



Locust problem in the Ottoman State in World War One

Ümmügülsüm Candeger¹

Abstract

Humankind has faced many disasters since the beginning. It is evident that some of the disasters have occurred because of natural reasons but some others happen because of man who destroyed the balance of nature. Humankind has been in an endless struggle with the nature. Fighting with the disasters like earthquake, flood, fire, plague, famine and locust outbreaks can be in two ways; The first way of struggling such disasters is prevention and the second one is recovering the loss after the incident. The purpose of this study is to examine the relationship between the war known as the disaster created by humankind and locust plague as the natural disaster.

Locust invasion was one of frequent problems that occurred repeatedly in Ottoman State. Affecting Western and Southern Anatolia and Arab Provinces, it made life miserable for people living there especially in the period between the last quarter of XIX. Century and the first quarter of XX. Century and it turned into a major disaster. Locust disaster caused material and non-material damage to either local people or to the state. Swarms of locust which devoured farmlands of thousands acres damaged the crops in the area destroying the livelihoods of local people. Therefore, people whose crop fields were devastated faced famine. Considering the fact that the country was involved in the World War One, the disaster became worse. When the parliament records of the period were examined, it is seen that the First Turkish Parliament held congress over the issue and heated debates took place.

In the first part of the study, we will be focusing on the dangers of locusts in terms of agriculture. The effects of locust plague in Western and Southern Anatolia and the treatments local people applied to solve the problem will be discussed by examining the archival files. In the second part of the research, examining the archives of the first parliament, the debates about the locust plague in the parliament, the decisions made after the debates or enacted laws and enforcement of these laws will be examined.

Keywords: Locust Plague in Anatolia, World War One, Acts of First Parliament

¹ Dr. History Teacher, MEB (gcandeger@gmail.com)

1. Introduction

Consider a bug about which there are laws, requiems, idioms, proverbs, religious practices and treaties of international cooperation. How many bugs are there that can fit into such description?

The subject of this study is locusts, which were more deadly than bullets as an enemy in the World War One. The harms of locusts in the lands of Ottoman State, the recovery process, parliament sessions, enacted laws and enforcement of the law was tried to be explained by examining archival files.

In the early days of Spring, is heard around the world

The locusts invaded like The Flood

And destroyed all the farmlands

It was like a simoom

The number of the locusts was endless

No grass left for the sheep and the lamb

God have mercy on us

The poor was hit hard and left without bread

The locust dirge above (Akgün, 2006:177-178) that belongs to Kırşehir region is the form of verse and rhythm of locusts in folk's culture. The poet, Yusuf (Altınok, 2003:214-216) from Dalakçı village of Kırşehir depicted locust invasion and its effects in his dirge in a sentimental voice. In the poem, he narrated that the locusts caused people to migrate, damaged farmlands, the valleys that the swarms of locusts passed through turned into deserts, the animals were left without food and families could not bring home bread.

When we looked at the answer to the question of what put the poet through so much trouble, we came across a bug called locust, which has different kinds (Karabağ and Balamir, 1971:73-100) in the family of insects in Zoology, which is the sub-branch of Biology. It is a fact (Türkoğlu, 2001:8) that there are nearly 20-30 thousands kinds of locusts in the world, which are in the sub-group of arthropods. These animals, whose biological cycle is in the order of eggs, nymphs and adults inhabit around the Ecuador Line (Symmons and Cressman,2001:6). These animals, whose sizes can range between 2 and 20 cm, can jump 20-30 times higher than their height by means of their strong back legs. Locusts are 2- 20 cm long; however, sometimes they can reach the density of 200 million locusts per square and they travel as swarms of ten square kilometers (Symmons and Cressman, 2001:19-26). An adult female can lay 200-3737 eggs in a period and they can multiply as much as that number from one locust until the next period (Gümüüşsuyu,1981:28). Locusts feed on plants daily and can consume food as much as their weight. When it is calculated that the weight of 200 million locusts per square are approximately 200-300 tons, we can find the amount of food that can be consumed a day by calculating the square meters.

