



Spreading of *Astracantha* and *Astragalus* Species in Nakhchivan AR Subalpine and Alpine Flora

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Subalpine and alpine zones cover the high mountainous areas. These areas are mainly flat fields where sometimes one can meet harsh rocky mountain valleys. Highland-meadow soils are covered with subalpine high grass, different grassy-grainy field plants. Sometimes subalpine meadows cover rocky areas and in high steep slopes the meadows are partitioned.

In the higher borders of the forests the mezophit forest meadows spread out of the forests and receive high mountain elements. At the same time high mountain elements influence the forest territories and at the result there form alpine and subalpine meadows in these areas. As a matter of fact the subalp meadows formed of mixing the forest and mountain elements. While spreading to the higher points, the high number of mountain elements make these meadows look like subalpine meadows very much. In the partly flat areas of northern and north-western territories of the highland regions one can meet mezophit subalpine meadows. Relatively, in stiffer and more rocky areas these meadows are met like dry subalpine meadows. In the mountain skirts of the highland areas, the mezophit subalpine meadows change shape depending on ecological condition. These meadows become very firm thanks to the turf making grainy plants.

Dry subalpine meadows have spread in the steep mountain slopes which get lots of sun rays. Relatively in rocky

areas Astragals also added into these cenoses. Thickness of dry subalp cenoses is relatively weak compearing with other subalpine cenoses. In these areas drying prosess begins earlier depending on the climate features. In the fine soils, in the stiff rocky valleys and river slopes one can meet much more pillowshaped plants. There have spread more *Onobrychis cornuta* and thorny *Astracantha aurea* species. On dry rocky slopes and in bushy cserofits *A. cornutus* Pall, *A. euoplus* Trauty species are also added into these groups. Among the pillowshaped and thorny Astragals there have spread short *Juniperus communis*, *Cotoneaster melanocarpus*, *Crataegus orientalis* bushes together with *Tritesum pratense*, *Papaver orientale*, *Bupleurum exaltatum*.

By nature, in the mezofit subalpine meadows of different grassy-grainy turf composition, one can meet *Astragalus glycyphylloides* and *A. glycyphollos* species. In relatively humid areas one can meet *A. goktschaicus* and *A. cicer* species in this composition. Unlike the forest flora though the subalpine elements don't form new groupings but they take an active part on formation of different fitoceneses.

In Agabba and Jamalgala areas near Kechily village, in Zorbulag, Khazine top, Dikdash areas of the Batabat summer pasture the *Astracantha insidiosa*, *A. aurea*, *A. flavirubens* species form groupings together with mezofit species and they cover large areas. Different plants that they form groupings together with are the followings: *Chaerophylleta aureum*, *Pastinaca armena*, *Cephalaria procera*, *C. Armeniaca*, *Bromopsis variegata*, *Poa pratensis*, *Potentilla argaea* *Poa nemoralis*, *Poa bulbosa*, *Poa pratensis*, *Ranunculus caucasicus*, *Ranunculus meyerianus*, *Potentilla argentea*, *Filipendula ulmaria*, *Inula auriculata*, *Phleum phleoides*, *Phleum pretense*, *Festuca valesiaca*, *Dactylis glomerata*, leguminous plants-*Trifolium canescens*, *Trifolium pretense*, *T. fontanum*, *T. trichocephalum*, *T. medium*, *Vicia balansae*, *V. Nissoliana*, *V. Grossheimii*, *V. Variabilis*, *Lens ervoides*, *Lotus tenuis*, *L.*

Corniculatus, *Lathyrus chlorantys*, *L. Pratensis*, *L. aphaca*. Sometimes *Astragalus glycyphyllos*, *A. falcatus* species also mix into this composition. The *Astragalus finitimus* species association is met only around Channab village Ordubad region. In the highland direction one can meet a few number of *Astragalus polygala*, *A. gokchaicus*, *A. gezeldarensis* species in the floral grouping compositions. In the alpine zone meadow groupings , though *Alchemilla seicea*, *Carum caucasicum*, *Plantago saxatilis*, *Taraxacum stevenii* species cover large areas, in stiff slopes of cserofit nature south expositions, the *Astragalus* species within other cserofit groupings have spread in large areas. The complex ecological factors influence on the highland zone plants. These factors are especially important in life, seasonal development, structure and physiology of plants of these areas. Especially pillowshaped, short and other plants have spread much in these areas. In the stony-rocky areas of southern and south-eastern expositions of highland zones the *Achantolimon araxanum* Bunge, *Astracantha aurea* (Wild) Podlech, *A. microcephala* (Wild) Podlech, *Onobrychis cornuta* species have spread together with pillowshaped species as *Draba bruniifolia* Stev., *Campanula ausheri* A.DC., *Astragalus incertus* Ledeb., *Saxifraga cartinaginea* Wild., *Saxifraga sibirica* L., *Arabis caucasica* Schlecht. Sometimes one can meet *Astragalus incertus*, *Astragalus polygala*, *Astragalus gezelderenss* species together with the plants named above.



Image 1. *Astragalus incertus*

Acantholimon-tracachanta groupings have spread widely in southern and south-eastern stony-rocky and relatively stiff areas of the alpine zone. In these areas *Astragalus euoplus*, *Astrachanta aurea* species cover large areas together with Acantholimons. In stony-rocky areas usually the pillowshaped species as *Draba bruniiifoli*, *Campanula tridentata*, *Minuartia oreina* (Mittf.) Schischk., *Sibbaldia parviflora* include into the fitoceneses. Stony-rocky alpine meadows are usually stripe shape because of the rocks and falling stones.

As the alpine meadows are regularly pastured, the erosion process has increased in this areas and for this reason perishing danger of some species has increased. *Astragalus alpinus* species has spread in the mezofit nature medow areas.



Image 2. *Astragalus alpinus*

If we pay attention to spreading of the types included into *Astragalus* species, we can divide them into 4 groups according to the spreading areas. 1) Thermophil groups. These groups are usually acclimatized to grow in the hotter areas and spread in the flat plains, mountain skirts and lower mountainous zones. 2) Mesotherm groups. The mesotherm groups have spread in the mid-highland zones and usually grow in warm areas. We have to note that among *Astragalus* species, the Mesotherm species have spread in wider areas and much more by number of species. 3) Criophits. The Criophit groups are acclimatized to the cold and dry climate of the highlands and spread in the

alpine and subalpine zones. 4) Another group of the Astragals is the mezofit nature coylophils. They spread in river sides, valleys and humid areas. One can meet them in all zones.

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