

Klímaváltozás és inváziós fajok - az erdővédelem két súlyos kihívása

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„Oak protection” Workshop
Pécs, 2018. június 27.



Nemzeti Agrárkutatási és Innovációs Központ • National Agricultural Research and Innovation Centre
Erdészeti Tudományos Intézet • Forest Research Institute

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FUN TIMES June 27 2018

"Oak protection" workshop in Pécs

Oak News 65

Latest News

A Geneva-based hedge fund manager has been fined £900,000 for manipulating the price of shares during the financial crisis (Alex Speice writes). Stefan Chaligine failed in an appeal yesterday to overturn a fine and ban by the Financial Services Authority. The Upper Tribunal found that he had committed serious market abuse in an effort to make his fund more attractive to investors.

The FSA tried to increase the fine to £1.25 million, but the tribunal said that Mr Chaligine's conduct was not "vernal dishonesty" and rejected the fine. The tribunal banned Mr Chaligine from working in financial services in Britain. Patrick Selgan, a former broker at Caring Fitzgerald, was banned and fined £60,000 for executing trades for Mr Chaligine.

Thai beer on tap

Carlsberg has become the latest European brewer to target Asian growth. Sales in Thailand, Vietnam, Laos, Cambodia, Myanmar and the Philippines are still relatively weak. The company's Thai subsidiary, Carlsberg Thailand, is a 50:50 joint venture with Thai Beverage.

The Canadians have entered the race to win a multibillion-pound project to build up to six nuclear reactors in Britain. The Times has learnt.

SNC-Lavalin, Canada's largest engineering group, has teamed up with Japan's Hitachi to bid for the Horizon joint venture, which owns two vacant reactor sites in Anglesey and Gloucestershire.

E.ON and RWE, the German energy groups, pulled out of the venture in March after politicians in Berlin decided to scrap domestic nuclear power in the wake of last year's Fukushima nuclear disaster in Japan.

Final bids were due in yesterday and the winner is set to be announced within the next three weeks, according to industry sources.

Hitachi has put forward its advanced Boiling Water Reactor design, which SNC-Lavalin would build and operate on the two sites. However, it faces stiff competition from two Chinese state-backed consortiums: Toshiba Westinghouse, the Jap-

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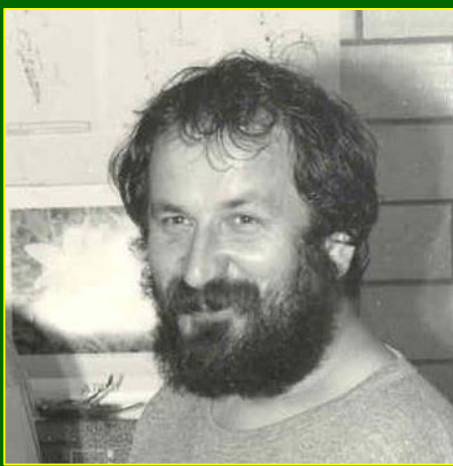
Változó világban élünk...



1987



1990



1995



2000



2005



2010



2015



2018

Saját hajszínem és hajsűrűségem hosszú távú változása

Klímváltozás

311 000 000 találat

Rolling Stones

150 500 000 találat

Google – 2018. június 26.



Klímváltozás

**“THE CONCEPT OF
GLOBAL WARMING
WAS CREATED BY
AND FOR THE CHINESE
IN ORDER TO MAKE
U.S. MANUFACTURING
NON-COMPETITIVE.”**

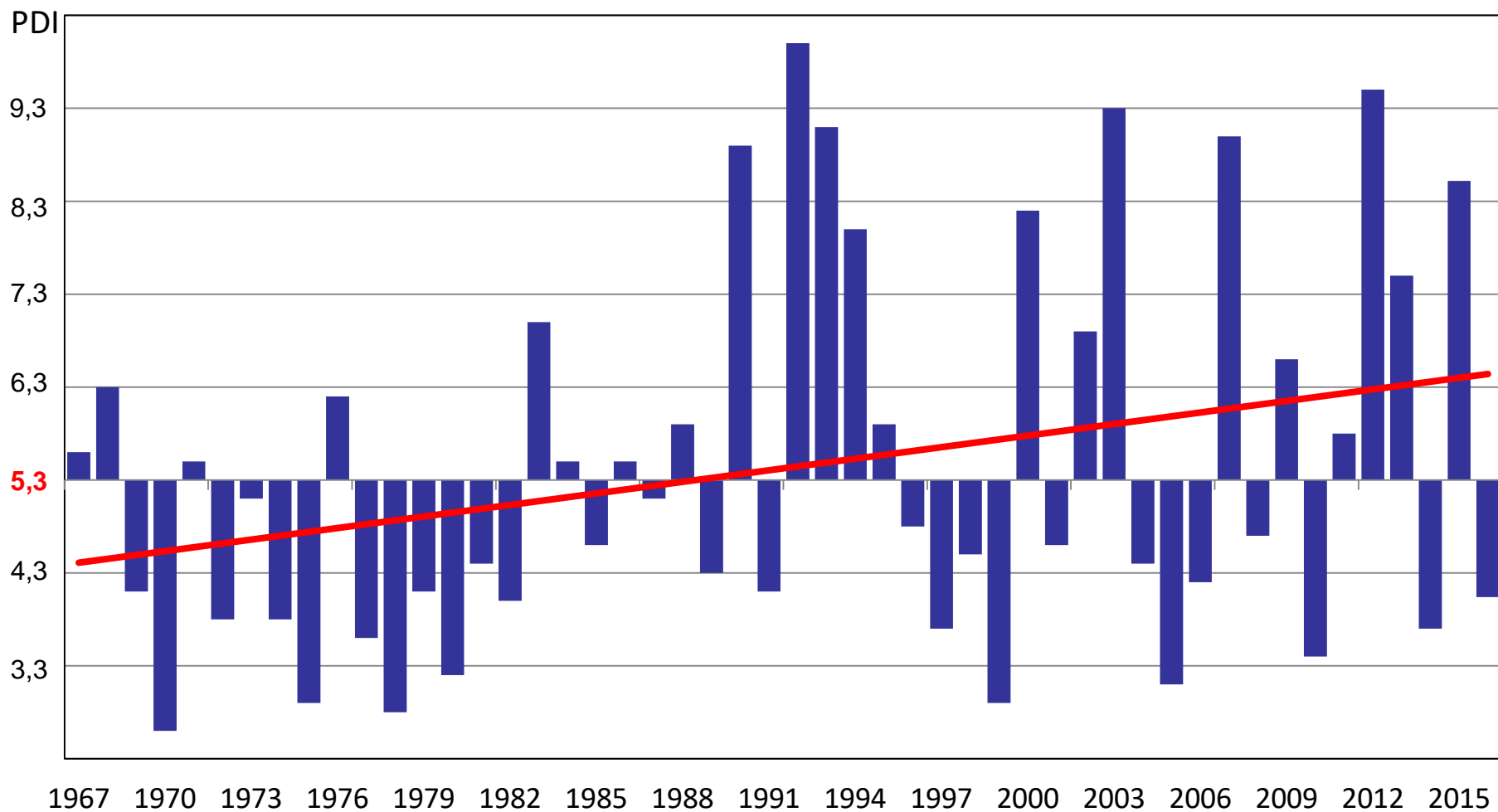
**“IT’S FREEZING
AND SNOWING IN
NEW YORK –
WE NEED GLOBAL
WARMING!”**

**“MY IQ IS
ONE OF THE HIGHEST-
AND YOU ALL KNOW IT!”**

Idézetek Donald Trump amerikai elnöktől



Erre még a Szabadság-szobor is reagál...



