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Public Water Management Company Srbijavode

European Bank for Reconstruction and Development

Environmental and Social Impact Assessment, Climate Change Assessment and Technical Assessment for Pambukovica Dam in Serbia

Biodiversity Impact Assessment

Reference: 2026/09

Final Version for Issue | 06 March 2026

Job number 303066-00

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Abbreviations

Abbreviation	Definition
AQEM	Austrian/German Rapid Bioassessment Method
ASPT	Average Score Per Taxon
BBF	Biodiversity Baseline Framework
BC	Birds Directive
BNG	Biodiversity Net Gain
BN	Bern Convention
BMWP	Biological Monitoring Working Party
BTO	British Trust for Ornithology
CES	Candidate Emerald Site
CHA	Critical Habitat Assessment
CH	Critical Habitat
CR	Critically Endangered
DAFOR	Dominant, Abundant, Frequent, Occasional, Rare
DD	Data Deficient
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIA	Environmental Impact Assessment
EN	Endangered
EO	Extent of Occurrence
EOO	Extent of Occurrence
EP	Environmental Protection
ESIA	Environmental and Social Impact Assessment
EU	European Union
EUNIS	European Nature Information System
FL	Flora and Fauna
FL	Fork Length
GN	Guidance Note

Abbreviation	Definition
HD	Habitats Directive
HMP	Habitat Management Plan
IBA	Important Bird and Biodiversity Areas
IFC	International Finance Corporation
INNS	Invasive Non-Native Species
IUCN	International Union for Conservation of Nature
LC	Least Concern
LIFE	Lotic-invertebrate Index for Flow Evaluation
LR	Lower Risk
MAFWM	Ministry of Agriculture, Forestry and Water Management
NT	Near Threatened
NTAXA	Number of Taxa
PCR	Polymerase Chain Reaction
PBF	Priority Biodiversity Features
PFB	Priority Forested Biodiversity
PR	Performance Requirement
RS	Republic of Serbia
SP	Strictly Protected
SPAs	Special Protection Areas
TSM	Thick Shelled Mussel
VU	Vulnerable
WEMMP	Water and Environmental Management and Monitoring Plan
WMD	Water Management Directorate

1. Introduction

1.1 Background

The European Bank for Reconstruction and Development (the "EBRD") is considering providing finance to the Republic of Serbia (the "Borrower", or the "Client"), represented by the Ministry of Finance to enable construction of a water resources reservoir near Pambukovica, Serbia. The Project will be implemented by the Public Water Management Company Srbijavode ("Srbijavode"), the national body responsible for water management, including water use and protection from pollution. Srbijavode is also responsible for management of risks associated with water bodies (such as flood risk) and the Project would increase flood downstream through water retention in the reservoir. Srbijavode operates under the Water Management Directorate (WMD), which in turn is an administrative authority of the Ministry of Agriculture, Forestry and Water Management (MAFWM). The Loan is expected to finance the construction of a new impoundment dam and reservoir infrastructure at Pambukovica including associated works such as upstream sediment traps and road realignment (vertical realignment over the reservoir).

A Serbian Environmental Impact Assessment (EIA) study was prepared by the Energoprojekt - Hidroinženjering on behalf of Srbijavode and was subject to an Environmental and Social Gap Analysis, which indicated that a full Environmental and Social Impact Assessment (ESIA) in accordance with EBRD's Environmental and Social Performance Requirements[1] was required. The assessment of biodiversity impacts, aligned with Performance Requirements 6[2] (PR6) and supported by an adequate biodiversity baseline, was identified as a significant gap in the gap analysis report and was subsequently conducted by ARUP in 2023.

Second year biodiversity surveys were undertaken in 2024 to address potential data gaps caused by heavy rains and high-water levels in the previous year. These surveys were conducted to ensure the ESIA report aligns with EBRD Guidance Note 6[3] (GN6).

[1] EBRD (2019) Environmental and Social Policy (v. April 2019)

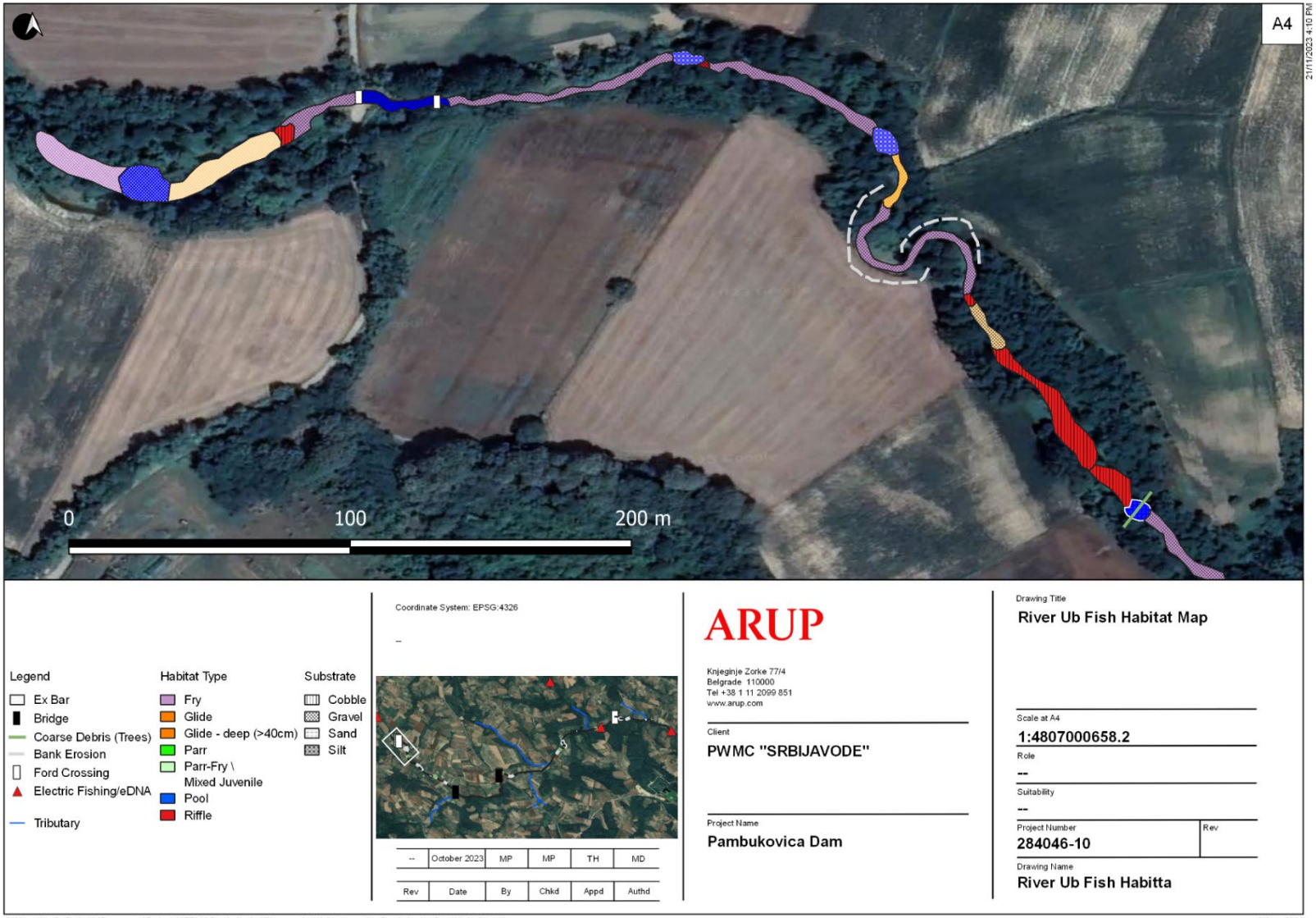
[2] EBRD (2019) Environmental and Social Policy – Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (v. April 2019)

[3] EBRD (2020) Guidance Note for Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

A.1 Bat Activity Surveys Technical Report

(Please see separate file)

