

Detection and Prognosis Defoliators *Tortrix viridana* and *Pristiphora abietina* in the Northwestern Transylvania Forests

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Abstract: Forest pest detection and prognosis are important works in forest protection activities, and because of these it can be known the health of forests at any time of year. In the silviculture point of view, there are the primary meaning forestry pests and pests distinguish secondary, the first that stands against a culture and under certain conditions of vegetation, climate and mass medium can replicate. Establishing forecasts to reflect the real situation of forest sampling of surfaces requires control data referring to quantity, quality and rate of injuries. Thus, for each stand or for groups of stands with similar conditions (in terms of stationary and stand composition and age) and the same degree of defoliation, it will be taken 32 samples of litter and soil. Each sample will represent the collected material on a surface of 25 x 25 cm. The data presented in this paper, on the forecast *Tortrix viridana*, 2010 shows that infestations will be very weak and weak, except for two bodies Forest Forest Departments in Oradea and Satu Mare, where defoliation will be strong and very strong.

Keywords: prognosis, defoliators, fecundity, quercus, spruce, stands, degree of infestation

INTRODUCTION

Forest pest detection and prognosis are important works in forest protection activities, and because of these it can be known the health of forests at any time of year (Patrascoiu and Badea, 1995).

The screening is organized and operates so that at certain times of year it is able to collect data on crops and forest stands from various pests reported.

The health of forests is periodic supervised every year through the monitoring system. Thus, the sheets are being completed in permanent sample surfaces on the dynamics of health of those trees (Simionescu et.al., 1995).

In the silviculture point of view, there are the primary meaning forestry pests and pests distinguish secondary, the first that stands against a culture and under certain conditions of vegetation, climate and mass medium can replicate.

Very often, forest structure and composition well complied and unaffected by a harmful factor, can reach in certain conditions and become favorable for dangerous outbreaks. Appropriate and coleoptera and lepidoptera defoliators that under certain conditions, in different forest formations can achieve mass propagation (Netoiu and Taut, 2006).

This paper has proposed to establish a forecast for 2010 to present *Tortrix viridana*, *quercus* stands defoliators respectively *Pristiphora abietina* defoliator present in spruce stands.

MATERIALS AND METHODS

Establishing forecasts to reflect the real situation of forest sampling of surfaces requires control data referring to quantity, quality and rate of injuries. Quantitative data refer to population density, expressed by the ratio between the number of insects to the unit of measure as the case may be tree, branch, bud or surface. Here we also talk about population growth rate of R, which represents the value of the ratio of current population density (D1) and density breeding population the previous year mass start (D2). Finally, all quantitative data discuss the frequency, the ratio of the total number of trees attacked and control trees (Ordin nr.454/07.14.2003).

Qualitative data are represented by fecundity, depending on which stage sets gradation and sexual index (I), the ratio between the number of females (F) and total insects

$$(F + M) I = F / F + M.$$

According to these elements we establish the defoliation probably the ratio of population density (d) and critical number (n).

These items were taken for *Tortrix viridana* - green oak caterpillar, and wasp *Pristiphora abietina*.

Pristiphora abietina insect detection is made at the egg stage (April-May) by analyzing the branches of the upper half of the crown, the caterpillar stage (June) and the cocoon stage (late June to March the following year). Stage of wasp control can be done in April-May, when they fly out of the ground and tree crown.

Analyses that we have carried out is to analyze soil samples collected from infested trees. Harvested must necessarily take into account the proportion of the stand of trees with different degrees of defoliation that results accurately reflect the real situation at the ground, that the density of pupae (number of individuals / m) in the pupa stage (in cocoon).

Thus, for each stand or for groups of stands with similar conditions (in terms of stationary and stand composition and age) and the same degree of defoliation, it will be taken 32 samples of litter and soil. Each sample will represent the collected material on a surface of 25 x 25 cm. In depth we will not dig more than 2-3 cm from the mineral soil surface, because the larvae spin their cocoons and they seek shelter in the litter and soil layer on the surface, not depth. Each sample will be located under the crown of another tree, so that they are relatively evenly distributed on the surface or group of trees stands. When choosing trees to be taken as evidence, it will be taken into account that the proportion of samples that comes from trees of different degrees of defoliation should be equal to the proportion in stands of trees included in each category of defoliation.