A Pálfai-féle aszályindex fél évszázados trendje és éves eltérései az 50 éves (1967-2016) átlagtól (5,3)





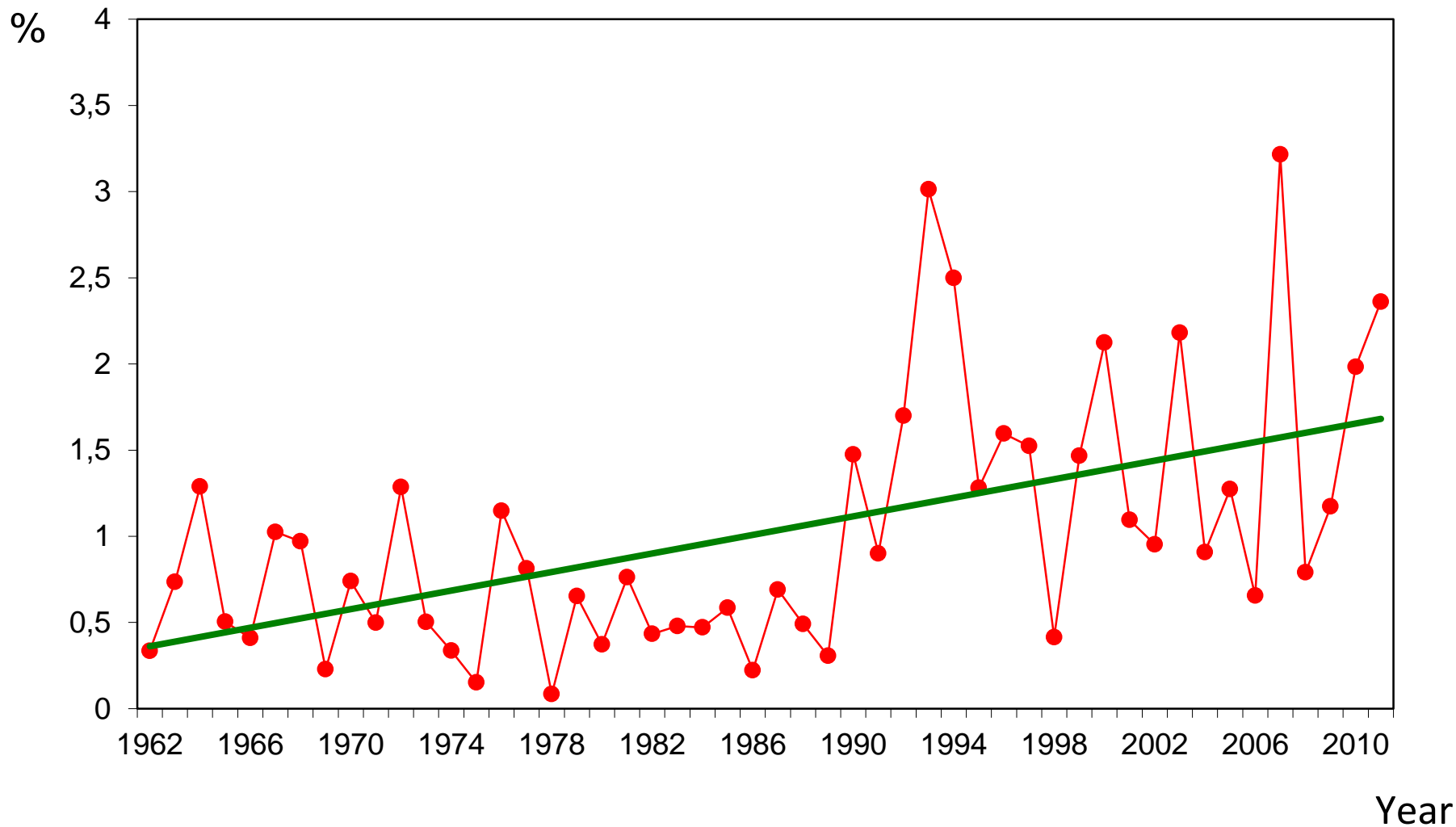
+1,8C°



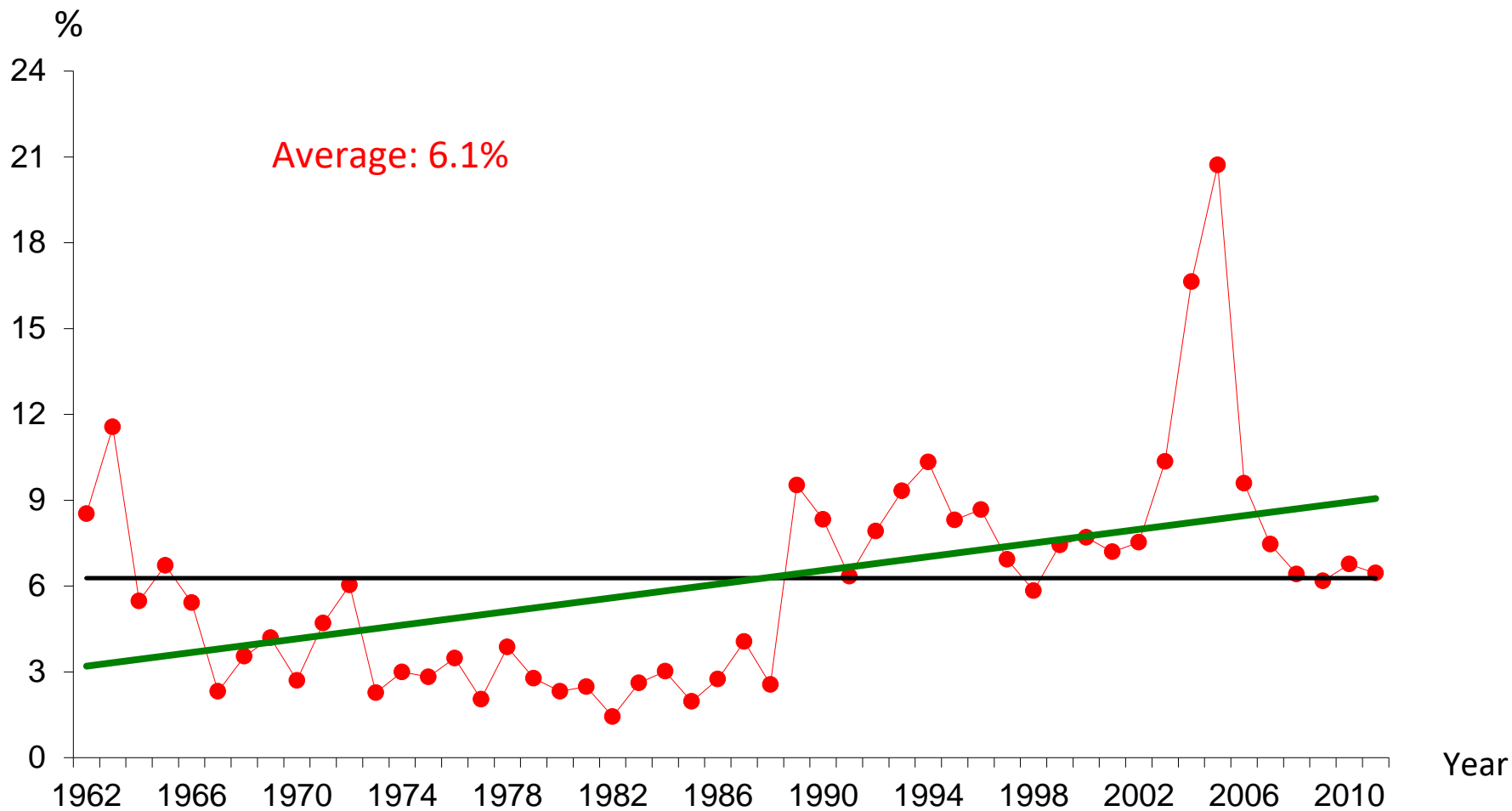
+3,3C°



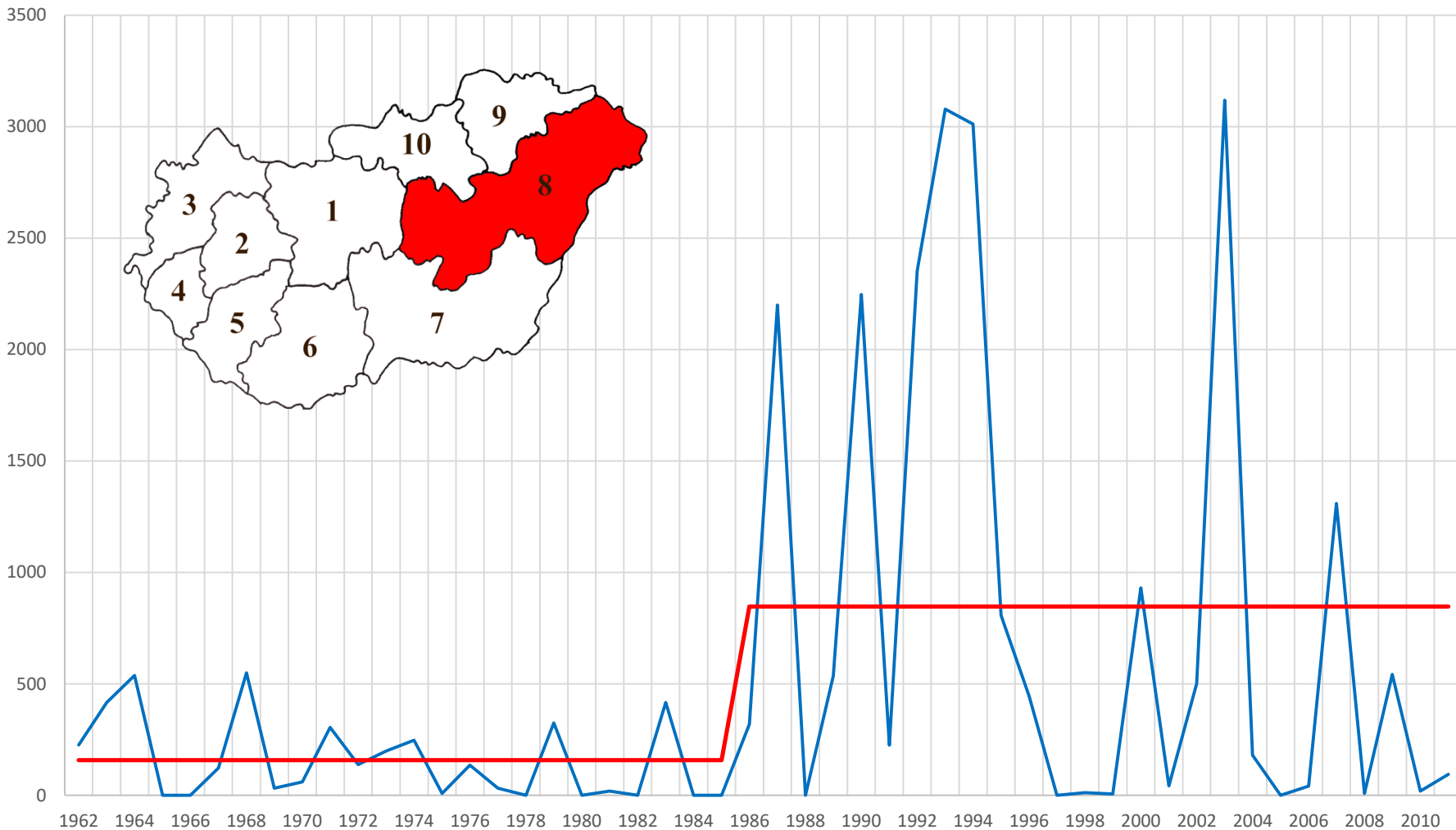
