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Өсімдіктердің биологиясы және биотехнологиясы институтының

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## ИЗВЕСТИЯ

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## NEWS

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OF THE REPUBLIC OF KAZAKHSTAN  
of the Institute of Plant Biology and Biotechnology

**БИОЛОГИЯ ЖӘНЕ МЕДИЦИНА  
СЕРИЯСЫ**



**СЕРИЯ**

**БИОЛОГИЧЕСКАЯ И МЕДИЦИНСКАЯ**



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**ZOOPHILOUS FLIES (Brachycera, Cyclorrhapha)  
OF SOUTH-EAST KAZAKHSTAN**

**Abstract.** Types of the zoophilous flies, having veterinary-medical importance in the conditions of cattle farms, are presented. The brought types of family Muscidae, Calliphoridae, Sarcophagidae, Oestridae, Hippodermatidae are harmful for animals. Seasonal-daily dynamics zoophilous flies differed depending on type of insects, these periods are different region in miscellaneous; the general length of time of the hold up on animal in South-east Kazakhstan forms 160-165 days. On nature of the feeding revealed flies pertain to Saprophytes (licking), Sarcophages (the incitantsmyasis), Haemophages (blood-sucking), but on larval development divided on Sarcophages, Necrophages and Coprophages.

**Keywords:** zoophilous, imago, musca, larvae, flies.

A very large group of Diptera insects, covering about 25 families, 95 genera, more than 257 species, belongs to zoophilic flies. We here consider round-toothed short-bellied zoophilic flies (Cyclorrhapha). In the rooms, pens, summer camps and pastures, a large number of zoophilic flies are milled and attack animals, causing anxiety, reducing their productivity and contributing to the spread of infectious agents, invasive diseases among animals and humans. Most of them are synanthropic and there are a considerable number of field and pasture species. Larvae of some species spoil the feed, as well as finished products of livestock (meat, dairy products, skins, etc.). Studies have shown that flies can carry over 63 species of pathogens of dangerous diseases [1]. The diversity of habitat and nutrition conditions of zoophilic diptera makes them potential carriers of microorganisms, protozoa, and the role of flies as intermediate hosts of helminths is known. Pasture flies are the intermediate economic nematodes *Thelazia gulosa*, *T. skrjabini*, *Parabronemaskrjabini*, *Stephanofilaria stileesi*, *Setariaservi* [2]. Zoophilic flies differ in a complex form of feeding: in some adult forms, phytophagia, hematophagia or saprophagia and non-rophagia, coprophagy predominate, and in larvae in the development cycle only - necrophagia, coprophagy, sarco-phagia. Under what conditions they multiply and inhabit, how environmental conditions affect their mass reproduction, successful struggle depends on this. In this paper new generalized additional results on ecology and biology of dominant species to annotated note of zoophilic flies are presented [3]. The need to study the species diversity of zoophilic flies and their bioecological features is of definite scientific and practical interest in reducing the circulation of flies

**Material and methods of research.** The material was the perennial entomological surveys in livestock farms. For the study of bioecological features of dominant species of flies, collection and visualization of zoophilic flies attacking animals in the conditions of the dairy complex of the state farms “Kaskelensky” Kaskelen, “Ilysky” of the Ili district of the Almaty region, as well as in livestock breeding, was carried out from April to September of the state farms “Kuraksu”, “Mataisky” of the Borlyutobinsky district, the collective farm named after Abay of the Kapal district in the former Taldykorgan region. To study regional features of the ecology, in particular seasonal and daily activity of the most harmful species of zoophilic flies, catching (a 20-minute registration fee) and visual recording of them directly on animals was conducted. The daily rhythm of activity is determined by the hourly calculation of flies attacking animals. Possible flock breeding biotypes have been studied in each insect species for several years, which depend on temperature, air humidity and soil. Places of fruit of flies, biotopes of development of larvae and pupae serve as an object for developing an ecological basis for regulating their numbers. In

visual accounting, the total number of flies on animals was determined by taking into account 5 minutes. To do this, on both sides of the animal, two counters count the number of flies in one minute, recording the data, driving the flies and repeating the reading five times. Adding data from both sides and dividing by 5 produces the average number of flies attacking animals.

**Results.** *Drosophila funebris* Fln. Infrastructure Muscomorpha, superfamily - Drosophiloidea, Family - Drosophilidae. Sinanthropus. They are widespread in all settlements, dairy farms, medical point in Kaskelensky, Ilysky and in the Alakol Nature Reserve in the rounds "Toguztubek, Tuyuksu, Kokpekty, Baibal, Karamoyin" of the Almaty region. Of zoophilic flies, they are small, 3-4 mm. Head rounded, forehead with 3 orbital setae, of which the first is directed forward, and the posterior backward. A coarse, pinnate aster. Abdomen - brown with wide blackish bandages. The view is not rare. Imago is inhabited in warehouses, in latrines, potato storage facilities, in garbage dumps, in manure stores, in dwellings, etc. In the summer, animals attack, sit down in the eyes, mouth, and ears. In warm rooms, where there is an optimal breeding environment, they are found throughout the year. In the dwelling and in the production premises flies with salted wandering ferments, fruits, vegetables are brought in. They feed on the juice of rotting vegetables and fruits or bread sourdoughs. The life expectancy of the adult is up to a week. Females are prolific. From egg to imago - 10 days. Larvae feed mainly bacteria of acetic acid fermentation [4], therefore imago is common in the premises of the corresponding production. Polyvoltine appearance. Contaminated vegetables and fruits, worries animals [5] and people. They are of great importance in the epidemiology of gastrointestinal and other diseases.

It is widely spread, except in the Far North.

*D. melanogaster* Lw. (= *D. Fasciata*). They eat the juice of plants and rotting organic substances, juice of vegetables, fruits, larvae - microorganisms of acetic acid fermentation. Departing from the room, they sit on the animals. Sinanthropus. Polyvoltine appearance. Females lay eggs. Has high fertility. From egg to adult on average 10 days. In the laboratory, they get a good separation. *Drosophila* is widely used for research in genetics. Biology and ecology as in the previous species of fruit flies.

Distributed in the dairy complex of state farms "Kaskelensky" of Kaskelen, "Ilysky" of Ili districts of Almaty region, as well as in cattle-breeding farms of the state farm "Kuraksu" of Borlyutobinsky district, kolkhoz Abay of Kapalsky district in the former Taldykorgan region.

*Fanniacanicularis* L. Small housefly – "small room fly". The Muscidae family are real flies. A species that is of medical-veterinary importance. Flies of medium size are widely distributed everywhere, both in cities and in rural areas, in dwellings and cattle-breeding premises. Sinanthropus. Habitats: in latrines, in landfills, in livestock premises, especially in pigsties and on adjacent territories. Shade-loving, licking type, so in the hot months, the maximum of the flight is noted - in the morning and in the evening. In rooms at night, they usually concentrate at the ceiling, on wires, wall protrusions, stucco decorations, etc. Numerous appearance. Fecundity of females up to 200 eggs [6, 7]. Both eggs and larvae, possessing hydrostatic adaptations, are able to develop in a liquid medium. Larvae develop in feces, semi-liquid pig manure, in the accumulation of chicken manure, in wet garbage, less often in garbage and animal manure. They are of great importance in the spread of gastrointestinal and other diseases [1, 5, 7, 8].

