

# Investigation of Orthoptera: Insecta Fauna of Useful, Harmful and Predator Species in the Batman Region (Turkey)

Mustafa İlçin

*Department of Entomology, Faculty of Agriculture, Bingöl University, Bingol, Turkey.*

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**Abstract:** In this research, for exploration species of Orthoptera:Insecta fauna specially in Batman city and around it; determination which types of them gives arm, which types profitable or predator between years of 2012-2015. A total of 550 specimens were collected at seven localities, representing 41 species and subspecies, 26 genera and five families of the order. Firstly determine and identification keys used for determining of species of them. Absence of a lot of studies about orthoptera fauna displayed an importance of our study. Species is which collected in cultivated area of Batman and generally becoming of this types as representative of the whole region became indication of the whole district and inclusive. As result of those datas also describe importance of zoographic aspect and also display aspect of relation of profit-harm which about agricultura and identification of profitable predator. The most important of this species; *Tettigonia viridissima*, *Tettigonia caudata*, *Platycleis intermedia*, *Platycleis affinis*, *Platycleis escalaria iranica*, *Conocephalus fuscus*, *Conocephalus discolor*, *Saga ephippigera ephippigera*, *Gryllus bimaculatus*, *Gryllotalpa gryllotalpa*, *Oedipoda caeruleus*, *Oedipoda aurea*, *Oedipoda miniata miniata*, *Sphingonotus caeruleus*, *Sphingonotus caeruleus caeruleus*, *Sphingonotus caeruleus caspicus*, *Truxalis robusta robusta*, *Nocaracris cyanipes*, *Arcyptera labiata*, *Calliptamus italicus*, *Calliptamus barbarus cephalotes*, *Calliptamus barbarus barbarus*, *Pyrgoderma armata*, *Locusta migratoria*, *Dociostaurus maroccanus*, *Dociostaurus anatolicus*. One of importance aspect of this study is that which types are harmful to which plants and specifically which organ and structure of plant effected, how effect stultification of grow of plants displayed. Especially from aspect of people who gain from agriculture it is importance that culture and cereal plants at certain times ridden by types of Orthoptera, identify this types and damages of them became also indicator of this study.

**Keywords:** Orthoptera fauna, Agricultural Pests, Batman Region.

## Introduction

In the fauna of Insect Orthoptera species have a great importance and a separate feature. This importance and feature, locust of the ancient history of day so they do not cause damage to their huge economic losses, people come forth from time to time leaving facing starvation. In the species Gryllidae family recognized as harmful to the species are polyphagous insects such as Orthoptera or other dependent species (İyriboz 1938, 1941; Alkan 1946; Zagainyi 1951; Kobakhidze 1951; Vaclav 1953; Jeremic 1954; Kansu 1973; Gümüşsüyü 1973). Especially in the various species primary pests and populations have been identified as harmful was found to be under pressure naturally by enemies. This is the natural enemy will not have to struggle with very good recognition and management of chemicals. To be more productive cultivated land Orthoptera:Insect fauna of determining whether a diagnosis and flora that agricultural activities have effects

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in terms of how to determine whether an extremely important place. Our research is a major part of the Turkish samples obtained as a result of surveys conducted in the framework of the various plant species are harmful have been found to survive as a predator of some. Generally in our region; Wheat farmland barley, lentils, chick peas, corn, cotton and other crops (fruits and vegetables) are grown. Orthoptera: Insect the subject of our study grows at certain times of the various plant species live in this land belonging to the species were determined by their damage significantly. Accordingly, the detection of these harmful species and performing taxonomic studies will lead to the minimizing of the loss rate.

