The Current State of the Herb-Shrub Association with the Participation of the Red Book Endemic Species *Juno Orchioides* in the Tashkent Region (Uzbekistan)

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Abstract:- The article provides a review of studies of the vegetation cover of the Western Tien Shan of the North-Eastern slope of the Kurama ridge of the Parkent district (the left bank of Parkentsai) with the participation of the rare endemic species Juno orchioides. The article presents the main results of work in the field of geobotany and botanical geography carried out in the Tashkent region. A list of plants of 4 communities of the herb-shrub association with the participation of the species Juno orchioides is given. The association contains more than 90 species of plants. Of these, trees - 10, shrubs - 9, perennials - 71, annuals -8. Anthropogenic factors and grazing are the reason for the decrease in this species of Juno orchioides, and in the future, measures for reintroduction must be applied to preserve and restore this species.

Keywords:- Vegetation, Herb-Shrub Association, Juno Orchioides, Tashkent Region.

I. INTRODUCTION

It is known that co-growing plants form a plant community, or phytocenosis. A plant community is a collection of plants growing on one part of the earth's surface, adapted to live together and affect each other and the environment.

Plant association is a common generic concept, differing not only in volume, but also in its essence. Community is a local, concrete concept, while association is an abstract concept, the result of generalization [1].

According to U. Allanazarova, A.Ya. Butkova and M.M. Nabieva [2], in Uzbekistan in 1923 variegated rocks (as part of *Juno narynensis*) of the Southern Pamir-Alai were originally studied by M.G. Popov. U. Allanazarova, A.Ya. Butkov, G.Kh. Khamidov in 1984 as part of a plane-

tree formation, the species *Juno warleyensis* is found with an abundance of Sp^2 [3]. R.S. Wernick, R.D. Melnikova, Sh.K. Kamalov [4] studied juniper formation (*Juniperus semiglobosa*) with the participation of *Juno tadshikorum*. As part of this formation, *Juno tadshikorum* is found with an abundance of Sp^2 . In the *Juniperus turkestanica* formation, the species *Juno parvula* is found with an abundance of sol.

Plant communities with the participation of the Red Book endemic species *Juno orchioides*, which grows in Uzbekistan, have not been previously studied. This determines the relevance and novelty of our research.

The purpose of the study is to study the current state of the herb-shrub association with the participation of the Red Book endemic species *Juno orchioides* in the Tashkent region.

II. MATERIALS AND METHODS

We conducted a study on the distribution of the Red Book endemic species *Juno orchioides* Tratt. on the herbshrub community in the Tashkent region (Western Tien Shan, on the northeastern slope of the Kurama ridge of the Parkent district, on the left bank of Parkentsai) 2018-2019.

Juno orchioides – the investigated samples were taken: 41°18'48.857" N lat. 69°50'38.393" in. d. 14. IV. 2014 (Fig. 1). It is listed in the Red Book of the Republic of Uzbekistan [5], it is a rare endemic of the Western Tien Shan with status 3. Perennial tuberous plant. The roots are cord-shaped, slightly thickened. Bulb 2 cm thick. Stalk 10-30 cm tall, with leaves spaced; internodes are noticeable, at least at the end of flowering. The leaves are light green, sickle-shaped, bordered along the edge, rough, gradually narrowed to the apex; lower 2-5 cm wide.



Fig 1:- General view and distribution map of Juno orchioides in Tashkent region

ISSN No:-2456-2165

Ecology: clay and rocky slopes in the foothills and middle and lower zones of the mountains. Range: Central Asia (Western Tien Shan). Uzbekistan When describing herb-shrub communities in the Tashkent region, they used the "Methodological guidelines for the geobotanical examination of the natural forage lands of Uzbekistan" [6].

III. RESULTS AND DISCUSSION

In 2018-2019 a study was conducted on the occurrence of the Red Book endemic species *Juno orchioides* Tratt. on the forbs and shrubs community in the Tashkent region. Four communities 30x30 m in size were studied. The height of the studied territory reaches from 1256 to 1329 m above sea level. These communities differ in soil composition: the soil of the first community is stony-gravel, gray earth; the soil of the second is black earth, less often stony; the fourth – black earth, less often stony.

As a result of the studies, the variability of the composition of plant species of the 4 studied communities

was noted. The total degree of vegetation coverage of the soil is 70-80%, the aspect is green. Of these, trees and shrubs account for 40-50%, the rest are annual and perennial plants, and ephemera accounted for 30% (table 1).

The main plant species as edificators are: *Crataegus turkestanica, Malus sieversii, Prunus divaricata, Crataegus pontica, Acer semenovii*; and as a co-identifier are: *Lonicera altmannii, Lonicera nummulariifolia, Rosa kokanica, Rosa fedtschenkoana, Ceracus erythrocarpa, Spiraea hypericifolia, Cotoneaster multiflora;* the dominant communities are *Glysyrrhiza glabra, Hypericum scabrum, Poa bulbosa, Ziziphora pedicellata, Cousinia radians, Bromus danthoniae.*

Acroptilon repens, Achillea biebersteini, Eremurus regelii, Haplophyllum perforatum, Plantago lanceolata, Prangos pabularia, Phlomoides speciosa, Verbascum songaricum, Ceratocephalus testiculatatus met as adventitious species.

