**Project Update: December 2017**

**Summer expeditions to study flora and entomology**

In June-July 2017, the project team organised expeditions to the forest-steppe zone of the Tyumen region with a botanist and entomologist. Modern data were obtained on the state of invertebrate fauna and vegetation in the forest-steppe areas, which are planned to be the main zones of the protected natural area within the framework of the project.

The flora of the northern forest-steppe zone (Photos 1 and 2) is represented, according to our data, by 420 species, subspecies and plant hybrids belonging to 64 families and 227 genera, which is less than half of the species richness of the entire forest-steppe zone of the Tyumen region. It is characterised by a significant percentage of species located at the limit of their natural range: here are the southern boundaries of the distribution of at least 170 species of the non-moral-boreal complex and about 200 of the steppe complex. The presence of rare species listed in the Red Data Book of the Tyumen Region was also noted: *Allium nutans, Stipa pennata, Peucedanum morisonii, Rhaponticum serratuloides, Scorzonera parviflora* (Photo 3), *Onosma simplicissima, Hypericum elegans, Limonium caspium, Salvia stepposa* (Photo 4), *Cerasus fruticosa, Castilleja pallida, Digitalis grandiflora, Pedicularis dasystachys, Veronica incana, Veronica krylovii.*

Photo 1 & 2

Photo 3 & 4

Within the framework of the study of invertebrate fauna, nine orders and 267 species of insects and arachnids were identified. The general ecological and zoogeographic characteristics of the invertebrate fauna are given of investigated region. The invertebrate fauna of the forest-steppe is mainly represented by polyzonal meadow species that occur in other natural zones but reach the maximum abundance here. The proportion of steppe, southern species is small and amounts to about 20%. It was also noted the presence of rare species listed in the Red Book of the Tyumen region: *Lycosa singoriensis, Iphiclides podalirius* (Photo 5)*, Hyles euphorbiae, Euchalcia modestoides*. It was interesting to find *Argiope bruennichi* (Photo 6), with was found in Tyumen region in 2012 for the first time.

Photo 5 & 6