Spread. Cosmopolitan (Europe, North America, Asia). In southeastern Kazakhstan, in all natural areas of the Almaty region.

*Fannialeucosticta* Mg. In all rural areas of southeast Kazakhstan and in all rounds of the Alakol reserve [5]. Habitat of the adult: garden, bazaar, places where there are scum, fresh fruit, human dwelling. Larvae develop in summer type latrines, in garbage dumps and in pig manure. Thermophilic and xerophilic appearance. Place of imago are garbage dumps, pig manure and thick drying feces in rural lavatories. Mass flight - July-September, maximum activity falls on the hottest hours day. In the desert regions - a large species. Harmfulness - mechanical transfer pathogenic microorganisms.

Distribution - the south of Europe, the Caucasus, the South, the Middle Belt of Western Europe, Central Asia, North Africa, Taiwan, Java [5, 6].

*Fanniascalaris* F. Crawling along the body and licking the discharge from the eyes and nose, they disturb and prevent grazing, because of what animals lose weight. Habitat of the adult - dwelling, wood planting, feces, manure, slops, rotting fruits and vegetables; in places of open sale of products. Kind of thermophilic. Attractive places for adults are wandering fluids (kvass, wine). Larvae prefer substrates that are in semi-liquid state (pig litter, semi-liquid garbage cans, toilet feces with deep culling). Numerous

view. It has medical and veterinary importance. The carrier of intestinal infections [1; 8]. Limiting factors include the elimination of conditions that promote the reproduction of flies, as well as the destruction of larvae and pupae in substrates by various insecticides.

Distribution: Europe, North America, Central Asia (boreal Holarctic); rural areas of Almaty region [6, 8].

*Musca domestica* L. The housefly is floppy. They have two subspecies - *Musca domestica* L.; *Musca domesticavicina* Macq. Distributed everywhere in cities, and in rural areas, in dwellings and close to them. Everywhere in the settlements of the Almaty region. The imago is not so closely connected with the premises, being caught not infrequently on animals in noticeable amounts far from populated areas. Kind - most closely associated with the environment of a person. Food is provided by a wide variety of substances of both vegetable and animal origin; to maintain the normal life of flies, it is necessary that their food include carbohydrates and proteins (the latter are required for the development of the ovaries); The necessary nutrients for the life of the fly are drawn from both human food and from the dregs of its economy. A single copulation is enough for the female to lay fertilized eggs all her life. The development of animals occurs in manure of various animals and in decomposing substances, garbage pits, garbage receptacles and in feces, under the litter, under littered forages, green in the cattle feeders, cowshed and food waste, as well as in substrates of animal origin and so on. The larvae are omnivorous. For pupation in the pre-pupal stage, they crawl out to a more surface layer of the substrate or into the ground. The maximum life expectancy of imago is 62 days. The development cycle from egg to adult at a temperature of 25-35 ° C is completed in 14-16 days. [9]. Females during a life postpone up to 600 eggs [1; 6]. Imago has saprophagia. The view is numerous. The maximum number is observed in the hot season; winter in the phase of pupae, and adults hibernate only in a warm room. With the greatest number of harms, attacking animals [10, 11].

The epidemiological significance of flies is very high: pathogenic microbes in their intestines remain viable and come out with feces or eructations, remaining in these

"Fly spots" for some time alive; carry microbes and on the surface of the body, which promotes the abundance of hairs and bristles on their covers. The variety of habitat conditions and nutrition of houseflies make them potential carriers of very many micro-organisms that are clearly pathogenic to humans and domestic animals (causative agents of dysentery, paratyphoid, typhoid, cholera, tuberculosis, diphtheria). The housefly can carry protozoa and eggs of the worms both on the legs and in the intestine [1, 2]. To regulate the number, it is proposed to establish a sanitary order in the biotopes, where the development of larvae is possible.

A universally widespread synanthropic species.

*Musca sobrens* Wd. Bazaar fly. Distribution: all areas of the Almaty region. Mass quantities are found in peasant farms and settlements, in the bazaar and other places of open sale of food. In the premises is rare. The imago is fed with fruits, sweets, dairy and meat products, garbage, etc. Attacks on people and domestic animals (cattle, sheep), in which the secretions of sweat glands, mucous membranes of the eyes, nose and mouth are poured, and also lick blood and purulent discharge. Females lay eggs on pig manure and in garbage dumps. The larvae are coprophagous.

Numerous, synanthropic appearance. According to several authors [1; 6; 8] the species has epidemiological significance in the spreading of the wand of Koch-Wicks - causative agent of epidemic-conjunctivitis.

The species is characterized by temperate, subtropical and tropical belts of the Old World.

*Musca tempestiva* Fall. Dark color, average size of the adult. Imago are common in the forest areas of the foothills of Zailiysky, ZhungarAlatau on litter and on animals. By eco-logical features is that they sit on pets and a person, licking the secretion of mucous membranes, sweat glands or wounds. The female lays eggs on the litter of cattle, pigs, horse manure, as well as dung prepared for drying [10]. Preimaginal stage 9-10 days. Imago-saprophagus, facultative haemato-phage. The larvae are coprophagous. The period of mass flying is limited by the summer months. Disturbs animals and people, has a medical and veterinary importance. Malicious appearance [6; 9; 11]. Biothermal treatment of manure is necessary for regulating the population.

General distribution: Europe, Central Asia. Distribution in the Almaty region: forest, foothills of Zailiysky, Dzhungar Alatau.

*Musca amica* Zim. The imago is found on cattle-breeding farms in the mountainous zone of the Almaty region [10]. Crawling along the body of livestock, they mechanically carry out pathogenic microorganisms and helminth eggs mechanically on their paws and on hairs. The species is an intermediate host of the causative agent of conjunctivokeratitis of cattle - the nematode *Thelaziagulosa* Rail. et Hen. Female calves in the eyes of animals lay eggs that fall into tearful excretions, from there fly eggs swallow, in the body of flies develop larvae, upon reaching the invasive stage advances to its proboscis. When the flies sit in the eyes, the larvae of the calves come out of its proboscis, into the conjunctival sac of cattle, because of which the blindness comes to the cattle [2; 6]. The number of flies in the summer is medium. A view of the desert zone was not found. Reducing the size of the species requires preventive measures aimed at destroying flies in the larval stage.

Distribution - Siberia, Mongolia, North China, Europe, Kazakhstan.

