

RESEARCH ARTICLE

(Open Access)**The infection degree of pine processionary moth in black pine Forest of our Country, during cycle 2016 – 2017**FATMIR LACEJ¹, RAMIZ METALIA¹¹ Faculty of Forestry Sciences, Agricultural University of Tirana, Albania

*Corresponding author; E-mail: flacej@ubt.edu.al

Abstract

In this poster will present the infection degree of pine processionary caterpillar in Austrian pine forest of Albania during cycle 2016 – 2017 . The infestation degree is studied in stands with Austrian pine (*Pinus nigra* Arnold) and concretely in teen Districts as Puka, Shkodra, Tropoja, Vlora, Berati, Elbasani, Librazhdi, Pogradeci, Korça and Kolonja. The methodology applied consist in taking of 5 surfaces samples, each of them 2500 m² for each pine stand. In every sample are settled 30 control trees, in total 150 trees for stand. In these 150 control trees are made observation about number of nests for each control tree. In this way the pine processionary infection degree is given with number of nests for tree and is presented more high in Districts of Puka (objects of Gomsiqe, Luf and Puka) with infection degree on the average of 3-4 nests / tree; Tropoja (objects of Rragam and Tropoja) with infection degree of 3 nests /tree.; Berati (objects of Karkanjoz, Bregu i Frengut and Tomorr) with infection degree of 8-9 nests /tree; Elbasan (object of Gjinar) with infection degree on the average of 2.5 nests /tree; Pogradec (object of Guri i kuq-Lin) with infection degree on the average 3.5 nests/tree; Korça (object of Morava) with infection degree on the average of 2.5 nests/tree. Based on the above results in objects with high infection degree of pine processionary caterpillar has been necessary the intervention with control measures (treatments with bio-preparation *Bacillus thuringiensis* var. *kurstaki*).

Keywords: Pine processionary caterpillar; infection degree; *Pinus nigra*, stands; number of nests/tree.

1. Introduction

The pine processionary caterpillar, *Thaumetopoea pityocampa* (Den. et Schiff.) is the most important defoliating insect of pines in southern Europe and North Africa. This insect is well known from ancient time for the social behavior of the larvae, which feed on needles of pine and build large silk nests on the top of the trees. In Albania the pine processionary caterpillar shows a slight preference for some native pine species, especially *Pinus nigra* Arnold (Austrian pine) and *P. halepensis* (Aleppo pine), but exotic introduced species such *P. radiata* (Monterey pine) are also heavily attacked. The Austrian pine seems to be the main host-plant of *Th. Pityocampa*. The extensive use of Austrian Pine for reforestation in Southern Europe, especially since the beginning of the last century, has favored a large spread of this species.

In Albania man-made afforestations with Austrian Pine are made mainly during the period 1970-1990, increasing in this way the area of Austrian Pine in Albania together with natural stands in about 110.000 ha. In our country the pine processionary caterpillar is characterized by one generation per year, but some of the pupae frequently enter for diapause one year or more. The larvae normally feed from current year September to next year March-April, with interruptions during the winter period. The emerge of adults occurs during June-July. The attacked trees normally recover from the defoliation. The mortality of the trees is low, but the growth losses can rise up to 35 % of the annual growth. Usually the attacked trees from processionary caterpillar are also vulnerable to be affected from scolytides insects which can cause tree mortality.

Therefore, this study shows the infection degree of pine processionary caterpillar in some of principle stands of black pine in Albania, according to districts, for 2016-2017 life cycle. At the same time in this material are shown the conclusions about control measures that must be applied in pine stands with high infection degree, mainly those where the average number of nests for tree is biggest than 2 nests.

2. Material and Methods

The study was carried out in several man-made Austrian Pine stands of Albania. The age of these stands varies from 30-40 years. In particular are taken Pine Stands in teen districts of Albania like Tropoja, Shkodra, Puka, Elbasani, Vlora, Berati, Librazhdi, Pogradeci, Korca dhe Kolonja. The methodology applied consists in taking of 5 circle surfaces sample, each of them 2500 m² (with a radius 28m) for each pine stand. In every sample are settled 30 control trees. Control trees are taken randomly, 6 trees in the Northern part, 6 trees in the Southern part, 6 trees in the Western part, 6 trees in the Eastern part and at the end 6 trees in the center. In this way for each pine stands are observed 150 control trees. For each control tree are made observations of nests number with the use of the binocular. Following, is calculated the average number of nests for tree. Having as threshold 2 nests/tree and referring to the average number of nests/trees are defined pine stands where control measures must be applied to pine processionary caterpillar.

