

PROPOSAL FOR DAPTF SEED GRANT 2003.

CATEGORY OR GRANT APPLIED FOR: (3) unrestricted award

NAME, AFFILIATION AND CONTACT INFORMATION OF PROPOSER(S):

Name Dr Jelka Crnobrnja-Isailovic

Job title: Research Assistant

Affiliation: Department of Evolutionary Biology, Institute for Biological Research

Preferred Address: 29. Novembra 142,11060 Belgrade,

Country: FR Yugoslavia

Alternate/Permanent Address: Mlatisumina 1a, 11000 Belgrade

Telephone: (381) 11 764422 ext. 191 Fax: (381) 11 761433 e-mail: jelka@ibiss.bg.ac.yu

(2) PROJECT TITLE: STATUS OF GREAT CRESTED NEWT (*Triturus cristatus* superspecies) BREEDING SITES IN SERBIA,THE CENTRAL BALKANS

(3) DESCRIPTION OF THE INTENDED WORK, INCLUDING LOCALITIES AND SPECIES INVOLVED:

The main goal of this study is to check the status of breeding places for 49 crested newt populations distributed on territory of Serbia, some of them previously being subject of various genetic and/or morphological studies (references below). The distribution of four crested newt species in Serbia is complex (for detailed information see Arntzen and Wallis 1999). Localities mentioned in articles, as well as participants unpublished data, are from 23 to 3 years old. For most of the localities the original field notes are available (Wallis et coll. 1985; Arntzen 1985, 1986, 1988, 1989, Crnobrnja-Isailovic 1995, 1997 and Crnobrnja-Isailovic and Aleksic 1998, 1999).

Our aim is to check current existence of those crested newt breeding sites, including four species (*T. carnifex*, *T. cristatus*, *T. dobrogicus*, and *T. karelinii*) and to evaluate their condition (current presence of crested newts, presence of other amphibian taxa, anthropogenic influence etc). Data will be collected by using questionnaire sheets including:

Geographical coordinates, altitude, distance from and characterization of the nearest human settlement and name of the settlement, characterisation of immediate surroundings and shoreline of the breeding site, origin and age of the breeding site, area, shape and depth of the breeding site, presence of vegetation inside the breeding site, and vegetational composition in the coastal area, water, soil and air temperatures, water pH, amphibian community (on the basis of recognition of breeding pairs, mating calls, egg clutches or larvae), presence of fish, human waste deposits in the breeding sites, nearest agricultural field, factory, plant, time spent until first crested newt is caught and number of crested newt specimens collected by netting within a one hour period. Tip tails of adults or larvae (up to 40) will be stored in alcohol for future genetic analyses, which will provide better evaluation of conservation importance of every checked breeding pond. All specimens will be released after the examination.

In the case of breeding sites mentioned by other authors and from the literature, we will survey the entire area of 10 km squared around the particular locality and collect data from the first found crested newt breeding site.

(4) START DATE AND SCHEDULE OF THE PROJECT*:

May 2003: Field trip to northern Serbia –Voivodina. Duration: 5 days. Checking of the following localities:

- | | | | |
|---------------------|----------------|--------------|-----|
| 1. Jamena | 44° 54' North | 19° 02' East | (1) |
| 2. Svetozar Miletic | 45° 52' North, | 19° 18' East | (1) |

3. Obrez, Ravenica	44° 44'North	19° 59'East	(1)
4. Novi Knezevac	46° 02'North,	20° 07'East	(1)
5. Senta	45° 55'North	20° 08'East	(2)
6. Ostrovo	45° 25'North	20° 22'East	(3)
7. Opopo	45° 02'North	20° 26'East	(1)
8. Ecka	45° 18'North	20° 27'East	(2)
8. Radojevo	45° 40'North	20° 40'East	(4)
9. Ivanovo	44° 44'North	20° 43'East	(1)
10. Mesic	45° 05'North	21° 25'East	(4)
11. Kusic	44° 58'North	21° 35'East	(3)

References : 1 Arntzen and Wallis, 1999; 2 Wallis and Arntzen, 1989; 3 Litvinchuk et al., 1997; 4 Kalezic *et al*, 1997

