

## Contents and Abstracts of the Bulletin of Forest Science

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### Vol. 7, Nr. 1, 2017

Tamás MERTL and Endre SCHIBERNA:

#### **Property structure of private forests in Hungary...7–23**

**Abstract** – This paper is based on a database of land lots that are not state owned and are classified as forest in the land registry in Hungary. A description of major parameters of ownership structure can be found in this article such as the area and frequency distribution of land lots over the size of forest area within the land lots and the number of owners of the land lots, as well as the area and frequency distribution of the ownership titles over the size of area of the ownership title and the title deed types. Based on the analysis of the dataset it has been proven that the most important forms of land transactions are purchasing and inheriting, of which the numerical description is also presented. The paper contains an analysis regarding decision making within the land lots, and regarding the inequality of ownership distribution.

Péter CSÉPÁNYI, Erik MAGASSY, Csilla KONTOR, Csilla SZABÓ, Sándor SZENTPÉTERI, Rita NÉMETH, Zoltán NÉMEDY, Szabolcs MÜLLER, Miklós SZABÓ, András KOVÁCS, Gábor SZENTHE, Gábor LIMP, Zoltán OCSOVALI, Ádám BRANDHUBER, Viktor FARKAS and János PETRIK:

#### **Reasons and consequences of ice damage of the forest stands at the Pilis Park Forestry Company...25–41**

**Abstract** – This paper discusses the reasons and consequences of freezing rain of 1st - 3rd December 2014 on the territory of Szentendre, Visegrád, Pilismarót, Pilisszentkereszt Forestry Units of the Pilis Park Forestry Company. During the assessment the answer was looked for which stands are damaged most and which factors contributed principally to the size of the damage. For the analysis, the assessed data of the damaged forest subcompartments and the data of self-measured tree individuals were used. As a result it became clear that uneven-aged structure, containing the thick older trees contributed more to the resistance of the stands against ice, rime and snow damage than mixture ratio of tree species. In even-aged stands tree dimensions are in connection with the size of the damage.

Tivadar BALTAZÁR, Ildikó VARGA and Miloš PEJCHAL:

**The possibilities of visual evaluation process of infected trees by european mistletoe (*Viscum album L.*)...43–58**

**Abstract** – The article discusses the process of mistletoe infection rating from visual evaluation to statistical analysis of the collected data. Besides, it also deals with the most common rating systems and possibilities of their usage. Outstanding it describes also those statistical models which are the most suitable not only characterizing of the current state of mistletoe infection intensity. Furthermore, it also allows modeling the future distribution of infection. The research methodology is extremely time-consuming and labor-intensive which may increase by the size of study area. However, its implementation requires only small financial investment. Nevertheless, the exact mistletoe infection evaluation in case of all host individuals is only possible (and recommendable) in parks or other urban green areas, because these potential host species are most endangered due to the urban air contamination and by other damaging factors than trees in forest belt.

Bálint HORVÁTH and András AMBRUS:

**Mark-recapture study on the feathered thorn (*Colotis pennaria*), mottled umber (*Erannis defoliaria*) and scarce umber (*Erannis aurantiaria*)...59–67**

**Abstract** – Mark-recapture (MR) study was performed on three forest defoliating Geometrid moth species in the Kőfejtő Forest between Sopron and Kópháza. In total, we marked 1235 specimens; the recapture rate differed between the study species. The highest superpopulation size was estimated for *E. defoliaria*, followed by *E. aurantiaria* and *C. pennaria*. The daily population sizes were also estimated; it shows different swarming dynamic for each species. The movements of recaptured specimens even were investigated. In spite of the weak flying capability, we detected relative long movements for *E. defoliaria* and *E. aurantiaria*. We conclude that MR study show a more precise population size than generally used light trapping. However, we have only a few information about MR study on moth species; it requires further investigations and clarification.

László BALI, Csaba SZINETÁR, Dániel ANDRÉSI, Katalin TUBA and Kristóf KÁLMÁN:

**Pitfall trapping arachnological survey in the Educational Forest of Ásotthalom ...69–84**

**Abstract** – During our research we surveyed the ground-dwelling spider fauna of the Educational Forest of Ásotthalom by pitfall trapping. The research was conducted from March to October in 2014. We collected data from three different habitats with 2 sampling sites for each: oak forest, pine forest and clearing. Our goals were to assess the ground-dwelling spider assemblages of the habitats, compare their spider fauna, determine their naturalness and examine their basic community-ecological indices. According to our data, species- and specimen number and diversity can separate the three habitats. The originality of the survey area is good, especially the clearings'. The forest and forest-edge inhabiting species were more abundant in the woodlands, while the open and dry conditions preferring species were more frequent in the clearings.

