


# PROZEL | Forecasting threats to forest ecosystems using an innovative system for the recognition of odours



Forecasting threats to forest ecosystems through the implementation of an innovative electronic system for the recognition of odors.

*Innovative R&D project developing odor-based system (electronic nose) based on sensors with high sensitivity and AI to monitor selected, particularly dangerous forest pests.*

The threat of forests by various harmful microorganisms is growing due to changing climate conditions and spreading of non-native pathogens and pests.. Simultaneously the relevance of biological methods of monitoring and preventing forest degradation is increasing in the face of the chemical's use restrictions. The main aim of the project is the development of an innovative device (electronic nose/ e-NOS), based on a matrix of broad-band electrochemical sensors and neural networks that would detect and analyse the odor-based signals e.g. pheromones of certain insect species. The examples of pathogens and pests addressed in the project include *Dendrolimus Pini* (L.) and *Phytophthora oomycetes*.

The developed system delivers comprehensive and complex information which allows to create a neural classifier (using artificial intelligence). The dedicated software was developed to perform the analysis of the data and create a database – library of signals, which will allow to detect the analytes sought in the field. For each application foreseen in the project (analysis of specific smells), dedicated sensory matrices were prepared.

## PODROBNOSTI

---

### IZVOR LESA

Gozd

### TIP LESA

--

### VRSTA OBRAVNAVANEGA LESA

--

### VPLIV NA OKOLJE IN BIODIVERZITETO

--

### VPLIV NA PRIHODKE

--

### POTENCIAL IZKORIŠČANJA

--

### VOZLIŠČE

Srednje-vzhodno vozlišče

### GOSPODARSKI VPLIV

--

### POTREBNO SPECIFIČNO ZNANJE

--

### POTENCIAL ZA MOBILIZACIJO

--

### TRAJNOST - VREDNOST

--

### ENOSTAVNOST IZVEDBE

--

### ENOSTAVNOST IZVEDBE - OCENJEVANJE

--

### KLJUČNI PREDPOGOJI

--

### VRSTA DOGODKA, NA KATEREM JE BIL PREDSTAVLJEN TA BPI

--

### VPLIV NA DELOVNA MESTA

--

### STROŠKI IZVEDBE (EURO - €)

--

## VEČ PODROBNOSTI

---

### IZZIV

1. Izboljšava odpornosti gozdov in prilagoditev na klimatske spremembe

### KLJUČNE BESEDE

pests

sensors

forest threats

### IZVORNA DRŽAVA

Polska

### DOMENA

Inventura, ocena, monitoring

Motnje, tveganja, odziv na naravne nesreče

### DIGITALNE REŠITVE

Da

### TIP REŠITVE

Senzorji, merilna oprema

### INOVACIJA

Da

### OBSEG UPORABE

Nacionalni

### ZAČETNO IN KONČNO LETO

2018 - 2021

## KONTAKTN PODATKI

---

### LASTNIK OZ. AVTOR

Warsaw University of Technology, Faculty of Physics

Warsaw University of Technology, Faculty of Physics

prozel@pw.edu.pl

<https://www.pw.edu.pl/>

### POROČEVALEC

Łukasiewicz Research Network - Wood Technology Institute (ITD)

Dobrochna Augustyniak-Wysocka

[dobrochna.augustyniak@itd.lukasiewicz.gov.pl](mailto:dobrochna.augustyniak@itd.lukasiewicz.gov.pl)

## REFERENCES AND RESOURCES

---

### SPLETNA STRAN

<http://prozel.fizyka.pw.edu.pl/>

### SPLETNA STRAN PROJEKTA

<http://prozel.fizyka.pw.edu.pl/>

### REFERENCA PROJEKTA

Forecasting threats to forest ecosystems through the implementation of an innovative electronic system for the recognition of odors, co-financed by National

### VIRI

--

Center for Research and Development (BIOSTRATEG III programme), 2018-2021,  
grant no. BIOSTRATEG3/347105/9/NCBR/2017



PROJEKT, V OKVIRU KATEREGA SO BILI ZBRANI OSNOVNI PODATKI

Rosewood 4.0

DATUM OBJAVE

12 Aug 2021



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862681

A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY

