Environment & Progress – 4/2005
Cluj-Napoca, p. 359-365

FOOD HABITS OF *RANA LESSONAE* AND *RANA ARVALIS* IN COVASNA COUNTY (ROMANIA)

István SAS[1], Severus-Daniel COVACIU-MARCOV[1], Diana CUPŞA[1], Alfred-Ştefan CICORT-LUCACIU[2] & Balázs ANTAL[1]

[1]*University of Oradea, Faculty of Science, Biology Chair, str. Armatei Române nr.5, 410087-Oradea,* sas_steve19@yahoo.com, isas@email.ro, scovaciu@uoradea.ro, *sdcovaciu@email.ro*
[2]*Biolog, SC. Cibarom SRL, Arad*

Abstract: **Food habits of *Rana lessonae* and *Rana arvalis* in Covasna County (Romania).** The objective of our study was to bring data upon the feeding of *Rana lessonae, Rana arvalis* from Reci region, Covasna County. We watched at the trophic spectrum of this two *Rana* species the variation depending on species, sex, habitat and diurnal activity. The feeding of moor frogs is more intense in twilight period. The largest diversity of preys was presented in the stomach contents of *Rana lessonae* samples captured from the pool. The females both of the two *Rana* species eat a greatest variety of preys vis a vis the males. Only *Rana lessonae* captured from the permanent pool present in stomach contents a relatively high number of aquatic preys.

Key words: food habits, *Rana lessonae, Rana arvalis,* Reci region

Introduction

The first studies, in the Romanian specialty literature that refers to the feeding of moor frogs it is relized by Covaciu–Marcov et al (2002 a, b, 2003 a) and Sas et al (2003) in the Ier Valley. There is information about the trophic spectrum of the moor frog of the Hungarian Plain (Lőw et al., 1990; Kovács & Török, 1992; Török & Csörgő, 1992), Sweden (Loman, 1979), Finland (Itämies, 1982), Poland (Mazur, 1966; Zimka, 1966, 1974) and Russia (Vershinin & Seredyuk, 2000; Izomentzev, 1969). But there are no published data about the trophical spectrum of *Rana lessonae*, because was recently accepted as a species after the '70, until it was priory considered a subspecies of *Rana esculenta* (Berger, 1973; Uzzel & Berger, 1975). Existing only studies why refers to the trophical spectrum of *Rana esculenta* complex (Cogălniceanu et al., 2000). The only data of food habits of this water frog was aquired by Sas and his collaborators in 2003 (Sas et al., 2004). In this circumstances, the objective of our study was to bring data upon the feeding of *Rana lessonae, Rana arvalis* from Reci region, Covasna County. We watched at the trophic spectrum of this two *Rana* species the variation depending on species, sex, habitat and diurnal activity.

Matherials and Methods

In the summer of 2004 we investigated a population of *Rana lessonae* and *Rana arvalis* in Reci region (County of Covasna). The frogs were captured in day time and evening from a forest habitat. The *Rana lessonae* samples was took from a permanently pool and from inland of a forest. During the study we followed the variation of the composition of the trophic spectrum and the intensity of the feeding of *Rana arvalis* and *Rana lessonae* species depending on species, sex, diurnal activity and habitat. We analyzed a total **269** samples (table 1).

Table 1.

The number of analyzed samples

Evening				Day time			
Forest				Forest		Permanently pool	
Rana arvalis		*Rana lessonae*		*Rana arvalis*		*Rana lessonae*	
Males	Females	Males	Females	Males	Females	Males	Females
16	31	14	29	22	33	43	81

The study of feeding was made according to the new method of stomach flushing (Legler and Sullivan, 1979; Opatrny, 1980). The advantage of this method is that it allows taking the stomach contents from *Amphibians* without hurting the animal, because it prevents endangering it (Cogălniceanu et al, 2000; Bulakhov, 1976), once analyzed, the animals can be released in their habitats of origin (Legler and Sulivan, 1979). Thus we used a syringe with a perfusion tube at one end (Cogălniceanu, 1997). Because the frogs are able to digest the prey very fast the period of time between the capturing of the frogs and the moment of stomach flushing can interfere with the results (Caldwell, 1996). We tried, too, to reduce the time between the capturing and the analysis of the frogs.

The stomach contents were preserved in a formalin solution with a concentration of 4% and stored in airtight test tubes. Their analysis was made under the binocular magnifying glass, using the specialty literature of this domain (Ionescu & Lăcătuşu, 1971; Móczár, 1990; Radu & Radu, 1967**),** and was done up to an order and family level, as for this study we did not need a more detailed analysis (Mescherski 1997).

Results and Discussions

From a total of 269 investigated samples, all of stomachs had contents. This fact is most probably due to favorable to feeding environmental conditions for the studied *Amphibian* species.

Generally, the food of *Amphibians* is uniform and it consists of a variety of *Invertebrates*, although the frog adults are carnivorous. In these stomach contents we identified vegetal remains and the shed skin of other individuals in the population and contents of animal nature as well. We will present these categories of contents in the following.

Table 2.

The weight of stomachs with vegetal remains and shed-skin

	Evening				Day time			
	Forest				Forest		Permanently pool	
	Rana arvalis		*Rana lessonae*		*Rana arvalis*		*Rana lessonae*	
	Males	Females	Males	Females	Males	Females	Males	Females
% of stomachs with vegetal remains	78,57	80.49	87.5	80	75	56.52	63.63	60.56
% of stomachs with shed-skin	14.28	4.76	12.5	20	16.66	4.34	3.03	1.4

We can observe a direct relation between the contents of vegetal nature and the contents of animal nature. The more preys were captured the more vegetal remains were ingested. This direct relation suggests that the vegetal materials were consumed accidentally, being ingested together with the folLowed prey (Whitaker et al, 1977). This fact is suggested by the fact that the amount of vegetal remains at the level of stomach contents raises together with the number of preys and strengthened by the fact *Amphibians* eat mostly mobile preys (Zimka, 1966). The reduced number of exemplars that had exclusive vegetal content in their stomachs strengthens our statement. Vegetal remains were met at other *Rana arvalis* (Covaciu-Marcov et al, 2002 a, Sas et al, 2003) and *Rana lessonae* (Sas et al, 2004) populations.

In the case of all the investigated populations a part of the individuals consumed shed skin fragments together with other categories of stomach contents. The stomachs with shed-skin content have quite large amounts. There are known cases of shed-skin eating in the specialty literature at the *Rana arvalis* (Sas et al, 2003), *Rana lessonae* species (Sas et al, 2004), or at the *Phaeognatus hubricti* species when even the shed-skin of other individuals of the population appear in the stomach contents (Gunzburger, 1999). Some researchers considering this aspect of the trophic spectrum as a cause of the recycling of epidermal proteins (Weldon et al., 1993).

The most important category of stomach contents was the preys of animal nature. The assessed preys were grouped in categories, representing the identified taxon preys. We separated the larvae and the adults of *Lepidopterans, Coleopterans* and *Dipterans,* thinking that they represent distinct categories of prey as mobility and as environment from where they are captured. Bell (1990) claimed that adult insects do not vary much as nutrition content but still it is considered that the larvae of homo–metabolic insects are rich in lipids and thus, more nutritive (Brooks et al, 1996).

A greater variability of prey taxa we found in the stomach contents of the *Rana lessonae* samples (fig. 1). Several studies conducted in the Kis – Balaton area showed that *Rana arvalis* and *Rana esculenta* complex has a large diversity of prey taxa (Török & Csörgő, 1992) compared to other species of *Amphibians* (Kovács & Török, 1992). Similarly Medvedev (1974), Zimka (1974), Loman (1979) and Low et al. (1990) found high diet diversity in *Rana arvalis*, and Sas et al (2004) found high diversity of preys taxa in *Rana lessonae*.

Can observe differences in the variability of preys taxa depending on sex, diurnal activity and habitat. *Rana arvalis* had a greater variability of preys taxa in the stomach contents of samples catchig in twilight. This fact may be explain with twilight activity of the moor frogs. Similarly the *Rana lessonae* samples catcht from the pool, had a highest variability of preys taxa, because in this habitat they hunted from acquaticaly and terrestrial environment too. The females both of the two *Rana* species eat a greatest variety of preys vis a vis the males. Our results are similar with ones got by Covaciu-Marcov at al (2003) at *Rana arvalis*, where the females have a greater variability of the preys taxa. This fact show that the females have a greater diversity of animal preys, they are more active than the males and they also use, the *sit-and-wait* method of feeding, while the males use the *active foraging* method of feeding.

