

IN THE CONDITIONS OF THE KHOREZM REGION, THE SPREAD OF TERMITES AND MEASURES TO COMBAT THEM

D. M. Latipova

Lecturer at the IFHO Emergency
Management Department of the Khorezm Region

Abstract

In the Khorezm region, the spread of termites has become a significant concern, especially in areas where agriculture and construction activities are critical. Termites, particularly subterranean species, cause severe damage to buildings and crops, leading to economic losses. This article explores the ecological conditions that favor termite proliferation in Khorezm, reviews scientific literature on termite control, and outlines both traditional and modern methods for combating these pests. Recommendations are provided to enhance integrated pest management in the region.

Keywords: Termites, Khorezm region, pest control, subterranean termites, integrated pest management, ecological conditions, agriculture, construction.

Introduction

The Khorezm region, situated in northwestern Uzbekistan, has a unique climate and environmental conditions that are conducive to the spread of various pests, including termites. As Khorezm's economy is primarily driven by agriculture and construction, the increasing prevalence of termites poses a significant threat to these industries. The purpose of this article is to analyze the current situation regarding the spread of termites in Khorezm and evaluate effective measures for controlling their population.

The study employed a mixed-methods approach, combining field surveys with laboratory analysis and literature review. Field surveys were conducted in agricultural zones and urban areas in the Khorezm region to identify termite-infested sites. Soil and wood samples from these locations were analyzed for the presence of termite colonies. Observations of termite activity were recorded, along with environmental factors such as humidity levels, temperature, and soil composition.

Within Uzbekistan, two species of the anacanthotermes generation are distributed: Turkestan and greater Caspian back termites. Hero Rustamov, director of the Republican Center for the fight against termites at the Zoological Institute of the Academy of Sciences, noted that termites were first identified on the territory of Uzbekistan around 1858-year-old Termez and introduced into science. "The main diet of termites is cellulose. Because this substance is abundant in building and housing materials such as wood, cardboard, termites eat these and make ends meet. This pest has long been a natural breeding ground in places without

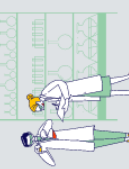
agrotechnical processing: deserts and Adirs. Over time, people used plants such as saxaul, yantok as fuel in their household. As a result, termites have entered the housing of the population," the scientist said. He argues that termites spread rapidly through a number of natural pathways. In early spring, the weather is warm and flies up to two, three meters to the ground when it rains. It can fly up to several kilometers if it falls in the direction of the wind.

In addition, the insect spreads by selling termite-damaged materials on building goods sheds. "Termite is variously referred to as: "yellow Ant", "dwarf Ant", "grave Ant", "wahmat" in the regions of Uzbekistan. This pest can bite a person. But it has not been scientifically proven that stinging does not harm one's health". He notes that termites are not found in apartment buildings. Parmesan beetles that fall on furniture equipment should not be associated with insects. "Termites belong to the category of insects that live communally, like wasps, ants. They will also have the King, The Queen, the feeders. In short, termite habitation, nests are distinctive and perfectly structured. Therefore, fighting them is a complex process." Salkam 19,000 residents have been home-damaged-termite-infested residents' homes are increasing from year to year in Uzbekistan. According to analysis, while around 2.5 thousand human households were damaged in 2009, by half of 2022 this figure was approaching 19 thousand. Speaking about the spread of this pest, the hero Rustamov says: "termites are very common in Karakalpakstan, Khorezm, regions. The likelihood of emergency situations in the housing of the affected population increases day by day.

Because due to termites, the level of mechanical weight lifting of building materials is sharply weakened. There is no doubt that the Sal earthquake will cause damage to those housing". According to the results of montiro, the Republican Center for the fight against termites, which is losing its historicity, 46 cases of damage were observed in cultural-historical sites. For example, termites are seriously damaging the woodcarving developments of 33 historical monuments in the Unesco protected historical monument complex "Ichan-Qaleh", which are listed on the World Cultural Heritage list.

Juma Mosque, pakhlavon Mahmud mausoleum, Muhammad Inoq and others are among them." State funding was provided in 2014-2017 to protect cultural heritage sites. During this time, we conducted full monitoring and anti-termite work on the "Ichan fortress", the state of damage ceased. However, money was not allocated for the households of the people around "Ichan qala". The population did not want to do this at their own expense. As a result, as of 2018, termites in civilian residence houses, ichan began to re-enter the monuments in the castle. Today, in addition to termites, three mustachioed woodpeckers are also damaging historic timber. The methods of combating this insect are quite complex. In fact, monitoring work is required to be carried out without interruption, even if there is a termite on ancient monuments. A natural means of struggle is being developed by scientists of the khwarezmun Academy. But it is less. Ichan Castle. "A few of the ancient monuments that have come down to us for centuries, termites are losing the characteristic of causal historicism, are in danger.

Chemical treatments (such as termiticides) and physical barriers (such as treated wood and concrete foundations) were also evaluated for their efficacy in controlling termite populations.



The local construction practices and traditional termite management techniques were compared with modern integrated pest management (IPM) strategies.

In the Khorezm region of Uzbekistan, the spread of termites can pose significant challenges, particularly in agricultural and residential areas. Here's an overview of the situation, including the conditions that contribute to termite spread and measures for combating them.

Conditions for Termite Spread in Khorezm Region

1. **Climate:** The Khorezm region has a semi-arid climate with warm summers and mild winters, which can create a suitable environment for termites, particularly during the warmer months when they are most active.
2. **Soil Composition:** The region's soil, which often contains organic matter, can provide an ideal habitat for termites. Moisture from irrigation in agricultural areas can also enhance termite activity.
3. **Vegetation:** The presence of wood and plant material, such as crops, trees, and wooden structures, offers food sources for termites, facilitating their spread.
4. **Urbanization:** As urban areas expand, the construction of buildings using wood and other materials can attract termites, leading to infestations.

