

THE IMPACT OF THE SECTION OF THE RING BELT CAZABAN ROUNABOUT ROAD DJ 190 ON SPECIES AND HABITATS OF CONSERVATION INTEREST

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Abstract

The paper's aim is to present the impact achieved upon the environment by the construction workings of the Oradea' Roundabout Way, Calea Santandrei-Ovidiu Densușianu- DN 1- DN190. The estimation of the potential impact has been achieved by taking into consideration both the average number of physical units (motor vehicles, auto-transporters, trucks etc.) that cross the Road in the City of Oradea area and the rolling ways currently employed and placed in similar topo-climatic characteristics.

INTRODUCTION

The air pollution caused by motor vehicles raises two main features: first of all, the gas evacuation is being done in the proximity of the ground, which leads to large concentrations (of polluting agents) at lower altitudes, even in the case of the gases with low density and a great capacity of diffusing in the atmosphere. Secondly, the gas emissions are being produced on the entire area of the locality, the differences among concentrations depending upon the traffic level and the road (street)' ventilation characteristics. Among the substances that lead to air pollution, composed by a large number of compounds (several hundreds), the top place is occupied by the escapement gases. The volume, the nature and the concentration of the polluting agents disseminated in the atmosphere depend on different variables as: the motor vehicle type, the nature of the fuel and the technical characteristics of the working engine. Among these polluting agents we should mention the suspension particles, brimstone dioxide, the lead, the poliflavoured hydrocarbons, the volatile organic compounds (benzene), the asbestos, the methane gas and so on.

The Local Council of the Oradea Municipality along with the Roads Regional Administration - Cluj Napoca are planning to accomplish the project "The ring belt Cazaban Roundabout road DJ 190" whose direction will start from the Cazaban intersection with Densușianu after which it will take a roundabout way the city and its interurban area by West and, finally, it will join the National Road 1 (E 60) and DJ 190 at the km 9+035.

The proposed project will overlap the administrative territory of Santandrei and Bors over the municipality of Oradea. All three administrative entities are included in ZMO.

By accomplishing this roundabout way it will be suppressed the traffic jamming and the traffic of high tonnage within Oradea city area. Among the other positive effects we can mention a shorter period for city crossing. The new roundabout way will generate a new perspective for the development of the city of Oradea and for its neighbouring area. By its aesthetic, the objective will harmoniously fit to the environment characteristics and it will be in concordance with the urbanism and territorial plans.

Subsequently to the completion of the Oradea roundabout way' objective, the systematising of the traffic circulation in the area of the Oradea city will also be accomplished along with a significant decreasing of the time period previously needed for city crossing and also accompanied with a substantial diminishing of noise and air pollution within the city area.

MATERIAL AND METHOD

The final total surface occupied by the proposed roundabout way it will be of 68.3 ha. The surfaces which are going to be occupied are farmland, roads, yards, construction, railways, other, found in their outmost majority in private property.

The road crosses and/or pass through the vicinity of protected natural areas, namely the Lower "Crișul Repede" ROSCI0104. This site of Community importance is said to preserve the lower Repede River, downstream from Oradea to the state border, situated near the route to the west, northwest. This site is part of the Pannonian biogeographical. The site is in a state adequate to support species of Community dragonflies, fish, amphibians and bats, preserving also the groves with willow and poplar. Aquatic ecosystems are habitats for many species of waterfowl that feed or nest here. The route will cross the ring then projected on a relatively small portion with an area of 0.74 ha (7400 m²), between km 3 + 690 - km 3 + 890, a distance of 200 m length ROSCI0104 Site of Community Importance of Lower Crișul Repede. The route will intersect projected for the second time within the protected area between km 4 + 800 - km 5 + 725, a distance of 925 m length, an area of 4.0451 ha superimposed (40 451 m²) as follows:

- km 4 + 800 - km 5 + 075, a distance of 275 m long, with an area of 1.0958 ha (10 958 m²);

- km 5 + 075 - km 5 + 340, a distance of 265 m long, with an area of 0.0044 ha (44 m²) (bridge over the river Repede cells , ie 0.0055 ha x 8 pieces) ;
- km 5 + 340 - km 5 + 725, a distance of 385 m long, with an area of 2.9449 ha (29 449 m²) .



Fig.1 Position monitored area compared to existing Natura 2000 site and vicinity

Together, Oradea will cross belt ROSCI0104 Lower Crișul Repede a total length of 1125 m and an area of 4.7851 ha (47,851 m²).