*Musca autumnalis* Degeer. Field Fly. Distributed in the southeast of Kazakhstan. It is one of the most common pasture-type flies widespread in the desert area of the Almaty region. With regard to heat, appearance. Habitat: Imago is common everywhere, especially pastures on a cow and manure. On hot summer days, females attack animals and humans, concentrating on the mucous membranes and wounds of the skin. Larvae develop in cow dung. The duration of development of larvae is 5-6 days. Pupation occurs in the soil. Numerous in pasture and in the field, in the presence of animals found only in the pen, the rooms do not fly. The largest peak in abundance was recorded in July-August [10, 11]. The beginning of flying in the pens is observed at the end of April, the end of the summer is in the middle of October. It has medical and veterinary importance.

Males often live on flowers of plants. Are optional hematophagi. It is an intermediate host of the nematode *Thelaziarhodesi*, which cause conjunctivitis and keratitis of cattle. Inflamed conjunctiva strongly swollen, that eyelids completely cover the eye.

Proposals for regulating the number. Biothermal treatment of manure of large horned cattle [6].

Distribution - Europe, Central Asia.

*Musca larvipara* Ports. Viviparous field fly. Distributed in the southeast of Kazakhstan. In desert areas of the Almaty region, flies are common in pastures; females in large numbers come across cow dung or animals, adding blood to the wounds. They are most active in hot days and hours with intense sunlight. Females are viviparous; give rise at a time to one larva of the stage on the surface of the cow dung. Imagosaprophagy, hematophagous. The flies of zoophilic flies were observed only in the living rooms of a calf from the third decade of April; in late April, was observed from 12 to 16 hours. In early May, a single flight was registered in the calves at a temperature of 12-16 ° C. At a temperature of 18-20 °, the intensity of the flight was 15-20 specimens. for a 20 minute fee [10, 11]. Males rarely fly on animals. They are common in vegetation. Numerous view. A species that is of medical-veterinary importance. Mass attack of females causes anxiety of animals. By merging the secretions of the conjunctiva, these species are themselves invaded by calves and they develop nematodes and then larvae infect healthy animals.

Regulation of numbers - biothermal treatment of cattle manure.

General distribution of the species. Europe, Northern Mongolia, Central Asia, North. Africa [6].

*Musca osiris* Wd. A species that is of medical-veterinary importance. Distribution: desert areas of Almaty region. The beginning of flying in the pens is observed at the end of April, the end of the summer is in the middle of October. Habitat: pastures, animals, slaughterhouse, bazaar. Alakol district, neighboring settlements [10, 11]. Closely related to animals. In the pasture, the field is attacked by a man. Concentrate near the eyes, mouth and in the wounds of animals. Flies are very thermophilic and sun-loving. Females are very annoying cattle. Bleeding appearance, Larvae develop in the cow litter. Numerous view. Harmfulness - a vector of infectious diseases of domestic animals [6].

To regulate the species, biothermal treatment of manure is proposed - the environment of development of larvae [9].

General distribution. Moderate, subtropical and tropical belt of the Old World.

*Musca vitripennis* Mg. They were found in animals in desert areas, as well as in the underground farms of the Alakol Reserve Cardon, the Zhungar National Park. Imago attacked sheep, cattle. Relatively thermophilic appearance. Imago-licking. The larvae are coprophagous. In the summer period there are a significant number [10]. Has epizootological and epidemiological significance. The species has a



medicinal value. Regulation of numbers is achieved by combating the preimaginal phase of species development [6].

Distribution: Middle and southern strip of Europe, North Africa, Northern Iran, Turkmenistan, Kazakhstan.

*Morelia hortorum* Fl. They occur in the foothills and mountain pastures of the Zailiysky Ala-Tau (Assy's lair, the Turgen gorge), in the pastures of the foothill zone of the Enbekshi-Kazakh district in the Almaty region. Ecological peculiarities of the species - flies are common on the leaves of deer trees and on large herbaceous plants with colonies of aphids in wildlife conditions, as well as near dwellings on litters, faeces, garbage pits, etc. In considerable numbers they come across wandering berries, meat, etc. Especially females, both saprophytes, and facultative haematophages met on cattle in pasture. In a considerable number they are found in the restrooms of the rural type. In the gardens and vineyards, flies are found on fruits and berries. Flies matter in the transfer of pathogenic flora to fruits, berries, etc.

The place of development of the preimaginal stage of flies is served by substrates of organic origin (excrement of domestic animals, carrion, kitchen scum, etc.). Discovered in an open pen and in cages of calves [11]. Puparia of this species are destroyed [12] larvae of the perepochoptera - *Trybliographa submontana* (Hymenoptera, Eucoilidae).

Spread. Europe, Mongolia, Siberia to Yakutsk, Kazakhstan. Distributed in the southeast of Kazakhstan.

*Ophyracapensis* Wd. (= *O. anthrax* Mg.). Distributed in the desert regions of the Almaty region. Licking appearance. Crawling on the body disturb the animals. Habitat species: on the leaves of shrubs, on the walls of latrines; in the premises in which meat products are stored. Crawling along the body licking animals. Found in the vicinity of the houses of belly-novodas and huntsmen. On a large part of the range, the species is not rare. Thermophilic appearance. Coprophagous larvae. Larvae from stage II feed on larvae of houseflies, in particular larvae of calorie flies, that is, they pass to predation. They hibernate in the phase pupae in the ground. Economic significance: larvae from stage II reduce the number of larvae of houseflies. Regulating the number requires compliance with sanitary conditions. Limiting factors include the elimination of conditions that promote the reproduction of flies, as well as the destruction of larvae and pupae in substrates by various insecticides.

Distribution: Central Asia, Caucasus, Southern Europe, North Africa.

*Hydrotaea dentipes* F. The common cervix is common in the southeast of Kazakhstan, in the rural areas of the Almaty region. The habitat of a fly is associated with the conditions of the farm, the wildlife and close to housing. In the living quarters do not fly. Licking allocation from the eyes, nose, ears and disturb the animals. According to ecological features of the species, the larvae are predators; developing in clusters of manure and faeces, destroy larvae of houseplants and other flies. Larvae of stages 1 and 2 feed on the general sub-stratum; and the larvae of stage III become predatory, feeding on larvae of various flies, especially room, bazaar flies and autumn flies [6]. The role of the larvae of the common jaw in reducing the number of synanthropic flies is considerable; it is especially noticeable in areas with sandy soil. Economic importance - the fight against them can increase the number of room and bazaar flies.

Distribution: Central Asia, Europe.

*Lyperosia irritans* L. Small cowhide. The species has a medical-veterinary value. Habitat: cattle-breeding buildings and open pens, ectoparasite with a long stay on the host. They do not fly into the dwelling [13, 14]. An active bloodsucker, closely associated with cattle, strongly annoying with his injections of domestic ruminants, contribute to the emergence of dermatitis. Activity is high in the morning and evening hours. The peak of numbers was recorded in July-August in the morning and evening hours [10, 11]. The female lays eggs in fresh litter of cattle. Larvae are developing in cow dung. Out of the laid eggs, larvae leave in 12-18 hours. The development of the entire stage of the larvae takes place 3-4, pupae in 5-7 days. Development from egg to adult lasts 8-10 days. It causes a decrease in milk yield and fatness of livestock [14, 15]. Biothermal treatment of cattle manure is proposed to regulate the number.

