



Midterm Report of the Project

“Current state of endangered insect species of Southern Armenia and elaboration of measures of their protection”

Application ID: 17140-2

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Preparatory work (March-beginning of April, 2015), included maintenance of entomological equipment already exists; purchasing of additional field and entomological equipment as it is described in the Project' Budget; preliminary mapping and selection of prospective sites for further surveys, which includes: 1) revealing sites already known as distribution localities of Armenian red-listed species but did not surveyed in the recent times; 2) revealing rather undisturbed sites not enough studied yet.

Field works:

Expeditions were carried out to the several localities of Vayots Dzor and Syunik provinces of Armenia in April-September, 2015. In all expeditions participated principal investigator (Dr. Gayane Karagyan), research scientist-entomologist (Dr. Mark Kalashyan), as well as assistant postgraduate students (MSc. Tigran Ghrejyan and MSc. Nushik Zariqyan), all from Scientific Center of Zoology and Hydroecology. Besides, geobotanist Dr. George Fayvush (from Institute of Botany, NAS RA) participated in some expeditions to provide us with botanic information; Dr. Alexandr Danchenko (from Moscow State University) who visited Armenia this summer participated in several of our expeditions collecting some useful data on butterflies.

The following expeditions were carried out:

- 17-26 April (10 days): Reconnaissance expedition aimed to reveal the sites for further survey was carried out in April, 2015 (see Map in Fig. 1). During this expedition several sites (10 localities in Vayots Dzor province and 25 localities in Syunik province) were selected and further observations were conducted mainly in these localities (see Map in Fig. 2).
- 1-6 May (6 days): Tsav, Alvank, Artsvakar, Shvanidzor, Nrnadzor.
- 26-29 May (4 days): Rind, Areni-Noravank, Khachik, Gnishik, Yeghegis, Vernashen, Herher, Vayk, Gndevaz.
- 2-5 June (4 days): Jermuk, Gndevaz, Gorhayk, Sarnakunk, Angeghakot, Sisian, Dastakert, Harzhis, Khndzoresk, Nor Arachadzor.
- 20 -25 June (6 days): Sev lich lake, Kajaran, Geghi, Svarants, Tatev, Shurnukh, Verin Khotanan, Tandzaver.
- 7-11 July (5 days): Shikahogh, Tsav, Gyumorants, Alvank, Artsvakar, Shvanidzor, Vank-Kaler, Lichk.
- 22-25 July (4 days): Shvanidzor, Vank-Kaler, Lichk.
- 12-16 August (5 days): Jermuk, Sev lich lake, Nor Arachadzor, Geghi, Kajaran.
- 9-13 September (5 days): Sev lich lake, Khndzoresk, Nor Arachadzor, Geghi, Kajaran.



Fig. 1. Map. Reconnaissance expedition routes.

