in wetlands, but very often near human dwellings, backyard pons, garages and golf course ponds. Situations like these seem to be dangerous but, surprisingly, serious accidents are relatively rare- since 1948 about five attacks per year have been recorded. The reason is a high public awarness of this animal's habits and well-organised protection program. Although, this crocodilians are an important part of Florida's landscape and play a pretty big role in the ecosystem (as predators they are responsible for keeping other animal populations in balance). The poster was created as a theoretical work, however the author have visited this region and made some interesting remarks connected with eg. prefered habitats and alligator trapping.

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Uniwersytet Wrocławski

ABSTRACT BOOK

I Studencka Konferencja Herpetologiczna
Wrocław, 8-9 grudnia 2012

Stanisław Bury [1]

Occurrence of the Agile Frog (*Rana dalmatina* Bonaparte, 1840) in the Bieszczady Mountains

Agile Frog (*Rana dalmatina* Bonaparte, 1840) is the rarest species of amphibian that occur in Poland and probably it is also one of the least known. It is possible that difficulties with identification of the species were the major factor of that situation, but yet there are several features which can give us high level of certainty in species determination.

Distribution of *Rana dalmatina* in Poland is poorly known. Currently most of known localities are situated in the south and souht-east of the country.
First information about occurence of *Rana dalmatina* in Bieszczady mountains came from Brzegi Górne village. It is description of only one specimen with very poor documentation, which was criticized by Juszczyk. Since 1970 that information was not confirmed. After that there are no other notices about occurence of *Rana dalmatina* in the Bieszczady Mountains.

In 2009 I found new locality of *Rana dalmatina* in Bieszczady Mountains (Myczkowce village). In 2010 more information about its occurence in this area were gathered. Agile frogs were found also in villages Uherce Mineralne and Zwierzyń. Also preliminary study on breeding habitat preferences was conducted. Three transects different in respect of habitat condition were controlled. Results show that this species breeds mostly in forestry habitats with permanent water bodies. However after mating period adult specimens are observed also in open areas.

Those results may be usefull in predicting of *Rana dalmatina* distribution in other parts of Bieszczady Mountains. Further data are now collected.

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Izabela Sadza [2]

Why do amphibians need algae? Interactions between green algae and eggs of *Ambystoma maculatum*

The existence of symbiosis between organisms belonging to the separate kingdoms is quite commonly observed phenomenon. Unicellular algae occur as a symbionts of many groups of invertebrates. In vertebrates, this relationship was firstly understood by describing the existence of green algae *Oophila amblystomatis* within egg envelopes of Spotted Salamander (*Ambystoma maculatum*). Spotted Salamander produces firm egg masses with no spaces in the jelly between eggs, which causes that availability of oxygen to amphibian embryos is often very low. Embryonic hypoxia may negatively

A total of 10 field inspections were conducted, where the primary purpose was to determine the presence of herpetofauna. The cataloging process used a combination of observation and vocal recognition to find any mating individuals. As a result, 9 species of amphibians were registered.

It was confirmed that it is necessary to continue further studies. These studies allow us to determine the species of amphibians and their survival in the environment. It is important to note that environmental conditions change intensively, but at the same time offer better conditions for mating and reproduction for amphibians.

All studies and observations are based on a pits "0" year, meaning the year that they were built. Further observations will indicate the succession of the herpetofauna. Information obtained will be used to construct a specialized codex which will advise on practical use of abandoned pits to construct a better habitat for amphibians.

[41] Szkoła Główna Gospodarstwa Wiejskiego w Warszawie, Wydział Nauk o Zwierzątach; Koło Naukowe Wydziału Nauk o Zwierzętach, Sekcja Zoologiczna

Adam Rusek[42], Agnieszka Zawadzka [42]

The ring of salamanders – death trap

The paper concerns the mortality of amphibians and reptiles in small hydro facilities. Identified alive trapped animals and animal remains found in an unused concrete sump to intake water from a mountain stream. In June 2012 found four individuals of Fire Salamander (*Salamandra salamandra*), in November 2012 two of them were dead and two were emaciated. In November there were new fourteen salamanders and found Yellow–bellied Toad (*Bombina variegata*), European Common Frog (*Rana temporaria*) and young Grass Snake (*Natrix natrix*). All the animals were rescued from the trap. Sediment has been collected to a depth of 10 cm, it contains the remains of many animals. Today there is structure that allows the escape of animals from a trap. Planned work to safe well in the future.

[42] Uniwersytet Przyrodniczy we Wrocławiu, Wydział Biologii i Hodowli Zwierząt; Studenckie Kolo Naukowe Zoologów i Ekologów

Oskar Wiśniewski [43]

Troublesome neighbours – the American alligator (Alligator mississippiensis) in the Jacksonville metropolitan area (Florida, USA)

The aim of this poster is to present some informations about the American alligator (Alligator mississippiensis) in the Jacksonville metropolitan area (Florida, USA). This species is the only one representative of the order Crocodilia in this part of Florida. The main topic is, in general, a relationship between alligators and humans. Nuisance alligators can be found every day in various places in the city- not only

Such devices can be as well used indoors, as in vivariums housing endangered species, helping the personnel to provide optimal conditions.

Registration of temperature and humidity is crucial in herpetology. Low price and simple operation of data loggers make an excellent tool for it.

