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## ECOLOGY OF RODEN SCOOP SPECIES AND THEIR INFLUENCE ON PHENOLOGICAL DEVELOPMENT

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## ABSTRACT

*Scoops or night bats (Noctuidae) are one of the most numerous and diverse groups of the Lepidoptera. In the world fauna, they are represented by 25 thousand species. The study of the fauna, biology and ecology of the scoop is of great practical importance, since many species are pests of the forest, berry, fruit and vegetable crops. Therefore, the article aims to investigate the ecology of roden scoop species and their influence on phenological development.*

Losses of agricultural crops from harmful insects reach significant proportions in many regions of Karakalpakstan. Among the large complex of insect pests, cutworms (Noctuidae) occupy an important place. Their larvae - caterpillars, damage roots, stems, leaves, flowers and fruits of cultivated plants.

Scoops are butterflies of medium size, with a wingspan of 3-5 cm, less often much larger or smaller, mostly dark-colored forewings in the color of tree bark, dry leaves or lichens, with more or less the same pattern of forewings, usually flying in the evening or night time.[6.13-14].

The first detailed and consistent classification of scoops, based on the study of world fauna, was developed by the French researcher A. Gene. [1.407-411].He divided the scoop into several dozen groups, roughly corresponding to modern subfamilies and tribes. All these relatively small groups were generally divided into two large groups, Quadrifidae and Trifidae,

which can be conditionally considered two families.

The difference between them was in the venation of the hindwings. Genet's classification remained almost unchanged in the literature until the end of the 19th century, despite the fact that its artificiality was, apparently, already obvious to his closest followers. At the beginning of the 20th century, the classification of J. Hampson appeared.[3.456-460]. Hampson, like Gene, grouped the scoop according to external features, but he developed a more detailed and methodically more convenient system for describing and comparing characters, which made it possible to unite most of the scoops into one family, and many of the subfamilies he identified are recognized to this day. He was also one of the first to develop detailed keys for identifying species from external features. In fact, it was Hampson who laid the foundations of modern scoop taxonomy, and his work became the basis for various improvements for many decades.[2.467-



470]. Unfortunately, he did not have time to write and publish volumes of his catalog dedicated to the three groups most abundantly represented in the tropical fauna - Catocalinae, Hypeninae and Herminiinae. This circumstance still hinders their study.

Phenology studies the patterns of seasonal phenomena in the life of insects, which determine the timing of their appearance and development. One of the main conditions determining the effectiveness of plant protection against insects is the timeliness of various complex measures based on the use of phenological data. [2.336-340]. Signaling and forecasting the timing of the appearance and development of harmful insects is the main and very difficult task of the plant protection service.

It is desirable to compare and integrate information on pest phenology obtained in scientific and industrial institutions in common databases. In practice, knowledge of the phenology of scoops allows you to carry out protective measures at the optimum time. The frequency of natural phenomena in the life of insects depends on the cyclical changes in the physical environment. Temperature, humidity, light are the main abiotic factors that determine the development of insects. The organization of seasonal cycles of development of scoops is directly related to the ambient temperature.

The duration of development from an egg to a butterfly at optimal temperatures of 26-28°C is 1-1.5 months (one generation)[4]. Therefore, the periods of flight of butterflies in multivoltine species are repeated with this interval. Such "non-stop" development cycles are characteristic of many species of tropical origin, and the

number of generations per season is determined by the sum of effective temperatures (SET).

Many species can suspend development at various stages (egg, caterpillar, pupa, adult) using diapause, or estivation, to synchronize their development cycle with specific environmental conditions. The flight time of butterflies in each locality is approximately repeated from year to year and is an integral part of the phenological picture of the habitat[6.32-34].

Losses from scoops are especially great during their mass reproductions, which occur regularly. Imagoes (butterflies) of most cutworm species are most active in the evening and at night, although some species, such as gamma cutworm, alfalfa cutworm and some others, often fly during the day. Among the most harmful species are: winter, exclamation, grain, meadow, cotton, caradrine, gamma, cabbage and alfalfa scoops.

According to the way of life of caterpillars and the nature of the damage they cause, scoops are divided into 2 large groups: gnawing and aboveground. Caterpillars of the scoop of the first group live in the soil and gnaw the stems of plants at the base. Scoop caterpillars of the second group damage various above-ground organs. Caterpillars of some species of scoops feed on generative organs: flowers and fruits (for example, cotton scoops). Our practical experience shows that often the cause of failures in the organization of protective measures is a superficial and insufficient knowledge of the pest.[4. 146-150].

In many reference atlases, caterpillars are described in great detail and accurately from the point of view of



academic science. However, this format of material presentation is unacceptable for specialists working in the field. If only caterpillars of older ages are described in the handbook, then this does not make practical sense, since agronomists must be able to identify the pest in the early stages of development. Adult caterpillars have already managed to harm the culture, and the protective measures taken against them are no longer effective enough.

Caterpillars of younger ages often have completely different morphological features; they live in other ecological niches (feed on other plants or other organs). Therefore, it is most expedient to carry out chemical treatments specifically against cutworm caterpillars of younger ages. To successfully combat moths, you need to have a good knowledge of their species composition, biology and ecology. Practical monitoring should be focused on younger larvae and adults.

Knowledge of the conditions conducive to the survival of cutworms is essential for making predictions of their reproduction. This makes it possible to foresee periods of a sharp increase in the number of pests, to prepare in a timely manner for carrying out measures to combat them, to choose the right timing and methods of control.

**Conclusion.** Taking all the above-mentioned data into account it can be concluded that scoops are considered as harmful insects to agriculture. The result of the research depicts that the frequency of natural phenomena in the life of insects depends on the cyclical changes in the physical environment. Temperature, humidity, light are the main abiotic factors that determine the development of insects. The organization of seasonal cycles of development of scoops is directly related to the ambient temperature.

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