



EKLIPSE

Knowledge & Learning Mechanism
on Biodiversity & Ecosystem Services

WEB CONFERENCE

The impacts of artificial Electromagnetic Radiation on wildlife

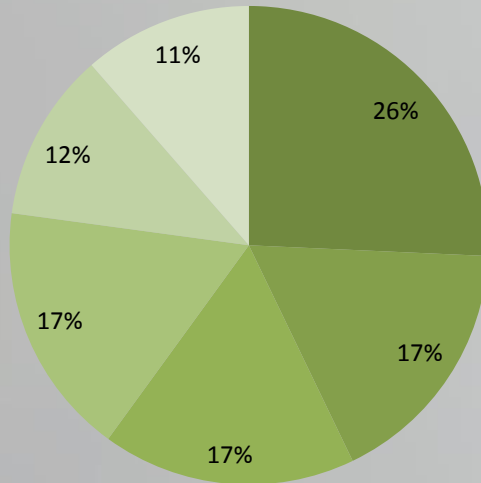
Transversal research needs & priorities

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Thursday, 25th of January 2018

www.eclipse-mechanism.eu

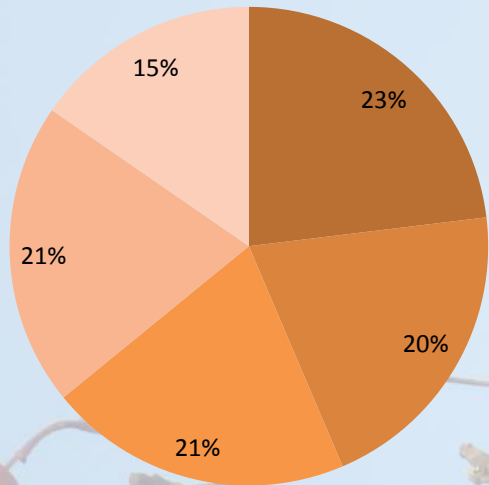


Plants



- **Need for standardization and standard methodology for future study designs.**
- **Need for more and better cooperation between field and lab studies.**
- **Need to collect more data and research on confounders/interfering factors.**
- **Need for research on the effects at different biological organisations (ecosystems, populations, species levels).**
- **Need to better understand the role of natural EMR as basis for plant growth.**
- **Need for research on the impacts of 5G technology and LED lamps.**

Vertebrates



- Need for replication studies of high quality papers.
- Need to better understand the patterns of real world exposure, including dosimetry
- Need an organizational coordination to develop standard data models and experimental methodologies, including standard reporting protocol for lay people, e.g. around powerful radars.
- Need for multidisciplinary teams, especially including GIS experts.
- Need for research of effects of EMR on different levels of organisation: at protein level, at genomic level, at assemblages level,...

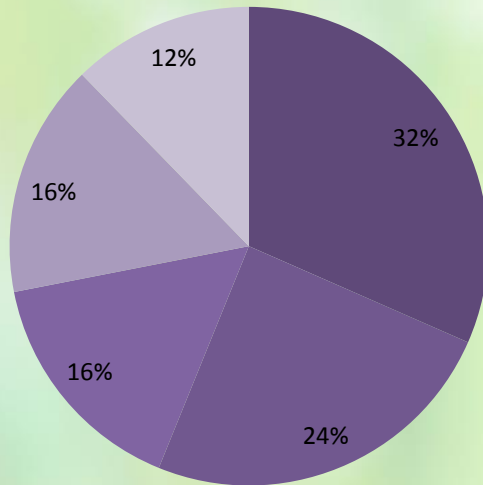


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RESEARCH NEEDS

Invertebrates



- Need for more funding to study EMR impacts on invertebrates.
- Need for agreed research methodologies/protocols so that studies can be easily compared.
- Need to do both - lab and field work - iteratively, they are complementary.
- Need to consider the observations of people who are not scientists, but who collectively observe changes. Anecdotal observations can drive experimental science.
- Need to better understand the risks to reproduction, behaviour and populations in the field.



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RESEARCH NEEDS

1. Standardization / methodologies / protocols to better design future studies & compare research results

- *Standardization of EMR types, exposure levels and measurements*
- *Common data models, experimental methodologies, protocols*
- *Specific methodologies for different taxonomic groups/organisms*
- *High-quality cross-replication studies to ascertain what are the consistent results*

2. More field studies, more ecological studies & better cooperation with lab studies



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RESEARCH NEEDS

3. Research on the impacts of new technologies

- *5G technology, LED lamps, pulsed radiation, cell towers, smart meters, ...*

4. Research on the impacts at different biological organisations/levels

- *On whole ecosystems, at populations levels, ...*
- *At protein level, genomic level, on assemblages, ...*



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RESEARCH NEEDS

5. Collect data on confounding/interfering factors & on how different frequencies interact

6. More and better cooperation / collaborations, especially interdisciplinary teams

- *Cooperation between different countries, teams, etc.*
- *Including GIS experts in studies*

7. Include observations and knowledge from local people & consider citizen science approaches



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RESEARCH NEEDS

CRITERIA FOR POLLING

- 1. **General importance / urgency** ○ ○ ○ ○ ○
- 2. **Feasibility / ease to implement (also financially)** ○ ○ ○ ○ ○
- 3. **Contribution to knowledge & evidence-based decision-making** ○ ○ ○ ○ ○



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