Geographical distribution: Europe, North Africa, North America, America, Japan, Central Asia, Kazakhstan. It is widespread on all cattle-breeding farms in Almaty region.

*Lyperosia titillans* Bezzi. Southern cow litter. Habitats are closely related to settlements where there are domestic animals, especially cattle. Pasture appearance. The active bloodsucker; proboscis spiny-

sucking type, attack both pets and humans. The skin contributes to the emergence of dermatitis. Long-term attacks are intrusive in the field on hot sunny days. Imago is the intermediate host of the nematode *Parabronemaskrjabini*. In the room flies rarely. Li-chicks are cathartic. The development of larvae occurs in cow manure, under the litter, under the lying fodder, the greens of the calf and cowshed, in food waste, in substrates of animal origin. The number of fly larvae in the calf feeding troughs was up to 300 specimens. per 100 sq. cm. Development from eggs to adults lasts 8-10 days at a temperature of 24-26 °C [15; 13]. In peasant farms of the desert zone, a massive species. Regulation of the number is connected with the environment where larvae and pupae develop [10; eleven]

Spread. South of Europe, Central Asia, Southern Kazakhstan. Distributed in the desert and foothills of the Almaty region, where large cattle are bred.

*Stomoxys calcitrans* L. Autumn Chopper. Registered in all surveyed livestock farms, where there is a large cattle. The habitats of flies are closely connected with the settlements. It is common everywhere, and it falls into the premises for livestock, and outside them, on the walls of houses illuminated by the sun, on tree trunks or bushes. The room flies regularly, but in small quantities. Are active bloodsuckers; willingly attack cattle; in a smaller number - on other domestic animals; in the living quarters of the arboreal can suck the blood of a person. Skin stabs are painful, strongly disturbing animals. The maximum number is observed in late summer - early autumn. Imago-hematonecrophage, in addition there is phytosaprophagia (silage, haylage, swampy hay). They hibernate on the pupal, imaginal phases. The female lays eggs in groups of 20-25 copies; the total fecundity of the female is 300-400 eggs. The development of larvae occurs under the litter, under littered feed in the feeding troughs, in manure accumulations mixed with straw both in nature and indoors; In pure manure without any admixture of straw or grass, the larvae of the flounder are rarely found [13-15]. The larvae are coprophagous.

The species is harmful, having significance in the fact that both females and males are blood-suckers. They carry viruses, trypanomies among farm animals; they are intermediate intermediate nematodes *Habrone ma microstoma*-parasite of ungulate animals; also - intermediate cestode *Dicrotaenia carioca*-parasite of domestic birds [6]. In order to regulate the size, it is advisable not to allow the accumulation of silage and straw residues, since when rotting, the larvae of the autumn develop [10, 11].

General distribution. The species is widely spread, except for the extreme Northern latitudes.

*Muscina stabulans* Flln. Houseflies. The view in the pens, in the rooms, in the summer camps and in the pasture deprive the animals of their quarters. Flies are common everywhere, both in the city and in nature. Habitats: imago are common in pastures, manure, on decaying substances, fruits, flowing plant sap, etc., also come everywhere near the dwelling-on the walls of latrines, cribs, in places where food is sold openly (fruits and berries). They are common in trees, shrubs and large herbaceous plants affected by aphids; In the spring the fly is found on the flowing birch sap, where it meets *Protophormia terraenovae* R.-D. [6]. Larvae develop in various substances of both plant and animal origin. Houseflies are one of the most versatile species with respect to habitats and the nature of feeding of synanthropic flies. Possessing coprophytosaprophy, the female lays eggs on the substrate: feces, food, manure, garbage dumps; where larvae develop. In stage III, larvae of other species of flies are eaten. In the garden and vineyards, houseflies often visit fruits and berries. Numerous view. Imago tolerates infections and eggs of helminths. Imago is not only related to animals, but also spoils products of animal and plant origin of epidemiological importance.

General distribution: the species is distributed universally.

*Dasyphora asiatica* Zim. Pest of livestock. Distributed in livestock-raising regions of Almaty region. Habitat: on manure, on the walls of constructions. They enter the room, Sinanthropus. The view is especially common in early summer and late autumn. Screw worm develop, mainly, in cow dung. Development occurs with complete pre-rotation. During the course of their life, females lay eggs several times in substrates containing nutrients for the development of larvae. After the third stage, the larvae crawl over to dry manure, soil and pupate. Number and severity are not defined. By regulating the numbers, the struggle is to bring about a sanitary order in the biotopes of larval development.

Distribution: Europe, Central Asia, Siberia, Transbaikalia, Kamchatka, Japan, China, Mongolia, North America (plains).

*Haematobia stimulans* Meig. Coward calf. It is widespread in sheep breeding and livestock farms. Places of detection of the species: pastures, on leaves of shrubs, in grass, even on trampled paths, etc. A

species having medical and veterinary significance. They attack animals on pasture, active bloodsuckers; for a long time are on animals, causes dermatitis, swelling of the subcutaneous tissue. Female before laying eggs feed on manure liquid and need repeated blood intake. Female laying eggs on the fresh litter of cattle, which feed and released larvae. A plentiful flight is observed in early summer and in autumn (September). Like all gignals that require repeated blood tests, they can tolerate various diseases (Siberian sore, leishmaniasis, thuleremia, typhoid fever, sepsis, etc.) from sick animals to healthy animals [6, 9-11, 13-15]. Regulating the size of the population requires combating the preimaginal stage of development. The limiting factors include the elimination of conditions that promote the emergence of flies and the destruction of larvae and winged insects. It is desirable to keep the territory of the cowshed and cattle-breeding premises clean.

General distribution. The whole of Europe, Northern Mongolia, Siberia, Kazakhstan.

*Calliphoravicina* Rovjneau-Desvoidy (= *C. Erythrocephala* Mg.). Calliforides - Blue meat flies. Superfamily Tachinoidea, Sem. Calliphoridae. In the Almaty region, the Sasykkol lake system is widespread on livestock farms and in the region. Sinanthropus. Imagoes are common in carrion, meat, fish, in markets, in kiosks, in slaughterhouses, near garbage dumps, manure. In living quarters flies relatively rarely. Specifics of the species: flies are large, body-dark, with a metallic cast tinge. Larvae are necrophagous. The species is relatively cold-loving, the activity of adults is observed at + 14 °, in hot sunny weather they concentrate in shady places. The biological range of the wide larvae develops in vertebrate bodies, mammalian excrement or parasites on mammals, birds, amphibians, molluscs, insects and worms. Pupation occurs in the soil. In large numbers are found in the spring-early summer and autumn. Sometimes larvae are recorded in the wounds of animals, where the larvae of *Wohlfahrtia* developed [10, 11]. The species has medical and veterinary significance. Carriers of intestinal infections and eggs of helminths from foci of infection to food and household items (dishes, etc.) [1, 6]. To regulate the size of the control measure, they consist in eliminating the conditions that favor the emergence of flies and in the extermination of larvae and winged adults. In the slaughter stations and in the premises for the processing of animal products, they are not made available for flies.