[38] Uniwersytet im. Adama Mickiewicza, Wydział Biologii; Koło Naukowe Przyrodników UAM Sekcja Herpetologiczna

[39] Uniwersytet Wrocławski, Wydział Nauk Biologicznych, Katedra Biologii Ewolucyjnej i Ekologii; Studenckie Koło Naukowe Herpetologów

mgr Anna Najbar [40]

Sea turtles – dangers and conservation in the Caribbean

Seven species of sea turtles recently occurring in the world are endangered whose populations are slashing every year. This is directly connected with adverse human actions on the land (for example: trade, tourism development, urbanization, beach pollution) and also in the water (transport, water recreation) both climate changes and many different factors indirectly affecting those animals. That is why it is very important to take effective measures to protect them not only in the Caribbean but also in the whole world and restrict negative influence of human activities affecting all populations of sea turtles.

Observations and acquired experience during research on the Netherlands Antilles show many important conclusions, which people should not disregard but interpret and use for evaluation of effective conservation aspects. The knowledge about biology, behaviour and ways of protection of sea turtles is necessary to take on proper steps in successful monitoring of *Chelonia mydas*, *Eretmochelys imbricata* and *Dermochelys coriacea* in the Caribbean.

Active conservation of sea turtles as well as efficient protection of their natural habitats and local society's awareness of the scale of many problems connected with sea turtles monitoring are undoubtedly very important to save all species of those reptiles taking into consideration effectiveness of conservation activities.

[40] Uniwersytet Wrocławski, Wydział Nauk Biologicznych, Katedra Biologii Ewolucyjnej i Ekologii

Ewa Pacholik [41]

Herpetological succesion in abandoned open gravel pit in Sitno – year zero

In Sitno there are abandoned gravel pits that have been flooded, and this terrain has been designed to restoration. Amphibians, animals that live within two environments, serve as excellent indicator organisms, especially in recently established or reclaimed water reservoirs.

affect survival and fitness of juvenile salamanders. Studies have revealed that salamanders embryos benefit from increased oxygen concentrations associated with the presents of algae. This results in an earlier hatching time and a faster growth rate than algae-free masses. Symbiotic relationship may also consist of better growth of algae in the presence of embryos due to the algae utilization of CO_2 and nitrogenous released by the embryo.

[2] Uniwersytet Jagielloński, Wydział Biologii i Nauk o Ziemi, Instytut Zoologii, Zakład Anatomii Porównawczej

Agnieszka Grzybowska [3]

Functions of nuptial coloration in male sand lizard (*Lacerta agilis*)

Sand lizard (*Lacerta agilis*) is a wide spread species, which occurs from Lake Baikal to the Pyrenees and from S Sweeden to N Greece. Females of *Lacerta agilis*, during breeding season are grayish-brown. Males, on the other hand, ventrally and laterally have green patches. Males of sand lizards are not equally green. During mating season, males fight with each other for an access to females. During contests they show their nuptial coloration to rivals. After copulation males guard their mates. There are a lot of papers about this species, but the problem of evolutionary significance of *Lacerta agilis* coloration is unsolved. There are studies, which try to explain the meaning of nuptial coloration in sand lizards. Most of them are experimental research were the size of nuptial coloration was manipulated, but all of them are based on human color perception, which is different from lizard perception (lizards have UV sensitive cone). However, there are some indications, which show lack of reflectance in the ultraviolet spectrum in Sweedish populations , in contrast to Pyrenees lizards, where the reflectance peak in the UV, is distinct. Presented text is a review of currently available knowledge about functions of nuptial coloration.

[3] Uniwersytet Jagielloński, Wydział Biologii i Nauk o Ziemi, Zespół Ewolucji Strategii Życiowych

Zofia Anna Sajkowska [4], Eliza Rybska [4]

The actual knowledge of amphibians and reptiles vs contentof Polish textbooks

Textbooks are considered as the most important and popular teaching aid in education regardless of the subject of taught. One of their functions is the undisputed feature of information. Often they are used as the main or even the only source of information not only for students but also for teachers. Aim of this study is to analyze the text of junior high school textbooks of subjects amphibians and reptiles. Students are an important group of junior high school

due to discuss at this stage the content of education in the field of herpetology. During this period is developed abstract and creative thinking, and junior high school students are a group vulnerable to influencing on environmental attitudes. In addition, by current law of Ministry of National Education, majority of students will be able to experience the herpetological issues only at this stage of education. Analysis of text was focused on seven textbooks for the third stage of education. Textbooks were analyzed in terms of the attractiveness of the graphics, the presence of reviews and comparisons of amphibians and reptiles, mistakes and the performance of the assumed function. None of the textbooks was mistakes-free and at the same time did not consist all of the distinguished features such as: information, motivation, exercising, self-education and transformation. Most substantive mistakes were associated with movement and taxonomy of amphibians and reptiles.

[4] Uniwersytet im. Adama Mickiewicza w Poznaniu, Wydział Biologii, Wydziałowa Pracownia Dydaktyki Biologii i Przyrody

Agnieszka Kiełtyka[5], Wojciech Wątor [6]

Active protection of amphibians on the section of the Łęgnowska street in Bydgoszcz

The project was executed within the competence of Scientific Society of Naturalists at the University of Bydgoszcz, and aimed to reduce the mortality of those amphibians, mostly common toad (*Bufo bufo*) during spring migration of the 500-meter stretch of Łęgnowska street.

This stretch of road has been identified as dangerous for the amphibians by herpetologist, PhD Mariusz Rybacki, in his report "Amphibians and Reptiles in Bydgoszcz, distribution, abundance, risk and protection" issued by The Local Government of Bydgoszcz.

