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Research Article

The Most Mass Dipterous Insects–Cattle's Parasites in Mountain Digoria

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Abstract

Traditionally in Mountain Digoria there were engaged in distant-pasture and pastoral livestock production both in the summer, and in the winter. As a result of our researches from 1994 to 2018 using the standard methods of visual observations, collecting, photo fixing and cameral processing of entomological materials in mountain Digoria were caught and defined 34 species of zoophilous flies. These flies are one of the most widespread temporary parasites of cattle. The researches were conducted at near settlements and wild pastures. Taxonomical structure was created, and the list of the established species was made. Zoophilous flies causes stresses in pets, exhaust a lot of blood, put morbid stings, extend causative agents of infectious and invasive diseases, and are the intermediate owners of helminths, spoil products, forages, increase a bacterial infectiousness of milk and dairy products. In mountain Digoria where the distant-pasture and pastoral livestock production and production of meat and dairy products are important in life support of the population, such knowledge is necessary.

Keywords: Mountain Digoria; Zoophilous Flies; Temporary Parasites of Cattle; Anthropogenic and Natural Biotopes; Near Settlements and Wild Pastures; Cattle Livestock

Introduction

In Mountain Digoriya traditionally were engaged in distant-pasture and pastoral livestock production. There were engaged in distant-pasture and pastoral livestock production both in the summer, and in the winter. Cattle, except milk cows, was contained in the winter on distant pastures on which prepared hay in the summer. Here owners, in turn, the cattle contained. Such period proceeded 5-6 months. In the summer in these parts animals were grazed, generally off-hand the person. Escaping of these natural boundaries, in crevices between rocks, were closed that the cattle did not return until late fall from there, wild animals in these parts met less often [1]. According to literary data, only one Haresskoe gorge in 1867 contained 919 heads of cattle, in 1870-1000 heads [2]. The total area of natural fodder grounds occupies 22.8% of all farmlands. As a part of these grounds' mountain haymaking has and pastures prevail. In mountain Digoriya the cattle are grazed on droughty (Figure 1), dry (Figure 2) and damp (Figure 3) pastures and on pastures near settlements (Figure 4). The cattle breeding traditionally served and continues to be still a source to dairy and meat products. At the same time traditional, extensive methods continue to be applied. According to 2018, the general number of cattle in all mountain Digoria made 1512 heads. Zoophilous flies are one of the most widespread temporary parasites of animals who have great epizootological, epidemiological value and put the considerable economic damage to livestock production [3-10]. The epizootological value is by the fact that flies cause stresses in pets, exhaust a lot of blood, put morbid stings, extend causative agents of infectious and invasive diseases, and are the intermediate owners of helminths, spoil products, forages, increase a bacterial infectiousness of milk and dairy products. The damage caused to cattle by skin botflies diseases when each cow does not give the rest of 50-80 liters of milk is well known. Specific structure of the zoophilous flies features of their distribution, biology, ecology in the conditions of anthropogenic and natural biotopes in the territory of mountain Digoria are studied insufficiently.

Figure 1: Droughty pasture.

Figure 2: Dry pasture.

Figure 3: Damp Pasture.

Figure 4: Near Sattlement Pasture.

Purpose of the Study

The purpose of the research was identification of the most mass dipterous insects which are the cattle's parasites in mountain Digoria.

Materials and Methods

The Study Area

The research was conducted in mountain Digoria, Republic North Ossetia-Alania, and Russian Federation from 1994 to 2018 from March to September months. The map-scheme of study area is shown in the geographical map (Figure 5).

Materials and equipment: References (see the List of references), cameras digital (Samsung ES28, Sony DSH-H300), air entomological nets, killing jars, setting boards, pins, tweezers, etc., a binocular microscope of MBS-1.

Methods: The standard methods of visual observations and collecting biomaterial, photo fixing and cameral processing of entomological materials [11].

