FRAGMENTA FAUNISTICA 53 (2): 117–125, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Poland's urban areas. Preface

Joanna MAZGAJSKA and Tomasz D. MAZGAJSKI

Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00–679 Warszawa, Poland; e-mail: jmazgajska@miiz.waw.pl, mazgaj@miiz.waw.pl

Abstract: For many reasons urban environment cannot affect positively on amphibian fauna, thus the most of amphibian species decrease in their abundance, become endangered or simply extinct in such areas. Scattered, inconsistent, sometimes simply not available data on amphibian fauna in towns do not facilitate action to protect the species. Therefore the collecting and compiling of the studies on amphibian fauna of different towns of Poland is important for the further research to reveal general rules in changes connected with urbanization. In sum, in 9 Polish towns 13 amphibian species plus one natural hybrid – the edible frog *Rana* kl. *esculenta* Linnaeus, 1758 were recorded. Eight to thirteen taxa were found in a town and it may be assumed that lack of other species occurring in Poland is connected only with their limited ranges. The current knowledge presented in the collected articles can become the starting point for the further studies on amphibian occurrence in urban environment and for appropriate protective measures in towns.

Key words: Amphibia, anthropopressure, urbanization, urban fauna, habitat changes, frog, toad, newt

FRAGMENTA FAUNISTICA 53 (2): 127–137, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Gniezno

Wacław ADAMIAK

”Milenium” College of Humanities and Management of Gniezno,
ul. Pstrowskiego 3a, 62–200 Gniezno, Poland; e-mail: waclaw.adamiak@autograf.pl

Abstract: From 2005 to 2007 the water bodies in the area of Gniezno have been controlled to establish amphibian species composition and their number. Thirty four of water bodies were under observation. In 23 among them (67.6%) the following species of amphibians were present: common frog *Rana temporaria*, moor frog *Rana arvalis*, “water frogs” *Rana esculenta* complex, common spadefoot, fire-bellied toad *Bombina bombina*, common toad *Bufo bufo*; green toad *Bufo viridis*; and smooth newt *Triturus vulgaris*. “Water frogs” and common frog formed the largest populations. Great crested newt *Triturus cristatus,* natterjack toad *Bufo calamita,* and tree frog *Hyla arborea* were not observed.

Key words: amphibians, urban habitat, Wielkopolska

FRAGMENTA FAUNISTICA 53 (2): 139–149, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Oława

Tomasz MAJTYKA

Laboratory of Biology and Conservation of Vertebrates, Institute of Zoology, University of Wrocław, ul. Sienkiewicza 21, 50–335 Wrocław, Poland; e-mail: tapirus@op.pl

Abstract: Observations were conducted of 28 water bodies from 2006 to 2009 in Oława, a mid-sized town (of about 31,000 residents) in southwestern Poland. 13 amphibian taxa were confirmed. These same taxa were also confirmed in the surrounding areas of the town. Twice as many amphibian species were found in areas affected to a lesser degree by urbanization than in heavily urbanized areas. Two groups of amphibians were distinguished, depending on their tolerance of urbanization at breeding ponds and surroundings: 1) species preferring only natural terrain or areas close to being natural – *Bombina bombina*, *Pelobates fuscus* and *Rana arvalis*; 2) taxa breeding in both natural areas as well as those under the pressure of urbanization – *Triturus cristatus*, *Triturus vulgaris*, *Bufo bufo*, *Bufo viridis*, *Hyla arborea*, *Rana esculenta* complex and *Rana temporaria*.

Key words: anthropogenic pressure, ecology, Poland, urbanization

Fragmenta Faunistica 53 (2): 151–162, 2010
PL ISSN 0015-9301© Museum and Institute of Zoology PAS

Amphibians of Słupsk

Tomasz Hetmański* and Anna Jarosiewicz**

* *Department of Zoology, Pomeranian University, Arciszewskiego 22b, 76–200 Słupsk, Poland; e-mail: t.hetmansk@onet.eu*
** *Department of Ecology, Pomeranian University, Arciszewskiego 22b, 76–200 Słupsk, Poland; e-mail: jarosiewicza@poczta.onet.pl*

Abstract: The study on the occurrence of amphibians in the city of Słupsk (NW Poland) was conducted during their breeding season in 40 water bodies located in a built-up area, at a forest edge, and in a ruderal area of the city. Breeding amphibians were recorded from 27 water bodies, or 67.5% of them. The number of amphibian species varied between 0 and 7, with an average of 2.2, depending on the location and the degree of modification of the water bodies. The average number of breeding species was 1.2 in the built-up area, 2.8 at the forest edge, and 2.3 in the ruderal areas. Breeding amphibians avoided human-modified water bodies, where only 0.6 species were noted as compared with 2.6 species in natural ones. In total, 9 species of amphibians were recorded from Słupsk. The most frequently observed were the common frog and the common toad, less frequently green frogs, the smooth newt, and the moor frog. Infrequently occurred: the common spadefoot, the natterjack toad the fire-bellied toad.

