УДК 630.443

Réka Andrési, Katalin Tuba
(Река Андреши, Каталин Туба)
University of West-Hungary,
Institute of Silviculture and Forest Protection,
Sopron, Hungary
Западно-Венгерский университет,
Институт лесоводства и защиты леса,
Шопрон, Венгрия

EXAMINATION OF BEETLE COMMUNITY IN TINDER FUNGUS
(ИЗУЧЕНИЕ КОНСОРЦИЙ ЖЕСТКОКРЫЛЫХ И ТРУТОВЫХ ГРИБОВ)

Рассматриваются результаты изучения взаимосвязи между трутовыми грибами и популяциями жуков. В западной части Венгрии с апреля по декабрь 2013 г. собрано 94 экземпляра трутовых грибов, которые относятся к 22 видам. Самыми распространенными видами являются трутовик настоящий Fomes fomentarius (56 экз.) и окаймленный трутовик Fomitopsis marginata (8 экз.). Среди хвойных пород наиболее уязвимым видом оказалась ель обыкновенная Picea abies , поврежденная 8 видами трутовых грибов. Обнаружено 35 видов жуков.

Introduction

The dead trees offer a favourable habitat to numerous aliens. Most of them have important role from the viewpoint of the demolition. The viewpoint of the forests the metabolism processes has emphasis meaning. One of these processes is the tree-tinder fungus-beetle food chain.

Our aims were: 1) which ones are the most frequent tinder fungi and beetles living in fungi; 2) what kind of tinder fungus has the richest beetle community; 3) what is the relationship among the tree species-tinder fungus-beetles.

The tinder fungi are the determining member of natural forests associations. They have a special insect's community. In the food chain the saproxylic insects have important role, because they eat dead trees. The tinder fungi appear on the trees and the tinder fungi are colonised by fungus feeders. They create a chain of decomposer.

Material and methods

The most of samples were collected from the west part of Hungary from April until December in 2013. Many samples originate outskirts Sopron and Zalaegerszeg (Fig. 1).

The tinder fungus samples were got down without bark. Every tinder fungus was packed in a paper sack (Fig. 2).

The tinder fungi were collected from different quality trunks (Fig. 3), lying and standing dead

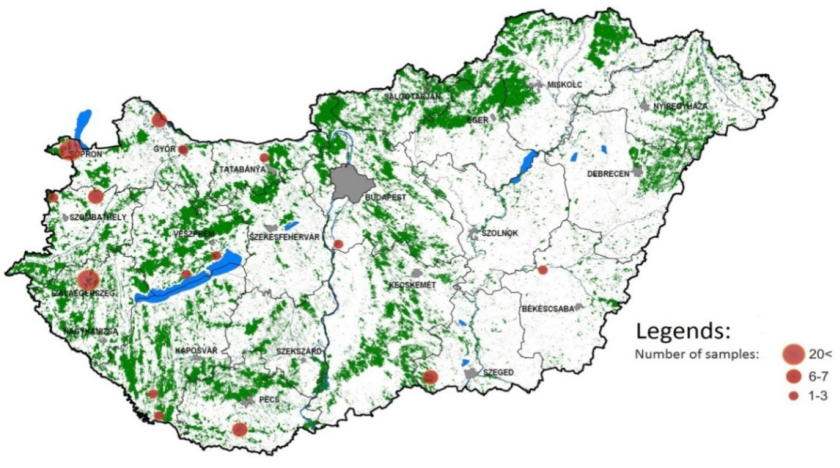

Figure 1. The sample sites of the tinder fungi

Figure 2. Tinder fungus was packed in a paper sack

trees (Fig. 4) and trees without vigorous. Among the samples there were annuals (Fig. 3) and perennials types (Fig. 4), too (Table).

We noticed the sites, the collecting time, tree species, tree quality, name of tree and name of the fungus species and the age of fungi.

The fungus samples were placed under special conditions (20±1 °C; 16 hours lighting and 8 hours darkness). Every 8 weeks the insects were collected from the bags and they were selected by families. The separation of the fungus debris and arthropods was done based on the difference of specific gravities. The samples were stored under different conditions as in alcohol, in silica gel (for genetic samples), and or in the freezer.