The protection method which has been used was based on placing net in order to prevent the amphibians from entering the street. Plastic buckets into which the migrating toads fell were located by the net, approximately every 20 meters. During the daily shifts, the members of the association were removingthe toads from the buckets and placing them in a water tank on the other side of the road, where they could reproduce. The operation resulted in 1161 moved toads, including the rare green toad.

[5] Uniwersytet Kazimierza Wielkiego w Bydgoszczy, Wydział Matematyczno- Przyrodniczy, Instytut Biologii Środowiskowej; Koło Naukowe Przyrodników Uniwersytetu Kazimierza Wielkiego w Bydgoszczy

[6] Uniwersytet Kazimierza Wielkiego w Bydgoszczy, Wydział Matematyczno- Przyrodniczy, Instytut Matematyki; Koło Naukowe Przyrodników Uniwersytetu Kazimierza Wielkiego w Bydgoszczy

Monika Gawałek [37]

The influence of pheromones on the development of behaviour and ecology of reptiles

One of the pheromones is, that they are a chemical substance, secreted externally by certain animals affecting the behaviour or physiology of other animals of the same species. Their secretion occur in many groups of animals, including reptiles.

Reptiles (*Reptilia*) are highly specialized and develop group of organisms. They belong to cold blooded amnions, which had their greatest rise in Mesozoic age. In many organisms visual signals are important in all aspects of their life, and make communication between organisms easier. Also reptiles exhibit a variety of signals, especially visual ones. These kind of communication signals, ale well known already. However, chemical communication in reptiles have been recognized, and firs experimental studies were conducted in 1920s. It is worth mention, that physiological studies have shown, that reptiles present remarkable diversity of glands. and glandular secretion.

Pheromones play a major role in courtship behaviour, for example in mate choice, and aggregation. Chemical signal recognition are also useful in such daily behaviours like: pray detection or predator avoidance. In these days studies at pheromones are integral part of reptiles research, and knowledge on this topic is growing.

[37] Uniwersytet Przyrodniczy w Poznaniu, Instytut Zoologii, Pracownia Neurobiologii

Mikołaj Kaczmarski [38], Jan Kaczmarek[38], Krzysztof Kolenda [39], Anna Kubicka [38]

Use of data loggers in herpetological research

The aim of the work is to show examples of use of electronical data loggers recording humidity and temperature in research on reptiles and amphibians.

Automated data loggers are small-sized devices, able to provide data for up to years (depending on settings). So far in our work 2 models: AB-171 (ABATRONIC) and I-BUTTON DS1923 (ECOTONE) have been used.

Data collected with automated data loggers can be complementary with large-scale data, enabling one to monitor local microclimate. This can lead to establishment of connections between temperature, humidity and information on migrations of amphibian species. Such data can e. g. help to outline the humidity conditions needed to sustain the existence of amphibian migratory corridors. Loggers can also register conditions inside the winter shelters or during egg incubation.

ticks are present, many of these arachnids will be hosts of boreliosis bacteria. They will get infection during foraging on mice. In the case, when the biodiversity will be higher, because of presence of lizards from *Lacerta* genius for instance, which are poor reservoirs for borreliosis, ticks will have alternative in host choice. Thanks such situation, many of ticks will avoid infection foraging on lizards. In situation, when more animals, which are poor reservoirs will be add to environment, more and more ticks will not be foraging on infected rodents, and stay not infected by boreliosis spirochetes. In this way the process called "Dilution Effect" is fulfilled. This theory, whereby the rise of biodiversity cause fall in ticks infections, was tested in many experimental studies, and seem to be right.

This is another proof, that high biodiversity positively affect on ecosystem, and thus on humans health.

[35] Uniwersytet Przyrodniczy w Poznaniu, Wydział Hodowli i Biologii Zwierząt, Instytut Zoologii, Zakład Zoologii

Rafał Dudek, Aleksandra Kolanek[36]

Observations of Trachemys scripta in water bodies of Wroclaw

Trachemys scripta are popular terraristic pets. However, several years are covered by the restrictions on trade (Appendix B of Council Regulation No 338/97) due to their invasive nature. Pursuant to Commission Regulation (EC) No 811/2008 *Trachemys scripta elegans* import into the EU is strictly prohibited. Since the turtles are very popular for some time in the trade could meet other non-restricted subspecies of *Trachemys scripta*, mainly *Trachemys scripta scripta* and *Trachemys scripta troostii*. Regulation of the Minister of Environment dated 09/09/2011 the last two were on the list of non-native species, which may release to the environment threaten native species or natural habitats.

Turtles can be found in some water bodies in Wroclaw, specimens are released by people who no longer take care of them for different reasons.

Observations were carried out from 2008, in the spring and summer, counted individuals basking on the shores of water bodies, at that time found turtles (*Trachemys scripta elegans* and - in 2012 - *Trachemys scripta scripta*) in the City Moat (the largest population found in Wroclaw) and in several ponds. There were no attempts to lay eggs, but the situation should be monitored due to the changing climate.

