



Ökologische Station Fabrikschleichach



Wälder im Wandel - Chancen in der Störung?


Jörg Müller



Nationalpark
Bayerischer Wald

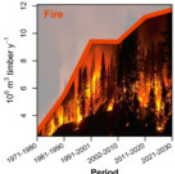


Störungstrends in unseren Wäldern



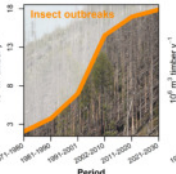
Nationalpark Bayerischer Wald
 Als Nationalpark ist der Bayerische Wald ein einzigartiges Naturerbe. Die Natur ist geschützt und darf nicht verändert werden. Die Natur ist geschützt und darf nicht verändert werden. Die Natur ist geschützt und darf nicht verändert werden.

Kaputtgeschützt



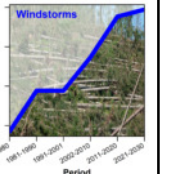
10⁶ m³ timber y⁻¹

Period



10⁶ m³ timber y⁻¹


Period



10⁶ m³ timber y⁻¹

Period

2018 und 2019 genau so vorhergesagt!



Seidl et al 2014 Nature Climate Change

Gesellschaftliche Diskussionen

The screenshot shows a Nature journal article from July 14, 2017, titled "European Commission urges logging ban in Bialowieza Forest". The article discusses the impact of Poland's logging policy on biodiversity. It includes a world map showing logging hotspots, a bar chart titled "Motivation for salvage logging" comparing Unprotected Areas (n=21) and Protected Areas (n=13) across categories like Timber, Pest control, Safety, Restoration, Fuel reduction, and Aesthetic. Another bar chart titled "Decision level (n=34)" shows the number of case studies at National, State/Province, Regional, and Area manager levels. Three photographs (A, B, C) show forest landscapes and people in a forest.

A) Motivation for salvage logging

Motivation	Unprotected Areas (n=21)	Protected Areas (n=13)
Timber	~18	~2
Pest control	~4	~1
Safety	~4	~1
Restoration	~4	~1
Fuel reduction	~4	~1
Aesthetic	~1	~1

B) Decision level (n=34)

Decision Level	Number of Case Studies
National	~10
State/Province	~2
Regional	~10
Area manager	~12

Müller et al 2018 Conserv Letters

Internationale Störungstagung 2013

The collage features three photographs from the 2013 International Disturbance Conference. The first photo shows Prof. Ken Raffa, Univ Madison, kneeling and working with a log. The second photo is a portrait of Prof. Monica Turner, Univ Madison, smiling. The third photo shows Prof. Rupert Seidl, TU München, holding a bird in a forest setting.

Prof. Ken Raffa, Univ Madison

Prof. Monica Turner, Univ Madison

Prof. Rupert Seidl, TU München

Auswirkungen von Eingriffen nach Störungen in temperaten Wäldern

ARTICLE
DOI: 10.1016/j.foreco.2019.06.028 OPEN

Patterns and drivers of recent disturbances across the temperate forest biome

Andreas Sommerfeld¹, Cornelius Senf^{1,2}, Brian Burns³, Anthony W. D'Amato⁴, Tiphaine Després^{5,6}, Ignacio Díaz-Hormazábal⁷, Shawn Fraver⁸, Lee E. Frelich⁹, Alvaro G. Gutiérrez⁷, Sarah J. Hart¹⁰, Brian J. Harvey¹¹, Hong S. He¹², Tomáš Hlásný¹³, Andrés Holz¹³, Thomas Kitzberger¹⁴, Dominik Kulakowski¹⁵, David Lindermayer¹⁶, Akira S. Mori¹⁷, Jörg Müller^{18,19}, Juan Partida¹⁴, George L. W. Perry²⁰, Scott L. Stephens²¹, Miroslav Svoboda², Monica G. Turner²², Thomas T. Veblen²³ & Rupert Seidl¹

a

- ✓ Mehr Störung ist global mit wärmeren und trockeneren Bedingungen korreliert
- ✓ Störungen in Schutzgebieten sind kleiner und komplexer als in genutzten Wäldern
- ✓ Unterschiede verschwinden in Intensivstörungssystemen

Produktionsverlust versus höhere Resistenz in der Zukunft

Theorie

Journal of Vegetation Science 29 (2018) 570–584
FORUM
Multiple successional pathways and precocity in forest development: can some forests be born complex?
Daniel C. Donato, John L. Campbell & Jerry F. Franklin

Beobachtung

Land-use Biol. (2018) 12(12), 1200–1210
RESEARCH ARTICLE
Post-disturbance recovery of forest cover and tree height differ with management in Central Europe
Cornelius Senf¹, Jörg Müller¹, Rupert Nold¹

Bekämpfungsmöglichkeiten Buchdrucker?

