Wind Farms
(and other large scale restoration projects)

EcoSeeds has been collaborating in large scale habitat restoration since 2003 and draws on 25 years' experience of biodiversity enhancement.

1. Site survey and pre-planning

Construction work for wind farm sites can lead to the removal of significant areas of vegetation creating large tracts of bare, exposed soil. The ideal time to assess existing vegetation and to generate an appropriate restoration plan is before construction commences. A tailored habitat restoration plan is an intrinsic component of a successful construction project.

In upland areas where wind farms are typically sited it can take as long as ten to fifteen years for disturbed areas to regenerate. This can be for several reasons including harsh climate and difficult soil conditions. The negative consequences of such slow regeneration aren't limited to reduced biodiversity, they include:

- Increased run-off over exposed soil (with no vegetative cover to slow water flow);
- Loss of soil-stored carbon;
- Loss of visual amenity.

Restoring native vegetation on these areas:

- Helps the site to blend in visually with the surrounding field patterns;
- Reduces risk of subsequent drainage and erosion problems;
- Re-establishes native flora that support local biodiversity;
- Reduces carbon loss from exposed soils.

The role vegetation plays in stabilising soils and regulating water flow cannot be underestimated. Therefore the earlier in the restoration process that the area is covered with appropriate vegetation the quicker it can be stabilised.

2. Seed collection and processing

Many species occurring on wind farm sites in exposed areas are not available commercially. We collect seed by brush harvesting – the same method we use for collecting meadow seed – using a gently rotating brush that leaves the donor plant intact. The brush harvester is typically towed by a small quad or alpine tractor, causing minimal disturbance to the existing habitat.

Brush harvesting seed from a donor site is comparatively quick and cost effective. Further information on the brush harvester is available here.

Wind Farms
(and other large scale restoration projects)

After the seed has been harvested it must be dried. This is critical to reduce seed moisture level, especially when harvesting in late autumn and early winter. We start drying immediately after harvest using a special portable drier. Additional ambient and heated air drying is carried out at EcoSeeds' nursery and seed storage facility. Further seed cleaning and processing includes the use of air streams, screens, and gravity separation.

In large scale restoration projects we typically blend locally occurring grass species along with local brush harvested seed. The grass species kick-start the regeneration process and act as a "nurse" crop for the other species – assisting germination and seedling establishment.

The use of nurse grasses serves several purposes including:

- Grasses germinate more rapidly providing a medium term micro-climate for the germinating target species;
- Once established, grasses help protect the target species from environmental extremes of hot and cold, and reduce the effect of wind exposure and water run-off;
- The established grass root structure helps stabilise the topsoil – retaining nutrients and regulating drainage;
- Grasses reduce the opportunity for weed species to colonise bare soils.

3. Hydroseeding

On wind farm sites there can be sometimes many miles of newly created roadway linking turbines. Seeding of verges and embankments etc is carried out based on the restoration plan when areas become available. Seed is sown via hydroseeding.

Hydroseeding is a unique method that entails spraying a seed containing biodegradable mulch onto the soil surface creating a matrix that holds the seed in place during germination. This mulch provides an ideal environment for germinating seed by retaining moisture and preventing seed loss due to run-off or wind exposure.

Hydroseeding:

- Provides an ideal micro-climate for seed germination;
- Helps mitigate against the difficulties of inhospitable soil conditions;
- Is particularly effective on slopes and embankments;
- Enables fast and efficient sowing, particularly on areas where conventional methods would be impossible;
- Provides a much longer window of opportunity for sowing, thus facilitating other on-site works.

Further information on hydroseeding is available here.

Wind Farms
(and other large scale restoration projects)

4. On-going monitoring and assessment

In our experience, the first year of establishment of a restoration project is the most critical phase of its development. At key stages during the first year we recommend monitoring visits be conducted by an EcoSeeds consultant:

- An initial visit to ensure that the area is ready for sowing and is accurately measured, including the area of sloping or otherwise inaccessible land;
- Several weeks after sowing, an establishment visit to assess the germination of nurse grass species and the presence of unwanted species;
- Throughout the growing period at least one further monitoring visit is usually carried out to determine target species growth, weed burden, and any consequential remedial management required.

Remedial action is sometimes required. For example, where there is on-going construction activity which could cause damage to previously sown areas. We typically hold some harvested seed in reserve to enable any damaged areas to be repaired or over-sown.

Good communication between all parties is essential during the construction process. This allows the restoration process to dove tail with construction.

EcoSeeds Ltd.
Inverbrena Hall
Stella Maris Street
Strangford
Co. Down
BT30 7NJ

Tel: +44 28 4488 1227

Email: info@EcoSeeds.co.uk