Mowing trial to investigate increasing flower richness and associated numbers of pollinators on two grass fenland flood banks

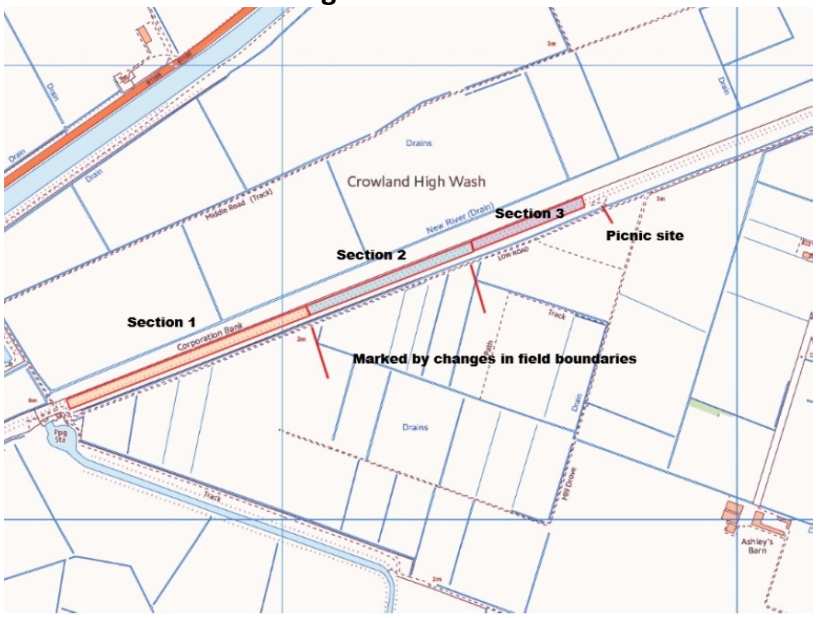
Pollinator projects in Lincs & Northants area

Project objective: To investigate improving the flower richness and associated numbers of pollinators on two fenland grass flood banks within 10 years (starting in winter 2016) by varying numbers of grass cuts per year and by removal of mowings.

Background: The two sites were chosen (Corporation Bank, south-west of Crowland OS grid reference TF21520923 to TF23521004 and Coronation Channel, eastern edge of Spalding OS grid reference TF26122284 to TF26232379). Both sites are owned by the Environment Agency and have relatively easy access. The project aims to test a number of generally accepted conservation management principles including that regular mowing and removal of mowings 1. suppresses coarse grasses and tall herbs 2. favours growth of lower growing herbs and finer-leaved grasses. Also, that longer intervals between mowings encourages greater flowering of herbs. The effects of all these management practises on numbers and species of pollinator are to be monitored. At the start of the project Corporation Bank grassland was relatively species-poor dominated by False-oat, Cow Parsley and Nettles while Coronation Channel grassland was richer with locally frequent patches of Red Clover, Cat's-ear, Bird's-foot Trefoil and finer leaved grasses such as Red Fescue. Each site has been divided into 3 management sections receiving the following experimental management regimes to investigate the effects on the plants and insects:

Section 1:	3 cuts (May, July and September), leave cuttings
Section 2:	2 cuts (May, July), leave cuttings
Section 3:	2 cuts (May, July), cuttings removed

Site locations and management sections:



Corporation Bank (Crowland)

Coronation Channel (Spalding)

Survey methodology:

Plants: The grassland of each management section is monitored using random quadrats in June and August each year. These visits are timed after the planned May and July grass cuts to allow reasonable regrowth and for herbs to re-flower. Coverage of all plants is recorded along with bare soil and mulch from grass mowing. In addition, sward height is recorded along with species from outside quadrats. Careful notes are also made as to which herb species are flowering.

Insects: The insects occurring within each management section were recorded at a similar time to the plant surveys. Up to maximum of 3 timed 30 minute counts are made along a 100m length of bank within each management section. Counts are made during the periods of maximum insect activity, between 10.00-16.00hrs. Monitoring involves the identification and counting of all Bumblebees, Butterflies and day-flying moths to species in the field. Solitary bees are counted at family level and samples taken for later identification to species level. Counts are also made of hoverflies and other flower-visiting insects at species, genus or family level.

Top of Corporation Bank section 2 (Sept. 2018)

Raked mowings removed from Corporation Bank section 3 (Aug 2018 following 2nd "July" grass cut)

Herb-rich section of Coronation Channel with Red Clover (Sept. 2018)

Red-tailed bumblebee on Bird's-foot Trefoil (Coronation Channel, June 2018)

Project outcome: In the first 3 years the project has had some positive outcomes for pollinators including:

- The insects, including those which pollinate, showed a trend with the richest fauna associated with a two cut and remove cuttings regime. This was mirrored in the pollinator fauna. This trend relates to a greater number of herbs being able to flower despite there being no measurable increase in the frequency of herbs. The greater number of flowering herbs is likely associated with a reduction in mulch due to the annual removal of mowings.

- There is no difference in the flora between the three management regimes at both sites after three years and Coronation Channel continues to be have a notably richer flora than Corporation Bank.

- A greater number of pollinators (both total number and number of species) continue to be associated with Coronation Channel and it is reasonable to assume the that this richer fauna of Coronation Channel is directly related to the richer flora and number of target herbs flowering on this flood bank.