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Wind power – an opportunity for biodiversity in intensively farmed landscapes

Small cultivation refuges often arise near wind turbines on arable land. They may be made up of access roads and parking lots, or simply of small patches of land that are no longer used for anything in particular. These areas, which may be scattered over an area with a radius of several hundred meters from the wind turbine, can easily be turned into habitats for plants and animals in the agricultural landscape.

Creating new habitats and preserving old ones

A negative side effect of the technological advances of agriculture is that many plant and animal species linked to the old agricultural landscape have been crowded out. Habitats such as avenues, non-arable outcrops, ponds, small roads and buffer zones between plots were all a natural part of the old production system, but to a large extent they have been removed in

the process of rationalisation. When new pieces of infrastructure are added, like wind turbines, one needs to treat old habitats with care, but even more important is to realise the opportunity for creating new habitats. Even modern production systems can offer habitats for wild biodiversity.

Structures for improved biodiversity

In order to improve biodiversity of the plain districts, greater variation of ecological structures is vital. In fact, most structures that interrupt the wide grain fields may promote biodiversity. Structures like large trees, flowering bushes, sun-baked sand, deadwood and temporary bodies of water together form habitats for a large number of organisms by offering shelter, food, and places to live and winter. Sand, for instance, is good at storing heat and can thus be a nice home for wild bees, and it also contributes to creating dry, low-nutrient conditions suitable for plants rich in pollen and nectar like maiden pink, kidney vetch, and creeping thyme. A structure may be important during a particular stage of an organism's life cycle. A butterfly larva is dependent on its host plant, but a developed butterfly is more dependent on good availability of nectar and therefore needs a great variety of flowers.

Bringing structures together to form a creotope

By creating new structures, and by emphasising and combining several structures, it is possible to make new habitats, creotopes. If you want to

Photo: Ecocom



Flowers for butterflies and birds

A strip of land along the access road to a wind turbine can develop into a flowering meadow pleasing both to the eye and to pollinating insects. Other spare areas can be sown to sunflowers or other plants in order to benefit birds that eat seeds, berries or insects. You can also plant trees and bushes at the edge of the "bird field", thus creating a partially closed environment that offers the birds not only food but also nesting places and shelter. In the winter, seeds and berries provide important food sources for non-migratory birds.

give a helping hand to the biodiversity of the plain districts when establishing wind turbines, you may want to think about how you can use excess material from the construction and how to use existing structures as much as possible. By using whatever is available in the area one can often create new habitats with little effort.

Species of the creotope

A good starting point when considering which species to use in a creotope is to look at the

Photo: Magnus Stenmark



Sun-baked sand and deadwood benefit bees and beetles

In order to benefit insects you can build up a heap of sand and leave deadwood lying. Please remember to place the sand facing south and sheltered from the wind, in order to create a warm, dry microclimate. You can create a windbreak by planting bushes closely together on the northern side, preferably flowering species like willow or roses in order to benefit pollinating insects. The sand heap benefits i.a. wild bees and digger wasps. It also provides a pleasant backdrop for the wind turbine, and locally it can help reinforce pollination and pest control in agriculture. Deadwood is a vital substrate for, for instance, many beetle species.

For more tips on how to establish a creotope, please download our handbook from www.jordbruksverket.se. This handbook is only available in Swedish and bears the title *Vindkraft i slättlandskapet – så gynnar anläggning av naturmiljöer den biologiska mångfalden*.

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trees, bushes and meadow flowers of the surrounding landscape. Naturally occurring species arguably thrive in the soil and in the wind and light conditions of the site. It is a good idea to choose trees and bushes with lots of flowers and berries, and also to use several different species in order to provide a varied supply of food that will sustain birds and insects for a large part of the season. Remember that most habitats that are created in the agricultural landscape require management in order for their values to endure. You should also think about the time aspect when combining structures and choosing plant species – how long do you expect the creotope to last, and for how long will it be maintained in good condition? One issue to solve early on in the process, preferably before the creotope is established, is the matter of who is to be responsible for managing the area.

Ready-made creotope concepts

By using ready-made creotope concepts there is no need to reinvent the wheel every time a creotope is established. Communications between neighbours, landowners, authorities, and wind turbine enterprises will flow more smoothly if all involved have a common idea of what might be accomplished right from the start. One occasion when creotope suggestions could be discussed is on the consultations that always are held during the process of granting a licence for establishing new wind turbines. During those consultations it is of course important to pay attention to “local” points of view. They may concern the establishment of a small body of water in order to benefit field game, or placing extra emphasis on aesthetics. Another factor that may influence the choice of creotope is landowners’ views on avenues, wetlands and other structures that are comprised by rules on biotope protection. Sometimes one has to step back from what would be ecologically ideal. A creotope that is established less-than-perfectly from an ecological point of view is still better than a creotope that does not get established at all.

