

New records of aquatic molluscs in the Lipno Reservoir and its surroundings

Luboš Beran^{1,*} & Libor Dvořák²

¹Kokořínsko PLA Administration, Česká 149, CZ-27601 Mělník, Czech Republic

²Šumava NP and PLA Administration, Sušická 399, CZ-34192 Kašperské Hory, Czech Republic

*lubos.beran@schkocr.cz

Abstract

We summarise all data on aquatic gastropods and bivalves of the Lipno Reservoir and its surrounding (SW Bohemia, Šumava Protected Landscape Area) which were investigated in 2005 and 2006. In total, 28 species of aquatic molluscs (19 gastropods, 9 bivalves) have been found during this study. Eight gastropods and one bivalve were found in the Šumava National Park and Protected Landscape Area for the first time; altogether 35 species were found in the study area during the last 100 years. The richest site was the Lipno Reservoir where 26 species (15 gastropods, 10 bivalves) were documented. Among newly recorded species, the highest altitude limits for six species in the Czech Republic were recorded; together with previous results this means that at least 20 species have the highest known localities in the country in the Lipno Reservoir and its surroundings. Records of two non-native species, *Gyraulus parvus* and *Menetus dilatatus*, are remarkable because of their distribution.

Key words: Gastropoda, Bivalvia, faunistics, standing water

INTRODUCTION

In our previous study (DVOŘÁK & BERAN 2004), we published all known data of aquatic molluscs in the Lipno Reservoir and its surroundings, with the primary aim to add new information on the distribution of large bivalves in the reservoir, which became available due to extremely low water level. It was clear, however, that the compiled list was far from complete, and additional research focusing on small aquatic molluscs living on stones, soft bottom and in littoral vegetation was needed to expand the knowledge of the Lipno Reservoir and its surrounding. In 2005 and 2006, both authors studied the aquatic molluscs of this area again and the most interesting result – finding of the non-native snail *Menetus dilatatus* – was published (BERAN 2005). All results of the research from 2005 and 2006 are presented in this study.

MATERIAL AND METHODS

The main sampling method for aquatic molluscs is washing of vegetation or sediments with a metal sieve (a kitchen strainer, diameter 20 cm, mesh size 0.5–1 mm) combined with examination of the surface of stones, wood and artificial material (e.g., plastic bags and bottles). Molluscs were identified by their shells. Some taxa (*Stagnicola* spp., *Gyraulus* spp.) which do not have reliable identification characters on the shells had to be dissected and identified by the morphology of their copulatory organs. Material is deposited in collections of both

authors. The classification used in this study follows BERAN (2002).

LIST OF LOCALITIES

Data are presented in the following order: geographical coordinates, code of the mapping field for faunistic grid mapping (cf. PRUNER & MÍKA 1996), name of the nearest settlement, description of the site, date of investigation, initials of investigator (LB – Luboš Beran, LD – Libor Dvořák). Position of all examined localities is marked on Fig. 1.