A.2 River Ub Habitat Map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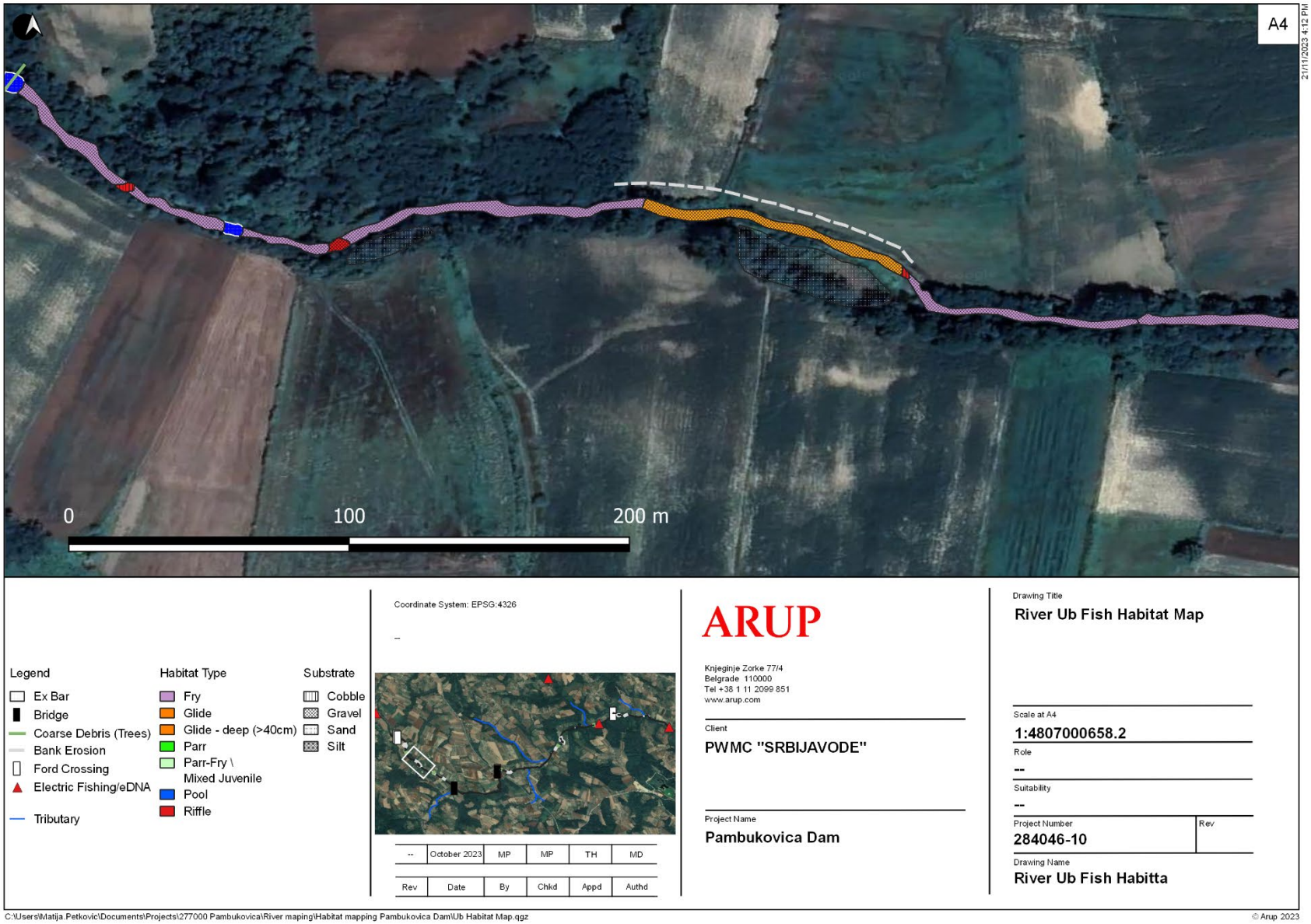
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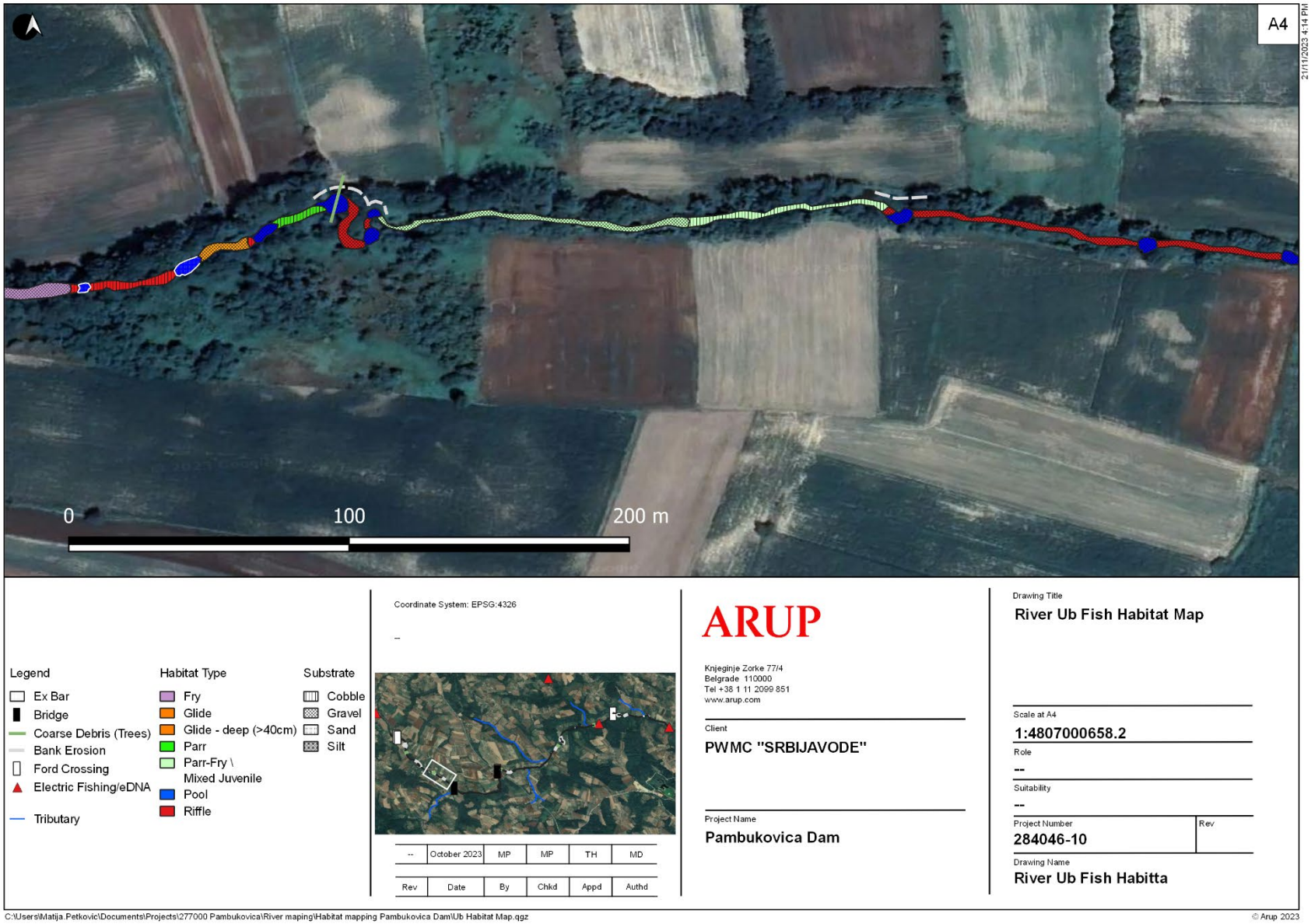
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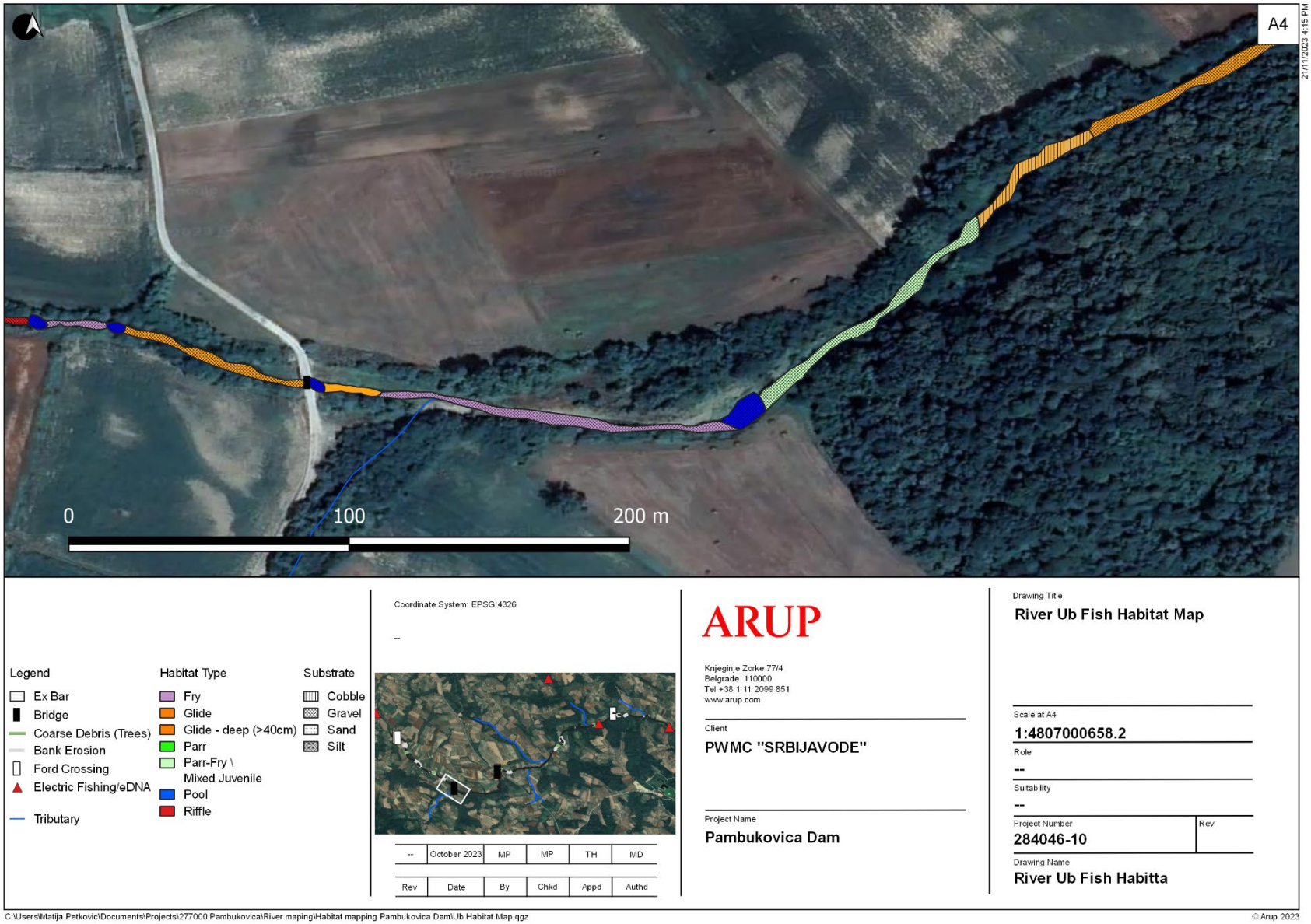
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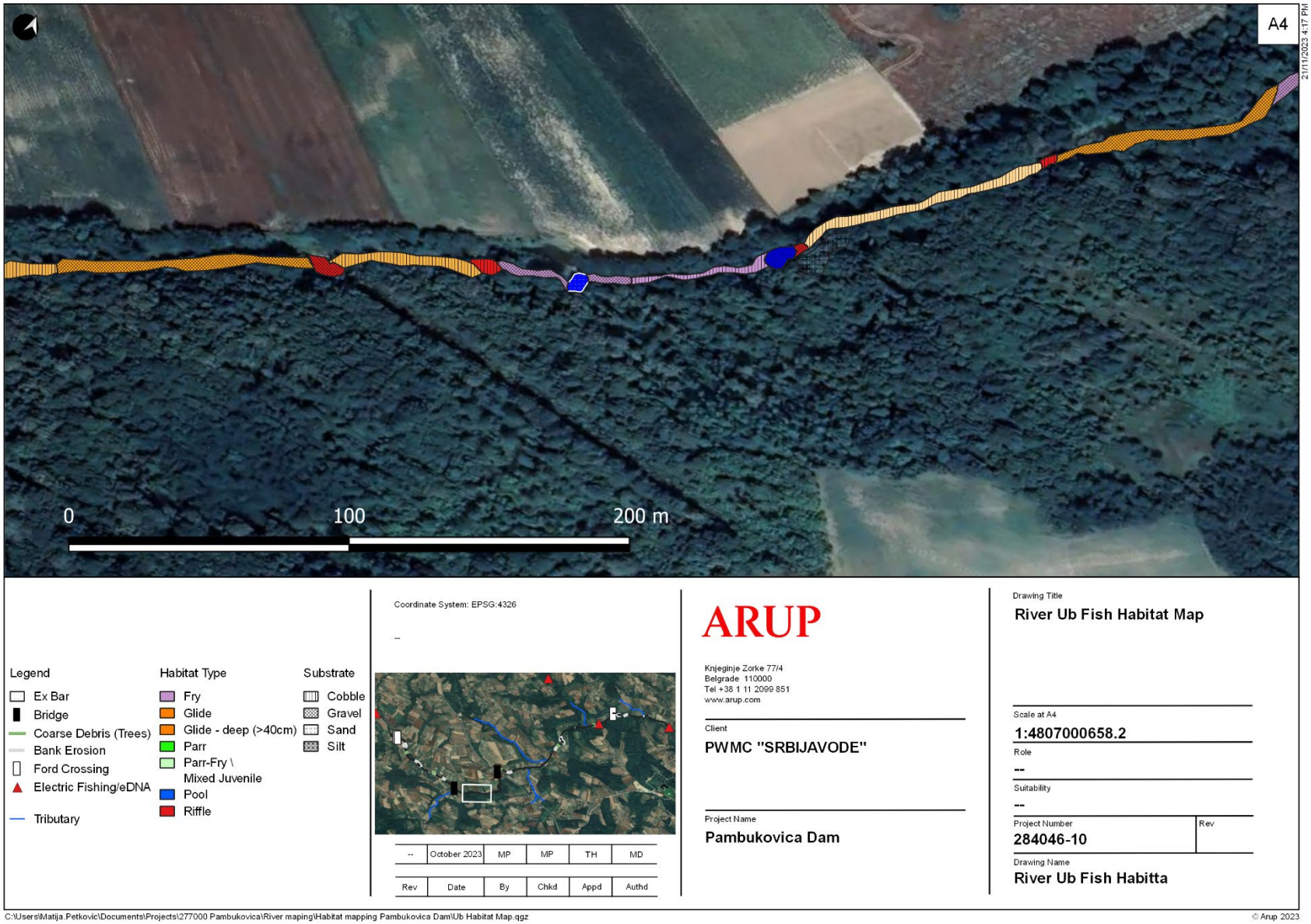
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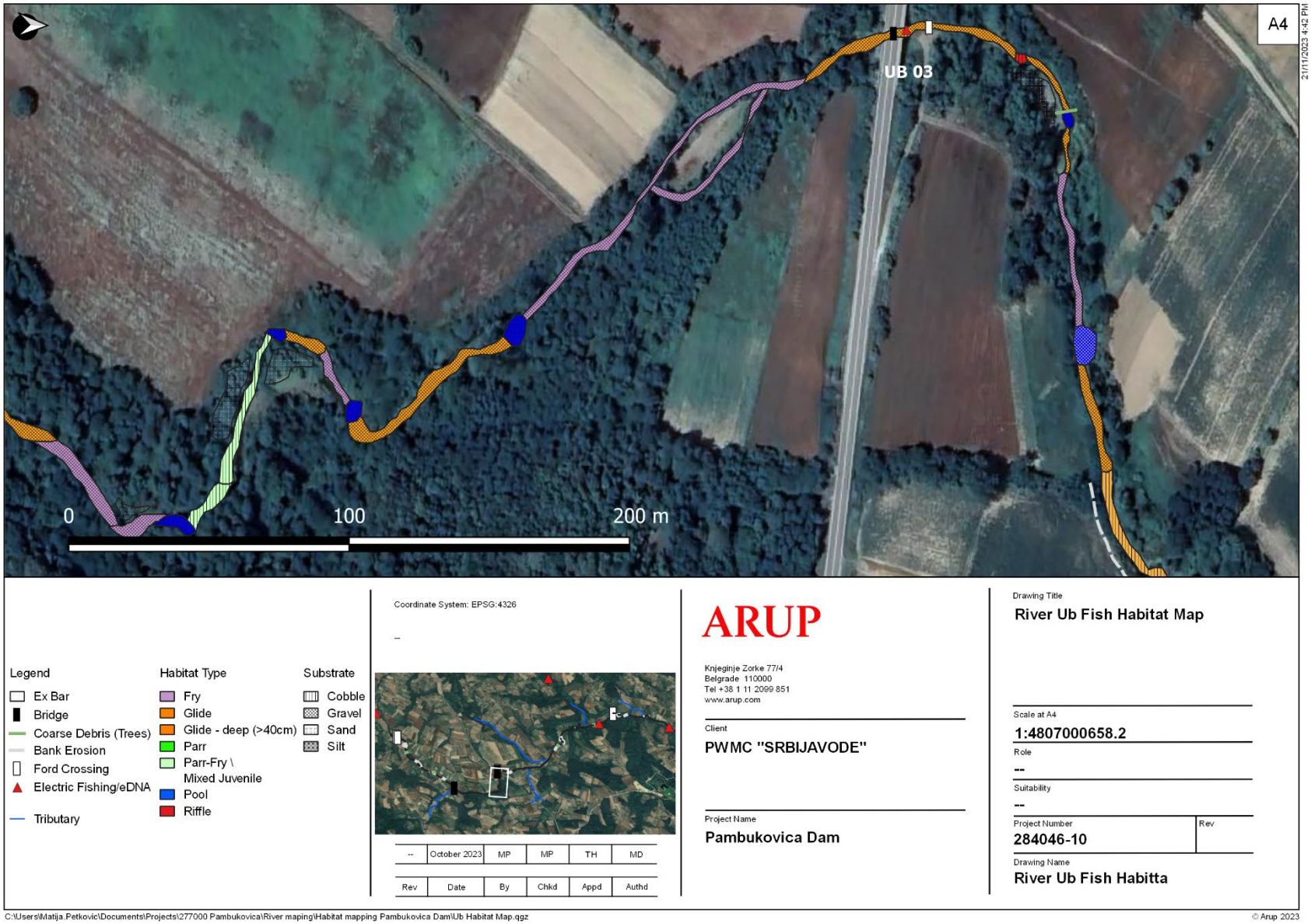
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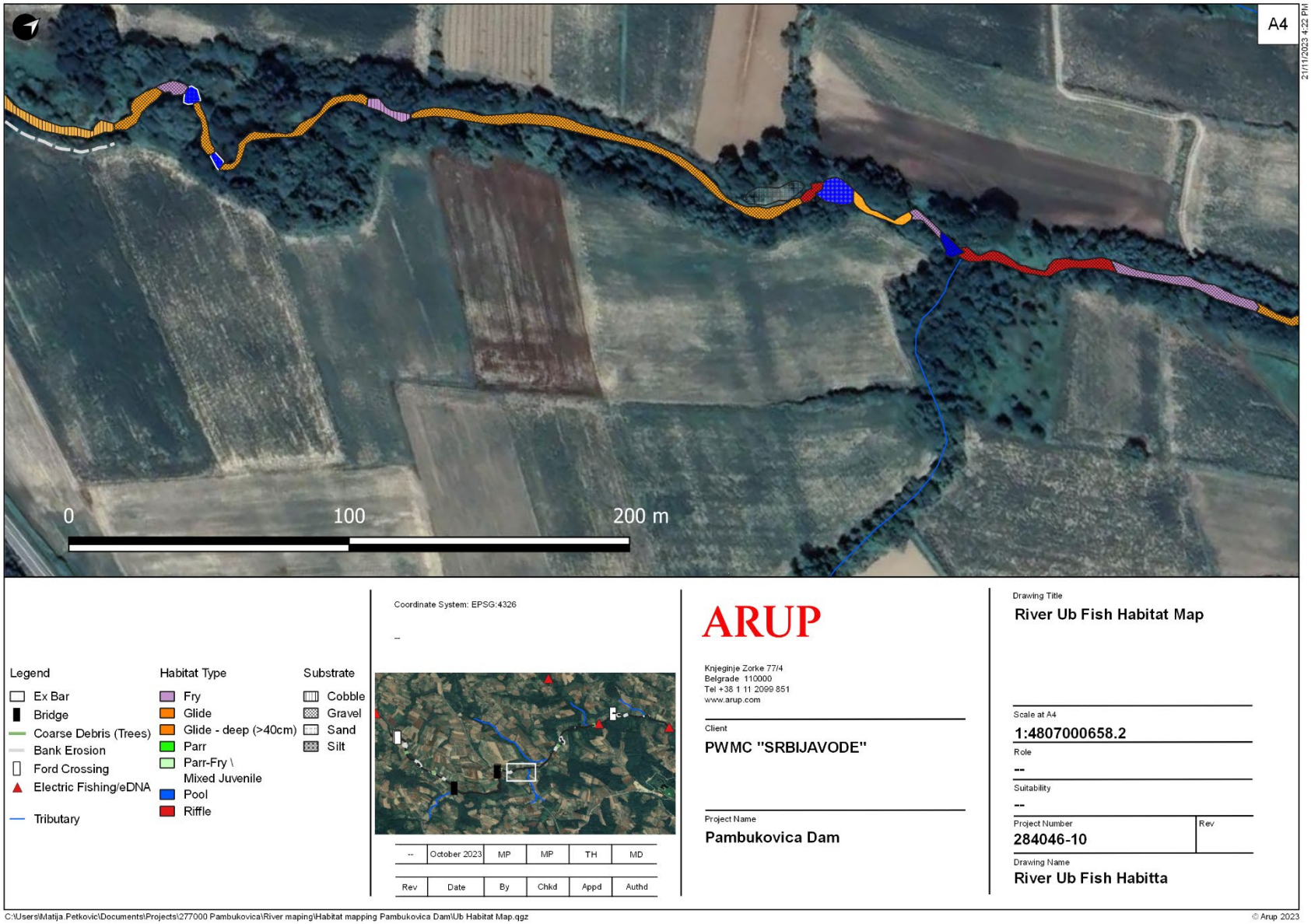
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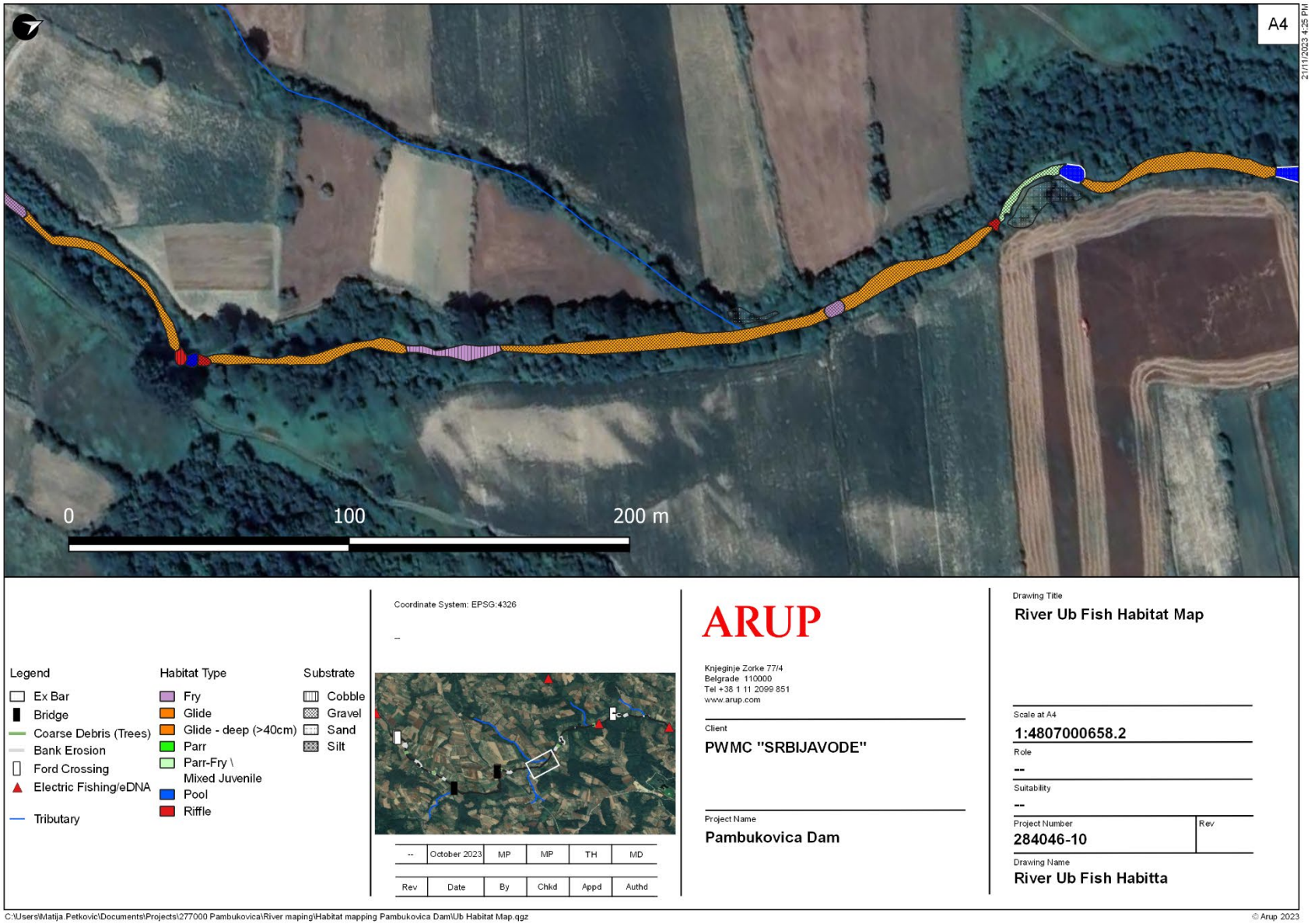
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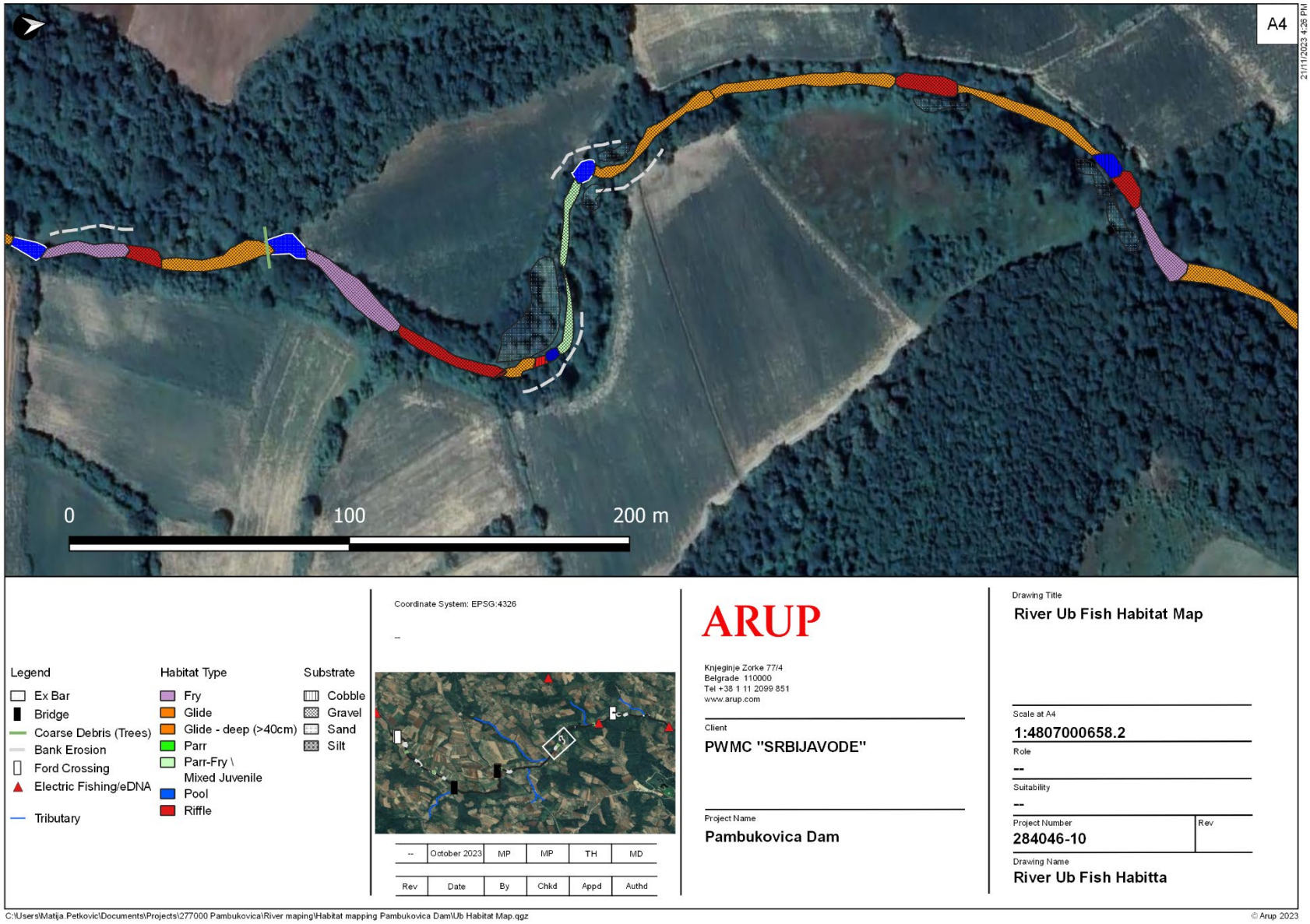
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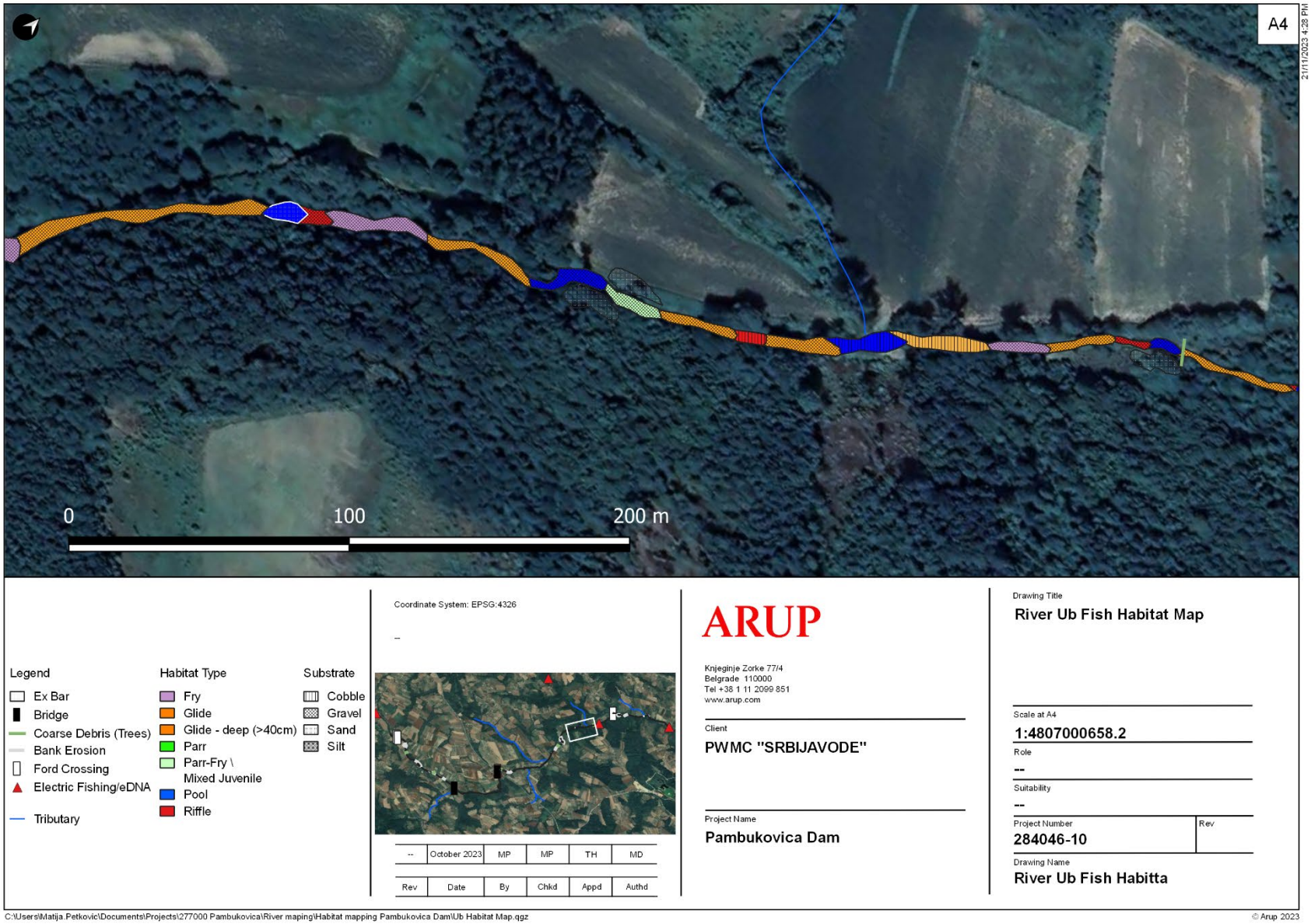