Species	1	2	3	4			
Trees							
Acer turkestanicum Pax.	Sp^1	-	_	-			
Acer semenovii Regel et Herd.	Sol	Sp ²	-	-			
Crataegus turkestanica A. Pojark.	Sp ³	Sp ²	Sp ²	-			
Crataegus pontica C. Koch.	Sol	sp ²	Sol	-			
Elaeagnusorientalis L.		-	-	Sp ¹			
Juniperus turkestanica Kom.	Sol	-	-	-			
Malus sieversii (Ledeb.) M. Roem.	\mathbf{Sp}^1	Sol	Sol	-			
Padus mahaleb (L.)Vass.	-	Sp^1	-	-			
Prunus divaricate Ledeb.	\mathbf{Sp}^1	Sp^1	Sol	-			
Pistacia vera L.	-	-	-	Sol			
Shrubs							
Berberis oblonga Schneid.	Sol	Sp^1	\mathbf{Sp}^1	-			
Ceracus erythrocarpa Nevski	Sp ³	\mathbf{Sp}^{1}	-	\mathbf{Sp}^{1}			
Cotoneaster multiflora Bunge.	Sol	Sp ¹	\mathbf{Sp}^1	Sp ¹			
Ephedra equisetina Bunge	-	-	-	Sol			
Lonicera altmannii Regel et Schmalh.	sp^1	Sp ²	Sp^2	Sp ¹			
Lonicera nummulariifolia Jaub. et Spach	\mathbf{Sp}^1	Sp^1	Sp^2	Sp^1			
Rosa kokanica (Regel) Juz.	\mathbf{Sp}^2	Sp ²	Sp^2	\mathbf{Sp}^1			
Rosa fedtschenkoana Regel	Sp^2	Sp ¹	Sp^2	Sp ¹			
Spiraea hypericifolia L.	\mathbf{Sp}^1	Sp ¹	\mathbf{Sp}^1	Sp ¹			
Perennial herbaceous plants							
Aegilops triuncialis L.	-	-	-	Sp ²			
Allium borsczewskii Lipsky	Sol	Sol	Sol	Sp ¹			
Arctium lappa L.	\mathbf{Sp}^1	-	-	-			
Arctium lejospermumJuz. et Serg.	-	Sp ¹	-	-			
Artemisia absinthium L.	Sol	-	Sol	Sp ²			
Artemisia dracunculus L.	-	Sp ¹	_	-			
Arum korolkovii Regel	\mathbf{Sp}^1	-	\mathbf{Sp}^1	Sp ²			
Astragalus ophiocarpys Bent.	Sol	Sol	\mathbf{Sp}^1	-			