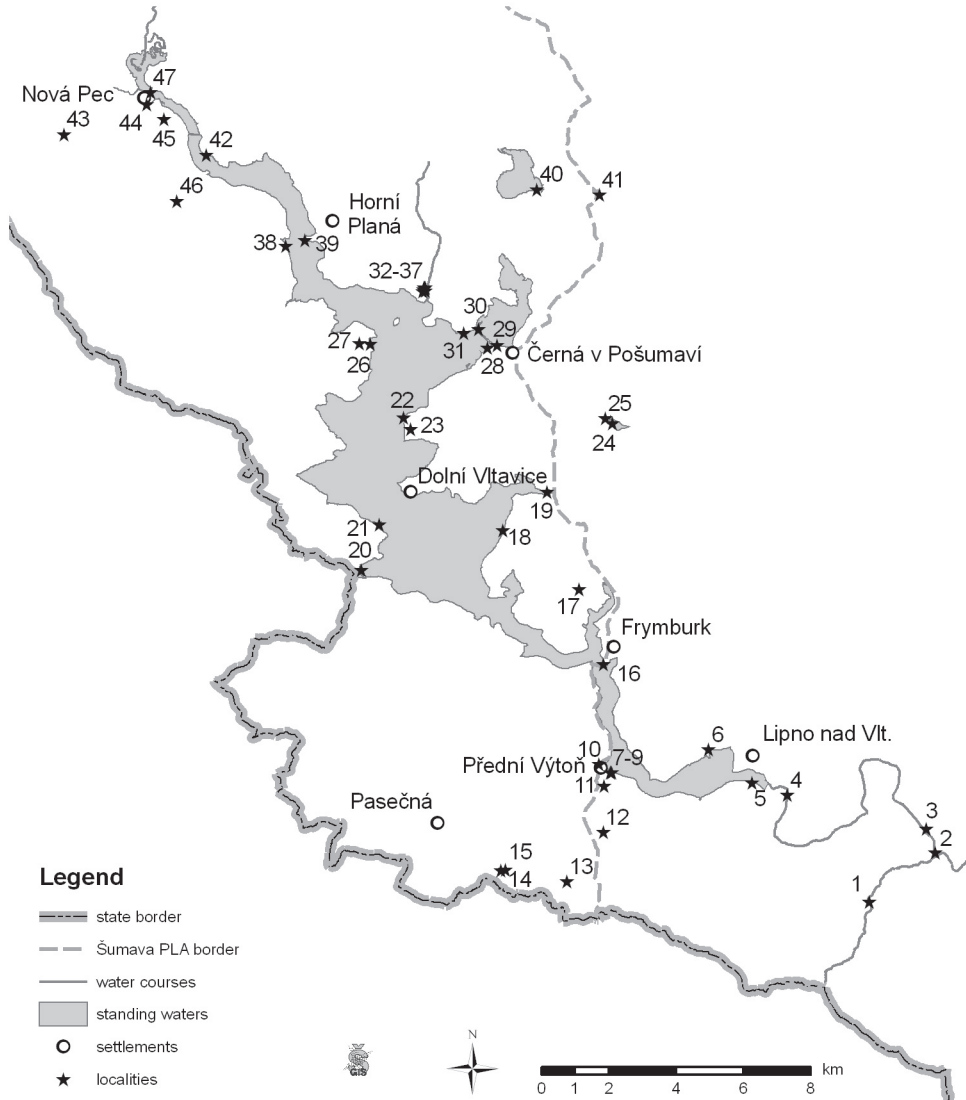


Fig. 1. Schematic map of the studied localities in the Lipno Reservoir and its neighbourhood.

