

# Observations of amphibian, reptile and some mammal species in the area of Šaleška jezera near Velenje during the 2015–2017 period

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**Abstract.** In this contribution we present our observations of amphibians, reptiles and some mammals from the area of Šaleška jezera (lakes) near Velenje in northern Slovenia. This area refers to three lakes – Velenjsko jezero, Šoštanjnsko jezero and Škalsko jezero, which were formed in the 20th century as a consequence of underground lignite mining. The landscape is still changing due to an ongoing subsidence of the valley caused by continuous mining, which constantly affects the surface water bodies and habitats. The changes are so apparent that they could be measured in weeks if not days. New records on the occurrence of 9 amphibian, 7 reptilian and 9 mammalian species were made in the region during our field work carried out from 2015 to 2017. Three of these species are listed on Annex II of the EU Habitats Directive – *Emys orbicularis*, *Bombina variegata* and *Triturus carnifex*, and additional eight on Annex IV of this directive – *Bombina variegata*, *Hyla arborea*, *Rana dalmatina*, *Triturus carnifex*, *Emys orbicularis*, *Lacerta viridis*, *Podarcis muralis* and *Natrix tessellata*. We also recorded two introduced species – *Dama dama* and *Trachemys scripta*.

Key words: amphibians, reptiles, mammals, coal-mine subsiding area, Šaleška jezera, Slovenia

**Izvleček. Opazovanja dvoživk, plazilcev in določenih vrst sesalcev med letoma 2015 in 2017 v okolici Šaleških jezer, Slovenija** – V prispevku navajamo lastna opazovanja dvoživk, plazilcev in sesalcev v obdobju 2015–2017 v okolici Šaleških jezer, severna Slovenija. Območje obsega tri jezera – Velenjsko, Šoštanjnsko in Škalsko, ki so nastala v 20. stoletju kot posledica izkopavanja lignita. Pokrajina se še vedno nenehno spreminja zaradi ugrezavanja doline, kjer je premogovništvo še aktivno, in vpliva na površinska vodna telesa in habitate. Spremembe površja so opazne iz tedna v teden, ponekod celo iz dneva v dan. Med terenskimi popisi smo na območju jezer zabeležili 9 vrst dvoživk, 6 vrst plazilcev in 9 vrst sesalcev. Tri najdene vrste so uvrščene v Prilogo II Habitatsne direktive – *Emys orbicularis*, *Bombina variegata* in *Triturus carnifex*, osem pa jih je uvrščenih v Prilogo IV omenjene direktive – *Bombina variegata*, *Hyla arborea*, *Rana dalmatina*, *Triturus carnifex*, *Emys orbicularis*, *Lacerta viridis*, *Podarcis muralis* in *Natrix tessellata*. Opazili smo tudi dve tujerodni vrsti – *Dama dama* in *Trachemys scripta*.

Ključne besede: dvoživke, plazilci, sesalci, ugrezninsko območje premogovnika, Šaleška jezera, Slovenija

## Introduction

Several amphibian, reptile and mammal species are known from the wider area of Šaleška jezera (near the town of Velenje) from various sources (Kryštufek 1991, Gregori 1995, Tome 1996, Pobješnjak & Kotarac 1997, Planinc 1999, Planinc 2001, Krofel et al. 2009, Žagar 2012), but often with unspecified or not very accurate localities. In the vicinity of the lakes, three species of amphibian and reptiles were noted – *Bombina variegata*, *Pelophylax* kl. *esculenta* complex and *Trachemys scripta* (Gregori 1995, Tome 1996, Pobješnjak & Kotarac 1997). Seven more were recorded in the wider surroundings of the town Velenje – *Natrix natrix* and *N. tessellate*, *Zamenis longissimus*, *Anguis fragilis*, *Lacerta viridis*, and *Podarcis muralis* (Planinc 1999, Krofel et al. 2009, Žagar 2012). The introduced mammal species *Dama dama* has been present in the region since 1973 (Krže 1975). For other mammals we found no data of specified localities for the surveyed area, even though they are generally present in this part of Slovenia (Kryštufek 1991).

Since the area and its lakes are fairly dynamic with constantly changing habitats, data about possible vertebrate distribution can be considered interesting. Distribution changes and succession had been noted in some former destroyed mining areas in other countries (e. g. Tischew et al. 2009). The most dynamic subsiding area, where the changes can be measured in days, is the landscape between lakes Velenjsko jezero and Šoštanjško jezero due to still active underground mining and ash deposition from the nearest Šoštanj thermoelectric plant. Despite the records of endangered species at the European level, this landscape has currently no nature conservation status. On the other hand, the northeastern shore of Velenjsko jezero, including the patch between Velenjsko and Škalsko jezero, is designated as a valuable natural area (Ur. l. RS 2004a). Velenjsko and Škalsko jezero are also partly situated on the southwestern border of the Velenjsko-Konjiško gorovje area of ecological importance (»ekološko pomembno območje«; Ur. l. RS 2004b). The same area was also included in an initiative to establish a natural landscape park Škale, but all the attempts failed (Pokorny 1999).