Az erdők nem tudnak elfutni!



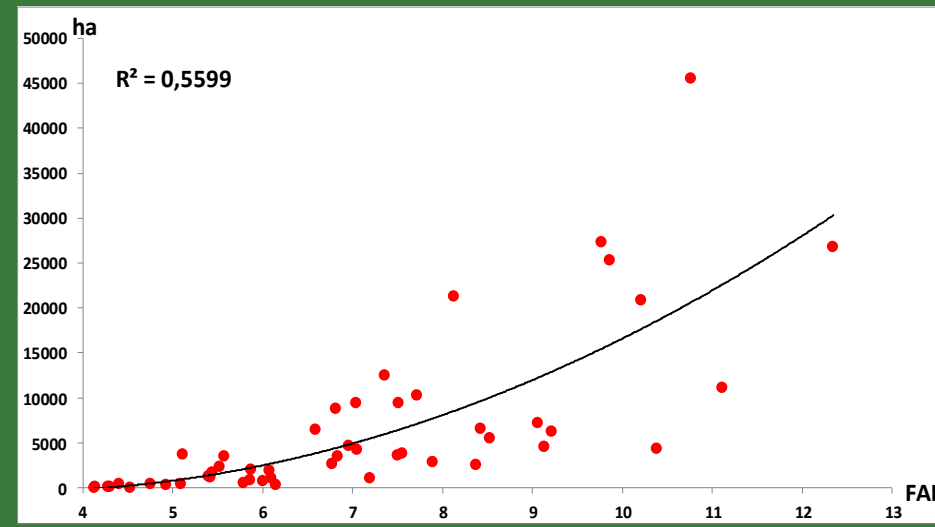
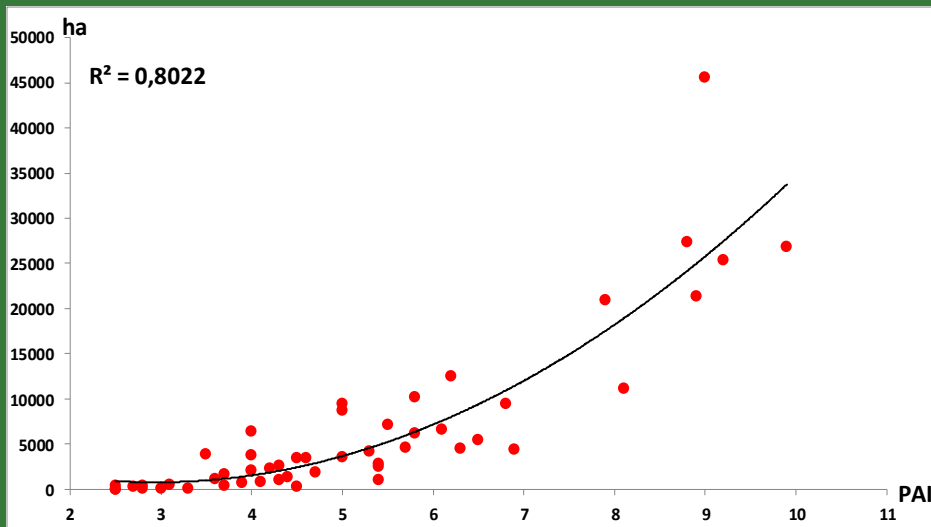
Az abiotikus erdőkárok 50 éves értékei és trendje Magyarországon
(a mindenkori erdőterület arányában)