ISSN No:-2456-2165

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Achile milefolium L. Spi	A chillea hiebersteinii A fan	Sn ¹	sp	Sn ¹	Sn ¹
Achillea filpendulina Lam. Sp^i Sp^i Sp^i Sp^i Sp^i Sp^i Sp^i Sp^i $ Sp^i$ Bromus danihoniar Trin. Sp^i Sp^i $ Sp^i$ $ Sp^i$ $ -$	Achillea millefolium L	Sp ¹	$\frac{sp}{Sn^1}$	$\frac{Sp}{Sn^2}$	
Brows duthoniae Trin. Sp^1 Sp^2 $ Sp^1$ $ Sp^1$ $ Sp^1$ $ -$	Achillea filipendulina I am	Sp ¹	$\frac{Sp}{Sn^1}$	$\frac{Sp}{Sn^2}$	Sp^2
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Leipingia trichopiora (Link) NevškiSp ² $Echinops karatavicus Regel & SchmalhSp2Ferula tenuisceta KorovinSolSolSp1Sp1Galatella coriacea NovopokrSp1Galium pamiroalaicum PobedSp1Glycyrrhizg glabra L.SolSp1Sp2Sp2Gentiana olivieri GrisebSp2Haplophyllum perforatum Kar. et KirSp1Helichrysum maracandicum Popov ex KirpSp1Hypericum scabrumL.Sp1Sp1Sp1Sp1Hypericum scabrumL.Sp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp1Sp1Sp2Inuo orchioidesTrat.SolSp1Ligutaria thomsonii (Clarke) PojarkSp2-Meninocus linifolius (Steph.) DC.Sp1Sp1Sp1Sp1Meninocus linifolius (Steph.) DC.Sp1Sp1Sp1Sp1Meninocus linifolius (Steph.) DC.Sp1Sp1Sp1Sp1Muntha asiatica BorissSol-Sp2-Muntha asiatica BoriskSp1Sp1Sp1Sp1<$	<i>Eremurus regelu</i> Vved.	-	Sp ¹	Sp ²	-
Echinops karatavicus Regel & SchmalhSp ⁴ Ferula tenuisecta KorovinSolSolSolSp ¹ Sp ¹ Galatella coriacea NovopokrSolSp ¹ Galitella coriacea NovopokrSolSp ¹ Galitella coriacea NovopokrSolSp ¹ Galitella coriacea NovopokrSolSp ¹ Gentiana olivieri GrisebSp ² Haplophyllum perforatum Kar. et KirSp ¹ Sp ¹ Sp ¹ Helichrysum maracandicum Popov ex KirpSp ¹ Hypericum scabrumL.Sp ¹ Sp ¹ Sp ¹ Sp ¹ Sp ¹ Hypericum perforatum L.Sp ¹ Sp ² Sp ¹ Sp ¹ Sp ¹ Hotosteum polygamun C. KochSp ¹ Sp ¹ Sp ² Juno orchioides Tratt.SolSp ² Ligularia thomsoni (Carke) PojarkSp ² Sp ² Mentha asiatica BorissSp ² -Mentocus linifolius (Steph.) DC.Sp ¹ Sp ¹ Sp ¹ Sp ² Origanum rytthanthum Gontsch.Sp ¹ Sp ¹ Sp ¹ Sp ¹ Orbanche uralensis G.BeckSolSp ¹ Sp ¹ Sp ¹ Orbanche uralensis G.Beck.Sp ¹ Sp ² Sp ¹ Sp ¹ Polygonum polycnemoides laub. et Spach.Sp ¹ Sp ¹ Sp ¹ Phlomoides speciose (Rupr.) A	Elytrigia trichophora (Link) Nevski	-	-	-	Sp ²
Ferula tenuisecta KorovinSolSolSolSp1Sp1Galatella coriacea NovopokrSp1Galium pamiroalaicum PobedSolSp1Glyverrhiza glabra L.SolSp1Sp2Gentiana olivieri GrisebSp1Sp2Gentiana olivieri GrisebSp1Sp2Haplophyllum perforatum Kar. et KirSp1-Sp1Helichrysum maracandicum Popov ex KirpSp1Hypericum scabrumL.Sp1Sp1Sp1Sp1Sp1Hypericum perforatum L.Sp1Sp2Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp2Sp1Sp1Sp1Holosteum polygamum C. KochSp1Sp1Sp2Sp1Juno orchioidesTratt.SolSp1Sp2Menha asiatica BorissSp1Sp2Sp1Menincus Inifolius (Steph.) DC.Sp1-Sp2Sp1Menicago sativa L.Sp1Sp1Sp1-Sp2Orosanche uralensis G. BeckSolSp1Sp1Sp1Sp1Orobanche uralensis G. BeckSolSp1Sp1Sp1Sp1Pol bulbosa L.Sp1Sp2Sp1Sp1Sp1Drobanche uralensis G. BeckSolSp1Sp1Sp1Sp1Drobanche uralensis G. BeckSolSp1Sp1Sp1Sp1Polygonum po	Echinops karatavicus Regel & Schmalh.	-	-	-	$\mathbf{S}\mathbf{p}^2$
Galatella coriacea NovopokrSp1Galium pamiroalaicum PobedSolSp1Sp2Gentiana olivieri GrisebSp2Gentiana olivieri GrisebSp2Haplophyllum perforatum Kar. et KirSp1Sp1Sp1Helichrysum maracandicum Popov ex KirpSp1Hypericum scabrunt.Sp1Sp1Sp1Sp1Sp1Hypericum perforatum L.Sp1Sp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp1Sp1Sp1Sp1Holosteum polygamum C. KochSp1Sp1Sp2Juno orchioidesTratt.SolSp1Lamium album LSp1Sp2Mentha asiatica BorissSp1Mentha asiatica BorissSp1Sp2Orosma dichroanthum BoissSol-Sp2Origanum polycnemoides Jaub. et Sp4Sp1Sp1Sp1Sp1Origonum polycnemoides Jaub. et Sp4Sp1Sp1Sp1Sp1Origonum polycnemoides Jaub. et Sp4Sp1Sp1Sp1Sp1Origonum polycnemoides Jaub. et Spach.Sp1Sp1Sp1Sp1Origonum polycnemoides Jaub. et Spach.Sp1Sp1Sp1Sp1Origonum polycnemoides Jaub. et Spach.Sp1Sp1Sp1Sp1Phlemoides speciose (Rupr.) Adylov, Kamelin et Makhm.	Ferula tenuisecta Korovin	Sol	Sol	Sp^1	\mathbf{Sp}^1