These insects are known as the first species among the plant mites and they can damage not only their own area but also the surrounding environment (Özbek and Yıldırım, 1994:12). It is known that the migrant kinds of these insects can cover a distance as much as 2500 km during their migration. The desert locust or Sudan locust is the most dangerous of migrant locust species (Balamir, 1952:14). Desert locusts breed in Mauretania, Mali, Niger, Chad, Sudan, Ethiopia, Somali in Africa, entire Arabian Peninsula, the South of Iran and Pakistan and Southwest of India and migrating to the East, the West and the Northwest, they form huge swarms (Özbek and Yıldırım, 1994:12-13). In Turkey, desert locusts that can migrate are responsible for infestation. Desert locust plaques, which were destructive in an area extending from West Africa to Pakistan, occurred in 1865, 1878, 1890, 1902, 1915, 1928, 1930, 1931, 1945, 1953, 1958, 1960 and 1962. Locust plaque, which was severe from 1861 to 1915, took its highest point between 1880 and 1912 (Güzel, 2012:245-246).

A unit in the United Nations Food and Agriculture Organization is responsible for the control of desert locust. This unit gathers information from the locust areas monthly and share the information in Arabic, English and French via its website (<http://www.fao.org/ag/locusts/en/info/info/index.html>, Date Accessed: 29.06.2015) The data of this website has inspections and reports that have been obtained since 1860. According to these reports, (<http://www.fao.org/ag/locusts/en/archives/1146/index.html>, Date Accessed: 29.06.2015) the outbreak occurred between 1987 and 1989 and between 2003 and 2005 in the area extending from the West of Africa to Pakistan was their last plaque. When current data is examined, it can be seen that there has been an increase in their normal course.

2. History and Cultural Reflections on Combating Locusts

The World War One is one of the worst wars that humankind has ever seen. After the war, the borders of many states were redrawn and a new period across the world started. At that time, another disaster took place in the lands of Ottoman State. There was an unexpected increase in the number of locusts as desert locusts migrated to the land of Anatolia. Therefore, using successful methods for locust control was very important for the people at the time, as they needed to bring home bread because there was an ongoing war in Anatolia. There are biological (physical) and chemical methods in the locust control.

Biological methods include cultivating the soil, which is suitable for farming, deeply in the areas where there are the eggs of locusts, guiding the starling birds on to the locusts, using zinc plates, which are 30- 70 cm wide and 150 cm high surrounding crop fields and collecting and burying nymphs and baby locusts under the soil. The use of urania poison (Arsenic- Paris green), the burning of the eggs and baby locusts that were put over a white sheet or the use of fire by burning the dry grass in rocky areas are chemical methods.

Cultivating the land where locust eggs exist or collecting them to burn are the methods that have been used for years. Another method is killing baby locusts after they hatch by stepping on them before they start to fly. This method was recommended in the letter of law, which was written to the Kadı of relevant place on 13th of May 1571 (Kılıç, 2002:1350).

Guiding starling birds, which are primary enemies of locusts, to the area according to a widespread belief among people is another method of controlling locusts. However, the locust or starling water was needed for guiding the starlings. This water could be taken from the sheik of dervish lodge. However, they had to take permission from the center so the sheik of the lodge could give the water. In Kızılcahamam (formerly named Yabanabad), the sheik of lodge, Yusuf did not give the water of locust to three Crimean for not having permission and they had to take permission from the center (Kılıç, 2002:1352).