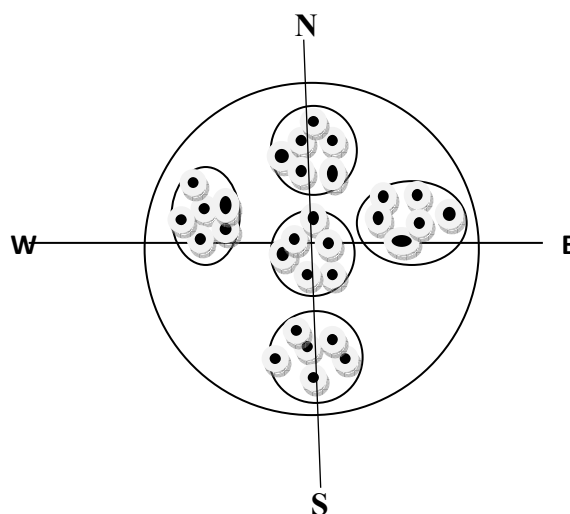


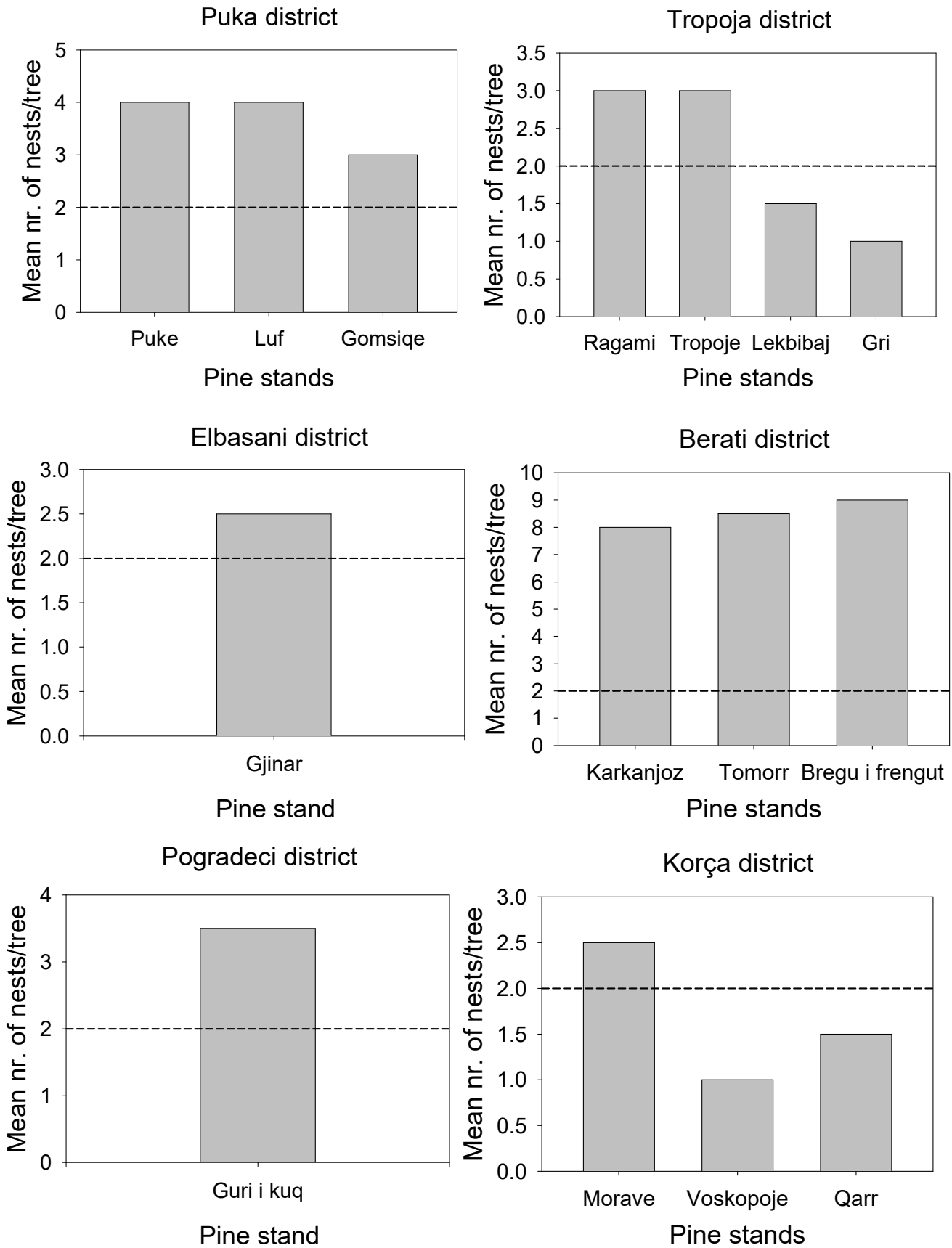
Figure 1. The diagram of control trees

3. Results and Discussion

From the study resulted as follow:

1. District of Tropoja, Pine stand Rragam – 3 nests/tree, Tropoja e Vjeter – 3 nests/tree, Lekbibaj – 1.5 nests/tree and Gri- 1 nests/tree.
2. District of Shkodra, Pine stand Boga- 1.5 nests/tree.
3. District of Puka, Pine stands Luf- 4 nests/tree, Puke- 4 nests/tree, Gomsiqe -3 nests/tree.
4. District of Librazhd, Pine stand Qarrishte- 0.5 nests/tree.
5. District of Elbasan, Pine stand Gjinar-2.5 nests/tree.
6. Districts of Berat, Pine stands Karkanjoz – 8 nests/tree, Tomorr – 8.5 nests/tree and Bregu i Frengut 9 nests/tree.
7. Districts of Vlora, Pine stand of Llogara – 0.5 nests/tree.
8. District of Pogradec, Pine stand Guri i Kuq- 3.5 nests/tree.
9. District of Korca, Pine stands Morava – 2.5 nests/tree, Qarre- 1.5 nests/tree and Voskopoje – 1nests/tree.
10. District of Kolonja, Pine stand Qarre- 1.5 nests/tree.

The above mentioned results are shown in graphics, where for each district are given Pine stands attacked from processionary caterpillar, infection degree (based on number of nests/tree) and the threshold (infection degree 2 nests/tree). In particular are shown through the graphics the districts that have Pine stands more affected by processionary caterpillar, such as Puka, Tropoja, Elbasani, Berati, Pogradeci and Korca.