Galium pamiroalaicum PobedSol Sp^1 Glycyrrhizg glabra L.Sol Sp^1 Sp^1 Sp^2 Gentiana olivieri Griseb Sp^2 Haplophyllum perforatum Kar. et Kir Sp^1 Sp^1 Sp^1 Helichrysum maracandicum Popov ex Kirp Sp^1 Hypericum scabrumL. Sp^1 Sp^1 Sp^1 Sp^1 Hypericum perforatum L. Sp^1 Sp^1 Sp^1 Sp^1 Hordeum bulbosun L. Sp^1 Sp^2 Sp^1 Sp^1 Holosteum polygamum C. Koch Sp^1 Sp^1 Sp^2 Juno orchioidesTratt.Sol Sp^2 Lamium album L Sp^1 Sp^2 Sp^1 Lamium album L Sp^2 Sp^1 Lamium album L Sp^2 Sp^2 Mentha asiatica Boriss Sp^2 Sp^2 Mentha asiatica Boriss Sp^2 Sp^2 Mentha asiatica Boriss Sp^1 Sp^2 Orosama dichroanthum BoissSol Sp^1 Sp^1 Origaman tythanthum Gonsch. Sp^1 Sp^2 Sp^1 Polygonum polycnemoides Lub. et Spach. Sp^2 Sp^1 Sp^1 Polygonum polycnemoides Lub. et Spach. Sp^2 Sp^1 Sp^1 Polygonum polycnemoides Lub. et Spach. Sp^2 Sp^1 Sp^1 Polygonum polycnemoides Lub. et Spach.	Galatella coriacea Novopokr.	_	-	-	Sp^1
$Glycyrrhiza glabra L.$ Sol Sp^1 Sp^2 $Gentiana olivieri Griseb.$ Sp^2 $Haplophyllum perforatum Kar. et KirSp^1-Sp^1Helichrysum maracandicum Popov ex KirpSp^1Hypericum scabrumL.Sp^1Sp^1Sp^1Sp^1Hypericum perforatum L.Sp^1Sp^1Sp^1Sp^1Hordeun bulbosum L.Sp^1Sp^2Sp^1Sp^1Hordeun bulbosum L.Sp^1Sp^2Sp^1Sp^2Holosteum polygamum C. Koch.-Sp^1Sp^2Inula helenium L.-Sp^1Sp^2Ligularia thomsoni (Clarke) Pojark.Sp^2Meniocus linifolius (Steph.) DC.Sp^1-Sp^2Meniocus linifolius (Steph.) DC.Sp^1Sp^1Sp^2Orobanche uralensis G. BeckSolSp^1Sp^1Sp^2Orobanche uralensis G. BeckSolSp^1Sp^1Sp^1Plantago lanceolata L.Sp^1Sp^1Sp^1Sp^1Polublosa L.Sp^1Sp^2Sp^1Sp^1Plantago lanceolata L.Sp^1Sp^1Sp^1Sp^1Sp^1Sp^1Sp^1Sp^1Plantago lanceolata L.Sp^1Sp^1Sp^1Plantago lanceolata L.Sp^1Sp^1Sp^1Plantago lanceolata L.Sp^1Sp^1Sp^$	Galium pamiroalaicum Pobed.	-	-	Sol	$\frac{Sp^{1}}{Sp^{1}}$
Gentiana olivieri GrisebSp2Haplophyllum perforatum Kar. et KirSp1-Sp1Helichrysum maracandicum Popov ex KirpSp1Hypericum scabrumL.Sp1Sp1Sp1Sp1Sp1Hypericum perforatum L.Sp1Sp1Sp1Sp1Sp1Holosteum perforatum L.Sp1Sp1Sp1Sp1Sp1Holosteum polygamum C. KochSp1Sp1Sp1Inula helenium LSp1Sp1Sp2Juno orchioidesTratt.SolSp1Ligularia thomsonii (Clarke) PojarkSp2Meniha asiatica BorissSp1Sp2Onosma dichroanthum BoissSol-Origanum rythanthum Gontsch.Sp1Sp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Origanum polycenoides Jaub. et Spach.Sp2-Sp1Plantago lanceolata L.Sp1Sp2Sp1Sp1Polyconum polycenoides Jaub. et Spach.Sp2Poleum paniculatum Huds.Sp1Sp1Sp2Sp1Poleum paniculatum Huds.Sp1Sp1Sp1Sp1Poleum paniculatum Huds.Sp1Sp1Sp1Sp1Poleum paniculatum Huds.Sp1Sp1Sp1Sp1Phleonoides speciose (Rupr.) Adylov, Kamelin et Makhm.<	Glycyrrhiza glabra L.	Sol	Sp ¹	Sp ¹	$\frac{1}{Sp^2}$
Haplophyllum perforatum Kar. et KirSp1-Sp1Helichrysum maracandicum Popov ex KirpSp1Hypericum scabrumL.Sp1Sp1Sp1Sp1Sp1Hypericum perforatum L.Sp1Sp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp1Sp1Sp1Sp1Holosteum polygamum C. KochSp1Sp1-Sp1Inula helenium LSp1Sp1-Sp1Juno orchioidesTratt.SolSp1Sp1Ligularia thomsonii (Clarke) PojarkSp1Sp2Menitocus linifolius (Steph.) DC.Sp1-Sp1Sp1Menitocus linifolius (Steph.) DC.Sp1-Sp1Sp2Onosma dichroanthum BoissSol-Sp2Origanum tythanthum Gontsch.Sp1Sp1Sp1Sp1Polygonum polyceneoides Jaub. et Spach.Sp2Sp1Sp1Polygonum polyceneoides Jaub. et Spach.Sp2Sp1Sp1Polygonum polyceneoides Jaub. et Spach.Sp2Sp1Sp1Polygonum polyceneoides Jaub. et Spach.Sp1Sp1Sp1Pollomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1Sp1Sp1Poleum paniculatum Huds.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Sp1Poleum paniculatum Huds.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.<	Gentiana olivieri Griseb.	-	-	-	Sp ²