In this contribution we present some amphibian, reptile and mammal species in the Šaleška jezera region, noted as chance findings between the years 2015 and 2017.

## Materials and methods

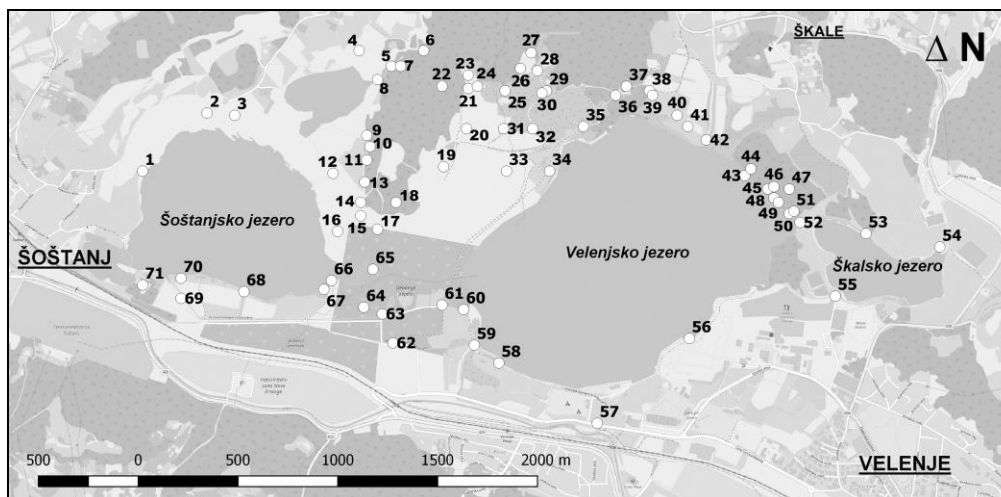
Šaleška jezera (lakes) are very young, formed in the mid-20<sup>th</sup> century in Šaleška dolina, a basin in Slovenia near the town of Velenje. The valley has natural deposits of lignite and the mining of this coal started 130 years ago, causing the subsidence of the valley, which was gradually flooded with the water from passing brooks. The flooding resulted in three notable lakes (Fig. 1) - Velenjsko jezero, Šoštanjško jezero in Škalsko jezero (Šterbenk 2011). Due to the still active mining, the shape of the lakes and their surrounding landscape is still changing. After several decades of activity, the subsidence of the grounds is currently most significant on the northwestern shores of Velenjsko jezero and northern and eastern shores of Šoštanjško

jezero. The changes occur in short periods of time and are often accompanied by deforestation along with creation of new water bodies, marshland, reeds, shrubland and other surfaces (Šterbenk 2011). The southern, more stable shores of these two lakes are popular tourist destinations, with the smallest lake, Škalsko jezero, completely designated for human activities (Šterbenk et. al. 2017).

The fieldwork was carried out from May 2015 to October 2017 and was mainly focused on regular bird surveys (Gojznikar et al., in prep.), but we also recorded other vertebrate species encountered during our field work. The amphibian and reptile species were either caught, identified, photographed and released or only observed through binoculars or telescope and identified using some of the available literature (Veenvliet & Kus Veenvliet 2008, Speybroeck et al. 2016). Some amphibian species were also identified by sound recognition. Mammals were identified after being photographed or observed through binoculars or telescope with the aid of available literature (Kryštufek 1991, Kryštufek & Janžekovič 1999). We also identified several mammalian species via their footprints according to Krofel & Potočnik (2016). Apart from the obvious and easily determinable species, we excluded certain mammal groups from our survey, as no suitable methods for their identification were at hand. These were nearly all rodents (Rodentia) and all insectivores (Eulipotyphla) and bats (Chiroptera).