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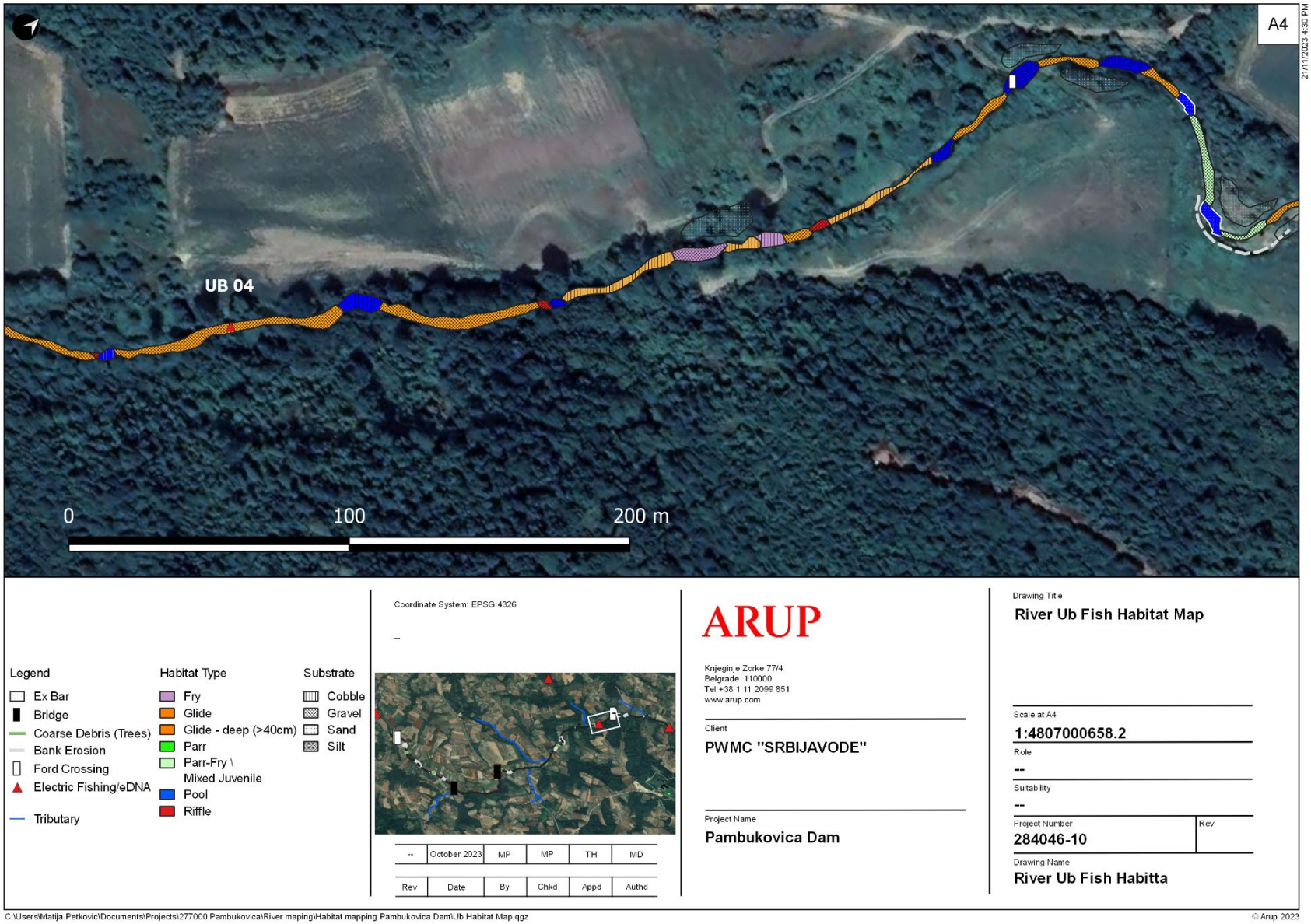
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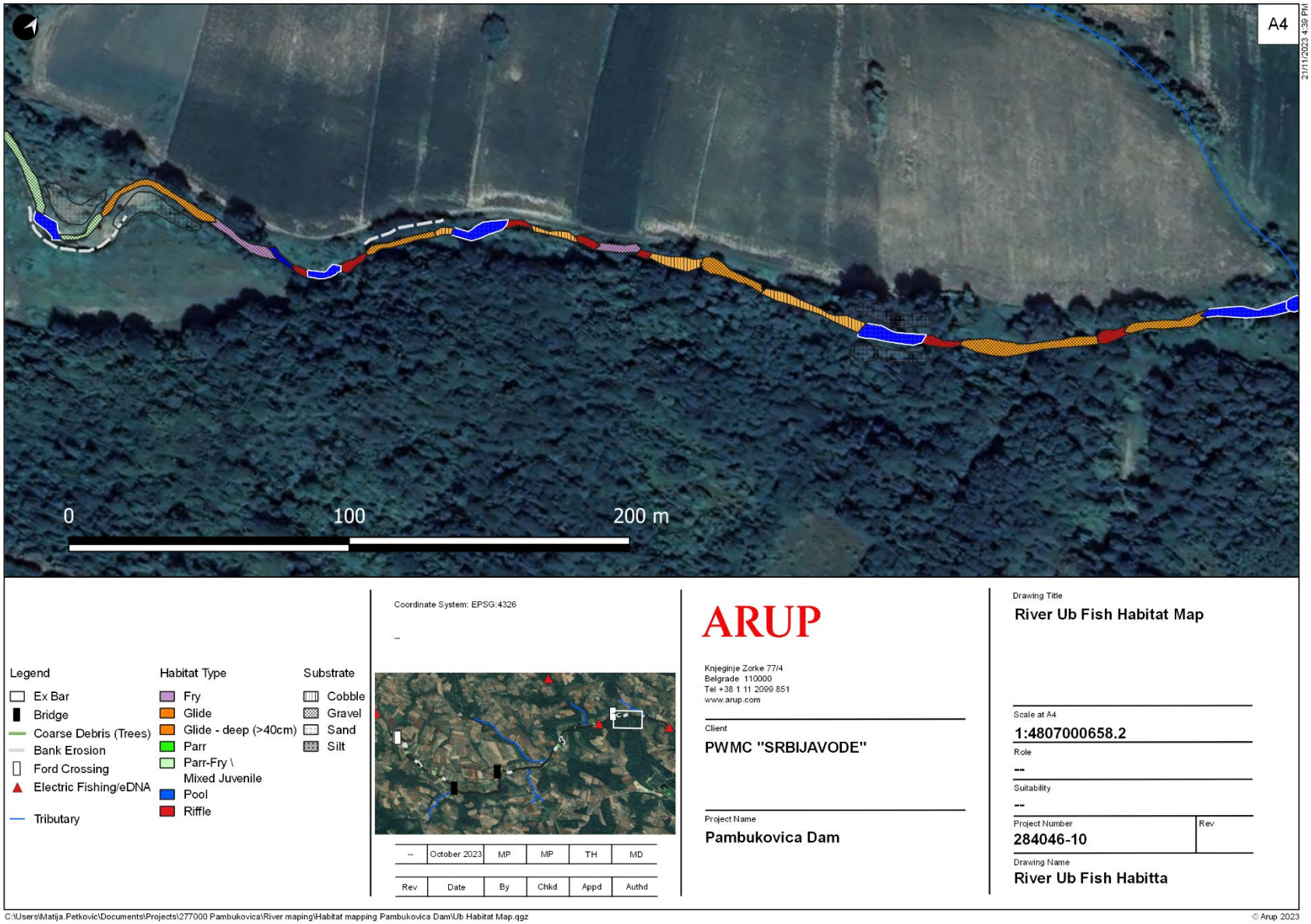
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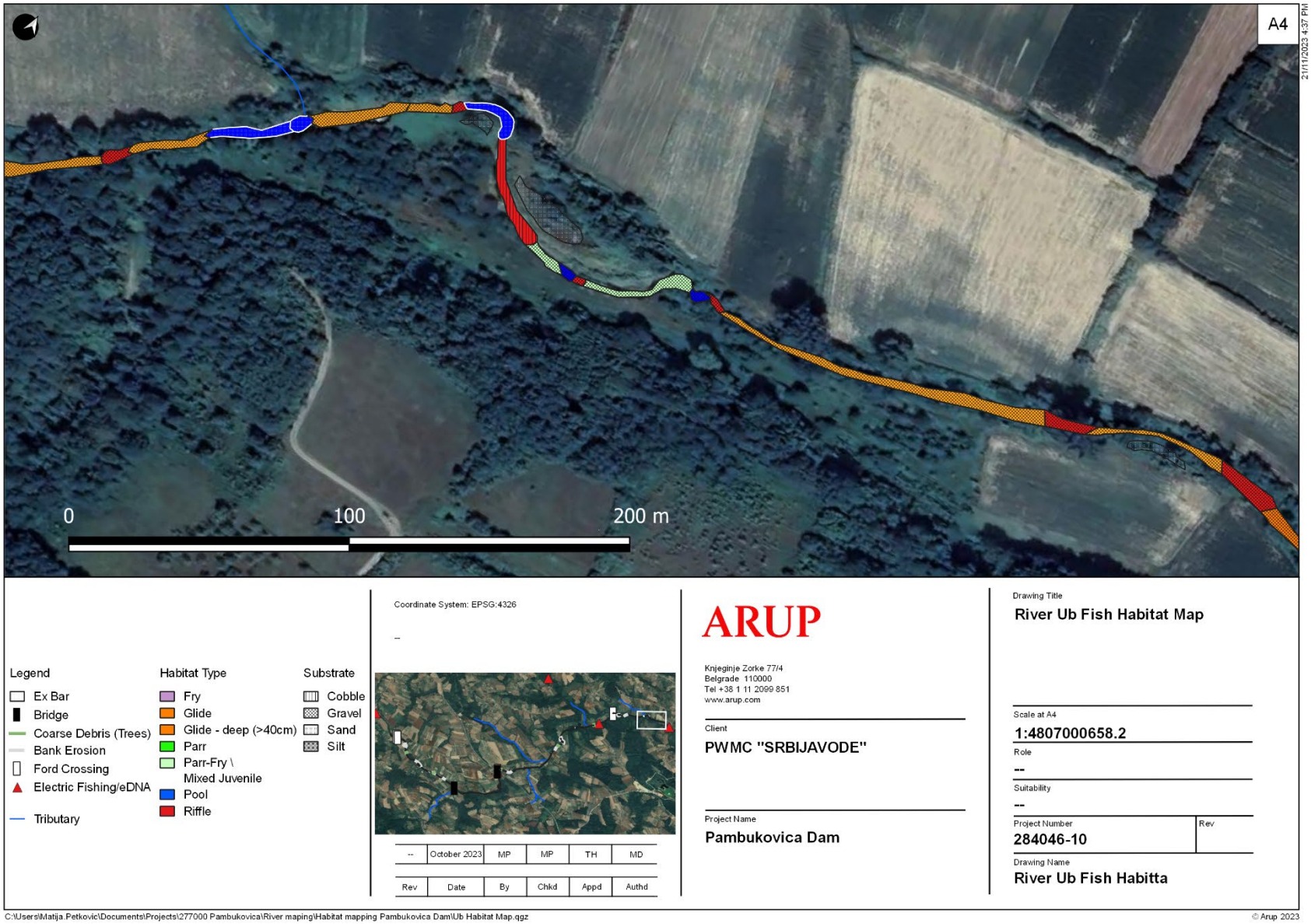
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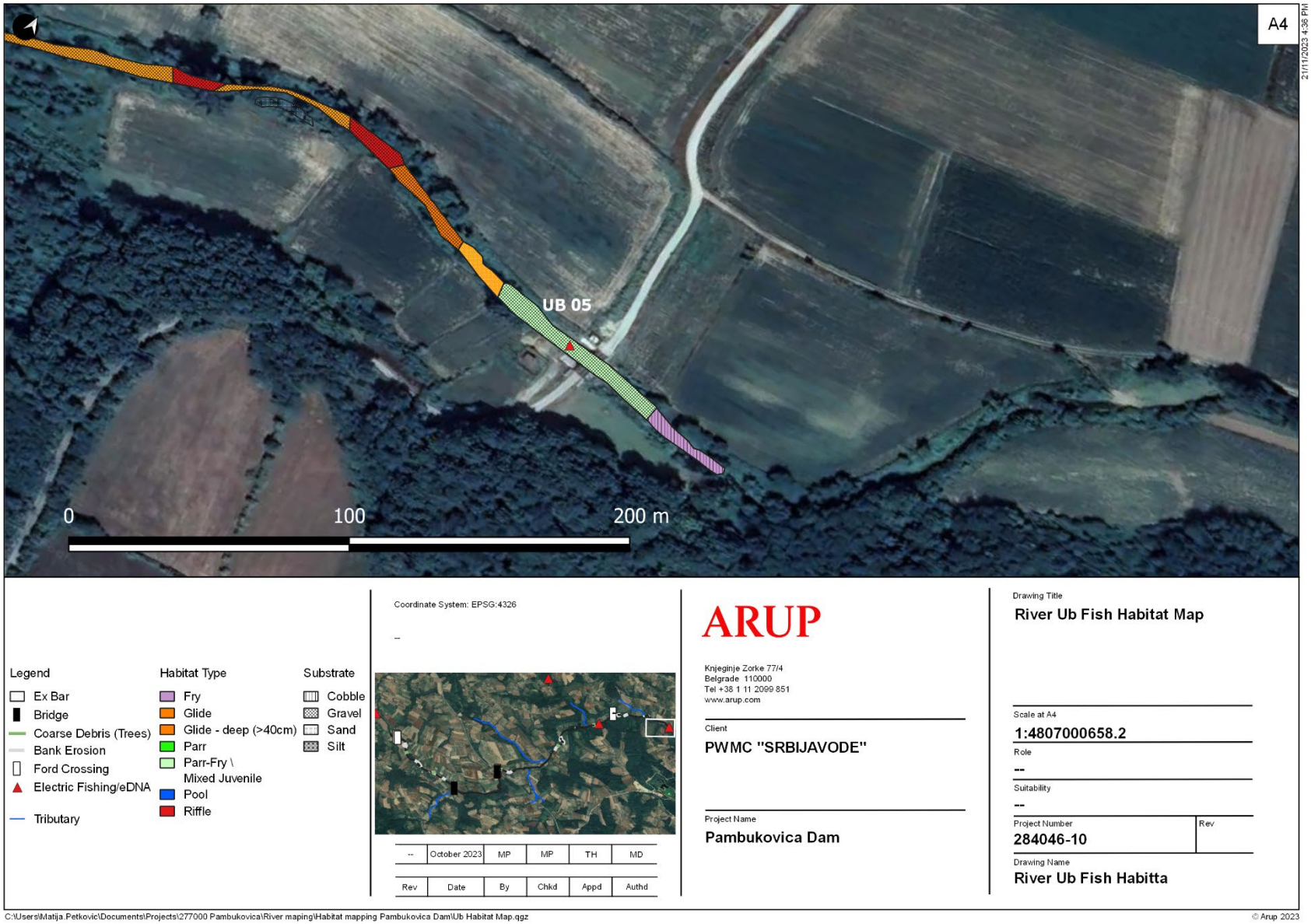
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C:\Users\Matija.Petkovic\Documents\Projects\277000 Pambukovica\River maping\Habitat mapping Pambukovica Dam\Ub Habitat Map.qgz
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A.3 Fish Biomass Calculations 2023

Table 1 - Photos of aquatic macroinvertebrate sampling sites at river Ub in the dam reservoir area

Photo 1 - Freshwater site UB 01

Photo 2 - Freshwater site UB 02

Photo 3 - Freshwater site UB 04

Photo 4 - Freshwater site UB 03

Photo 5 - Freshwater site UB 05

Photo 6 - Freshwater site UB 07

Catchment sediment dam locations have also been subject to survey. Those tributaries with a year-round water flow were also subject to aquatic sampling. This comprehensive approach ensures a thorough understanding of the entire aquatic ecosystem.

Table 2 - Photos of aquatic macroinvertebrate sampling sites at the catchment dams (2023)

Photo 1 - Catchment sediment dam 1 Stream Babinac

Photo 2 - Catchment sediment dam 2 Stream Babinac

Photo 3 - Catchment sediment dam 3 River Joševa

Photo 4 - Catchment sediment dam 4 River Joševa

Photo 5 - Catchment sediment dam 5 Stream Jasenovac

Photo 6 - Catchment sediment dam 6 Stream Medvednjak

Photo 7 - Catchment sediment dam 7 River Ogladenovačka

Table 3 - Ub 1 (50m transect along watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	24	846	23.76	54.9
2.	*Gobio obtustirostris*	Gudgeon	18	162	17.82	10.51
3.	*Barbus balcanicus*	Balkan Barbel	21	336	20.79	21.8
4.	*Alburnoides bipunctatus*	Schneider	14	112	13.86	7.27
5.	*Phoxinus phoxinus*	Minnow	15	48	14.85	3.11
6.	*Sabanejewia balcanica*	Balkan Spined Loach	9	37	8.91	2.4

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
TOTAL			101	1541	100	100

Table 4 - Ub 2 (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	21	1538	16.41	55.16
2.	*Gobio obtustirostris*	Gudgeon	18	146	14.1	5.24
3.	*Barbus balcanicus*	Balkan Barbel	15	615	11.72	22.06
4.	*Alburnoides bipunctatus*	Schneider	14	126	10.94	4.52
5.	*Phoxinus phoxinus*	Minnow	24	89	18.75	3.19
6.	*Sabanejewia balcanica*	Balkan Spined Loach	30	94	23.44	3.37
7.	*Carassius gibelio*	Prussian Carp	3	169	2.34	6.06
8.	*Pseudorasbora parva*	Topmouth Gudgeon	3	11	2.34	0.39
TOTAL			128	2788	100	100

Table 5 - Ub 3 (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	35	1470	21.47	48.2
2.	*Gobio obtustirostris*	Gudgeon	21	294	12.88	9.64
3.	*Barbus balcanicus*	Balkan Barbel	30	840	18.4	27.54
4.	*Alburnoides bipunctatus*	Schneider	27	243	16.56	7.97
5.	*Phoxinus phoxinus*	Minnow	25	81	15.34	2.66
6.	*Sabanejewia balcanica*	Balkan Spined Loach	16	90	9.82	2.95
7.	*Barbatula barbatula*	Stone Loach	9	32	5.52	1.05
TOTAL			163	3050	100	100

Table 6 - Ub 4 (50m transect alonge watercourse)

No.	Scentific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	22	594	17.6	31.85
2.	*Gobio obtustirostris*	Gudgeon	16	168	12.8	9.01
3.	*Barbus balcanicus*	Balkan Barbel	10	235	8	12.6
4.	*Rhodeus amarus*	Bitterling	28	106	22.4	5.68
5.	*Rutilus rutilus*	Roach	10	218	8	11.69
6.	*Carassius gibelio*	Prussian Carp	6	283	4.8	15.17
7.	*Alburnus alburnus*	Bleak	24	194	19.2	10.4
8.	*Cobitis elongata*	Balkan Loach	9	67	7.2	3.59

No.	Scentific name	Common name	Number	Biomass (g)	% Number	% Biomass
TOTAL			125	1865	100	100

Table 7 - Ub 5 (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	28	672	20	53.63
2.	*Gobio obtustirostris*	Gudgeon	20	240	14.29	19.15
3.	*Phoxinus phoxinus*	Minnow	36	144	25.71	11.49
4.	*Rhodeus amarus*	Bitterling	32	98	22.86	7.82
5.	*Sabanejewia balcanica*	Balkan Spined Loach	14	47	10	3.75
6.	*Barbatula barbatula*	Stone Loach	10	52	7.14	4.15
TOTAL			140	1253	100	100

Table 8 - Ub 7 (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Squalius cephalus*	Chub	18	612	13.53	31.56
2.	*Gobio obtustirostris*	Gudgeon	21	186	15.79	9.59
3.	*Barbus balcanicus*	Balkan Barbel	12	264	9.02	13.62
4.	*Rhodeus amarus*	Bitterling	30	87	22.56	4.49
5.	*Rutilus rutilus*	Roach	14	406	10.53	20.94
6.	*Alburnus alburnus*	Bleak	26	312	19.55	16.09
7.	*Cobitis elongata*	Balkan Loach	12	72	9.02	3.71
TOTAL			133	1939	100	100

Table 9 - Joševa (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Phoxinus phoxinus*	Minnow	14	63	100	100
TOTAL			14	63	100	100

Table 10 - Jasenovac (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Phoxinus phoxinus*	Minnow	26	91	44,07	18,02
2.	*Gobio obtustirostris*	Gudgeon	15	135	25,42	26,73
3.	*Barbus balcanicus*	Balkan Barbel	18	279	30,51	55,25
TOTAL			59	505	100	100

Table 11 - Medvednjak (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Phoxinus phoxinus*	Minnow	16	38	64	41,75
2.	*Gobio obtustirostris*	Gudgeon	9	53	36	58,24
	TOTAL		25	91	100	100

Table 12 - Oglađenovačka (50m transect alonge watercourse)

No.	Scientific name	Common name	Number	Biomass (g)	% Number	% Biomass
1.	*Phoxinus phoxinus*	Minnow	12	54	100	100
TOTAL			12	54	100	100

A.4 Fish Biomass Calculations 2024

Table 13 - Photos of sampling sites

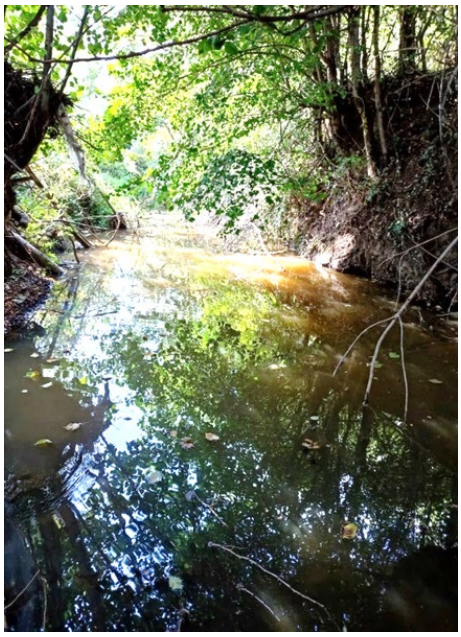

Photo 1 - Freshwater point UB 6.5

Photo 2 - Freshwater point UB 6.25

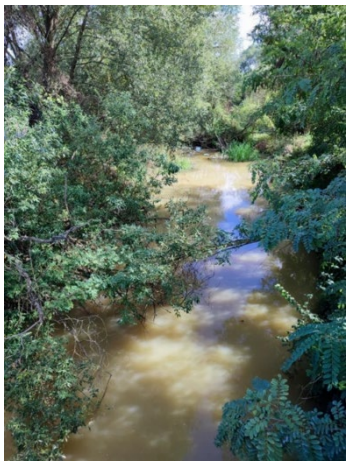

Photo 3 - Freshwater point UB 06

Photo 4 - Freshwater point UB 5.5

Photo 5 - Freshwater point UB 05

Photo 6 - Freshwater point UB 04

Photo 7 - Freshwater point UB 03

Photo 8 - Freshwater point UB 02

Photo 9 - Freshwater point UB 1.5

Photo 10 - Freshwater point UB 01

Photo 11 - Freshwater point UB 5.5

Table 14 - UB 6.5 fish sampling site

Species	UB 6.5 (30m transect along watercourse)					
	Number of fish in Sample 1	* Number of fish in Sample 2	* Number of fish in Sample 3	Carle & Strube estimated density	Density (individual/m^2)	Average length (fork length – FL in mm)
Common chub *Squalius cephalus*	11	14 (9)	10 (8)	16	0.26	130.47
Gudgeon *Gobio obtustirostris*	8	11 (7)	7 (6)	11	0.19	110.62
Balkan Barbel *Barbus balcanicus*	14	11 (8)	12 (8)	20	0.34	90.62
Bitterling *Rhodeus amarus*	10	19 (10)	23 (19)	14	0.24	30.85
Balkan loach *Cobitis elongata*	3	4 (2)	2 (1)	6	0.1	80.47
TOTAL	46	59	54	67	1.13	

* Number of recaptured individuals in brackets

Table 15 - UB 6.25 fish sampling site

Species	UB 6.5 (30m transect along watercourse)					
	Number of fish in Sample 1	* Number of fish in Sample 2	* Number of fish in Sample 3	Carle & Strube estimated density	Density (individual/m^2)	Average length (fork length – FL in mm)
Common chub *Squalius cephalus*	8	9 (5)	7 (5)	13	0.21	120.85
Gudgeon *Gobio obtustirostris*	11	9 (3)	12 (6)	17	0.43	80.44
Balkan Barbel *Barbus balcanicus*	6	8 (2)	6 (3)	26	0.28	90.85
Bitterling *Rhodeus amarus*	4	2 (0)	3 (1)	20	0.33	90.20
TOTAL	29	29	28	76	1.25	

* Number of recaptured individuals in brackets

Figure 1 -Balkan loach (*Cobitis elongata*)

Figure 2 -Bitterling (*Rhodeus amarus*)

A.5 Conservation-important / “Priority” Species Maps

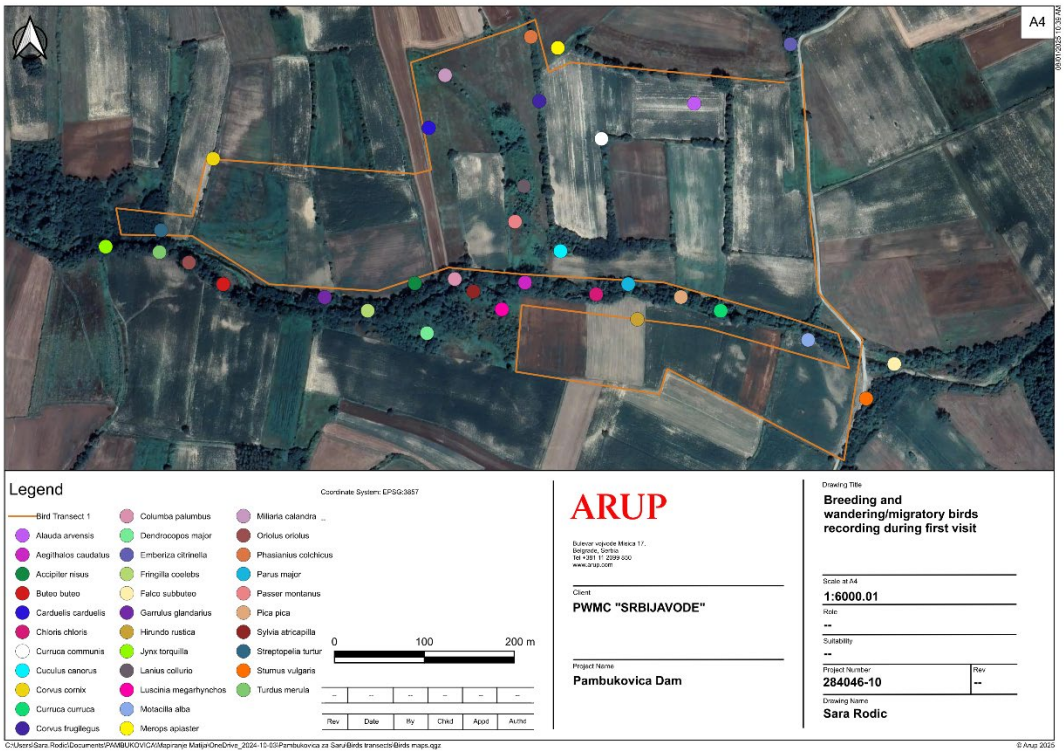

Figure 3 - Breeding and wandering/migratory birds recording during first visit (Transect 1)