The intensity of feeding was estimated by the average and the maximum number of prey individuals / stomach (fig. 2). The maximum number of prey items per stomach it was the greatest at *Rana lessonae*. These high values due to the presence of *Colembolans* in the stomach contents, being small sized preys with gregarious life, can be captured by a large number of frogs. In our study the mean number of prey items / stomach ranged between 4.58 – 8.85 for *Rana arvalis* and between 4.96 – 9.5 for *Rana lessonae*. Zimka (1971) found similar values (5.6 – 7.2) in *Rana arvalis* stomachs. The females for both the species have the greatest values for these two parameters.

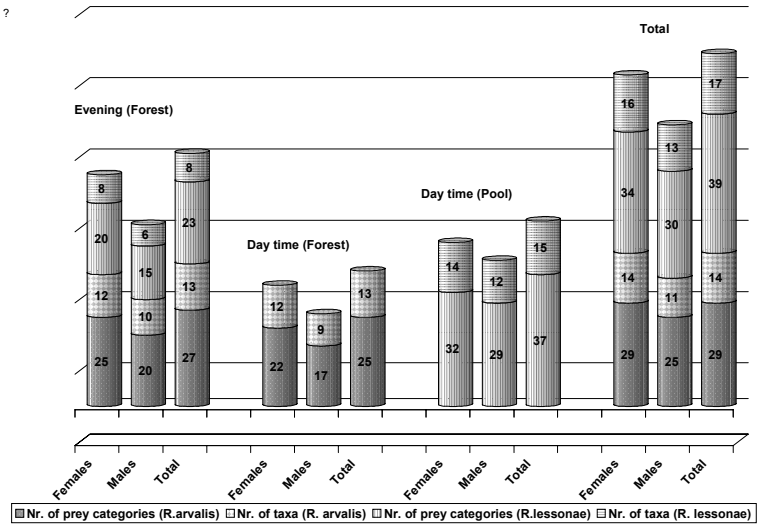

Fig. 1. The number of prey categories and the number of prey taxa at the two studied *Rana* species

During our study we watched the differences of the amount and the frequency of consumption of the preys taxa. The amount is the percent of the total number of prey accounted for by the particular prey type, and the frequency of occurrence expressed as the percentage of stomachs containing a particular prey / total number of stomachs analyzed.

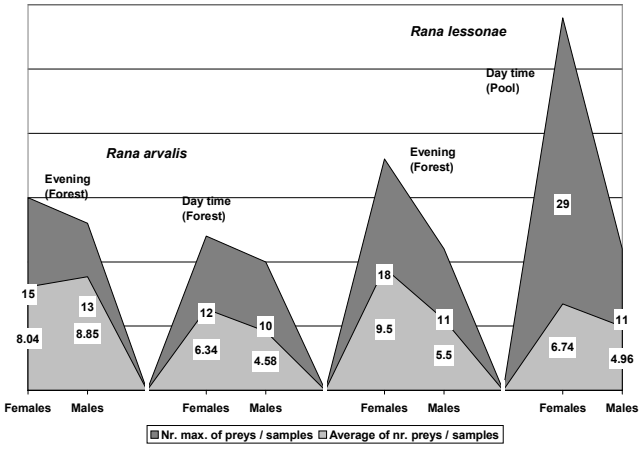

Fig. 2. The average and the maximum number of prey individuals / stomach

The most important taxa are the group of *Coleopterans*. It is a taxa with high trophic value for Amphibians, being present in the highest amount of all the studied species. The adults of *Coleopterans* we idetified belong to several families. The amount of *Carabids* present the greater values in the stomachs of *Rana* samples catcht in evening.The *Coleopterans* show significant amounts in the case of other *Rana arvalis* (Itämies, 1982; Török & Csörgő, 1992) and *Rana esculenta complex* (Cogalniceanu et al., 2000; Lőw & Török, 1998) populations. On another important taxa is represented by the *Araneids*. This animal preys appear in high amount only on stomachs of the frogs captured in the forest. The *Collembolas* appear in great

amount only in the stomach contents of *Rana lessonae* captured from the permanently pool. Similarly situation we met in the case of *Gasteropods*. Other important prey taxa for the all of investigated populations are represented by the *Lepidopteras* larva, *Dipteras* (both larval and imago forms) and *Hymenopteras*.

