

Molluscs in the Tigouleix area in the Creuse department (23), Limousin region in France; First records of *Semilimax pyrenaicus* (A. Férussac, 1821) and *Vertigo substriata* (Jeffreys, 1833)

Mollusques du secteur de Tigouleix dans le département de la Creuse (23), région du Limousin en France ; premiers signalements de *Semilimax pyrenaicus* (A. Férussac, 1821) et *Vertigo substriata* (Jeffreys, 1833)

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Résumé : En septembre et octobre 2019, une étude a été menée sur la présence des mollusques dans une zone de 25 km² entourant le Centre de Nature de Tigouleix, dans le département de la Creuse. Dans les 14 sites inventoriés, 38 espèces ont été enregistrées. Une espèce n'a été trouvée qu'en dehors de la zone de 25 km² mais toutefois dans la Creuse. Les découvertes de *Semilimax pyrenaicus* (A. Férussac, 1821) et de *Vertigo substriata* (Jeffreys, 1833) sont des premières mentions pour le département de la Creuse.

Mots clés : Tigouleix, Creuse, Mollusca, Gastropoda, Bivalvia, *Semilimax*, *Vertigo substriata*

Abstract: 38 mollusc species were found in the department Creuse when 14 plots in a square area of 25 km² around nature center Tigouleix were investigated in September and October 2019. One species was found only outside these plots but in Creuse as well. The findings of *Semilimax pyrenaicus* (A. Férussac, 1821) and *Vertigo substriata* (Jeffreys, 1833) are the first records for the Creuse department.

Keywords: Tigouleix, Creuse, Mollusca, Gastropoda, Bivalvia, *Semilimax*, *Vertigo substriata*

Introduction

Since 1996, Rob Veen and Claire Heisteeg have set up a nature center in Tigouleix (municipality Saint-Agnant-près-Crocq), in the Combrailles in the Creuse department (23), Limousin region in France. In partnership with "Creuse Grand Sud", they are involved in the project "Creuse Amont". This project aims to restore and preserve natural water cycles to keep water supplies available and prevent flooding, both locally and downstream. Solidarity between different interest groups is sought with regard to the use of natural resources, waste water discharge and respect for ecosystems (contrat territorial bassin de la Creuse et ses affluents (2018 – 2022) (Cauchy 2019).

The Creuse has been depopulated in the last decades, which mainly had an effect on the return of forests. Much is published on the flora and fauna of the Limousin region (Société Limousine d'Étude des Mollusques 2019, GMHL 2000). On the website of the Inventaire National du Patrimoine Naturel (Gargominy 2019), distribution data for molluscs for the south east of the Creuse department, however, are limited. On the website of the 'collectif Faune-Limousine', which also includes the "Société Limousine d'Étude des Mollusques" (Société Limousine d'Étude des Mollusques 2019), incidental observations have been recorded as well.

Some observations are known from activities of the nature center Tigouleix. Records of *Radix auricularia* (Linnaeus, 1758) in Fontanières (66.1230° - 65.56139°) and Roche d'en Haut (66.4932° - 65.59516°) (Évaux-les-Bains) were confirmed in 2017 (P. Duboc and R. Veen personal communication). *Margaritifera margaritifera* (Linnaeus, 1758) has been found in the stream La Méouzette (R. Veen

personal communication), a species known from more places in Creuse as well (Marchal 2014).

According to the distribution maps in Welter-Schultes (2012), Prié (2017) and the website of the Inventaire National du Patrimoine Naturel (Gargominy 2019), more species could be expected in this part of Creuse. The study described here is aimed at starting a species list for the Tigouleix area.

Methods

Between September, 27 and October 5, 2019, molluscs were searched within 14 plots in a 5 x 5 square kilometer area around nature center Tigouleix (Figures 1-5), corresponding to the study site of the Tigouleix. Plots were selected in order to find as many species as possible, sampling a variety of habitats, and including five reference areas that are involved in the project "Creuse Amont" as well (Appendix 1). Depending on the success, 30 minutes to 2 hours were spent collecting on each plot. At one location (20191003.2), about 6 l of leaf litter were sieved with a 12 mm mesh width. After drying, this sample was carefully examined for mollusc species.