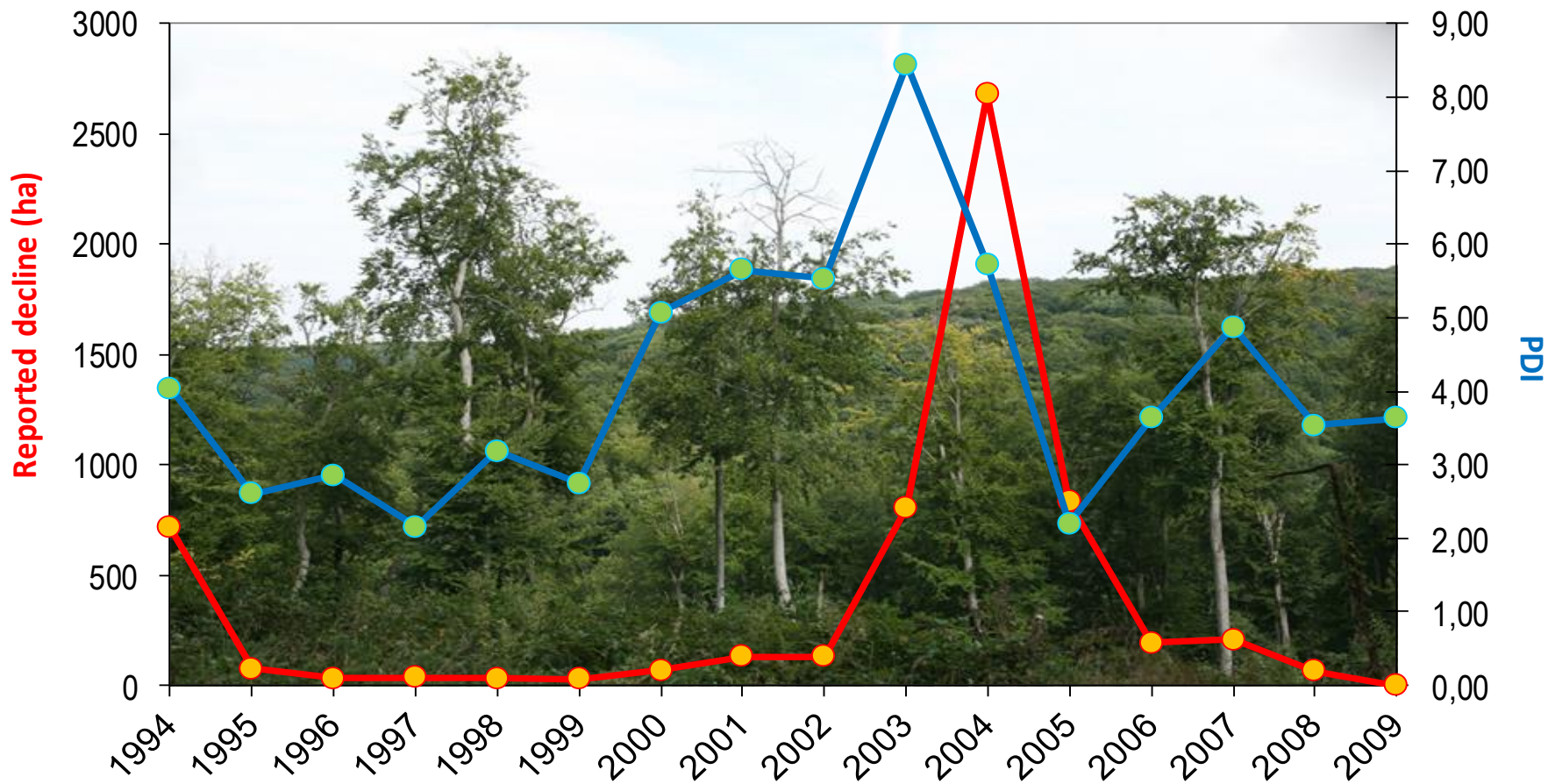
A biotikus erdőkárok 50 éves értékei és trendje Magyarországon
 (a mindenkori erdőterület arányában)



Erdei aszálykárók töréspont elemzése az 1962-211-es időszakra a „8-as régióban”



Két ismert aszályindex (PAI és FAI) és a magyarországi erdei aszálykárok összefüggései



A **bükkpusztulás** és a **Pálfai-féle aszályindex** éves értékei

A photograph of a forest with snow on the ground and young trees with bright green leaves. The trees are tall and thin, with white bark. The ground is covered in a layer of snow, and the trees are arranged in rows. The sky is blue and clear. The overall scene is bright and sunny.

20107. áprilisi hó a Börzsönyben

(© Nagy László)

Erős tavaszi fagykár Mátrában

(2017 május)



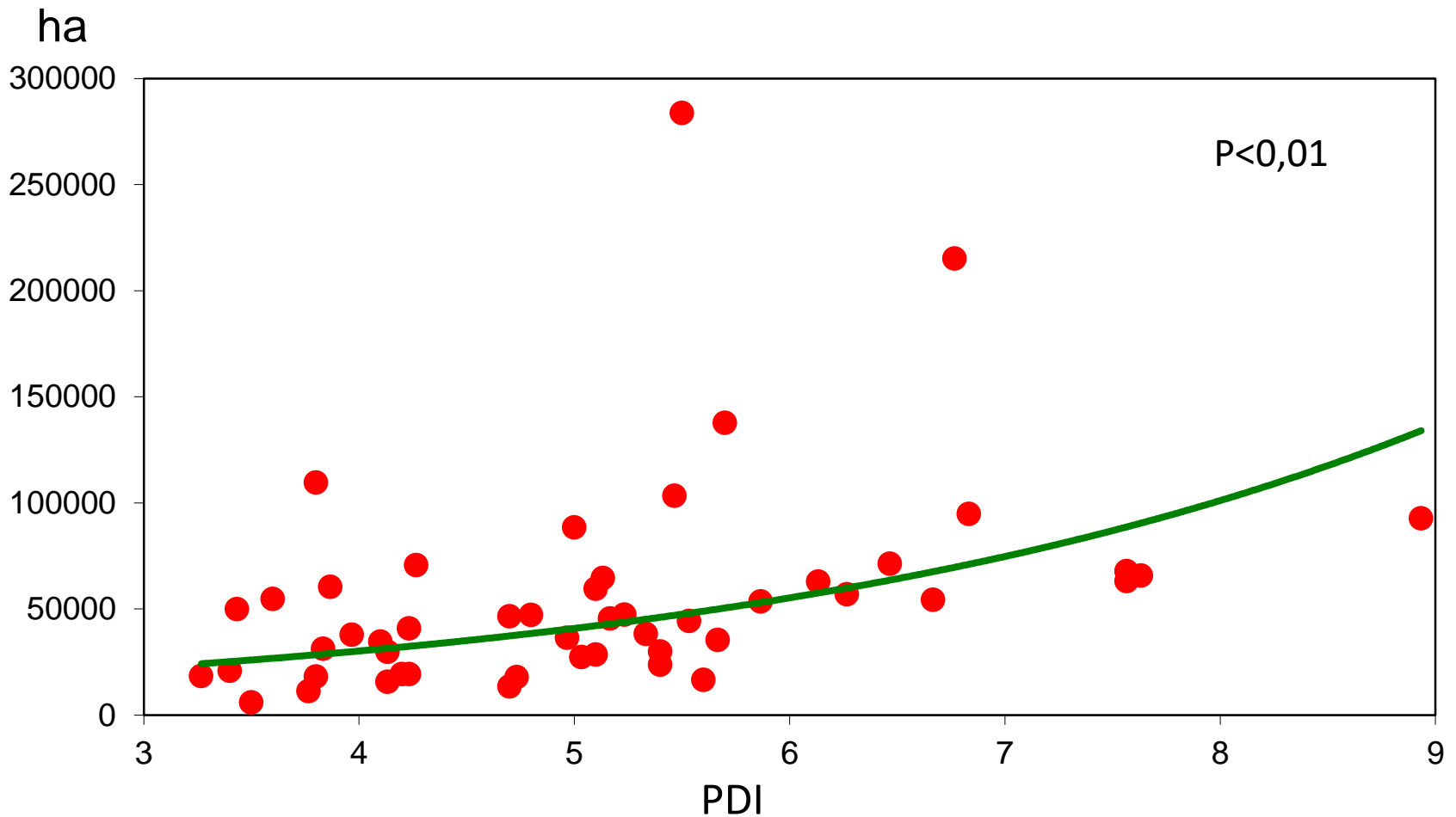
Hurrikán a Mátrában

2017 május





Zöld karcsúdíszbogár (*Agrilus viridis*)