- 1 – 48°36'21" N, 14°17'05" E, 7351, Vyšší Brod, Menší Vltavice River west of Martinovský vrch Hill (846.4 m a.s.l.), 19 Jul 2006, LB;
- 2 – 48°37'17" N, 14°18'30" E, 7351, Vyšší Brod, Vltava River in Vyšší Brod, 19 Jul 2006, LB;
- 3 – 48°37'38" N, 14°18'12" E, 7351, Vyšší Brod, Lipno Reservoir II. near the dam, 27 Jul 2005, LB;
- 4 – 48°37'52" N, 14°14'45" E, 7351, Loučovice, Vltava River between Loučovice and the dam of the Lipno Reservoir, 19 Jul 2006, LB;
- 5 – 48°37'59" N, 14°13'52" E, 7351, Lipno nad Vltavou, Lipno Reservoir in the south-eastern part of the water reservoir ca. 300 m from the dam, 25 Jul 2005, LB;
- 6 – 48°38'25" N, 14°12'43" E, 7351, Lipno nad Vltavou, Lipno Reservoir at Lipno nad Vltavou, 29 Jul 2005, LB;
- 7 – 48°37'50" N, 14°10'28" E, 7351, Přední Výtoň, Lipno Reservoir at Přední Výtoň, a) 24 Jul 2005, LB, b) 21 Jul 2006, LB;
- 8 – 48°37'50" N, 14°10'26" E, 7351, Přední Výtoň, small rillet about 30 m upstream of the inflow to the Lipno Reservoir near the beach at Přední Výtoň, 25 Jul 2005, LB;
- 9 – 48°37'50" N, 14°10'26" E, 7351, Přední Výtoň, small wetland near the rillet about 30 m upstream of the inflow to the Lipno Reservoir near the beach at Přední Výtoň, 25 Jul 2005, LB;
- 10 – 48°37'56" N, 14°10'08" E, 7351, Přední Výtoň, small pond in front of the church at Přední Výtoň, 25 Jul 2005, LB;
- 11 – 48°37'36" N, 14°10'20" E, 7351, Přední Výtoň, spring near the well south-east of the Robinsonka hotel, 24 Jul 2005, LB;
- 12 – 48°36'52" N, 14°10'28" E, 7351, Přední Výtoň, peat-bog along the brook and road about 2 km south of Přední Výtoň, 20 Jul 2006, LB;
- 13 – 48°36'00" N, 14°09'46" E, 7350, Pasečná, Horský Potok stream near the road Přední Výtoň – Pasečná, 20 Jul 2006, LB;
- 14 – 48°36'03" N, 14°08'15" E, 7350, Pasečná, small rillet in the south-western part of the Multerbergské Rašeliště Nature Monument, 20 Jul 2006, LB;
- 15 – 48°36'02" N, 14°08'09" E, 7350, Pasečná, small wetland near the road Přední Výtoň – Pasečná about 1500 m south-east of Pasečná, 20 Jul 2006, LB;
- 16 – 48°39'32" N, 14°09'54" E, 7351, Frymburk, Lipno Reservoir at Frymburk near a ferry, 27 Jul 2005, LB;
- 17 – 48°40'40" N, 14°09'04" E, 7350, Milná, small water body in Posudov, 29 Oct 2005, LB;
- 18 – 48°41'26" N, 14°07'02" E, 7350, Kovářov, Lipno Reservoir west and north-west of Kovářov, 29 Jul 2005, LB;
- 19 – 48°42'09" N, 14°07'58" E, 7250, Kovářov, eastern part of the Lukavická Zátoka bay of the Lipno Reservoir near the road north-west of Milná, 25 Jul 2005, LB;
- 20 – 48°40'29" N, 14°03'47" E, 7350, Kyselov, bank of the Lipno Reservoir in the Rakovská Zátoka bay near a road, 24 Jul 2005, LB;
- 21 – 48°41'15" N, 14°04'03" E, 7350, Kyselov, bank of the Lipno Reservoir near a ferry, 24 Jul 2005, LB;
- 22 – 48°43'00" N, 14°04'16" E, 7250, Radslav, Lipno Reservoir at Radslav, 29 Jul 2005, LB;
- 23 – 48°42'50" N, 14°04'29" E, 7250, Radslav, small pool in the garden at Radslav, 29 Jul 2005, LB;
- 24 – 48°43'23" N, 14°09'18" E, 7250, Plánička, Pláničský Rybník pond north-east of Plánička, 29 Oct 2005, LB;
- 25 – 48°43'27" N, 14°09'07" E, 7250, Plánička, small pond near the Pláničský Rybník pond north-east of Plánička, 29 Oct 2005, LB;
- 26 – 48°44'06" N, 14°03'13" E, 7250, Přední Zvonková, Lipno Reservoir near Valtrov, 26 Jul 2005, LB;
- 27 – 48°44'05" N, 14°02'57" E, 7250, Přední Zvonková, small pond near Valtrov, 29 Jul 2005, LB;
- 28 – 48°44'18" N, 14°06'03" E, 7250, Černá v Pošumaví, Lipno Reservoir near a marina (left side of the road Černá v Pošumaví – Hůrka), a) 25 Jul 2005, LB, b) 20 Jul 2006, LB;
- 29 – 48°44'22" N, 14°06'16" E, 7250, Černá v Pošumaví, the bay of the Lipno Reservoir on the right side of the road Černá v Pošumaví – Hůrka, 25 Jul 2005, LB;
- 30 – 48°44'35" N, 14°05'46" E, 7250, Hůrka, the south-west part of the bay of the Lipno Reservoir on the left side of the road Hůrka – Černá v Pošumaví, a) 12 Jul 2005, LD, b) 18 Jul 2006, LB;
- 31 – 48°44'29" N, 14°05'26" E, 7250, Hůrka, Lipno Reservoir in Hůrka, 18 Jul 2006, LB;
- 32 – 48°45'03" N, 14°04'18" E, 7250, Hůrka, small pond (10×20 m) near the restaurant near the road under stream of the larger pond in Hůrka, 18 Jul 2006, LB;
- 33 – 48°45'05" N, 14°04'19" E, 7250, Hůrka, larger empty pond in Hůrka, 18 Jul 2006, LB;
- 34 – 48°45'07" N, 14°04'21" E, 7250, Hůrka, small pond upstream and north-east of the larger empty pond in Hůrka, 18 Jul 2006, LB;
- 35 – 48°45'07" N, 14°04'19" E, 7250, Hůrka, small pond upstream and north-west of the larger empty pond in Hůrka, 18 Jul 2006, LB;
- 36 – 48°45'07" N, 14°04'20" E, 7250, Hůrka, ponds and the tributary to the ponds in Hůrka, 12 Jul 2005, LD;
- 37 – 48°45'04" N, 14°04'22" E, 7250, Hůrka, Ostřice stream in Hůrka, 12 Jul 2005, LD;
- 38 – 48°45'28" N, 14°00'51" E, 7250, Blížší Lhota, Lipno Reservoir in Blížší Lhota near a ferry, 26 Jul 2005, LB;