The nomenclature used follows the Inventaire National du Patrimoine Naturel (Gargominy 2019). French names are given in Table 1. Collected shells and alcohol samples are kept in the collection of the author.

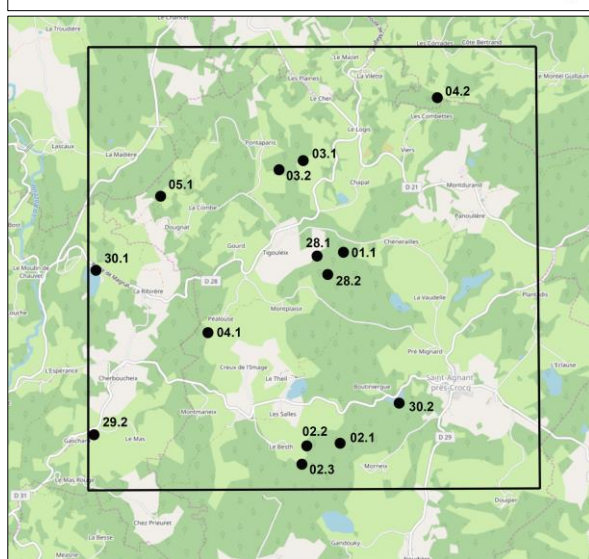


Figure 1: Location of the 14 plots in the research area in the Tigouleix region. Numbers correspond to the last numerals of numbers in appendix 1.



Figure 2 : Reservoir east of Boutinièrgue (20190930.2). (© Ingrid Margry-Moonen)



Figure 3 : Stream southeast of Le Besth (20191002.3). (© Ingrid Margry-Moonen)



Figure 4 : Stream valley, north of Les Combelles (20191004.2), with the author on the plot. (© Ingrid Margry-Moonen)



Figure 5 : Alder swamp forest in La Combe (20191005.1), plot where *Vertigo substriata* was found. (© Kees Margry)

Results

Table 1 provide a list of species for each locality. For locality 20191003.2, the species found in the leaf litter are given in a separate column. In total, 38 species were recorded (Figures 6 - 11). *Punctum pygmaeum* (Draparnaud, 1801) was only found in the sieved leaf litter, together with a high abundance of *Acanthinula aculeata* (O.F. Müller, 1774) (49 specimens).

The identification of *Arion subfuscus* (Draparnaud, 1805) was confirmed by dissection (Figure 9). The hermaphroditic gland was large and pale as described and depicted in Pinceel *et al.* (2004).

Table 1 : List of mollusc species, found in the Tigouleix area. From left to right 14 plots in the square area from 25 km². In the column 3.2* the results of the floor litter are given.

