
# ENTOMOFAUNA SPECIES DISTRIBUTED ON THE VEGETATION OF THE ARAL SEA BOTTOM GREEN COVER, DEGREE OF HARMFULNESS

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**ABSTRACT**

*This article examines the species of green cover growing in the dried-up territories of the Aral Sea and the entomofauna species distributed within the biocenosis. The results of scientific research conducted during 2025-2026 to determine the positive influence of the external environment and plant species on the development dynamics of pests and entomophages and their degree of harmfulness are included.*

**Introduction**: Until the 1960s, when the Aral Sea was full of water and its main product was directed toward fishing, it was significant for its positive impact on the impact of abiotic factors in these areas. The reason is that sea water and evaporation on its surface, by containing northern cold in winter and heat in summer, primarily contributed to ensuring a unified microclimate in the agroclimate of Karakalpakstan. In recent years, cases of seawater outflow, the drying up of sand and salt, and various toxic substances that rise into the air through winds and spread over long distances have become more frequent. To prevent such negative phenomena, institutions interested in this field in our country, as well as in foreign countries, are working to create a green cover from plant species growing in deserts, and today they are yielding the expected results.

Of the arthropod species adapted to living with intermediate plant species, the absorption of plant food leads to the emergence of species known as pests in these areas and their consideration as the primary elements of the biocenosis. Due to vital needs, conditions for joint development arise between plant species and insects, mites, and many-legged species that consume their food, leading to the appearance of some species of pests that cause plant growth

and development and even the complete death of some of them. Given this, identifying the species of these pests appearing on plants in the green cover created in the dried-up areas of the Aral Sea and scientifically justifying the organization of control measures against them, taking into account differences in developmental bioecology and harmfulness levels, is one of the most important and urgent issues requiring immediate resolution.

**Materials, methods used**: Materials on the chosen topic: Plant species growing on the dried bottom of the Aral Sea, pests, entomoacariphages, and control measures. To determine plant species and the entomofauna forming within them in the dried-up areas of the Aral Sea, the works of B.P. Adashkevich [1], V.I. Tansky [6], K.K. Fasulati [7], V.B. Golub, and others [3] have been developed using methodological techniques. Control measures against the main pests were determined by distribution areas and harmfulness levels using the formula of K.A. Gar (2), Sh.T. Khodjayev [8], and Kh.Kh. Kimsanbaev [5], while beneficial aspects were determined using the Abbott formula [9]. The staging of research experiments and the statistical processing of the obtained data were carried out using methodological techniques developed by B.A. Dospekhov [4].

Analysis of the obtained scientific results showed that despite the great diversity of plant species planted to create green spaces in the dried-up areas of the Aral Sea, specific species were identified based on the conditions of growth and development in the main areas. The results of our observations showed that the conditions for plant growth and development differ depending on the soil composition in different places. Plant species in the main areas include black saxaul (Haloxylon aphyllum Jljin.), white saxaul (Haloxylon persicum Bge), saltwort (Salsola), cherkez (Salsola Richteri Karel.), dogwood (Salsola arbuscula), reed (Phragmites australis (Cav) Trin), Turkestan plaun (Calligonum Turkestanicum), tamarisk (Tamarix L.), black saxaul (Halostachys caspica Bieb C.A.Mey.), white poplar (Acanthophyllum elatius Bunge), snowdrop (Karelinia caspica (Pall) Less), camelthorn (Alhagi persarum Boiss et Bunse), and barberry (Peganum harmala L.).

Among the specified plant species, various age groups of saxauls were encountered as plants of the main areas. As a result of our observations conducted in these areas during 2025–2026, it was established that entomofauna species belonging to the pest group, including numerous species of rosehip, thrips, bugs, cicadas, mollusks, moths, locusts, and flies, have spread and become the primary members of the biocenosis. It was taken into account that among the entomophages of pests distributed in these areas, the ladybug, golden-eyed ladybug, sirfit fly, and predatory arachnids are widely distributed.

When studying the development dynamics of pests, starting from the summer of last year (July 2025) and ending in September with the wintering preparation month, it was established that the main pests—larvae distributed on a single saxaul branch—reached 0.1-1.3 units, thrips 0.4-1.2 units, bedbugs 0.4-0.9 units, moth and locusts 0.2-0.4 units, and the number of other species reached 0.9-3.1 units. The past winter months were relatively mild, and the time for pests to emerge from hibernation ranged from the third decade of March to the second decade of June 2026. The number of pests varied in developmental dynamics across species.

The increase in air temperature this spring, starting from the second decade of March, and even reaching an average daily temperature of 11.9-24.8°C in the Muynak district, has created favorable conditions for the wintering entomofauna to emerge from hibernation. The increase in temperature to 21.7°C, 22.5°C, and 26.0°C in subsequent periods, starting from the first

decade of April, and to 29.0°C and 31.5°C in the first two decades of May, indicates that this is the main consequence of the high pest population level in the areas where the green cover was created.

In the dried areas of the Aral Sea where green cover was created, in the areas where we conduct observations, the number of pest outbreaks on a single saxaul branch was approximately 0.4-1.9 units in April, 11.3-31.4 units in May, and 15.1-27.3 units in June. Among sucking pests, the number of thrips reached 0.2-0.9 units, bugs 0.3-0.8 units, moth and locusts 0.2-0.6 units, and other species 0.1-1.9 units. It was noted that in some areas, they cause significant damage.

It has been established that pest entomophages developing in such areas also appear and reduce the number of species that harm plants. During observations conducted in July-September 2025, it was noted that the population of the khan's daughter on a single branch of saxaul, which is considered the primary entomophage, was 0.8-2.3 units, the golden eye was 0.2-0.8 units, the sirfid fly was 0.3-0.8 units, and the cobwebs were 0.2-1.2 units. In observations conducted from April 2026 to the second decade of June, the number of pests increased by 0.2-0.7 units, 0.1-0.5 units, 0.1-0.3 units, and 0.1-0.2 units by species, while the number of other entomophagous species increased by 0.1-0.4 units.

Despite the significant increase in the number of pests, the lack of a clear definition of the degree of harmfulness of saxaul required precise physiological and small-scale field experiments and conclusions based on the results.

**Conclusion and recommendations for production**: In the areas of the dried-up Aral Sea, many species of drought-resistant plants are found to create a green cover. It was established that saxaul species occupy the first place in terms of distribution and area. It has become known that many pests and their entomophages are the primary representatives of the biocenosis in the locations of such plants, which is directly related to their growth and development conditions, soil nutrient composition, state from germination to the present day, and physiological maturity levels.

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