Locust was mentioned in the Koran and the Bible, too. In the 133. verse of Surah of Al-A'raf, it was written as "Then We sent upon them the storm and the locust and the lice and the frogs and the blood – clear Signs; but they behaved proudly and were a sinful people" (Özek and Karaman, Undated:165). It can be understood that the people mentioned in the verse were Egyptians. In addition, in 6., 7. and 8. verses of the Surah of Al- Qamar, it was written as " So turn away from them. On the Day when the Caller calls to something terrible. Their eyes humiliated, they will emerge from the graves, as if they were swarming locusts. Scrambling towards the Caller, the disbelievers will say, "This is a difficult Day!" (Özek and Karaman, Undated: 527-528)

In the Bible in Revelations 9, locusts were mentioned as follows, "Then out of the smoke came forth locusts on the earth, and power was given to them, as the scorpions of the earth have power. They were told that they should not hurt the grass of the earth, neither any green thing, neither any tree, but only those people who do not have God's seal on their foreheads. They were given power not to kill them, but to torment them for five months. Their torment was like the torment of a scorpion, when it strikes a person. 6. In those days people will seek death, and will in no way find it. They will desire to die, and death will flee from them The shapes of the locusts were like horses prepared for war. On their heads were something like golden crowns, and their faces were like people's faces"(<http://www.bibleonline.ru/bible/tur/66/09/#3-7>, Date Accessed: 01.08.2015)

It is inevitable that there would be similarities in their struggle against locusts because there are similar statements about locusts in Christians and Muslims' holy books.

It is known that Christians also have the common belief of using locust water. In 1473, assigned two Armenians to find locust water and in 1507, they used this method for controlling locusts (Demir, 2014:38-40). Christians and Muslims fought against the locusts in the outbreak in Cyprus by bringing their beliefs and holy waters together (Jennings, 1988:291-292). When the archives were examined, it was seen that those who set out from different parts of Anatolia to look for locust water wrote letters to Istanbul and Istanbul made some correspondences to the places they went so that their journeys would be easier. In Ottoman archives, it is also possible to find the names of the places where the sheiks took locust water from time to time. The name of the places that needed the locust water were Thessaloniki, Shkodra, Janina, Manastır, Skopje, Mytilene, Gallipoli, Cezair-i Bahri Sefid, Aydın, Edirne, Erzurum, Trabzon, Tripoli, Aleppo, Diyarbakır, Mosul, Beirut, Jerusalem, Syria, Konya, Bitlis, Bursa, Izmir, Kal'a-i Sultaniye, Karesi Hüdavendigar, Menteşe and Crimea (Demir, 2014:38-40).

Another method that was used for controlling locusts was the use of zinc plates. Zinc plates are cut into pieces, which are 150 cm long and 60-70 cm wide and then they are placed side by side in farmlands as barricades against the direction of locusts' arrival. Holes, which are 100 cm wide and 200 cm deep, are dugged right in front of these barricades. The locusts that come to damage the crops hit these barriers and fall into the holes. Since they fall onto each other, they cannot fly. In the meantime, they are destroyed by putting earth onto them. This practice was carried out until 1940s. Therefore, zinc plates have been one of the most widely used materials in locust control (Temel and Baş, 2008:167).

Considering chemical methods for locust control, the first one is the method of burning locusts that involves collecting locusts onto sheets or their being collected by labour battalion to be burned. As well as labour battalions, it was a valid method to make local people of the area to collect locust eggs, baby locusts or adult ones before they fly in return for their tax obligations. In fact, in Izmir, people were made to collect locust eggs in a total fight against locusts, official institutions gave permission to their employees in those days when locust collection was carried out. In its 1st of April 1914 edition, a local newspaper named “Ahenk” reported public about how total fight against locusts was carried out. Subsequently, people attended the locust control on 2 April. Again in April 1914, it can be seen that official institutions were closed down in Denizli, Nazilli, Sarayköy, Buldan, Seydiköy, Bayındır, and Bozdoğan and people joined locust control altogether (Gökmen, 2010:151-153; Ögün, 2015; 152-159).