### **Material and Methods**

In this study material as Batman and the surrounding area (towns and villages) Examples of Orthoptera insects and fauna have been collected at various sampling agricultural land; especially grasshoppers, plastic in different sizes, glass jars, petri dishes, various tubes, sterile cotton, ice containers, % 70 ethyl alcohol, yellow sticky traps, inside yellow traps, standard tulle netting, camera and camera device were used. In this study, visual inspection method is made with tulle atrapl capture method and pit trap method. Furthermore, this study is the Batman province region; that kind of determined samples obtained in surveys conducted in various time periods, cultivated farmland in provinces-districts and rural areas especially for agriculture it is intended the identification of species of different plant species have been identified that can damage they cause loss of some species in agriculture. In particular examples of various species of work, including Batman-center and the periphery as the field was obtained collected from the specified location.

Studies to agricultural land; between the years 2012-2015, including working two days a week were carried out between April and October. Our study diagonal direction by going after the first has been considered a visual inspection of the structure of land; the plant's above-ground organs were examined visually on the land and Orthoptera of Insect species detected on plants: examples of nymphs and adults were conducted on collection. Especially atrapa method in each field (the field) was shaken an average of 100 atrapa. Atrapa 20 steps from the edge of the first sampling were carried inwards fields sampling. During the survey also checked the plant root collar observe plants, trunk, branches, leaves, buds, flowers and grains carefully examined species were collected for. During the research process they are not the kind obtained is harmful, the determination of the merits of such cases were referred to other than visual inspection method primarily qualitative and quantitative observations. Especially in the field-the field to determine the habitat of the species in city research and to determine the effects of this life it is important. Accordingly, in a square of the number of species that are harmful matter falling also evaluated. Orthoptera of fauna pest control methods that they observed the species are found are identified in the framework of information obtained from various literature and previous research.

## Results

### Orthoptera: Insect of Fauna Taxonomic Results

#### **Tettigoniidae Krauss, 1902**

##### ***Tettigonia viridissima* Linnaeus, 1758**

**Pest Condition:** Eye and observation method is omnivorous according to these types of *Tettigonia viridissima* impression that polyphagous feature greener areas, meadows, pastures and wetlands were determined to live in the region. This species of wheat, cotton, leguminous plants of various crops, beets and so on. It is detrimental in other plants. Especially the plants fed with leaf organ have been identified as the direct cause damage. Departing from here live in, where the most damage is one kind of plant species, including mainly grasses. The leaves and the harm to others, said that the terms of trade led to significant losses. According to *Tettigonia viridissima* great pests in Orthoptera species (Major Pests) were determined to be included in the group. Some sources such as the predator they feed on a variety of Orthoptera and other insect species (Kovanci et al., 2003) indicated.

##### ***Tettigonia caudata* Charpentier, 1845**

**Pest Condition:** Just *Tettigonia viridissima* like has been shown to be harmful. Omnivorous. Polyphagous shows feature. Primarily is fed with the leaves of the plants and crop plants were observed to harm them. Further more cotton, grasses and clover plant, but damage is determined that fed on them together economically will do serious harm to the population Creation has even reached the conclusion that a significantly detrimental. Insects have been found to feed on the plant when they can not find.

##### ***Pholidoptera (Uvarovistia) satunini* Uvarov, 1916**

**Pest Condition:** Constitute the population may pose serious harm. Especially when a certain number is generate a lot of late. Batman province is seen more in Sason and countryside. When the herd is created leading to of agricultural land serious damage. Sason district Nymph in 2008 and in 2010 when it was determined that damage too many agricultural lands have created a lot. In Diyarbakir's Kulp district in 2014 of creating the environment again, driven in particular where it is determined that it generates economically damaging.

##### ***Decticus albifrons* Fabricius, 1775**

**Pest Condition:** Polyphagous. It is particularly fed with feed crops sometimes also with other insects. Predator feature is for your convenience. Due to feeding on plants is economically damaging. Especially damaging the crops spike was observed that as a typical example. Mostly wheat, barley, corn, plants such as cotton and melon has been found to be damaged. Very serious damage to populations does not at a level that constitute. *Decticus albifrons* were species of predators that recorded for some grasshoppers.

##### ***Medecticus assimilis* Fieber, 1853**

**Pest Condition:** Generally, it is fed from said plant to be harmful. Primarily wheat, barley, Corn of grasses feed on like ears. A lot of species is seen as to common region. Economically they are not said populations cause seriously great harm.