## Results and discussion

In the surveyed area we noted 25 different species-level taxa from three vertebrate classes - Amphibia, Reptilia and Mammalia with 9, 7 and 9 species respectively (Tab. 2). Altogether, the animals were noted on 71 different localities (Tab. 1). We recorded three species found on Annex II of the EU's Habitats Directive: yellow-bellied toad (*Bombina variegata*), Italian crested newt (*Triturus carnifex*) and European pond terrapin (*Emys orbicularis*), and additional eight on Annex IV of this directive: yellow-bellied toad (*Bombina variegata*), European tree frog (*Hyla arborea*), agile frog (*Rana dalmatina*), Italian crested newt (*Triturus carnifex*), European pond terrapin (*Emys orbicularis*), European green lizard (*Lacerta viridis*), common wall lizard (*Podarcis muralis*) and dice snake (*Natrix tessellata*) (Official Journal of the EU 1992). The only noted species being considered endangered (E category) in Slovenia is *E. orbicularis* (Ur. l. RS 2002). Two introduced species for Slovenia were also observed: the pond slider (*Trachemys scripta*) and the fallow deer (*Dama dama*). We noted two subspecies of the former – *T. s. scripta* and *T. s. elegans* (Tab. 2).



**Figure 1.** Localities of all species observed (see Tab. 1). The landscape may have changed significantly due to continuous subsidence since the last data were collected and was in fact not implicitly representative of the landscape during our research. The map was created in QGIS software using OpenStreetMap as a basemap (© OpenStreetMap contributors).

**Slika 1.** Lokalitete vseh opaženih vrst. Lokalitete so oštevilčene kot v Tab. 1. Površje v okolici jezer se je zaradi ugrezanja morda bistveno spremenilo od datuma zadnjega podatka in ni nujno primerljivo s stanjem med našo raziskavo. Zemljevid je bil izdelan v QGIS software z uporabo OpenStreetMap kot osnovo (© OpenStreetMap contributors).

**Table 1.** All localities of the species recorded at Šaleška jezera between 2015 and 2017; coordinates are in WGS84 decimals (lat. (°N)/ long. (°E)).

**Tabela 1.** Vse lokalitete vrst, zabeleženih v okolici Šaleških jezer med letoma 2015 in 2017; koordinate so v WGS84 decimalnem zapisu (lat. (°N)/ long. (°E)).

No. of locality / Št. lokalitete	Description / Opis	Habitat / Habitat	Coordinates / Koordinate	Elevation (m) / Nadmorska višina (m)
01	Western lake shore of Šoštanjško jezero	lake shore	46.3798/15.0575	368
02	Northern lake shore of Šoštanjško jezero	marshy lake shore	46.3824/15.0617	370
03	Northern lake shore of Šoštanjško jezero	lake shore	46.3823/15.0635	368
04	Northeast from Šoštanjško jezero, near the gravel road	shrubland	46.3852/15.0716	374
05	Gravel road near the outflow of the Velunja stream, northeast from Šoštanjško jezero	wheel ruts and roadside puddles	46.3845/15.0737	382
06	Northeast from Šoštanjško jezero, uphill on deforested ridge above Velunja	pools of a small stream	46.3852/15.0758	396
07	Northeast of Šoštanjško jezero, near the outflow of the Velunja stream	vegetation	46.3845/15.0743	380

<b>No. of locality / Št. lokalitete</b>	<b>Description / Opis</b>	<b>Habitat / Habitat</b>	<b>Coordinates / Koordinate</b>	<b>Elevation (m) / Nadmorska višina (m)</b>
08	Northeastern lake shore of Šoštanjško jezero	lake shore	46.3839/15.0728	376
09	Gravel road below deforested ridge, east from Šoštanjško jezero	gravel road	46.3814/15.0721	374
10	Gravel road below deforested ridge, east from Šoštanjško jezero	wheel ruts and roadside puddles	46.3809/15.0723	378
11	Waterhole by the gravel road below deforested ridge, east from Šoštanjško jezero	waterhole	46.3803/15.0721	378
12	Gravel road near the eastern shore of Šoštanjško jezero	pothole	46.3797/15.0699	371
13	Gravel road below deforested ridge, east from Šoštanjško jezero	pothole	46.3793/15.0720	377
14	Waterhole near the crossroads of gravel roads, shrubland on the east of Šoštanjško jezero	waterhole	46.3784/15.0717	372
15	Shrubland east of Šoštanjško jezero	vegetation near the small pool	46.3778/15.0717	370
16	Shrubland east of Šoštanjško jezero	vegetation	46.3771/15.0702	369
17	Shrubland east of Šoštanjško jezero, near the gravel road	shrubland	46.3772/15.0728	369
18	Shrubland between Šoštanjško and Velenjsko jezero	shrubland	46.3784/15.0740	381
19	Ash deposits between Velenjsko jezero and deforested ridge	ash deposits	46.3800/15.0771	389
20	Northwest from the water reservoir	vegetation	46.3817/15.0786	387
21	Ditch by the gravel road below deforested ridge, northwest from the water reservoir	roadside ditch	46.3835/15.0787	404
22	Deforested ridge, northeast from Šoštanjško jezero	deforested ridge	46.3836/ 15.0770	416
23	Puddles by the gravel road below deforested ridge, northwest from the water reservoir	puddles	46.3841/15.0787	412
24	Gravel road below deforested ridge, northwest from the water reservoir	gravel road	46.3836/15.0793	394
25	Forest northwest of Velenjsko jezero, gravel road between deforested ridge and the forest pond	roadside ditch	46.3834/15.0811	402
26	Forest northwest of Velenjsko jezero, north from the water reservoir	forest pond	46.3844/15.0821	404
27	Forest northwest of Velenjsko jezero, north from the water reservoir	forest pond	46.3851/15.0828	409

