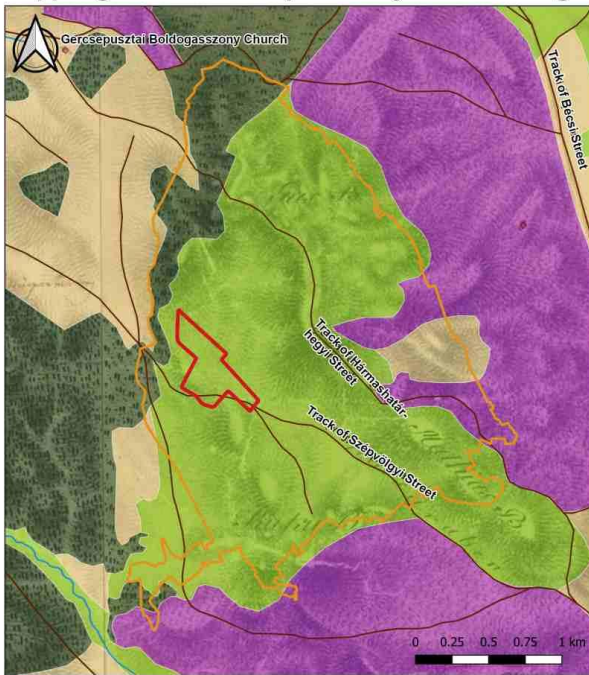
Map Legend

- Focus Area
- Strategic Area
- Highway
- Natural gas pipeline
- Border of 2nd and 3rd District

Land use categories

- Forest area
- Garden area
- Agricultural area
- Urban green area
- Residential zone

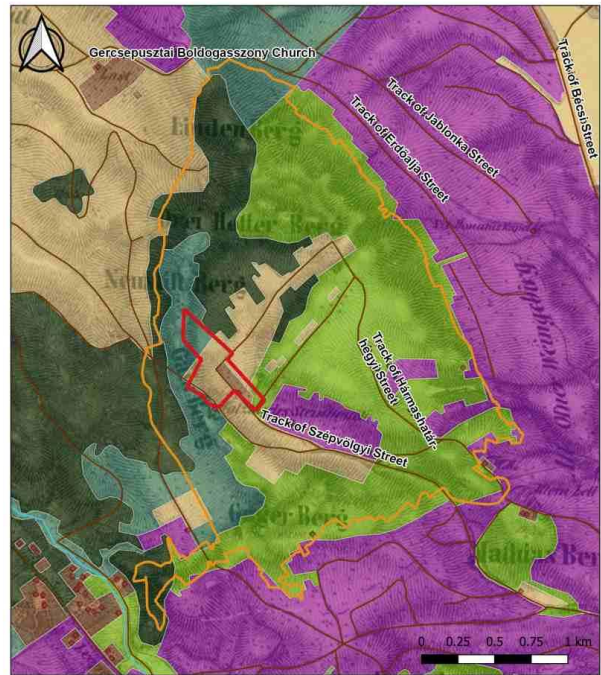
App Figure 3: Landscape History of the strategic area



Map Legend

- Focus Area
- Strategic Area
- ◆ Building
- Road
- Water-course
- Forest
- Grassland
- Arable land
- Vineyard

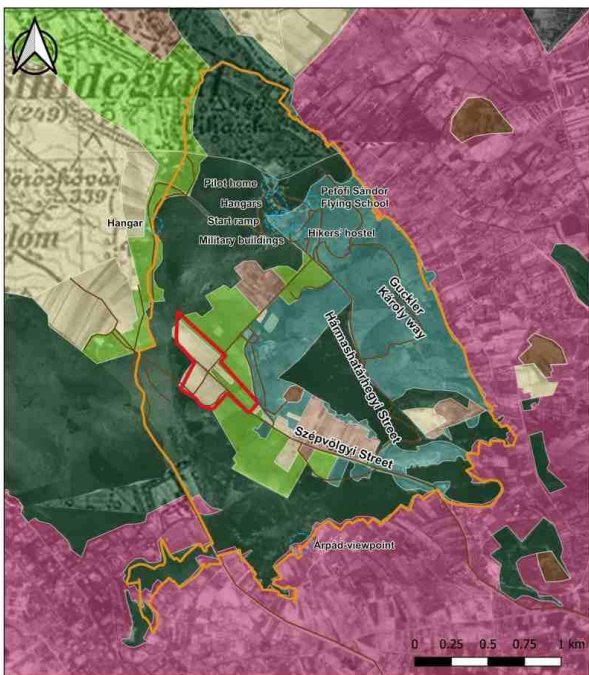
First Military Survey – 1783



Map Legend

- Focus Area
- Strategic Area
- ◆ Building
- Road
- Water-course
- Forest
- Grassland
- Arable land
- Vineyard
- Garden
- Shrublar