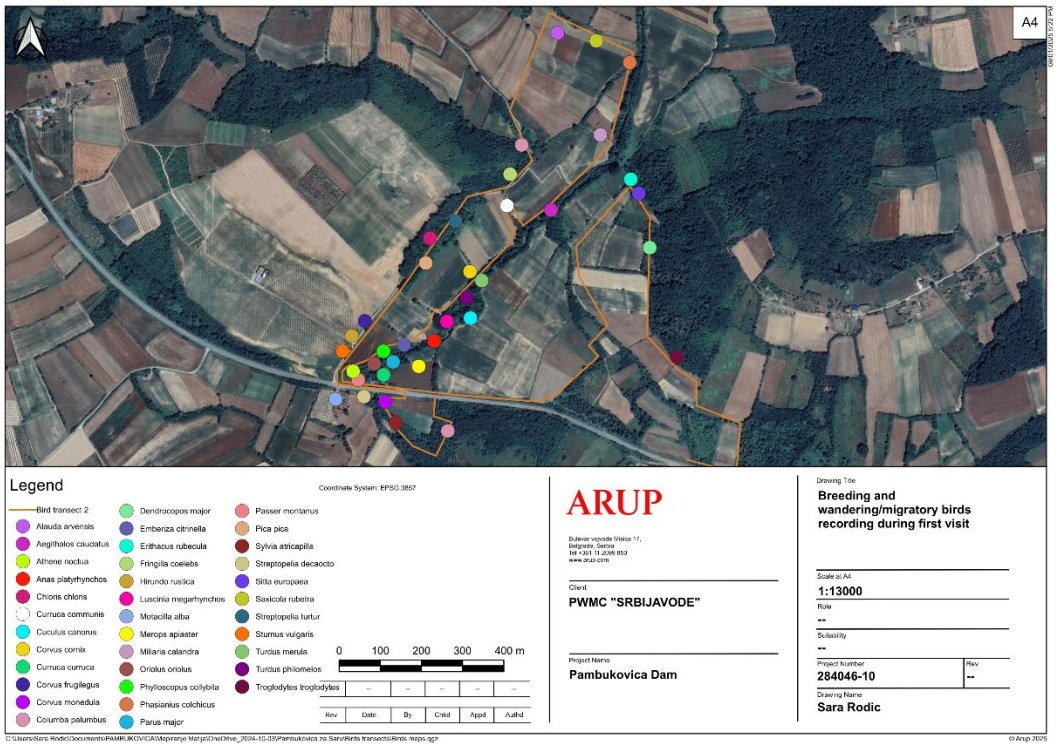

Figure 4 - Breeding and wandering/migratory birds recording during first visit (Transect 2)

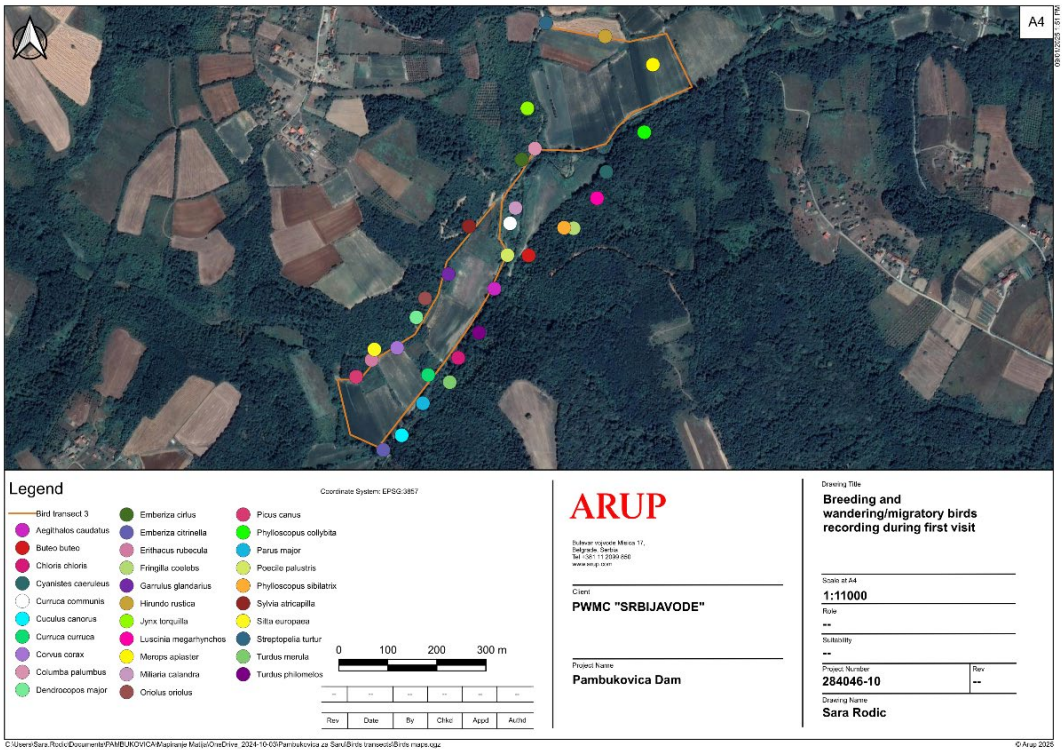

Figure 5 - Breeding and wandering/migratory birds recording during first visit (Transect 3)

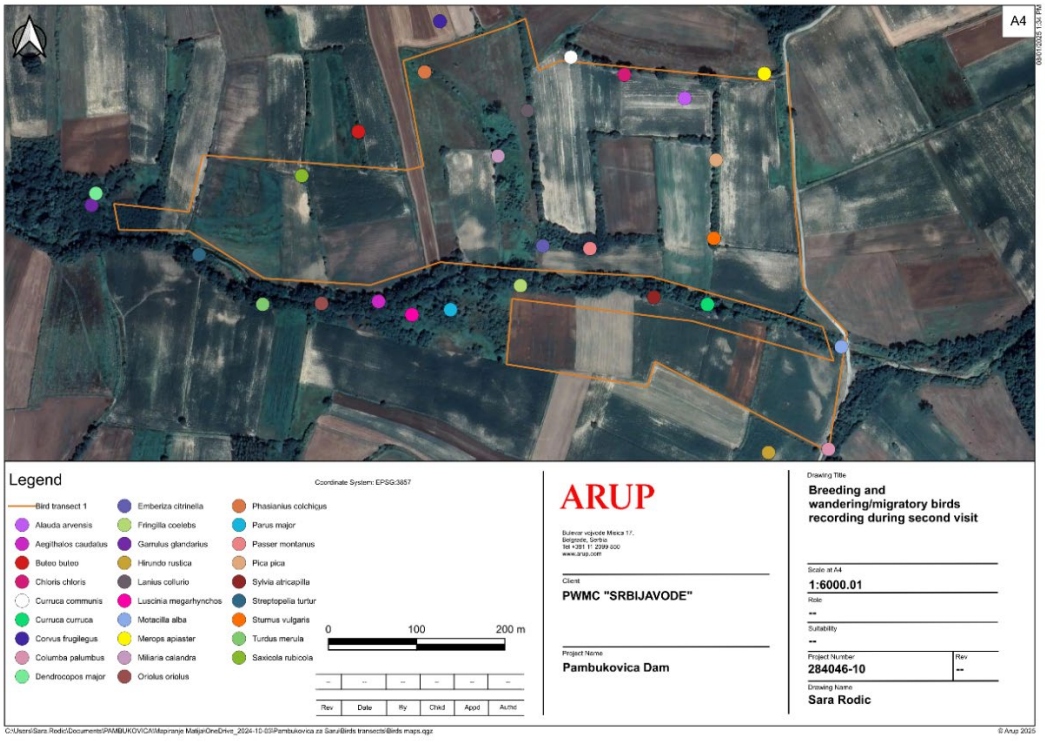

Figure 6 - Breeding and wandering/migratory birds recording during second visit (Transect 1)

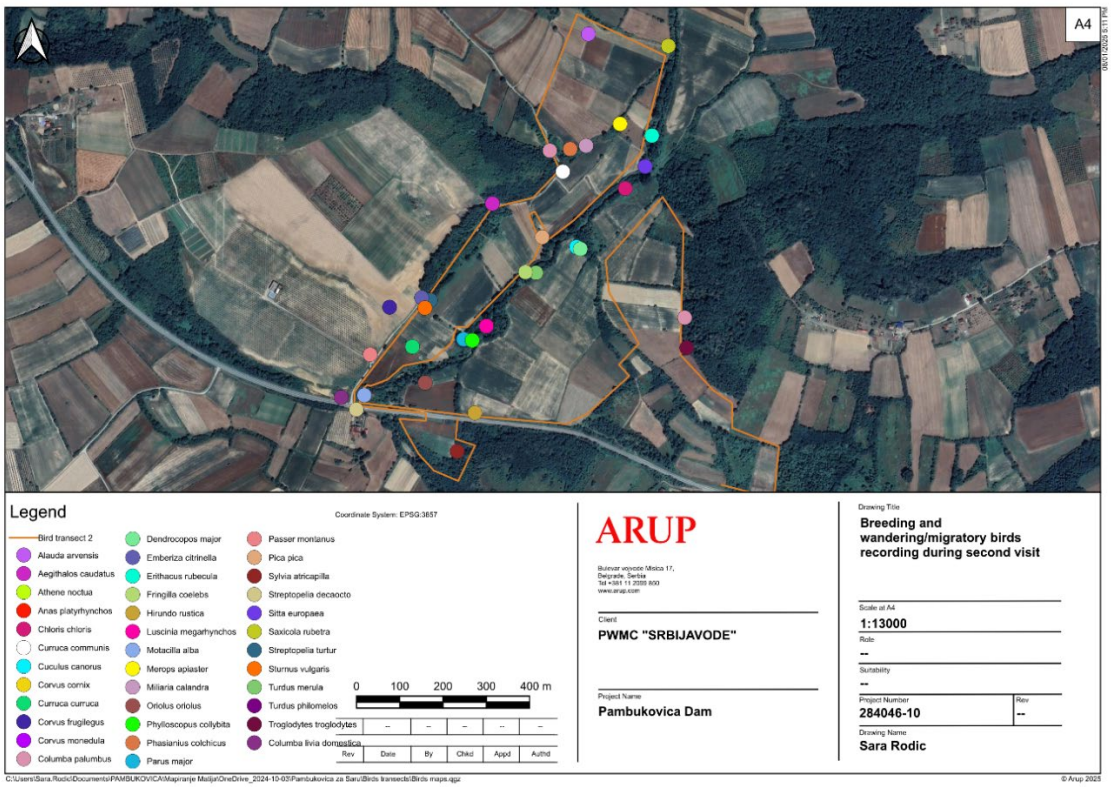

Figure 7 - Breeding and wandering/migratory birds recording during second visit (Transect 2)

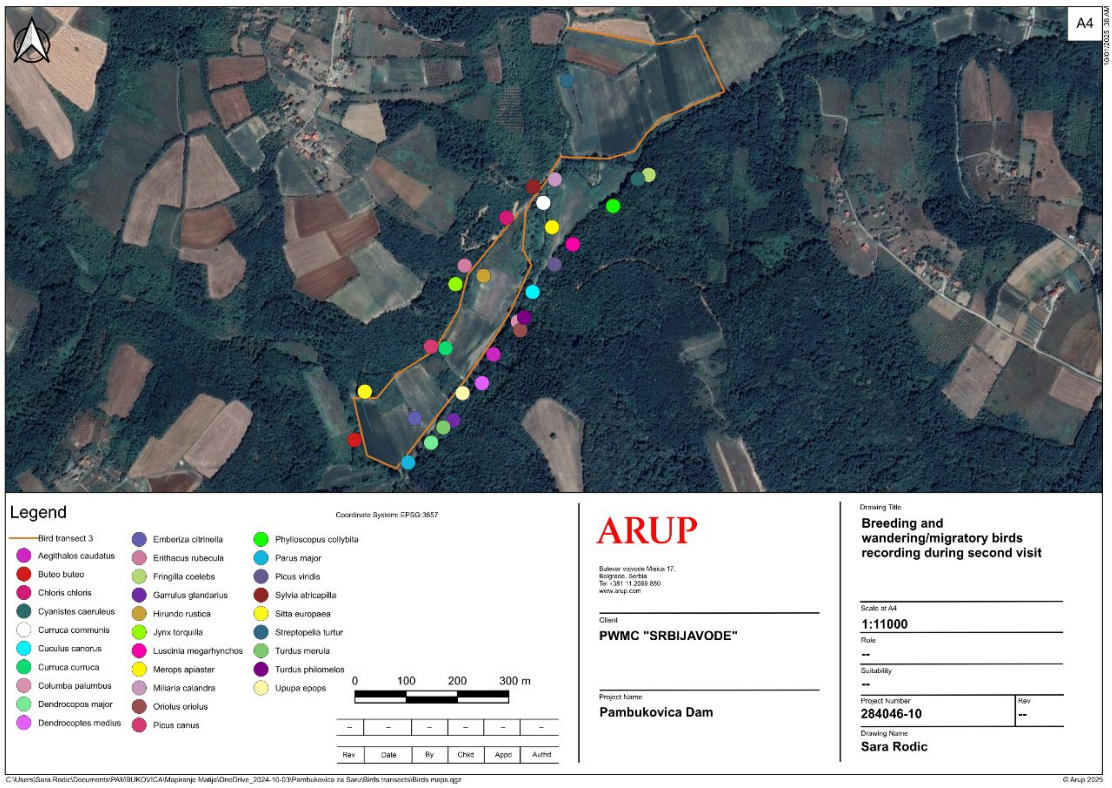

Figure 8 - Breeding and wandering/migratory birds recording during second visit (Transect 3)

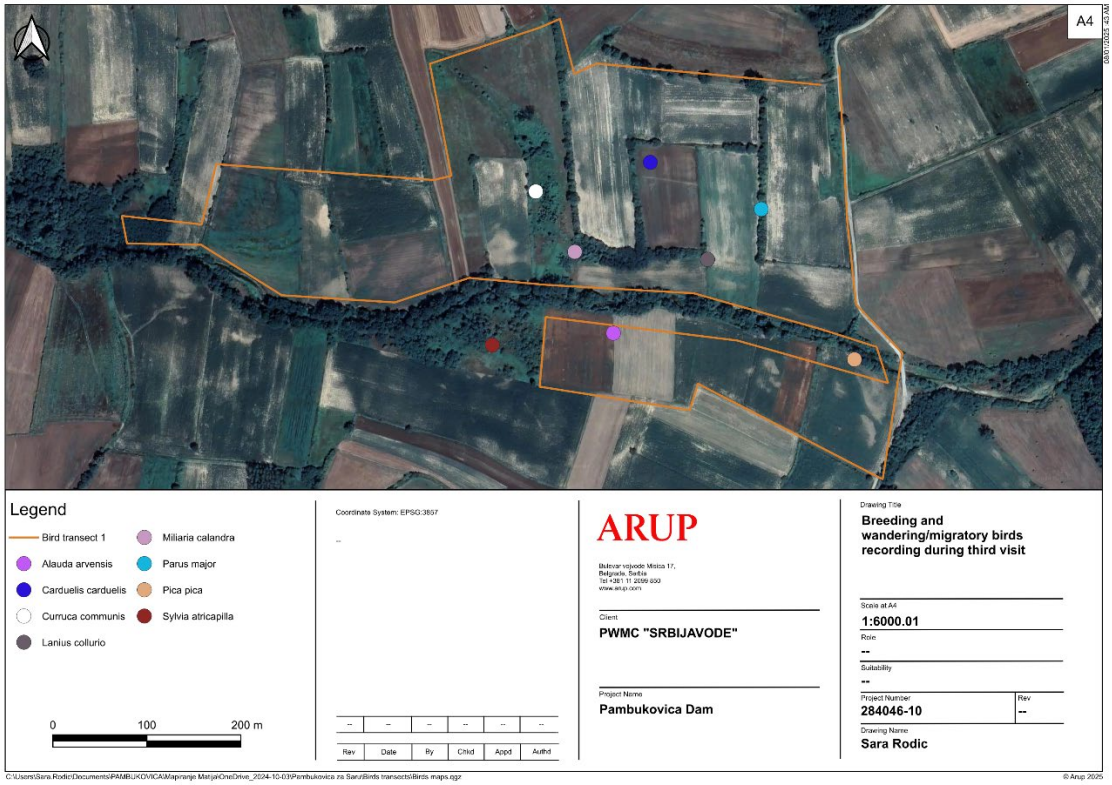

Figure 9 - Breeding and wandering/migratory birds recording during third visit (Transect 1)

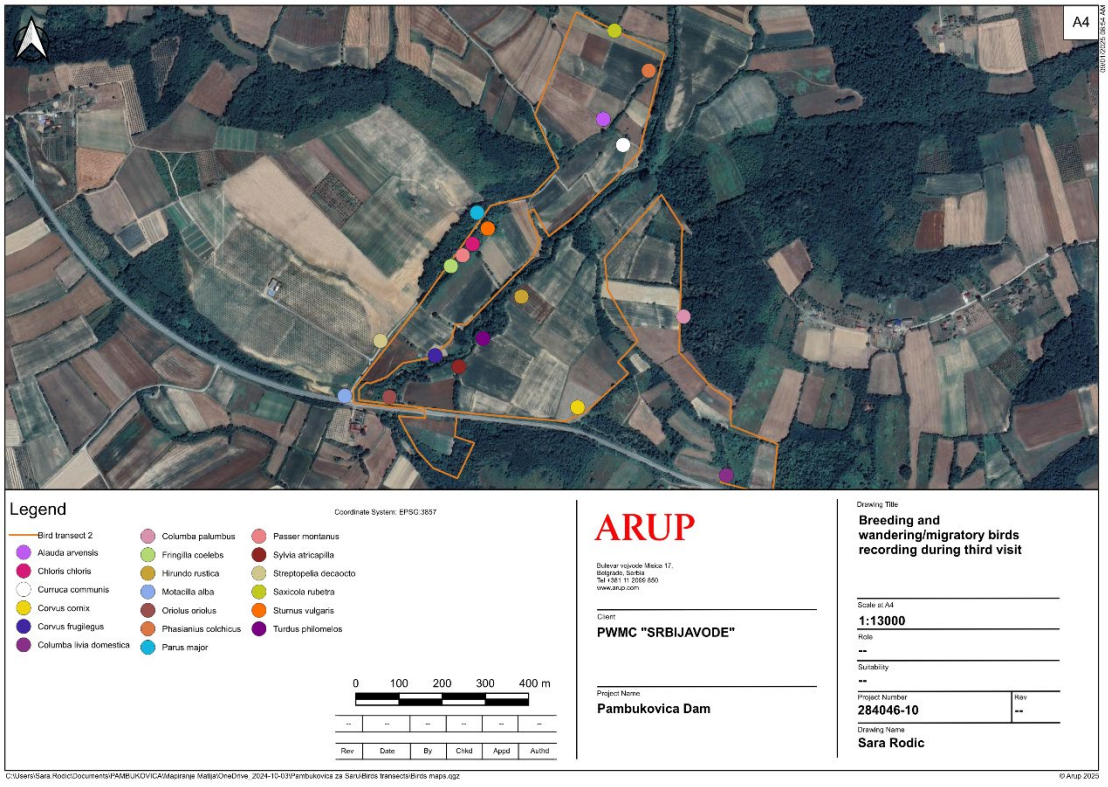

Figure 10 - Breeding and wandering/migratory birds recording during third visit (Transect 2)

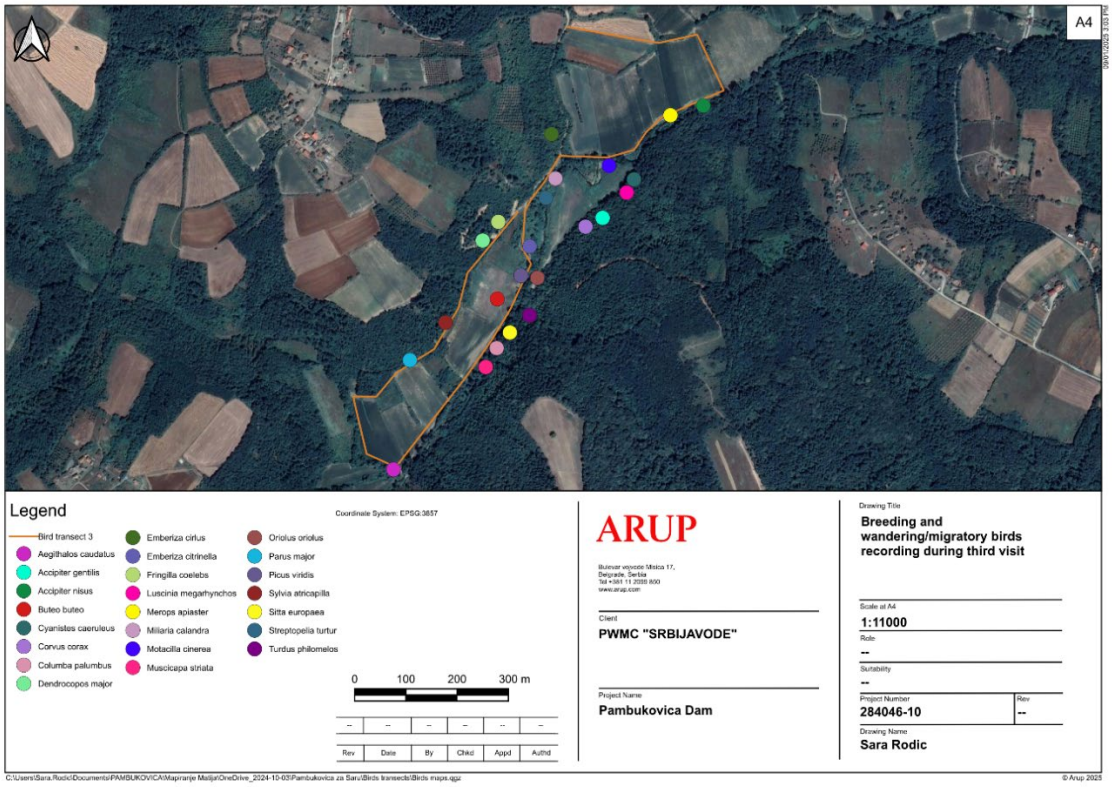

Figure 11 - Breeding and wandering/migratory birds recording during third visit (Transect 3)