Összefüggés az aszályosság és az összesített erdei rovarkárok között

Súlyos aszályokat követő, *Cenangium ferruginosum* okozta tömeges fenyőpusztulás a Mátrában



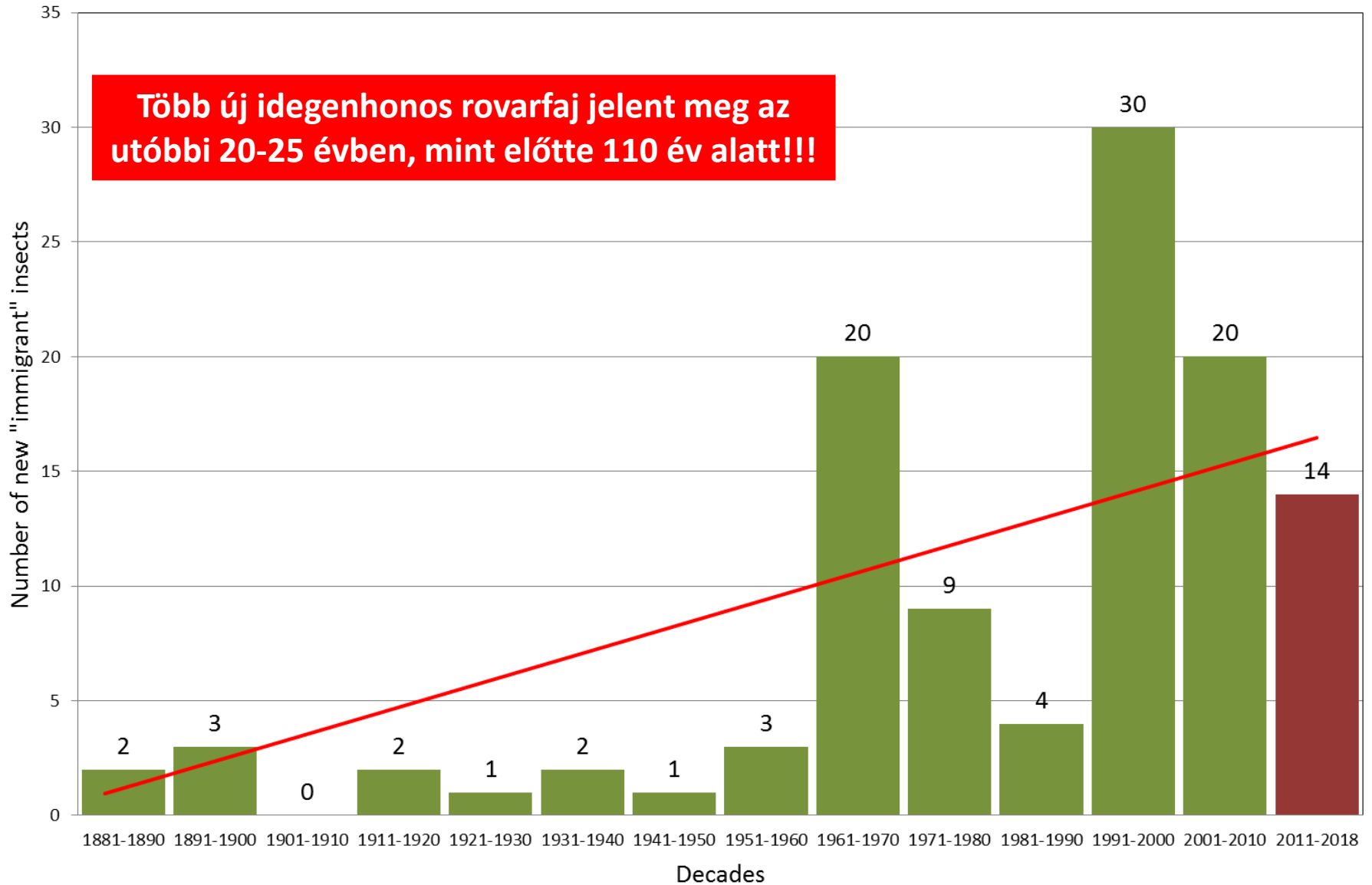


Cser



Bükk

Biscogniauxia mediterranea



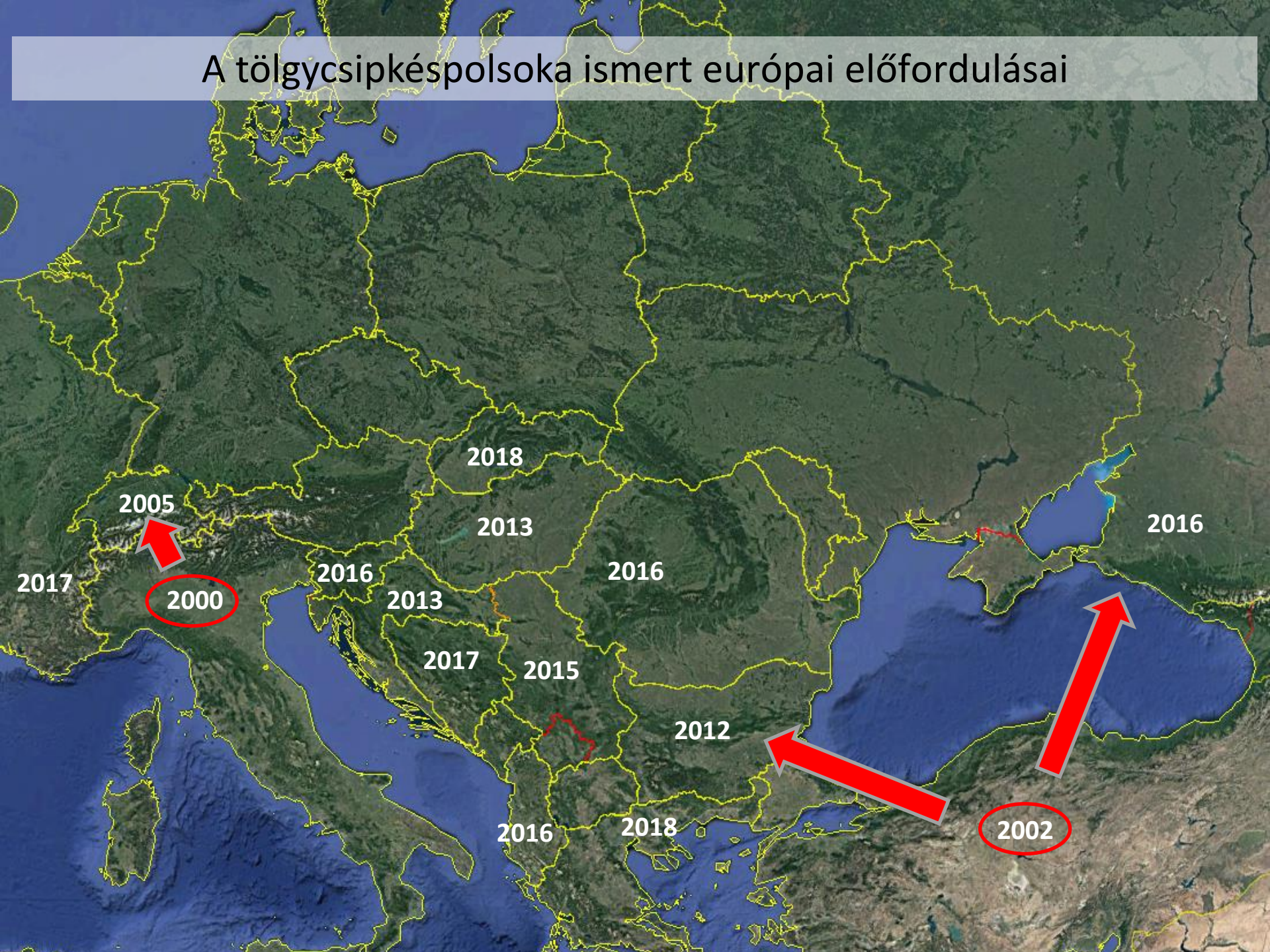
Idegenhonos erdei rovarfajok magyarországi megjelenése dekádonként 1881-től



