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Matter into context: population- and community-level impacts of nanomaterials in freshwater ecosystems

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Propositions accompanying the dissertation:

Matter into context

Population- and community-level impacts of nanomaterials in freshwater ecosystems

By Tom A. P. Nederstigt

1. Reliably assessing environmental risks associated with nanomaterials requires long-term effect data. (**This Thesis**, Chapters 2 and 3).
2. Community-level effect assessments provide sensitive and relevant estimates of environmental impacts of nanomaterials. (**This Thesis**, Chapters 4 and 5).
3. Diversity and (dis)similarity metrics can provide valuable insights into community-level impacts of stressors, but only when they are selected, analyzed, and partitioned appropriately. (**This Thesis**, Chapters 4 and 5).
4. There is currently little mechanistic ground on which to assume that functionalities that are commonly proposed to enhance the efficiency and efficacy of nano-enabled pesticides toward target organisms, do not equally do so toward non-target organisms. (**This Thesis**, Chapter 6).
5. Insights obtained from mesocosm-based studies can be equally *environmentally irrelevant* as those obtained from standardized laboratory-based tests.
6. Regulatory risk assessment disproportionately favors testing strategies optimized for accuracy, repeatability, and reproducibility, over relevance.
7. Predictive models trained on data derived from conventional (i.e. whole-organism) ecotoxicological tests can accelerate, but not refine environmental risk assessment.

8. Understanding how subtle effects of toxicant stress may exacerbate and propagate within ecological context will be crucial to the assessment of environmental risks of novel chemicals, substances, and materials over the coming years.
9. Jevon's paradox has fundamental and often overlooked implications for the concept of *Safe(r) and (more) Sustainable by Design*.
10. We do our worst when we are surrounded by a lot of people who agree with us. (Adapted from Sapolsky, 2017; Behave).

Tom Nederstigt

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