Project Update: December 2016

The amphibian fauna in Armenia is represented by seven species. Among these species is northern banded newt *Ommatotriton ophryticus* (estimated as CR) and spadefoot toad *Pelobates syriacus* (estimated as VU); both are included in the country red book. In the framework of the previous project it was shown that northern banded newt is presented by few populations in Lori province. The size of populations is critically low and habitats are more or less degraded. Spadefoot toad has a mosaic distribution in central and southern Armenia; its habitats are mainly surrounded by agricultural landscapes and are under heavy anthropogenic pressure with biotope degradation, land ploughing, and particularly pollution of water bodies by pesticides, fertilisers, livestock, household waste, etc. No protection measures are applied for both species and no habitats are presented in the existing protected areas. Thus, elaboration and implementation of conservation measures of these species is necessary.

My project is aimed to continue assessment of population conditions of red-listed amphibians and to elaborate and implement methods of breeding of these amphibians exsitu for further reintroduction into undisturbed habitats. Special issue of the project is public awareness raising, especially with the young generation, and involvement of the local community members in implementation of conservation measures of red-listed amphibian species.

The field surveys were carried out from May to September 2016 in Lori, Tavush, Kotayk, and Armavir Provinces of Armenia (Fig. 1, 2). The following activities were implemented:

- Habitats suitable for the species survival was observed in Lori and Tavush Province (for northern banded newt Fig. 1) and in Kotayk, and Armavir Provinces (for spadefoot toad Fig. 2).
- Over 30 adult and 20 2-year old individuals of newt from populations living in degraded habitats were collected and moved into better habitats newly revealed in Tavush and Lori Provinces.
- Five adult pairs of *Ommatotriton ophryticus* for formation of laboratory (ex-situ) populations were collected.

The laboratory work was done from June to September 2016.

- The vivarium, consisting of three aqua-terraria, and seven aquaria with necessary tools, was created.
- The experiments on housing of *Ommatotriton ophryticus* in different conditions to find out the best ones were carried out.

The public awareness programme was done from September to November 2016. The activities were:

• Information programme with the preparation of the presentations for schools and local community members was carried out on following themes: "Red Book amphibian species of Armenia", "The features of behavior and breeding of the newt"

and "The monitoring and conservation of Armenian Red Book amphibian species and their habitats".

- The calendars presenting two Armenian red book species of amphibians and a poster containing detailed information on both species were prepared (Figs. 7-8).
- The poster and calendars were distributed among: a) secondary and high schools and local community members of Yerevan, Alaverdi towns and Voghjaberd, Rind villages;
 b) some institutes of higher education in Yerevan (Yerevan State University, Armenian State Pedagogical University, etc.); c) some Headquarters of EPAs: "Dilijan" National Park, Reserve-parks complex of the Ministry of Nature Protection of RA, "Djrvezh" recreational forest, "Idjevan" dendropark, etc.
- The lectures in secondary and high schools of Yerevan, Vagharshapat (Echmiadzin) towns and Voghjaberd, Rind villages of Kotayk, Armavir and Vayots Dzor Provinces were done (Fig.6).

Preliminary Results:

- The observations of the newt census in previously known and newly-observed sites (Debed river basin (six localities), Tashir river basin (four localities), Aghstev river basin (five localities) and Getik river gorge (one locality)) were carried out (Fig. 3 A; 4 A-D; 5 A-B). From sites surveyed, newt was found in only five sites. Among these during the current season, the population condition of the northern banded newt was satisfactory in three sites (NW and N of Alaverdi town, Debed river basin, S of Tashir town, Tashir river basin); in the other localities, the conditions of biotopes was bad and population numbers were very low.
- It was observed that *Pelophylax ridibundus, Rana macrocnemis, Hyla orientalis shelkownikowi* and sometimes *Bufo variabilis* are accompanying species in the studied area, inhabiting by the northern banded newt.
- Over 30 adult and 20 2-year old individuals of newt from populations living in degraded habitats (continuous shoaling of water-bodies, high density of the main juvenile predator, *Pelophylax ridibundus*, etc.) were collected and moved to better habitats newly revealed in Lori (two localities) and Tavush (two localities) provinces (Fig. 3, A - B).
- The *Pelobates syriacus* census was carried out in previously known and newlyobserved sites (Kasagh river basin (six localities), Azat river gorge (four localities) and Arpa river basin (two localities) was done (Fig. 2 map Vayots Dzor). Spadefoot toads were recorded in two sites surveyed (Arax river basin and Arpa river basin); among these populations, conditions were good in three localities (near Rind and Ranchpar villages). Others were characterised by bad conditions of biotopes.
- Five adult pairs of *Ommatotriton ophryticusi* were collected for the formation of laboratory (ex-situ) populations (Fig. 2. A-D).
- Due to the late start, newts found in the field had already nearly finished reproductive activities and only a few individuals with eggs were taken and delivered to the lab. The eggs were incubated in the laboratory and newt larvae were hatched. The restricted time didn't allow us to create good enough conditions for adults in vivarium, so, individuals collected were released to suitable biotopes after a short time in the lab. In spring next year we are planning to continue our experiments in the vivarium.



Fig. 1. Maps of field survey sites of *Ommatotriton ophryticus* (May - August 2016) A – Lori Province, B – Tavush Province



Fig. 2. Maps of field survey sites of *Pelobates syriacus* (May – August 2016) A – Armavir Province, B – Kotayk Province, C- Vayots Dzor Province.

IN THE FIELD AND VIVARIUM



Fig. 3. A- Pond near Alaverdi town (mountain steppe zone, habitat of *Ommatotriton ophryticus, Hyla orientalis shelkovnikovi, Pelophylax ridibundus, Rana macrocnemis*); B – newt eggs on water plant; C - newt eggs, incubated in laboratory condition; D – adult male and females of newt.



Fig. 4. During fieldwork. A - D - Re-placing of newts into comfortable newly revealed habitats in Lori and Tavush Provinces.



Fig. 5. A- The habitat of newt newly revealed in Tavush Province; B – pond near Hatsavan village (habitat of *Bufo variabilis, Hyla savignyi, Pelophylax ridibundus* (Kotayk Province), C – adult male of newt; D – adult females of newt.

THE PUBLIC AWARENESS PROGRAM





Fig. 6. A- C - In the Secondary schools.



Fig. 7. Poster (the title in Armenian is: "Rare amphibian species included into Red Book of Armenia").





Fig. 8. Calendars 2017. A – Ommatotriton ophryticus; B – Pelobates syriacus