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**BIOLOGICAL, ECOLOGICAL AND AGRICULTURAL SIGNIFICANCE
OF ROOKS (CORVUS FRUGILEGUS)**

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Abstract:Rook is one of the most massive and numerous birds. Body length up to 45cm. considered a smart bird. In the Jizzakh region, the size of the rook colony was different, from 89 nests in the smallest colony, and 389 nests in the largest. Rooks nests were located on poplars - 48.6%, karagach - 31.2%, sycamore - 11.2%, walnut - 4.5%, willow - 3% and 1.5% on ash-tree. Known harm is caused by rook to crops and garden crops. But despite some harm, rooks are, in general, certainly useful in agriculture and forestry.

Key words: rooks (corvus frugilegus), biology, ecology, agriculture.

The impact of human activities on the biosphere has become widespread over the past century. The anthropogenic transformation of natural communities leads to radical changes in the structure of natural ecosystems. The study of the influence of human activity on living organisms, natural ecosystems and on the conditions for the formation of new communities in anthropogenic landscapes is an important modern environmental task [1, 4].

Birds are an integral part of ecosystems that are affected by a variety of environmental factors. In the process of evolution, they acquired adaptations to various abiotic and biotic influences, stable ties with the environment. This is a fairly plastic group of vertebrates; under the influence of anthropogenic factors, many species of birds can acquire new adaptations, change the nature of spatial distribution and distribution in territories with varying degrees of anthropogenic transformation.

In anthropogenic landscapes, a special ecological group of birds has formed - synanthropes, closely associated with territories developed by human [3]. Among these are representatives of the Corvidae bird family: rook, jackdaw, crow, magpie.

Corvidae birds play a significant role in the functioning of anthropogenic ecosystems and have important economic, sanitary and epidemiological significance for humans. As consumers of organic waste and regulators of the number of pests of agroecosystems, corvids are beneficial. At the same time, their mass accumulations cause epizootics among birds, including those dangerous to humans. Birds are the hosts of human and domestic parasites; bird droppings pollute the roofs of houses, historical and architectural monuments and contribute to the development of corrosion processes. The study of the ecology of corvids is also important for predicting the effects of environmental changes in ecosystems [8, 9, 10]. They can act as an indicator of the state of the environment. The increase in rook numbers occurs due to readily available food and in the presence of nesting places. Numerous landfills with food waste in cities, unused waste from livestock farms and poultry farms, the remains of corpses of farm animals - these factors are optimal conditions for increasing the number of wounded birds and require detailed study to take measures to regulate their numbers.

According to the IUCN Red List (version 3.1), the rook causes the least concern [2]. It is abundant and able to maintain a stable population in its natural habitat. Recently, there has been a tendency to decrease in its numbers, but the pace is insignificant. The Latin name *Corvus frugilegus* in translation means "raven, collecting fruits".

In appearance and size it is close to a black raven, but purple plumage is strongly expressed in its plumage, its beak is weaker and thinner than that of a raven. In addition, in adult rooks, the base of the beak, the front of the head is devoid of feathers and covered with a light gray rough crust. On this basis, it is possible to distinguish rook from other species of corvidae without difficulty. Young

individuals up to two years of age have a relatively loose plumage of smoky-black color and a feathered base of the beak. The beak and legs of the rook are black. Young rooks in nature from a distance are practically indistinguishable from a black crow, but their pack life makes it easier to determine the species, as a rule, in packs young and adult rooks stick together. The wing length is 280-340 mm. Weight - 313-400 g.

During migration and wintering, it is found everywhere in the republic, and settles on the nesting sporadically in the Tashkent and Jizzakh regions, Zarafshan valley, Kashkadarya and the lower reaches of the Amu Darya. Autumn flight of rooks in the lowland of the republic begins in September, intensively takes place in late September and early October.

At the same time, a tendency towards the resettlement of initially random nesting points from the points is evident. So, about 30 years ago, separate dispersed nests of rooks were observed in the Arnasay region of Jizzakh. Since the end of the 80s, a small group (about 30 young and adult) of rooks was regularly observed in early August in the Mirzachul region [5, 6]. In the early 90s, a group of 5 nests appeared in the vicinity of the village of Dustlik. In 2000, there were already more than 15 inhabited nests, and in the following years their number increased to 25. In the same year, 5 km to the south a new colony appeared, numbering more than 40 nests.