Jun 2003: Field trip to western and central Serbia. Duration: 10 days. Checking of the following localities:

1. Ljubovija	44° 15'North	19° 25'East	(5)
2. Glusci	44° 53'North	19° 32'East	(2)
3. Debrc	44° 36'North	19° 52'East	(2)
4. Karan	43° 54'North	19° 52'East	(1)
5. Divcibare	44° 06'North	19° 56'East	(1)
6. Valjevo	44° 11'North	19° 59'East	(1)
7. Beograd	44° 50'North	20° 30'East	(2)
8. Tresnja	44° 36'North	20° 35'East	(2)
9. Arandjelovac	44° 19'North	20° 35'East	(2)
10. Djurinci	44° 30'North	20° 38'East	(1)
11. Grivac	43° 58'North	20° 40'East	(1)
12. Radosice	43° 17'North	20° 42'East	(1)
13. Vitanovac	43° 43'North	20° 48'East	(1)
14. Guberevac	43° 49'North	20° 46'East	(2)
15. Stanisinci	43° 31'North	20° 53'East	(1)
16. Grcak	43° 28'North	20° 57'East	(2)
17. Gornja Sabanta	43° 54'North	21° 00'East	(1)
18. Zupa Aleksandrovac	43° 29'North	21° 08'East	(1)

References : 1 Arntzen and Wallis, 1999; 2 Wallis and Arntzen, 1989; 3 Litvinchuk et al., 1997; 4 Kalezic *et al*, 1997 5 unpublished data, discovered in 1995

July 2003.: Field trip to eastern and south -eastern Serbia. Duration: 10 days. Checking of following localities:

1. Klokocevac	44° 20'North	21° 12'East	(2)
2. Milanovac	44° 11'North	21° 36'East	(1)
3. Resavska pecina	44° 03'North	21° 36'East	(1)
4. Sisevac	43° 56'North	21° 37'East	(1)
5. Moravica	42° 20'North	21° 40'East	(5)
6. Lukovo	43° 48'North	21° 51'East	(1)
7. Vranje	42° 37'North	21° 52'East	(1)
8. Rtanj	43° 46'North	21° 56'East	(1)
9. Zlot	44° 02'North	21° 58'East	(4)
10. Bor	44° 02'North	22° 08'East	(2)
11. Ljuberadja	43° 03'North	22° 20'East	(5)
12. Stubik	44° 16'North	22° 22'East	(2)
13. Vlasina	42° 42'North	22° 23'East	(1)

14. Jabukovac	44° 20'North	22° 24'East	(2)
15. Bosilegrad	42° 25'North	22° 25'East	(5)
16. Vrtovac	43° 25'North	22° 28'East	(4)
17. Negotin	44° 14'North	22° 33'East	(1)
18. Kladovo	44° 36'North	22° 33'East	(1)
19. Vlasi	43° 00'North	22° 42'East	(3)
20. Dimitrovgrad	43° 00'North	22° 47'East	(1)

References : 1 Arntzen and Wallis, 1999; 2 Wallis and Arntzen, 1989; 3 Litvinchuk et al., 1997; 4 Kalezic et al, 1997 5 unpublished data, discovered in 1998

(5) EXPLANATION OF HOW THE PROJECT WILL FURTHER THE DAPTF's MISSION:

“The crested newts are among the largest members of genus *Triturus* and are at greatest risk, as they require larger and deeper ponds for breeding. With modernization of farming methods, they have suffered as a result of site destruction. With respect to species conservation, the importance of maintaining genetic distinctiveness of evolutionary significant units has been emphasized repeatedly. The extreme southern populations of *Triturus cristatus* harbor more mt DNA variation than more northerly populations, and deserve special consideration. Conservation programs should treat the Yugoslav/Bulgarian *karelinii* as distinct from Turkish *karelinii* “. (Wallis and Arntzen, 1989).

With the brief action presented in this project proposal we will obtain a data base which could serve for future conservation actions, focused on the involvement of the local community in conserving amphibian breeding sites. Interviews with local inhabitants we are also planning to perform will be especially important for better understanding what benefit local communities need for saving crested newt breeding sites or about the causes of destruction (if there will be any). The results of our work will be analyzed appropriately and be published.. Even though just 49 localities are being investigated, we expect that, together with existing literature data, a general picture for the conservation status of the *Triturus cristatus* superspecies can be formulated. Breeding sites are distributed in different biogeographical provinces, at different altitudes, also in regions with differing intensity of industrialisation and overall human impact.