The other chemical method is using Urania (Arsenic- Paris Green) poison. During the period when Mustafa Şeref [Özkan] was the minister of Commerce and Agriculture, he worked on locust control. Having brought Dr. Buhri and 12 German personnel, he and 150 agriculturists tried to take precautions to prevent locust breakout. A zinc plate barricade of 26 km long was built against locusts. On the other hand, 200 carriages of urania poison were brought. O[U]rania poison² was used for locust control by Dr. Fisher, who was an expert in Russia for locust control. After the locusts were killed, they were collected and the land was cultivated so that their eggs were also destroyed (Ürgüplü, 1939:25). In the first years of Turkish Republic, 42 tons of Urania was used for locust control (Temel and Baş, 2008:168).

When the field of literature was examined, in a document “Locust disaster in Western Anatolia 1850-1915”, (Gökmen, 2010:127-180) the writer gave details about the fight against locusts. According to the correspondences about the issue in the last period of Ottoman State, the most usual method was destroying locusts by using biological methods.

It can be seen that in the first years of Turkish Republic, locust control continued; however, scientific and chemical methods were largely used in the fight against locusts. In this context, the founder of applied Akridology, Boris P. Uvarov, (White, 1977: 1247-1248) who conducted chemical studies and research on locusts came to Turkey in 1931 with the invitation of Ministry of Agriculture and researched on local species in Turkey (Özbek and Aslan, 1996:25).

3. Laws about Locusts in Turkey

In the last period of Ottoman State, in 1912-1913, they started a fight against locusts by making locust regulations. Ministry of Agriculture decided to use the latest methods across the country by leaving the methods used by local authorities since the methods having been used up to that time did not produce a positive result. The living conditions of locust were examined by a team of experts and foreign specialists helped for the supervision of locust control (Yılmaz, 2014:1022).

In 1909, Forest Mines and Ministry of Agriculture prepared a supplemental bill and sent it to the First Turkish Parliament. The First Parliament functioned as the parliament of Ottoman State from 1908 with the proclamation of Constitutional Monarchy until 1920, the year when Grand National Assembly of Turkish Republic was established. The hearings about locusts in parliamentary minutes, which took place from the date of 17th of December 1908 until the date of 5th of April 1920, were examined.

² Copper-arsenic mixtures is known Paris green an insecticide. It used some documents oranya and the others urania

In the first period of the first parliament (17 December 1908- 5 June 1911) 18 and in the third period of the first parliament 28 hearings were held. In the hearings, it was debated that locusts made people's life miserable and they had to be destroyed. In the second period (18 April 1912- 5 August 1912) and fourth period (12 January 1920- 18 March 1920) of the first parliament, there were no hearings about locusts. As a result, the parliament enacted the law of temporary statute about the destruction of locusts on 14 November 1912 as the beginning of a new period for locust control (Düstûr, Tertib-i Sâni, Vol.5: 26–28).

The first debates about locusts in the first parliament started on 31 May 1909 and parliaments from different cities made speeches about how locusts could be harmful and what could be done to control them. When the official reports of the first parliament were scanned, it was seen that the word, locust had been used 160 times. In the hearings about the issue, it was found out that especially the famine occurred in Urfa, Birecik, Ayıntap and Aleppo and the solutions to this issue were discussed. Moreover, the endowment for the locust control in Aleppo and sending cereals to the area due to the lack of food caused by locust disaster were among other issues.

