Chapter 11

THE PLACE OF OPILIONES IN HABITAT

İlkay ÇORAK ÖCAL[1]
Nazife YİĞİT KAYHAN[2]

◆ Introduction

Invertebrates are more successful than vertebrate animals in measuring the protection values of habitats. According to vertebrates, short life times, ability of rapid reproduction, ability of breed many at once, and adaptation to many different habitats have made invertebrates advantageous. Opiliones or harvestmen, with more than 6500 species, are the third most populated group of Arachnida. Opiliones live in almost all habitats around the World (1). Opiliones have a very widespred distribution area throughout the world. They common on all continents except Antarctica. Some species show a cosmopolitan common and some species are endemic. While some species are solitary, some species live in populations (Fig. 1.).

Opiliones are represented by four suborders: Cyphophthalmi (208 species), Eupnoi (1810 species), Dyspnoi (387 species) and Laniotores (4248 species) (1). The opiliones that are included in the Cyphophthalmi are generally look like Acari. Eupino group opiliones especially have very long and thin legged that are very common in America and Europe. Dyspnoi suborders types are generally matte colored, short legged and are old world species living in temperate climate. Some types of Dyspnoi suborders have remarkable ocular area decoration. The species in Laniotores are generally large and stout species and common in tropical regions. Laniotores species have different tubercles shapes, which are also used in the identification of the species (1). Even as we mentioned above, although opiliones are present in almost all habitats. It is not a well-known group.

[1] Assist. Prof. Dr., Department of Biology, Faculty of Science, University of Karatekin, Çankırı 18200, Türkiye, corakilkay@yahoo.com
[2] Prof. Dr., Department of Biology, Faculty of Science and Arts, University of Kırıkkale, Kırıkkale 71450, Türkiye, naz_yigit2@hotmail.com

ing on *H. Zea*'s eggs and larvae [24]. Some opiliones species feed on insects that are potato pests. It has also been noted that many species of opiliones feed on forest louse larvae [19, 25].

◆ Conclusion

All the living things on earth are in a food-chain. The disappearance of a species in the nature or the decrease in the number of individuals are causes the food-chain to break. Opiliones play an important role in the control of agricultural pests. Decrease in number of opiliones or extinction of opiliones may cause more pesticides to be used in agricultural lands. Studies carried out in countries where opiliones have been studied; it has focused on specific topics such as anatomy, morphology, physiology, and even ecophysiology. In the light of the data obtained from morphological and physiological studies, it helps us to better understand the issues such as how the opiliones adapts to the environment and habitat preferences. It is believed that especially those who prefer extreme habitats (such as desert or alpine zone) can achieve this compatibility with possible physiological modifications. For this reason, in order to better understand the place and importance of opiliones in habitat, studies on more behavior and physiology are needed.

◆ References

1. Museu Nacional/UFRJ (2020). Checklist of valid genera of Opiliones of the World 2002. (28.07.2020 tarihinde http://www.museunacional. ufrj.br/mndi/Aracnologia/checklaniator.htm adresinden ulaşılmıştır.)
2. Hillyard PD, Sankey JHP. 1989. Harvestmen. Printed in Great Britain at The Bath Pres, London.
3. Cloudsley J, Thompson JL. 1958. Spiders, Scorpions, Centipedes and Mites (pp. 132-147).
4. Sankey JHP, Savory TH. 1974. British Harvestmen. Synopses of the British Fauna, 4, 1-76.
5. Guffey C. 1998. Leg autotomy and its potential fitness costs for two species of harvestmen (Arachnida:Opiliones). Journal of Arachnology, 26, 296-302.
6. Jennings AL. 1983. Biogeographical variation in the harvestman Mitopus morio (Opiliones, Arachnida). Journal of Arachnology, 200(3), 367-380.
7. Çorak İ. 2010. Antalya ili Otbiçenlerin Sistematiği ve Biyoekolojisi (Arachnida: Opiliones). Doktora Tezi, Kırıkkale Üniversitesi Fen Bilimleri Enstitüsü, Kırıkkale.
8. Ljovuschkin SI, Starobogatov JI. 1963. Biospeologica sovietica, Cave spiders from Krim and Caucasus. Bulletin of Moscow Society of Nature Explorers, 68, 41- 51.
9. Maclde DW. 1970. Notes on the distribution of British harvestmen. Bulletin of the British Arachnological Society, 1, 84.
10. Platen R, Broen B. 2005. Gesamtartenliste und Rote Liste der Webspinnen und Weberknechte (Arachnida: Araneae, Opiliones) des Landes Berlin. Der Landesbeauftragte für Naturschutz und Landschaftspflege/Senatsverwaltung für Stadtentwicklung

(Hrsg.) Rote Listen der gefährdeten Pflanzen und Tiere von Berlin.
11. Kurt K, Erman ÖK, Demir H, Seyyar O. 2017. Türkiye Otbiçen (Opiliones) Faunasının Endemizm Durumu. Türk Tarım-Gıda Bilim ve Teknoloji Dergisi, 5(13), 1744-1749.
12. Sunderland KD, Sutton SL. 1980. A serological study of arthropod predation on woodlice in a dune grassland ecoststem. Journal of Animal Ecology, 49, 987- 1004.
13. Adams J. 1984. The habitat and feeding ecology of woodland harvestmen (Opiliones) in England. Oikos, 42(3), 361-370.
14. Çorak Öcal İ, Yiğit Kayhan N, Bayram A. 2014. Biyoindikatör Olarak Otbiçenler. Kırıkkale Üniversitesi Bilimde Gelişmeler Dergisi, 3(1), 57-59.
15. Cokendolpher JC. 1990. Harvestmen of Egypt (Arachnida: Opiliones). Serket, 2(1), 9-13.
16. Cokendolpher JC. 1993. Pathogens and parasites of opiliones (Arthopoda: Arachnida). Journal ofArachnology, 21, 120-146.
17. Docherty M. 1993. The role of spiders and harvestmen as predators of the Pine Beauty Moth, Panolis flammen, in Scottish pine forests. Ph.D. Thesis. University of East Anglia.
18. Edgar AL. 1971. Studies on the biology and ecology of Michigan Phalangida (Opiliones). Misc. Publications of the Museum of Zoology, University of Michigan, 144, 1-64.
19. Phillipson J. 1960. A contribution to the feeding biology of Mitopus morio (Phalangida). Journal of Animal Ecology, 29, 35-43.
20. Phillipson J. 1960. The food consumption of different instars of Mitopus morio (F.) (Phalangida) under natural conctirjang. Journal of Animal Ecology, 29, 299-307.
21. Holmberg A. 1987. Word Order and Syntactic Features, Department of Linguistics, University of Stockholm.
22. Nyffeler M, Symondson WO. 2001. Spiders and harvestmen as gastropod predators. Ecological Entomology, 26(6), 617-628.
23. Merfield CN. 2000. Predator interactions within a trophic level: Phalangium opilio L. (Arachnida: Opiliones) and mites (Arachnida: Acari). Doctoral dissertation, Lincoln University.
24. Newton BL, Yeargan KV. 2001. Predation of Helicoverpa zea (Lepidoptera: Noctuidae) eggs and first instars by Phalangium opilio (Opiliones: Phalangiidae). Journal of the Kansas Entomological Society, 199-204.
25. Welbourn C. 1983. Potantial use of trombidioi and erythraeoid mites as biological control agents of insect pests. In: Biological control of pests by mites.Hoy, 123M.A. et al. (Eds), University of California, Berkeley, USA