

ACTION A5. DESCRIPTION OF TARGET ROAD SEGMENTS, IDENTIFICATION OF CROSSING POINTS USED BY ANIMALS AND ANALYSIS OF TRAFFIC VOLUME AND SPEED

ACTIONREPORT/2020 – Terni

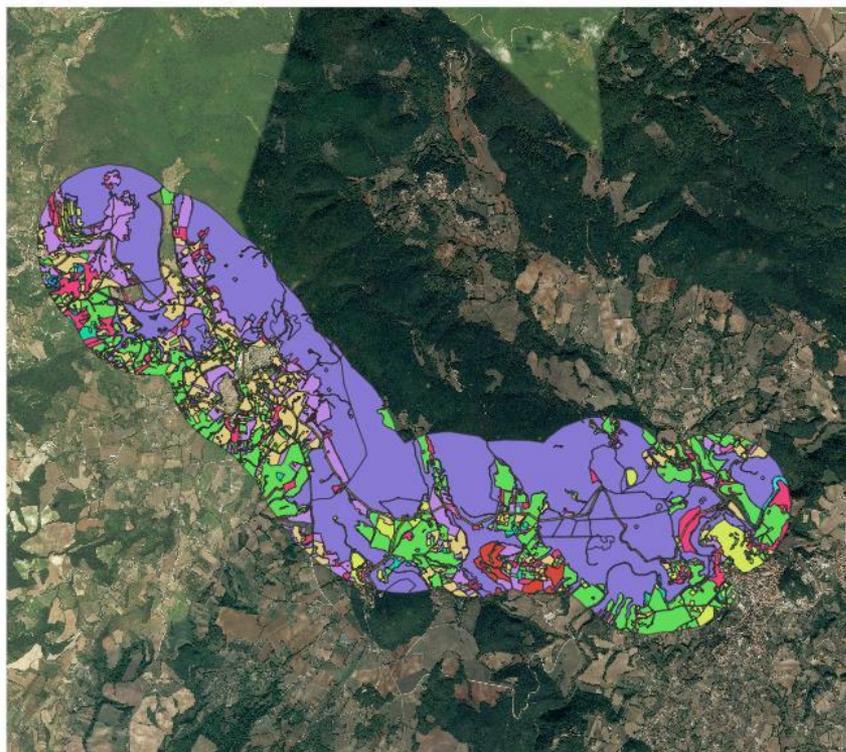
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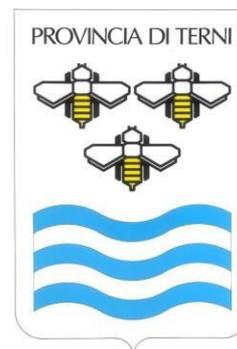
Strada Provinciale
205

sp 205

- Arbusteto
- Area nuda
- Boschi di latifoglie
- Boschi puri o misti
- Cave
- Coltivazioni legno
- Coltivazioni promiscue
- Edificato
- Frutteti
- Oliveto
- Pascolo
- Seminativi
- Vegetazione ripariale
- Vigneti
- Zone umide



**LIFE SAFE
CROSSING**
PREVENTING
ANIMAL-VEHICLE
COLLISIONS



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1.INTRODUCTION

The action A5 was a preparatory action to define the sites where to install the prevention devices foreseen in Action C1.

In the project proposal we preselected 3 road segments, but after the beginning of the action, we choose to concentrate our effort only in 2 road segments SR 205 (TERNI 01) and SP 38 (TERNI 02).

In the frame of this action the activity carried out were the following:

- Characterization of the selected road segments;
- Monitor the wildlife road mortality;
- Monitor crossing points used by animals;
- Monitor traffic volume.

The action A5 lasted from March 2019 to September 2020.

2. PROJECT AREA

The project area is located in the north-western sector of the Terni Province.

The monitored road segments have a total length of 21,29 Km, 10,32 Km of SR 205 and 10,97 Km of SP 38 (table 1).

These 2 roads are bordering the northern and the southern part of the SCI IT5220008 Monti Amerini.

The monitored road segment of the SR 205 is included in the territory of 2 municipalities Amelia e Lugnano in Teverina, while the one of SP 38 is included in the territory of Amaelia e Montecastrilli. These 2 roads are both managed by the Terni Province.