The resolution about the elimination of locusts as becoming the bill about eliminating the locusts by using scientific methods by the office of grand viziership on 28 May 1909 was sent to the parliament on 31 May 1909 by grand vizier Hüseyin Hilmi so that it could be debated and concluded (Grand National Assembly of Turkey [Türkiye Büyük Millet Meclisi (TBMM)] Archive, Meclis-i Mebusan Zabıt Ceridesi [The Ottoman National Assembly of Memorandum Official Report (ONAMOR)], Term(Devre): 1, Vol. 4, Session (Birleşim):83 (18 Mayıs 1325): 49–50). The bill about the elimination of locusts was debated by the parliament on 28 February 1910 (TBMM Archive, ONAMOR 15 Şubat 1325: 536–541). Nafi Pasha, one of the parliaments of Aleppo Province, made detailed explanations and stated the importance of locust problem as he came across the plague during his stay in Aleppo. Another parliament from Aleppo province, Ali Cenani Bey had some proposals about locusts. He proposed that a financial support had to be given to the families living in Urfa, Birecik, Antep and Aleppo so that they could overcome the famine started due to the locust plague (TBMM Archive, ONAMOR, Term: 1, Vol.2, Session:37 (26 Kânunusani 1325): 208). Similar speeches were made by the parliament of Urfa province, Saffet Bey (TBMM Archive, ONAMOR, Term: 1, Vol.2, Session: 42 (3 Şubat 1325): 346–349). Moreover, Saffet Bey stated that the locust plague occurred in Urfa was the most dangerous one of the locust disasters that had taken place in the last 40 years. He also explained that the price of one bushel of wheat increased from 70-80 to 360 kuruş and the local people were having financial difficulties.

Although all the articles were discussed in the parliament, there was a delay to pass the law, so the Ministry of Forest Mines and Agriculture sent another official document to the parliament on 10 February 1911 (TBMM Archive, ONAMOR, Term: 1, Vol.2, Session: 27 (8 Kânunusani 1326):217). It was stated in the document that the bill had urgency and had to be enacted immediately.

Locust was again one of the most significant items of the agenda during the budget discussions of the Ministry of Forest Mines and Agriculture in 1912. The minister (Mavrokordata Efendi) demanded that more money had to be allocated from the budget stating that more financial support was needed for the locust control, as the previous allocated money was not enough. He also explained that the locust plague in Aleppo province got worse and they needed the law about collecting locust eggs immediately (TBMM Archive, ONAMOR, Term: 1, Vol.6, Session: 89 (19 Nisan 1326): 98–135).

The First Parliament passed the law about collecting and eliminating locusts in 1912. However, it can be seen in the archives of the First Parliament that the debates and discussions continued until 1914. On a Thursday on 11 June 1914, one of the topics of the emergency session of the parliament was again locusts. In this session, the law about locusts was addressed and all the articles were discussed once more. Although it was agreed upon the majority of the items, some new items were included and some others were removed (TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 13 (29 Mayıs 1330): 225–239).

In the session (TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 18 (7 Haziran 1330) : 388–390) on 20 June 1914, the bill about collecting and destroying locusts was reviewed and accepted. In the first item of the law, village chiefs who were responsible for reporting locust eggs, board of council member and even local people were obliged to report locusts. The first person who noticed and reported locust eggs decided to have been awarded according to the distance between the place he lived and the area he had spotted locust eggs. In the second item, it was decided that a committee would have been established in the area where the locusts were seen and half of the salaries of this committee's members would have been paid with the money allocated for the locust control.

In the third item, it was written that the responsibility for collecting locusts started from the age of 15 and it would have been appropriate to punish those who did not carry out their duties depending on their ages. In the fourth item, it was written that people who lived three even five hours away from the area could have been given duties by the committee in case the people in the villages where locusts were found, were not able to manage the collecting. Besides, it was announced that they would pay the predetermined price to those who collected more locust eggs than they had to according the amount of the eggs they had collected.

In the fifth item, it was stated that the payments of the people who would go to other areas as workers would be determined by the city council. In the sixth item, the committee and local people were given the duty for the control of possible newly developed eggs in the spring despite previous collection of locust eggs. In the seventh item, it was decided that officials like civil servants and soldiers would be given daily wages and travel allowances. The eighth item stated that if village chiefs, board of council and local people who worked in the area where locusts were found did not perform their duties, they would be punished by a pecuniary penalty and if they did not make the payments, they would be sentenced to imprisonment.

The ninth item stated that Ministries of Defense, Interior Affairs, Justice, Economy and Agriculture were responsible for the enforcement of the law. Finally, tenth item announced that the law would take effect when it was published in the official gazette.