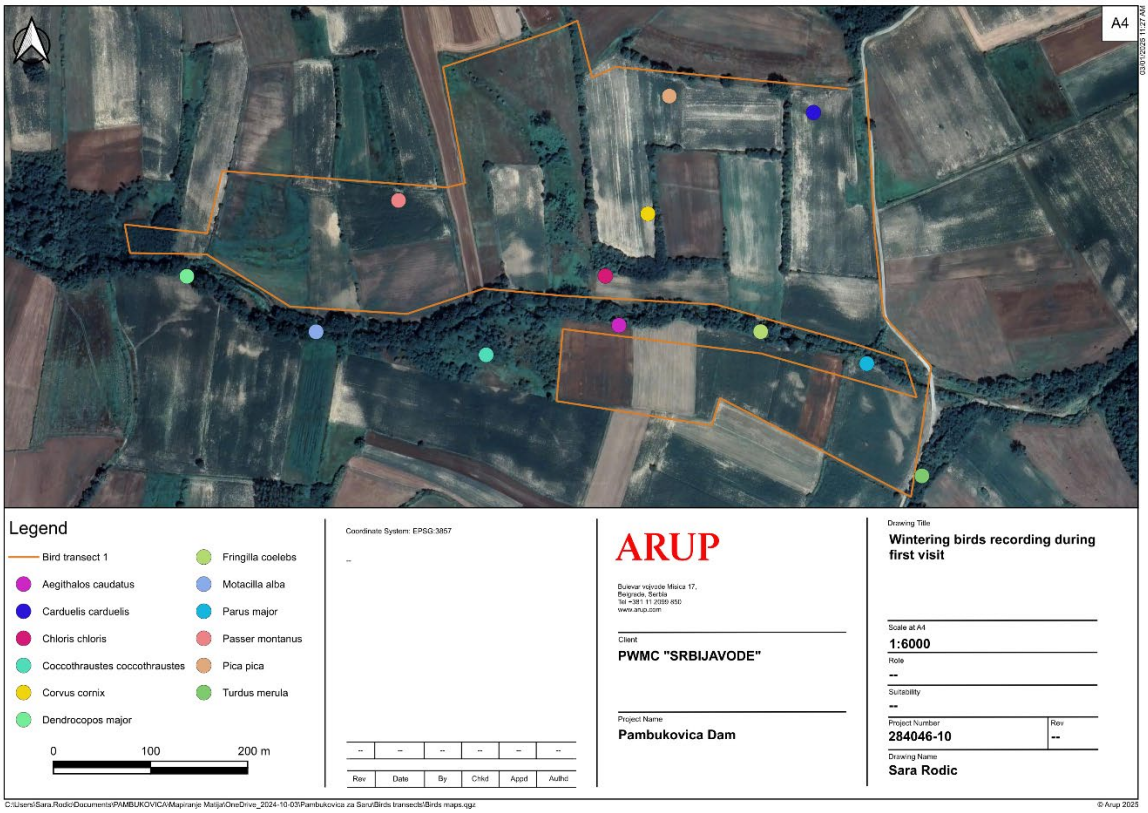

Figure 12 - Wintering birds recording during first visit (Transect 1)

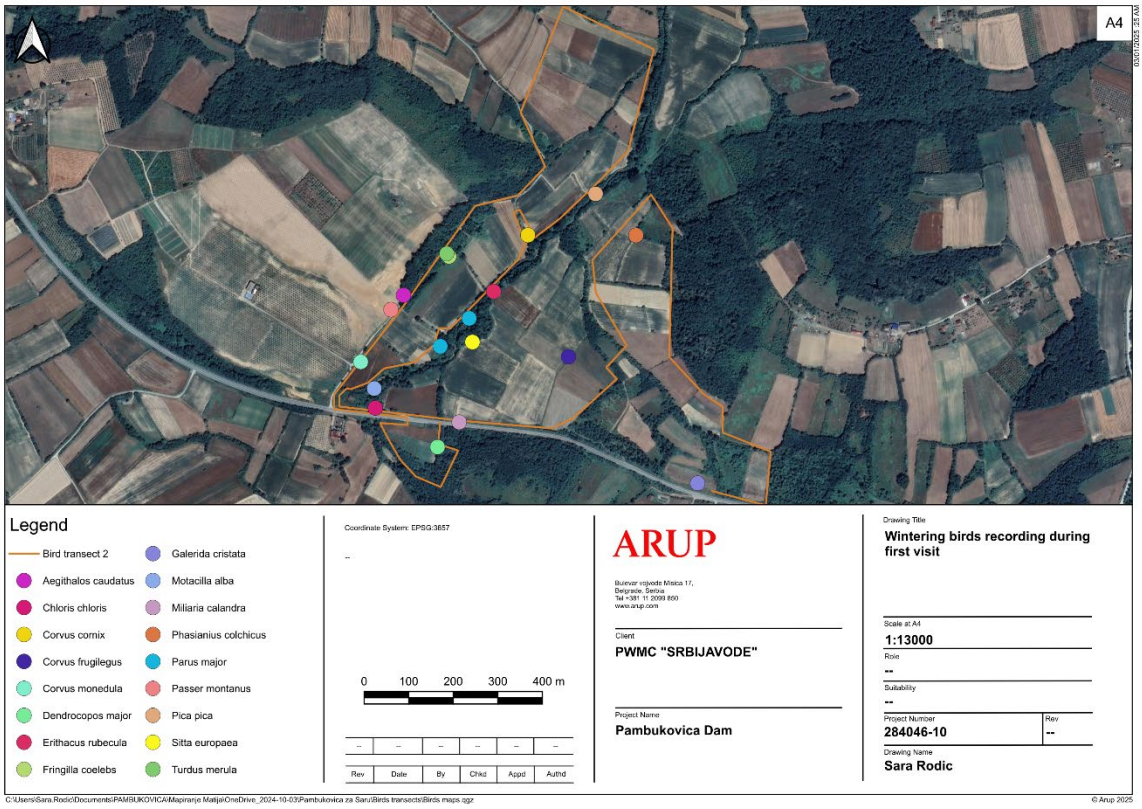

Figure 13 Wintering birds recording during first visit (Transect 2)

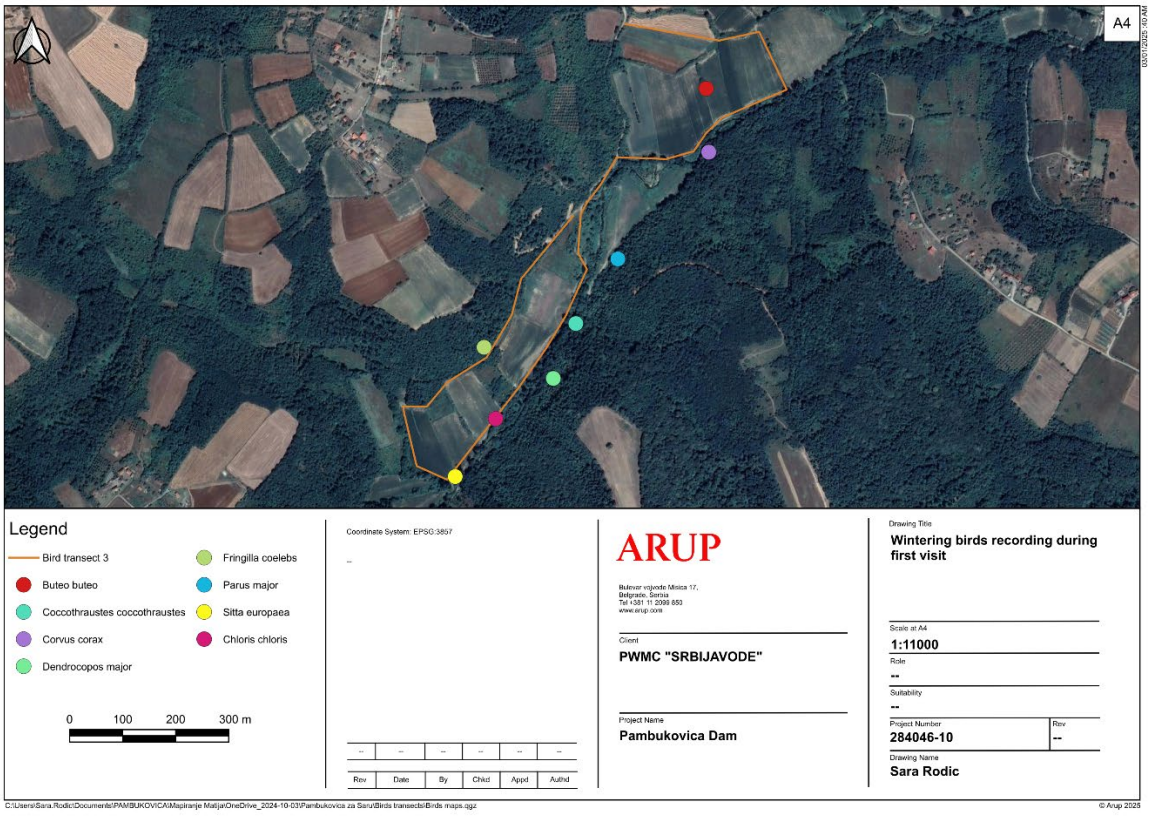

Figure 14 Wintering birds recording during first visit (Transect 3)

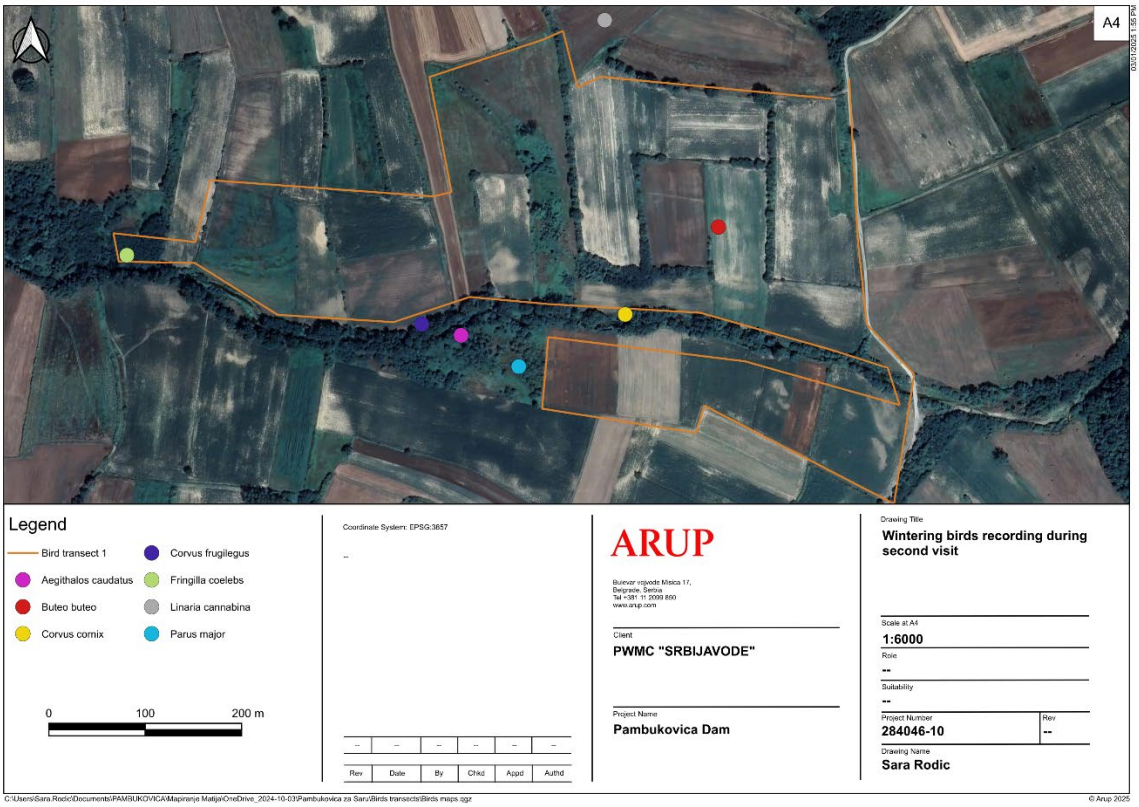

Figure 15 Wintering birds recording during second visit (Transect 1)

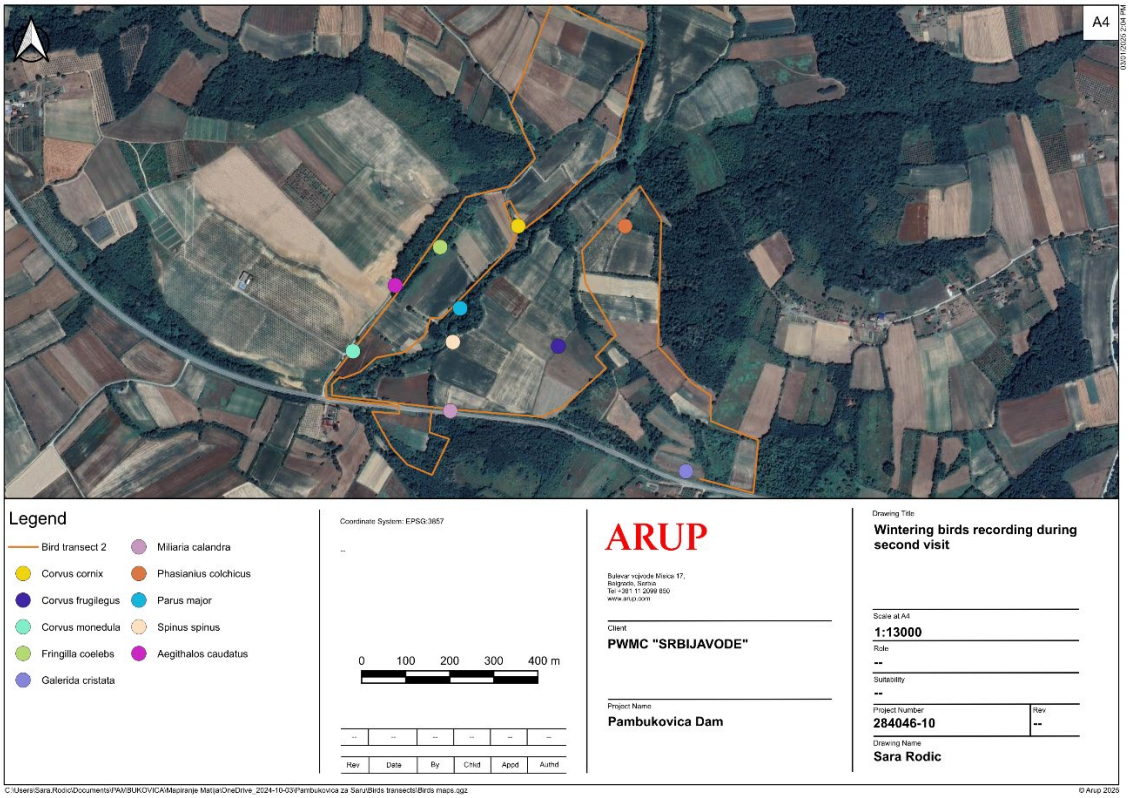

Figure 16 - Wintering birds recording during second visit (Transect 2)

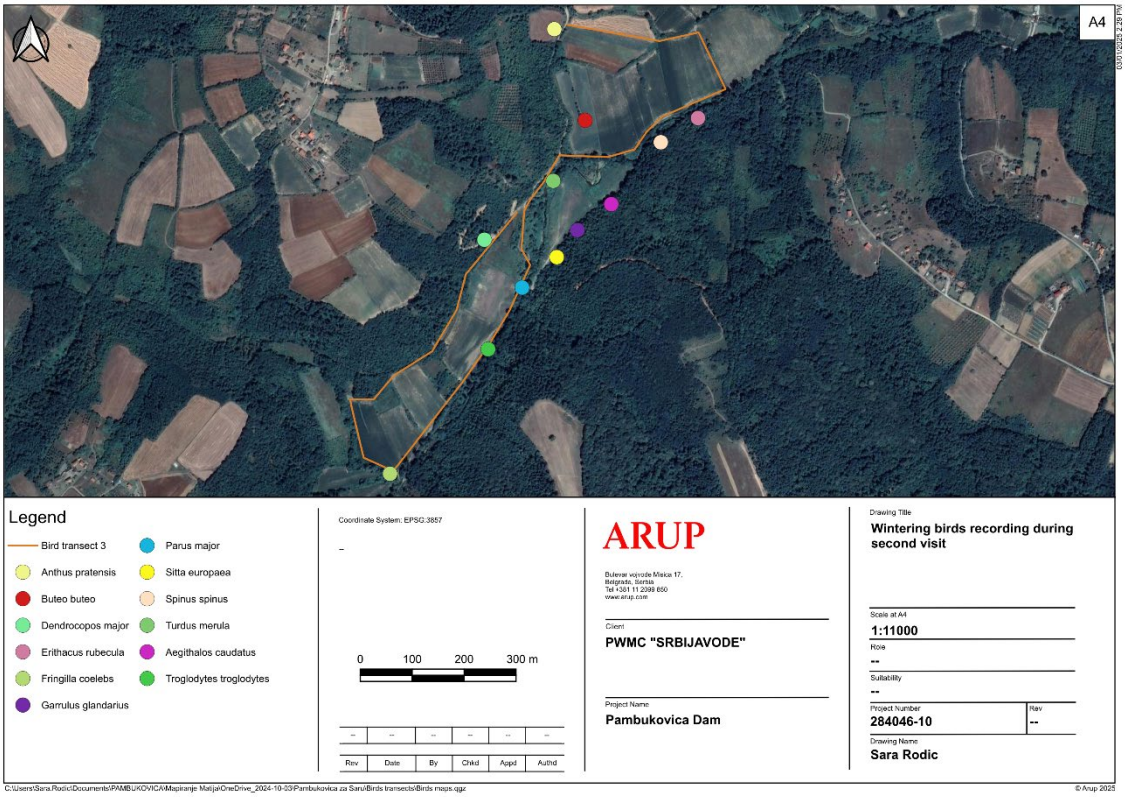

Figure 17 - Wintering birds recording during second visit (Transect 3)

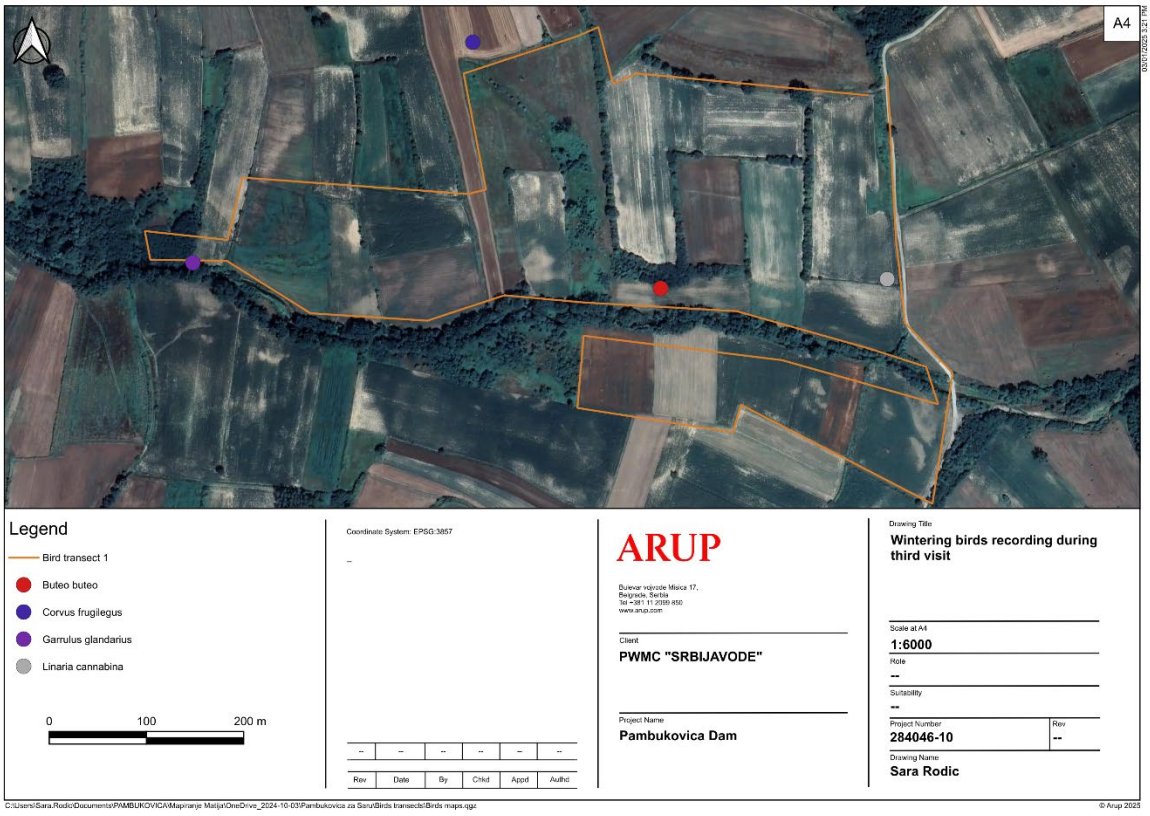

Figure 18 - Wintering birds recording during third visit (Transect 1)

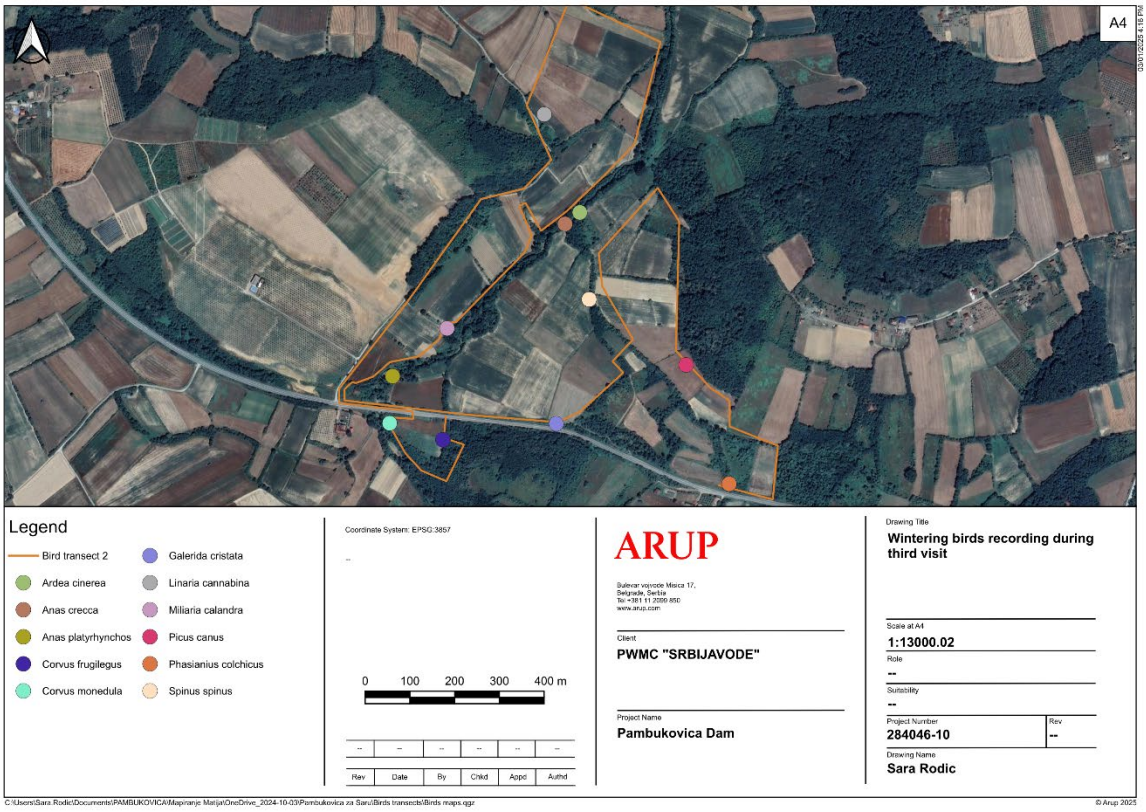

Figure 19 - Wintering birds recording during third visit (Transect 2)