39 – 48°45'36" N, 14°01'18" E, 7250, Horní Planá, Lipno Reservoir near a ferry, 26 Jul 2005, LB;
40 – 48°46'56" N, 14°06'42" E, 7250, Olšina, south-eastern part of the Olšina pond, 30 Oct 2005, LB;
41 – 48°46'59" N, 14°08'13" E, 7250, Květušín, small pond in Květušín, 30 Oct 2005, LB;
42 – 48°46'44" N, 13°58'38" E, 7249, Hory, Lipno Reservoir in Hory, 28 Jul 2005, LB;
43 – 48°46'44" N, 13°55'08" E, 7249, Nová Pec, Schwarzenberský Kanál canal near Raškov (845 m a.s.l.), 21 Jul 2006, LB;
44 – 48°47'24" N, 13°57'01" E, 7249, Nová Pec, brook along the road Nová Pec – Bližší Lhota near the railway, 21 Jul 2006, LB;
45 – 48°47'12" N, 13°57'29" E, 7249, Nová Pec, small pond in the southern part of Nová Pec along the road, 21 Jul 2006, LB;
46 – 48°45'56" N, 13°58'05" E, 7249, Nová Pec, ditch along the road Nová Pec – Bližší Lhota, 21 Jul 2006, LB;
47 – 48°47'36" N, 13°57'04" E, 7249, Nová Pec, Lipno Reservoir in Nová Pec near the road, 28 Jul 2005, LB.

LIST OF RECORDED SPECIES

The classification follows BERAN (2002); other characteristics listed are: zoogeographical distribution, category in the Red Data book: LC – Least Concern, NT – Near Threatened, VU – Vulnerable, EN – Endangered, CR – Critically Endangered, NE – Not Evaluated [categories (in parenthesis) were adopted from BERAN (2002) and from BERAN et al. (2005)] and affinity to the prevailing biotopes (after BERAN 2002). Records of several species from the Lipno Reservoir published by BERAN (2005) without precise location are not included in comments to individual species.

For list of localities for each species see Table 1.

Gastropoda

Valvatidae

Valvata piscinalis (O.F. Müller, 1774) – Palaearctic; NT (LC); slowly flowing waters. First records for the Šumava NP and PLA which were documented in several individuals only from two sites (bay of the Lipno Reservoir, tributary to ponds) near Hůrka. These findings are records with the highest altitude (725 m a.s.l.) in the Czech Republic – the highest altitude mentioned in BERAN (2002) is only 460 m. In Southern Bohemia the occurrence of this snail was known only from the Lužnice River basin.

Acroloxidae

Acroloxus lacustris (Linnaeus, 1758) – Palaearctic; LC; standing and slowly flowing waters. In our study area occasionally found in the Lipno Reservoir and several ponds. First records for the Šumava NP and PLA. These findings (loc. 24, 25) are records with the highest altitude (780 m a.s.l.) in the Czech Republic – the highest altitude mentioned in BERAN (2002) is 671 m.

Lymnaeidae

Galba truncatula (O.F. Müller, 1774) – Holarctic; LC; common snail of banks of standing and/or flowing waters or temporary stagnant marshes, which is relatively common also in the studied area (banks of the Lipno Reservoir, marshes).

Stagnicola corvus (Gmelin, 1791) – Palaearctic; LC; standing waters – pools, ponds. This snail was often found in the Lipno Reservoir and in several neighbouring ponds. These records are first for the Šumava NP and PLA, as well as with the highest altitude (725 m a.s.l.) in the Czech Republic – the highest altitude mentioned in BERAN (2002) is 671 m.