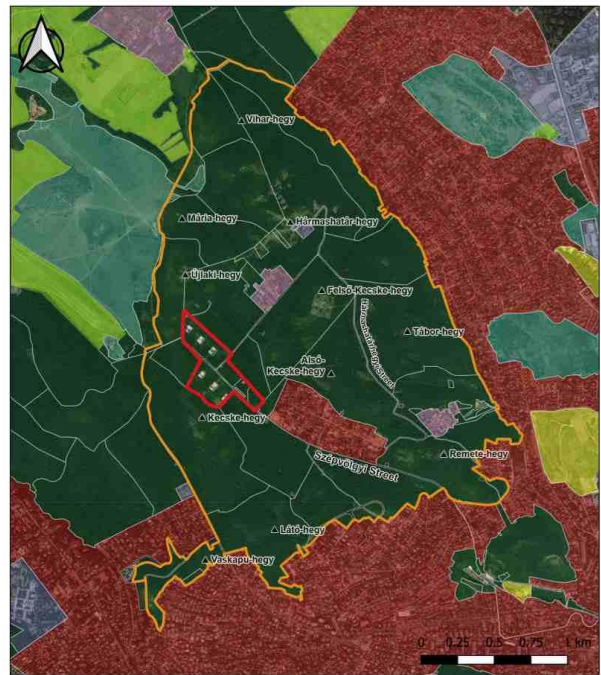
Second Military Survey – 1861



Map Legend

- Focus Area
- Strategic Area
- Major roads
- Forest
- Grassland
- Arable land
- Garden
- Small gardens being developed
- Land in the process of natural forestation
- Damaged landscape – Clay mine
- Cemetery

Aerial photo 1944

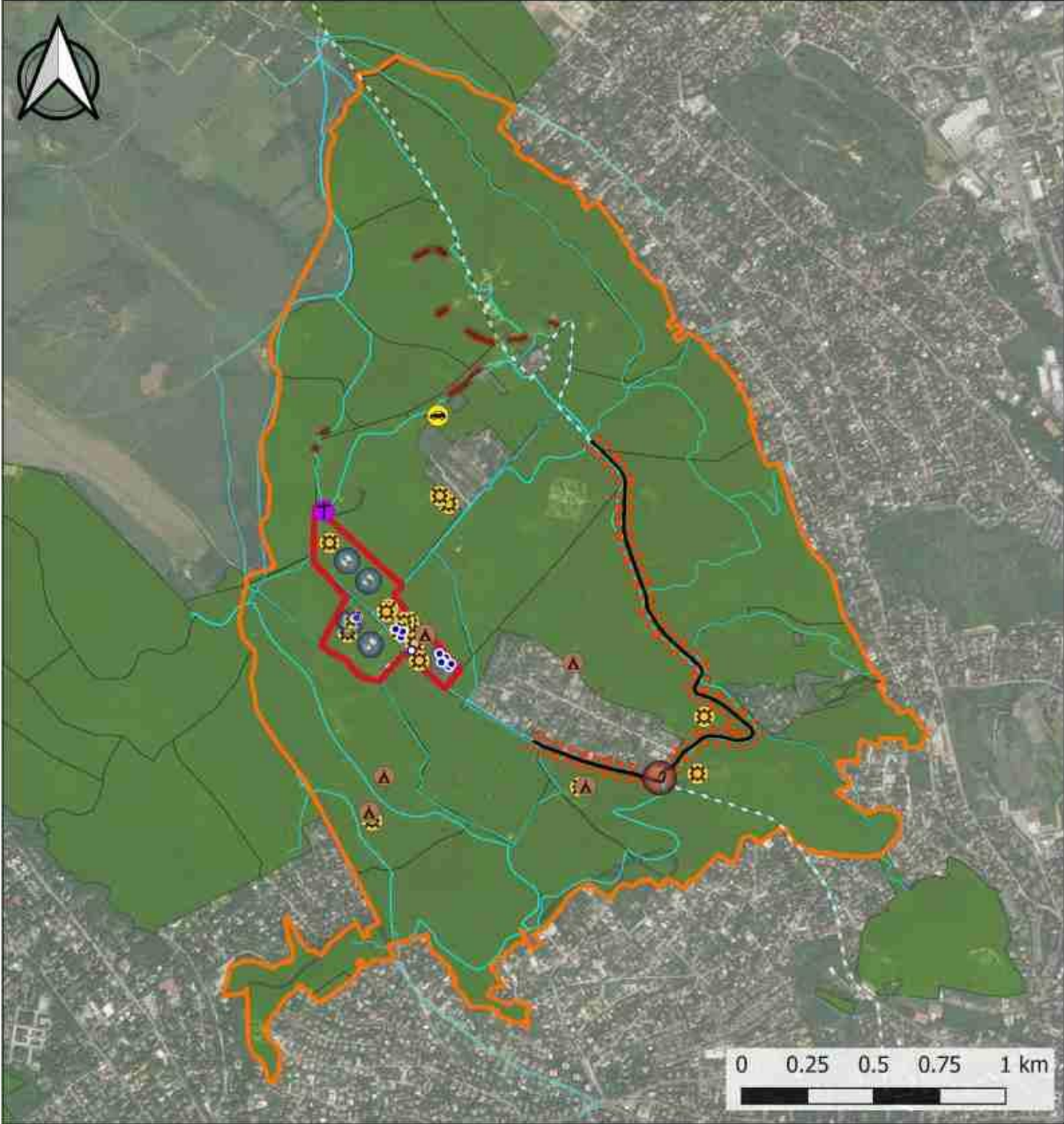


Map Legend

- Focus Area
- Strategic Area
- Forest
- Grassland
- Garden
- Residential area
- Other developed area
- Cemetery
- Area for recreation/sport

Present state

App Figure 4: Problem map of the Hármashatár Hill



- Map Legend**
- Focus Area
 - Strategic Area
 - Hiking trail
 - Large-scale soil erosion
 - Parking along the road
 - Broken signpost
 - Abandoned car wreck
 - Rubbish left behind
 - Homeless camp
 - Ruins of cottages
 - Basement
 - Crowded parking lot
 - Unnecessary parking lot