Haptophytium perfordum Kar. et KirSp-SpHelichrysum maracandicum Popov ex KirpSp ¹ Sp ¹ Sp ¹ Sp ¹ Hypericum scabrum L.Sp ¹ Sp ¹ Sp ¹ Sp ¹ Sp ¹ Sp ¹ Hypericum perforatum L.Sp ¹ Sp ² Sp ¹ Sp ¹ Sp ¹ Holosteum polygamum C. KochSp ¹ Sp ¹ -Inula helenium LSp ¹ Sp ¹ -Inuo orchioidesTratt.SolSp ¹ Ligularia thomsonii (Clarke) PojarkSp ² Mentha asiatica BorissSp ¹ Mentha asiatica BorissSp ¹ Sp ¹ Onosma dichroanthum BoissSol-Origanum rytthanthum Gontsch.Sp ¹ Sp ¹ Sp ¹ Plantago lanceolata L.Sp ² Sp ¹ Sp ¹ Polygonum polycnemoides Jaub. et Spach.Sp ² Sp ¹ Sp ¹ Polubosa L.Sp ¹ Sp ² Sp ¹ Sp ¹ Phlenun paniculatum Huds.Sp ¹ Sp ¹ Sp ¹ Prangos pabularia Lindl.Sp ¹ Sp ¹ Sp ¹ Phlenun paniculatum Huds.Sp ¹ Sp ¹ Sp ¹ Prangos pabularia Lindl.Sp ¹ Sp ¹ Sp ¹ Policon Species (Rupr.) Adylov, Kamelin et Makhm.Sp ¹ Sp ¹ Sp ¹ Prangos pabularia Lindl.Sp ¹ Sp ¹ Sp ¹ Princetores (Schena L.Sp ¹ Sp ¹ Sp ¹ Prangos pabularia Li	Hand and a flow or of anotany Van at Vin		Cal		S _m 1
Initial dividual robot ex. Ktp.III <th< td=""><td>Halichrysum marggandigum Popoy og Kirp</td><td>-</td><td>Sp</td><td>-</td><td>Sp Sp¹</td></th<>	Halichrysum marggandigum Popoy og Kirp	-	Sp	-	Sp Sp ¹
Hypericum scalarSpSpSpSpHypericum schortSp1Sp1Sp1Sp1Hordeum bulbosum L.Sp1Sp2Sp1Sp1Holosteum polygamum C. KochSp1Sp1-Inula helenium LSp1-Sp2Juno orchioidesTratt.SolSp1Lamium album LSp1Lamium album LSp1Sp2Mentha asiatica BorissSp2Mentha asiatica BorissSp1Sp2Mentha asiatica BorissSp1-Meniocus linifolius (Steph.) DC.Sp1-Sp1-Medicago sativa L.Sp1-Sp1Sp1Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp1Sp1Sp1Sp1Orbanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp2-SolPob abulbosa L.Sp1Sp2Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Rochelia disperma LSp1Sp1Sp1-Prangos pabularia Lindl.Sp2 <td< td=""><td>Hyparicum scabrum</td><td>- Sp¹</td><td>- Spl</td><td>- Sp¹</td><td>Sp¹</td></td<>	Hyparicum scabrum	- Sp ¹	- Spl	- Sp ¹	Sp ¹
Hyperican performant E.SpSpSpSpHordeum bulbosum L.Sp1Sp2Sp1Sp1Holosteum polygamum C. KochSp1Sp1-Inula helenium LSp1-Sp2Juno orchioidesTratt.SolSp1Ligularia thomsonii (Clarke) PojarkSp2Mentha asiatica BorissSp2Mentiocus linifolius (Steph.) DC.Sp1-Sp1Medicago sativa L.Sp1-Sp1Onosma dichroanthum BoissSol-Origanum tytthanthum Gontsch.Sp1Sp1Sp1Orbanche walensis G. BeckSolSp1Sp1Plantago lanceolata L.Sp1Sp2-Polygonum polycnemoides Jaub. et Spach.Sp2-SolPolygonum polycnemoides Jaub. et Makhm.Sp1Sp2Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Prangos pabularia Lindl.Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp2Prangos pabularia Lindl.Sp2-Sp1Sp1	Hypericum scuorumL.	Sp Sp ¹	Sp Sp ¹	Sp ¹	Sp Sp ¹
Hordeum bulbosum L.Sp'Sp'Sp'Sp'Sp'Sp'Holosteum polygamum C. KochSplSplSpl-Inula helenium LSpl-SplJuno orchioidesTratt.SolSplLamium album LSplLigularia thomsonii (Clarke) PojarkSplMenita asiatica BorissSplMenicous linifolius (Steph.) DC.Spl-SplMedicago sativa L.Spl-Spl-Onosma dichroanthum BoissSol-SplOriganum tytthanthum Gontsch.SplSplSplSplPlantago lanceolata L.SplSplSplSplPolygonum polycnemoides Jaub. et Spach.Sp2-Sol-Phleum paniculatum Huds.SplSplSplSplSplPhleum paniculatum Huds.SplSplSplS		Sp	Sp g_2	Sp	Sp G