Radix auricularia (Linnaeus, 1758) – Palaearctic; LC; large standing waters and slowly flowing watercourses. Common snail of the studied area which inhabits mainly the Lipno

Reservoir and also ponds.

Radix peregra (O.F. Müller, 1774) s.str. – Palaearctic; LC; in springs, rivulets, flowing and standing waters. Commonly recorded in the study area.

Radix ovata (Draparnaud, 1805) – Palaearctic; NT (LC); flowing and standing waters with elevated nutrient level. The finding of this snail in the Olšina pond (735 m a.s.l.) is the record with the highest altitude in the Czech Republic; however, the taxonomic status of these specimens is not clear. One of the most common snails of the Lipno Reservoir. This taxon was recorded from the study area by BRABENEČ (1969).

Radix ampla (Hartmann, 1821) – Palaearctic; NT; larger flowing waters usually with elevated nutrient level. This taxon was recorded from two sites. Taxonomic status of the specimens is not clear.

Lymnaea stagnalis (Linnaeus, 1758) – Holarctic; LC; slowly flowing watercourses, ponds, oxbow lakes and pools. In the study area it was found in the Lipno Reservoir and several ponds.

Physidae

Physa fontinalis (Linnaeus, 1758) – Holarctic; NT; oxbow lakes and pools overgrown by vegetation, ponds and slowly flowing watercourses. In the study area it was found only at several sites of the Lipno Reservoir.

Planorbidae

Anisus leucostoma (Millet, 1813) – European-West Siberian; LC; marshes, predominantly temporal waters. Relatively common species in the study area.

Bathyomphalus contortus (Linnaeus, 1758) – Palaearctic; LC; slowly flowing watercourses, ponds, oxbow lakes, pools and marshes. In the study area it was recorded mostly in the Lipno Reservoir. First records for the Šumava NP and PLA. The highest situated finding of this species from the Czech Republic originates from the Křišťanovický Rybník pond ca. 25 km NNE of the Lipno Reservoir (788 m a.s.l., LD, own data).

Gyraulus albus (O.F. Müller, 1774) – Palaearctic; LC; ponds, oxbow lakes and pools, slowly flowing watercourses.

Gyraulus parvus (Say, 1817) – non-native species; NE; stagnant water bodies. This snail is an invasive non-native species which has been found at an increasing number of sites on the territory of the Czech Republic, since 1998 when it was found for the first time (recognised as *G. parvus* later) (BERAN & HORSÁK 2002). First record for the Šumava NP and PLA and, moreover, first record from Southern Bohemia. The finding in the Olšina pond is the record with the highest altitude (735 m a.s.l.) in the Czech Republic.

Gyraulus crista (Linnaeus, 1758) – Holarctic; LC; ponds, oxbow lakes and pools, slowly flowing watercourses. Common snail, occurring also in polluted waters, which was found in the Lipno Reservoir and several ponds. Firstly published from the Šumava PLA by HLAVÁČ (1998).

Hippeutis complanatus (Linnaeus, 1758) – Palaearctic; LC; oxbow lakes and pools. This species was often found in the Lipno Reservoir and ponds, but only several specimens per population.

Planorbarius corneus (Linnaeus, 1758) – European-West Siberian; LC; oxbow lakes, pools, ponds and slowly flowing watercourses. The Lipno Reservoir and ponds are the most common habitats of this species.

Menetus dilatatus (Gould, 1841) – non-native; NE; rivers, canals, sandpits, water reservoirs. This snail was found in July 2005 in the Lipno Reservoir and these surprising findings were published by BERAN (2005). This non-native snail was found only in the Lipno Reser-

Table 1. Occurrence of molluscs species at each locality.