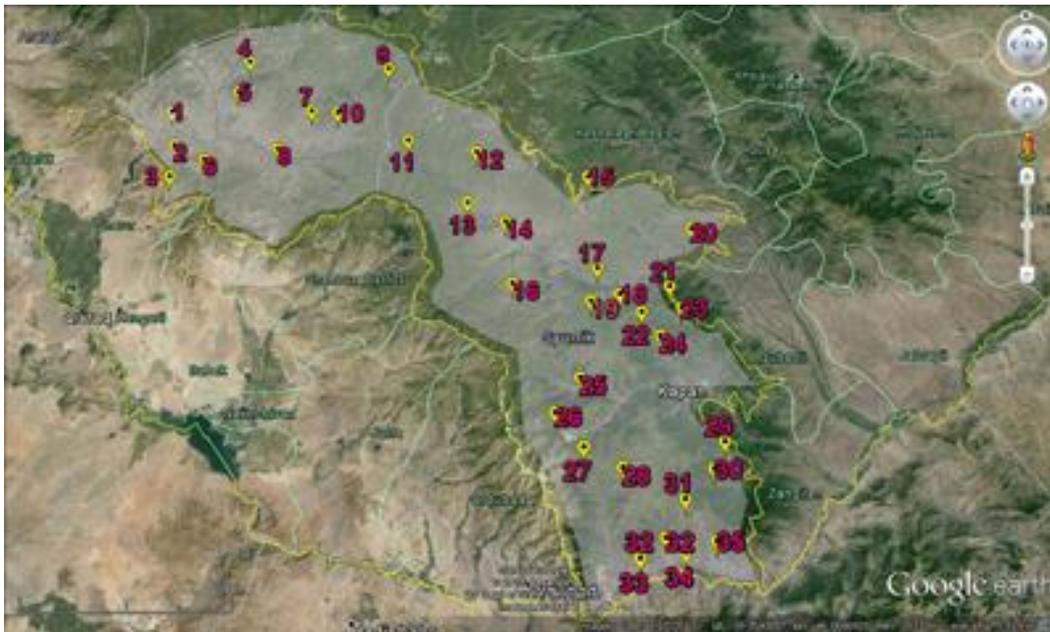


Fig. 2. Map. Observation localities.

loc. 1	Rind	loc. 13	Angeghakot	loc. 25	Geghi
loc. 2	Areni-Noravank	loc. 14	Sisian	loc. 26	Kajaran
loc. 3	Khachik	loc. 15	Sev lich lake	loc. 27	Lichk
loc. 4	Yeghegis	loc. 16	Dastakert	loc. 28	Vank-Kaler
loc. 5	Vernashen	loc. 17	Harzhis	loc. 29	Shikahogh
loc. 6	Gnishik	loc. 18	Tatev	loc. 30	Tsav
loc. 7	Herher	loc. 19	Svarants	loc. 31	Gyumorants
loc. 8	Vayk	loc. 20	Khndzoresk	loc. 32	Alvank
loc. 9	Jermuk	loc. 21	Shurnukh	loc. 33	Artsvakar
loc. 10	Gndevaz	loc. 22	Tandzaver	loc. 34	Shvanidzor
loc. 11	Gorhayk	loc. 23	Nor Arachadzor	loc. 35	Nrnadzor
loc. 12	Sarnakunk	loc. 24	Verin Khotanan		



Fig. 3. Field work' activities.

Traditional methodologies of entomological field researches were applied (see Fig. 3). During the field work among 66 red-listed species previously known from the territory surveyed (Vayots Dzor and Syunik provinces of Armenia) 46 insect species included into the country's Red Book were registered; from these for 22 species new localities did not mentioned in the Book were revealed. Pictures of four of them are presented below (Figs 4-7). Among these species blue *Agrodiaetus damonides* (Fig. 6) is of very special interest: this species endemic of Southern part of Zangezur range was last time registered here more than 40 years ago from the locality completely destroyed due to mining activity (see Fig. 14) and could be preliminary estimated as extinct; and the new site is of crucial importance for species

protection. New data on the species biology and ecology were revealed as well.



Fig. 4. *Procerus scabrosus fallettianus* Cavazzutti registered in env. Harzhis (Syunik province). (Photo by G. Karagyan).



Fig. 5. *Dorcadion bistratum* Pic. registered in env. Gorayk (Syunik province). (Photo by M. Kalashyan).



Fig. 6. *Agrodiaetus damonides* (Staudinger) registered in NNW env. Meghri (Syunik province). (Photo by A. Danchenko).



Fig. 7. *Colias aurorina* Herrich-Schaffer registered in env. Harzhis (Syunik province). (Photo by A. Danchenko)

Several rare species don't included into the current edition of Red Book of RA were registered; the data collected will be used for assessment of their status according to IUCN Red List' Criteria for further decision of their inclusion into the next edition of Armenian Red Book. Dragonfly *Cordulegaster vanbrinkae* Lohmann (Fig. 8), grasshopper *Pezodymdusa magnifica* (Werner) (Fig. 9), beetles *Trichodes zebra* Falderman (Fig. 10) and *Cortodera colchica kalashiani* Danilevsky (Fig. 11), as well as butterfly *Thaleropsis ionia* Fischer von Waldheim & Eversmann (Fig. 12) and moth *Hyles lineata* (Fabricius) (Fig. 13) are figured in this Report together with pictures of their localities.