[36] Uniwersytet Wrocławski, Wydział Nauk Biologicznych, Katedra Biologii Ewolucyjnej i Ekologii; Studenckie Koło Naukowe Herpetologów

Sylwia Gadomska [7], Zofia Korbut [7]

Active amphibian protection in the Narew National Park

In early spring (late March and April) amphibians emerge from winter hibernation and migrate to water to reproduce. Many amphibians are then killed on roads. Road mortality may be one of the factors responsible for decline in amphibian populations. Habitat fragmentation caused by roads can also lead to genetic isolation of different populations. In 2002, Student's Naturalist Group of the University of Białystok, Poland, started the project of active amphibian protection in the Narew National Park (north-eastern Poland). We selected ca. 1 km road section where we observed particularly high amphibian mortality. Every year we construct fences along both sides of the road with plastic buckets dug every 10 meters. Migrating amphibians that fell into buckets are then identified, weighed, measured and released on the other side of the road. We present data collected during 11 years (2002-2012) of our project. In total, we carried 37020 amphibians. Two most common species were Common Frog (Rana temporaria; 87.3% of all individuals) and Moor Frog (Rana arvalis; 11.3%), whereas green frogs were much rarer and were not found during every year. We observed large fluctuations in the number of caught amphibians, with more than 10-fold difference between years with the highest (2006) and the lowest (2010) number of carried individuals.

[7] Uniwersytet w Białymstoku, Instytut Biologii; Koło Naukowe Biologów Uniwersytetu w Białymstoku

Kamila Dobrońska [8], Anna Olkowska [8], Anna Goździewska [8]

Protection of *Emys orbicularis* on Warmia nad Mazury

The thesis tends towards showing the dangers and protection of *Emys Orbicularis* in Warmia and Mazury. As a species appearing in the Polish Red Book, it has been credited to the category of endangered animals. The number of turtles in the country is estimated at about 1,100 adult specimens, whereas in Warmia and Mazury region it is estimated at approximately 350. The conditions, in which they used to live, have changed significantly.

Convenient places for their life are small and medium size water habitats, which can easily get hot. Most of them are eutrophic reservoirs of stagnant water or the slow-flowing ones. The environment in which they live is inevitably disappearing. Man as well as the development of civilization bear a huge responsibility for this situation. An increasing number of communication routes, the impact of agriculture, meadow and forest industry, changes in water conditions, drainage of water reservoirs and swamps, unsuitably performed drainages, pollution. All of these factors contribute to extinction of the species.

There is also another serious threat which are predators and an invasive species of Trachemys scripta elegans. The lack of qualified staff that could deal with the protection and low environmental awareness of people makes the situation worse. In Warmia and Mazury region there are projects which are made in order to increase the *Emys Orbicularis* population.

[8] Uniwersytet Warmińsko-Mazurski w Olsztynie, Wydział Kształtowania Środowiska i Rolnictwa, Katedra Systemów Rolniczych; Studenckie Koło Naukowe Ochrony Przyrody

Krzysztof Kolenda [9]

In memory of Professor Leszek Berger

Professor Leszek Berger died the 8th of July 2012. He was a world-renowned expert in the field of green frogs and the pioneer of research on amphibians and reptiles in south of Wielkopolska province.

Professor Berger was born the 10th of February 1925 in Pabianice. He spent his childhood and youth in Lewkowiec near Ołobok river. In 1947, he graduate Male High School in Ostrów Wielkopolski. In the years 1947-1950 he studied biology on the Mathematics and Natural Science Faculty of the Poznan University. His Master's and doctoral dissertations concerned the mollusks. Later he began to study the amphibians, focusing on green frogs. The result of his research proved that marsh frog (*Pelophylax ridibundus*) and pool frog (*P.lessonae*) are biological species while the water frog (*P. esculentus*) is their natural hybrid. For discovery of the laws of a new type of heredity, he received in 1973 the first-rate award from Polish Academy of Science. Professor Berger has published over 120 scientific papers.

Presentation submit biography of Professor Berger and his most important achievements.

[9] Uniwersytet Wrocławski, Wydział Nauk Biologicznych, Katedra Biologii Ewolucyjnej i Ekologii; Studenckie Koło Naukowe Herpetologów

mgr inż. Mateusz Rawski [10], mgr inż. Bartosz Kierończyk[10], Jakub Długosz, dr inż. Damian Józefiak

Body condition scoring in African sideneck turtles *Pelomedusa subrufa* and *Pelusios castaneus*

The African helmeted turtle (*Pelomedusa subrufa*) and the West African mud turtle (*Pelusios castaneus*) are two of the most common sideneck turtle (*Pelurodira*) species in captivity. In the available literature, there is no data about any kind of body condition scoring method or proper weight to shell length ratio for these species

In most cases (72%) using implants required anaesthesia, while in all cited studies with force feeded implants anaesthesia was not applicated.
Metanaanalysis based on greater numer of publications is under preparation.

[33] Uniwersytet Jagielloński, Wydział Biologii i Nauk o Ziemi, Instytut Nauk o Środowisku

Stanisław Bury[34], Maria Gaweł, Piotr Iwko

New locality of Smooth Snake (Coronella austriaca Laurenti, 1768) in the Gostynińskie Lake District and comments on habitat preferences of Smooth Snake

Smooth Snake (Coronella austriaca Laurenti, 1768) is one of the rarest species of snakes in Poland. According to its raity it has been placed in the Polish Red Data Book of Animals and is categorized as a vulnerable.

Distribution of Smooth Snake in Poland is not well known. Still new localities appears, mostly because of more field inventories than inhabiting new areas by the species.

In season 2011new locality of Smooth Snake was found in Gostynińskie Lake District. Two adult, gravid females were observed. Snakes were found in open, sandy habitat, next to the pine forest. Locality is placed near swampy wetland, which may indicate the posiibility of inhabiting such habitats by Smooth Snake.

