Creating heathland by adding sulphur, and heather *Calluna* and bell heather *Erica* cuttings, at Minsmere RSPB Reserve, Suffolk, England

Ausden M. & Kemp M.
Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire SG19 2DL, UK

SUMMARY

Elemental sulphur and clippings of heather *Calluna vulgaris* and bell heather *Erica cinerea* were added to an area of former arable land with the objective of creating heathland. Nine years later these two species had both become well established.

BACKGROUND

Lowland heathland, confined mostly to Western Europe, is characterised by plants such as heather *Calluna vulgaris*, bell heather *Erica cinerea*, cross-leaved heath *Erica teralix* and gorse *Ulex* spp. Heathland is a priority for nature conservation because it is a rare and threatened habitat. In England only one sixth of the heathland present in 1800 now remains, much having been lost to agriculture, urbanisation and infrastructure. The UK has 58,000 ha of lowland heathland of which about half is found in southern England. The UK as a whole has an important proportion (about one fifth) of the international total of this habitat. To redress the loss of heathland, attempts are being made at some localities to revert cultivated land back to heath. This case study describes the creation of an area of heathland on former arable land at Minsmere Royal Society for the Protection of Birds (RSPB) Reserve, eastern England.

ACTION

Study site: This habitat creation took place on 8 ha of former arable land on the Typical Brown Sands soil of the Suffolk Sandlings at Minsmere RSPB Reserve (National Grid ref: TM 454686) on the Suffolk coast. The field had been arable for at least the previous 150 years.

Arable cropping prior to sulphur addition: Prior to the current trial arable cropping had been undertaken on the field every year between 1990 and 1996 inclusive with the aim of reducing soil fertility, particularly levels of extractable phosphorous (P) and exchangeable calcium (Ca) on the northern reversion block between 1990 and 1996. This period of cropping had no significant effect on soil pH or on extractable C and P levels (Marrs *et al.* 1998). Soil properties in the field prior to the start of the current trial were as follows (values are means + one standard error):

Loss on ignition (% of dry weight) 2.6 + 0.3; pH 7.1 + 0.3; Olsen extractable phosphorous (μg P/g) 2.0 + <0.1

Field treatment: The field was ploughed to 15 cm in April 1996, and vegetation topped prior to addition of elemental sulphur (broad cast through a lime spreader) which was then power harrowed and rolled in. In October 1996, 0.65 tonnes/ha sulphur was applied to the area. In September 1999, the field was sprayed with glyphosphate (a broadscale herbicide) and MCPA (a selective weedkiller for the control of annual and perennial broadleaved weeds in cereals and grassland) to reduce ruderal weed cover. In November 2000 a further 3 t/ha of sulphur was applied to top-up the previous application, again broadcast through a lime spreader. Heather *Calluna vulgaris* and bell heather *Erica cinerea* litter and clippings (with seed heads) were spread on sulphured areas by muck spreader in April 2002 and March 2003.

CONSEQUENCES

By 2004 (9 years after the commencement of the field treatment), heather *Calluna vulgaris* and bell heather *Erica cinerea* had established well on the area of the field that had been treated with sulphur and had heather cuttings added. Overall this treatment was therefore deemed successful.

REFERENCES

Marrs R.H., Snow C.S.R., Owen K.M. & Evans C.E. (1998) Heathland and acid grassland creation on arable soils at Minsmere: identification of potential problems and a test of cropping to impoverish soils. *Biological Conservation*, 85, 69-82.