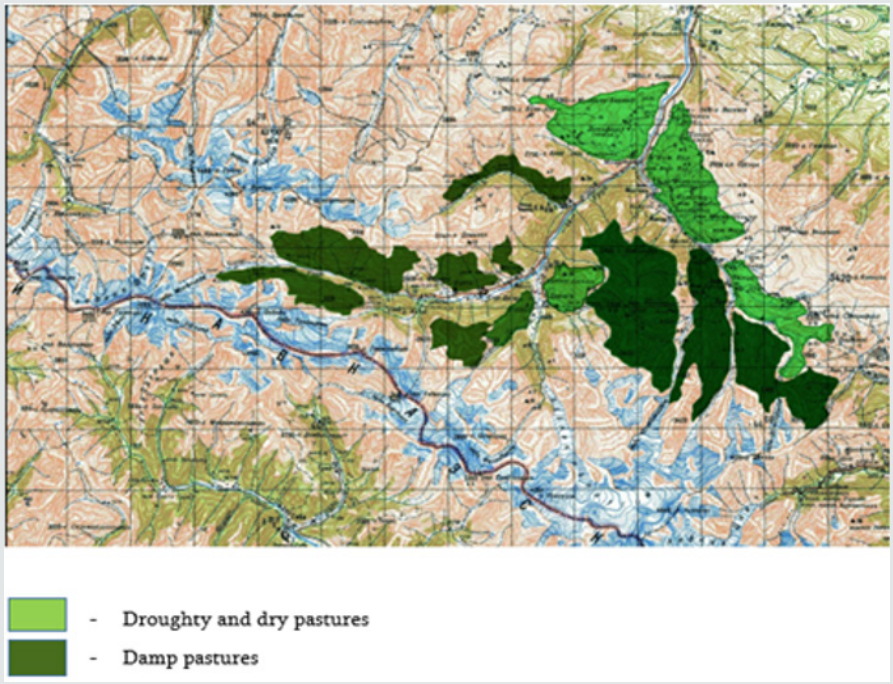

Figure 5: Study area.

For achievement of the purpose of this research, the following tasks were carried out:

a) Field and cameral researches at settlements and pastures were conducted;

b) The taxonomical structure was created, and the list of the established species was made (Table).

Results and Discussion

As a result, was defined the following taxonomical list of Diptera - cattle's parasites (Table).

Table: The total number of noted dipterous insects made 34 species of 3 families.

No	Taxa	Fly period (months)	Distribution	Notes
Familia Muscidae				
1	Musca domestica (Linnaeus, 1758)	VII-IX	Everywhere	Settlements, pastures
2	*Musca autumnalis* (De Geer, 1776)	around III to early IV	-"-	-"-
3	Muscina stabulans (Fallen, 1817)	Year-roundly	-"-	-"-
4	*Stomoxys calcitrans* (Linnaeus, 1758)	VII-IX	-"-	-"-
5	*Haematobia irritans* (Linnaeus, 1758)	IV-X	-"-	-"-
6	*Haematobosca stimulans* (Meigen, 1824)	VI, IX	-"-	-"-
7	*Haematobosca atripalpis* (Bezzi, 1895)	VI-X	-"-	-"-
8	Lyperosia titillans (Bezzi, 1907)	III-XI	-"-	-"-
9	*Fania canicularis* (Linnaeus, 1761)	Year-roundly	-"-	-"-
10	*Fania scalaris* (Fabricius, 1794)	VI-VIII	-"-	-"-
11	Calliphora erythrocephala (Meigen, 1826)	V-X	-"-	Pastures