Holosteum polygamum C. KochSp1Sp1-Inula helenium LSp1-Sp2Juno orchioidesTratt.SolSp1Lamium album LSp1Ligularia thomsonii (Clarke) PojarkSp2Mentha asiatica BorissSp2-Meniocus linifolius (Steph.) DC.Sp1-Sp1-Medicago sativa L.Sp1-Sp1-Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp1Sp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Polygonum polycnemoides Jaub. et Makhm.Sp1Sp2Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp2Ranunculus liperma C. Koch.Sp2Ranunculus linera L.Sp2Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1Sp1-Polygonum polycnemical sub. et Spach.Sp1Sp1Sp1Sp1Sp2 </td <td>Hordeum bulbosum L.</td> <td>Sp</td> <td>Sp²</td> <td>Sp¹</td> <td>Sp</td>	Hordeum bulbosum L.	Sp	Sp ²	Sp ¹	Sp
Inula helenium L Sp^1 - Sp^2 Juno orchioidesTratt.SolSp1Lamium album LSp1Ligularia thomsonii (Clarke) PojarkSp2Mentha asiatica BorissSp2Mentha asiatica BorissSp2Mentocus linifolius (Steph.) DC.Sp1-SolMedicago sativa L.Sp1-Sp1Onosma dichroanthum BoissSol-Onosma dichroanthum BoissSol-Origanum tytthanthum Gontsch.Sp1Sp1Sp1Orbanche uralensis G.BeckSolSp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2Sp2Sp1Pol bulbosa L.Sp1Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Prangos pabularia Lindl.Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1Sp1Sp1Sp1Sp1-Sp1Sp1Sp1Sp1-Sp1Sp1Sp1Sp1-Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp2Sp1Sp1Sp1Sp1Sp1-Sp1Sp1Sp1Sp1-Sp2Sp1 </td <td>Holosteum polygamum C. Koch.</td> <td>-</td> <td>Sp¹</td> <td>Sp</td> <td>-</td>	Holosteum polygamum C. Koch.	-	Sp ¹	Sp	-
Juno orchioidesTratt.Sol Sp^1 Lamium album LSp^1Ligularia thomsonii (Clarke) PojarkSp^1Mentha asiatica BorissSp2-Mentocus linifolius (Steph.) DC.Sp1-Sol-Medicago sativa L.Sp1-Sol-Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp1Sp1Sp1Sp1Orobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp2-Sol-Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Ranunculus linera LSp2Ranunculus linera LSp2Ranunculus linera LSp2Ranunculus linera LSp2Ranunculus linera LSp1Ranunculus linera LRanunculus linera LRanunculus linera L <td>Inula helenium L.</td> <td>-</td> <td>Sp¹</td> <td>-</td> <td>Sp^2</td>	Inula helenium L.	-	Sp ¹	-	Sp^2
Lamium album LSp1Ligularia thomsonii (Clarke) PojarkSp1Sp2Mentha asiatica BorissSp2-Meniocus linifolius (Steph.) DC.Sp1-Sol-Medicago sativa L.Sp1-Sol-Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp1Sp1Sp1Sp1Orobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Phleum paniculatum Huds.Sp1Sp1Sp1Sp1Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Ranunculus linera L.Sp2Ranunculus linera LSp1Sp1-	Juno orchioidesTratt.	Sol	-	-	Sp^1
Ligularia thomsonii (Clarke) PojarkSp1Sp2Mentha asiatica BorissSp2-Menicous linifolius (Steph.) DC.Sp1-Sol-Menicous linifolius (Steph.) DC.Sp1-Sp1-Medicago sativa L.Sp1-Sp1-Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp1Sp1Sp1Sp1Orobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Poa bulbosa L.Sp1Sp1Sp1Sp1Sp1Phleum paniculatum Huds.Sp1SolSp1Sp1Sp1Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1Sp1Sp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp1Sp1Sp1Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Ranunculus linera L.Sp2Ranunculus linera LSp2Ranunculus linera LSp1Ranunculus linera LRanunculus linera LRanunculus linera LRochelia disperma C. Koch <td< td=""><td>Lamium album L</td><td>_</td><td>_</td><td>_</td><td>Sp¹</td></td<>	Lamium album L	_	_	_	Sp ¹
Mentha asiatica Boriss Sp^2 -Meniocus linifolius (Steph.) DC. Sp^1 - Sol -Medicago sativa L. Sp^1 - Sp^1 -Onosma dichroanthum Boiss Sol - Sp^2 Origanum tythanthum Gontsch. Sp^1 Sp^1 Sp^1 Sp^1 Orobanche uralensis G.Beck Sol Sp^1 Sp^1 Sp^1 Plantago lanceolata L. Sp^1 Sp^1 Sp^1 Sp^1 Polygonum polycnemoides Jaub. et Spach. Sp^2 - Sol -Phleum paniculatum Huds. Sp^1 Sp^1 Sp^1 Sp^1 Phleum paniculatum Huds. Sp^1 Sp^1 Sp^1 Sp^1 Prangos pabularia Lindl. Sp^1 Sp^1 Sp^2 Sp^2 Ranunculus leptorrhynchus Aitch. et Hemsl Sp^1 Sp^1 Sp^1 Ranunculus linera L. Sp^2 Ranunculus linera L. Sp^2	Ligularia thomsonii (Clarke) Pojark.	_	_	Sp ¹	$\frac{Sp}{Sp^2}$