<b>No. of locality / Št. lokalitete</b>	<b>Description / Opis</b>	<b>Habitat / Habitat</b>	<b>Coordinates / Koordinate</b>	<b>Elevation (m) / Nadmorska višina (m)</b>
28	Clearing by the gravel road near the forest pond, north from the water reservoir	forest edge	46.3843/15.0832	407
29	Forest northwest of Velenjsko jezero	forest road	46.3834/15.0838	391
30	Forest northwest of Velenjsko jezero	forest	46.3833/15.0835	390
31	Pond by the northern road around the water reservoir	pond	46.3817/15.0810	377
32	Waterhole by the northern road around the water reservoir, near the gravel road to the forest pond	overgrown waterhole	46.3817/15.0829	378
33	Waterhole between the water reservoir and artificial pool on ash deposits, northwest from Velenjsko jezero	waterhole	46.3798/15.0812	368
34	Northwestern lake shore of Velenjsko jezero	lake shore	46.3798/15.0840	374
35	Crossroads of gravel and forest roads, north from Velenjsko jezero	overgrown roadside ditch	46.3818/15.0862	413
36	Forest north of Velenjsko jezero	forest clearing	46.3832/15.0883	396
37	Forest north of Velenjsko jezero	wheel ruts on forest road	46.3836/15.0890	424
38	Forest north of Velenjsko jezero	forest edge	46.3834/15.0905	389
39	Fields near Skale, north from Velenjsko jezero	field near the forest	46.3832/15.0907	384
40	Grassland north of Velenjsko jezero	tent on the grassland	46.3823/15.0923	391
41	Grassland north of Velenjsko jezero	hunting observatory	46.3818/15.0930	375
42	Outflow of the Ljubela stream north of Velenjsko jezero	bank of the stream outflow	46.3812/15.0942	375
43	Northern lake shore of Velenjsko jezero	lake shore	46.3796/15.0967	384
44	Forest northeast of Velenjsko jezero	forest	46.3799/15.0971	376
45	Forest northeast of Velenjsko jezero	pothole in the forest	46.3790/15.0982	390
46	Forest northeast of Velenjsko jezero	forest	46.3791/15.0986	391
47	Forest northeast of Velenjsko jezero	forest	46.3790/15.0996	413
48	Northeastern lake shore of Velenjsko jezero	lake shore	46.3786/15.0986	387
49	Forest northeast of Velenjsko jezero	puddle in the forest	46.3784/15.0989	388
50	Northeastern lake shore of Velenjsko jezero	lake shore	46.3779/15.0996	387
51	Forest northeast of Velenjsko jezero	forest edge	46.3780/15.0999	368