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***Platycleis (Platycleis) intermedia* Serville, 1838**

Pest Condition: Especially, mainly adult plants of the spike, the size of damage by eating the stalks, while others are quite high. As this species of it should be noted that the hunter attacking eat other insects. It was observed that do damage in cotton of leaves with wheat ears.

***Platycleis (Platycleis) escalerae* Bolivar, 1899**

Pest Condition: *Platycleis* species other like of Orthoptera, firstly grasses of wheat, barley, mature plants, such as corn was determined to hurt the ears. Other simple and cultivated plants can also be stated that cause economic damage by eating the leaves and stems. Especially, they found that living plants feed on insects that you can not always be said to be predators.

***Platycleis (Platycleis) escalerae iranica* Ramme, 1929**

Pest condition: *Platycleis (P) escalera iranica* primarily of species of grasses such as wheat *Platycleis* other species, barley, mature plants, such as corn was determined to hurt the ears. Other simple plants, cultivated plants can also be stated that cause economic damage by eating the stalks and leaves. Especially they can not find these creatures when that feed on insects, plants that can be said to be predators.

**Conocephalinae Burmeister, 1838**

***Conocephalus (Anisoptera) fuscus* Fabricius, 1793**

Pest Condition: Omnivorous. The plants are fed with grass. Directly is not harm encountered a case can be expressed also with other insects as they feed predators.

**Saginae Brunner von Wattenwyl, 1878**

***Saga ephippigera ephippigera* Fischer de Waldheim, 1846**

Pest Condition: In species Orthoptera one of the few species that are useful not harmful the plant species. Carnivorous are members of this group predator when it is fed by other insects and grasshopper. Therefore harmful is not included in the group. Orthoptera species are carnivorous predator. The plant is being fed with insects and grasshoppers are usually fed. Because of this feature has an extremely important effect. Most useful is the feeding pests including insects living classroom.

**Gryllidae Laicharting, 1781**

***Gryllus campestris* Linnaeus, 1758**

Pest Condition: The Polifagous. *Gryllus campestris* types of individuals are usually fed to the plant it is sometimes also observed that fed on insects. In extreme weather conditions of the populations of this species are affected seriously. Generally, wheat, barley, cotton and corn are fed. Plants can be incorporated into both under ground and above-ground soil pests are being fed by a set of organs. Because of these properties causes damage economically.

***Gryllus bimaculatus* De Geer, 1773**

Pest Condition: *G.bimaculatus* like *G.campestris* is fitofagous they feed on plants. Especially wheat, barley, tobacco, and cotton and so on it is fed with plants. Both under ground and above-ground structure also affects the feeding. It is therefore a pest species.

***Melanogryllus desertus* Pallas, 1771**

Pest Condition: It is a harmful species. Especially the one-year plant gives great damage by eating the stem. Also new shoots of perennial plantssprout, flowers, fruits and seeds are fed, causing damage to them. The

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crop plants feed on. Furthermore, fields, feed crops, sunflower, cotton, vineyards, in meadows, pastures, fruit trees, roots and stems of the newly developed seed is fed on vegetable and tobacco seedlings, makes economic damage.

**Gryllotalpidae Brunner, 1882**

***Gryllotalpa gryllotalpa* Linnaeus, 1758**

Pest condition: *Gryllotalpa gryllotalpa* given in the most damaging species of plant species in the Orthoptera fauna. Among the people is expressed as mole crickets. Plant more roots, stems, and in this way the plants are fed with tubers harm in a very large extent. Especially, certain day opening galleries of living there is in the soil. Underground organs have also been found to damage and destroy the aerial organs in some time. There is also the annual crops crop plants include plant species which do the most damage. All vegetables, wheat, corn, cotton, ornamental plants, fruit and forest trees are that they have given to the extensive damage. Usually it comes to live when under the ground, mostly on land interests in the summer. *Gryllotalpa Gryllotalpa* was cultured as a place to live is often humid, with plenty of humus, clay-sandy soils lovers. Sometimes they give reason to fear loud noises they make and the people. Life expectancy is very short.