		14 plots in the 5x5 km2 area														
Species	Plots	French name														
			28.1	28.2	29.2	30.1	30.2	01.1	02.1	02.2	02.3	03.1	03.2	03.2*	04.1	04.2
<i>Acanthinula aculeata</i> (O.F. Müller 1774)	Escargotin hérisson	X	X									X		X		
<i>Aegopinella nitidula</i> (Draparnaud, 1805)	Grande luisantine	X			X		X					X	X			X
<i>Ancylus fluviatilis</i> O.F. Müller, 1774	Patelline des fleuves	X			X					X					X	
<i>Anodonta cygnea</i> (Linnaeus, 1758)	Anodonte des étangs					X										
<i>Arion fasciatus</i> (Nilsson, 1823)	Loche grisâtre	X	X				X									X
<i>Arion intermedius</i> Normand, 1852	Loche hérisson	X	X												X	
<i>Arion subfuscus</i> (Draparnaud, 1805)	Loche roussâtre	X						X							X	X
<i>Arion vulgaris</i> Moquin-Tandon, 1855	Loche méridionale			X												
<i>Carychium minimum</i> O.F. Müller, 1774	Auriculette naine									X						X
<i>Cepaea nemoralis nemoralis</i> (Linnaeus, 1758)	Escargot des haies	X	X		X		X				X				X	X
<i>Clausilia bidentata</i> (Strøm, 1765)	Clausilie commune	X	X		X		X	X	X		X	X	X	X		X
<i>Cochlicopa lubrica</i> (O.F. Müller, 1774)	Brillante commune				X										X	X
<i>Deroceras laeve</i> (O.F. Müller, 1774)	Loche des marais									X						
<i>Deroceras reticulatum</i> (O.F. Müller, 1774)	Loche laiteuse														X	
<i>Discus rotundatus</i> (O.F. Müller, 1774)	Bouton commun	X	X		X		X	X	X		X	X	X	X		X
<i>Euglesa casertana</i> (Poli, 1791)	Pisidie robuste	X					X			X					X	X
<i>Euglesa subtruncata</i> (Malm, 1855)	Pisidie chiendent	X					X								X	X
<i>Ferrissia californica</i> (Rowell, 1863)	Patelline fragile									X						
<i>Galba truncatula</i> (O.F. Müller, 1774)	Limnée épaulée				X										X	X
<i>Gyraulus albus</i> (O.F. Müller, 1774)	Planorbine poilue					X										
<i>Gyraulus crista</i> (Linnaeus, 1758)	Planorbine à crêtes					X										
<i>Helix pomatia</i> Linnaeus, 1758	Escargot de Bourgogne					X										
<i>Lehmannia marginata</i> (O.F. Müller, 1774)	Limace des bois	X														
<i>Merdigera obscura</i> (O.F. Müller, 1774)	Bulime boueux		X		X											X
<i>Nesovitrea hammonis</i> (Strøm, 1765)	Luisantine striée	X													X	X
<i>Oxychilus cellarius</i> (O.F. Müller, 1774)	Luisant des caves		X													
<i>Phenacolimax major</i> (A. Férussac, 1807)	Semilimace des plaines		X		X				X		X					X
<i>Punctum pygmaeum</i> (Draparnaud, 1801)	Escargotin minuscule												X			
<i>Semilimax pyrenaicus</i> (A. Férussac, 1821)	Semilimace atlantique		X								X	X	X			
<i>Sphaerium corneum</i> (Linnaeus, 1758)	Cyclade commune						X									
<i>Sphaerium lacustre</i> (O.F. Müller, 1774)	Cyclade de vase	X					X									
<i>Stagnicola cf. palustris</i> (O.F. Müller, 1774)	Limnée des étangs				X										X	
<i>Succinea putris</i> (Linnaeus, 1758)	Ambrette amphibie									X					X	X
<i>Vertigo antivertigo</i> (Draparnaud, 1801)	Vertigo des marais									X						X
<i>Vertigo pygmaea</i> (Draparnaud, 1801)	Vertigo commun									X						
<i>Vertigo substriata</i> (Jeffreys, 1833)	Vertigo strié															X
<i>Vitrea crystallina</i> (O.F. Müller, 1774)	Cristalline commune	X				X				X	X			X	X	
<i>Zonitoides nitidus</i> (O.F. Müller, 1774)	Luisantine des marais				X										X	X
		15	10	1	11	5	9	3	3	9	7	4	6	13	8	14



Figure 6 : *Deroceras laeve* (O.F. Müller, 1774). (© Ingrid Margry-Moonen)



Figure 7 : *Phenacolimax major* (A. Férussac, 1807). (© Ingrid Margry-Moonen)



Figure 8 : *Deroceras reticulatum* (O.F. Müller, 1774). (© Ingrid Margry-Moonen)



Figure 9 : *Arion subfuscus* (Draparnaud, 1805). (© Ingrid Margry-Moonen)

Discussion

Most species were found in low abundance. The investigation period fell after a very dry summer. The water level in lakes was low, most streams had fallen dry. On the dry soil, only the litter layer was wet from recent rain showers.

The record of *Semilimax pyrenaicus* (A. Férussac, 1821) (Figure 10) is a first mention for Creuse. An overview of the distribution of *Semilimax pyrenaicus* shows that the species was found in four of the five surrounding departments (Bertrand 2018), so its presence was expected. A subadult empty shell of *Vertigo substriata* (Jeffreys, 1833) (Figure 11) is a first record for Creuse as well. In France, this rare species is known from departments in the northwest (Finistère, Côtes-d'Armor, Morbihan, Manche, Seine-Maritime, Val d'Oise, Pas-de-Calais, Nord, Mayenne), the northeast (Vosges, Moselle, Bas-Rhin), the south (Aude, Pyrénées-Orientales, Ariège, Hautes-Pyrénées) and the center (Puy-de-Dôme, Loire, Haute-Loire, Lozère, Corrèze) (Prié 2005, Noël 2016, Gargominy 2017, Cucherat & Léonard 2019, Société Limousine d'Etude des Mollusques 2019, Esnault 2019). The presence of this species in Creuse is in line with earlier records in the departments Corrèze, Puy-de-Dôme, Haute-Loire, Loire and Lozère. The plot in the alder swamp forest in La Combe (Figure 5) fits in with the description of the characteristic habitat as described in Esnault (2019).