<b>No. of locality / Št. lokalitete</b>	<b>Description / Opis</b>	<b>Habitat / Habitat</b>	<b>Coordinates / Koordinate</b>	<b>Elevation (m) / Nadmorska višina (m)</b>
52	Grassland between Velenjsko and Škalsko jezero	grassland near reeds	46.3775/15.1003	367
53	Northern lake shore of Škalsko jezero	regulated lake shore	46.3770/15.1046	377
54	Northeastern lake shore of Škalsko jezero, at the outflow of the Lepena stream	lake shallows	46.3764/15.1094	386
55	Stream connecting Škalsko and Velenjsko jezero	stream bank	46.3742/15.1026	377
56	Southeastern lake shore of Velenjsko jezero	regulated lake shore	46.3723/15.0931	368
57	Main road from Velenje to southern shore of Velenjsko jezero	roadside ditch	46.3685/15.0871	370
58	Southwestern lake shore of Velenjsko jezero	lake shore with reeds	46.3712/15.0807	367
59	Southwestern lake shore of Velenjsko jezero	lake shallows with reeds	46.3720/15.0791	368
60	Ash deposits southwest of Velenjsko jezero	grassland	46.3736/15.0784	376
61	Ash deposits southwest of Velenjsko jezero	artificial pool	46.3738/15.0770	377
62	Road between Velenjsko and Šoštanjско jezero	asphalt road	46.3721/15.0738	367
63	Waterhole at the crossroads of roads to ash deposits and the road between Velenjsko and Šoštanjско jezero	waterhole	46.3734/15.0731	364
64	Southeast from Šoštanjско jezero, near the road between Velenjsko and Šoštanjско jezero	marshy shrubland	46.3737/15.0719	367
65	Ash deposits between Velenjsko and Šoštanjско jezero	small pool	46.3754/15.0725	375
66	Southeastern lake shore of Šoštanjско jezero	lake shallows	46.3749/15.0698	360
67	Southeastern lake shore of Šoštanjско jezero	vegetation	46.3745/15.0693	360
68	Southern lake shore of Šoštanjско jezero	outflow of the ditch	46.3744/15.0641	360
69	Stream connecting the Paka river and Šoštanjско jezero, south from Šoštanjско jezero	stream bank vegetation	46.3741/15.0600	360
70	Southern lake shore of Šoštanjско jezero	lake shore vegetation	46.3750/15.0600	360
71	Small island on the southwest of Šoštanjско jezero	small island	46.3747/15.0575	362

**Table 2.** Amphibian, reptilian and some mammalian species recorded in the Šaleška jezera area between 2015 and 2017 (A – Amphibia, R – Reptilia, M – Mammalia; I – introduced species; HD – Habitats Directive (Ur. l. EU 1992), RL – Slovenian Red List (Ur. l. RS 2002), IUCN – The IUCN List of Threatened Species, E – endangered, LC – least concern, NT – near threatened, O1 – species threatened in the past but currently not threatened, V – vulnerable; few: 2–5, many: 6 or more).

**Tabela 2.** Vrste dvoživk, plazilcev in določenih sesalcev, zabeležene v okolici Šaleških jezer med letoma 2015 in 2017 (A – Amphibia, R – Reptilia, M – Mammalia; I – tujevodne vrste; HD – Habitatna direktiva (Ur. l. EU 1992), RL – Rdeči seznam Slovenije (Ur. l. RS 2002), IUCN – IUCN seznam ogroženih vrst, E – prizadeta vrsta, LC – vrsta, ki trenutno ni smatrana za ogroženo, NT – potencialno ogrožena vrsta, O1 – vrsta zunaj nevarnosti, V – ranljiva vrsta; few: 2–5, many: 6 ali več).