General distribution. All-round spread; In the temperate and tropical belts of the Old World, Europe, Central Asia, North Asia to Siberia.

*Calliphora uralensis* Vill. Distributed in urban and rural areas of Almaty region, in places of open sale of food products, Sinanthropus. Kind of blue color, with slightly light bloom. Both in cities and in rural areas falls in significant quantities in proximity to housing, animals, and in the wild. Typical on the walls of latrines of a rural type, as well as on shrubby vegetation, close to latrines, garbage pits. Outside the settlements, individuals of this species are very common on all kinds of colors, especially on umbrella, comric flowers (*Cirsium*, *Aretium*), etc. The species prefers warmly sun-heated places, imago feed on feces and all sorts of food. Females lay their eggs on liquid feces and sometimes on the fat of the thick wool of sheep. The larvae develop in it. Numerous view. Lifestyle as in *C. vicina*. Has epidemiological significance. Sometimes an occasional facultative agent of animal miases. Mechanically, dysenteric microbes and parasitic helminth eggs are transferred [6]. Proposals for the regulation of numbers: the sanitary condition of latrines. The extermination of larvae and pupae is carried out by various insecticides, which are introduced into the breeding grounds of flies [10, 11].

The general distribution: the whole of Europe, Siberia, Greenland [16].

*Calliphora vomitoria* L. Distributed in populated areas. The habitats of the fly are recorded: on calves, on carrion, on fruits, rotting vegetables, shrubby vegetation, flowers, animals, etc. Sinanthropus. Larvae are necrophagous. The life style is biologically close to *C. uralensis*. Larvae developed on animal corpses and in manure. Not a rare species, but much less common than the previous two species of Calliphora. Microprobiotic carriers. A species that is of medical-veterinary importance. Proposals for the regulation of numbers: sanitation in the storage of vegetables and fruits [9, 16].

Distribution - the whole of the CIS, the whole of Europe, North America, Central Asia, Kazakhstan.

*Melinda caerulea* Mg. (= *Protocalliphora caerulea* R-D). Distributed in southeast Kazakhstan. The imago is often found on the coastal part of lakes, lives on decaying fruits, shrub vegetation, flowers, litter, feces, etc. The imago feeds on various substrates of organic origin. Larvae are necrophagous, parasitize on land mollusks, on chicks of passerines [6]. The female lays the larvae in terrestrial mollusks and larvae

develop in it [16]. The female lays the larvae on rotting fruits, vegetables, plants, corpses. Small, but has a medical and veterinary importance.

Distribution - the whole of Europe, North America, Central Asia, Kazakhstan.

*Luciliasericata* Mg. Green meat fly. The body of the imago is metallic green, shiny.

Habitat - flies on corpses, meat of animals; in bulk quantities are found on open food products, in slaughterhouses, as well as in premises where there are meat products, fish products, fruits, sweets. *Sinanthropus*. Imago saprophagous. Thermophilic appearance. On sunny days are very active. It starts from April to November. Usual. Numerous in June and August. In gardens and vineyards they often visit damaged fruits and berries on trees and shrubs. In bad weather the habitat is various structures, trees, bushes, reed vegetation. Larvae are necrophagous. Larvae develop in corpses, animal meat, kitchen waste, less often in mammalian excrement. Adult flies are considerably xerophilous, and eggs and larvae are hydrophilic. The development of larvae occurs both in fresh meat, fresh fish, and in low-salted fish, meat. Larvae - necrophages, facultative sarcophagi. The species mechanically tolerates infection. An optional causative agent of the animal miase [17, 18] in association with larvae of wolfart flies. In addition, it spoils meat and dairy products. It causes damage by putting larvae on meat products. The larvae, feeding on wounds, soften the necrotic tissues, and in connection with this sterile larvae of this species were used in earlier times in hospitals to cleanse and quickly heal people's wounds [6].

Regulation of numbers is achieved by eliminating the conditions that contribute to the fruit of flies and the destruction of larvae and winged insects.

The general distribution: the whole of Europe to the latitude of Leningrad, the Caucasus, Central Asia, Central and Southern Siberia, Primorye. Distributed in all areas of the Almaty region.

*Cynomyamortuorum* L. Distributed in the desert zone of the Almaty region (*Sasykkol*, *Alakol*). Flies live on rotting meat and corpses of animals, feeding on excretions from the eyes, nose, ears, disturb animals. Less common on fruits and feces. Larvae develop in decomposed organic substrates (in the bodies of vertebrates). Average number. *Synanthropus*. The species has an epidemiological significance [6]. Proposals for the regulation of numbers: the elimination of conditions that promote the emergence of flies and the destruction of larvae.

Distribution: Holarctic species. Everywhere. Distributed in Europe, Kazakhstan, Siberia. Known also from Greenland and Alaska.

*Chrysomyaalbiceps* Wd. Calliphoridae family. Distribution in the Almaty region: in all areas of the region the species is numerous. Flies were found on meat, corpses, in the bazaar, slaughterhouses. The larvae are very mobile. Carnivorous larvae feed on other larvae of other species of flies (*Sarcophaga*, *Ravinia*, *Phormia*, *Musca*). Larvae develop in scraps of slaughterhouses, garbage with meat debris, in tropical countries - also in wounds on body of sheep [6]. In tropical countries, a tissue miase of animals is caused, which we have not registered in southeastern Kazakhstan. A species that is of medical-veterinary importance.

Regulation of numbers is achieved by the introduction of a sanitary order. Elimination factors that contribute to the emergence of flies.

The general distribution is the Crimea, Azerbaijan, Georgia; Chelyabinsk, Leningrad Oblast; Central Asia (*Kirghizia*, *TerskeyAlatau*), Far East-Southern Europe, Africa, Asia, Australia.

*Protophormiaterraenovae* R.- D. (= *P. groenlandica* Ztt.). Calliphoridae family. Spring blue fly. Distributed in the forests of the foothills of the Almaty region. In spring they appear very early, on the first sunny days. Appear in the spring in the first sunny days, mainly on sunlit walls and buildings. By the fall of the flies are going to gather in huge numbers on the walls of houses, often climbing into rooms where they can spend the winter in the imaginal phase. Habitats: during the summer maximum, they arrive at places of open food sale, especially in fish and meat rows, on garbage cans. Spring is usually found on birch flowing juice. Imago sometimes occurs in rare amounts in mid-May on umbellate flowers [6]. The female lays the larvae on kitchen scum and on pig manure, mixed with the remains of forage, on the corpses of vertebrates. The development of larvae occurs mainly in kitchen garbage, in dumps, in the form of an exception, larvae can develop in pig manure, when the remains of food are mixed with it. Hibernating in cracks in the cortex, in crevices, etc. Early in spring and autumn are numerous. Contaminated food.