Table 3.

The amount and the frequency of occurrence of the preys taxa

	Evening				Day time			
	Forest				Forest		Permanently pool	
	Rana arvalis		*Rana lessonae*		*Rana arvalis*		*Rana lessonae*	
	A (%)	F (%)	A (%)	F (%)	A (%)	F (%)	A (%)	F (%)
Nematoda	-	-	-	-	-	-	0.15	0.96
Lumbricida	0.34	2.85	2.23	17.85	1.49	5.71	0.15	0.96
Hirudinea	-	-	-	-	-	-	0.15	0.96
Gasteropoda	-	-	-	-	-	-	6.04	22.11
Izopoda	-	-	-	-	1.99	8.57	-	-
Acaria	0.68	5.71	-	-	1.49	5.71	-	-
Araneida	22.18	82.85	23.88	67.85	21.89	77.14	8.86	46.15
Chilopoda	0.34	2.85	-	-	0.49	2.85	0.15	0.96
Diplopoda	0.68	5.71	1.49	3.57	5.47	2.85	-	-
Colembola	-	-	-	-	-	-	17.72	25
Odonata	-	-	-	-	-	-	0.15	0.96
Efemeroptera	0.68	2.85	-	-	-	-	-	-
Ortoptera	1.70	14.28	2.98	14.28	1.49	8.57	0.62	3.84
Coleoptera larva undet	1.02	8.57	-	-	-	-	0.46	2.88
Coleoptera Dytiscida larva	-	-	-	-	-	-	1.08	4.8
Coleoptera imago undet.	4.43	25.71	1.49	7.14	11.44	42.85	18.04	58.65
Coleoptera Coccinelida	-	-	1.49	7.14	-	-	1.08	6.73
Coleoptera Carabida	25.25	77.14	38.05	71.42	16.91	42.85	3.73	21.15
Coleoptera Scarabeida	1.7	5.71	5.22	10.71	0.99	5.71	1.86	8.65
Coleoptera Cerambicida	0.68	5.71	-	-	-	-	-	-
Coleoptera Curculionida	4.09	34.28	17.16	39.28	2.98	14.28	6.37	23.07
Coleoptera Crysomelida	3.07	20	5.97	21.42	1.49	5.71	4.35	23.07
Coleoptera Elaterida	7.84	54.28	5.97	28.57	4.47	22.85	0.77	3.84
Coleoptera Cantharida	0.68	5.71	4.47	21.42	0.49	2.85	0.15	0.96
Coleoptera Staphilinida	2.73	20	4.47	17.85	1.99	11.42	1.39	8.65
Heteroptera	1.36	11.42	5.22	14.28	2.48	14.28	2.64	15.38
Homoptera Cicadina	0.68	5.71	-	-	8.57	1.49	3.73	16.34
Homoptera Afida	0.68	5.71	-	-	2.85	0.49	0.62	3.84
Lepidoptera larva	7.5	37.14	12.68	50	8.95	40	1.39	7.69
Lepidoptera imago	-	-	1.49	3.57	-	-	2.79	15.38
Diptera Brahicera larva	-	-	-	-	-	-	0.15	0.96
Diptera Nematocera larva	-	-	-	-	-	-	0.15	0.96
Diptera Brahicera imago	3.75	28.57	4.58	21.42	3.48	20	4.04	24.15
Diptera Nematocera imago	0.68	5.71	12.68	32.14	3.97	20	4.97	26.91

Hymenoptera undet.	-	-	0.74	3.57	0.99	5.71	0.15	0.96
Hymenoptera Ihneumonida	4.43	31.42	8.2	28.57	0.49	2.85	0.31	1.92
Hymenoptera Formicida	2.38	17.14	11.19	39.27	2.98	17.14	4.51	16.34
Hymenoptera Vespida	-	-	1.49	7.14	-	-	-	-
Hymenoptera Apida	0.34	2.85	-	-	-	-	0.31	1.92
Amphibia - larva	-	-	-	-	-	-	0.77	4.8
Amphibia larva udet.	-	-	-	-	-	-	0.46	2.88
Amphibia Rana larva	-	-	-	-	-	-	0.15	0.96
Amphibia Triturus larva	-	-	-	-	-	-	0.15	0.96