Class / Razred	Species / Vrsta	Date [No. of locality - Number of specimens] / Datum [št. lokalitete - število osebkov]	Methods of identification / Metoda določitve	Conservation status / Varstvene kategorije		
				HD	RL	IUCN
A	<i>Bombina variegata</i>	10. 5. 2015 [Loc 35 - 2, Loc 45 - 2, Loc 49 - 2]; 12. 4. 2016 [Loc 35 - few, Loc 45 - 3]; 2. 4. 2017 [Loc 5 - 2]; 14. 4. 2017 [Loc 5 - many, Loc 10 - few, Loc 45 - 3, Loc 49 - few]; 7. 5. 2017 [Loc 5 - many, Loc 13 - few, Loc 49 - many]; 21. 5. 2017 [Loc 5 - few, Loc 10 - few, Loc 49 - few]; 10. 6. 2017 [Loc 5 - few, Loc 6 - few, Loc 21 - few, Loc 23 - few, Loc 35 - few, Loc 37 - few,]; 26. 6. 2017 [Loc 11 - 20, Loc 23 - 2, Loc 37 - few]; 17. 7. 2017 [Loc 10 - 5, Loc 12 - 2]; 5. 8. 2017 [Loc 5 - few, Loc 10 - few, Loc 11 - few, Loc 21 - few]; 8. 8. 2017 [Loc 25 - 2]; 19. 8. 2017 [Loc 5 - 5]; 20. 9. 2017 [Loc 5 - 1, Loc 10 - 2]; 1. 10. 2017 [Loc 11 - 2]; 15. 10. 2017 [Loc 9 - 1, Loc 10 - 1, Loc 34 - 1]	caught, observation, photographed, sound recognition	Annex II, Annex IV	V	LC
A	<i>Bufo bufo</i>	12. 4. 2016 [Loc 26 - 3]; 2. 4. 2017 [Loc 1 - 1]; 7. 8. 2017 [Loc 24 - 1, Loc 26 - 2]	caught, observation, cadaver		V	LC
A	<i>Hyla arborea</i>	14. 4. 2017 [Loc 8 - 1, Loc 30 - 1]; 7. 5. 2017 [Loc 8 - 2]; 1. 10. 2017 [Loc 11 - 2, Loc 60 - 2]	observation, sound recognition	Annex IV	V	LC
A	<i>Pelophylax</i> sp.	17. 10. 2015 [Loc 63 - 4]; 12. 4. 2016 [Loc 63 - few]; 14. 4. 2017 [Loc 14 - many, Loc 33 - many, Loc 65 - few]; 7. 5. 2017 [Loc 15 - few, Loc 31 - few, Loc 63 - many, Loc 58 - 1]; 21. 5. 2017 [Loc 2 - 1, Loc 14 - few, Loc 15 - 1, Loc 58 - 2, Loc 59 - few, Loc 63 - 2, Loc 66 - 3]; 10. 6. 2017 [Loc 3 - 1, Loc 8 - few, Loc 15 - 3, Loc 59 - few, Loc 70 - 3]; 26. 6. 2017 [Loc 8 - few, Loc 15 - 4, Loc 34 - few, Loc 59 - few, Loc 61 - few, Loc 64 - few]; 5. 8. 2017 [Loc 8 - few, Loc 72 - few]; 6. 8. 2017 [Loc 32 - 1] 19. 8. 2017 [Loc 2 - few, Loc 8 - few, Loc 63 - few, Loc 66 - 2]; 2. 9. 2017 [Loc 8 - 1, Loc 31 - 1, Loc 64 - 1]; 20. 9. 2017 [Loc 2 - 2]; 1. 10. 2017 [Loc 31 - many, Loc 33 - many]; 15. 10. 2017 [Loc 31 - 2]	caught, observation			
A	<i>Rana dalmatina</i>	2. 4. 2017 [Loc 8 - 1]; 14. 4. 2017 [Loc 52 - 2]; 19. 8. 2017 [Loc 50 - 1]	caught	Annex IV	V	LC
A	<i>Rana temporaria</i>	19. 3. 2017 [Loc 44 - 1]	caught	Annex V	V	LC
A	<i>Ichthyosaura alpestris</i>	6. 8. 2017 [Loc 32 - 4]	caught		V	LC