Journal of Applied Ecology
Journal of Applied Ecology 2015, doi: 10.1111/1365-2656.12540

Small beetle, large-scale drivers: how regional and landscape factors affect outbreaks of the European spruce bark beetle

Rupert Seidl¹*, Jörg Müller^{2,3}, Torsten Hothorn⁴, Claus Bässler², Marco Heurich² and Markus Kautz²

T. Hothorn

- Bei Windwurf immer zuerst die verstreuten Bäume aufarbeiten um die Vernetzung der lokalen Populationen zu durchbrechen
- Je schlechter die Vernetzung desto geringer die Befallswahrscheinlichkeit

Bekämpfungsmöglichkeiten Buchdrucker?

Journal of Applied Ecology
Journal of Applied Ecology 2015, doi: 10.1111/1365-2656.12540

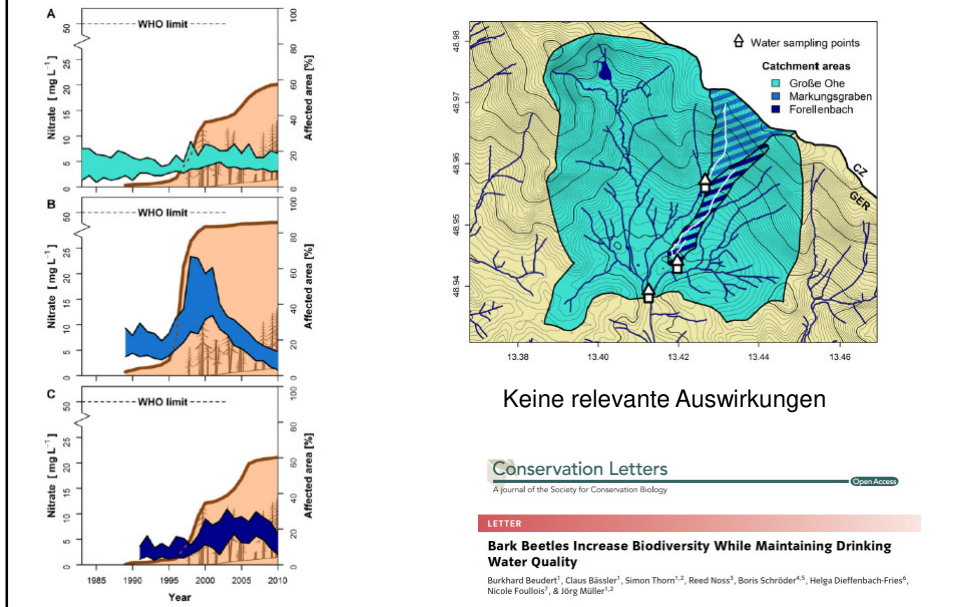
Small beetle, large-scale drivers: how regional and landscape factors affect outbreaks of the European spruce bark beetle

Rupert Seidl¹*, Jörg Müller^{2,3}, Torsten Hothorn⁴, Claus Bässler², Marco Heurich² and Markus Kautz²

T. Hothorn

- Unter normalen Witterungsbedingungen bestimmt der Populationsdruck der Region die Befallswahrscheinlichkeit (Saubere Waldwirtschaft hilft!)
- ABER: In Trockenjahren spielt das keine Rolle mehr!

Auswirkungen aufs Trinkwasser



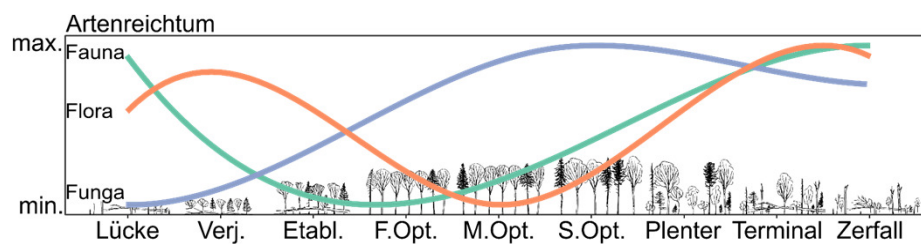
Frühe Sukzessionsstadien – vergessene Lebensräume

REVIEWS REVIEWS REVIEWS

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The forgotten stage of forest succession: early-successional ecosystems on forest sites