It is widely distributed in the Holarctic: Europe, Siberia, China, Kazakhstan.

*Phormiarestes* Mg. Family Calliphoridae-Calliphoridae. Distributed in the south-east of Kazakhstan. Imago from the early spring appear on animals and on corpses. Imago is found on the bodies of vertebrates, in slaughterhouses, in garbage cans, as well as on leaves of shrubs, on plants, on fruits and vegetables. Larvae cause damage to products of animal and plant origin by microorganisms. Regularly come across the slaughterhouses. Sinanthropus. Imago habitats are located near dwellings and livestock farms. Plenty of places in the world. Larvae develop in corpses, rotting meat and fish and in garbage dumps with decomposing meat waste.

Holarctic view, except for the North. The European part of the CIS, except the north, the Caucasus, Central Asia; middle and southern Europe.

*Ravinia striata* F. (= *R. pernix*). Gray meat flies - Family Sarcophagidae. Color body without metal luster, usually with a light coating in the form of strips; often a paddy, iridescent, checkered. Imago is recorded on the body of sheep, cattle, located in the foothills and mountain pastures of Zailiysky, ZhungarAlatau at an altitude of 2200 -2400 m above sea level. m. Sinanthropic species. Imago also met at the Assy tract, the Turgen gorge in the Enbekshi-Kazakh district. Imago feed on substrates of organic origin. Imago come across plants, everywhere in the bazaars, stalls from April to October. Female viviparous, larvae develop in the body of mollusks and other arthropods. Substrates of organic origin (excrement of domestic animals, carrion, kitchen garbage, etc.) serve as a place for the development of larvae. Relatively large numbers were observed in June. Regulation of numbers is achieved by protecting them from reproduction. The puparia of this flies were infected by *Trybiliographasubmontana* larvae-the rider, which, possibly, regulate the abundance of imago in nature [12].

Palaearctic species: Western Europe, North Africa, Northern India, China, Middle and Near Asia, Siberia except the North, Primorye.

*Wohlfahrtiamagnifica* Schin. The species has a medical-veterinary significance. We are registered in various biotopes of the desert and mountain areas of the Almaty region. The habitats of the imago are pasture, near rivers, watering places, in parking places and on animal corpses. Females refer to obligate parasites that cause miases in sheep, goats, cattle, horses, pigs, dogs, and humans. Flight is observed in the desert zone from the end of April to the middle of October, in the mountainous (belt of the mountain steppe) zone from the second decade of May to the beginning of October, in the forest-and-lag belt from the third decade of May to the middle of September. Imago attacks animals only for reproduction. In the absence of animals, they lay larvae on humans, too, since when the larvae mature, the females are not legible. This is due to the fact that timely not lactated live larvae gnaw the inside of the mother and there is a danger to the life of the female, because of what she tries to postpone the ripe larvae faster. In the experiment for 30 min. females perished from their own larvae, which gnawed at the mother's body. The temperature range of activity of females is 13-30 ° C (optimum 18-30 ° C).

Larvae develop in the wounds of warm-blooded animals, causing diseases, miases, including in humans [19]. The larvae of this fly are affected by sheep on average 57.8% ±5.7; goats -32.7%, cattle - 36.3%, pigs - 21.9%. Imago live on average 25 days. The female lays the larva many times in the wounds of animals. Polyvoltine appearance. Numerous view in the summer. They cause significant damage to animals that have wounds on the body. Proposals for the regulation of numbers: treatment and prophylactic measures for animal wolfarthosis [20].

Distribution: Europe, Asia, America (except the North), Northern Africa [21]. Distributed in all natural and climatic zones of the Almaty region, except for the alpine belt of the mountains. Palaearctic species [22].

*Wohlfahrtia fedtschenkoi* Rohd. It is confined to a desert zone. Found in the former

Borlyutobin district; in the southern Balkhash region (sands Kushikzhal, Lockkum and Zhalkum). Imago inhabits pasture on bushes, a nectarophage. Animals rarely fly to the wounds, but the female lays live larvae for manure and animal corpses. The larvae are copro-necrophagous. The species has a medical and veterinary significance. Occur from the end of May to August, the daily activity is shown by 10 o'clock. Among the animals is a small number.

Spread. Asian species: Turkmenistan, Uzbekistan, Kazakhstan, China (Gansu-deserts North-Western Alashan, Valley Goizzo, North AlashanEjzin-gol).

*Wohlfahrtia indigena* Vill. Distributed in Saryesik-Otrau, Lokkum. Places of habitation: in the desert among shrubs, in burrows of rodents. An intensive flight in the sand Lokkum is marked in June-July.

Ecological features of the species. Females lay living larvae on excrement, on corpses of both vertebrates and invertebrates (beetles, locusts, phalanges). The larvae parasitize in the body of arthropods, mollusks. Larvae live in various rotting animal remains and excrements of vertebrates. The duration of development of the larvae is 5-6 days, the pupal phase in July is 14 days. The species has medical and veterinary significance.

Common distribution: Asian-African species, Middle and Central Asia, northern Africa. In Kazakhstan: in the desert Kyzyl-kum, SaryesikOtrau, Lockmoo.

*WohlfahrtiabellaMacquart*. Gray meat flies. Necrophages. The beginning of the flight of the adult in the mountain steppe was observed from the first decade of June. Mountain view. Habitats - mountain pastures, near rivers, springs. Larvae live in rotting animal remains. Parasitize in the body of insects or other arthropods and mollusks. The female lays the larvae on corpses and meat. Trophy of larvae - copro-necrophagy, but in manure very slowly and few of them reach maturity. The duration of development of the larval phase is up to 7 days, the pupal phase is 18-25 days. Biovoltaic species, two generations have developed in the mountainous zone. The species is many-numbered in the mountainous terrain on animals to the subalpine belt of Zhetysusky and Ili Alatau. Spoils livestock products. The species has medical and veterinary significance.

General distribution. Mountainous landscapes of the Mediterranean (Canary Islands in the west and Egypt in the East), Transcaucasia, Central Asia, China (western Tibet, Gansu and Qing-hai), Mongolia, Iran. Distribution in the Almaty region - mountainous landscapes, foothills and up to the subalpine belt (Kapal, Guards, Sarkand, Kerbulak, Talgar districts) in Zhetysu and IliiskyAlatau.

*WohlfahrtiameigeniSchin*. Habitats: pastures, near rivers, in koshars, in parking lots and watering animals. Female - facultative pathogens miaz warm-blooded animals. Females lay larvae in wounds, mucous membranes and skin integuments of animals. In the desert zone in the summer, the number is large. Inflicts considerable damage to livestock. The larvae feed on the cells of the affected organs [19]. The larvae, who died at the end of August, gave birth in the end of September and in the spring of the following year. A species that is of medical-veterinary importance. Proposals for the regulation of numbers: veterinary and preventive work as in the case of tungstosis in animals.