Review of literature about Smooth Snake distribution and habitat preferences in Poland shows that this snake inhabits more types of habitats in lower regions than in higlands and mountains.

[34] Uniwersytet Jagielloński, Wydział Biologii i Nauk o Ziemi, Instytut Nauk o Środowisku

Krzysztof Dudek [35]

Effect of lizards abundance on Lyme disease risk

Lyme disease is dangerous emerging infectious disease, caused by spirochete bacteria belonging to the species *Borrelia burgdorferi*. Humans usually become infested through the contact with tick (*Ixodes ricinus*), which is its main vector. However, the tick become *Borrelia* vector, only when it is infected with these microorganism already. The transovarial transfer of these pathogens, is absent in ticks, so newly hatch larvae, in this regard are always sterile. Young ticks become infected during foraging on animal, which is *B. burgdorferi* host. Species, which are particularly often infected, and in addition, keep the pathogens in their body (not being ill) for a long time, are called reservoirs. The best Lyme disease's reservoirs are rodents, which are very common in many environments: from woods and fields, to city parks. In the case, when on area the biodiversity is low, and only rodents (for example mice) and

Piotr Iwko[32]

Subspecies or cryptic species complex – *Bufo viridis* subgroup

Cryptic species pose a great challenge for taxonomists. Each year appear new informations on organisms which are not morphologically differing (or very slightly different), but have distinct differences in the genome and having reproductive barriers. Such taxon is also a subgroup of the green toad *Bufo viridis* (Laurenti, 1768). One of the representatives of this group is *Bufo variabilis* (Laurenti, 1768), for years regarded as a subspecies of B. viridis or a separate species. Stock et al. (2006) showed the difference between mtDNA of both toads, ultimately giving them the status of a species. At the same time, it turned out that both species may occur sympatrically in some areas. These studies, however, did not include territory of Poland.

Based on the genetic material collected in different parts of Poland, it has been shown that both species occur on the same areas. Moreover the material was collected in breeding ponds. This raises the question, if those two species interbreed, therefore what should be their systematic rank. This is important for their conservation, because as long as there is no certainty of systematic rank of "*B. variabilis*", its status in the IUCN Red List of Threatened Species ranks as DD (*data deficient*) - not enough data to make an assessment of its risk of extinction. Analysis of nuclear markers is required to solve this problem. Also behavioral and morphological traits should be taken into account.

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Stanisław Bury [33]

Methods of transmitter attachment in telemetry of snakes

Telemetry is a method that allow us, for instance, to track animal migrations. It is widely used in several groups of animals, mostly birds and mammals. It is also applicated in field studies of snakes. Respectively to species or group of species which are under studies, there are different methods of transmitter attachment.

There are few known methods of transmitter attachment in snakes: putting them externally on the skin, force feeding, and surgically implantating.

Preliminary review of literature (based on 36 publications) shows that the most commonly used methods are force feeding (42% of cases) and implants (50% of cases). External transmitter were used just in 8 % of cases.

Furthermore the comparison of force feeding and implant reveals that implant are becoming more popular, probably because of development better anaesthesia methods.

of chelonians. However Jackson ratio (body weight divided by straight carapace length) was applied as determinant of proper weight and its relationship to health of tortoises. It was reported that 60% of sick tortoises had too low Jackson ratio for its species, and at the same time specimens with body weight lower than 80% of mean mass for their size were more sensitive for diseases. In captivity both overweight and underweight constitute a threat to turtles health. To obtain data about weight to length ratio of healthy Pelomedusidae 7 *Pelomedusa subrufa* and 5 *Pelusios castaneus* (4 males, 4 females and 4 immature specimens) were measured and weighted for 52 weeks. The results of measurements: Jackson ratio graph, and proper body weighed to carapace length tables were compared to data obtained from private turtle keepers to check their accuracy.

[10] Uniwersytet Przyrodniczy w Poznaniu, Wydział Hodowli i Biologii Zwierząt, Katedra Żywienia Zwierząt i Gospodarki Paszowej

mgr inż. Mateusz Rawski[11], mgr inż. Bartosz Kierończyk [11], Jakub Długosz, dr inż. Damian Józefiak

The effects of dietary probiotics on the growth performance and selected microflora populations of slider turtle (*Trachemys scripta*)

The slider turtle (*Trachemys scripta*) is one of the most popular reptile species in captivity, however during short period after hatching high mortality is recorded in captive turtles, which probably is partly caused by infections of the gastrointestinal tract. The aim of the presented study was to investigate the effects of probiotics on growth performance, body condition score, the gastrointestinal tract development and microflora of turtles. In 20 weeks' long growth experiment, 40 young yellowbellied sliders (*Trachemys scripta scripta*) were used. The animals were divided in to four treatments: T1 – control without any feed additives, T2 – supplemented with Clostat (Bacullus subtilis PB6), T3, with Protexin (*Bacillus subtilis* C-3110) and T4 with Calsporin (mix of *Lactobacillus*, *Bifidobacterium*, *Streptococcus*, *Enterococcus*, *Aspergillus* and *Candidia strains*). In the experiment, growth performance parameters and morphology of gastrointestinal tract were measured using electronic caliper and laboratory weight. Selective media were used for microflora enumeration.

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Piotr Piliczewski [12], Dawid Zyskowski, Hanna Pietruszewska, Piotr Nowacki, Helena Wojcieszak, Tomasz Rek

Interspecific and intergeneric hybridization in the genus *Lampropeltis*

The frequency of interspecific and intergeneric hybridization among vertebrates varies from group to group. It is fairly rare in mammals, but may be common in other groups . In some families (eg. Cichlidae, Anatidae) cases of hybridization are fairly well known and described in literature.

