

# **Forensic entomology and its use in criminal investigations**

## **Abstract**

The thesis addresses the field of forensic entomology and its use in criminal investigations, especially in cases of deaths from unclear causes. Although forensic entomology is a field of applied biology, this thesis – drawing on natural science sources – presents it in as detailed a context as possible while placing it in the criminal-legal context of criminal proceedings, which the forensic entomologist enters as an expert witness. The results of the forensic entomological examination are usable in the investigation in the form of an expert opinion. The thesis draws information from experts in the field and also analyses data provided by the Institute of Criminalistics of the Police of the Czech Republic, which prepares the opinions, and the Judicial Academy, which provides lifelong education for judges and prosecutors - i.e. persons who can best use the field in their work. Since the work combines the personal experiences from the practice of the interviewed experts together with statistical data that are not published anywhere in a comprehensive way, this work represents a unique insight into the scientific field in terms of its practical use.

The thesis is divided into three chapters. The first chapter introduces the field of forensic entomology in terms of its theoretical background and used methods. The thesis also illustrates the historical development of the field and offers an overview of the most criminally important insect species studied by the field. At the end of the first chapter, there is a variety of additional information about the circumstances of the victim's death that the field can provide to the investigator.

The second chapter describes the entire process of preparing a forensic entomological opinion from the commissioning of the opinion through the procedure of securing entomological traces to the defence of the results of the opinion in court proceedings, while also briefly describing the position of the forensic entomologist as a forensic expert. This chapter also outlines the issues of lifelong education of criminalistic technicians, who in the Czech Republic most often secure entomological traces at the place of discovery, as well as judges and prosecutors, who further work with the results of entomological examination, especially in court proceedings. The thesis subsequently provides detailed instructions for securing entomological traces from a dead body.

The third chapter provides an overview of the number of expert opinions produced annually by forensic entomologists in the Czech Republic and evaluates this figure in the context of other European countries, with a special focus on the Federal Republic of Germany.

The thesis reflects on the question of which variables influence the number of opinions produced and what role the system of education of persons who come into contact with entomological traces plays in this pattern. In this respect, the third chapter builds on the information presented in the second chapter. Based on the obstacles previously identified as facing the field in the Czech Republic, this chapter concludes by suggesting steps that could increase the practical use of the field in the future.

**Key words: [forensic entomology, expert opinion, criminal proceedings]**