**CLIMATE CHANGE AND INSECT DECLINE IN AGRICULTURAL AND RANGELAND AREAS**

**Baboo Ali\*, Fırat Alatürk, Edanur Sümeyye Kutlu**

Çanakkale Onsekiz Mart University, Faculty of Agriculture, Department of Field Crops, 17100, Çanakkale, Turkey

\*Corresponding author: [babooali@comu.edu.tr](mailto:babooali@comu.edu.tr)

**Abstract**

Insects are the most diverse and largest group of organisms on our planet. They have an important place in agro-ecosystem and rangelands, and contribute in the food chain of many other organisms. All of the insect species are not harmful, but the majority of the insects is beneficial, eco-friendly and possesses a vital role in our ecosystem. But, unfortunately, the recent studies show that there is decline in the population of insects, particularly beneficial insects, because of the changes occur in climate. The untimely rainfall, snowfall and storm, sudden fluctuation in temperature and humidity, unexpected floods, forest fires, drought, deforestation, global warming, greenhouse gas emissions and unconscious usage of pesticides are vividly affected the insect population worldwide. It is a fact that certain insect species are phytophagous and they share our agricultural products, but even though, they are also used as prey and host by many entomophagous (predators and parasitoids) insects in our agro-ecosystem and rangeland areas. Pollinators (bumblebees and bees), coccinellid (lady beetles), bombicid (silkworm), syrphid (hoverflies), neuropteran (lacewings), odonats (dragonflies and damselflies), anthocorids (pirate bugs; *Orius* and *Anthocoris*), mantids, parasitic wasps, scavengers and *Capsodes infuscatus* like eco-friendly insect species are declining day by day because of the changes in climate. In conclusion, we should improve and introduce modern and good agricultural practices, encourage the usage of biopesticides, focus on biological control methods and proper consumption of irrigation water, minimize the emission of greenhouse gases, and last but not least, spread awareness about the impact of global climate change in the community among farmers and common masses. So that, they could be able to fight against the unexpected changes of climate and also contribute in terms of conservation, protection and enhancement of the population of eco-friendly insect species in agricultural and rangeland areas. In the results of this, we will be able to provide a sound, safe and healthy agricultural system to our society and future generation, and also establish a proper and sustainable grazing environment in the rangelands for wild animals and domestic livestock.

**Keywords:** Beneficial insects, eco-friendly insects, phytophagous, entomophagous, rangeland entomology