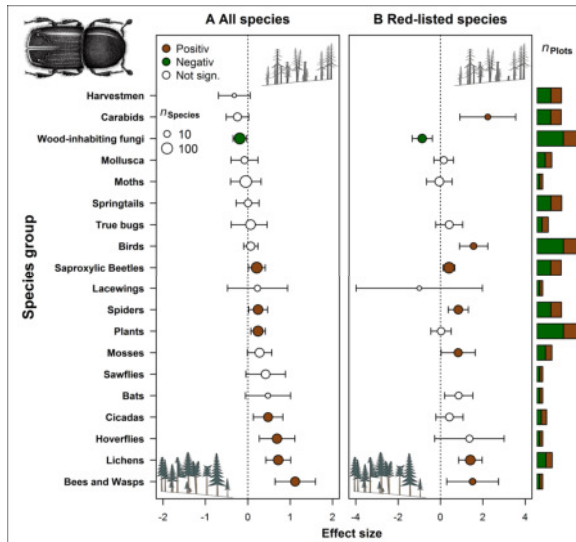
Mark E Swanson^{1*}, Jerry F Franklin², Robert L Beschta³, Charles M Crisafulli⁴, Dominick A DellaSala⁵, Richard L Hutto⁶, David B Lindenmayer⁷, and Frederick J Swanson⁸



„Katastrophenflächen“ sind sicherlich die aktuell artenreichsten Flächen in unseren ME Wäldern!

Hilmers et al (2018) J Appl Ecol

Vom Schädling zum Ökosystem-Ingenieur



Beudert et al 2015 Conservation Letters
Müller et al 2010 Biological Conservation

Aufräumen schadet vielen Arten

comment

Please do not disturb ecosystems further

David Lindenmayer, Simon Thorn and Sam Banks

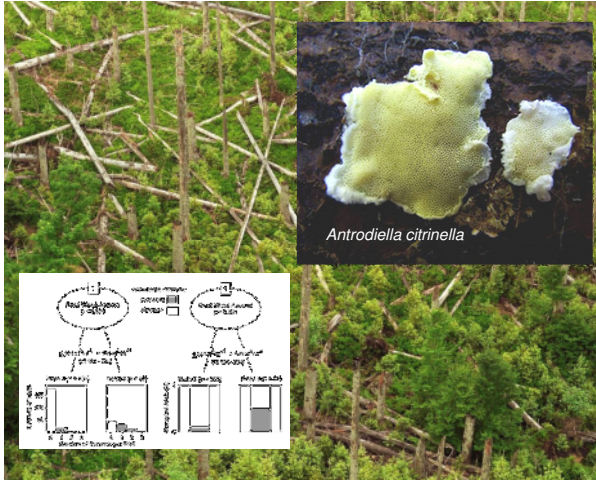
Clearing up after natural disturbances may not always be beneficial for the environment. We argue that a radical change is needed in the way ecosystems are managed; one that acknowledges the important role of disturbance dynamics.