When all the articles of the law were examined, it can be seen that Ottoman State was struggling against the enemy inside rather than the enemy outside when they were on the brink of the World War One.

The date of 19 February 1916 is very important because although the war was the fiercest and Ottoman State was fighting at various fronts, it can be understood from the archives that there were still sessions about the locusts in the parliament. In the meeting on 19 February 1916, the law about the locust was discussed and it was put into final form (TBMM Archive, ONAMOR, Term: 3. Vol.2, Session: 31 (6 Şubat 1331): 88–89). With this new law, the previous statutes were annulled. Before this date, the statutes about collecting and destroying locusts, which were enacted on 14 November 1912, 21 November 1912, 1 February 1913 29 May 1913 and 25 October 1913, were annulled.

The first parliament was still discussing the official document concerning the changes in the articles of the bill about collecting and destroying locusts on 26 October 1918 (TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 7 (26 Teşrinievvel 1334): 71). Considering Mondros Armistice Agreement was signed on 30 October 1918, it can be seen that the locust problem that had started before the first world war got worse and the collecting and elimination of these pests, parliament sessions held and the laws enacted did not solve the problem effectively.

After Turkish Republic was founded, the issue of the locust control continued. The following laws were introduced in the first years of Turkish Republic. In the official gazette dated 16 May 1926 and numbered 400, “Locust Law” number 858 was introduced (Official Gazette 16.5.1926, N. 400). In the official gazette, dated 14 May 1928 and numbered 888, the law no. 1235, changed the first and second articles of Locust Law” dated 26 May 1926 numbered 858, was introduced (Official Gazette 14.5.1928, N. 828). In the official gazette dated 31 December 1934 numbered 2894, the law that made the regulation dated 20 May 1926 of the law no. 2652 that founded Locust Communication Office valid for more three years was introduced. In the official gazette dated 18 March 1954 numbered 8861; the law no. 6361 was introduced for the Approval of Additional Agreement about Technical Assistance Regulation no. 5 signed between Turkish Republic and Food and Agriculture Organization of United nations about the “Desert Locust Control”.

4. Conclusion

The Locust problem that had started before World War One continued without slowing down after the war was over. Although biological and chemical methods were used for the locust control in the Ottoman State, it was seen that the damage that the locusts gave to the farmlands and crop fields could not be avoided. When we consider the damage that the war caused on people and the damage that locust swarms created in many places, we conclude that 20. century became the century of disasters in the Ottoman State.

Locusts having many kinds can have hazardous effects despite being very small innocent animals. People who live in the areas that locusts invade in the forms of swarms have had to find methods to fight against this disaster. The locust plague that occurred in the West Anatolia in the years 1914-1915 alerted The Ministry of Trade and Agriculture and forced them to find an urgent solution. Yet again, the areas of Urfa, Suruç, Aleppo and Antep came face to face with the locust disaster.

The First Parliament, one of the most significant bodies of the state was actively involved in this issue and introduced necessary laws to make people use every means to fight against this terrible disaster. The parliament introduced laws on the following dates, 14 November 1912, 21 November 1912, 1 February 1913, 29 May 1913, 25 October 1913, 19 February 1916 and 26 October 1918 were the dates that the parliament worked overtime and made laws. After the war, the locust control continued.

REFERENCES

Archival Sources

Grand National Assembly of Turkey [Türkiye Büyük Millet Meclisi (TBMM)] Archive, Meclis-i Mebusan Zabıt Ceridesi [The Ottoman National Assembly of Memorandum Official Report (ONAMOR)], Term (Devre): 1, Vol.4, Session (Birleşim):83 (18 Mayıs 1325), s. 49–50.

TBMM Archive, ONAMOR, Term: 2, Vol.2, Session:47 (15 Şubat 1325), s. 536–541.

TBMM Archive, ONAMOR, Term: 1, Vol.2, Session:37 (26 Kânunusani 1325), s. 208.

