
Biodiversity on industrial structures

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Abstract

The establishment of industrial sites is known to induce biodiversity loss through habitat destruction, fragmentation and pollution. However, because these sites harbor specific architectural structures and green spaces, they can be used by some species to nest, forage and reproduce. More specifically, the way in which they are designed, and how their green spaces are managed, may have an impact on the biodiversity they can host.

The purpose of our study was to understand the influence of the design and management of industrial gas well platforms, on species richness and abundance of Flora, Lepidoptera and Avifauna, in order to give the best advice for biodiversity preservation.

We chose to survey plants, butterflies and birds because they constitute the largest part of the species present in the platforms and are representative of different trophic levels. We particularly would like to know if the same practices could be beneficial for all these taxa.

During spring and summer 2017, we monitored 51 gas well platforms with various designs and management practices in three French sites. Among them, 22 were only covered by gravel. The 29 others were also designed with grassy strips. Hedgerows surrounded the platforms. They were managed with or without herbicides on the gravel surface and with different cutting methods on the grassy strips (i.e. mowing and rotary cutting).

Obviously, the diversity of plants depended on the surface of the grassy strips and the non utilization of herbicides. Results also showed that the presence of grassy strips and mowing instead of rotary cutting increased significantly butterfly diversity. Concerning birds, only the length of the hedgerows had a significant positive effect.

This work will allow to give indications to managers on how to favor biodiversity in their sites.

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