Figure 3. *Laetiporus sulphureus*

Figure 4. *Fomes fomentarius*

The quality of the hosts, the tinder fungus and the number of related insect's species

Genus Species	Dead tree					Tinder fungus						Beetles species		
	Healthy	Standing	Collapsed	Trunk	Root swelling	Healthy	Standing	Collapsed	Trunk	Root swelling	Altogether	Annual	Perennial	Altogether
Celtis spp.	0	0	0	2	0	0	0	0	2	0	2	0	1	1
Quercus spp.	0	1	6	2	0	0	1	3	2	0	6	2	11	13
Quercus cerris	2	2	3	0	0	2	2	1	0	0	5	0	14	14
Fraxinus spp.	0	0	1	0	0	0	0	1	0	0	1	2	0	2
Juglans spp.	0	0	1	0	0	0	0	1	0	0	1	0	0	0
Fagus sylvatica	1	0	28	5	0	1	0	1	3	0	5	3	47	50
Salix spp.	4	0	1	0	0	4	0	1	0	0	5	0	5	5
Carpinus spp.	0	0	1	1	0	0	0	1	1	0	2	0	2	2
Populus spp.	0	1	1	4	0	0	1	1	2	0	4	0	9	9
Prunus ssp.	1	0	1	3	0	1	0	1	1	0	3	0	11	11
Picea abies	0	0	6	1	0	0	0	4	1	0	5	4	4	8
Acer spp.	0	0	1	6	0	0	0	1	3	0	4	1	10	11
Aesculus hipocastanum	0	0	0	2	0	0	0	0	2	0	2	0	1	1
Euonymus spp.	0	1	0	0	0	0	1	0	0	0	1	0	1	1
Alnus spp.	0	1	0	0	0	0	1	0	0	0	1	0	2	2
Tilia spp.	0	0	0	0	1	0	0	0	0	1	1	2	0	2
Malus spp.	1	0	0	0	0	1	0	0	0	0	1	0	0	0
Altogether:	9	6	50	26	1	9	6	16	17	1	49	14	118	132

Results

Under this period 94 tinder fungus were collected. The 94 tinder fungus could divide 19 species. The most frequent species was *Fomes fomentarius* (56 samples) (Fig. 5) and *Fomitopsis marginata* (8 samples) (Table). 13 species were very rare (one presence in the samples). The most fungi were collected from dead trees and trunks. Regarding the coniferous trees the richest community was detected at *Picea abies* with 8 tinder fungi. Among the broadleaves trees *Quercus cerris* and *Q. petrea* had the most diverse fungus community with 3 by 3 species. The least tinder fungi were found in *Fraxinus* spp., in *Juglans* spp., in *Euonymus* spp., in *Alnus* spp., in *Tilia* pp. and in *Malus* spp.

Figure 5. *Fomes fomentarius*

Near 25 beetles species were identified. The most frequent species was *Sulcacis affinis*. This is a very polyphagous beetle. We could breed it from 11 tinder fungus species. The other frequent beetles were *Bolitophagus reticulatus* (Fig. 6) and *Dacne bipustulata* (Fig. 7). There are some species which we found only in low number such as *Thymalus limbatus*, *Mycetophagus quadripustulatus* (Fig. 8), *Bembidion varicolor*, *Rhopolodautus perforatus*, *Tritoma bipustulata* (Fig. 9), *Asaphidion flavipes*, *Diaperis boleti*, *Oxyomus sylvestris* and *Bitoma crenata*.

It seems there are not significant relationships between the beetles – site of sample collection and between the beetles – time of sample collection. The age of tinder fungi influence the insect community in a dominant way.

Figure 6. *Bolitophagus reticulatus*

Figure 7. *Dacne bipustulata*

Figure 8. *Mycetophagus quadripustulatus*

Figure 9. *Tritoma bipustulata*

Acknowledgements

Our work carried out in the program of the TÁMOP-4.2.2.A-11/1/KONV-2012-0004, 'Silva naturalist A folyamatos erdőborítás megvalósításának ökológiai, konzervációbiológiai, közjóléti és természetvédelmi szempontú vizsgálata'.