TBMM Archive, ONAMOR, Term: 1, Vol.2, Session:42 (3 Şubat 1325), s. 346–349.

TBMM Archive, ONAMOR, Term: 1, Vol. 2, Session: 27 (8 Kânunusani 1326), s. 217.

TBMM Archive, ONAMOR, Term: 1, Vol.6, Session: 89 (19 Nisan 1326), s. 98–135.

TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 13 (29 Mayıs 1330), s. 225–239.

TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 18 (7 Haziran 1330), s. 388–390.

TBMM Archive, ONAMOR, Term: 3. Vol.2, Session: 31 (6 Şubat 1331), s. 88–89.

TBMM Archive, ONAMOR, Term: 3. Vol.1, Session: 7 (26 Teşrinievvel 1334), s. 71.

Periodic and Printed Resources

Official Gazette (Resmi Gazete), 16.5.1926, N. 400.

Official Gazette (Resmi Gazete), 14.5.1928, N. 1235.

Official Gazette (Resmi Gazete), 31.12.1934, N. 2894.

Official Gazette (Resmi Gazete), 18.3.1954, N. 8861.

Düstûr, Tertib-i Sâni, Vol.5, p. 26–28.

Books/Papers

Akgün, D. (2006) *Kırşehir Türkülerinde İnsan*(Human in Kırşehir's Folk Musics), Balıkesir Universty Institute of Social Sciences, Unpublished Master's Thesis, Balıkesir.

Altınok, B. Y. (2003) *Öyküleriyle Kırşehir Türküleri, Destanları, Ağıtları*(Kırşehir Songs with stories, epics and laments), Oba, Ankara.

Balamir, S. (1952) “Yakın Doğuda Çöl Çekirgesi Durumu (Near East Desert Locusts Status)”, *Bitki Koruma Bülteni* (Plant protection newsletter), Vol.3, Ankara, pp. 14–26.

Demir, A. (2014) “Osmanlı Devleti'nde Haşerelere Karşı Bir Önlem: Çekirge Suyu (A Measure: Grasshopper Juice against pests in the Ottoman State)”, *Erdem*, Vol. 67, Ankara, pp.33–45.

Gökmen, E. (2010) “Batı Anadolu'da Çekirge Felâketi 1850–1915 (Grasshopper Disaster in Western Anatolia 1850-1915)”, *Bellekten*, Vol. LXXIV, N. 269, Ankara, pp. 127–180.

Gümüştuyu, İ. (1981) “Orta Anadolu Bölgesinde Bulunan Gryllidae (Orthoptera) Türlerinin Biyolojik Gözlemleri Ve Habitat Özellikleri Üzerinde Araştırmalar–1(Central Anatolia Region found Gryllida to (Orthoptera) Biological Observation and Research on Habitat Characteristics of Type-1)”, *Bitki Koruma Bülteni*(Plant protection newsletter),Vol. 21, N. 2, Ankara, pp. 18–39.

Güzel, A. (2012) “1927 Tarihli Urfa Salnamesinin Tarihi Coğrafya Bakımından Değerlendirilmesi (1927 Evaluation in Terms of Historical Geography of Urfa Yearbook)”, *Gaziantep University Journal of Social Sciences*, Vol. 11, N.1, Gaziantep, pp. 231–262.

Jennings, R. C. (1988) “Locust Problem In Cyprus”, *Bulletin Of The School Of Oriental And African Studies*, Vol. 51, N. 2, London, pp. 279–313.

Karabağ, T., S. Balamir; İ. Gümüştuyu and E. Tutkun, (1971) “Türkiye Orthoptera Faunası'nın Tespiti Üzerine Araştırmalar (Determination of the Orthoptera fauna Studies on Turkey)”, *Bitki Koruma Bülteni* (Plant protection newsletter), Vol. 11, N. 2, Ankara, pp. 73–100.