Distribution: Europe, Asia (except the north), North America, Middle Siberia to the subzone of southern Taiga (south of Tyumen, Omsk, Novosibirsk regions) and south of Yakutia [22]. Palearctic species. Distributed in desert areas of Almaty region.

*WohlfahrtiabalassogloiPortsch*. Found in pastures, in the desert zone (Sa-ry-icikotrau) in cattle-breeding farms "Matai", "Kuraksu". The imago, by the nature of the trophic, refers to the necrophagous. Larvae developed on decomposing organic remains and corpses of animals. Larvae also develop on plant remnants-phytophagous. On the meat, the larvae develop poorly [18]. The species can mechanically spread infections.

General distribution: Eurasian species. Iran, China, the south of Ukraine, Kazakhstan. They occur in the desert regions of the Almaty region (Pribalkhash), west of the Alakol Depression.

*WohlfahrtianubaWied*. They live on pasture, cattle-breeding buildings, bushes. Larvae are polyphagous: necrophagous, coprophagous. Females lay larvae mainly on corpses. In excreta, the larvae develop long [18; 19], only up to 10% reach maturity. Under appropriate conditions, they can be pathogens of the mias. Ordinary in the desert. In Africa (Sudan), there are miases of camels and donkeys [23, 24], but in our region there are no cases of parasitism in animals. Imago arrive on animals for feeding with secretions. A species that has a medical and veterinary significance. An optional pathogen of the animal miase.

Distribution Eurasian-African: North Caucasus, Middle, South Asia (Western Uzbekistan), Arabia (Juddah), West Pakistan, India, the whole of Africa, Kazakhstan. Distributed in Borlitobinsk, Kerbulak areas and in the Balkhash region of Almaty region.

*WohlfahrtiapavlovskiyiRohdendorf*. Distribution in the Almaty region: Samsi, Zhambyl district. Habitat - foothill landscapes, often near rivers. Ecological features of the species have been poorly studied. The species is closest to *W. bella*, differing by its darker overall coloration and other structure of the genital appendages of the male. The lifestyle and bioecological features of adults are poorly understood. In the area of the range in a rare abundance. The closest to *W. bella*, differing in the darker overall coloration and other structure of the genital appendages of the male. Palearctic species. The geographic

and ecological relation is connected with the mountainous landscape of the south-palaeartic with Tien-Shan, Altai, Sayan.

Distribution: Asian species. Khakassia, Mongolia, China, Kazakhstan.

*Parasarcophagacrossipalis* Meq. (= *P. securifera* Vill.). On the pastures of Almaty

The area is widely distributed in animals. Imago is also common on the adjacent territory of Lake. Sasykkola and Alakola. Habitats are associated with animals and sinanthropes. Larvae develop in the bodies of vertebrates. The larvae are coproconecrophages [22; 5]. A species that is of medical-veterinary importance.

Distribution: the south of the European part, the Russian Federation, Ukraine, the Caucasus, Kazakhstan, Middle Asia, Primorye, Mediterranean, North. Africa, Mongolia, north. China, Australia.

*Bellieriamaculata* Mg. Distribution in the Almaty region is the coastal parts of the Sasykkola and Alakola lakes. Habitats. Imago is common in animals, faeces, litter, manure, in places where meat products are sold openly. The species is relatively common on sheep. Larvae of coprobites.

Spread. Europe, Central Asia, Kazakhstan.

*Bellieriacrossimargo* Pandelle. Sem. Sarcophagidae. Distributed in the Almaty region. Habitats. The imago is common in animals, faeces, litter, manure, in places where food is stored. Ecological features of the species. The way of life is the polyvotinic species. Larvae develop in substrates of organic origin.

Distribution: Caucasus, Central, Western Europe, Kazakhstan and Central Asia.

*Bercaea haemorroidalis* Fll. (= *Coprosarcophaga haemorroidalis*). Imago often live on organic remains, animals, open storage of meat products. Distributed in the former Taldykorgan region - near housing and livestock facilities on the coastal part of the Sasykkola and Alakola lakes. Imago seldom arrive on animals. The species is often found from May to October. The most important Sinanthropus, spread by man all-pervading. Larvae develop in garbage dumps, pig manure, excrement of vertebrates, feces. Development - polyvotinic, copro-necrophagy.

Spread. Caucasus, Av. Asia, Primorye. - Zap. Europe, Africa, India, East Asia, North America. America [22].

*Sarcophagacarnaria* L. Gray butcherfly. The usual widespread species in the Almaty region. The imago often falls on animals and along roads, on feces, litter, manure, in cesspools of rural type, in places of open storage of meat products, on flowers, fruits. Females are viviparous. Larvae develop in rotting meat, animal corpses, in earthworms. Sinanthropus. The number in summer is relatively large.

General distribution: Europe, north. Africa, Front and Central Asia, Mongolia, Yakutia.

*Gasterophilus nasalis* L. (= *veterinus* Clark) - intestinal gadfly. Sem. Gasterophilidae. Imago appear in July. It is established that the laying of eggs by the female occurs on those parts of the horse's skin that it can extract with lips and teeth. Larvae leave the eggs 1-2 weeks later, on the skin they cause itching. The horse combs the itchy places with the lips, while the larvae from the skin enter the oral cavity, causing inflammatory swelling of the pharynx, soft palate, the root of the tongue, and further development develops in the digestive tract. Causes the exhaustion of horses.

Distribution: the all-world.

*Gasterophilus haemorroidalis* L. - red-tailed gastric gadfly. Females of the gadfly lay eggs on the hair around the mouth and on the lips of the horses, the larvae emerging from the eggs cause itching, horses combing the itchy places, bring the larvae into the oral cavity that penetrate the mucous membranes of the oral cavity, injure the mucous membranes of the pharynx, soft palate and further in the digestive tract an inflammatory process occurs. Live-lose weight. Impaction of larvae for pupation was observed in April-May and in June adults fly off the gadfly. From the place of fertility, adults can fly for 5-6 km.

All-round spread.

*Oestrus ovis* L. - nasopharyngeal gadfly. Family Oestridae. Parasites of sheep. Imago is found in all regions where there are sheep farms. Imago found on the walls of buildings, bushes and trees. Imago when larvae ripen fly from these areas to sheep. Infection of sheep with larvae of the gadfly was recorded from June to the end of September. Female gadflies inject larvae into the nostrils of the sheep's lump of mucus, in which up to 20 larvae are kept. Larvae, developing in the nasal and frontal sinuses, cause the exhaustion of sheep and seizures of the so-called false vertex. Female nasopharyngeal gadfly can

sometimes inject larvae into the eyes, nostrils, the mouth of a person. The adults are discouraged by hexachlorane smoke.

Distribution: middle belt and south of Western Europe, Central Asia, North. America [25].

Rhinoestrus latifrons Gan. Are distributed where there are whole-hoofed stomachs up to the subalpine belt of the mountains, and also found on the coastal part of Lake Sasykkol. Imago gadflies appear in July. The female lays up to 800 larvae throughout life. In warm, arid years, the invasion becomes larger. Rhinostrosis in horses runs chronically, in the nasal cavities and frontal sinuses is observed in the form of rhinitis and laryngitis with exacerbation in the spring, which is associated with the increased development of larvae of gadflies.