The genus *Lampropeltis* (Colubridae; Colubrinae; Lampropeltini) contains 14 species of mostly North American colubrids. Although they're rather well known, surprisingly little is known and written about their hybridization. Despite that hybrid zones of varying width in areas where ranges of certain species overlap are known, sometimes leading to populations comprising of specimens of mostly hybrid characteristics; introgression is also possible. Accidental intergeneric hybridization in nature was also reported.

It is possible that natural interspecific and intergeneric hybridization in those snakes is way more common than we suppose, because in captivity they hybridize readily, with few prezygotic and no postzygotic mechanisms of separation. Many hybrids of kingsnakes and milksnakes are bred in captivity, sometimes even as distinct lines containing several parent species from more than one genus, for many generations. Surprisingly this fact isn't described in available scientific literature at all. Such hybrids could be very valuable as objects of behavioural, morphological and physiological studies and possibly may offer isight in such areas as development of different antipredatory strategies in various *Lampropeltis* species.

[12] Uniwersytet Szczeciński, Wydział Biologii, Katedra Anatomii i Zoologii Kręgowców

Wojciech Łukawski[13]

Usage and evaluation of the effectiveness of reptile eggs' candling on the example of crested gecko

One of the main activities performed by each breeder of reptiles during the breeding season is the identification of fertilized eggs. This procedure allows you to estimate the number of future offspring which is important for logistical reasons. The most common method used to identify fertilized eggs in reptiles is the candeling.

The purpose of my study was to determine the effectiveness of the reptile egg candling method.

The study was conducted on cresteg geckos eggs obtained from two harems. All the eggs were candeled on the first day after laying. On the basis of the presence of the embryo were classified as fertilized or unfertilized. Fertilized eggs were then

one of the main reasons for disappearance of many water bodies in urban landscape.

Study of the case. Pond in Wysoka shared the fate of numerous water reservoirs located in the areas of investment. Mentioned pond was about 60 m length and 20-30 m width and situated on suburban site of Wysoka. This terrain in local development plan for Wysoka was designed for housing investment. The grounds were bought by construction company and houses construction started in 2010. The presence of the pond was inconvenient for investor who decided to bury it. Occurrence of animals in the pond forced obtaining of approval for legal liquidate of this water body. Pressure of time resulted in deficient fauna and flora survey conducted in June and July of 2011 which described the pond as extensively degraded with low species diversity. According to survey's authors destruction of the pond should not cause a significant damage to the environment. From amphibian and reptiles species occurring in Poland they have found only several individuals of *Pelophylax lessonae*. On the basis of mentioned survey and fact that in local development plan this area was not designed for recreation, investor has been authorized to bury the pond after amphibian translocation.

From the beginning of March to the end of May 2012 the amphibians were transferred from pond in Wysoka to new water habitat in Karwiany. During amphibian translocation numerous of animal species occurring in the pond or on its banks have been reported. Generally six species of amphibian and two reptiles species have been connected with this water reservoir. In addition to this species, it turned out that several invertebrate and vertebrate species occurred in the pond and they also have not been listed in survey. In fact this water body had significantly higher level of biodiversity that it was presented in the survey which was the basis for obtaining permission for pond destruction.

This example shows how easily a loose of valuable amphibian habitat happens in urban landscape and that the legislation still does not provide an adequate protection of the ponds in Poland.

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Mariusz Simka[31], Artur Taszakowski[31]

Dyeing with alizarin as an alternative method in studies of reptiles skeleton

Paper presents the description of dyeing process of adult female of *Trimeresurus albolabris* with application of Dawson's method. After preliminary clearing of tissues in the solution of potassium hydroxide the bones are dyed with alizarin. The method is compared by members of Scientific Society "Faunatycy" with other methods of mounting reptile skeletons applied to obtain dry mounted specimens with removed soft tissues.

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migrated at a distance 0-18 m. During a day, in the control time animals were near the stream, both in exposed habitats with high humidity (edge of the stream, grassland) and hideaways (burrow, moss, under a rock). Studies have shown that terrestrial habitats are important to the survival of fire salamander populations.

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Bartłomiej Zając [29]

Road mortality of herpetofauna - pilotage survey in San river valley near Otryt mountain range

Road mortality is the one of the important issues of amphibians and reptiles conservation in Poland. Due to rapid development of road network in Poland and growing road traffic, road mortality threat for polish populations of amphibians and reptiles rapidly expand. The purpose of pilotage herpetofaunal road mortality survey in San river valley near Otryt mountain range was estimation of road mortality threat for local Aesculapian snake (*Zamenis longissimus*) population. Both common and forestry roads were surveyed. Undertaken methodology was compared with methods described in literature. Survey showed mortality of common herpetofauna species, but did not noticed road-killed Aesculapian snake specimens. Nevertheless, survey suggests necessity of further studies on this problem.