**Acrididae MacLeay, 1821**

***Acrida anatolica* Dirsh, 1949**

Pest Condition: Mostly feed on plants that live in the region. Harmful is collected in areas close to those of more cotton this bit is fed farmland. Members of this species typically use as their host plant.

***Acrida ungarica mediterranea* Dirsh, 1949**

Pest condition: The phytophagous usually feed on plants. Economic damage will give rise to that generate too seriously harm populations. It is fed with green plants, especially weeds.

***Truxalis robusta robusta* Uvarov, 1916**

Pest Condition: It was determined that damage to various crops harmful oversized one. Particularly cotton and corn fields, including vineyards, cultivated land has been observed in watermelon.

**Oedipodinae, Walker, 1871**

***Acrotylus insubricus insubricus* Scopoli, 1786**

Pest Condition: Polifagous. The one species is harmful. Especially it was determined that this type of damage seen in the cotton fields of cotton plants collected. There is also damage the crops. Tomato plants were also found to cause damage.

***Aiolopus strepens* Latreille, 1804**

Pest Condition: *A.strepens* species observed in the area is one of the widely cultivated species that damage. Especially with this kind of fed primarily cotton plants collected near the cotton fields and damage it has been observed in this way. Besides, it has been seen feeding on the clover plant.

***Aiolopus thalassinus* Fabricius, 1781**

Pest Condition: Polifagaous. Determined is harmful species. Alfalfa is especially harmful to the plant has been observed that fed him and damaging the grass. *A.thalassinus* was determined in paddy as host to harm the pea plants. In small-scale damage has been determined that even though the grain.

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### ***Oedipoda caerulescens caerulescens* Linnaeus, 1758**

Pest Condition: The Polifagous. Common types of agricultural land have been found to cause damage to crop production. Cotton, tobacco and alfalfa are which damaging the grain crops. Most of the tobacco plant species in *Oedipo caerulescens caerulescens* determined that damage has kind of feature that creates considerable damage.

### ***Oedipoda miniata miniata* Pallas, 1771**

Pest Condition: The Polifagous. It is one of the species that are harmful. Usually in cotton fields continues to be living in the fields and gardens of various crops. There's also one in an intense and cucurbit crops of wheat in the fields that have been shown to be fed.

### ***Locusta migratoria* Linnaeus, 1758**

Pest Condition: The Polifagous. The most harmful and distribution in terms of Orthoptera species is a species that has made huge widest distribution. Usually they get together for when certain number of populations where the ability to create a lot more likely to invade the region. Thus, they also give serious damage to agricultural land. Grain, wheat fields, barley, corn, rye, sugar cane rice fields giving to economic damage. Also the property has entomopathogenic fungal disease (Kumar et al. 2014) leads.

### ***Locusta migratoria cinerascens* Linnaeus, 1758**

Pest Condition: It is *Locusta migratoria* like a type of malicious. There are harmful effects, especially in cereal fields. Grain and nymphs, especially during the period (4th and 5th grade) serious damage in the adult stage is fed by such plants bring.

### ***Pyrgodera armata* Fischer von Waldheim, 1846**

Pest Condition: The Polifagous. It is herbivore. It was observed that only feed on plants. It is hazardous grasshopper. A variety of field crops fed with in the region where the host uses them. Especially, it destroys the plants, by eating the fruit section.

### ***Sphingonotus caeruleus* Linnaeus, 1767**

Pest Condition: Pest is a species of Orthoptera. It is a very particular kind seen in paddy fields. Creation of the damage on a large scale is fed from the host plant where the level of harm's way. The plant is fed with more green parts of fed adult fruit period, more spike and parts.

### ***Sphingonotus savignyi savignyi* Saussure, 1884**

Pest Condition: It is thought to be polyphagous. It is pest species. It was determined that damage to agricultural crops. Moreover, this species of fungal pathogens; In studies of diseases in which the constructive species (Kumar, 2014) have been identified.