Distribution: south-west Europe, Mongolia, China, India, Africa, Kazakhstan.

Hypodermabovis De Geer - subcutaneous gadfly. Sem. Hypodermatidae. View is found wherever large cattle are bred and the natural source of the imago is preserved every year. On the territory of the dairy-commodity complex and peasant farms, gadflies fly to bushes from the neighborhood, persistently pursuing animals. Imago gadworts do not feed (aphages), live off the stocks of nutrients recruited in the phase of the larvae. From mid-May to June, there was an intense attack of female gadflies on cattle. The female lays 5-20 eggs on the root part of the hair of the legs, abdomen, udder of cattle. After 3-5 days, larvae hatch. Animals scratch and lick skin areas where larvae penetrate. The larvae move to the root of the hair, through the hair follicles along the blood vessels and nerve trunks [9]. The larvae migrate to the host tissue 4-5 months. Migration of the larvae ends in the subcutaneous connective tissue of the back. Through the openings of the skin fall on pupation. Winged individuals come out with the onset of warm days. The appearance of one female causes anxiety, reaching the extreme excitation of cattle (the call).

All-world spread, including the north [25].

Thus, the identified zoophilic flies, depending on the type of biocenological links with animals, have topical and trophic connections in different phases of development. Of these flies, in parallel with saprophagy, necro-saprophagy (nutrition of living organisms, corpses, organic substrates), sarcophagia are larvae of the species of the family Sarcophagidae, Calliphoridae. For a number of species of zoophilic flies, their affiliation to a single type of food is difficult to define, the differentiation of which to a specific type of food is difficult, because they gradually alternate feeding were evolutionarily adapted to different types of food substrates and mixed food is predominant. Parasitic communication covers only a part of the life cycle of flies. The revealed parasites refer to the phase (age) parasites in the imaginal or larval phase of development. Some species of flies attack animals briefly for bloodsucking, others - parasitize in the larval stage for a long time, the third group - bothers animals, crawling along their body and pouring the excretions of the glandular membranes, mechanically transferring the microbes, helminths. Some facultative parasites cause tissue endo-ectoparasitism, these are mainly the larvae of the genera Wohlfahrtia, Oestridae. Lycinogenesis is characteristic of Wohlfahrtia, Oestridae. Larvae, during development, cause severe animal anxiety. The digestive enzymes released by the larvae contribute to the rapid decomposition of the tissue and translate them into a semiliquid state, which is assimilated by the larvae during development. Depending on the place of nutrition in saprophytes, sarcophagi, hematophagus, their attacks and localization on animals differ. Temporarily troubling pets with their bites bloodsucking flies cause indirect damage. They also provide in nature the circulation of pathogenic microbes and protozoa for animals and humans. The duration of the attack of zoophilic flies on animals in southeastern Kazakhstan averages 160-165 days. A large number of zoophilic flies occurs from late May to August, followed by a decline. Daily dynamics depends on the month of the year; in May, daily activity is shown from 12 to 16 hours, in June from 11 to 16 hours, in July and August from 8 to 11 and from 15 to 19 hours, in September from 12 to 16 hours. The greatest activity is manifested in July-August, in August-set to 18 hours with a population of up to 70 copies. for the fee; Activity decreased at the end of September - 2-3 individuals only from 12 to 16 hours. The number of larvae of flies even in the troughs of the calves, cows under the littered forages, zelens reached 100 cm<sup>2</sup> to a thousand specimens. Species from the family Muscidae, Calliphoridae, Sarcophagidae, Oestridae, Hypodermatidae are endogenous for animals. The main struggle is preventive measures aimed at preventing the emergence of flies by meeting sanitary requirements in the possible places of development of the larvae. Proposals for the regulation of numbers for the birth of Fannia, Muscidae-elimination of conditions conducive to the reproduction of adults, as well as destruction in substrates of larvae, pupae and adults with different insecticides; in particular:



observance of zoogeogenic conditions of keeping animals and systematic cleaning. It is much cheaper and easier to prevent the emergence of flies by timely harvesting and biotothermal decontamination of manure, especially in spring, this reduces flies' attacks on animals in the summer. An important role in regulating the number is played by preventive disinfestation of the flora of flies with insecticides. Regulation of numbers is achieved by eliminating conditions that multiply flies, as well as the destruction of larvae and pupae by various insecticides in propagation substrates. The number depends on the destruction of eggs, larvae on the body of animals by insecticides. With vegetable diseases and wolfartosis of animals it is desirable to fight against the developed recommendations. To reduce the number of these temporary parasites is much cheaper if an integrated method of control is used. The data obtained on the ecology of zoophilous flies of livestock farms will provide prerequisites for the prevention of infectious and invasive diseases.

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**ЗООФИЛЬНЫЕ МУХИ (Brachycera, Cyclorrhapha)  
ЮГО-ВОСТОЧНОГО КАЗАХСТАНА**

**Аннотация.** Излагаются виды зоофильных мух, непосредственно связанные с животными, имеющие медико-ветеринарное значение. Приведены результаты исследования многолетних обобщенных данных по особенностям биологии и экологии доминантных видов короткоусых зоофильных мух. Средняя продолжительность периода нападения зоофильных мух на животных в юго-восточном Казахстане составляет 160-165 дней. Появлению первых мух весной предшествует потепление воздуха и почвы выше 14°C. По характеру питания выявленные мухи разделяются на сапрофитов (лижущие), гематофагов (кровососущие), саркофагов (возбудители миазов), а по личиночному развитию относятся к саркофагам, некрофагам и копрофагам.

**Ключевые слова:** мухи, имаго, личинки, зоофильные.

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**ОҢТҮСТІК-ШЫҒЫС ҚАЗАҚСТАНДАҒЫ  
ЗООФИЛЬ ШЫБЫНДАРЫ (BRACHYCERA, CYCLORRHAPHA)**

**Аннотация.** Мал шарушылығында жиі кездесетін шыбындардың мезгіл мен тәулік динамикасы мен олардың өсіп өнетін ерекшеліктері баяндалады. Ірі қара мен қой қораларындағы жиі кездесетін шыбындардың өсу орындары анықталды. Науада, ылғалды жем, көкшөптер астында, қида, өсетін зиянды шыбындардың құрттары жиі кездеседі. Малға зиян келтіретін шыбындар түрі Muscidae, Calliphoridae, Sarcophagidae, Oestridae, Hippodermatidae тұқымдасына жатады. Шыбындар қоректенуіне, өсуіне байланысты сапрофит (жалаушы), саркофаг (құртататын), гематофаг (қансорғыш) және оқыра, кеңсірік құрттары болып бөлінеді. Бірнеше жылдар бойы зерттелгендіктен биологиялық, экологиялық ерекшеліктері келтірілді.

**Түйін сөздер:** шыбындар, құрттар, имаго, зоофильды.

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