The monitoring of the road SP 79 bis, located at the border of the SCI IT IT5220004 Boschi di Prodo-Corbara ,was interrupted because due to very low traffic volume.

Road code/nr.	Length of segment (Km)
SR 205	10,32
SP 38	10,97

Table 1. List and length of the monitored road segments.

3. METHODS

Characterization of the road segments

The characterization of the selected road segments was carried out through specific field surveys to measure different parameters of the road, and the presence, typology and length of the barriers to animal movements.

For each road segments we evaluated:

- Number of lanes;
- Speed Limit;
- Number of wildlife crossing signs;
- Road transversal section;
- Habitats included in the 1000 meters on both sides of the road;
- Presence and length of barriers to animal movements.

The fieldwork to measure these parameters was made between March and April 2019.

All data recorded were stored in a specific GIS database.

Monitoring road wildlife mortality

The selected road segments were travelled 2 times/month in order to register the animals found dead on the road. We collected data regarding all the different species of mammals. The main variables registered were: species and geographical coordinates of the findings.

Due to Covi-19 restrictions we had to stop the systematic monitoring of the selected road segments from March to May 2020.

In order to increase the detection probability of the dead animals we also collected information from local people, asking them to be informed in case they found a carcass on the monitored road segments.

Monitoring crossing points used by animals

In order to identify the crossing points used by the animals, camera traps were installed in the 2 monitored segments. The camera traps were moved opportunistically along the 2 road segments to monitor the paths more frequently used by the wildlife species.

Traffic volume

Traffic volume in the selected road segments was measured through the installation of a specific device. This device measures the number and types of vehicles and their speed on hourly, and daily basis. Each monitoring session lasted 5 days in order to cover the weekend and the working days.

4. RESULTS

Characterization of the road segments

The 2 road monitored segments are 2 lanes roads and the speed limit is 60 Km/h. In both segments the number of traditional wildlife warning signs is 16 for SR 205 and 11 for SP 38 (table 2).

Road code	Length (Km)	Nr. lanes	Speed limit	Nr. wildlife warning signs
SR 205	10,32	2	60 Km/h	16
SP 38	10,97	2	60 Km/h	11

Table 2. Characteristics of the monitored road segments.

The different categories of habitat (Corine land cover categories) present on both sides of the road segments are summarized in table 3 and table 4 and figure 1 and 2.

Habitat categories (CLC)	Surface (ha)	%
Acqua	9,84	0,15
arbusteto	64,49	0,98
area nuda	3,19	0,05
boschi di latifoglie	378,44	5,74
boschi puri o misti	2393,97	36,32
cave	4,76	0,07
coltivazioni legno	23,99	0,36
coltivazioni promoscue	234,90	3,56
edificato	2454,16	37,24
oliveti	296,18	4,49
pascolo	5,80	0,09
seminativo	657,82	9,98
vegetazione ripariale	53,61	0,81
vigneti	9,09	0,14
zone umide	0,42	0,01

Table 3. Habitat categories (CLC) present on both sides of the monitored road segment SR 205.

Habitat categories (CLC)	Surface (ha)	%
Acqua	0,00	0
arbusteto	44,43	1,12
area nuda	0,78	0,02
boschi di latifoglie	1138,41	28,81
boschi puri o misti	1103,82	27,94
cave	1,32	0,03
coltivazioni legno	14,26	0,36
coltivazioni promiscue	93,74	2,37
edificato	10,23	0,26
oliveti	88,34	2,24
pascolo	9,81	0,25
seminativo	1379,06	34,90
vegetazione ripariale	43,06	1,09
vigneti	17,52	0,44
zone umide	6,27	0,16

Table 4. Habitat categories (CLC) present on both sides of the monitored road segment SP 38.