Class / Razred	Species / Vrsta	Date [No. of locality - Number of specimens] / Datum [št. lokalitete - število osebkov]	Methods of identification / Metoda določitve	Conservation status / Varstvene kategorije		
				HD	RL	IUCN
A	<i>Lissotriton vulgaris</i>	6. 8. 2017 [Loc 32 - 2]	caught		V	LC
A	<i>Triturus carnifex</i>	17. 10. 2015 [Loc 63 - 1]; 6. 8. 2017 [Loc 40 - 1]	caught, observation	Annex II, Annex IV	V	LC
R	<i>Anguis fragilis</i>	14. 4. 2017 [Loc 42 - 1]	observation		O1	LC
R	<i>Lacerta viridis/bilineata</i>	23. 7. 2016 [Loc 7 - 1]; 14. 4. 2017 [Loc 38 - 1]; 7. 5. 2017 [Loc 35 - 2]; 21. 5. 2017 [Loc 41 - 1]; 5. 8. 2017 [Loc 38 - 1]; 19. 8. 2017 [Loc 32 - 1]	observation, photographed	Annex IV	V	LC
R	<i>Podarcis muralis</i>	21. 5. 2017 [Loc 69 - 1]; 10. 6. 2017 [Loc 36 - 5]; 26. 6. 2017 [Loc 62 - 1]; 15. 10. 2017 [Loc 69 - 2]	caught, observation	Annex IV	O1	LC
R	<i>Natrix natrix</i>	2. 4. 2017 [Loc 42 - 1]; 14. 4. 2017 [Loc 70 - 1]	observation		O1	Lower Risk/LC
R	<i>Natrix tessellata</i>	2. 4. 2017 [Loc 53 - 1]; 7. 5. 2017 [Loc 56 - 1]; 10. 6. 2017 [Loc 55 - 1]	observation	Annex IV	V	LC
R	<i>Emys orbicularis</i>	14. 4. 2017 [Loc 26 - 5]; 7. 5. 2017 [Loc 26 - 8]; 21. 5. 2017 [Loc 26 - 5]; 10. 6. 2017 [Loc 26 - 1]; 7. 8. 2017 [Loc 26 - 1]; 2. 9. 2017 [Loc 26 - 1]	observation, photographed	Annex II, Annex IV	E	Lower Risk/NT
R	<i>Trachemys scripta scripta</i> <sup>1</sup>	12. 4. 2016 [Loc 71 - 1]; 14. 4. 2017 [Loc 26 - 2]; 7. 5. 2017 [Loc 26 - 2, Loc 48 - 2, Loc 50 - 1]	observation, photographed			LC
R	<i>Trachemys scripta elegans</i> <sup>1</sup>	19. 3. 2017 [Loc 43 - 1]; 7. 5. 2017 [Loc 26 - 1, Loc 48 - 1]	observation, photographed			LC
R	<i>Trachemys scripta ssp.</i> <sup>1</sup>	19. 3. 2017 [Loc 48 - 1, Loc 54 - 1]; 2. 4. 2017 [Loc 48 - 2, Loc 50 - 2, Loc 71 - 1]; 14. 4. 2017 [Loc 26 - 3, Loc 43 - 1, Loc 48 - 4, Loc 50 - 2, Loc 71 - 2]; 21. 5. 2017 [Loc 26 - 2, Loc 27 - 1]; 10. 6. 2017 [Loc 50 - 1]; 26. 6. 2017 [Loc 59 - 1]	observation, photographed			LC
M	<i>Dama dama</i> <sup>1</sup>	17. 10. 2015 [Loc 28 - 1, Loc 44 - 1]; 14. 11. 2015 [Loc 47 - 3, Loc 67 - 2]; 28. 12. 2015 [Loc 44 - 2, Loc 46 - 1]; 12. 4. 2016 [Loc 36 - 1, Loc 47 - 1]; 22. 10. 2016 [Loc 46 - 1, Loc 60]; 11. 12. 2016 [Loc 47 - 1]; 5. 3. 2017 [Loc 46 - 3]; 7. 5. 2017 [Loc 19 - 3]; 2. 9. 2017 [Loc 35 - 4]	observation, photographed, footprints			LC
M	<i>Capreolus capreolus</i>	17. 10. 2015 [Loc 28 - 3]; 28. 12. 2015 [Loc 35 - 2]; 12. 4. 2016 [Loc 38 - 2]; 15. 1. 2017 [Loc 19 - 1]; 19. 3. 2017 [Loc 18 - 1, Loc 39 - 1, Loc 60 - 2]; 2. 4. 2017 [Loc 67 - 1]; 14. 4. 2017 [Loc 29 - 1, Loc 17 - 1]; 17. 7. 2017 [Loc 39 - 2]; 2. 9. 2017 [Loc 17 - 2, Loc 18 - 2]	observation, photographed, footprints, feces			LC
M	<i>Rupicapra rupicapra</i>	28. 10. 2017 [Loc 20 - 1]	observation	Annex V		LC

Class / Razred	Species / Vrsta	Date [No. of locality - Number of specimens] / Datum [št. lokalitete - število osebkov]	Methods of identification / Metoda določitve	Conservation status / Varstvene kategorije		
				HD	RL	IUCN
M	<i>Lepus europaeus</i>	17. 2. 2017 [Loc 15 - 2]; 5. 3. 2017 [Loc 15 - 3, Loc 16 - 1]; 14. 4. 2017 [Loc 4 - 1]; 21. 5. 2017 [Loc 2 - 1]; 10. 6. 2017 [Loc 14 - 1]; 5. 8. 2017 [Loc 12 - 1]; 15.10.2017 [Loc 20 - 1]; 28. 10. 2017 [Loc 17 - 1]	observation, photographed, footprints, feces			LC
M	<i>Sciurus vulgaris</i>	11. 12. 2016 [Loc 51 - 1]; 5. 8. 2017 [Loc 9 - 1]; 19. 8. 2017 [Loc 50 - 1]; 20. 9. 2017 [Loc 50 - 1]	observation			LC
M	<i>Meles meles</i>	14. 4. 2017 [Loc 9 - 1]; 10. 6. 2017 [Loc 24 - 1]	footprints		O1	LC
M	<i>Mustela erminea</i>	19. 8. 2017 [Loc 68 - 1]	observation			LC
M	<i>Mustela nivalis</i>	2. 4. 2017 [Loc 57 - 1]	observation		O1	LC
M	<i>Vulpes vulpes</i>	17. 10. 2015 [Loc 46 - 1]; 22. 10. 2016 [Loc 39 - 1]; 10. 6. 2017 [Loc 59 - 1]; 19. 8. 2017 [Loc 22 - 1]	observation, photographed		O1	LC