### ***Sphingonotus rubescens rubescens* Walker, 1870**

Pest Condition: *Sphingonotus rubescens rubescens* of one pest species. It was determined that damage to agricultural crops. More on host plants is a species. Because creating a lot of damage ratio is not too high to bring populations occur. Especially cereal crops are not very serious damage on a much smaller scale. Moreover, this is species of fungal pathogens are in studies of diseases in which the constructive species (Kumar 2014) have been identified.

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**Calliptaminae Jacobson, 1905**

***Calliptamus barbarus barbarus* Costa, 1836**

Pest Condition: All species and subspecies connected *Calliptamus* genus has been found to be detrimental. As host to choose their crops but show subspecies property and fed with them. In particular garden plants are one of them. Harm by eating plants and leaves of the stem.

***Calliptamus barbarus cephalotes* Fisher de Waldheim, 1846**

Pest Condition: All other that is based on *Calliptamus* genus and has been found to be detrimental as in subspecies. As host to choose their crops but show subspecies property and fed with them. In particular garden plants are one of them. Plant stalks, leaves, shoots and it was found that the new shoots ate moieties.

***Calliptamus italicus* Linnaeus, 1758**

Pest Condition: Polifagous. That is based on all other *Calliptamus* genus and has been found to be detrimental as in subspecies. It is capable of forming such a lot, especially constitute populations could pose serious harm to the green grain. However, it harms the wheat and potato plants. It is the most widespread in potato plants in the field.

**Gomphocerinae Fieber, 1853**

***Chorthippus loratus* Fischer de Waldheim, 1846**

Pest Condition: The Polifagous. It was observed that plants with more nutrition. Especially with graminace plant (Greens) have been found to be fed. In this way, it is particularly damaging to plants.

***Dociostaurus (Notostaurus) anatolicus* Krauss, 1899**

Pest Condition: The Polifagous. Determined are harmful species. In particular it was found that feed on plants, mostly wheat. In this way, the result is the live interaction on which it was determined that the host gave various damages. Especially feed on green leaves and spikes of wheat.

***Dociostaurus (Kazakia) jagoi jagoi* Soltani, 1978**

Pest Condition: Pest is a species of Orthoptera. Showing prevalence is polyphagous just as in other species belonging to the genus and a species with high *Dociostaurus* hazardous potential. Therefore, there is damage to agricultural land. In particular of green wheat cereal plants it is fed with leaves and ears of corn and barley.

***Dociostaurus (Dociostaurus) maroccanus* Thunberg, 1815**

Pest Condition: It is a polyphagous species. Determined is species harmful. It is among the most damaging types of grasshoppers. In particular, A lot of populations will generate leads to economic losses in the agricultural land is the ability to bring about. Many cereals also need to plant both nymphs damaging in the adult stage. Although commonly seen in the wheat fields in the region it is fed with green leaf and spike together.

***Arcyptera (Pararcyptera) labiata* Brullé, 1832**

Pest Condition: The Polifagous. It is harmful species. As a result of observations made particular, it is damaging mainly the wheat plants. Still further fed with more leaves and spike of these plants was determined to damage to the plants to feed. The ability creates droves because the population can attack the land grain and serious economic losses constitute.

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### **Tropidopolinae, Jacobson, 1905**

#### ***Tropidopola longicornis gracea* Uvarov, 1926**

Pest Condition: Harmful species. The mainly *Tropidopola longicornis graceae* species is green areas, including mainly corn, cotton, tobacco, rice and herbaceous plants in where areas there is a common way. Therefore, it is thought that phytophagous. Especially in many areas are including in particular the areas where rice greens harm those plants.

### **Eyprepocnemidinae Brunner von Wattenwyl, 1893**

#### ***Eyprepocnemis plorans plorans* Charpentier, 1825**

Pest Condition: *Eyprepocnemis plorans plorans* species is determined that demand, especially in areas where the grasses green areas. It found that most fields of corn and wheat plants were determined to opt-in and feed on such plants. Therefore Acridids are harmful species. The show is also interested in the area where the various crops have been shown to cause harm to the plants found here.