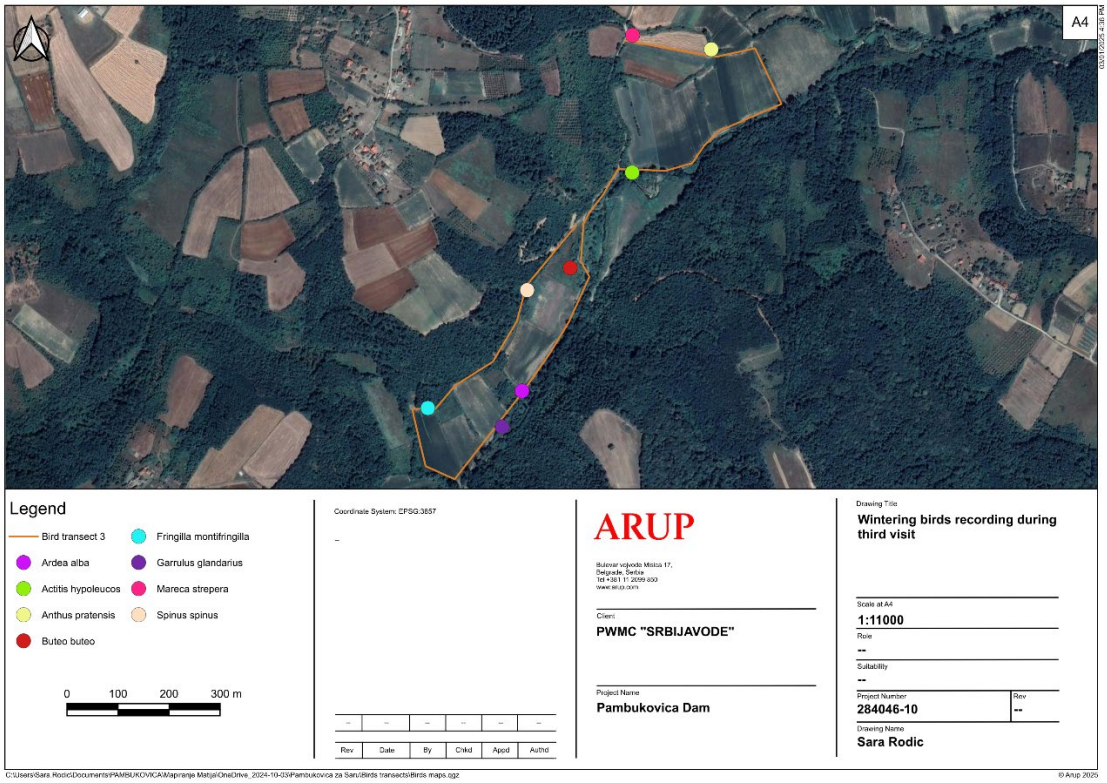

Figure 20 - Wintering birds recording during third visit (Transect 3)

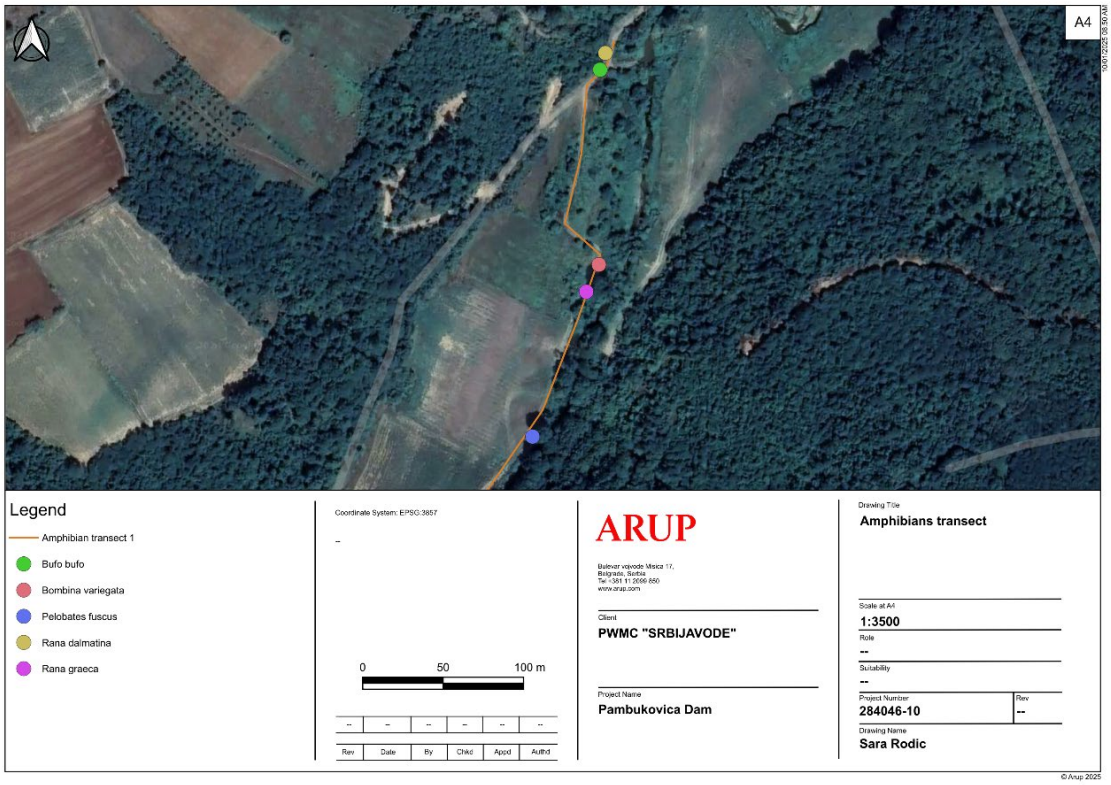

Figure 21 - Amphibian transect 1

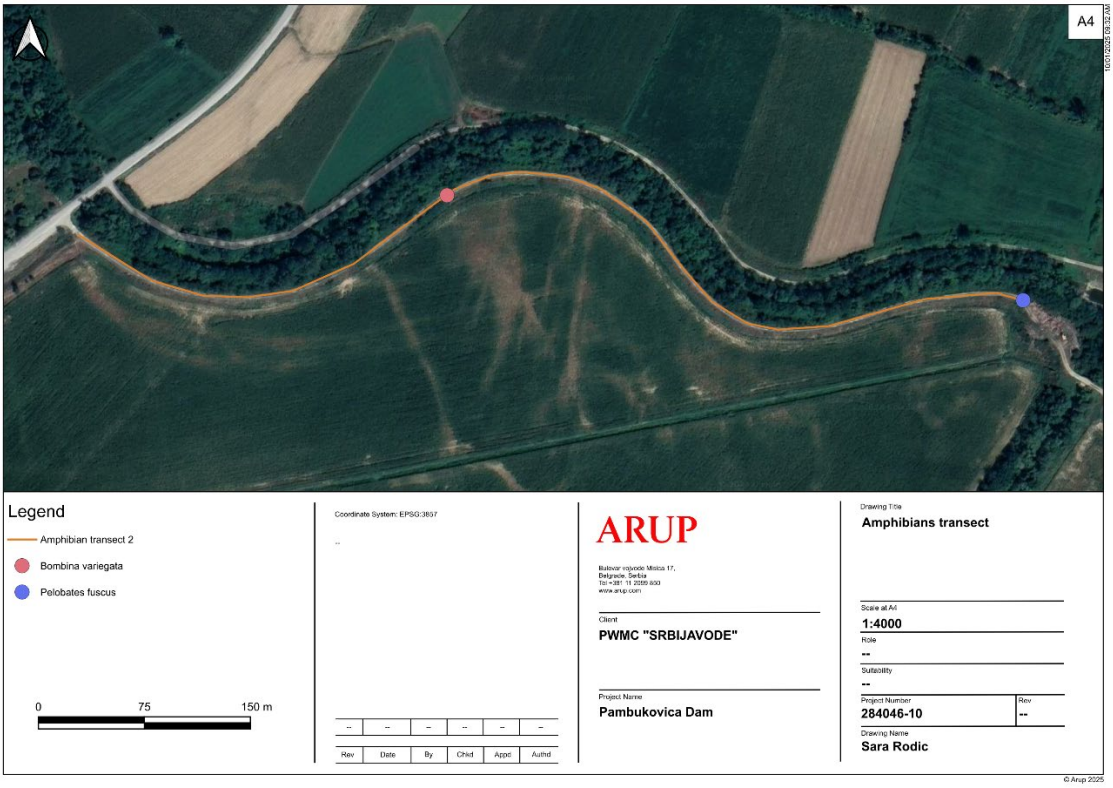

Figure 22 - Amphibian transect 2

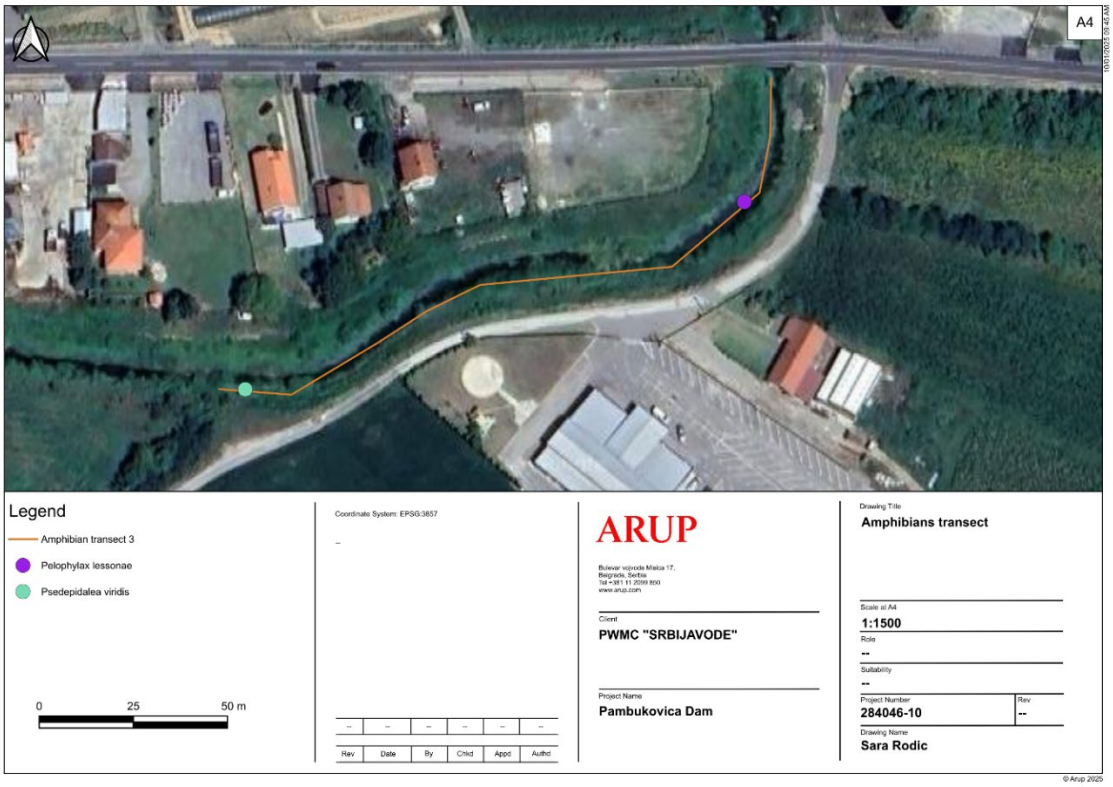

Figure 23 - Amphibian transect 3

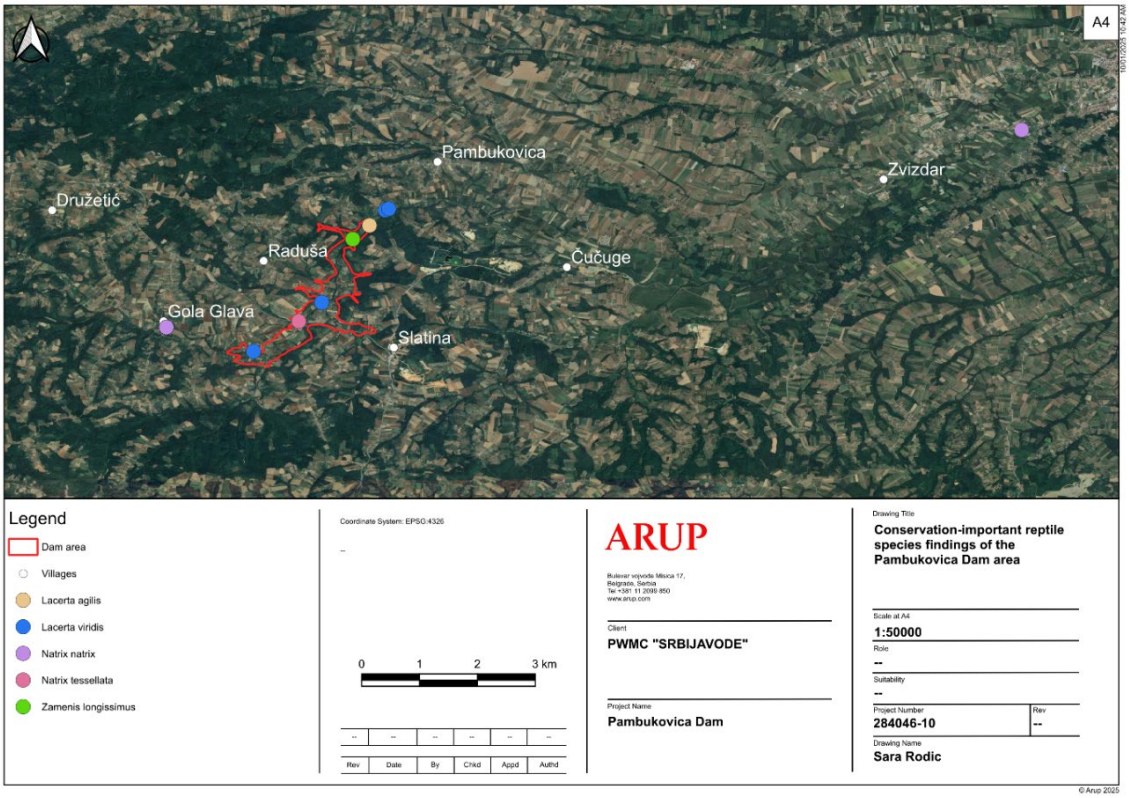

Figure 24 - Conservation-important reptile species findings of the Pambukovica Dam area