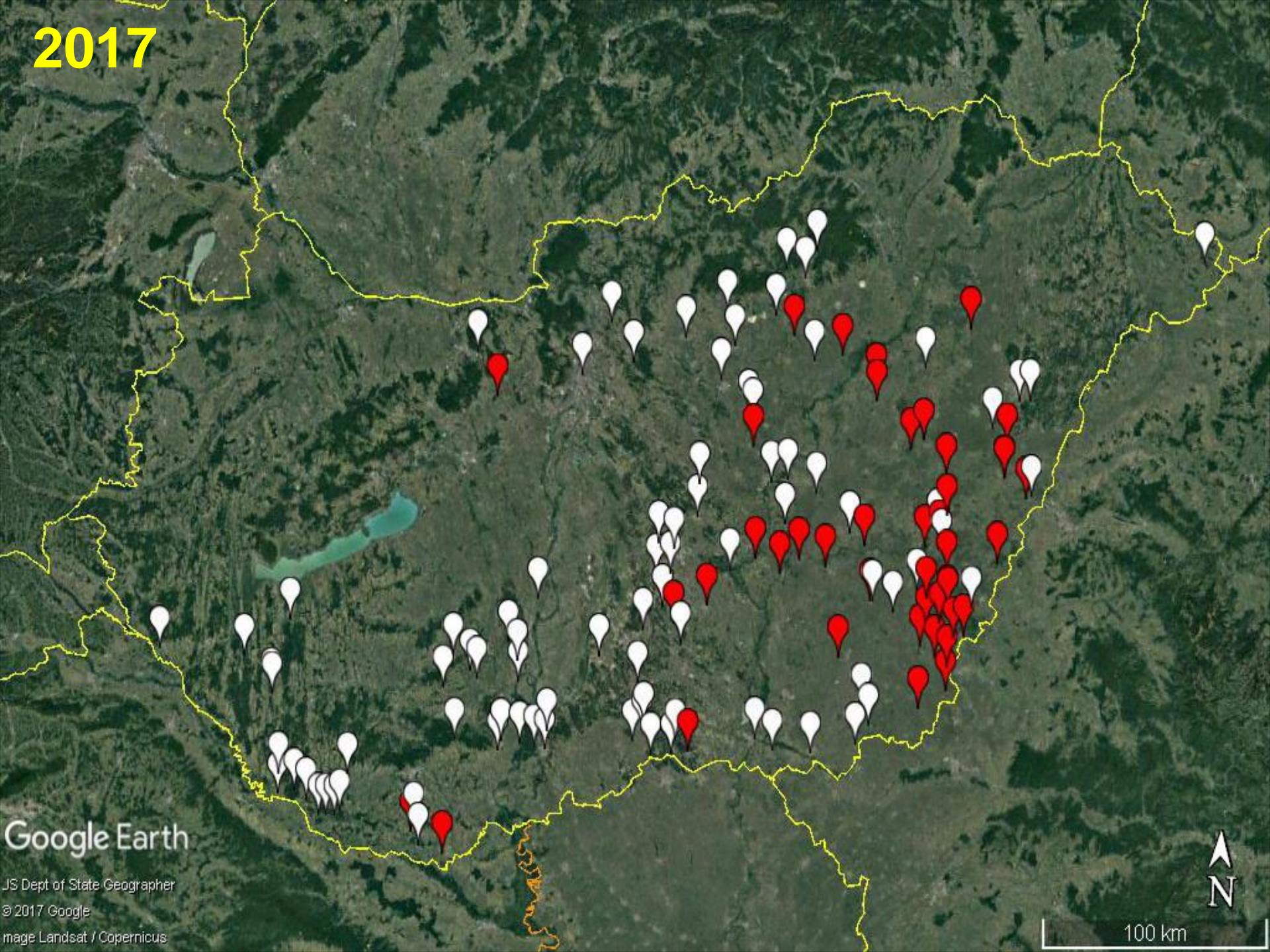
Tölgy csipkés poloska (*Corythucha arcuata*)



A tölgycsipkés polsoka ismert európai előfordulásai



2017



Google Earth

JS Dept of State Geographer

© 2017 Google

Image Landsat / Copernicus





Legend

Standardized NDVI

- < -3
- 3 - -2
- 2 - -1
- 1 - 0
- 0 - 1
- 1 - 2
- > 2

MODIS standardized NDVI

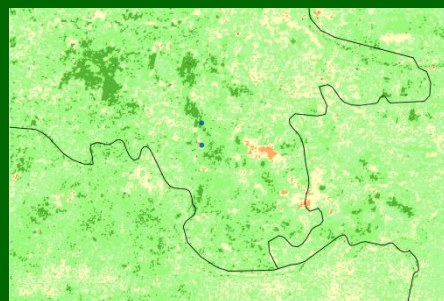
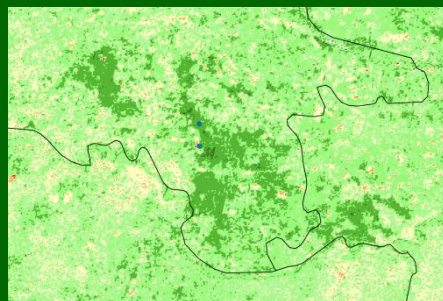
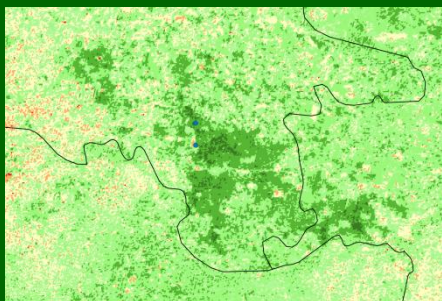
26th June – 11th July

12th July – 27th July

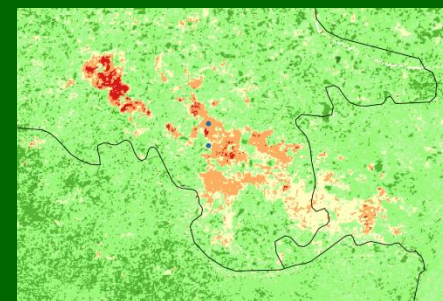
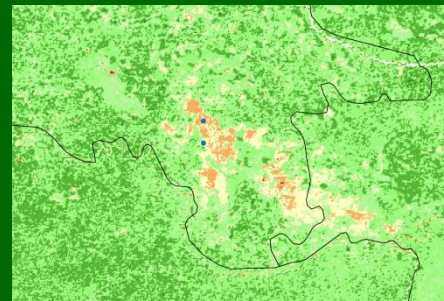
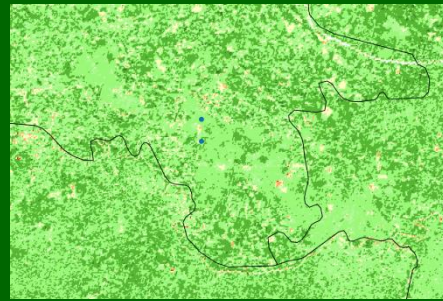
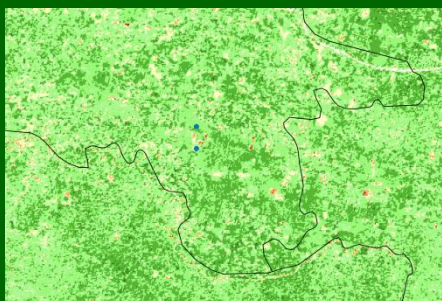
28th July – 12th Aug