Additionally, data collected for genetic analyses will help clarification of the complex distribution of four crested newt species in Serbia, as common mt DNA characterization is not yet available for all populations.

Additional benefit from this project will be simultaneous collection of data about presence of other amphibian species, what, having in mind environmental data and status of every breeding site we plan to evaluate, will be also distributed to DAPTF data base and, upon agreement obtained from DAPTF, incorporated into second edition of “Atlas of amphibians and reptiles of Europe”. During previous visit of crested newt breeding sites, we were recording the following species: *Salamandra salamandra*, *Triturus alpestris*, *Triturus vulgaris*, *Bombina bombina*, *Bombina variegata*, *Bufo bufo*, *Hyla arborea*, *Rana dalmatina* and *Rana ridibunda*. All data concerning status of breeding site automatically will be applicable also for every amphibian species we notice in it. On that way we will obtain information with whom can , in the future, carry out more regular monitoring by local NGOs (for example: *Natura balcanica* from Dimitrovgrad, Young Researches Association from Zajecar with whom we already have contacts and others whose can be easily found by using internet search).

Published results of our project will be basis for a report for the Ministry for Nature Protection as well as the Institute for Nature Protection of Republic of Serbia, with suggestions for better conservation (if needed) of the breeding sites for amphibians being the subject of our research.

(6) BUDGET BREAKDOWN, INCLUDING DETAILS OF ADDITIONAL FUNDING OBTAINED OR SOUGHT FROM ELSEWHERE:

	Price/unit	May 2003.	June 2003.	July 2003.	Overall
		5 days 2 persons	10 days 2 persons	10 days 2 persons	

Petrol	1 EUR/ (8 km)	400 km (50 EUR)	600 km (75 EUR)	1000 km (125 EUR)	250 EUR
Hand-hold GPS					600 EUR
Accommodation, subsistence and allowances	20 EUR/ person/day	200 EUR	400 EUR	400 EUR	1000 EUR
TOTAL					1850 EUR

Additional costs for car for field trips, as well as participants salaries and additional equipment will be funded by grant B 1725, Ministry of Science, Technology and Development of Republic of Serbia.

(7) REFERENCES:

Arntzen, J.W. & Wallis, G.P., 1999. Geographic variation and taxonomy of crested newts (*Triturus cristatus* superspecies): morphological and mitochondrial DNA data. *Contributions to Zoology*, 68: 181-203.

Crnobrnja, J., Kalezic, M.L., Dzukic, G., 1989. Genetic divergence in the crested newt (*Triturus cristatus* complex) from Yugoslavia. *Biosistematika* 15: 81-92.

Crnobrnja, J., Kalezic, M.L., 1990. The organization of the genetic variation in the crested newt (*Triturus cristatus* complex) from Yugoslavia. *Genetika* 22: 133-146.

Crnobrnja-Isailovic, J., Dzukic, G., Krstic, N., Kalezic, M.L., 1997. Evolutionary and paleogeographical effects on the distribution of the *Triturus cristatus* superspecies in the central Balkans. *Amphibia-Reptilia*, 18: 321-332.

Kalezic, M.L., Dzukic, G., Mesaros, G., **Crnobrnja-Isailovic, J.**, 1997. The crested newt (*Triturus cristatus* superspecies) in ex-Yugoslavia: Morphological structuring and distribution patterns. *Univ. Thought, Nat. Sci.*, IV: 39-46.

Litvinchuk, S.N., Borkin, L.J., Dzukic, G., Kalezic, M.L., Khalturin, M.D., Rosanov, J.M., 1999. Taxonomic status of *Triturus karelinii* on the Balkans, with some comments about other crested newt taxa. *Russian Journal of Herpetology* 6: 153-163.

Wallis, G.P. & **Arntzen, J.W.** 1989. Mitochondrial-DNA variation in the Crested Newt superspecies: limited cytoplasmic gene flow among species. *Evolution* 43: 88-104.