Another important parameter is the environment of origin of the preys. Only *Rana lessonae* captured from the permanent pool present in stomach contents a relatively high number of aquatic preys (15.21 %). *Rana lessonae* after the end of the mating season it is met generally outside the water, including distances of 100 m even over 1 km from any permanent water but is met in water biotops too (Covaciu-Marcov, 2004). These aquatical preys are represented by the *Gasteropods* and *Amphibian* larvas (*Triturus* sp. and *Rana* sp. tadpoles). Tadpoles of *Rana* sp. was semnalated in the stomach contents of *Rana ridibunda* (Covaciu-Marcov et al, 2000) and newt larvas was found by Covaciu-Marcov et al. (2002 d), in the stomach contents of *Triturus cristatus*. In the stomach contents of the moor frogs we found only terrestrial preys, because is a species that outside of the laying eggs (Cogălniceanu et al., 2000) period can drift away form their aquatic habitat (Mazur, 1996; Zimka, 1974)., adapted to hunting in terrestrial biotopes. For another *Rana arvalis* population the largest part of identified preys in the stomach contents are terrestrial taxon preys (Covaciu-Marcov et al, 2002 a, b).

Conclusions

In the stomach contents of the investigated frogs we found shed-skin fragments, caused probable by the recycling of epidermal proteins (Weldon et al., 1993). A greater variability of prey taxa we found in the stomach contents of the *Rana lessonae* samples. *Rana arvalis* had a greater variability of preys taxa in the stomach contents of samples catchig in twilight. The females both of the two *Rana* species eat a greatest variety of preys vis a vis the males. This fact show that the females have a greater diversity of animal preys, they are more active than the males and they also use, the *sit-and-wait* method of feeding, while the males use the *active foraging* method of feeding. The most important taxa are the group of *Coleopterans, Araneidas*. In the stomach contents of the moor frogs we found only terrestrial preys, because is a terrestrial form, adapted to hunting in terrestrial biotopes. Only *Rana lessonae* captured from the permanent pool present in stomach contents a relatively high number of aquatic preys, because they use both the acquatical and terrestrial envionment for hunting.

References

Bell, G.P., 1990, *Birds and mammals on an insect diet: A primer on diet composition analysis in relation to ecological energetics*, Studies in Avian Biology, 13: 416–422.

Berger, L., 1973, *Systematics and hybridization in European green frogs of Rana esculenta Complex*, J. Herpetol. 7, 1-10.

Brooks, J.S., Calver, C.M., Dickman, R.C., Meathrel, E.C., Bradley, S.J.,1996, *Does intraspecific variation in the energy value of a prey species to its predators matter in studies of ecological energetics? A case study using insectivorous vertebrates,* Ecoscience, 3 (3): 247-251.

Bulakhov, V.L., 1976, *A method for the study of feeding in live amphibians*, In: *Voprosy Stepnogo Lesovedeniya I Okharany Prirody*. Pt. 6. 146-156 (in Russian with English abstract)

Caldwell, J.P., 1996, *The evolution of myrmechophagy and its correlates in poison frogs (Family Dendrobatidae)*, J. Zool., 240: 75 – 101, London.

Cogălniceanu, D., 1997, *Practicum of amphibian ecology – methods and technics for the study of ecology of the amphibians*, Ed. Universității din Bucureşti, 122p. (in Romanian)

Cogălniceanu, D., Palmer, M.W., Ciubuc, C., 2000, *Feeding in Anuran comunities on islands in the Danube floodplain*, Amphibia-Reptilia, 22: 1-19.