4. Conclusions

In this study we concluded that:

- In Austrian Pine stands (*Pinus nigra* Arnold) with high infection degree (more than 2 nests/tree) concretely in Pine stands of Rragam, Tropoje e vjeter (district of Tropoja); Luf, Puke, Gomsiqe (district of Puka); Gjinar (district of Elbasan); Karkanjoz, Tomorr, Bregu i Frengut (District of Berat); Gur i Kuq (District of Pogradeci); and Morave (District of Korca) must be applied control measures.
- The control measures consist in using the bio-preparation *Bacillus thuringiensis* Berliner var. kurstaki.

5. References

1. Baronia P, Baldassari N. Insetti Dannosi ai Bosci di Conifere. 1997.
2. Battisti A, Longo S, Tiberi R, Triggiani O, Results and perspectives in the use of bacillus thuringiensis Berl. Var. Kurstaki and other pathogens against *Th. pytoocampa* (Den. and Schiff.) in Italy. 1998.
3. Berryman AA: Forests insects. 1986
4. Jaco N: Mbrojtja e Pyjeve (Entomologjia Pyjore). 1989.
5. Lacej F: Insektet demtues kryesore te Pyjeve te Shqiperise. 2015.
6. Pollini A: Manuale di entomologia applicata. 1998.
7. Sterguls F, Frigimelica G: Insetti e funghi danossi ai boschi. 1996.