Key words: amphibians, urban ecology, habitat changes

FRAGMENTA FAUNISTICA 53 (2): 163–179, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Wałbrzych

Agnieszka TOMALKA-SADOWNIK* and Beata ROZENBLUT-KOŚCISTY**

** Department of Vertebrate Zoology and Paleontology, Institute of Biology, Wrocław University of Environmental and Life Sciences, Kożuchowska 5b, 51–631 Wrocław, Poland; e-mail: agatomalka@onet.eu*
*** Department of Biology and Conservation of Vertebrates, Institute of Zoology, University of Wrocław, Sienkiewicza 21, 50–335 Wrocław, Poland; e-mail: brozenblut@biol.uni.wroc.pl*

Abstract: In the city of Wałbrzych 67 water bodies (about 95% of all Wałbrzych ponds) were investigated. Among them, 58 water bodies (86.57%) are of anthropogenic origin. In the studied area 9 amphibian species were recorded: *Rana temporaria* (present in 44.78% of studied water bodies), *Bufo bufo* (44.78%), *Triturus vulgaris* (17.91%), *Trirutus alpestris* (16.62%), water frogs of the *Rana esculenta* complex (*Rana lessonae* and *Rana* kl. *esculenta*, 10.45% altogether), *Bufo viridis* (10.45%), *Bufo calamita* (4.48%) and *Triturus cristatus* (4.48%). Amphibians were present in 48 ponds (71.64% of studied water bodies). Maximum number of species (six) was recorded in only 1 water body; minimum number of species (1) was recorded in 19 ponds. Surprisingly, the maximum number of species occurred in the pond located within dense urban area. One bank of this pond was a vertical brick wall and there is not much vegetation in the pond. In industrial areas of Wałbrzych presence of only 5 amphibian species was noted, however on 7 sites there were no amphibians at all. Similar low number of amphibian species (five) was also noted in mini-ponds in the allotments.

Key words: urbanization, amphibians, Wałbrzych

FRAGMENTA FAUNISTICA 53 (2): 181–194, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

The occurrence of amphibians in Zielona Góra in 2005–2008

Bartłomiej NAJBAR

Institute of Civil and Environmental Engineering, University of Zielona Góra, Prof. Z. Szafrana 15, 65–516 Zielona Góra, Poland; e-mail: B.Najbar@iis.uz.zgora.pl

Abstract: During the period of 2005 to 2008, a study was conducted of amphibians at 25 ponds within the administrative boundaries of Zielona Góra (western Poland) – an agglomeration of 58.32 km^2 with a population of 118,000 residents. The ponds chosen for the study were varied by size, location, type of surroundings and origin. A total of 11 species of amphibians were confirmed in the study sites, whereas 14 species can be found in Zielona Góra's environs. The common toad *Bufo bufo* was the most common species found, while the marsh frog *Rana ridibunda* was the rarest. Aqueous habitats for amphibians are decreasing, especially those with standing water and wetlands. This is mostly due to increasing infrastructure development, the filling of aquifers with land or using them as trash dumps, as well as their eutrophication and desiccation.

Key words: amphibians, Amphibia, western Poland, Zielona Góra, urban environment

FRAGMENTA FAUNISTICA 53 (2): 195–212, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Long term data on the amphibians of Wrocław

Maria OGIELSKA and Piotr KIERZKOWSKI

Laboratory of Biology and Conservation of Vertebrates, Institute of Zoology, University of Wrocław, ul. Sienkiewicza 21, 50–335 Wrocław, Poland;
e-mails: ogielska@biol.uni.wroc.pl; piotrk@biol.uni.wroc.pl

Abstract. The paper presents information about the amphibian species in Wrocław – frequency of their occurrence as well as number of individuals in water bodies. For the study 31 sites were selected. Only in two sites no amphibians were found. On the rest of the sites in total 11 amphibian taxons were present – *Triturus cristatus*, *Triturus vulgaris*, *Bombina bombina*, *Bufo bufo*, *Bufo viridis*, *Hyla arborea*, *Pelobates fuscus*, water frogs from the *Rana esculenta* complex (both a species *Rana lessonae* and a hybrid *Rana* kl. *esculenta*), *Rana temporaria* and *Rana arvalis*. The most numerous were water frogs (occurred on 90.3% of all sites), *Bufo bufo* (48.4% sites), *Bombina bombina* and *Rana temporaria* (both species on 45.2% sites). The rarest species were *Triturus cristatus* (16.1% sites) and *Pelobates fuscus* (9.7% sites). In Wrocław amphibians are the most abundant in ponds located within river valleys. There are 10 species there (on the average 4.44 species per pond), with *Bombina bombina* and water frogs being the most numerous. Second amphibian-friendly environment are sites within the city forests, having 8 species (on the average 5.22 species). Water frogs, *Rana temporaria* and *Rana arvalis* were most common here, and *Triturus cristatus* and *Triturus vulgaris* occurred mostly in this category. The lowest frequency was observed in the city center (on the average 0.66 species), with one site without any amphibians, and with only water frogs in the remaining two sites. After a pond reconstruction populations of *Triturus vulgaris* and *Bufo bufo* disappeared, and the number of *Bufo viridis* increased. For three sites the changes in amphibian species assemblages in consecutive years of observations are provided. In two sites the trend of maintaining the same species composition was observed, and on third site the composition changed due to the pond reconstruction (*T. vulgaris* and *B. bufo* substituted by *B. viridis*).