Species	Locality No.																									
	1	2	3	4	5	6	7a	7b	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
<i>Valvata piscinalis</i>																										
<i>Acroloxus lacustris</i>				x																	x					
<i>Galba truncatula</i>		x					x						x			x				x		x	x			x
<i>Stagnicola corvus</i>							x									x			x		x	x				
<i>Radix auricularia</i>		x		x		x	x	x								x			x		x	x	x			x
<i>Radix peregra</i> s.str.			x	x	x	x	x	x			x								x		x	x				
<i>Radix ovata</i>																										
<i>Radix ampla</i>		x		x																						
<i>Lymnaea stagnalis</i>						x	x	x											x		x				x	x
<i>Physa fontinalis</i>						x	x	x											x							
<i>Anisus leucostoma</i>						x	x	x											x		x					
<i>Bathyphthalus contortus</i>				x		x	x	x																		
<i>Gyraulus albus</i>				x		x	x	x			x								x		x					x
<i>Gyraulus parvus</i>																										
<i>Gyraulus crista</i>						x	x												x		x	x				
<i>Hippetitis complanatus</i>							x	x											x		x					x
<i>Planorbarius corneus</i>																			x							x
<i>Menetus dilatatus</i>						x	x	x											x		x					
<i>Ancylus fluviatilis</i>				x																						
<i>Anodonta anatina</i>																										
<i>Sphaerium corneum</i> s.str.																										
<i>Musculium lacustre</i>																										
<i>Pisidium milium</i>				x																						
<i>Pisidium subtruncatum</i>				x																						
<i>Pisidium nitidum</i>				x		x																				
<i>Pisidium obtusale</i>																										
<i>Pisidium personatum</i>																										
<i>Pisidium casertanum</i>	x			x				x	x	x		x	x	x	x	x										x
Total	1	4	3	11	10	11	14	12	3	3	2	1	3	3	3	12	5	8	10	7	7	7	1	1	5	5

Table 1. Continued.

Species	Locality No.																									
	26	27	28a	28b	29	30a	30b	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47		
<i>Vahvata piscinalis</i>							x						x												2	
<i>Acroloxus lacustris</i>			x		x		x										x								9	
<i>Galba truncatula</i>						x									x								x		10	
<i>Stagnicola corvus</i>	x	x	x	x	x	x	x	x	x	x	x				x										19	
<i>Radix auricularia</i>	x	x	x	x	x	x	x	x	x	x	x				x										27	
<i>Radix peregra</i> s.str.																									19	
<i>Radix ovata</i>	x		x	x	x	x	x	x	x	x					x										25	
<i>Radix ampla</i>																									2	
<i>Lymnaea stagnalis</i>	x		x	x	x	x	x	x	x	x	x				x										22	
<i>Physa fontinalis</i>																									5	
<i>Anisus leucostoma</i>	x				x		x								x										16	
<i>Bathyomphalus contortus</i>	x		x		x				x						x										17	
<i>Gyraulus albus</i>	x	x	x	x	x		x	x	x	x	x				x										29	
<i>Gyraulus parvus</i>																									1	
<i>Gyraulus crista</i>	x				x			x							x										17	
<i>Hippenitis complanatus</i>		x	x	x	x	x			x		x	x			x										18	
<i>Planorbis cornuus</i>	x		x	x	x	x	x	x	x	x	x														13	
<i>Menetus dilatatus</i>	x		x	x	x		x																		14	
<i>Ancylus fluviatilis</i>																									4	
<i>Anodonta anatina</i>								x																	2	
<i>Sphaerium corneum</i> s.str.																									1	
<i>Muscidium lacustre</i>																									8	
<i>Pisidium milium</i>	x				x	x	x								x										1	
<i>Pisidium subtruncatum</i>																									2	
<i>Pisidium nitidum</i>	x														x										5	
<i>Pisidium obtusale</i>	x																								1	
<i>Pisidium personatum</i>																									4	
<i>Pisidium casertanum</i>																									17	
Total	13	3	9	9	13	5	10	7	8	5	7	3	6	3	11	10	11	2	10	1	2	3	3	6		

voir where it mostly occurred on stones.

Ancylus fluviatilis O. F. Müller, 1774 – European; LC; flowing waters where it is mainly found on stones. In 2005 and 2006 the authors found it only at 4 sites. *A. fluviatilis* has been shown to be a diverse species complex in Europe (PFENNINGER et al. 2003). The exact taxonomic position of local populations is not clear.

Bivalvia

Unionidae

Anodonta anatina (Linnaeus, 1758) – Eurosiberian; LC; brooks, rivers, channels, oxbow lakes and pools, sandpits, ponds and other reservoirs. In contrast to the previous research, it was found at two sites only. This is caused by the fact is that the previous study of the Lipno Reservoir was largely conducted by L. Dvořák in November 2003 when the water level was 3.5 m lower below the reservoir maximum.

Sphaeriidae

Sphaerium corneum (Linnaeus, 1758) s.str. – Palaearctic; LC; nutrient-rich flowing waters, channels, oxbow lakes, pools, ponds. In 2005–2006 it was found only at a single site.