### ***Heteracris pterosticha* Fischer von Waldheim, 1833**

Pest Condition: *Heteracris pterosticha* species is generally determined that damage plants by eating the stems of the leaves. Mainly this kind of spike stalk eat the plants in the fields where the so-called. Although the cause economic losses of crops; tomatoes, eggplants was determined to do damage to species. Also, cotton, alfalfa and other grains has been observed that damage.

### **Pyrgomorphidae Brunner von Wattenwyl, 1874**

#### ***Pyrgomorhpa (Pyrgomorhpa) conica conica* Olivier, 1791**

Pest Condition: *Pyrgomorhpa conica conica* had been determined that harmful species. Especially the first when development of the wheat plant, to be identified as habitat in where areas the plant is located is a typical indicator of this. These green areas also mainly in the reeds, is living in the meadows thought to be phytophagous. In particular, the availability of wheat fields and vegetable gardens has been seen feeding on these plants.

#### ***Pyrgomorhpa (Pyrgomorpha) cognata* Krauss, 1877**

Pest Condition: The Fitofagous. Plants are fed. It has been determined to be harmful. This species of members is especially in where areas the crop plants were observed in the fields where the green wheat plants.

## **Discussion and Conclusion**

In this study, we found in cultivated areas Orthoptera: Insect fauna determination of many species of Orthoptera fauna of Batman region have been obtained using several plots reached the following conclusions. 6 families of two subsets of Orthoptera fauna in the framework of the findings obtained in this study and are connected to these genera, species and subspecies were identified diagnosis made, where emphasis is given to them in case of damage. Belonging to the suborder Ensifera family as the first example of the kind of results obtained in the study of the genus, species and subspecies are given in detail to. A family of Tettigoniidae, Gryllidae and Gryllotalpidae determined that the level of organisms and species belonging to the genera were identified and their effects have been revealed.



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Our research determined that the process is detrimental to many species of Orthoptera fauna is especially of Tettigonidae family were found to be harmful to the species. As well as in some plant species it has been identified in the family Gryllotalpidae they cause serious damage in different organs. Cutting off the roots of plants, especially adults and nymphs faced opening galleries in the soil, the tubers are rotting. This species by detecting the pitfall as we stated above, the first mass production in our region which is determined that the actual damage to wheat and other crops. Also *Anacridium aegyptium*, *Aiolopus strepens*, *Aiolopus thalassinus* species feed on the grasses. More is set in a wheat field detected in previous studies were fed weed. But the adults of these species are able to cause damage to wheat. *Locusta migratoria* species is also among species harmful to wheat plants.

Orthoptera fauna of many pest species usually have been identified in the family Acrididae. A number of insect species in the specific area in square meters to determine the density, most preferred by plants and is determined in the area is high. Working in order to obtain reliable results obtained good results from the nymph's outputs as April types by going to a designated area every 10-15 days using the various techniques and methods are qualitative-quantitative observations were made reached various inferences accordingly. Orthoptera of grasshopper species of fauna create lots of nymphs limit on average at least 40-50 per square meter, in places, the number rises to over 100. The density of adults with type Orthoptera least 70-80 per square meter, in places, 120 were determined to eat out.