Key words: Urban habitat, urbanization, habitat changes

Fragmenta Faunistica 53 (2): 213–231, 2010
PL ISSN 0015-9301© Museum and Institute of Zoology PAS

Amphibian communities in small water bodies in the city of Olsztyn

Jacek J. Nowakowski, Andrzej Górski and Krzysztof Lewandowski

Department of Ecology & Environmental Protection, University of Warmia and Mazury in Olsztyn, Plac Łódzki 3, 10–727 Olsztyn, Poland; e-mail: jacek.nowakowski@uwm.edu.pl

Abstract: The aims of the study were determine the effects of anthropogenic pressure on the species composition and population size of amphibians of small water bodies in Olsztyn city (NE Poland). The presence of 11 amphibian species was noted in 83.5% of water bodies. The dominants were: the common frog *Rana temporaria*, the edible frog *Rana esculenta*, the pool frog *Rana lessonae*, the common toad *Bufo bufo* and the moor frog *Rana arvalis*. The fire-bellied toad *Bombina bombina* was an influent, while the common newt *Triturus vulgaris*, the common spadefoot *Pelobates fuscus*, the tree frog *Hyla arborea,* the green toad *Bufo viridis* and the crested newt *Triturus cristatus* were the recedents. The most frequent were "green frogs", which occur in 71.9% of water bodies inhabited by amphibians (60.0% of all water bodies). The species characterized by the lowest occurrence frequency were the tree frog (6.0% and 5.0%, respectively), the green toad (5.4% and 4.5%) and the crested newt (3.6% and 3.0%). In the paper the urban pressure on amphibian communities is widely discussed.

Key words: amphibians, urban habitat, small water reservoirs

FRAGMENTA FAUNISTICA 53 (2): 233–243, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Lublin

Jacek CHOBOTOW and Wojciech CZARNIAWSKI

Department of Zoology, Institute of Biology, Maria Curie-Skłodowska University, Akademicka 19, 20–033 Lublin, Poland; e-mail: jacek.chobotow@umcs.lublin.pl

Abstract: The occurrence of amphibians in Lublin city (South-East Poland) was studied in the years 1998–2006. At 33 localities, including all water bodies in the Lublin area, 12 taxons of amphibians were found. Common frog *Rana temporaria* was most frequently observed in studied water bodies (84.7% of all locations). The results indicate that the rarest and extremely threatened with extinction species are: crested newt *Triturus cristatus* and common tree frog *Hyla arborea*.

Key words: urban fauna, amphibians

FRAGMENTA FAUNISTICA 53 (2): 245–264, 2010
PL ISSN 0015-9301© MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Amphibians of Białystok

Włodzimierz CHĘTNICKI[*], Paweł SIWAK[**],
Joanna MAZGAJSKA[***] and Tomasz D. MAZGAJSKI[***]

[*] *Institute of Biology, University of Białystok, Świerkowa 20B, 15–950 Białystok, Poland, e-mail: wlodek@uwb.edu.pl*
[**] *Regional Directorate for Environmental Protection, Dojlidy Fabryczne 23, 15–554 Białystok, Poland, e-mail: pawelsiwak1@gmail.com*
[***] *Museum and Institute of Zoology Polish Academy of Sciences, Wilcza 64, 00–679, Warszawa, Poland, e-mail: jmazgajska@miiz.waw.pl, mazgaj@miiz.waw.pl*

Abstract: The research was carried out on 100 water bodies, from 1998 to 2000. There were 87 water reservoirs located in the area of Białystok, another 13 reservoirs were located in the Białystok surroundings, but outside the administrative boundaries (up to 2.5 km away). Several physical features of the breeding ponds in our study as well as their surroundings were described to determine the urbanization pressure in a given area. The frequency of occurrence of particular amphibian species and their number were determined. In the study area, amphibians belonging to 12 species (with one genetic hybrid) were found. Due to problems identifying "green frogs", they were put into one group for most of analyses. The most frequent amphibians within the administrative boundaries of Białystok were: the "green frogs" (observed in 66.6% of studied water bodies), the common frog (65.5%) and the moor frog (49.4%). These species occurred throughout the entire city. The rarest amphibian species were observed only on the outskirts of Białystok. They were: the crested newt (2.3%) and the natterjack (3.4%). The green toad is considered to be a species less sensitive to urbanization pressure. Paradoxically, it was rarely found in Białystok (9.2%) and only 22.2% of its breeding sites were located in the city centre.

Keywords: amphibians, Białystok, urban populations, breeding ponds