13th Aug – 28th Aug

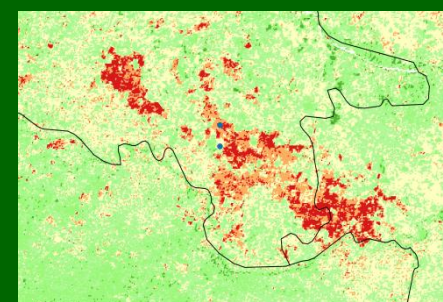
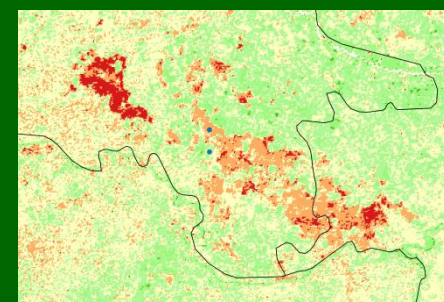
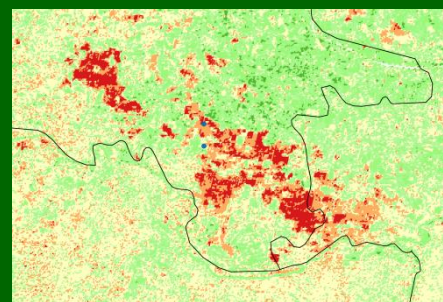
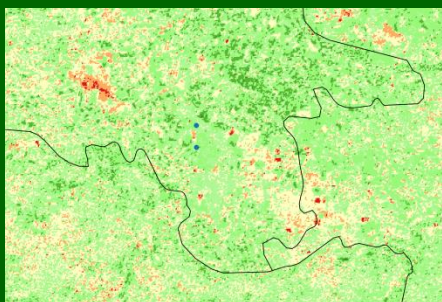
2015



2016



2017







Erős fertőzés 120 éves, felújítás alatt álló kocsányos tölgyesben

(Szlavónia , 2017. augusztus)



Kéreg alatt telelő tölgycsipkésposzokák



***Hymenoscyphus pseudoalbidus* + kőrisszúk**

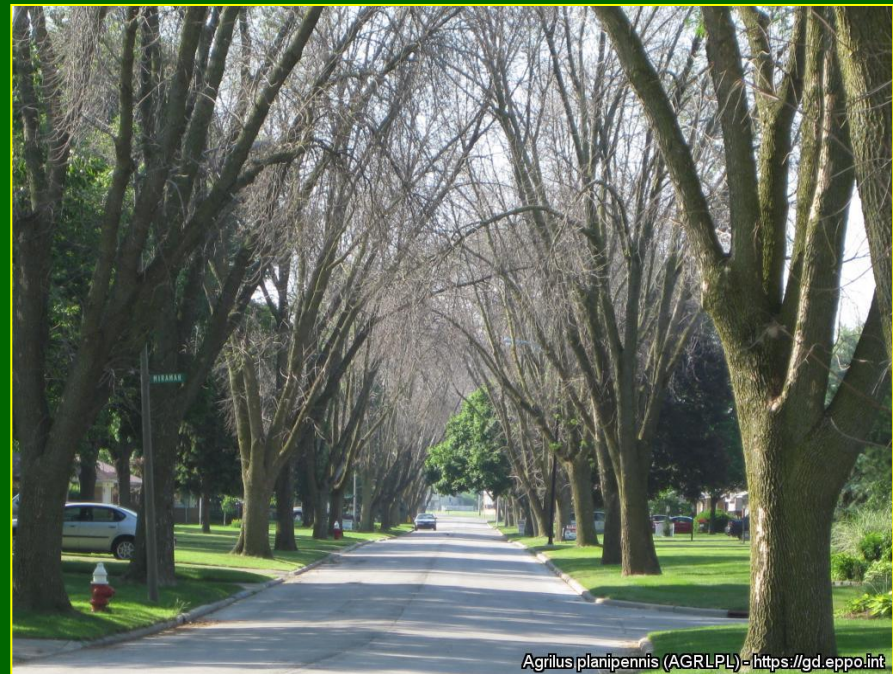


Kőrís karcsúdíszbogár
(*Agrilus planipennis*)



Agrilus planipennis (AGRLPL) - <https://gd.eppo.int>

2006 június 6



Agrilus planipennis (AGRLPL) - <https://gd.eppo.int>

2009 június 15

Kőrís karcsúdíszbogár (*Agrilus planipennis*) kártétele egy kőrís fasoron

Képek: Dan Herms (Ohio State University)

Nincs mindenható varázspirula!

Sok „okos” gyógymódot kell találni!

**Az erdőművelésnek az erdők ellenálló- és
visszaszerző képességének szempontjait
maximálisan figyelembe kell vennie.**

**A természetes ökoszisztéma funkciók és
folyamatok visszaállítása/megerősítése
egyre jelentősebbé válik.**



Effects of topography and tree stand characteristics on susceptibility of forests to natural disturbances (ice and wind) in the Börzsöny Mountains (Hungary)

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³Királyréti Forest Directorate, Ipoly Erdés Inc., Királyréti 6, H-2624 Sóslylak, Hungary

⁴Corresponding author. E-mail: stando@lindens.elte.hu

Keywords: Beech, C&RT, *Fagus sylvatica*, ice break, *Quercus petraea*, Sessile oak, Windthrow.

Abstract: We analysed the role of topography, tree stand characteristics and management on the susceptibility of forest stands to abiotic natural disturbances. In 1996, stands of Börzsöny Mts, Hungary were hit by a severe ice storm, then by strong winds three years later. Affected areas were mapped on aerial photos, and we built a GIS database containing variables describing topography and tree stand characteristics. The role of variables in predicting ice break and windfall was investigated by non-parametric statistical tests and by a series of CART (Classification and Regression Tree) analyses. Elevation, aspect and slope proved to have strong statistical relationships with the distribution of both ice break and windfall, with misclassification error (MER) of 18% and 15%, respectively, if studied without stand descriptors. Mixing ratio and age of beech were the most important stand descriptors to explain the distribution of ice break (MER=15%), whereas that of windfall was best described by the age and height of the two dominant tree species (MER=11%). The explanatory power could be increased if all variables (topographic + stand descriptors) were considered, though the increase in explanatory power was higher in the case of ice break (MER decreased from 15% to 11%) than for windfall (MER decreased from 11% to 10%). Since management related stand variables (beech mixture ratio, age, height, amount of recently felled stock, slenderness) and susceptibility to disturbance events seemed to be related, our results suggest that the sensitivity of tree stands could be decreased by increasing compositional and structural heterogeneity.

Abbreviations: C&RT – Classification and Regression Tree, MER – Misclassification Error Rate, GIS – Geographic Information System, DEM – Digital Elevation Model, RelAgeSln – Relative Age-specific Slenderness, fs – amount of felled stock, totcut – total cut, plancut – planned cut.