Borbála GÁLOS and Zoltán SOMOGYI:

**New climate scenarios – smaller drought risk for European beech?...85–98**

Impact assessments and development of adaptation measures in forestry require robust information on long-term climate tendencies. To analyse how climate change scenarios and

the uncertainty of climate models might affect conclusions of forestry impact studies, results of regional climate model ensembles run on representative concentration pathways (RCP4.5 and RCP8.5) and emission scenario (A1B) of the IPCC were used by the end of the 21st century from which temperature-precipitation indices (FAI, EQmod, TIb) were calculated that have been used to define suitable macroclimate and mortality thresholds for extreme droughts for beech for Zala County (SW Hungary).

Our results demonstrate that, in contrast to the robust warming and drying tendency of summers for the A1B scenario, the sign of the changes of precipitation projected by the RCP scenarios is rather unclear, and the simulated precipitation changes have a rather wide range and uncertainty. Despite these, all climate models agree in a significant increase of temperature that leads to more and more arid climate conditions by the end of the century. As a consequence, the macroclimatically suitable areas for beech are expected to disappear from the investigated region even assuming the lowest radiative forcing. Independently from the applied scenario, climate model and drought index, it is likely that more frequent drought periods will occur that are hotter than the most extreme event observed in the last century, so that the drought risks in forestry can be larger than what has ever been observed so far. Our results confirm that despite their uncertainty, climate change projections can already be robust enough to detect potential impacts and to support the development of adaptation measures in forestry.

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Miklós MANNINGER:

#### **Investigation of the variation of precipitation...99–113**

**Abstract** – The issue of the spatial variation of precipitation can be important in case of using non-locally measured data, while the knowledge about the variation in time is necessary for the interpretation of the predicted changes. At least 100-year-long data series were selected and analysed according to different time window (from monthly over the different water cycle periods to hydrological year). The 30 year reference periods used by climatologists were also taken into account. From the statistical evaluation the results connected with the variation coefficient (CV) are shown primarily. The author stated that the mean of the shorter periods (1-3 months) is not a good parameter ( $CV \gg 30\%$ ), while the mean for longer period is more reliable. Generally, the CV of the water cycle periods of the 30-year-reference periods decreases as time goes on. It means that the amount of precipitation hasn't become more extreme. Even the variation of water cycle periods is so large that  $\pm 20\%$  deviation from mean is still in the interquartile range, thus this kind of change in precipitation cannot be named as extreme.

Zsolt KESERŐ, Imre CSIHA, Csaba KOVÁCS, János RÁSÓ and Károly RÉDEI:

#### **Natural regeneration of red oak (*Quercus rubra*) stands: case studies...115–125**

**Abstract** – In Hungary the red oak (*Quercus rubra*), the most widespread non-native oak has been grown in forests for more than 100 years. Due to its fast growth, high yield and valuable timber material it is the most important exotic tree species besides the hybrid poplars and black locust. The variations of the natural regeneration technologies applicable in red oak stands should be developed according to the main felling methods and the associated natural regeneration possibilities. In the case of red oak stands the application of clear cutting-like regeneration cutting and shelterwood cutting can be recommended for the practice.

Mariann CSEPELÉNYI, Anikó HIRKA, Ágnes SZÉNÁSI, Ágnes MIKÓ, Levente SZŐCS and György CSÓKA:

**Rapis area expansion and mass occurrences of the invasive oka lace bug (*Corythucha arcuata* Say 1932) in Hungary...127–134**

**Abstract** – The North American oak lace bug (*Corythucha arcuata*) was first discovered in Europe in Northern Italy (2000). In 2013, it was found in Hungary. In the last five years, particularly in 2016 and 2017, the species showed rapid area expansion. Until autumn 2017, it has been found in all Hungarian counties except five (Borsod-Abaúj-Zemplén, Nógrád; Győr-Moson-Sopron, Vas and Veszprém). Outbreaks were recorded in many pedunculate oak stands in Békés, Csongrád, Jász-Nagykun-Szolnok and Baranya counties, covering ca. 5,000 hectares of forest area in total. Further spread and outbreaks can be expected in the next years. The severe infestation causes mass yellowing of the foliage by early and mid-July. Long term consequences of this effect are not yet known. Efficient and environmentally friendly control methods are not known either.

Dénes DOBROSI:

**Importance of deadwood and other forest habitat variables for the bats...135–154**

**Abstract** – In 2013, 2014 and 2015 we managed to identify 23 bat species from 82870 audio files recorded at 685 sites in the Alföld and Börzsöny by the ultrasound recording and analysing method we developed ourselves. We prepared a basic habitat evaluation of forests at each site and estimated the amount of deadwood. We were aiming to find a connection between the naturality indicator of the above mentioned forests and the activity of the bats. Through a homogeneity examination we found that the overnight activity of the environmentally significant group of bat species was in positive correlation with the ecological quality of their habitat and the amount of deadwood.