Figure 10 : *Semilimax pyrenaicus* (A. Férussac, 1821). (© Ingrid Margry-Moonen).

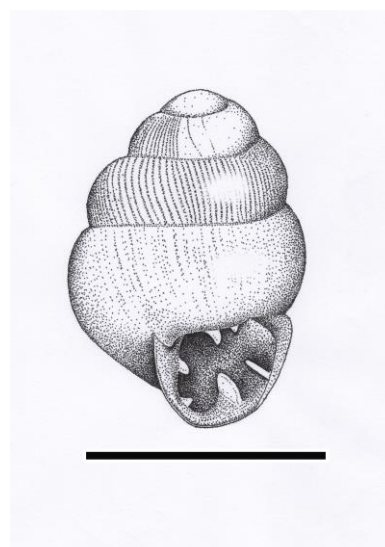


Figure 11 : *Vertigo substriata* (Jeffreys, 1833) from La Combe. Scale bar 1 mm. (drawing © Kees Margry)

Hygromia cinctella (Draparnaud, 1801) was found in a dry part of the river Le Cher, close to Le Péget (664390°-6554797°), so outside the research area but in Creuse as well.

Some species were expected but not found. *Cornu aspersum* (O.F. Müller, 1774) is known from Tigouleix and regularly observed (R. Veen personal communication). Because *Margaritifera margaritifera* was not observed on any plot within the square research area, a search was made in Meouzette, further south. At La Nouaillé (651476°-6515955°, alt. 749 m.a.s.l.) and Saint-Merd-la-Breuille (654628°-6514429°, alt. 744 m.a.s.l.), however, the water in the stream turned out to be so turbid that the bottom was invisible. It is advisable to monitor the water quality and the presence of *M. margaritifera*.

Forests and the landscape elements around Tigouleix offer good opportunities for molluscs. It is worthwhile to set up further research on the occurrence of mollusc species with special attention to the presence of *Semilimax pyrenaicus* and *Vertigo substriata*.

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About the Authors :

Kees Margry is a retired biologist and was a teacher at Helicon Secondary Vocational Education with courses for environmental and nature research. As independent researcher his malacological interest is mainly focused on Vitrinidae.

Appendix 1 : The investigated 14 plots in the square area from 25 km² in Creuse. Coordinates are given in Lambert 93. In case the plots are reference areas for the “Creuse Amont”, this is indicated in the last column.

Sample	X	Y	Description	Altitude (m)	Locality	Creuse Amont
20190928.1	648024	6524235	brook valley in Alder forest	725	Tigouleix	X
20190928.2	648139	6524055	mixex forest	750	Tigouleix	
20190929.2	645549	6522328	meadow and brook	672	Le Gaschard	X
20190930.1	645583	6524134	concrete drainage channel from reservoir	648	La Ribi�re / Solignat	
20190930.2	648941	6522614	muddy shore of lake	755	Boutini�rgue	
20191001.1	648327	6524261	brook valley with dry brook	737	Tigouleix	
20191002.1	648279	6522134	beech forest	800	Puy Bruger	
20191002.2	647897	6522110	mixed forest	755	Puy Bruger	
20191002.3	647834	6521925	brook between meadow and forest	743	Le Besth	
20191003.1	647887	6525289	brook valley in old beech forest	687	Pintaparis	X
20191003.2	647641	6525213	mixed forest	699	Pintaparis	
20191004.1	646766	6523362	extensively managed peat moor	687	P�alouse	X
20191004.2	649394	6525965	brook valley in alder forest	693	Les Combelles	X
20191005.1	646313	6524927	brook valley and swamp with alder and poplar	689	La Combe	