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Justyna Zawadzka [30]

Fate of small water bodies in urban areas on the example of the pond in Wysoka

Pond's protection issues for many years were neglected as a result of perception this kind of water bodies as a smaller, less valuable analogs of lakes. During the twentieth century ponds have been lost on a large scale in both agricultural and urban landscape. Just a few years ago more attention was paid to examine ecological value of this freshwater body type. Numerous studies indicate pond's significance in maintaining a high level of regional biodiversity. Current literature established role of the ponds as an important habitats for a large number of rare, often highly threatened species. Those small shallow water bodies provide beneficial environment for many water plants and animals. Due to the small size they assure optimal temperature and light conditions. Ponds are characterized by nutrient abundance and rapid processes of ecological succession. Another advantage for many species, especially invertebrates and amphibians, is that very often there is no fish in small fresh water reservoirs. Despite their indisputable advantages the issue of an adequate protection of ponds is still not resolved. Human demand for residential areas and road infrastructure is

incubated. Unfertilized eggs were opened and their contents were viewed under the stereomicroscope. During the experiment, the eggs classified into groups were counted and cases in which identification was incorrect were noted.

My observations shows that the above method is effective but not faultless.

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inż. Wojciech Tadeusz Urynowicz [14]

Comparative anatomy of shells of the most common turtlesand tortoises species bred in tanks

Testudines is one of the oldest animal groups that appeared on the Earth at turning point of Paleozoic and Mesozoic eras, about 250 million years ago. Within this order there are over 300 species living in different habitats both waters (seas, rivers, lakes, pools, swamps, ponds and others) and lands (savannahs, grasslands, semi-deserts, rainforests and others) (Sura 2005). From the beginning they were the subject of human interest because of their unusual appearance. According to ancient believes they contributed to the creation of the world and they possessed magic power (Rybacki and Guzikowski 2001). Later people discovered their nutritional qualities and their meat became a delicacy in many regions.

Some species were used for production of decorations and souvenirs, e.g. hawksbill turtle (*Eretmochelys imbricata*, Linnaeus 1766).

For some tens of years they have been bred in tanks for pastime reasons and they have become very popular. In almost every pet shop there are various species on sale. Unfortunately many of the pet owners are not aware of the nature of the animal they breed. Shop keepers are not very helpful because they are interested in income rather than providing the necessary knowledge to buyers (Maluta 2005). As a result many animals suffer various diseases and eventually die. Some breeders give them away or let too big animals go anywhere and this is dangerous for Polish fauna and flora (Państwowa Rada Ochrony Przyrody 2009, Maluta 2008). In order to understand Testudines' living requirements better some attention should be given to differences in their appearance caused by millions of years long adaptive radiation. Within this group there are typical predators e.g. Chinese softshell turtle (*Pelodiscus sinensis*, Hermann 1804) or herbivores e.g. Central Asian tortoise (*Testudo horsfieldii*, Gray 1844).

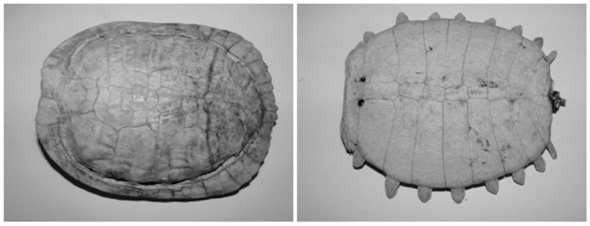

Fig.1,2. Comparison of carapaces red-eared slider (figure left) and Chinese softshell turtle (figure right)

The most visible changes are those in the shell appearance, so the characteristic formation of these reptiles. For instance, turtles living in water habitats have more flat shells of oval shape and tortoises living on land have domed carapaces (Urynowicz 2010).

In addition some animals lost completely their scutes, e.g. softshell turtles (*Trionychidae*), whereas the others, like a ornate box turtle (*Terrapene ornata*, Agassiz 1857) are able to close tightly in their hard shells (Wilke and Anders 2006).
The several years research aimed at defining the causes of Testudines deaths and also a comparison of shell anatomy of the most common turtles and tortoises species bred in tanks. Animals were acquired from private breeders and scientific organizations. Up to now there have been carried autopsies of: 7 red-eared slider (*Trachemys scripta elegans*), 1 yellow-bellied slider (*Trachemys scripta scripta*), 1 river cooter (*Pseudemys concinna*), 3 Chinese softshell turtle (*Pelodiscus sinensis*), 1 softshell turtle Apalone sp., 1 West African mud turtle (Pelusios castaneus), 3 Central Asian tortoise (*Testudo horsfieldii*), 3 Hermann's tortoise (*Testudo hermanni*), 4 map turtles (*Graptemys* sp.).

References:

» Maluta A. 2005. Żółwie wodno-lądowe Hodowla i Choroby. Hoża Warszawa.

» Maluta A. 2008. Błędy żywieniowe jako przyczyna chorób żółwi. Magazyn Weterynaryjny wyd. specjalne Choroby Zwierząt Egzotycznych. s. 26-28. Warszawa.

» Państwowa Rada Ochrony Przyrody. 2009. Uchwała PROP nr 1/VI/2010 w sprawie ograniczania inwazji obcych gatunków żółwi. Warszawa.

» Rybacki M., Guzikowski P. 2001. Żółw błotny pod red. Najbar B. Lubelski Klub Przyrodników s. 92-96 Świebodzin.

» Sura P. 2005. Encyklopedia współczesnych płazów i gadów. s. 150, s. 194-196, s. 259-272, s. 373-382. Fundacja Nowy Sącz.

» Urynowicz. W. 2010. O pancerzu żółwia. Nasze Akwarium nr 118 s.36-39. Poznań.

» Wilke H., Anders U. 2006. Żółwie. Hachette Livre Polska Warszawa.