Kılıç, O. (2002) “Osmanlı Devleti'nde Meydana Gelen Kıtıklar(Famine Occurred in the Ottoman State)”, *Türkler*(Turks), Vol. 10, Ankara, pp. 1340–1356.

- Öğün, T. (2015) Kafkas Cephesinin I. Dünya Savaşı'ndaki Lojistik Desteği (Logistic Support of the Caucasus Front in World War I), Dergah, İstanbul.
- Özbek, H. and İ. Aslan (1996) “Uzundere (Erzurum)'nin Bazı Köylerinde Salgın Yapan Çekirge Türü Poecilimon İcuspis Miram (Orthoptera, Tettigonlidae) Üzerinde Bir Araştırma(A Research on Uzundere (Erzurum) Grasshopper Outbreak Makes Some Kind in the village of Icuspis Poecilimo Miram (Orthoptera, Tettigonlida)”, Türkiye 3. Entomoloji Kongresi 24–28 Eylül 1996 (Bildiriler Kitabı),Ankara, pp. 44–51.
- Özbek, H. and E. Yıldırım (1994) “Şenkaya (Erzurum) Yaylasında Salgın Yapan Çayır Çekirgeleri (Tettioniidae: Orthoptera) Outbreak Makes Grasshopper in Meadow Springs (Tettioniidae: Orthoptera)”, Ekoloji(Ecology), N.11, Ankara, pp. 12–15.
- Özek, A., H. Karaman et all. (undated) Kur'ân-ı Kerîm ve Açıklamalı Meali(Holy Quran and Annotated Translation of the Meanings), Türkiye Diyanet Vakfı Yay.(Religious Foundation of Turkey Publications), Ankara.
- Symmons, P.M. and K. Cressman (2001) Desert Locust Guidelines 1. Biology and Behavior, Rome.
- Temel, M. and H. Baş (2008) “Cumhuriyet'in İlk Yıllarında İzlenen Bitki ve Orman Sağlığını Koruma Politikası(Plant and Forest Health Protection Policy Implementation in the Republic's Early Years)”, Muğla Üniversitesi Sosyal Bilimler Enstitüsü Dergisi (İLKE), N. 20, Muğla, pp. 165–176.
- Türkoğlu, Ş. (2001) Türkiye'de Yayılış Gösteren Bazı Çekirge (İnsecta:Orthoptera) Türlerinde Karyolojik İncelemeler Distribution in Turkey showing some grasshoppers (Insecta: Orthoptera) Karyological Studies in kind), Cumhuriyet University, Institute of Science and Technology, Unpublished PhD Thesis, Sivas.
- Ürgüplü, M. H. (1939) Mustafa Şeref Özkan ve Eserleri(Mustafa Şeref Özkan and His Works), Cumhuriyet, Ankara.
- White, M.J.D. (1977) “Acridology in The Uvarovian Style”, Science, New Series, Vol. 198, No. 4323 (Dec. 23, 1977), pp. 1247–1248
- Yılmaz, M. A. (2014) “Birinci Dünya Savaşı Yıllarında Osmanlı Devleti'nin Beşinci Düşmanı: Çekirgeler (The fifth enemy of the Ottoman State in the First World War: Locusts)”, Gaziantep University Journal Of Social Sciences, Vol. 13, N. 4, Gaziantep, pp. 1017–1042.

Electronical Resources

<http://www.dgfo>

articulata.de/articulata/Articulata_VIII_1993/Ciplak_Demirsoy_Bozcuk_1993.pdf

<http://www.fao.org/ag/locusts/en/info/info/index.html>, Date Accessed: 29.06.2015.

<http://www.fao.org/ag/locusts/en/archives/1146/index.html>, Date Accessed: 29.06.2015.

<http://www.resmigazete.gov.tr/arsiv/8661.pdf>, Date Accessed: 28.06.2015.

<http://www.bibleonline.ru/bible/tur/66/09/#3-7>, Date Accessed: 01.08.2015.