Musculium lacustre (O.F. Müller, 1774) – Holarctic; NT; slowly flowing watercourses, but predominantly oxbow lakes, pools and ponds. Scattered occurrence was recorded in 2005 and 2006.

Pisidium milium Held, 1836 – Holarctic; VU (NT); slowly flowing watercourses, oxbow lakes, pools, ponds. This bivalve was found at a single site in the Lipno Reservoir.

Pisidium subtruncatum Malm, 1855 – Holarctic; LC; flowing watercourses, oxbow lakes, pools. Common species, which was recorded also from the Lipno Reservoir.

Pisidium nitidum (Jenyns, 1832) – Holarctic; LC; flowing watercourses, rarely larger standing waters. First records for the Šumava NP and PLA, though this species belongs among the most common bivalves.

Pisidium obtusale (Lamarck, 1818) – Holarctic; LC; small standing waters and marshes. The second record from the Šumava NP and PLA; the first data were published by LOŽEK (1967).

Pisidium personatum Malm, 1855 – Eurosiberian; LC; predominantly cold small standing waters, springs and rivulets, small watercourses, water reservoirs and ponds. In the study area it was recorded from springs and some small brooks.

Pisidium casertanum (Poli, 1791) – cosmopolitan; LC; different types of aquatic biotopes from springs to large rivers. In the study area it inhabits mostly springs and small brooks.

DISCUSSION AND CONCLUSIONS

28 species of aquatic mollusc (19 gastropods, 9 bivalves) have been found during the additional research of the Lipno Reservoir and its surroundings in 2005 and 2006. Altogether eight gastropods (*Valvata piscinalis*, *Acroloxus lacustris*, *Stagnicola corvus*, *Radix ampla*, *Bathyomphalus contortus*, *Gyraulus parvus*, *Hippeutis complanatus*, *Menetus dilatatus*) and one bivalve (*Pisidium nitidum*) were found in the Šumava National Park and Protected Landscape Arae for the first time (cf. DVOŘÁK & BERAN 2004). This significant increase in the recorded species diversity was caused by inclusion of additional habitats. The previous sampling of molluscs in the Lipno Reservoir by L. Dvořák was conducted in November 2003 when the water level was 3.5 m below the maximum (DVOŘÁK & BERAN 2004), and such conditions were not favourable for sampling of gastropods living on stones or in the vegeta-

tion.

Altogether 35 species (45% of all known species of aquatic molluscs occurring in the Czech Republic) were found in this area during the last 100 years. The richest studied site is by far the Lipno Reservoir where 26 species (16 gastropods, 10 bivalves) were documented. This is relatively high number for a single water body when compared with other studies focusing on aquatic molluscs in dam reservoirs, e.g. STRZELEC et al. (2005) who found no more than 20 species in the reservoirs in Upper Silesia or JURKIEWICZ-KARNKOWSKA (2002) who found 21 species with dominance of *Dreissena polymorpha* (Pallas, 1771) in the Suljów dam reservoir in central Poland.

For a number of mollusc species, the Lipno Reservoir is the locality with the highest altitude of occurrence in the Czech Republic. Together with our previous research (DVOŘÁK & BERAN 2004), the highest altitude was documented for 20 species in the studied area, six of these are new records from the present study. The main reason for this phenomenon is that a large water reservoir improves environmental conditions for populations of aquatic molluscs.

Records of two non-native species *Gyraulus parvus* and *Menetus dilatatus*, are remarkable from the distributional point of view. The finding of *Menetus dilatatus* so distant from previously known sites was surprising that was published separately (BERAN 2005). Records of *Bathyomphalus contortus* and *Valvata piscinalis* are also valuable with respect to South Bohemian malacofauna (see comments in the list of recorded species).

According to the Red List of aquatic molluscs of the Czech Republic, most of the recorded species (79%) belong to the category Least Concern or Not Evaluated; the remaining species are classified as Near Threatened or Vulnerable. This represents a significant decrease in the proportion of endangered species in comparison with our previous research (DVOŘÁK & BERAN 2004). However, it is understandable, as the research in 2005–2006 focused mostly on gastropods, which are more common and therefore less endangered in comparison with bivalves such as *Margaritifera margaritifera*, *Unio tumidus* or *Anodonta cygnea*.

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