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Anna Kowalska [15]

The use of the HSI index for evaluation of the Great Crested Newt Triturus cristatus habitat in the Mazowiecki Landscape Park

The HSI index (Habitat Suitability Index) can help to define whether the habitat is suitable for the Great Crested Newt, based on the ten different aquatic and terrestrial habitat parameters.

This species is strongly dependent on the environment. The environment for the

was explained by differences in the length of activity season. Females that experience a relatively short activity season mature at a larger size and remain larger on average than females in populations with relatively long activity seasons. Inter-population variation in fecundity is explained by reproductive mode (oviparity vs. viviparity). Finally, body size-fecundity relationship differs between viviparous and oviparous populations and across latitude, with relatively lower reproductive investment for a given body size in more northerly populations.

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Agnieszka Gozdek [28]

Distribution and migration patterns of fire salamander (*Salamandra salamandra*) using radiotracking method

The development of technology has enabled to study the animal species of secretive life and nocturnal activity. Radiotracking is a useful method for collecting information about amphibians,
which detection in the terrestrial environment is difficult. There happen a lot of important aspects of life cycle e.g.: feeding, hibernation. The aim of the present study is document distribution, migration patterns and microhabitats of fire salamander (*Salamandra salamandra*). The studies was conducted from 1 May to 7 June 2011, on a mountain stream in Słopnice (Beskid Wyspowy). On the seven individuals were attached telemetry transmitters (Holohil Systems Ltd., model PD-2) and monitored their migration. They were installed above the hips by a chain made of aluminium balls. Tracking urodeles with either technique poses problems. The salamanders lost their transmitters, because they have supple body. The longest monitored individual was I.D. 3 (38 days, 11 localizations). It moved a distance 214 m. Other salamanders

Great Crested Newt have to be characterized by a few suitable features. Based on this features, it's possible to estimate a usefulness of habitat for the Great Crested Newt. The HSI index is a numeric index. It assumes values from 0 to 1. 1 means that the habitat is suitable for the Great Crested Newt, while 0 means that the habitat is unsuitable.

In the spring and in the summer in 2008 in the Mazowiecki Landscape Park there was a valorization of the Great Crested Newt habitat.

Individual parameters were evaluated based on available literature. The investigator filled in a special form and calculated a value of the index for each habitat.

Studies were repeated in 2012 with the same methodology. Results show that the overwhelming number of reservoirs has not satisfactory evaluation (U1). Presence of the Great Crested Newt in different stages of development was confirmed in reservoirs with evaluation unsuitable (U1) and suitable (FV).

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The Effect of tank color on pigmentation in common musk turtle *(Sternotherus odoratus)*

Mimicry is defined as a process of conformation to the shape, color and pattern of plants and animals to the environment or other live organisms. The aim of this phenomenon is to camouflage of potential victims as well as predators and avoid their detection by enemies. In the available literature, there is no data about the occurrence of mimicry in common musk turtle (*Sternotherus odoratus*). However it is known that *Trachemys scripta*, *Chrysemys picta*, *Emydura kreffti*, and *Apalone spinifera* are able to mimic color of the environment by appropriate pigmentation of their shell and skin.

Therefore the aim of the study was to estimate if mimicry occurs in common musk turtles (*Sternotherus odoratus*). In the experiment turtles were placed for 4 months in black colored, individual containers. After this period, half of them were randomly allocated to bright yellow tanks for another 4 months. At the end of each period turtles were photographed using Nicon D90 camera, and pictures of carapace, plastron and skin were analyzed using Photoshop software. Preliminary results of the experiments indicated that mimicry was present in common musk turtles (*Sternotherus odoratus*).

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Tomasz Skawiński [17]

Temperature-dependent sex determination, climate change and reptile conservation

In reptiles there is a wide diversity of sex determination mechanisms. In many reptile species, sex is determined by environmental factors, such as temperature. Temperature-dependent sex determination occurs in all main lineages of recent reptiles: squamates, turtles, crocodylians, and sphenodontians. Moreover, it is the only mechanism of sex determination in all extant crocodylians and the only extant sphenodontian – the tuatara. Recently it was observed that climate warming leads to seriously skewed sex ratio in some reptile populations, most notably the endangered Brother's Island tuatara (classified as a different species, Sphenodon guntheri, by some authors). It is predicted that – under the most pessimistic models – about 2150 this population would be constituted only by males. Here, I discuss the possibility whether such phenomenon may occur in the Polish populations of the European pond turtle (Emys orbicularis), a species of freshwater turtle with temperature-dependent sex determination. It seems unlikely that – at least for now – climate warming would significantly alter sex ratio in European pond turtle – especially given the fact that the eggs are often collected and incubated in captivity. However, it cannot be excluded that in some populations the sex ratio would be skewed as a result of higher temperature during embryogenesis.

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Geographic and Climatic Patterns of Life History Variation in the Common Lizard (*Zootoca vivipara*)

Understanding large-scale geographic variation in life history traits within a species has become a hot topic in modern evolutionary biology. Reptiles show remarkable variation in life history strategies which may be attributed to adaptations to local abiotic factors as temperature, food availability or precipitation however biotic factors (e.g. competition) can also be important. The aim of our project is to examine the patterns and sources of large-scale variation in life history traits in common lizard (*Zootoca vivipara*) by using the comparative approach. We collected data on 64 oviparous and viviparous populations from Europe and Asia and conducted phylogenetically controlled analyses of how altitude, latitude, the length of activity season, precipitation, temperature and reproductive mode shape variation in body size, fecundity and their relationship. We found that most of the variation in body size