Passages and bridges:

- passage at km 0 + 975 over existing belt yaw Oradea and CF 310 Arad - Oradea
- passage at km 1 + 500 and CF 312 over Peta Oradea - Cheresig ;
- km 3 + 300 Bridge over the canal and local roads
- at km 5 + 250 Bridge over the river Repede ;
- passage at km 8 + 050 provided in the node at the intersection with the European Road 60 (DN I) ;
- underpasses km 9 + 120
- passage at km 9 + 330 to ensure continuity local road ; 300 overpass CF Bucharest - Oradea.

Due to the quasi permanent presence of the human factor , fauna is represented by few species , weightier actual recorded species belonging to groups :

- birds: swallow (*Hirundo rustica*) , Sparrow (*Pasera domestica*) , tit (*Parus sp.*) , Turtle dove (*Streptopelia turtur*) dove (*Streptopelia decaocto*) , blackbird (*Turdus merula*)
- frogs: lake frog (*Rana aesculenta*) tree frog (*Hila sp.*) ;
- reptiles : grass snake (*Natrix sp.*) , Lizard (*Lacerta agilis*) ;

- fish: rudd (*Scardinius eritrophthalmus*) , chub (*Leuciscus sp.*) ,
Caras (*Carasius sp.*) ;
- insects: various Diptera , Coleoptera , dragonflies , etc.

All species are common specie, except (Coenagrion Odonata) that live exclusively in the perimeter banks of the river and marsh vegetation, characteristic of this space.

Regarding mammalian species listed in Annex II to Directive 92/ 43 / EEC is worth mentioning that in the implementation of the project identified the presence of two copies of bats (*Rhinolophus ferrumequinum*) , habitat created on the left bank of Crișul Repede, dream-a-vis the discharge point of the WWTP .

Among the species of amphibians and reptiles listed in the Natura 2000 Standard Data ROSCI0065 Delta, perimeter monitoring were identified two: bittern pond (*Bombina variegata*) and bittern, red belly toad (*Bombina bombina*) .

Regarding the damselfly species mentioned in the standard Natura 2000 ROSCI0104 we mention that in the monitored area were identified specimens *Coenagrion ornatum*.

The project submitted for approval, ZMO holder, will not lead to fragmentation of habitats of Community / priority, the actions identified at an early stage, the realization of tunnels traversare.Sistemul tunnels will be made on the part of the guide wall type LEP 1000, for undercrossing pace of modernization tunnel KT 500 (1 m) , funnel entry / sidewalls left / right and bottom plate holes. The tunnels will be located at the following positions kilometer: km 3 + 500 km 3 + 600, km 4 + 600, km 700 and km 4 + 4 + 800.In the bridge crossing is through openings artwork. The bridge has a length of 656,3m and has 15 spans (a span of 70m, 50m and two openings remaining.

Following the analysis activities that may have negative effects on the environment, according to the matrix of impact were able to obtain the values of individual impacts as identified above, as shown below:

The Impact	Short time		Medium time		Long time	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
Singular	4	2	3	2	3	1

It can be seen therefore that the activities are carried out in the short term, the direct impact is moderate.

In the short term, the indirect impact is the result of the transportation of construction materials, machinery, waste and personnel to support the planning and construction stages.

Matrix impacts during project implementation the species of community interest in ROSCI0104

<i>Impact</i>	<i>Bombina variegata</i>	<i>Bombina bombina</i>	<i>Rhinolophus ferrumequinum</i>	<i>Coenagrion ornatum</i>
12-25			*	
5-12	*	*		*
1-4				

Comments:

1. Study on vegetation analysis was conducted after the European phytocoenology methods;
2. For Invertebrates we use Collection method with entomological net by mowing vegetation
3. To assess amphibian species were made field trips to identify habitats used by these species in the project implementation
4. In the presence of mammal species identification was carried out along transects represented by bands parallel to the long side of the site. Observations were carried out using binoculars. Species identification was done visually without capturing or immobilizing specimens. The determination was performed using key species determination.

RESULTS AND DISCUSSION

1. Integrity protected area of Community interest is ensured by the objectives of preserving and maintaining the coherence of its ecological structure and functions.
2. Implementation of the plan did not significantly alter the surface of the site; after assessing the possible impact of the plan on natural capital, we appreciate that the integrity of Natura 2000 site will not be affected irreversibly over capacity autorefacere short term;
3. Impact has resulted in changes identified conservation status of species / habitats of conservation interest.
4. Making investments provided by the plan will have significant direct impact on species and habitats of conservation interest.
5. The project on the proposed site even lead to the restriction of 0.7% of the area Natura 2000 site will ensure uptake of heavy traffic in the adjacent municipality of Oradea and Oradea.

6. Tanks in a state conservation land SC Synthesis SA riverene ring belt is considered as wetlands, specific habitat, where for some species of conservation interest for which it was designated Natura 2000 site.

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