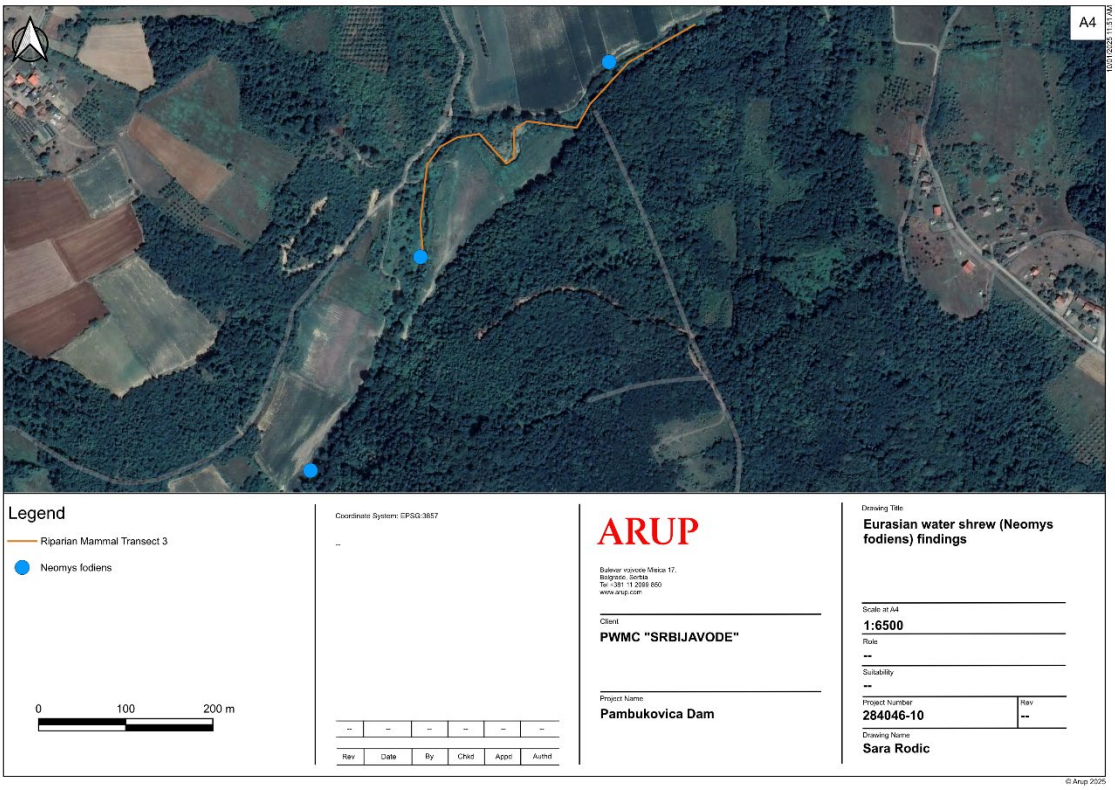

Figure 25 - Eurasian water shrew *(Neomys fodiens)* findings

A.6 Inundation Area Maps

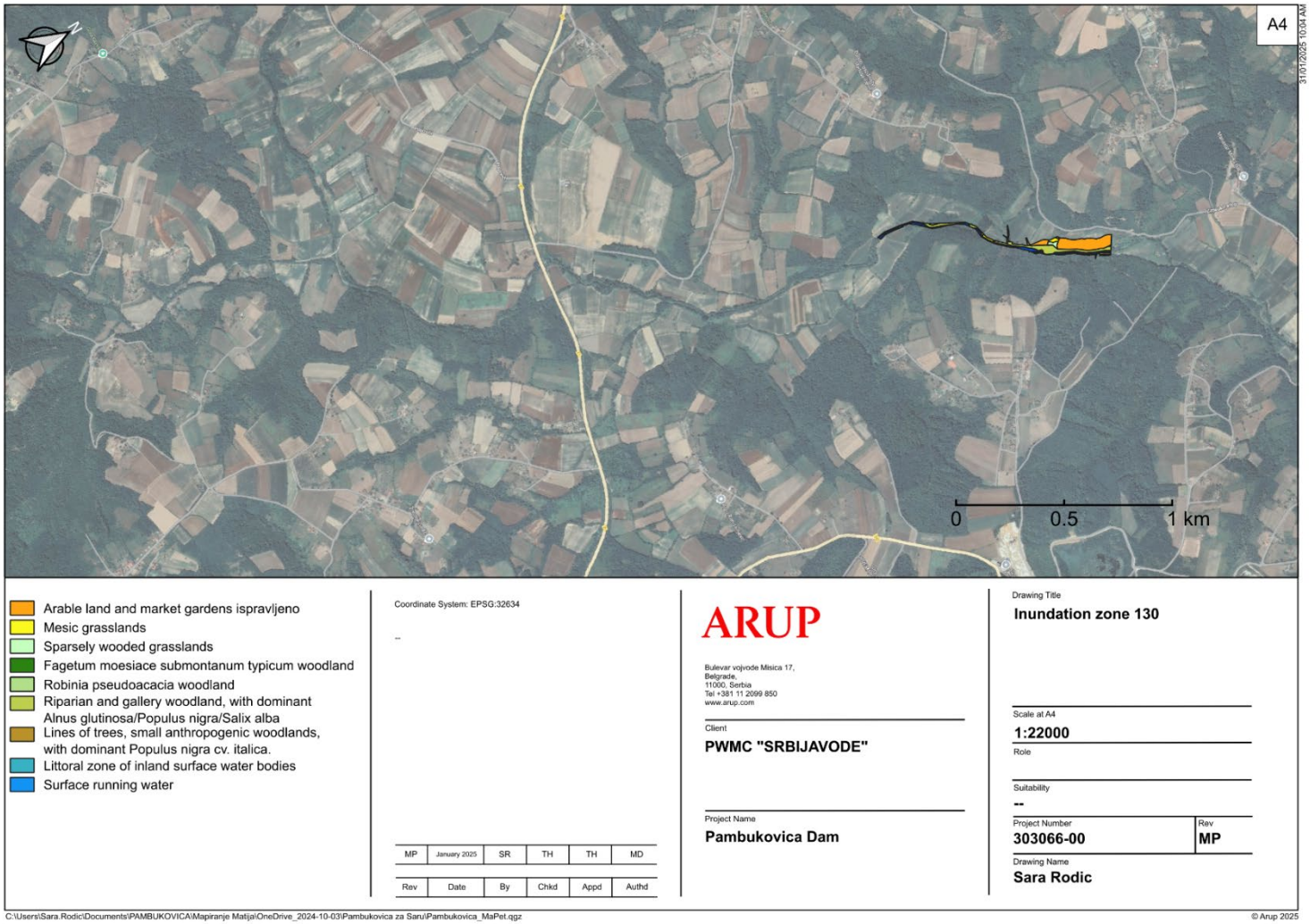

Figure 26 - Habitat map at the inundation area height of 130 m

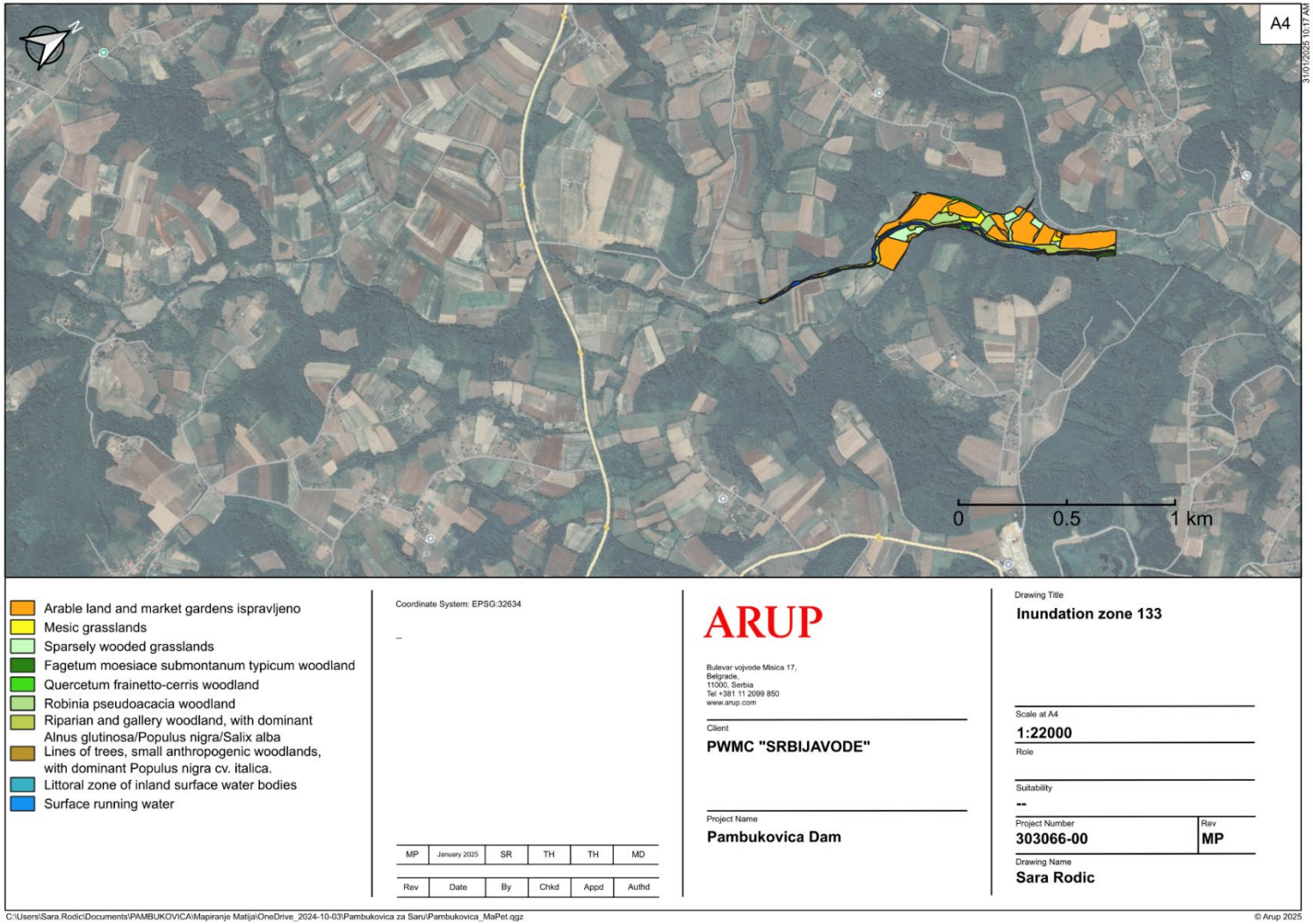

Figure 27 - Habitat map at the inundation area height of 133 m

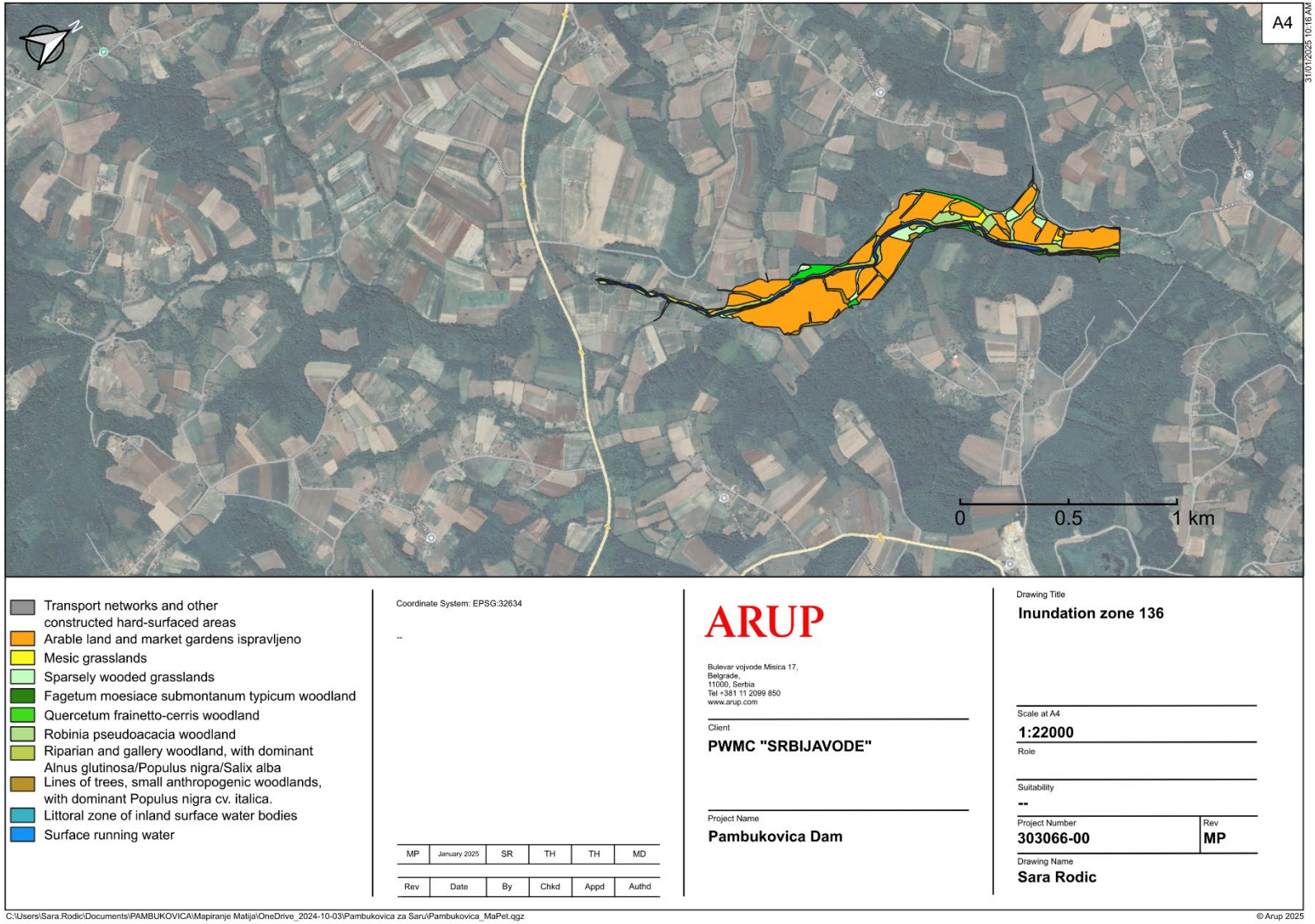

Figure 28- Habitat map at the inundation area height of 136 m

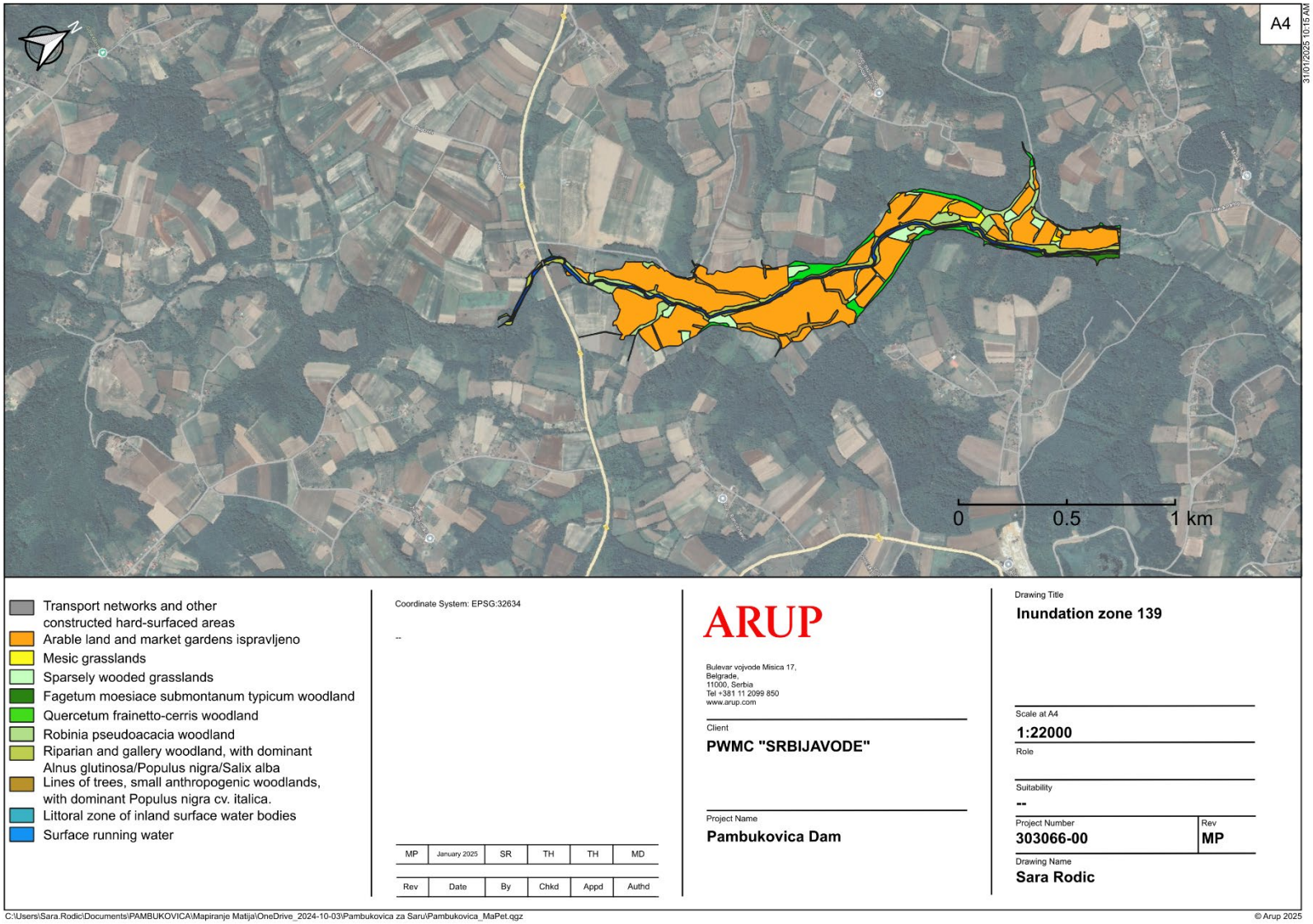

Figure 29 - Habitat map at the inundation area height of 139 m

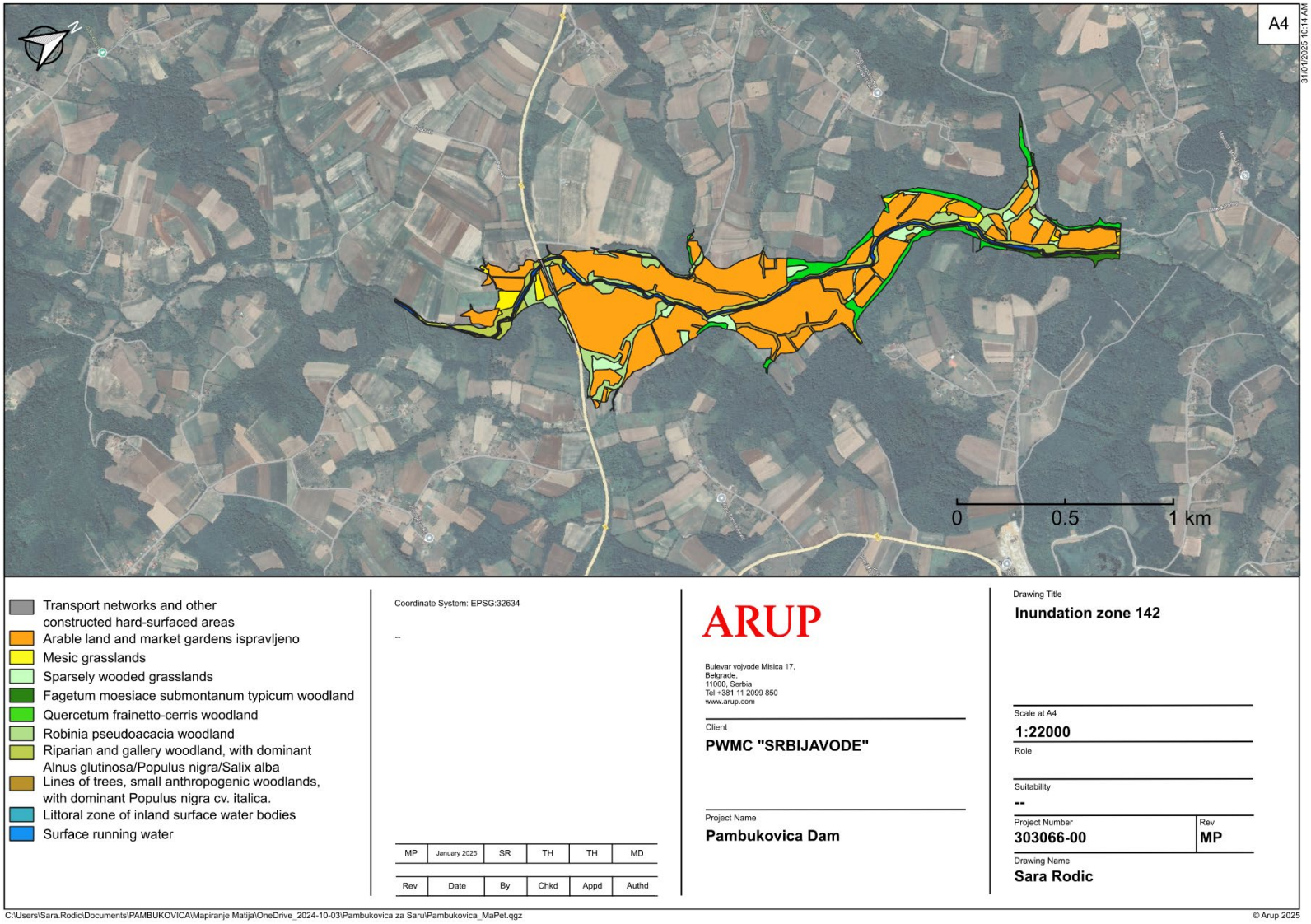

Figure 30 - Habitat map at the inundation area height of 142 m

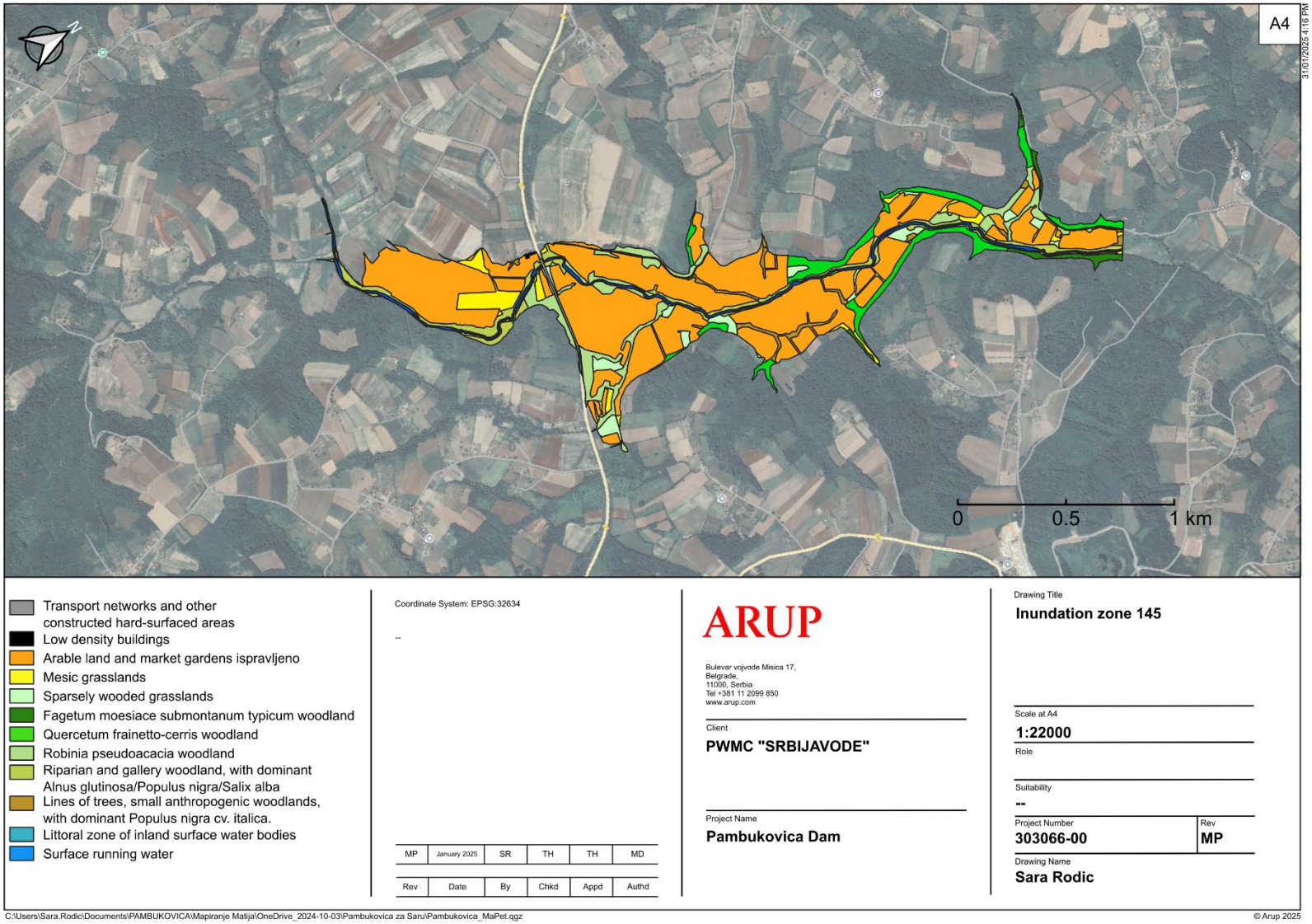

Figure 31 - Habitat map at the inundation area height of 145 m

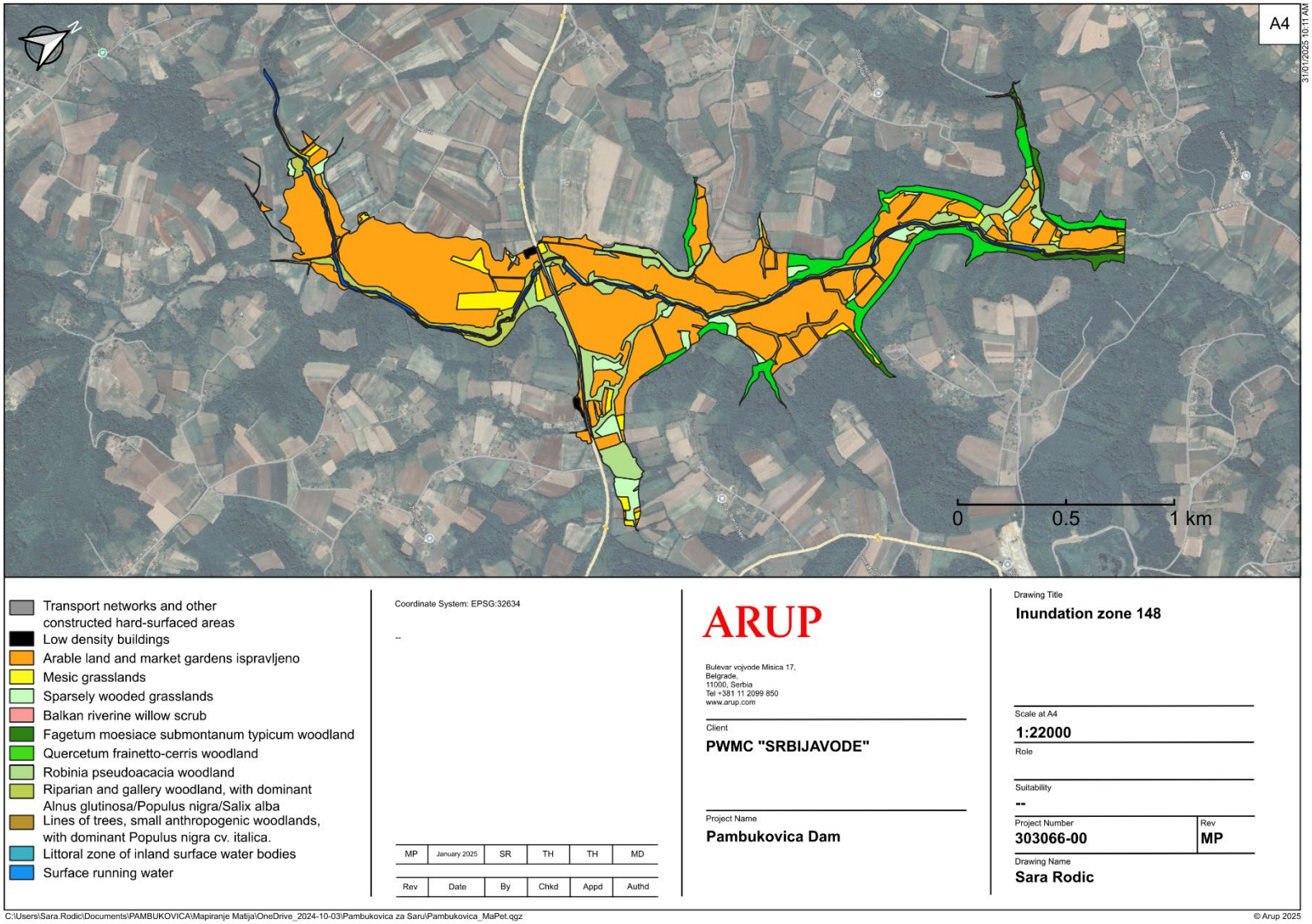

Figure 32- Habitat map at the inundation area height of 148 m

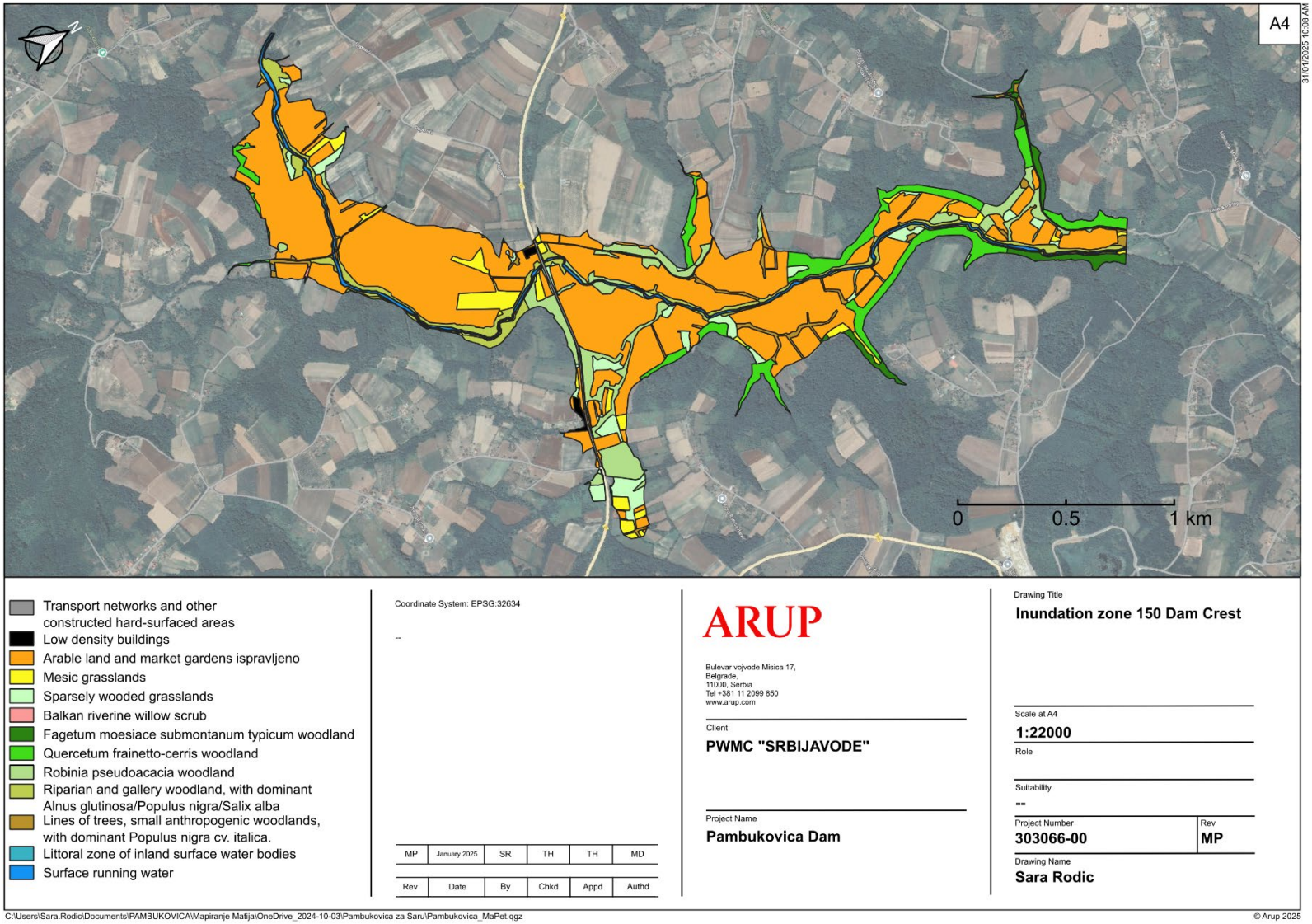

Figure 33 - Habitat map at the inundation area height of 150 m

A.7 Bird Species Observed at Dokmir Fishpond (Based on 2003 Study)