Covaciu-Marcov, S.D., Cupşa, D., Ghira, I., 2000, *Trophical spectrum of a Rana ridibunda ridibunda Pallas 1771 population from Cefa (Bihor county, România),* Studii şi Cercetări, Biologie, 5: 107-115, Bacău. (in Romanian with English abstract)

Covaciu-Marcov, S.D., Cupşa, D., Sas, I., Ghira, I., 2002 a, *The study of the trophic spectrum of two populations of Rana arvalis Nills., 1842 from the north of Bihor county*. Analele Ştiințifice ale Universității "Al. I. Cuza", Biologie Animală, 48: 160-171, Iaşi.

Covaciu-Marcov, S.D., Cupşa, D., Sas, I., Telcean I., 2002 b, *Trophical spectrum of a Rana arvalis (Nilson 1842) population from Văşad region, Bihor County, Romania*, Studii şi Comunicări, Seria Ştiinţele Naturale, 1-2: 170-181, Satu-Mare. (in Romanian with English abstract)

Covaciu-Marcov, S.D., Cupşa, D., Sas, I., Telcean, I., Zsurka, R., 2002 c, *The study of trophical spectrum of some Rana arvalis Nils. 1842 (Amphibia, Anura) from Cherechiu region (Bihor County, Romania,* An. Univ. Oradea, Fasc. Biologie, 9: 81-96. (in Romanian with English abstract)

Covaciu-Marcov, S.D., Cupşa, D., Telcean, I., Cicort A., 2002 d, *Trophical spectrum of a Triturus cristatus (Amphibia, Urodela) population from Şerghiş region, Bihor County, Romania,* Oltenia, Studii şi Comunicări, Ştiinţele Naturii, 18: 188-194, Craiova. (in Romanian with English abstract)

Covaciu-Marcov, S.D., Sas, I., Cupşa, D., Peter, I., Szeibel, N., 2003, *Data about the trophic spectrum of a Rana arvalis (Amphibia) population in the Resighea region (county of Satu-Mare),* Analele Universităţii din Oradea, Fasc Biologie, 10: in press

Covaciu-Marcov, S.D., 2004, *Study on Herpetofauna from the West Plain and the Western Slide of Apuseni Mountains*. *Doctoral thesis*, Universitatea Babeş-Bolyai, 540p. (in Romanian)

Gunzburger, M.S., 1999, *Diet of the Red Hills Salamander Phaeognathus hubrichti*, Copeia, 2: 523-525.

Ionescu, M.A., Lăcătuşu, M., 1971, *Enthomology*, Ed. Didactică şi Pedagogică, 416p. (in Romanian)

Itämies, J., 1982, *On the food of Rana arvalis Nilss. In Central Finland,* Vertebrata Hungarica, 21: 169-173

Izometsev, I., 1969, *Trophic relationships of brown frogs in coniferous forests of the Moscow district*, Zool. Zh., 48: 1687-1694 (in Russian)

Kovács, T., Török, J., 1992, *Food habits of eight Amphibian species from Kis-Balaton Natural Reserve,* Állattani Közlemények, 78: 47-53. (in Hungarian with English abstract)

Loman, J., 1979, *Food, feeding rates and prez-size selection in juvenile and adult frogs, Rana arvalis Nills. and R. temporaria L,.* Ekol. Pol. 27, 4: 581-601.

Legler, J.N., Sullivan, L.J., 1979, *The application of stomach-flushing to lizards and anurans*, Herpetologica, 35: 107-110.

Lőw, P., Török, J., 1998, *Prey size selection and food habits of Water Frogs and Moor Frogs from Kis-Balaton, Hungary (Anura: Ranidae).* Herpetozoa 11 (1/2): 71-78.

Lőw, P., Török, J., Sass, M., Csörgő, T., 1990, *Feeding of Amphibians from Kis-Balaton Natural Reserve,* Állattani Közlemények, 77: 79-89. (in Hungarian with English abstract)

Mazur, T., 1966, *Preliminaty studies on the composition of Amphibian food.* Ekol. Pol.,(A), 14: 309-319

Medvedev, S.I., 1974, *Data on study of amphibian food in the region of the middle flow of the Seversky Donets River USSR,* Vest. Zool., 1: 50-59. (in Russian with English summary)

Meschersky, G.I., 1997, *The Food Habits of the Iranian Long – Legged Frog (Rana macrocnemis) in North Ossetia*, Advances in Amphibian Research in the Former Soviet Union, 2: 111-116.