Prognosis *Tortrix viridana* defoliator

Tortrix viridana (green oak moth) is the largest defoliator spread in the area in the oak forest area, a fact confirmed by studies and our analysis.

As with previous harmful, detection and prognosis can be made in all stages of development, but its accuracy is the highest forecast by egg. This analysis consists of six branches from a tree at least a meter long each, each two branches at the base, middle and far right trees crow. These trees to be the 3 in a plot and must be uniform assigned to the forest.

On each branch count buds well developed and using his shall identify eggs. The percentage of shall presented in Table 1, resulting from the ratio between the number of viable eggs and the number of so controlled.

Analyzing the table we see that the degree of infestation, but two bodies of forests (Forestry Department of Oradea and Satu Mare) where infestations are medium to strong, in other forests analyzed infestations are weak and very weak.

For the first forest bodies will propose the application of control measures and others will be included in the surveillance zone.

Tab. 1

Situation analysis report *Tortix viridana* 2010

Forestry Department	Ranger District	Number of the analysis	Infestation
Bistrița	Bistrița	4	very poor
	Beclean	3	very poor
Cluj	Cluj	11	very poor
	Gherla	7	very poor
Oradea	Oradea	10	very poor, poor, transportation means, strong
Satu-Mare	Carei	13	very poor
	Livada	1	transportation means, strong
	Satu-Mare	17	very poor, poor
Zalău	Almaș	15	very poor
	Cehu Silvaniei	16	very poor
	Ileanda	8	very poor
	Jibou	9	very poor
	Șimleul Silvaniei	14	very poor
I.C.A.S.	Lechința	19	very poor
I.T.R.S.V.	Măgura Șimleul Silvaniei	14	very poor
	Municipal Bistrița	20	very poor
	Asociația Salcâmul Ciumești	22	very poor, poor

Prognosis Pristiphora abietina defoliator

Pristiphora abietina prefers spruce stands aged 10-30 years located on the sunny slopes and resorts without air currents. The injured branches develop numerous buds. It was first reported in Romania in 1986, in Arad county forests, the attack was short, only until 1988. After 10 years, in 1998, a new signaling is done in the counties of Cluj, Bacau and Covasna, and in 1999 in Vâlcea county, in relatively small areas (less than 100 ha).

Affected areas were growing, for which it imposed measures to detect and forecast defoliator to establish control methods.

Forecast for 2010 is presented in the following table, from which we see that defoliation for the analyzed year, will be analyzed from very, weak to strong, for which we propose measures to prevent and combat.

Situation analysis report *Pristiphora abietina* Tortix viridana 2010

Forestry Department	Ranger District	Number of the analysis	U.P.	u.a.	Infestation
Cluj	Dej	18	I	109 F	very poor
			II	186 C	very poor
			IV	37 A	Medium
			VI	12D,13A,14B	Poor
		21	I	82A,C	Poor
			II	186C,E 187A	very poor
			III	24A	very poor
			IV	37A,C, 38A,39C,40D	very strong
				68B,C,D, 69H, 71C,E,G	very poor
			V	44B, 45A	Poor
				53	Medium
			VI	12D, 13A, 14B	Medium
			VII	22B,C,D,E	Poor
				89A	Poor

RESULTS AND DISCUSSION

The data presented in this paper, on the forecast *Tortrix viridana* harmful defoliator, in 2010 year shows that infestations will be very weak and weak, except for two bodies Forest Forest Departments in Oradea and Satu Mare, where defoliation will be strong and very strong. For the latter measures it has been established the applying of a ground treatment using approved insecticides.

In terms of *Pristiphora abietina* harmful defoliator observed an extension of infested areas of very strong intensity. A very important issue is to determine precisely the period of combat, since the occurrence and its development is closely related with the evolution of climatic factors and the same time harmful is in various stages of development.

In addition to applying these treatments is necessary to implement a system of measures to create favorable conditions for forestry development stands, structurally stable.

The studies and analyses carried out at the laboratory resort ICAS Cluj, show that making forecast for major defoliators from forest fund is absolutely necessary, and must be carried out every year, and the proposed measures to maintain the forests integrity and stability.

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