Starting in 2005, we regularly observed flocks of 30-50 young and adult rooks in alfalfa fields along the Tashkent-Jizzakh road in late July and early August. Dates of observation suggest that birds nest somewhere nearby. In August 2010, up to 500 rooks were constantly kept here.

In the late 1970s, a colony of more than 50 birds nested in the center of Zaamin, in the foothills of the Turkestan Range. Around the village within a radius of 3-5 km it was possible to see small rookeries of 10-15 nests. In late July - early August 2015, a large rookery colony, more than 500 nests, in which both flying and

nesting chicks were observed, were found in an artificial grove in the Yangiobod district Jizzakh [6].

To date, there are 368 nests along the carriageway from Zargar to Kukgumbaz, 376 nests in the area of Karatash village, 2 colonies of 478 nests on the M-39 highway in the direction of Zhizzakh-Samarkand, 145 nests in the Sarbozor area, 110 nests in the village of Khonimkurgan, 109 nests in the village of Obuz, 165 nests in the village of Guliston, 113 nests in the village of Kurik, Gallaorol district, 380 nests on the road from the Zhuma village to the Poyarik district, and 120 nests in the village of Abdukarim. In the suburbs of the Forish region there are 166 nests, in the village of Narvan 166, in the village of Kusa 126 nests.

In the Jizzakh region, the size of the rook colony was different: in the smallest colony - 89 nests, in largest 389 nests and in all colonies 2656 (an average of 204.3). Rooks nests were located on poplars - 48.6%, karagach - 31.2%, sycamore - 11.2%, walnut - 4.5%, willow - 3% and 1.5% on ash-tree.

Rook is an omnivorous bird, but the basis of its food is animals. A strong cone-shaped beak allows it to dig earthworms, insects, acorns, fruits and berries, seeds of agricultural plants (wheat, rye, corn, sunflower and even small potatoes) from the ground. Therefore, this bird is often found on cultivated fields. During the plowing of the land, you can see whole swarms of birds, which are important walking in loosened places and busily digging the earth with their beaks.

Rook also feeds on larvae that live or develop in the ground. With particular enthusiasm, birds destroy the larvae of the nutcracker beetle during plowing of fields, as well as other pests of agricultural plants. But at the same time, they can also pull out fresh plantings, including seedlings of wheat or rye, so the question of the benefits of this species remains controversial.

Rooks do not mind eating small birds (buntings, wagtails, sparrows, tits, flytraps, warblers, crossbills, gaits, skates, kings, redstart and others), feed on mammals (mice, shrews), eggs, aquatic crustaceans, mollusks and even carrion .

Many cases of their attack on the nests of other species of birds are known, which makes rooks the so-called "nesting predators".

The nutritional characteristics of rooks depend on their habitat and season, so eating habits can often change. For example, representatives of the species living in cities mainly eat foods that are thrown into garbage cans. These birds are notable for their quick wit, so you can see how they hide food for the future [4, 7].

This is a flock of birds, leading a daily lifestyle. Birds are kept in large colonies and are distinguished by a high degree of sociality, although they prefer monogamous relations when pairing. Periodically, packs of rooks are adjacent to jackdaws and gray ravens. They make joint flights, collect food and team up against vulture.

Rooks are distinguished by high intelligence and curiosity. These are quite inventive birds that easily get food from packages and wrappers, soak dried bread crusts, and during captivity they can master many tricks and even begin to use primitive tools. For example, get food with a stick.

In summer, rooks prefer to feed on fields where many larvae and insects can be found. In October-November, birds from the northern regions behave excitedly and fussily, because they are preparing for departure to the south. During these months the rooks leave their homes and fly away for the winter to where it is warmer. At the head of the pack is one rook that gives voice commands - it is very important to remember the voice of the “leader” before migration. In winter, the rook either waits for time in the south, or lives in nesting places. In the northern regions, he seeks food in the garbage dumps of large cities.

In spring, during the snowmelt, birds are among the first to return to their homeland and are heralds of heat and spring. Depending on the region, rooks arrive either in the second half of February, in March or in the beginning of April. A flock of rooks appears only after the scouts launched forward. The first few birds appear to check the terrain in the breeding areas, and after 5-10 days, a massive flight of the

entire flock occurs. If the weather is nice, then the nests are occupied immediately, and if the blizzard and frost are still raging, then the birds wait for the weather nearby in shelters [10].