Introduction

In temperate broadleaved forests of Europe and North America, the most common form of natural disturbance is fine scale gap dynamics driven by the death of individual (or a few) canopy trees (Peterson 1996, Spelchtna et al. 2005). Less frequent natural disturbances that affect larger areas are responsible for shaping the natural coarse pattern of forests. In Europe, this group of natural disturbances includes windthrow and ice break which, depending on their size and intensity, may result in the destruction and renewal of individual forest stands or entire woodlands (Pickett and White 1985, Peterken 1996, Ulanova 2000, Spelchtna et al. 2005, Nagel and Diaci

2006). Unfortunately, there is limited quantitative information on the natural disturbance regimes of European forests, because unmanaged old-growth forests are scarce after a long history of intense forest use and exploitation (Glatzel 1999, Pervainan 2005). In Eastern Central Europe, where more remnants of natural forests survived, scientific traditions focused on describing forest stand structures and on distinguishing forest community types, hence much less emphasis has been put on studying processes (Standovár and Kenderes 2003).

Much more information is available on the natural disturbance regimes of North American forests (Van Dyke 1999, Bragg et al. 2003). Ice break and windthrow

PATTERNS AND CAUSES OF ICE BREAK IN A MANAGED FOREST LANDSCAPE (BÖRZSÖNY MTS., HUNGARY)

K. Kenderes¹, T. Standovár¹, J. Ruff³ and R. Aszalós²

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²Királyréti Forest Directorate, Ipoly Erdés Ltd., Hungary

³Institute of Ecology and Botany, Hungarian Academy of Sciences, Hungary

ABSTRACT

Tree stands of the Börzsöny Mts, Hungary, were hit by severe ice storm and very strong wind several times in the past decade. In this work we analyse the spatial behaviour and background causes of ice breaks. Affected areas were mapped by marking the homogeneous disturbance patches in the airborne photos that were taken after the disturbance event, and then we estimated the intensity of the damage in each patch by field observation. The role of variables describing topography, stand characteristics and management were investigated. Beside topographic variables mixture ratio of beech, stand age and average slenderness had prominent role in the generation of ice break. Our results show that in addition to the natural processes forestry operations also increased the susceptibility of the affected areas. These forest stands dominated by beech woods, are almost pure and even-aged. The resulting stand structure promotes the growth of sensitive slender trees.

Keywords: natural disturbance, silvicultural system, CART, beech, *Fagus sylvatica*

INTRODUCTION

Forest management has changed both the composition and structure of the original forests. The direct effects of the widely used form of age-class forestry, i.e. uniform shelterwood system with large felling units (Matthews 1929) include altered age and tree stand structure as well as the lack of certain forest developmental phases (e.g. old decaying phases) and of several structural elements (e.g. large snags, logs, rooptables). The importance of most associate tree species and characteristic patch size of stand types have also been changed. In addition to these direct effects, there are less obvious consequences. The potential change in susceptibility of trees to biotic and abiotic disturbances result in changed spatial patterns of affected areas as well as changes in the severity of disturbances. Several studies showed that the occurrence of severe disturbances in managed temperate forests can be related to the effects of forestry operations that changed the composition and structure of the tree stands (e.g. for wind disturbances Gardiner & Quine 2000, Gardiner et al. 2005). While studying the possible factors that contribute to the development of ice break several studies showed the effects of topographic position (Seischak et al. 1993, Warilow 1999, Mou & Warilow 2000, Rhoads et al. 2002, Millward & Kraft 2004), tree species (Lemon 1961, Melancon & Lechowicz 1997, Warilow 1999, Mou & Warilow 2000, Danay et al. 2001, Rhoads et al. 2002, Millward & Kraft 2004) and stand age (Rhoads et al. 2002). The effects of tending were also studied (Morris & Ostrowski 2005, Bragg et al. 2003). In this paper we study the effects of two events of ice break that hit the same managed forest area within 5 years (in January 1996 and 2001). We study the effects of topography, tree species composition and management related stand characteristics on the development of ice break.

Patterns and processes in forest landscapes. Consequences of human management
R. Lafortezza and G. Sinevi (eds.) © 2006 Accademia Italiana di Scienze Forestali



A 2014. DECEMBERI JÉGKÁR OKAI ÉS KÖVETKEZMÉNYEI A PILISI PARKERDŐ ZRT. ÁLTAL KEZELT ERDŐÁLLOMÁNYOKRA

Csapányi Péter, Magassy Erik, Kontor Csilla, Szabó Csilla, Szentpéteri Sándor, Németh Rita, Némethy Zoltán, Müller Szabolcs, Szabó Miklós, Kovács András, Szentei Gábor, Limp Gábor, Ocsovai Zoltán, Brandhuber Ádám, Farkas Viktor és Petrik János

Pilis Parkerdő Zrt.

Kivonat

Jelen tanulmány a 2014. december 1-3 között óraes és októda jégkár okait és hatásait vizsgálja a Pilisi Parkerdő Zrt. Visegrádi, Pilismaróti, Szentendrei és Pilisszentkereszti Erdészeti területein. A vizsgálat arra kereste a választ, hogy mely állományok károsodtak leginkább, és melyek azok a tényezők, amelyek a kár mértékét befolyásolhatták. Az elemzésekhöz a kár mértékéről készült erdőterület szintű becslési adatokat, valamint faegyed szintű saját mérési eredményeket használtunk fel. A vizsgálatok során kiderült, hogy jég, zúzmara, hó okozta károsítások esetén a veszélyesség, a vastag, idősebb fák jelenléte nagyobb mértékben járul hozzá az állományok jobb ellenálló képességéhez, mint az elegység. Az egykorú állományok vizsgálata alapján megállapítható, hogy a faegyedek méretei kapcsolatban állnak a kár mértékével.

Kulcsszavak: jégkár, kár mérték, állományszerkezet, elegyarány, korszerkezet, faegyed méretek.

REASONS AND CONSEQUENCES OF ICE DAMAGE OF THE FOREST STANDS AT THE PILIS PARK FORESTRY COMPANY

Abstract

This paper discusses the reasons and consequences of freezing rain of 1st - 3rd December 2014 on the territory of Szentendre, Visegrád, Pilismarót, Pilisszentkereszt Forests 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.

Keywords: ice damage, damage rate, stand structure, mixture proportion, age structure, tree dimensions.

Levegő és víz az erdőben
Csapányi Péter, H-2025 Visegrád, Mátyás király u. 4. e-mail: csapanyi.peter@pzrt.hu

Hazai közlemények az állományszerkezet és az abiotikus károk kockázatának összefüggéseiről



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journal homepage: www.elsevier.com/locate/foreco



Effects of forest heterogeneity on the efficiency of caterpillar control service provided by birds in temperate oak forests



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Pest control

Predation

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Forest structure

Forest management

ABSTRACT

Controlling herbivore in-
known about how local
and about how the pest
an experiment in tempe
dation rate of artificial o
the relationships among
by caterpillars and to
structurally heterogeneous
Especially the tree size h
related to the abundanc
birds were able to respon
of bird predation on cate
Structurally heterogeneous forests, however, suffered from less leaf damage than did homogeneous for-



Néhány részlet (a teljesség igénye nélkül):

Átgondoltabb termőhely/fafaj megválasztás

A fajon belüli sokféleség növelése

- Természetes felújítás vs. mesterséges felújítás
- Délebbi származások

Fajok közötti sokféleség növelése

- Elegyes állományok
- Elhanyagolt (esetleg üldözött) fa- és cserjefajok „rehabilitálása”

Szerkezeti változatosság növelése

- Finomabb léptékű mozaikosság
- Állományon belüli szerkezeti változatosság
- Holtfa/odvas fák visszahagyása

Alternatív erdőművelési módszerek

Vízvisszatartás ahol lehetséges

Proaktív (preventív) a reaktív (megszüntető) erdővédelem helyett



Vízvisszatartás Gyula környékén



Vízvisszatartó fenékküszöb Kaszón

**Még több tudásra, még több
kutatásra, több előrelátásra
és kevesebb sablonra van
szükség!**



**GLOBÁLIS
FELMELEGEDÉS**

Ebből ért majd Donald Trump is?

Köszönöm a figyelmet!



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