

**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES
OF UKRAINE
EDUCATION AND RESEARCH INSTITUTE OF FORESTRY AND
LANDSCAPE-PARK MANAGEMENT**

Department of Silviculture

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**PROGRAM OF THE TRAINING PRACTICE
FOR THE COURSE OF
PEST MANAGEMENT IN FOREST OF EASTERN EUROPE**

Specialization: 205– “Forestry”

Educational program: “Forestry”

Faculty (Institute): Education and Research Institute of Forestry and Landscape-Park
Management

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(position, academic degree, academic title)

1. Purpose and objectives of the training practice.

The purpose of the training practice is to study all aspects and stages of the organization of forest protection from pest.

The subject of the discipline is to study the basics of monitoring and forecasting epiphytosis and outbreaks of pathogens and pests, reasonable prediction of the timing, level of spread and development of the pest (disease) and possible phenomena and processes in the phytosanitary state of biocenoses in the future.

The purpose of the discipline is to train masters in the ability to timely monitor and predict epiphytosis and outbreaks of pathogens and pests and prescribe appropriate measures to combat them. Monitoring the spread and development of diseases is an integral part of integrated plant protection. Lack of monitoring makes it impossible to control and predict the phytosanitary situation in plantations, timely and effective application of protection systems. Without monitoring and forecasting, the epiphytosis of many dangerous diseases, significant losses, and overspending of material and technical means are inevitable. In limiting the prevalence of forest pathogens, the main role is played by increasing the natural immunity of woody plants against infections, creating stable phytocenoses, reducing the virulence of pathogens, as well as the destruction of pathogens. The main direction should be different ways of influencing the environment, taking into account the specific environmental characteristics of forest growth.

The training practice program provides for the following types of work and tasks:

- familiarization with the sanitary condition of the plantation and the species composition of the main harmful insects and pathogens;
- conducting reconnaissance surveys to determine the species composition of harmful insects and pathogens. Determination of the peculiarities of conducting monitoring studies;
- detailed forest pathological examinations with the establishment of trial areas and determination of the sanitary condition of plantations;
- preparation of reports on educational practice;
- credit.

2. The scope and organization of works

In accordance with the current educational and calendar plan, tree days (15 hours) is allocated for conducting training practice in " Pest management in forests of Eastern Europe " in the second semester for master's students. Management of training practice is carried out by the Department of Silviculture. The responsible head of practice is a scientific and pedagogical employee of the department. Working out the topics of practice is carried out with the involvement of employees of forestry enterprises, cartographic materials and relevant documentation.

Each day of practice consists of two stages of work:

- performance of work in the forest, or in the office of the forest enterprise;
- chamber work on the processing of the collected material and design of the diary.

At the beginning of practice, the training manager conducts an introductory briefing on labor protection and safety techniques, which is noted in a special journal. Before carrying out work related to the use of manual fire suppression equipment, fire hoses and barrels, motor pumps, slip-on-unit modules, fire tankers, tractor equipment and tillage mechanisms, as well as ignition devices, an initial briefing is conducted at the workplace by company representatives.

Before the practice assessment, each team submits diaries to the leader with attachments that reflect the performance of tasks in accordance with the approved practice program. Assessment includes practical questions, individual and team tasks in accordance with the training practice program.

3. Methodology of training practice

During the practice, verbal, visual and practical teaching methods are used. Individual topics of the program are worked out during excursions to the forest, to forest fire stations of various types, water supply facilities and other institutions, organizations, and departments. Individual tasks are performed individually, in teams and as part of an academic group.

4. Content of training practice

Calendar plan, supervisors, and place of training practice

Calendar plan of the training practice for the course of «Pest Management in Forest of Eastern Europe»

№	Topic	Duration, hours
1.	Reconnaissance survey with familiarization with the species composition of insects to identify the species composition, distribution and harmfulness of insects on individual trees and in plantations.	5
2.	Clarification of the main groups of pests, their distribution and harmfulness (coniferous and leaf-gnawing pests, root pests, etc.). Clarification of the main groups of pests, their distribution and harmfulness (coniferous and leaf-gnawing pests, root pests, etc.). Identification of collected species (or photographed) conifer leaf-gnawing, trunk, underground pests, root pests.	5
3.	Reconnaissance survey with familiarization with the species composition of insects to identify the species composition, distribution and harmfulness of insects on individual trees and in plantations. Detailed forest pathological examinations with the establishment of trial areas and determination of the sanitary condition of plantations	3
4.	Completion of the report, settlement.	2

2. Supervisors, date, and place of training practice

Place of the training	Course, group	Date	Supervisors
NULES of Ukraine	5, 1	06-08.06.2024 p.	Assoc. Prof. N.V. Puzrina

5. Structure of training practice

Topic 1. Reconnaissance examination. General introduction to the species composition of insects in plantations of different ages, composition, origin, quality and completeness. Clarification of the main groups of pests, their distribution and harmfulness (coniferous and leaf-gnawing pests, root pests, etc.).