Fig. 8. *Cordulegaster vanbrinkae* and its habitat near Verin Khotanan vill. (Photo by V. Ananian)



Fig. 9. *Pezodymdusa magnifica* and its habitat, Artsvakar gorge. (Photo by M. Kalashyan)



Fig. 10. *Trichodes zebra* and its habitat near Meghri town. (Photo by G. Karagyan)



Fig. 11. *Cortodera colchica kalashiani* and its habitat, Meghri pass. (Photo by G. Karagyan)



Fig. 12. *Thaleropsis ionia* and its habitat, Artsvakar gorge. (Photo by G. Karagyan).



Fig. 13. *Hyles lineata* and its habitat, Noravank gorge. (Photo by G. Karagyan).

Some observations were made to assess the current threats to the containing ecosystems. It was realized that the majority of threats are due to mining activity (which more or less came from Soviet time and are somewhere continuing) and due to uncontrolled economical activity of peoples (especially more or less powerful) in current so called "economy in transition". Some examples of both kinds of activities are figured below (Figs 14-17)



Fig. 14. Agarak open-mine: former locality of *Agrodiaetes damonides*. (Photo by G. Karagyan).



Fig. 15. Geghanush tailing damp near Kapan town – one of destroyed localities of *C. scabrosus falletianus* and *Parnassius mnemosyne rjabovi*. (Photo by G. Karagyan).



Fig. 16. The results of semi-legal tree-cutting near Verin Khotanan vill. (site of *C. scabrosus falletianus* and *Parnassius mnemosyne rjabovi* as well as of the prospective dragonfly *Cordulegaster vanbrinkae* (see for comparison the picture of the same locality in Fig. 8). (Photo by V. Ananian).



Fig. 17. Territory of “Zangezur” sanctuary torn away by unknown authority for semi-legal construction of micro HPP in the site of surviving of 6 insect species from Armenian Red Book. (Photo by Anonymous).

Laboratory studies.

- Identification of several specimens of Coleoptera, Odonata, Lepidoptera and Orthoptera doubtfully identified in the field was carried out;
- GIS-based database designed in the framework of our 1st RSG Project was completed by the data on insect species from Southern Provinces of Armenia.

Due to seasonal characteristics and time-table capacities the implementation of **environmental public awareness rising program** was restricted only by meetings and consultations with some local communities' authorities and, especially, with authorities of Protected Areas (Shikahogh Reserve, Kajaran Sanctuary, Arevik National Park, Jermuk Hydrological sanctuary, Gnishik local community based Protected area, etc.) of the survey area to co-ordinate further activity. The further activities (lectures in schools, meetings with local communities members etc.) will be conducted during Autumn, 2015-Spring, 2016. For these activities MO Power Point files presenting importance of insects and their protection were created as well as poster presenting some insect species included into Red Book of the Republic of Southern Armenia were prepared and published (in 50 copies) for further dissemination among stakeholders (Fig. 18).



Fig. 18. Poster (the title in Armenian is "The Red Book of Animals of the Republic of Armenia. Insects of Vayots Dzor and Syunik Provinces").

The results of our survey are included into the projecting procedure of planned Tatev National Park as a part of its further Management Plan; it is supposed that the set of documents will be submitted to the Government of the Republic of Armenia in December, 2015.

Besides papers already published in the framework of 1st RSG (and reported), one more article was published just recently:

Kalashian M.Yu., Karagyan G.A., Stepanyan I.E., Danchenko A.V. Application of data on some rare insects of Armenia for planning of development of country's system of EPNA (in Russian with English summary) // International conference "Prospects of conservation and sustainable use of natural complexes of Protected Areas", Belarus, Domzheritsy, August 26-29, 2015.