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- sp 205
- Arbusteto
 - Area nuda
 - Boschi di latifoglie
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 - Cave
 - Coltivazioni legno
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 - Edificato
 - Frutteti
 - Oliveto
 - Pascolo
 - Seminativi
 - Vegetazione ripariale
 - Vigneti
 - Zone umide

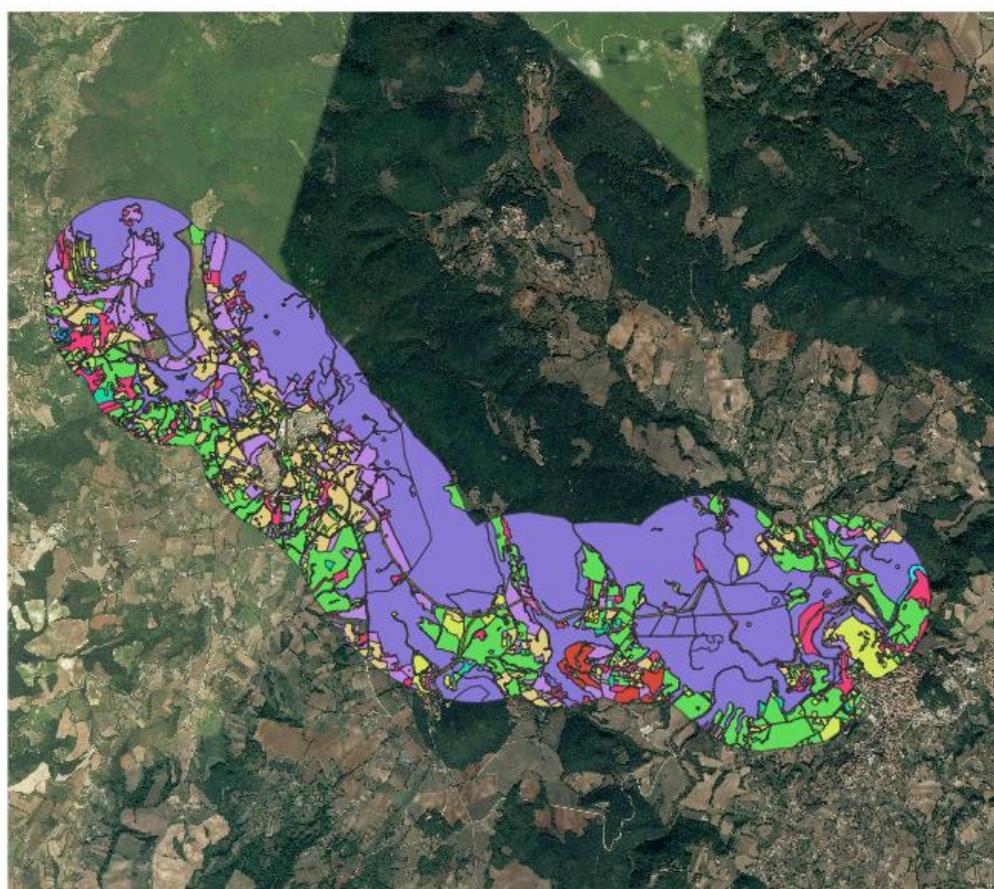


Figure 1. Habitat categories (CLC) on both sides of SR 205.

Strada Provinciale 38

sp 38

- Arbusteto
- Area nuda
- Boschi di latifoglie
- Boschi puri o misti
- Cave
- Coltivazioni legno
- Coltivazioni promiscue
- Edificato
- Frutteti
- Oliveto
- Pascolo
- Seminativi
- Vegetazione ripariale
- Vigneti
- Zone umide