Meniocus linifolius (Steph.) DC. Sp^1 - Sol -Medicago sativa L. Sp^1 - Sp^1 -Onosma dichroanthum Boiss Sol - Sp^2 Origanum tytthanthum Gontsch. Sp^1 Sp^1 Sp^1 Sp^1 Orobanche uralensis G.Beck Sol Sp^1 Sp^1 Sp^1 Plantago lanceolata L. Sp^1 Sp^1 Sp^1 Sp^1 Polygonum polycnemoides Jaub. et Spach. Sp^2 - Sol -Pola bulbosa L. Sp^1 Sp^2 Sp^1 Sp^1 Phleum paniculatum Huds. Sp^1 Sp^1 Sp^1 Sp^1 Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm. Sp^1 Sp^1 Sp^2 Sp^2 Prangos pabularia Lindl. Sp^1 Sp^1 Sp^2 Sp^2 Sp^2 Ranunculus leptorrhynchus Aitch. et Hemsl Sp^1 Sp^1 $-$ Rochelia disperma C. Koch. Sp^2 Ranunculus linera L Sp^2 Ranunculus linera L Sp^1 Sp^1 Ranunculus linera L Sp^2 Ranunculus linera L Sp^1 Ranunculus linera L Sp^1 Ranunculus linera L Sp^1 Ranunculus linera LRanunculus linera L	Mentha asiatica Boriss.	-	-	Sp ²	
Mentocus timpotus (Steph.) DC.Sp'-Sol-Medicago sativa L.Sp'-Sp'-Onosma dichroanthum BoissSol-Sp2Origanum tytthanthum Gontsch.Sp'Sp'Sp1Sp1Orobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Poa bulbosa L.Sp1Sp2Sp1Sp1Phleum paniculatum Huds.Sp1Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1Sp1Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Rochelia disperma C. Koch.Sp2Ranunculus linera L		C 1		1 0 - 1	
Medicago sativa L.Sp'-Sp'-Onosma dichroanthum BoissSol-Sp2Origanum tythanthum Gontsch.Sp1Sp1Sp1Sp1Orobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Poa bulbosa L.Sp1Sp2Sp1Sp1Phleum paniculatum Huds.Sp1Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1Sp1Sp2Sp2Prangos pabularia Lindl.Sp1Sp1Sp2Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Ranunculus linera LSp2Ranunculus linera LRanunculus linera LRanunculus linera LRanunculus linera L </td <td>Meniocus linifolius (Steph.) DC.</td> <td>Sp</td> <td>-</td> <td>Sol</td> <td>-</td>	Meniocus linifolius (Steph.) DC.	Sp	-	Sol	-
Onosma alchroanthum BoissSol-Sp ¹ Origanum tytthanthum Gontsch.Sp ¹ Sp ¹ Sp ¹ Sp ¹ Orobanche uralensis G.BeckSolSp ¹ Sp ¹ Sp ¹ Plantago lanceolata L.Sp ¹ Sp ¹ Sp ¹ Sp ¹ Polygonum polycnemoides Jaub. et Spach.Sp ² -Sol-Poa bulbosa L.Sp ¹ Sp ² Sp ¹ Sp ¹ Phleum paniculatum Huds.Sp ¹ Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp ¹ Sp ¹ Sp ² Sp ² Prangos pabularia Lindl.Sp ¹ Sp ¹ Sp ² Sp ² Sp ² Ranunculus leptorrhynchus Aitch. et HemslSp ² Ranunculus linera LSp ² Ranunculus linera LRanunculus linera L	Medicago sativa L.	Sp ²	- C a 1	Sp [*]	- C=2
Origanum tytinannum Gontsch.SpSpSpSpOrobanche uralensis G.BeckSolSp1Sp1Sp1Plantago lanceolata L.Sp1Sp1Sp1Sp1Polygonum polycnemoides Jaub. et Spach.Sp2-Sol-Poa bulbosa L.Sp1Sp2Sp1Sp1Phleum paniculatum Huds.Sp1Phlomoides speciose (Rupr.) Adylov, Kamelin et Makhm.Sp1SolSp1Sp1Prangos pabularia Lindl.Sp1Sp1Sp2Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Rochelia disperma C. Koch.Sp2Ranunculus linera LSp1	Onosma aichroantnum Boiss.	- Sml	Sol Sol	- Cml	Sp ⁻
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Prangos pabularia Lindl.Sp1Sp2Sp2Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Rochelia disperma C. Koch.Sp2Ranunculus linera LSp1-	i monomes speciose (Rupi.) Augiov, Kamenni et Makinni.	yc.	501	Sp	- July
Ranunculus leptorrhynchus Aitch. et HemslSp1Sp1-Rochelia disperma C. Koch.Sp2Ranunculus linera LSp1-	Prangos pabularia Lindl.	Sp ¹	Sp	Sp ²	Sp ²
Rochelia disperma C. Koch.Sp2Ranunculus linera LSp1-	Ranunculus leptorrhynchus Aitch. et Hemsl.	-	Sp ¹	Sp ¹	-
Ranunculus linera L Sp ¹ -	Rochelia disperma C. Koch.	Sp ²	-	-	-
	Ranunculus linera L.	-	-	Sp ¹	-

