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Ontogenetıc age features of the rare and endangered *Cotınus Coggygrıa* Scop. specıes ın the flora of Azerbaıjan

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Abstract
Ontogenetic age features of the rare and endangered *Cotinus coggygria* scop. species in the flora of Azerbaijan have been given in the paper.
The phytocenotic characteristics and ontogenetic structure of populations of the Cotinus coggygria species of the *Anacardiaceae* Lindl family were revealed during the study of rare plants. Narrow range and low abundance of species was found.
The maxima was found for the species in the ontogenetic spectra fall on the generative (g2 - g3 groups. Young individuals (j, im, v and g1) are the most threatened. All developmental stages starting from the process of fertilization were studied for this plant and the full life cycle was divided into 4 periods. The condition and rarity of cenopulations have been identified.

Keywords: *Cotinus coggygria* Scop, rare, ontogenetic, latent, virginil, reproductive, senile

Introduction
Research on environmental protection has been conducted and is being conducted in various countries around the world in recent years. Such studies continue in Azerbaijan's biodiversity also (Ibadullayeva *et al*., 2000; Iskender *et al*., 2010, Gasimzade T.E., 2015) [5, 7]. There are about 4700 plant species in the country of which about 450 species are trees and shrubs (Askerov, 2016) [3]. One from each of eight of these species currently in danger of extinction.
The rapid development of industry, which began in the twentieth century and continues to this day has upset the balance of the environment due to the growth of the world's population and their influx into cities. As a result, all living things, including humans are under ecologically damaged. This process remains a problem for all countries of the world. Leading scientific organizations of all countries of the world, seeing the growing environmental threat, have repeatedly held international meetings to take urgent measures and this work continues today. The Azerbaijan Republic is also one of the countries participating in these processes (Azerbaijan is Biodiversity Country, 2004; Azerbaijan Red Book, 2013).
It should be noted that the extinction of any plant species simply due to the imbalance of the environment is a bit controversial. As some plant species are collected by humans to obtain different products and in results their numbers begin to decline. From this point of view, experts have confirmed that the main reason for the extinction of rare and endangered plant species is related to human activities (Mirkin, 1990, Gubina, 1983) [9].
With this in mind, the dependence of the *Cotinus coggygria* Scop. species on biological characteristics in obtaining the status of a rare plant was studied and their analysis was given.

Materıals and Method
The material of the research is unique *Cotinus coggygria* Scop.
Species related to the flora of Azerbaijan "*in situ*" conditions.
Cotinus coggygria Scop. species of *Anacardiaceae* Lindl. families is a very branched shrub or small tree up to 2-4 m tall, described from the Mediterranean - East Asia - Southern Europe. The body is slightly cracked. The leaves are pear-shaped, glabrous on the top, gray on the bottom, usually pile-shaped, with deciduous leaves, 8-10 cm long and 3-7 mm wide. The petals are green and 2 mm long. The vascularization of the leaf is feathery. The flowers are white, small, 3 mm long and numerous scattered brooms up to 20 cm long. All flowers of the flower stalk are very stretches and covered by elongated, reddish or pink hairs. The fruit is black, 2.5-3 mm long and 2-3 mm wide. The ovary is a longitudinally veined fruit. The stamens are 5, 10 or numerous and are located on the edge of the disc with the petals.
Species is widespread in Azerbaijan only on dry slopes and rocky areas. The main reason for the decline is the impact of factors such as cutting the plant, the collection of leaves.
C.coggygria is propagated by seeds and vegetatively. The absolute weight of the seed is 9 grams. Plant flowers in May-June and bears fruit in August-September.
The aim was to study the ontogenetic age characteristics of the plant, to reveal the role of biological features in the reduction of habitats. A number of methods were used during the research [Molchanov *et al*., 1967; Semenova, 2002] [20, 11]. The state of cenopopulations (CP) of *C.coggygria* species was evaluated in terms of number and age of individuals by the method of their complete transfer to the test sites. The definition of age groups of individuals was carried out in accordance with the classification of T.A. Rabotnov [1950] [12], A.A.Uranov [1975] [13] and etc. [6, 7]. The type of CP was established in terms of the number of age groups and their relationship. As an integral characteristic of demographic structure of the CP of iris species used the following population indicators: age index -

Δ [Uranov, 1975; Cenopopulations of plants, 1988] [13]; index of efficiency - [Zhivotovsky, 2001] [4].

Results and theır Dıscussıon

The following species *Cotinus coggygria* have been identified for the first time for the flora of Azerbaijan *var. typis* - the lower part of the leaf and young shoots are bare (hairless) - a common species, found in shady places; *var. pubescens Engl.* - the lower part of the leaf and the unisexual shoots are short-haired; *var. sublaevis Novop.* - the lower part of the leaf and young shoots are weakly hairy as a result of many years of research.