Móczár, L., 1990, *Insects guide*, Ed. Gondolat, 260p, Budapest. (in Hungarian)

Opatrny, E., 1980, *Food sampling in live amphibians,* Vest. cs. Spolec. Zool. 44: 268-271.

Radu, G.V., Radu, V.V., 1967, *Invertebrate Zoology*, 1/2, 607 / 708p., Ed. Did. Ped. (in Romanian)

Sas, I, Covaciu-Marcov, S.D., Cupşa, D., Aszalós, L., Kovács, É.H., Telcean, I., 2003, *Data about the trophic spectrum of a population of Rana arvalis of the Andrid area (Satu – Mare county, Romania)*, Studii şi Cercetări, Biologie, 8: 216-223, Bacău.

Sas, I., Covaciu-Marcov, S.D., Cupşa, D., Aszalós, L., Peter, V., 2004, *Feeding in amphibian communities on a forest habitat (Livada, Satu-Mare County, Romania),* Delta and Wetlands, Abstracts: 32-33.

Török, J., Csörgő, T., 1992, *Food composition of the three Rana species in Kis-Balaton Nature reserve,* Opusc Zool. 25: 113-123, Budapest.

Uzzell, T., Berger, L., 1975, *Electrophoretic phenotypes of Rana ridibunda, Rana lessonae and their hybribogenetic associate Rana esculenta,* Proc. Acad. Nat. Sci. Philadelphia, 39: 225 – 234.

Vershinin, V.L., Seredyuk, S.D., 2000, *Trophic Specificity of the Rana arvalis Population from the Eastern Ural Radioactive Trace in Relation to the State of the Soil Mesofauna.* Russian Journal of Ecology, 31, 5: 330p.

Weldon, P.J., Demeter, B.J., Rosscoe, R., 1993, *A survey of shed skin-eating (dermatophagy) in Amphibians and Reptiles,* J. Herpetol., 27: 219 – 228.

Whitaker, J., Rubin, O.D., Munsee, J.R., 1977, *Observation on food habits of four species of spadefoot toads, genus Scaphiopus,* Herpetologica 33: 468-475.

Zimka, J. R., 1966, *The predacy of the field frog (Rana arvalis Nills.) and food levels in communities of soil macrofauna of forest habitats*, Ekol. Pol. A, 14: 589-605.

Zimka, J. R., 1971, *Analysis of the changes in density of Frogs (Rana arvalis Nillss.) under Varying Conditions of Humidity and Food Resources in forest habitats,* Bul. De Acad. Polonaise Des Sciences, serie des sciences biologiques. Cl. II, 19, 7-8: 479-484.

Zimka, J. R., 1974, *Predation of frogs, Rana arvalis N. in different forest site conditions*. Ecol. Pol., 22: 31-63.

HRĂNIREA SPECIILOR *RANA LESSONAE* ŞI *RANA ARVALIS* ÎN JUD. COVASNA (ROMÂNIA)

(*Rezumat / Summary*)

Pe parcursul studiului am analizat spectrul trofic al unor populații de *Rana arvalis* şi *Rana lessonae* din zona Reci, Județul Covasna. Din literatura de specialitate românească lipsesc studiile care să se refere la spectrul trofic a speciei *Rana lessonae*. Am urmărit diferențele ce apar în hrănirea speciilor cercetate atât în funcție specie, de sex, de perioada zilei cât şi de habitatul de proveniență. Femelele broaştelor analizate prezintă o mai mare variabilitate a animalelor pradă, față de masculii acestora. Exemplarele de *Rana lessonae* capturate din baltă consumă mai mulți taxoni pradă față de cele capturate în interiorul pădurii. *Rana arvalis* fiind o specie mai mult cu activitate crepusculară şi hrănirea este mai intensă în această perioadă a zilei. *Coleopterele, Araneidele* reprezintă taxonul pradă cel mai important pentru spectrul trofic a populațiilor de *Amfibieni* cercetate. Specia *Rana lessonae* ocupând atât habitate acvatice cât şi terestre, consumă atât animale terestre cât şi acvatice. Important este identificarea a unor număr de larve de *Anure* şi *Urodele* în conținuturile stomacale prelevate de la exemplarele de *Rana lessonae* capturate din baltă.