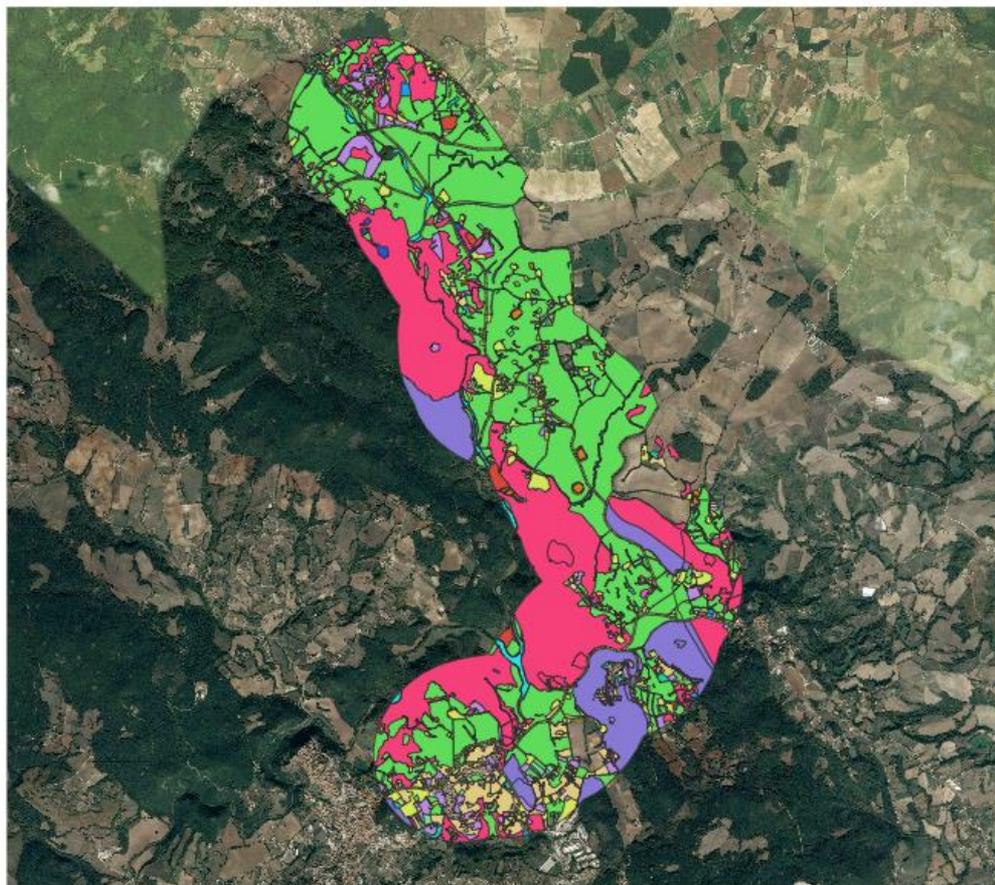


Figure 2. Habitat categories (CLC) on both sides of SP 38.

The presence and distribution of barriers to animal movement was mapped and we produced specific maps for each monitored road segment (fig.3 and 4).

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SR 205

- camera trap1
- incidenti sr 205
- barriere sp 205
- misuratore flusso traffico



Figure 3. Presence of barriers to animal movements in the monitored road segment (SR205).

Strada Provinciale
38

SR 38
○ segnali attraversamento
— barriere

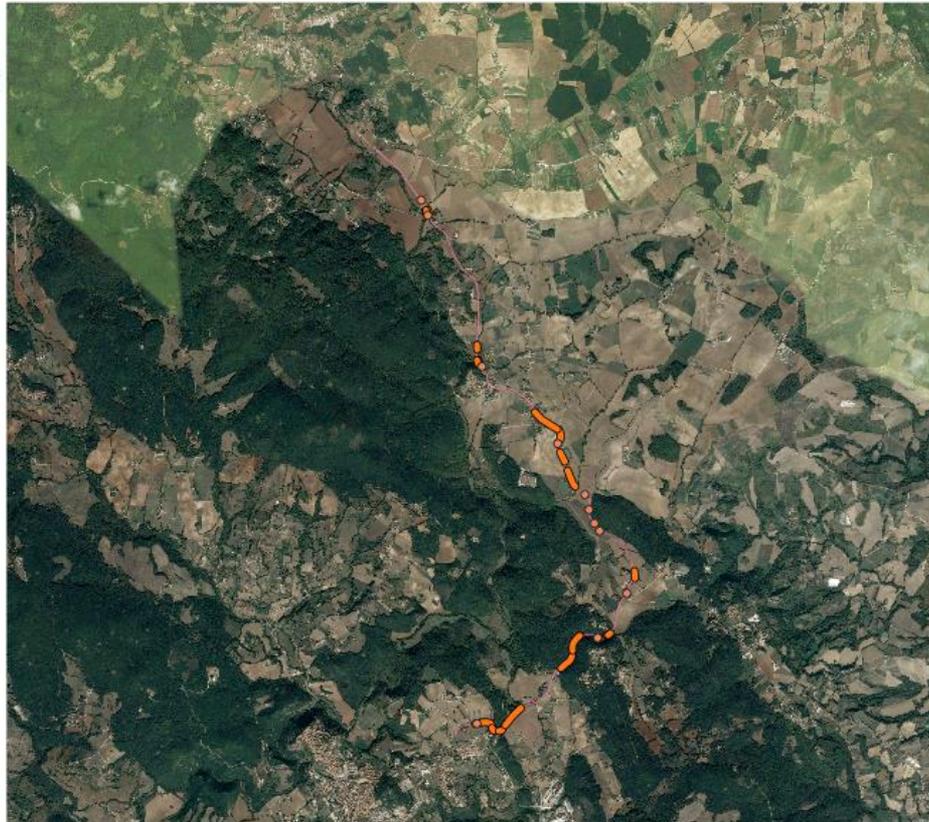


Figure 4. Presence of barriers to animal movements in the monitored road segment (SP 38).

