

## LYMANTRIA MONACHA L. SPECIES MONITORING WITH THE AID OF SEXUAL ATTRACTANTS

## MONITORIZAREA SPECIEI LYMANTRIA MONACHA L. CU AJUTORUL FEROMONILOR ATRACTANȚI SEXUALI

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### ABSTRACT

An extremely dangerous pest especially for the resinous species (spruce fir, pine tree, fir tree, larice, duglas) which can also attack leafy trees is *Lymantria monacha*. The larva of this pest attacks as of the beginning of spring. In the beginning they attack the barely open buds which they gnaw, then the needles are partially or totally eaten. The studies shows the situation of *Lymantria monacha* adults caught with the aid of ATRALYMON sexual attractant in 2001 and 2002.

**KEYWORDS:** *Lymantria monacha*, sexual attractant ATRALYMON, monitoring

### REZUMAT

În cazul în care condițiile mediului înconjurător sunt favorabile, organismele dăunătoare se înmulțesc puternic, așa numitele “înmulțiri în masă”, provocând vătămări importante pădurilor. Apariția atacurilor și îmbolnăvirea pădurilor presupune o înmulțire în masă a organismelor dăunătoare. Deși insectele sunt foarte prolifiche, înmulțirea lor nu se produce brusc nici în condițiile cele mai favorabile. Pentru înmulțirea în masă trebuie un interval de timp egal cu câteva generații (câțiva ani), este necesară o așa numită perioadă de pregătire. Condițiile de mediu numai în mod cu totul excepțional reușesc să oprească brusc înmulțirea în masă a insectelor. Datorită supraînmulțirii, unii dăunători ajung la o densitate atât de mare (omizile defoliatoare) încât numărul lor depășește capacitatea de hrănire pe care o oferă arboretul în care se dezvoltă. În această situație, o parte din indivizi nu se dezvoltă complet și mor, iar cei ce reușesc să se dezvolte, dau exemplare adulte debile și mai puțin fecunde (1,2,3).

Un dăunător extrem de periculos în special pentru speciile de rășinoase (molid, pin, brad, larice, duglas), dar care poate ataca și foioasele este *Lymantria monacha*. Larvele acestuia dăunător atacă încă de la începutul primăverii. Ele atacă la început mugurii tineri abia desfăcuți pe care îi rod, apoi sunt roase total sau parțial acele. Specia are o mare capacitate de înmulțire, adesea determinând uscare arborilor cărora le produce o defoliere de până la 60 %. Defolierile parțiale duc la slăbirea arborilor, favorizând astfel instalarea dăunătorilor secundari (2,4).

Pentru acest periculos dăunător, *Lymantria monacha*, în perioada 2001-2002 în cadrul Ocolului Silvic Dorna Candrenilor s-au instalat capcane, cu feromonul atractant sexual ATRALYMON, pentru monitorizarea populației. În toate cele 20 de cantoane, în perioada 1 iulie-30 septembrie s-a efectuat citirea capcanelor. În anul 2001 s-au instalat 473 de capcane iar în anul 2002 s-au folosit 509 capcane. În anul 2001 cele 473 de capcane feromonale au captat în perioada iulie-septembrie un număr de 6209 adulți, cu o medie de 13 capturi/capcană. În anul 2002 cele 509 capcane au captat 8226 de adulți, ceea ce înseamnă o medie de 16 capturi/capcană, deci se constată o tendință de creștere a populației de *Lymantria monacha*.

**CUVINTE CHEIE:** *Lymantria monacha*, atractant feromonal ATRALYMON, monitorizare

### DETAILED ABSTRACT

The case in which the environment conditions are favourable, the organisms noxious strongly multiply, the so-called “mass multiplication”, causing important damages to forests. The occurrence of the attacks and forests sickening presumes a mass multiplication of noxious organisms. An extremely dangerous pest especially for the resinous species (spruce fir, pine tree, fir tree, larice, duglas) which can also attack leafy trees is *Lymantria monacha*. The larva of this pest attacks as of the beginning of spring. In the beginning they attack the barely open buds which they gnaw, then the needles are partially or totally eaten. The species has a great multiplication capacity, often determining trees drying as it produces an exfoliation of up to 60 %. Partial exfoliation lead to trees weakening thus making way for the installation of secondary pests. In order to monitor the population of this *Lymantria monacha* pest, traps were installed during the 2001 – 2002 period, with the sexual attractant ATRALYMON. In all the 20 cantons the reading of the traps was done between July 1- September 30. In 2001, 473 traps were installed as compared to 2002 when 509 traps were open.

## INTRODUCTION

Vegetable and animal organisms noxious to forests usually have an insignificant influence on the life of the forest, because, their number being small, the damage they produce may stay unnoticed. The period during which pests do not cause damages because their number is reduced is called period of latency. The case in which the environment conditions are favourable, these organisms strongly multiply, the so-called "mass multiplication", causing important damages to forests. The occurrence of the attacks and forests sickening presumes a mass multiplication of noxious organisms (1,2). Generally, organisms noxious to forests have the capacity to multiply very much, still, they do not reach but seldom high densities. To insects multiplication capacity opposes, usually, a series of factors which contribute to their destruction to such an extent that their number stays for a long time to a decreased level. Though insects are very prolific, their multiplication does not occur all of a sudden not even under the most favourable conditions. Mass multiplication needs a lapse of time equal to some generations (some years), it is necessary the so-called preparation period. The environment conditions only exceptionally manage to suddenly stop insects mass multiplication.

When, due to certain causes, some environment factors which tend to hinder the mass multiplication of an insect act in a weaker manner, its descendants survive in a greater number and determine the mass multiplication of that species. The preservation of such a situation results in the more and more numerical increase of insects in the following years.