The ontogenetic age characteristics of the plant during the study were divided into 4 periods: Latent period - a period that reflects the formation of the seed after fertilization in the plant and its morphological features; Virgin period - age-related growth and developmental changes in plants: seedlings, juveniles, young and old vegetative plants (period before flowering); Reproductive period - covers the generative period in young, middle and old plants (blooms but does not bear fruit, blooms but does not form full-quality seeds, blooms and produces full-quality seeds); Senile period - a period of reflects the changes that have taken place in the last years of plant life.

Latent period - after fertilization other structural elements that form the structure of the seed begin to form during the development of the embryo as study showed. One of these is the endosperm - a multicellular reserve nutrient tissue. This tissue contains nutrients necessary for the development of the embryo. In some plants, reserve nutrients do not accumulate in the form of a separate tissue (endosperm), but in the embryonic leaves, ie in the nuclei (Semenova 2002) [11].

Rare and endangered *C.coggygria* species is naturally occurring in Azerbaijan. The study of the formation and structural features of the seeds of the species showed that the seeds are divided into 3 types according to their morphological features: primitive, intermediate and advanced types. The endosperm completely fills the seed cavity and the embryo is not morphologically well developed in primitive seeds (Alexander, 2009). The endosperm is normally developed in the middle type. However, the seed does not completely fill the cavity, and the embryo is well developed. No endosperm was observed in the seed cavity under studying the structure and characteristics of the seeds of the *C. coggygria* plant.

The absence of endosperm in the seed does not adversely affect its viability, on the contrary, despite the absence of endosperm in the seeds as shown researches. The viability of their seeds is 80-95%.

In order to determine the growth dynamics and age of *C.coggygria* in the selected 2 populations all individuals encountered from the juvenile to cynical periods were recorded, and the composition of the ontogenesis of cenopopulations (CP) after the results were calculated according to the methodology (Table 1).

Table 1: Age (growth) structure of *C.coggygria* cenopopulation

CP №	CP type	Growth phases of ontogeny (in %)							Indices	
		j	im	V	g_1	g_2	g_3	ss, s	Δ	Ω
3	young	50,2	20,5	11	19,0	11,7	12,1	6,9	0,27	0,46
5	transition	41,1	64,6	20,1	4,6	7,8	3,2	1,5	0,09	0,22
1	mature	6,34	21,7	8,45	19,9	21,9	25,8	9,4	0,41	0,70
2		8,40	60	6,70	27,2	26	19	7,7	0,43	0,71
4		25,1	20,9	12,1	21,2	33,1	33,3	11,4	0,58	0,77

Mainly in populations are found all groups of plant ontogeny, 3 - young, 5 - transitional, 1, 2, 4 - mature populations as can be seen from the table 1 and figure (diagram 1). Efficiency index of the 1st, 2nd and 4th populations is high in the experiments conducted during the study of the cenological condition.

The spectrum of ontogeny in each population is reflected in the histogram (diagram 1).

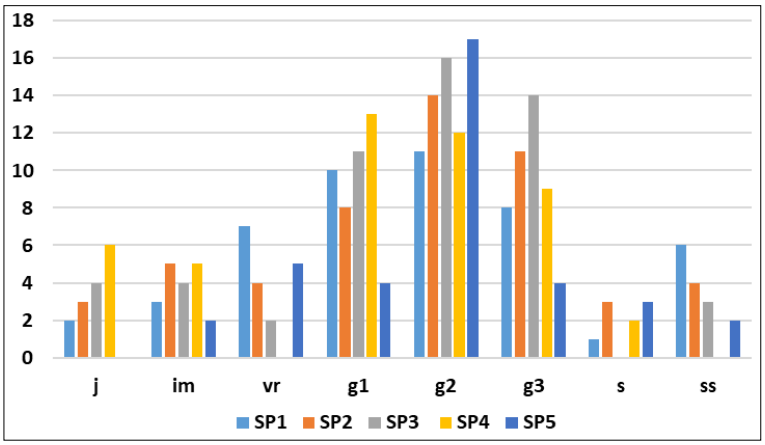

Fig 1: Spectrum of ontogeny in the population (SP) of *C.coggygria* species

Conclusion

Thus, research has shown that the extinction of rare plants can be caused not only by anthropogenic factors, but also by defects in their reproductive organs. The latent period of the ontogeny of plants ends with the germination of seeds. So, the latent period reflects the latent lifestyle of the plant in its embryonic state and can last from 4 months to 23 years depending on the species.

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