New species and certain species (such as grass hoppers) and various research and create an epidemic in this research is a phenomenon that has reached and attention. Also creating significant outbreak in some plant species have been determined to cause various diseases. In *Oedipoda miniata miniata* which is a kind of Orthoptera more fruit the nymphs emerged near the garden, plant a variety of body structures; young shoots and leaves, some crop plants, nutritional value has been found to cause damage to high crops. The diet is primarily the result of the observations prefer broadleaf plants are bred with other plants. Apart from this wheat, this damages plants such as clover. Plants can eat except all other parts of the thick veins. In other plants, the plant is fed from the ends only in preventing the development of the plant is for these reasons why many plants wither even die. As a result of these effects cause a decrease in production significantly both lead to deterioration of ecological balance. In addition, by feeding the voracious insect or grasshopper Orthoptera species of grass in the area, which is already insufficient and limited terrain it is causing major yield losses in other crops and pasture. Some live among the natural enemies of locusts has undertaken certain tasks biodegradable. It is located among the most important bird species live on. Indeed, some species of crows will affect the populations of species of grasshopper nymphs during the period has been observed in flocks of birds gather degree. As well as among the people to cause a serious impact on the population of the Orthoptera fauna of birds in flocks of starlings and tested their potential harm is determined to be highly instrumental in the decline. Especially harmful to determine the type or types of samples useful, decide whether they are predators at the observations made on this species, literature and previous research have been identified based on. Pictures of various natural habitats in the environment of a significant portion of the resulting species were taken.

Together with our research Batman and the systematic study of the Orthoptera fauna for the region, harmful for agriculture, useful and in the future time period for determining the predator species to be taken

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into account in the work to be done in this area and is expected to hold a light. For example, Batman region Acarina, Hemiptera, Neuroptera, Diptera and Lepidoptera as well as ensuring the sustainability of both taxonomic studies to work with team-farm agriculture in terms of product efficiency, products with extremely requirements in terms of reducing the loss ratio was observed in the research-observation result. The work is highlighted would be appropriate to do in this area. Also irdelenip insect-general to investigate the ecological relationships of the products to be assessed in particular in the framework of the research subjects symbiotic way of life may be offered as a separate work opportunity. Unlike conventional methods applied in earlier times it is utilized in the fight against insect pest's insect viruses from biological methods that can be implemented recently. It is considered as an alternative to pesticides used in particular. In agricultural land (agricultural product that) the great majority of which are harmful to the Orthoptera species studied in the 2012-2015 period leads to economic loss products significantly. Especially wrong and unbalanced approach made for basic science in our country in recent years has led to even more increase this loss. Because the identification of these species and a significant portion are the waste products, together with the detection of adverse effects will be prevented. According to a study made (Singh and Sharma, 2014) are reported to lead to a loss of approximately %58-67 in the product of the pest. Designated as the classical techniques to prevent the loss of live damaging agriculture is not enough. However, not only to fight against this harmful and that chemical control techniques of traditional methods, such will be in the next stage of organisms that are harmful or years led to the emergence of resistant manner against these chemicals. Applications will be made in this direction and effort is wasted. Therefore, damage management to take measures against harmful organisms or need biological, cultural and chemical methods is required to perform in the framework of a legal struggle with the mechanics and the last.

As a result of observations made; Predator which species *Decticus albifrons* in the family Tettigoniidae, to be predators of *Sage ephippigera ephippigera* other grasshopper species, *Platycleis (Platycleis) intermedia* feeding on other insects subspecies are in important characteristics in terms of ecological balance. Tettigoniidae is fed by many species of plants mainly lettuce and figs many cultures outside of it, it was observed that damage fruit such as Walnut. The information obtained was recorded as significant information in terms of production. Made of Acrididae family species with the short antenna is to be introduced in the work field locusts, also grasshoppers called colloquially. Especially, in this family; *Anacridium aegyptium*, *Aiolopus thalassinus* and *Aiolopus strepens* types have been identified. Such are generally wheat (Gramineae) and feed on the plant species. Acrididae have mainly been observed to feed on harmful types of weed grasses that contain meat, but with field crops. More specifically fed with *Aiolopus thalassinus* of weed species have been identified on this tour of the grasses they fed adult. Again, this kind of nymph (kitten) has been determined that this diet with plant species mature, although they fed more alfalfa plants. *Aiolopus strepens* their preferred type of feeding with most grasses are observed to be fed with secondary the weed. The Batman province in the region grasses and in particular as harmful to the wheat plant *Locusta migratoria* and *Dociostaurus moraccnus* species have also been observed in species that feed on these plants and from the beginning.

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