Due to over-multiplication, some pests reach a density so great (exfoliating caterpillars) that their number exceeds the feeding capacity offered by the brush in which they develop. In such a situation, part of the individuals do not develop completely and die, and those which fully develop result in adults which are feeble and less fertile. At the same time with the pests mass multiplication, parasites and entomophagi find optimal development conditions as they have abundant food. Parasites activity is remarked through an ever increasing mortality amongst the pests, eventually reducing them to the extremely small initial number. This stop of the gradation is performed most of the times only after the bush suffered repeated exfoliation (3).

An extremely dangerous pest especially for the resinous species (spruce fir, pine tree, fir tree, larice, duglas) which can also attack leafy trees is *Lymantria monacha*. The larva of this pest attacks as of the beginning of spring. In the beginning they attack the barely open buds which they gnaw, then the needles are partially or totally eaten. The species has a great multiplication capacity, often determining trees drying as it produces an exfoliation of up to 60 %. Partial exfoliation lead to trees weakening thus making way for the installation of secondary pests (1,2,4).

## MATERIAL AND METHOD

In order to monitor the population of this *Lymantria monacha* pest, traps were installed during the 2001 – 2002 period, with the sexual attractant ATRALYMON. In all the 20 cantons the reading of the traps was done between July 1- September 30. In 2001, 473 traps were installed as compared to 2002 when 509 traps were open.

## RESULTS AND DISCUSSION

Table 1 shows the situation of *Lymantria monacha* adults caught with the aid of ATRALYMON sexual attractant in 2001. Between July – September the 473 attractant traps caught a number of 6,209 adults, with an average of 13 captures/trap. We find that all the traps had captures (in all the 20 forest cantons). If we analyze the situations by districts, we find that in the Voroava district the lowest population of the pest is to be seen. Here, the average number of butterflies/trap was of two and five in the Arșița canton. Even the maximum number of captures/trap in this district was the lowest (7 captures in the Voroava and Marișel cantons and 8 at Arșița). A more numerically reduced population is to be found in the Strunior district with an average of 8 captures/trap and of 10 captures/trap in the Izvoare canton. Within the Dornișoara district the situation differs a lot from one canton to another. Thus, if in the Muncel canton was registered an average of 3 captures/trap, in the Măgura canton an average of 40 captures/trap was performed. Still in this canton the greatest number of captures/trap was realized, as we found 50 captures/trap. The situation was relatively similar in the districts Negrișoara and Roșița, the populations differing very much from one canton to another (from 3 to 25 captures).

Table 1: Situation *Lymantria monacha* captures with the aid of the sexual attractant (ATRALYMON).  
The Dorna Candrenilor Forest Range (2001)

District	CANTONS	Number of Attractant traps	Number of Captures	Number of Captures/traps	Maximum number of Captures/traps
I Negrișoara	Pârâul pietri	17	281	16	28
	Gligu	29	547	19	32
	Ascuțita	32	258	8	15
	Negrișoara	32	709	22	37
	Smizi	15	354	24	32
II Roșia	Tofla	18	447	25	31
	Roșia	27	637	23	31
	Praji	22	422	19	30
	Tirov	25	86	3	9
	Fața tătarului	17	198	12	18
III Dornișoara	Muncel	28	94	3	12
	Valea largă	25	267	13	20
	Zimbrișor	14	261	19	25
	Zimbru	14	213	15	18
	Măgura	20	804	40	50
IV Voroava	Arșița	26	141	5	8
	Voroava	28	65	2	7
V Strunior	Mărișel	27	81	3	7
	Izvoare	30	128	10	13
	Strunior	27	216	8	19
<b>TOTAL</b>		473	6209	13	50

Table 2: Situation *Lymantria monacha* captures with the aid of the sexual attractant (ATRALYMON).  
The Dorna Candrenilor Forest Range (2002)

District	CANTONS	Number of Attractant traps	Number of Captures	Number of Captures/traps	Maximum number of Captures/Traps
I Negrișoara	Pârâul pietri	21	445	21	29
	Gligu	25	504	20	30
	Ascuțita	30	446	15	27
	Negrișoara	31	841	27	32
	Smizi	18	572	32	41
II Roșia	Tofla	20	543	27	33
	Roșia	25	572	23	30
	Praji	27	488	18	31
	Tirov	29	230	8	17
	Fața tătarului	22	312	14	20
III Dornișoara	Muncel	24	121	5	11
	Valea largă	26	472	18	29
	Zimbrișor	18	430	24	32
	Zimbru	20	403	20	29
	Măgura	22	1061	48	59
IV Voroava	Arșița	28	110	4	10
	Voroava	31	95	3	11
V Strunior	Mărișel	30	119	4	9
	Izvoare	32	253	8	15
	Strunior	30	209	7	19
<b>TOTAL</b>		509	8226	16	59

Generally, the situation of the *Lymantria monacha* captures in 2002 (table 2) shows a slight increase tendency (in the forest range as a whole). That year the 509 traps caught 8,226 adults which means an average of 16 captures/trap. A reduced population was seen in the Voroava and Strunior districts. An average of 3-4 captures/trap were registered in Voroava and in Strunior 7-8 captures/trap. The Dornișoara district witnessed that year too the greatest number of captures/trap. Thus, in Măgura 59 adults/trap were captured. In the other districts the situation is almost identical with the preceding year.

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#### CONCLUSION

In the forest cantons of the Dorne area, the most dangerous pest for coniferous trees is *Lymantria monacha*

The monitoring of the exfoliating *Lymantria monacha*. is easy with the aid of the ATRALYMON sexual attractant with a great attraction power.

In the area of the Dorne, the *Lymantria monacha*. species presents a slight population increase tendency.

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