None of the observed amphibians are considered endangered (E), but all (see Tab. 1) are classified as vulnerable (V) on the Slovenian Red List (Ur. l. RS 2002). *Bombina variegata* is still considered widespread in Slovenia, but could locally be under negative impact. Its populations are, in general, under threat from urbanisation, intensive forestry, agriculture and disappearance of small water bodies, their preferred habitat (Poboljšaj & Lešnik 2003). In the research area, small water bodies are highly susceptible to geomorphological changes, which could exert pressure on the local population of the species. *Triturus carnifex*, on the other hand, was not seen as often as *B. variegata*. Although generally present throughout Slovenia, its populations are very small (Poboljšaj & Lešnik 2003) and the species is sometimes considered rare (Govedič et al. 2009). *T. carnifex* is threatened by multiple local negative influences, especially the devastation of suitable water bodies nationwide (Poboljšaj & Lešnik 2003), and therefore faces a similar problem in the lake area as *B. variegata*. Other interesting amphibian observations were *Ichthyosaura alpestris* and *Lissotriton vulgaris*, which were found only as juveniles together in the same pond, and *Hyla arborea*, found on four localities. All three are common and generally present in Slovenia (CKFF 2018).

Of the six noted indigenous reptile species, according to the Slovenian Red List (Ur. l. RS 2002), one is endangered (*E. orbicularis*), while two are considered vulnerable (*Lacerta viridis/bilineata* and *Natrix tessellata*). The others were threatened in the past, but are currently stable (O/O1). The only species not listed on the Slovenian Red List is the invasive *T. scripta*. *Emys orbicularis* is also listed on the Annex II and Annex IV of the Habitats Directive (Ur. l. EU 1992). It is known to have suffered population declines throughout its range, mainly due to habitat degradation, fragmentation and destruction (Tome 2003). In the research area, *E. orbicularis* was discovered only recently, for the first time recorded about two years ago (CKFF 2018, leg. M. Vranič). During the time of our survey, it was noted also by other researchers (CKFF 2017, leg. N. Kirbiš & M. Vamberger) on the same locality. Although there were at least 8 different individuals present in the aforementioned pond, we found no evidence of their reproduction. It is of crucial importance to ensure that the current state of

the pond remains undisturbed, which might be difficult to achieve due to the continuous subsidence in the area. Another issue for *E. orbicularis* is the presence of the possibly competitive *T. scripta* in the area. Cadi & Joly (2004) suggested in their experiment that the latter could have a negative impact on the former. During our research, *T. scripta* was found, among other localities, in the same pond as *E. orbicularis*. The former is known in the area for a much longer period than the latter, with the first recorded observation at Škalsko jezero in 1995 (Gregori 1995). The subspecies *T. s. elegans* is known to reproduce in the wild elsewhere in Slovenia (Lipovšek 2013); the question whether it reproduces in our study area, remains unanswered. Among other reptilians we could not distinguish between *L. viridis* and *L. bilineata* due to their almost identical morphological features. The species complex is still a partial mystery in Slovenia, even though it seems that *L. bilineata* is more likely to be found in the west and *L. viridis* in the east of the country (Tome 1999). Other noted reptilian species are quite common across Slovenia (Krofel et al. 2009).

Our list of amphibian and reptilian species is more or less in concordance with other publications (Poboljšaj 2001, Poboljšaj & Lešnik 2003, Krofel et al. 2009), even though we believe that some other common Slovenian species could also occur regularly in the area (e.g. the Fire Salamander (*Salamandra salamandra*)). The same, however, cannot be said of our observations of mammals. The actual number of mammalian species in the area is certainly much higher owing to the fact that we excluded bats, insectivores and nearly all rodents from our records. Out of nine species of the recorded mammals, only three (*Mustela erminea*, *M. nivalis* and *Sciurus vulgaris*) are listed on the Slovenian Red List and fall into the O1 category. We did, however, regularly note *D. dama*, which was introduced to the lake area in 1973 (Krže 1975). An interesting find was a lone chamois (*Rupicapra rupicapra*), a species usually restrained to higher altitudes (Kryštufek 1991).

Degraded areas can offer an interesting insight into succession processes, as demonstrated in Eastern Germany, where enormous tracts of land were destroyed by open-pit coal mining (Tischew et al. 2009). Lignite mining in our area of research is, however, subterranean, which is not common on a global scale (Šterbenk 2011). Therefore, the ever changing surface offers a unique window into succession processes and species reaction to quick environmental changes as indirect consequences of human activities. We believe that further research, focused on noting the impact of the changeable surface, could be interesting. The area is also interesting from the aspect of conservation – the species listed on the Annex II or the Annex IV co-appear in several conservationally important areas elsewhere in Slovenia (Govedič et al. 2009) and offer a possible comparison insight into the effect of the aforementioned human activities.

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