Journal of Applied Ecology

Impacts of salvage logging on biodiversity: a meta-analysis

Simon Thorn¹ | Claus Bässler² | Roland Brandt³ | Philip J. Burton⁴ | Rebecca

Rückkehr hochbedrohter Arten



Peltis grossa † 1905
Rückkehr 2019

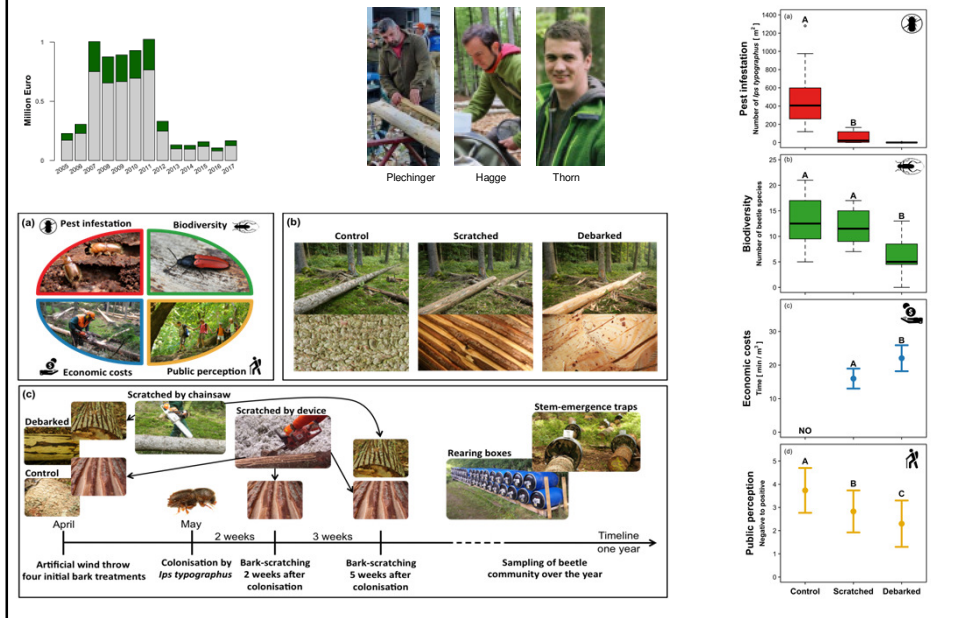
Bässler & Müller 2010 Fungal Biology

Neuer Wohnraum für Mopsfledermäuse

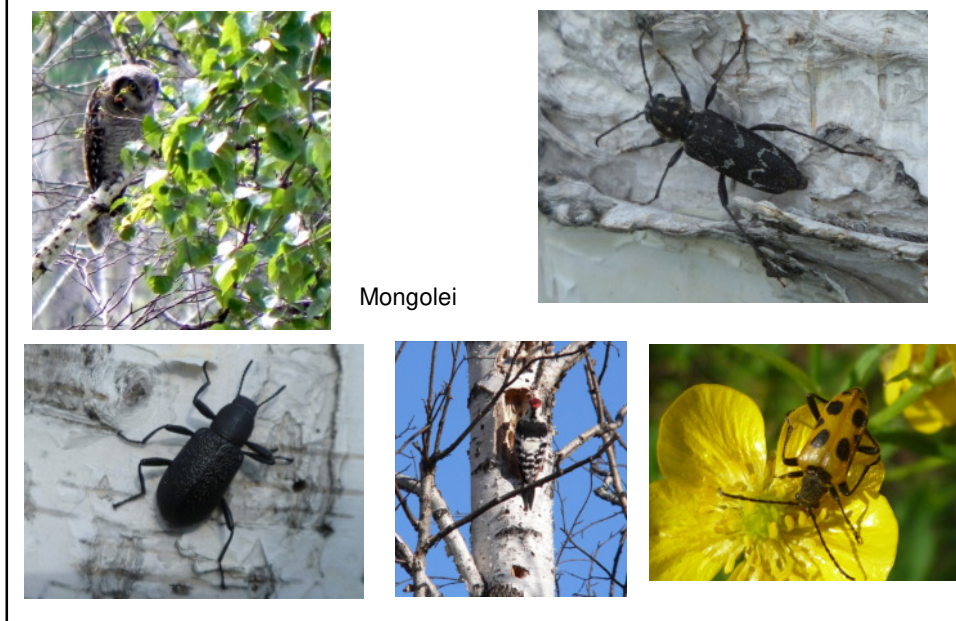


Kortmann et al 2017 Animal Conservation

Praxisempfehlungen 1: Liebe Schlitzten statt Schepsen – der Artenvielfalt zuliebe



Praxisempfehlungen 2: Sukzessionsflächen sollten als wertvolle und strukturreiche Lebensräume gefördert werden



Praxisempfehlungen 3: Verzögerte Waldverjüngung kann Vorteile in der Zukunft bringen



Praxisempfehlungen 4: Maßnahmen müssen sorgfältig ökologisch und ökonomisch abgewogen werden!



Preventing European forest diebacks

For centuries, forest management has tried to minimize the impact of natural disturbances in Central European forests by removing dead trees and by promoting continuous tree cover (1). The consecutive loss of forest gaps and deadwood structures has contributed to a decline in light-demanding tree species and a depletion of forest biodiversity, including the extinction of many specialized fungi and insects (1). Many of these forests have faced unprecedented diebacks due to drought, insect outbreaks, and wildfire triggered by extreme climatic events (2). In July, the German minister of agriculture called for a "clear-up followed by reforestation strategy" to address the troubled forests, supported by public subsidies on the order of hundreds of millions of euros (3). However, this policy



The rare longhorned beetle (shown here) thrives in deadwood, a result of bark beetle outbreaks.

increasing forest resilience to extreme weather events (6). By contrast, rapid reforestation creates dense, even-aged tree cohorts at high risk (7). Subsidies should promote diversity in tree species and age structure, as well as temporary forest gaps, while contemplating species' resistance to projected future climatic and disturbance conditions. This strategy would benefit economically important, light-demanding tree species and highly threatened insects simultaneously.

Past reforestation after natural disturbances was largely motivated by the need for future economic returns from timber, but it has contributed to forest diebacks (8). A radical shift is needed in the way disturbed forests are treated to adapt Central European forests to current and future conditions.

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Alexandro B. Leverkus^{3,4}**
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^{*}Corresponding author. Email: simon@thoronline.de

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3. "Massive Schäden—Wälder benötigen schnelle Hilfe," Bundesministerium für Ernährung und Landwirtschaft (2019). www.bmel.de/DE/Wald/Fischerei/Forst-Holzwirtschaft/Forst/Wald/Forstschaden/Klimawende.html.
4. S. Thorer et al., *J. Appl. Ecol.* **55**, 279 (2018).
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10.1126/science.aaz3476