Table 16 – List of Bird Species

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Accipiter gentilis	Eurasian Goshawk	Regularly observed. One to two breeding pairs in the surrounding area.	✓
Accipiter nisus	Eurasian Sparrowhawk	Scarce winter visitor. Observed individually from November to February.	✓
Acrocephalus arundinaceus	Great Reed Warbler	Four pairs breed at the fishpond.	
Acrocephalus palustris	Marsh Warbler	One singing male heard on June 28, 1998. Possible breeder at the fishpond.	
Acrocephalus schoenobaenus	Sedge Warbler	Regular passage migrant, observed in small groups of up to 20 individuals.	
Actitis hypoleucos	Common Sandpiper	Observed in small numbers, up to 15 individuals, during migration.	✓
Aegithalos caudatus	Long-tailed Tit	Regularly observed. Breeds in the fishpond vicinity. Typically seen in flocks of up to 20 individuals.	✓
Alauda arvensis	Eurasian Skylark	Regularly observed during migration. Several pairs breed in the wider fishpond area.	✓
Alcedo atthis	Common Kingfisher	Regular breeder with several pairs nesting in the fishpond area. Single individuals observed in winter.	
Anas acuta	Northern Pintail	Rare passage migrant. Seven individuals observed in a mixed flock with *A. platyrhynchos* on March 21, 1998.	
Anas clypeata	Northern Shoveler	Rare passage migrant. Ten individuals observed on April 12, 2002, and 25 on April 20, 2003.	
Anas crecca	Eurasian Teal	Rare but regular winter visitor. Usually observed individually, except for a single pair on May 27, 2000. Other observations are from December, February, and March.	✓
Anas penelope	Eurasian Wigeon	Rare and scarce passage migrant. A pair observed on October 24, 2003.	
Anas platyrhynchos	Mallard	Regularly observed throughout all seasons. Around 40 breeding pairs nested at the fishpond during the study period.	✓
Anas querquedula	Garganey	Common during spring migration. Typically observed in April and May, with up to 20 individuals.	
Anas strepera	Gadwall	Rare passage migrant. Observed only once: one individual on March 21, 1998.	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Anser anser	Greylag Goose	Rare winter visitor. Usually does not stay at the fishpond. One individual observed on January 5, 2001. A small flock (30 individuals) observed in flight on February 12, 2002.	
Anthus pratensis	Meadow Pipit	Observed in small flocks (6-7 individuals) and singly throughout winter, from late October to late February.	✓
Anthus trivialis	Tree Pipit	Very common during migration. Observed in small flocks, with a maximum count of around 20 individuals.	
Ardea cinerea	Grey Heron	Regularly observed year-round. Most numerous during fish harvesting, with a maximum of 150 individuals observed.	✓
Ardea purpurea	Purple Heron	Rare passage migrant. Two individuals observed on September 14, 1997, and one on April 29, 2001.	
Ardeola ralloides	Squacco Heron	Rare spring passage migrant. One individual observed on April 29, 2001, and April 13, 2002.	
Arenaria interpres	Ruddy Turnstone	Scarce migrant. One individual in winter plumage observed on September 3, 1998.	
Asio otus	Long-eared Owl	One individual observed on February 23, 2003.	
Athene noctua	Little Owl	Probable breeder, observed on June 23, 2001.	✓
Aythya ferina	Common Pochard	Regularly observed. Most numerous in September (up to 50 individuals). Between three and five breeding pairs nested at the fishpond.	
Aythya nyroca	Ferruginous Duck	Observed in autumn (two individuals shot by hunters in September 1999, now in a private collection) and spring 2001. A nest with 15 eggs found on June 13, 2001, marking the first confirmed breeding in northwestern Serbia.	
Bucephala clangula	Common Goldeneye	Rare winter visitor. Around 13 individuals observed on November 21, 1999.	
Buteo buteo	Common Buzzard	Regularly observed throughout all seasons. Between three and five breeding pairs in the fishpond vicinity.	
Calidris alba	Sanderling	Rare migrant. Three individuals observed on April 1, 2001.	✓
Calidris alpina	Dunlin	Scarce autumn migrant, observed in August and September. Maximum count: 4 individuals (September 3, 1998).	
Calidris ferruginea	Curlew Sandpiper	Scarce migrant, observed in April, August, and September. Maximum count: 5 individuals.	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Calidris minuta	Little Stint	Moderately numerous autumn migrant. Observed in small flocks of up to 20 individuals in August, September, and October.	
Carduelis cannabina	Common Linnet	Regular in winter in small flocks of up to 20 individuals. Feeds at the fishpond. Observed from October to March.	
Carduelis carduelis	European Goldfinch	Breeds in the fishpond vicinity. In autumn and winter, regularly observed in flocks of 30-200 individuals.	✓
Carduelis chloris	European Greenfinch	Breeds in the surrounding area. Observed year-round, singly or in small flocks (up to six individuals).	
Carduelis spinus	Eurasian Siskin	One individual observed in flight on December 13, 1998. During winter 1999/2000, three individuals fed on alders at the fishpond.	
Certhia familiaris	Eurasian Treecreeper Puzić	Likely breeder in nearby forests. One pair observed on June 15, 1999.	
Charadrius dubius	Little Ringed Plover	Regular migrant, observed in May, June, and September. Maximum count: 20 individuals (April 23 and June 28, 1998).	
Charadrius hiaticula	Common Ringed Plover	Scarce migrant. Three individuals observed on April 23 and May 1, 1998, and five individuals on April 1, 2001.	
Chlidonias hybridus	Whiskered Tern	Rare and scarce migrant. Three individuals observed on April 22, 2001, in a flock with Black terns.	
Chlidonias leucopterus	White-winged Tern	Spring passage migrant. Several individuals observed on April 23, 1998.	
Chlidonias niger	Black Tern	Migrant during spring and autumn passage. More individuals recorded during spring migration (around 40 on May 21, 1998), and up to 5 individuals in autumn (October 24, 2003).	
Ciconia ciconia	White Stork	Passage migrant. Does not breed in the vicinity. Observed individually or in small flocks (maximum of six individuals).	
Ciconia nigra	Black Stork	Rare passage migrant. One individual observed on May 14, 1998, and March 29, 2003.	
Circus aeruginosus	Western Marsh Harrier	Common species during spring migration. Up to three individuals observed.	
Coccothraustes coccothraustes	Hawfinch	Present in small numbers during winter, usually observed singly. Also observed in summer: one pair in flight on June 15, 1999. Possible breeder in the surrounding area.	✓
Columba livia domestica	Rock Pigeon	Regularly breeds in surrounding villages and is frequently observed near fishponds.	✓

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Columba palumbus	Common Wood Pigeon	Regularly observed during migration. Maximum count: 500 individuals in flight. A few breeding pairs near fishponds.	✓
Coracias garrulus	European Roller	Rare migrant during passage. Two individuals observed on June 13, 2000.	
Corvus corax	Common Raven	Up to three pairs observed in the fishpond vicinity during the breeding season. In winter, up to 40 individuals may be seen feeding in the fishpond area.	✓
Corvus cornix	Hooded Crow	Regularly observed, breeds near the fishpond.	✓
Corvus monedula	Western Jackdaw	Regularly observed in flocks at the fishpond and nearby villages. Breeds in the study area.	✓
Coturnix coturnix	Common Quail	Observed in meadows around the fishpond, but no breeding data. Numerous during migration.	
Cuculus canorus	Common Cuckoo	Regularly observed near fishponds, arriving in late April.	✓
Cygnus olor	Mute Swan	According to fishpond keepers, one individual was shot during the winter of 1991/1992.	
Delichon urbica	Western House Martin	Regularly observed during migration and wandering. Does not breed in the vicinity.	
Dendrocopos major	Great Spotted Woodpecker	Regularly observed; breeds in surrounding forests.	✓
Dendrocoptes medius	Middle Spotted Woodpecker	Regularly observed; nests in the area but is rarer than the Great spotted woodpecker.	✓
Dendrocopos minor	Lesser Spotted Woodpecker	Rare wanderer, occasionally observed near fishponds.	
Egretta alba	Great Egret	Regular winter visitor. Sometimes winters in larger numbers (around 120 individuals in winter 1998/1999), but usually up to 20 individuals.	
Egretta garzetta	Little Egret	Sporadically observed during migration, usually in small flocks of up to seven individuals (May 27, 2000).	✓
Emberiza cirlus	Cirl Bunting	Status similar to the Yellowhammer. Around 15-20 pairs breed in the study area.	✓
Emberiza citrinella	Yellowhammer	Regularly observed in the vicinity, where it breeds.	✓
Emberiza schoeniclus	Common Reed Bunting	Regularly observed in winter, usually in flocks of up to 10 individuals. Also observed in late spring: one pair on May 27, 2000. Possible breeder.	
Erithacus rubecula	European Robin	Regular breeder in the fishpond vicinity. Observed singly or in pairs; never in flocks outside the breeding season.	✓

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Falco subbuteo	Eurasian Hobby	Two individuals hunting dragonflies on September 14, 1997, and a pair observed on June 15, 1999. Seen in passage and during migration.	✓
Falco vespertinus	Red-footed Falcon	Passage migrant. Observed only once: one female on May 10, 1998.	
Fringilla coelebs	Eurasian Chaffinch	Regular breeder in nearby forests. In winter, observed in larger flocks (up to 100 individuals).	✓
Fringilla montifringilla	Brambling	Frequently observed in November in small flocks (up to 10 individuals) or singly in mixed flocks with *F. coelebs*. Does not remain in the fishpond area.	
Fulica atra	Eurasian Coot	One of the most common species. Up to 20 breeding pairs at the fishpond.	
Galerida cristata	Crested Lark	Regularly observed in Slatina with several individuals present. Not observed at the fishpond but breeds in the surrounding area.	
Gallinago gallinago	Common Snipe	Regular winter visitor and numerous migrants at fishponds (up to 100 individuals). Also observed in summer (one individual on June 28, 1998).	
Gallinula chloropus	Common Moorhen	Regularly observed. Two to four breeding pairs at the fishpond.	
Garrulus glandarius	Eurasian Jay	Breeds in nearby forests. Observed year-round.	✓
Grus grus	Common Crane	Migrant during passage. Observed only once: 1 individual stayed on March 29 and 30, 2003.	
Haliaeetus albicilla	White-tailed Eagle	Regularly observed at the fishpond throughout the year. Seen individually, in pairs, and as a pair with an immature bird.	
Himantopus himantopus	Black-winged Stilt	Scarce spring migrant. One individual observed on April 29, 2001, and four individuals on April 22, 2002.	
Hirundo rustica	Barn Swallow	Regularly observed, breeds in nearby villages. During autumn migration, it roosts annually in cornfields near the fishpond.	✓
Lanius collurio	Red-backed Shrike	Around six pairs breed at the fishpond. Regularly observed.	✓
Lanius minor	Lesser Grey Shrike	Rare breeder in the fishpond vicinity. Observed in June 1998 near the village of Dokmir. The observed pair did not return in following years.	
Larus cachinnans	Caspian Gull	Observed throughout the study period in small numbers, in mixed flocks with *L. ridibundus*. Maximum count: 10 individuals.	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Larus minutus	Little Gull	Rare migrant. Five individuals observed on September 3, 1998, and one individual on April 29, 2001.	
Larus ridibundus	Black-headed Gull	Observed throughout the year. Largest flock recorded during fishpond drainage in November 1999: around 400 individuals.	
Limosa limosa	Black-tailed Godwit	Scarce passage migrant. Single individuals observed on March 21, 1997, June 28, 1998, and April 1, 2001.	
Locustella fluviatilis	River Warbler	Observed only once during spring migration: around 10 individuals on April 12, 2002.	
Luscinia megarhynchos	Common Nightingale	Breeds in the surrounding area and vegetation along canals near the fishpond. Approximately five pairs nest at the fishpond.	✓
Lymnocryptes minimus	Jack Snipe	Scarce migrant and winter visitor. Observed in small numbers (up to 2 individuals) during winter 1997/1998.	
Mergus merganser	Common Merganser	Rare passage migrant and winter visitor. Six individuals observed on November 14, 2002.	
Mergus serrator	Red-breasted Merganser	Rare winter visitor. Five individuals observed on November 21, 1999.	
Merops apiaster	European Bee-eater	Rare migrant. Several small flocks (up to 20 individuals in total) observed in flight on August 31 and September 3, 1998.	✓
Miliaria calandra	Corn Bunting	Breeds in the fishpond vicinity (two pairs). Observed only during the breeding season.	✓
Motacilla alba	White Wagtail	Regular breeder, regularly observed. Three to five pairs nest in the area.	✓
Motacilla flava	Western Yellow Wagtail	Regular breeder, regularly observed. Numbers increase before migration, with flocks of up to 10 individuals.	
Netta rufina	Red-crested Pochard	Five individuals observed on May 27, 2000.	
Numenius arquata	Eurasian Curlew	Winter visitor and migrant. A flock of 7 individuals stayed throughout winter 1997/1998. Single individuals observed on November 14, 1998, and October 25, 2003.	
Nycticorax nycticorax	Black-Crowned Night Heron	A juvenile was found dead on September 14, 1997, and two individuals were observed on June 15, 1999.	
Oriolus oriolus	Eurasian Golden Oriole	Six pairs breed near the fishpond.	✓
Pandion haliaetus	Osprey	Rare passage migrant. One individual observed on May 1, 1998, and April 24, 2001.	
Parus caeruleus	Eurasian Blue Tit	Regularly observed at the fishpond and in the surrounding area, but less common than the Great tit. Breeds in nearby forests.	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Parus major	Great Tit	Regularly observed at the fishpond and in the surrounding area.	✓
Parus palustris	Marsh Tit	Observed year-round. Two to three pairs breed near the fishpond.	
Passer domesticus	House Sparrow	Regularly observed.	
Passer montanus	Eurasian Tree Sparrow	Regularly observed.	✓
Perdix perdix	Grey Partridge	Observed in meadows around the fishpond, where it breeds. Winter flocks of up to 20 individuals recorded.	
Pernis apivorus	European Honey Buzzard	One individual observed on August 13, 2002. Possible breeder in the surrounding area.	
Phalacrocorax carbo	Great Cormorant	Regularly observed in flocks of up to 100 individuals, especially numerous during fish harvesting.	
Phalacrocorax pygmeus	Pygmy Cormorant	Rare passage migrant. Six individuals observed on October 20, 2000.	
Phasianus colchicus	Common Pheasant	Regular and numerous breeder at the fishpond.	
Philomachus pugnax	Ruff	Rare spring migrant. Six individuals observed on May 27, 2000.	
Phylloscopus collybita	Common Chiffchaff	Regular breeder in nearby forests, also observed at the fishpond.	✓
Phylloscopus trochilus	Willow Warbler	Observed during autumn migration: a few individuals vocalizing on August 23 and 16, 2000.	
Pica pica	Eurasian Magpie	Breeds in the fishpond area, with up to five pairs present. Regularly observed.	✓
Picus canus	Grey-headed Woodpecker	Scarce, present year-round, but rarer than the European green woodpecker.	✓
Picus viridis	European Green Woodpecker	Scarce but present year-round. Breeds in surrounding forests.	✓
Platalea leucorodia	Eurasian Spoonbill	Rare spring passage migrant. Two individuals observed on June 22, 1998, and June 13, 2001, while three were seen on May 29, 2003.	
Plegadis falcinellus	Glossy Ibis	Rare passage migrant. One individual observed on March 18, 2001.	
Podiceps cristatus	Great Crested Grebe	Regularly observed throughout all seasons. Between 5 and 18 breeding pairs nested in the fishpond area in 2000.	
Podiceps nigricollis	Black-necked Grebe	Rare autumn migrant. Three individuals observed on August 31, 1998, six on November 21, 1999, and several on October 24, 2003.	
Porzana parva	Little Crake	Observed only once, during migration: one individual on May 1, 1998.	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Pyrrhula pyrrhula	Eurasian Bullfinch	One pair observed in flight on October 14, 1999.	
Rallus aquaticus	Water Rail	Probable breeder at the fishpond. One individual observed on May 1, 1998.	
Remiz pendulinus	Eurasian Penduline Tit	Passage migrant, possible breeder. Observed: one juvenile on August 2, 1999; a small flock on May 27, 2000; one pair on April 1, 2001.	
Riparia riparia	Sand Martin	Observed on June 12, 1998 (15 individuals) and May 27, 2000 (1 individual).	
Saxicola rubetra	Whinchat	Passage migrant. Observed in flocks of around 10 individuals in March and April. Autumn migration is less pronounced.	✓
Saxicola torquata	African Stonechat	Two pairs breed in the fishpond vicinity.	
Scolopax rusticola	Eurasian Woodcock	Regularly observed in winter near the villages of Slatina and Gola Glava.	
Serinus serinus	European Serin	Observed during spring migration: one pair on March 29, 2003.	
Sitta europaea	Eurasian Nuthatch	Regularly observed in nearby forests, where it breeds. Also observed at the fishpond.	✓
Sterna hirundo	Common Tern	Moderately numerous regular migrant, observed in April, May, and September.	
Streptopelia decaocto	Eurasian Collared Dove	Regular breeder, with around 10 pairs nesting near the fishponds	✓
Streptopelia turtur	European Turtle Dove	Regular breeder near the fishponds, especially numerous during migration. Around 10 pairs nest in the vicinity.	✓
Sturnus vulgaris	Common Starling	Breeds in the fishpond vicinity; observed feeding at the fishpond. Flocks of up to 150 individuals seen in August.	✓
Sylvia atricapilla	Eurasian Blackcap	Breeds at the fishpond (up to 7 pairs) and in the surrounding area. During spring migration, observed in flocks of up to 40 individuals.	✓
Sylvia communis	Common Whitethroat	Up to five pairs breed at the fishpond.	
Tachybaptus ruficollis	Little Grebe	Regularly observed throughout all seasons. Probable breeder (3 - 5 pairs).	
Tringa erythropus	Spotted Redshank	Rare and scarce autumn migrant. Several individuals observed on August 31 and September 3, 1998, and a single individual on April 1, 2001.	
Tringa glareola	Wood Sandpiper	Migrant. Observed in small numbers during spring and autumn migration. Maximum count: 100 individuals (May 1, 1998).	

Scientific name	Common name	Description regarding Dokmir location*	Detected in Baseline
Tringa nebularia	Common Greenshank	Migrant. Observed in May, August, September, and October, with flocks of up to 10 individuals.	
Tringa ochropus	Green Sandpiper	Migrant. Observed in early spring (March) and summer (June 28, 1998: 3 individuals). Seen in small flocks (up to 30 individuals) in April, May, August, and September.	
Tringa totanus	Common Redshank	Scarce migrant. Two individuals observed on June 28 and September 3, 1998, and a flock of around 50 individuals on April 1, 2001.	
Troglodytes troglodytes	Eurasian Wren	Regularly observed throughout the year. Up to 10 pairs breed in the area.	✓
Turdus merula	Common Blackbird	Very numerous breeder in the surrounding area.	✓
Turdus philomelos	Song Thrush	Breeds in the surrounding area. Regularly observed, with around 10 breeding pairs near the fishpond.	✓
Turdus pilaris	Fieldfare	Regular winter visitor. Observed in flocks of up to 100 individuals (December 13, 1998).	
Turdus viscivorus	Mistle Thrush	Observed only once: one individual on November 21, 1999.	
Vanellus vanellus	Northern Lapwing	Regular winter visitor and migrant; possibly bred in 2001, 2002, and 2003 with up to three breeding pairs. Maximum count: 80 individuals (February 22, 1998).	

* - Observations are from a nearby site of the dried Dokmir Fush Pond, extracted from the following publication - M. Raković and M. Novaković, “Avifauna of Dokmir fishpond,” Faunisticke studije, Ciconia 12, no. 12, pp. 121-129, 2003.

A.8 Potential Habitat Offset Areas (Offsite)

(see separate file)

A.9 River Catchment Upstream and Downstream of the Proposed Dam

(see separate file)

A.10 Potential Habitat Offset Areas

(see separate file)