Topic 2. Collecting an entomological collection of insects (samples of damage to plants by forest insects, moves in wood, pupae, larvae, egg-laying (at least 10).

Topic 3. Determination of the dominant types of conifer leaf-gnawing, trunk, underground pests, root pests, etc., using identifiers or with the help of the practice manager. Placing trial areas. Determination of the sanitary condition of plantations.

Outline of the report:

1. Natural and climatic conditions of the research region.
2. Description of the dominant species of insects (reservations, biology, life cycle, phenogram of development, etc.) and pathogens.
3. Measures to combat harmful insects and improve plantations.

Objects of practice: plantings of different ages, composition, quality.

6. Tools, devices, firefighting equipment and means of fire suppression

Shovels, nets, knives, magnifying glasses 10x, tweezers, herbarium nets for collecting and drying damaged and affected leaves and needles, markers.

7. Measures for labor protection and industrial sanitation

Before the start of training practice, the leader of the academic group conducts a general briefing on occupational health and safety, safety rules, industrial sanitation, familiarizes students with the requirements of the Regulations on the Procedure for Conducting Educational and Training Practices for students of Education and Research Institute of Forestry and Landscape-Park Management and the Rules of Internal Procedure in student dormitories of NULES of Ukraine, for which students sign up in the corresponding journal.

In the case of involving students in the performance of production work in forestry, conducting and documenting the briefing is carried out by the production manager.

8. Recommended sources of information

1. Пузріна Н. В. Математичне моделювання чисельності шкідників та збудників хвороб лісу. Київ : Видавничий цент НАУ, 2014. 38 с.
2. Пузріна Н. В. Прогноз збудників хвороб та шкідників. Курс лекцій. Житомир : Полісся, 2015. 58 с.
3. Токарева О.В., Мешкова В.Л., Пузріна Н.В. Pest management in forests of Eastern Europe: manual. Київ : КОМПРИНТ, 2022. 320с.
4. David G. James. Beneficial Insects, Spiders, and Other Mini-Creatures in Your Garden. Washington : Washington State University, 2014. 21 p.
5. Lakatos F., Mirtchev S. Manual for visual assessment of forest crown condition. FAO. 2014. 23 p.
6. Marshall Bradley, Fern, Barbara W. Ellis, and Deborah L. Martin, eds. The Organic Gardener's Handbook of Natural Pest and Disease Control: A Complete Guide to Maintaining a Healthy Garden and Yard the Earth-Friendly Way. New York: Rodale Press, 2010. 408 p.
7. Miller K. V., Miller J. H. Forestry herbicide influences on biodiversity and wildlife habitat in southern forests. Wildlife Society Bulletin, 2004. Vol.32, No. 4, 1049–1060.
8. Sandy Perry, Carolyn Randall. Forest Pest Management. Michigan : Michigan State University, 2000 111 p.
9. Sow A., Seye D., Faye E., Benoit L., Galan M., Haran J., Brevault T. Birds and bats contribute to natural regulation of the millet head miner in tree-crop agroforestry systems. Crop Protection, 2020. 32 p.
10. Vasic V., Konstantinovic B., Orlovic S. Weeds in Forestry and Possibilities of Their Control, 2012. 26 p.
11. Forests. Manual on methods and criteria for harmonized sampling, assessment, monitoring and analysis of the effects of air pollution on forests. Hamburg, Germany. 2010. URL : <http://www.icp-forests.org/Manual.htm>.
12. Frank S., Bradley L., Moore K. Integrated Pest Management. 2018. URL : <http://content.ces.ncsu.edu/8-integrated-pest-management-ipm/>
13. Klass C., Hoffmann M.P. Attracting Beneficial Insects. 2014. URL : <http://blogs.cornell.edu/horticulture/about/basic-gardening-info/garden-beneficialinsects/>
14. Merrill Richard. Attracting Beneficial Insects to the Garden with Beneficial Flowers. Renee's Garden. 2014. URL : <http://www.reneesgarden.com/articles/beneficials.html/>
15. Pest Management Options: Birds and Bats for Pest Suppression. URL : <https://intermountainfruit.org/pest-management/birds-bats> (дата звернення: 20.05.2023).
16. Plant Quarantine. URL : https://www.bioversityinternational.org/fileadmin/bioversity/publications/Web_version/174/ch09.htm
17. Sanitary rules in the forest of Ukraine. URL : <https://zakon.rada.gov.ua/laws/show/555-95-%D0%BF#Text> .
18. The Law of Ukraine On Plant Quarantine. URL : http://www.vertic.org/media/National%20Legislation/Ukraine/UA_Law_Plant_Quarantine.pdf.