ISSN No:-2456-2165

Salvia sclarea L.	Sol	Sol	\mathbf{Sp}^1	Sp ²		
Taraxacum officinale Web.	-	Sol	Sol	-		
Trifolium repens L.	\mathbf{Sp}^1	-	-	Sp ¹		
Trifolium pratense L.	Sp^1	Sp ¹	Sp ²	-		
Tragopogon turkestanicus S. Nik.	-	-	-	Sol		
Tragopogon capitatus S. Nik.	-	-	-	\mathbf{Sp}^1		
Tussilago farfara L.	-	-	-	Sp ²		
Verbascum songaricum Schrenk	Sp ²	Sp ²	\mathbf{Sp}^2	Sp ²		
Vicia gracilior M. Pop.	-	Sol	-	-		
Vicia tenuifolia Roth.	\mathbf{Sp}^1	-	-	Sol		
Ziziphora pedicellata Pazij.etVved.	sp ²	Sp ²	Sp ²	Sp ¹		
Annual herbaceous plants						
Capsella bursa-pastoris(L.) Medik.	Sol	-	-	-		
Ceratocephalus testiculatatus Crantz Besser.	Sp ¹	Sp ¹	\mathbf{Sp}^1	Sp^1		
Erodium cicutarium (L.) L'Her.	-	-	-	Sp ²		
Koelpinia linearis Pall.	Sp ¹	-	-	-		
Scabiosa micrantha Desf.	-	-	-	Sp ²		
Tortula desertorum Broth.	-	Sp ¹	-	-		
Tithymalus falcatus L.	Sp ¹	-	-	-		
Trigonella grandiflora Bunge	-	-	Sol	-		

Table 1:- List of plants of communities of the herb-shrub association with the participation of the species Juno orchioides

The bedding of the grass stand is well defined, 4 tiers stand out. The first tier – 3-6 m high, consists of *Crataegus turkestanica, Malus sieversii, Acer semenovii*; the second tier – 1.5-2 m high, are *Rosa kokanica, Rosa fedtschenkoana, Ceracus erythrocarpa, Spiraea hypericifolia, Cotoneaster multiflora*; the third tier – 60-100 cm high – perennial plants are found, such as: *Acroptilon repens, Achillea biebersteini, Hypericum scabrum, Hypericum perforatum, Hordeum bulbosum, Origanum tytthanthum, Poa bulbosa, Ziziphora pedicellata, Cousinia radians, Bromus danthoniae, Glysyrrhiza glabra, Poa bulbosa.* The remaining species belong to the fourth tier.

In the study area, there was a unique population of the rare red endemic plant Juno orchioides, the height of which reaches 30-35 cm. This species was noted in the state of fruiting in the amount of 5-6 pieces. 2 years ago, 18-20 copies of Juno orchioides were recorded in the same territory. The reason for the decrease in this population, obviously, is the location near the populations of the tourist zone, which is the main reason for the disappearance of this species.

Below is a list of plants of 4 communities of the herbshrub association with the participation of the species *Juno orchioides* (table 1). As can be seen from the table, more than 90 plant species are found in the association. Of these, trees -10, shrubs -9, perennials -71, annuals -8. It is known that the abundance of perennials in the plant community (78%) is a characteristic feature for all mountainous areas of Central Asia.

IV. CONCLUSION

Thus, for the first time, a study was conducted on the distribution of the endemic species Red Book Juno orchioides on the herbaceous-shrub community of the Western Tien Shan of the Northeast slope of the Kurama Range. The occurrence of some species in only one area was noted (Juniperus turkestanica, Elaeagnus orientalis, Pistacia vera, Ephedra equisetina, Vicia gracilior, Ranunculus linera, Rochelia disperma, Elytrigia trichophora, Phleum paniculatum, Phlomoides speciosa, etc.). It should also be noted a decrease in vegetation cover on the upper zones of the mountain. The reason for the decrease in the number of Juno orchioides species in the study area is apparently due to the influence of anthropogenic factors and cattle grazing, and in the future, reintroduction measures must be applied to preserve and restore this species. The diversity of adventitious species in these associations indicates the presence of various forms of anthropogenic pressure in the territory.

ACKNOWLEDGEMENTS

The current research is done under the project VA-FA-F5-008 "Scientific bases for the conservation of the gene pool of rare endemic species of the flora of Uzbekistan ex situ and the biology of their reproduction".

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