

WHO IS ALAN?

ALAN is not a person, but stands for Artificial Light At Night. Artificial light comes from streetlights, buildings, vehicles and festivals. Vlieland is characterized by its dark natural landscapes. But there is still a lot of light pollution caused by humans, for example during 'Into the Great Wide Open'. Darkness is essential for many species, that's why this is the perfect place and moment to investigate the affects of artificial light for wildlife on Vlieland.

DARK WHERE POSSIBLE

BRIGHT WHERE
NEEDED

A research report about artificial light at night and its influence on the biodiversity on Vlieland

WHAT DID WE DO?

We investigated six different habittatypes across Vlieland during two fieldweeks. With the goal to identify areas where artificial light may disturb biodiversity. During these periods, six locations with lampposts were selected to represent habitat types. The focus of the biodiversity surveys was on three light-sensitive animal species: bats, moths and birds.



HABITAT TYPES

- Dune forest
- Open dune
- Species-rich grassland
- Dune-salt marsh landscape
- Buildings
- Water

HOW DID WE DO IT?

First we started with measuring the light intensity of the streetlights. We did this with a lux meter. Lux is the amount of light that falls on a given surface. For surveying bats and birds we used audio recording devices that can record high frequencies.



WHY DOES DARKNESS MATTER?

ALAN has a couple of different consequences for bats, moths and birds:

- BATS CAN;**
- Change migration routes to longer routes
 - Lose feeding opportunities
 - Leave their homes too late or not at all¹
- MOTHS CAN;**

- Become trapped around lights
- Lose energy
- Face higher predation risk²

BIRDS CAN;

- Become disoriented during migration
- cause in death because of exhaustion or flying against objects
- Experience disrupted day-night rhythms¹



For the monitoring of moths we used LED-buckets. These are buckets with a hole and an LED lamp in the lid. Moths are attracted to the lamp and fly inside the bucket. The next morning we can identify the moths in the bucket and free them afterwards.

Using the right materials is a key essential!



HELP KEEP VLIELAND (AND YOUR OWN SURROUNDINGS) DARK!

- Use light only when necessary
- Aim light downward
- Choose warm, dim lighting
- Use a timer switch or motion sensor in your own backyard
- Enjoy the natural darkness and spread the word!



WHAT DID WE FIND?

The results show a clear difference between habitat types in light intensity, with the building and water habitats displaying the highest light intensity. Species diversity varied across habitat types, with bird diversity being highest in dune forests, bat diversity in dune-salt marsh landscapes, and moth diversity in species-rich grasslands.

The final analysis identified the habitats open dune, buildings and water as most vulnerable. Only the dune forest habitats were evaluated as not being vulnerable to the presence of artificial light at night in the landscape (see map on the right).

These findings indicate that artificial light may cause varying levels of risk across habitat types on Vlieland.

- Highly vulnerable
- Vulnerable
- Least vulnerable



Anouk Aalders
Anabel Bootsman
Amarin Saathof
Maud Musters



DARKER SKY

Interreg
North Sea



Co-funded by
the European Union

gemeente Vlieland



van hall
larenstein
university of applied sciences

Bibliography

1. Van Heusden, W. (2017). Mooi werk mooi wad: Meer licht op duisternis. In Programma Naar een Rijke Waddenzee. Geraadpleegd op 8 juni 2026, van <https://rijkwaddenzee.nl/wp-content/uploads/2017/05/Rapport-Factsheets-Dark-Sky-2017.pdf>
2. Boyes, D. (2024, 31 januari). Why is light pollution bad for moths? Butterfly Conservation. <https://butterfly-conservation.org/news-and-blog/why-is-light-pollution-bad-for-moths>



Co-funded by the European Union

The Light Challenge is part of:



DARKER SKY

Interreg
North Sea



Co-funded by
the European Union

Carried out by:



Partners:



gemeente *Vlieland*