Monitoring road wildlife mortality

From August 2019 until September 2020 48 monitoring sessions were carried out, 22 in the road segment SR 205, and 26 in the road segment SP38.

Overall we found 10 dead animals, 6 in the SR 205 road segment and 4 in the SP 38 road segment (fig 5 and 6). The 3 species found dead were: fox (5), beech marten (3), and badger (2). 8 animals were detected in a straight section of the road segments while the remaining 2 in a curve section. All animals, except 2, were found dead in a section where there aren't barriers on both sides of the road.

The monitoring sessions was interrupted from March to May due to Covid 19 restrictions.

Strada Provinciale
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SR 205
● incidenti sr 205



Figure 5. Distribution of the animals found dead in the SR 205.

Strada Provinciale
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● incidenti



Figure 6. Distribution of the animals found dead in the SR 205.

Monitoring crossing points used by animals

We installed 5 camera traps in the 2 road monitored segment, 3 in the SR205 (fig. 3) and 2 in the SP38 (fig. 7, and 8). The 5 species detected were: wild boar, roe deer, fox, wolf, and badger. A pack of 5 wolf was detected in August inside the SCI IT5220008 Monti Amerini, when we installed the camera around 1 Km from the SR 205. The presence of this pack of wolves has been also detected in the area of SR 205 by the wildlife hunting office of the Umbria Region.

Traffic volume

We carried out 4 monitoring sessions, 2 for each monitored road segments, between January and June 2020. Unfortunately the data of the June monitoring session in the SP 38 have been lost, because we had a problem with the batteries of the device.

The 2 monitoring sessions of SR 205 were carried out from 13/01/2020 to 17/01/2020, and from 21/02/2020 to 25/02/2020.

In the first session we registered the passages of a total of 10603 vehicles with a mean (\pm SD) of 2120 ± 725 vehicles per day. The maximum speed detected was 139 Km/h, and the mean speed was 64 Km/h for one direction and 117 Km/h and 60/Km for the other direction. The speed limit of the road segment is 60 Km/h. The traffic was more concentrated from 7.00 a.m. to 05.00 p.m. The session lasted from Monday to Friday.

In the second session we monitored also the traffic during the weekend, because the session lasted from Friday to Monday. The values registered were similar to the ones of the first session. We registered a total of 12307 vehicles with a mean (\pm SD) of 2407 ± 332 vehicles per day and there wasn't a significant difference between the working days and the weekend.

The maximum speed detected was 101 Km/h, and the mean speed was 60Km/h for one direction, 105 Km/h and 60 Km/h for the other direction.

The monitoring session of the SP 38 was carried out from 10/02/2020 to 14/02/2020 (Monday-to Friday). We registered the passages of a total of 7542 vehicles with a mean (\pm SD) of 1508 ± 807 vehicles per day.

The maximum speed detected was 180 Km/h, and the mean speed was 108 Km/h for one direction, 147 Km/h and 81 Km/h for the other direction. The speed limit of the road segment is 60 Km/h.

5. FINAL CONSIDERATION

The action was successfully implemented and, on the basis of the results come out from the different monitoring activities, we selected the 2 sites where the AVC PS will be installed (fig. 7 and 8). The only deviation, from what was originally foreseen in the project proposal, was the number of sessions to monitor traffic volume. We didn't carry out the monitoring sessions in spring and summer, partially due to Covid 19 restrictions and other logistic problems, but we will measure the traffic volume in these seasons during the prosecution of the project.

Strada Provinciale
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SR 205

-  camera trap1
-  incidenti sr 205
-  barriere sp 205
-  misuratore flusso traffico

Zona installazione AVC



Figure 8. Site selected for the installation of the AVC PS in the SR 205.

Strada Provinciale
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- camera trap1
- incidenti
- barriere
- misuratore flusso traffico

Zona installazione AVC



Figure 7. Site selected for the installation of the AVC PS in the SP 38.