12	*Calliphora vomitoria* (Linnaeus, 1758)	VII-IX	Dry places	-"-
13	*Calliphora uralensis* (Villeneuve, 1922)	VI-IX	Everywhere	Settlements
14	*Calliphora vicina* (Robineau-Desvoidy, 1830)	III-XI	-"-	Settlements, pastures
15	*Protophormia terraenovae* (Robineau-Desvoidy, 1830)	-"-	-"-	-"-
16	*Lucilia sericata* (Meigen, 1826)	VI-VIII	Dry places	Pastures
17	*Lucilia illustris* (Meigen, 1826)	-"-	Everywhere	Settlements
18	*Sarcophaga carnaria* (Linnaeus, 1758)	III-XI	-"-	Settlements, pastures
19	*Sarcophaga haemorrhoidalis* (Fallen, 1817)	V-IX	-"-	-"-
20	Parasarcophaga albiceps (Meigen, 1826)	III-XI	-"-	-"-
21	Parasarcophaga jacobsoni (Rohdendorf, 1937)	VI-VIII	Dry places	Pastures
22	*Hippobosca equine* (Linnaeus, 1758) Familia Oestridae	V-X	Everywhere	Settlements, pastures
Familia Oestridae				
23	*Hypoderma bovis* (De Geer, 1776)	VI-IX	Everywhere	Settlements, pastures
24	*Hypoderma lineatum* (Viller, 1789)	-"-	-"-	-"-
Familia Tabanidae				
25	*Tabanus bovinus* (Linnaeus, 1758)	V-VIII	Everywhere	Pastures
26	Tabanus quatuomotatus (Meigen 1820)	-"-	-"-	-"-
27	*Tabanus miki* (Brauer, 1880)	-"-	-"-	-"-
28	*Tabanus autumnalis* (Linnaeus, 1761)	-"-	-"-	-"-
29	*Chrysops relictus* (Meigen, 1826)	V-IX	Marshlands, damp woodlands	Pastures
30	*Chrysops caecutiens* (Linnaeus, 1758)	V-VIII	Everywhere	-"-
31	*Hybomitra montana* (Meigen, 1820)	-"-	-"-	-"-
32	*Haematopota pluvialis* (Linnaeus, 1758)	V-IX	Marshlands, damp woodlands	-"-
33	*Haematopota pallens* (Loew, 1870)	-"-	Dry places	-"-
34	Therioplectes tricolor (Zeller, 1842)	VI-VIII	Everywhere	-"-

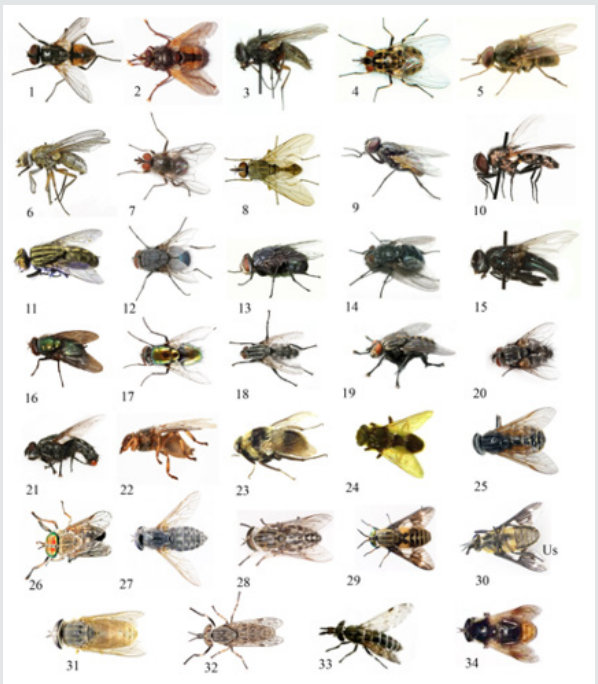

Figure 6: dipterous insects (Diptera).
Numbering of images corresponds to numbering of species in the table.

Muscidae family contains 22 species (Figure 6 (1-22)), 16 from which meet on all types of pastures both on natural, and on pastures near settlements, 4 – on pastures only (3 – on dry, 1 – on all types) and 2 species - on pastures near settlements and in stalls. To Oestridae family belong 2 species (Figure 6 (23, 24)); they meet on all types of pastures - natural and on pastures near settlements. Nabanidae family contains 10 species (Figure 6 (25-34)), 7 from which meet on all types of pastures, 2– in marshlands, damp woodlands, 1– in dry places; all of them meet only on pastures both on natural, and on pastures near settlements.

Conclusion

During researches 34 species of the most mass dipterous insects (Diptera), which are the cattle's parasites in mountain Digoria we identified. All of them can cause various diseases and reduce efficiency of cattle.

In the conditions of mountain Digoriya where the distant-pasture and pastoral livestock production and production of meat and dairy products play the leading role in life support of the population, such knowledge is extremely necessary.

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