Measures to Combat Termites

1. Preventive Measures:

- **Soil Treatment:** Applying chemical barriers in the soil during construction can help prevent termites from entering buildings.
- **Proper Drainage:** Ensuring proper drainage systems can reduce moisture accumulation around structures, making them less attractive to termites.

2. Physical Barriers:

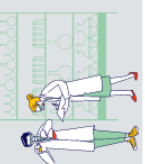
- **Steel Mesh:** Installing steel mesh or other physical barriers in foundations can help deter termite entry.
- **Concrete:** Using concrete instead of wood for foundational structures can reduce the risk of infestation.

3. Chemical Treatments:

- **Insecticides:** The application of termiticides in affected areas can help control and eliminate termite populations. It's essential to follow safety guidelines when using these chemicals.

4. Regular Inspections:

- **Conducting regular inspections** of buildings and agricultural areas can help identify termite infestations early, allowing for timely intervention.



5. Biological Control:

- Exploring biological control methods, such as introducing natural predators or using nematodes, can offer environmentally friendly alternatives for managing termite populations.

6. Education and Awareness:

- Educating local communities about termite prevention and control methods can empower them to take proactive steps to mitigate infestations.

Addressing termite infestations in the Khorezm region requires a combination of preventive measures, chemical and physical barriers, and ongoing education. By understanding the environmental factors that contribute to termite spread and implementing effective control strategies, communities can reduce the impact of these pests on agriculture and infrastructure.

The spread of termites in the Khorezm region can be attributed to several factors, including the region's climatic conditions, agricultural practices, and construction methods. The availability of moisture, especially from irrigation systems, creates an ideal environment for subterranean termites. The frequent use of untreated wood in construction and limited awareness of pest management practices exacerbate the problem.

While chemical treatments provide short-term relief, they are not a sustainable solution due to their environmental impact and the possibility of re-infestation. The adoption of integrated pest management (IPM) approaches that combine biological, chemical, and physical methods offers a more sustainable and long-term solution. Educating local communities on termite prevention and adopting more termite-resistant construction materials are crucial steps in controlling the termite population.

Conclusions:

Termites are becoming an increasing threat to both agriculture and infrastructure in the Khorezm region. Effective termite control requires a comprehensive strategy that incorporates ecological management, modern pest control technologies, and improved construction practices. While traditional chemical treatments remain useful, their limitations necessitate the adoption of more sustainable approaches, including biological controls and physical barriers.

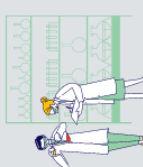
Improvement of irrigation practices: Reducing excess moisture in agricultural fields and around buildings can help prevent the spread of termites.

Promotion of termite-resistant construction materials: Using treated wood and concrete foundations in new constructions will minimize termite damage.

Education and awareness programs: Training for local farmers and builders on termite prevention and control measures.

Research and development: Further research into biological control methods, such as nematode and fungal applications, should be encouraged to develop more eco-friendly solutions.

This multi-pronged approach can significantly reduce the impact of termites in the Khorezm region, protecting both its agricultural output and infrastructure.



References

1. Abdullaev II, Khamraev ASh, Martius Ch, Nurjanov AA & Eshchanov RA. Termites (Isoptera) in irrigated and Arid Landscapes of Central Asia (Uzbekistan). *Sociobiology*, 40(3), 2002 -605-614.
2. Bekberganova Z.O., Xamraev A.Sh. Rasprostranenie i vredonosnaya deyatelnosti termitov v Karakalpakstane // *Vestnik KKO AN RUz. -Nukus*, 2008, -№1. -S.37 -39.
3. Latipova Dildora Madiyorovna. XORAZM VILOYATI SHAROITIDA TERMITLARNING TARQALISHI VA ULARGA QARSHI KURASH CHORALARI. "PEDAGOGS" international research journal ISSN: 2181-4027_SJIF: 4.995
4. Khamraev A.Sh. Termites of Central Asia: Problems and Solutions. // *Bulletin of the Karakalpak branch of the Science Academy of the Republic of Uzbekistan. - Nukus*, 2006. - No. 4. P. 20-23.
5. Khamraev A.Sh., Lebedeva N.I., Zhugunisov T.I., Abdullaev I.I., Rakhmatullaev A., Raina A.K. Food Preferences of the Turkestan termite *Anacanthotermes turkestanicus* (Isoptera: Hodotermitidae) // *Sociobiology*, 2007. V. 50. - №2. – P. 469 - 478.
6. Ganieva Z.A., Rustamov K.J., Khashimova M.Kh., Mirzaeva G.S., Lebedeva N.I. Termites of Central Asia and how to fight against them in the monuments of cultural and historical heritage. // *Int. scientific pract. conf. –Almaty*, 2019. - Volume 2. – P. 230- 234.
7. Abdullaev I.I., Khamraev A.Sh., Martius Ch. Termites (Isoptera) in Irrigated and Arid Landscapes of central Asia (Uzbekistan) // *Sociobiology (USA, Colifornia) Vol. -2002. -№ 3 (40). - P. 605-614.*
8. Ganieva Z.A., Khashimova M.Kh., Nurzhanov A.A. Possibility of infecting *Beauveria brongniartii* termites during trophollaxis. // *Protection and quarantine of plants. - Moscow*, 2015. - No. 10. - P.-49.