Rooks have puberty at about the age of 2 years, but this period has not been firmly established. These are monogamous birds that form strong pairs, but nest in large colonies, where the flock together escapes from predators. Egg laying and hatching of rooks occur once a year - from February to May, depending on the region.

After arrival, the rooks do not immediately begin to rebuild and repair the nests, but for some time lead a “wandering” lifestyle, especially in the northern regions, where it is snowing late. As soon as thaw areas appear, it is time to equip the nests, which are located as high as possible from the ground. On one tree there can be as many nests as the density of branches allows.

After pairing, the rooks begin to divide the nests and build new ones. During construction, large dry branches of birch, poplar and other deciduous trees are used, and thin soft branches, potato tops, dry straw and grass, moss, scraps of paper, cotton wool, wool are collected for the top layer [5,7]. Construction lasts from 5-6 days to 2 weeks. As a result, the rooker's nest is strong and extensive and can stand for more than one year, which is good, because the birds are very attached to the nesting site. The male and female take an equal part in the construction of the nest, but according to some observations, the male is more often responsible for the extraction of material, and the female is responsible for laying.

The egg laying time is different and depends on the nesting region. On average, the nesting period is recorded from late March to the first decade of May. The female lays 3-5 greenish-gray-blue eggs with brown specks. Egg sizes are 30-45 mm by 24-35 mm.

During hatched eggs, which lasts 16-20 days, the male takes care of the female and brings food. After hatching, the little rook is warmed by the female for a long

time, therefore, the rooks does not leave the nest for about 6-10 days. The chicks appear naked, blind and helpless, weighing about 12 grams. But a week later they grow fuzzy, open their eyes and begin to crawl along the nest. 2 weeks after hatching, feathers appear in the chicks, and on day 32-40 rooks are ready to leave the nest. Young individuals fly out of the nest and remain on neighboring trees. Parents feed them and taught to fly.

Birds become independent only at the age of 5 months. The total period from the start of mating to the time of departure of the chicks from the nest is on average 49-52 days.

The life expectancy of individuals of this species is not known as much as other species of corvids. The estimated age of the rook in the wild is 15-20 years. The oldest bird was found in England at the age of 22 years and 11 months, but most individuals die at the age of 3-4 from diseases of the gastrointestinal tract and natural hazards.

The question of the dangers and benefits of rooks is widely discussed. In cities, flocks of these birds interfere with residents of nearby houses with their cries, especially in the early morning. And the rook is still the singer! Noisy companies annoy the ruin of garbage, which is especially true in the spring, when the colonies are most active [2].

Agricultural workers sometimes complain that birds pull out crops and peck out corn seeds, potatoes, damage sunflowers, melons, cereals and do more harm than good. But according to the latest data, rooks kill 60 to 90% of agricultural pests and play an important role in dispersing seeds. This species promotes the resettlement of oak, making reserves of acorns, which then germinate. Cereal crops suffer only with a lack of insects - the preferred food of birds.

Rooks do not tolerate diseases dangerous to humans, regulate the number of insect pests and even rodents. However, they do not crowd out other birds, as is

commonly thought. Eating waste from landfills, rooks and other representatives of corvids restrain the spread of the gray rat and play the role of city orderlies.

Thus, rooks are the most massive migrants in Uzbekistan. Their flight begins in the spring in late February - early March, and ends in mid-April. Cold springs delay rook mass migration for 1-2 weeks. Autumn migration occurs from early October to mid-November. The span has a wave-like character. In spring and autumn, massive trophic raven movements pass through the developed zone. During the season, from 3624 to 10437 individuals were recorded in various areas of Jizzakh. In desert areas, due to transit flights, their numbers are limited (from 33 to 2201 individuals are counted). The intensity of the visible span depends on the synoptic situation: it increases with warming and cooling, and decreases before and after cold intrusions. Precipitation in the form of rain and snow and strong winds negatively affect the span intensity. Ways of flying rook on the territory of Uzbekistan are identical with other black birds. Damage caused by raven birds to crops in different periods varies.

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