

## Farmland Ecology Unit (FEU) Student placement 2012/2013

### Background

The Game & Wildlife Conservation Trust is an independent wildlife conservation charity. Its 60 scientists carry out research into game, associated species and habitats, from its HQ at Fordingbridge, Hampshire and at out-stations throughout the country. The Trust's main areas of interest encompass farmland, moorland, woodland and river management for game and other wildlife.

### The Placement

The Farmland Ecology Unit investigates the ecology and management of wildlife within farmed areas, with an emphasis on entomology. Insects perform many functions on farmland but two of the most important are: 1) their value as food items for farmland birds, many species of which have undergone severe declines in recent decades; 2) their contribution to biological control of crop pests. Our research focuses on these two subjects using either core funds or those received from external grants. The Trust always aims to ensure that the research findings are used practically and many of the options within the current agri-environment schemes are a consequence of our research eg. Beetle Banks and Conservation Headlands. This work continues today as the schemes require further revision.

Many specialist studies have also been conducted in recent years and include projects on integrated and organic farming, field margins, set-aside, sawfly ecology, pesticide application and ecotoxicology, insect spatial distributions, soil tillage, gamebird and songbird diets, predatory insects, bumblebee ecology, Integrated Pest Management, mixed farming, plant provenance/insect interactions and quarry restoration.

There are five permanent staff with a broad range of entomological, ornithological and botanical expertise. A number of students/temporary staff are also employed during the summer.

In 2013/2014 we have an undergraduate student placement available based at our HQ in Fordingbridge, Hampshire. The successful candidate will be part of the team and participate in a number of projects (see reverse). Training will be provided in project planning and management, entomological field studies, insect and plant identification, statistics and report writing. The successful candidate will be expected to start in either June or September 2012.

Free accommodation and a stipend of £89/week will be provided. Applicants would be expected to be physically fit and possess a driving licence.

### Contact:

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## **Research Projects**

Two annual monitoring programmes are undertaken each year that provide a barometer of insect abundance on farmland. Experimental studies are also conducted. In 2012 we have a programme of research to develop and improve habitats and their management for wildlife.

### **Developing sustainable, multi-purpose, farmland wildlife crops**

The aim of this project is to design and trial multi-purpose, sustainable wildlife crops (i.e. providing a combination of habitat, food and lower agrochemical inputs) using a combination of perennial field margins and biennial cropping within a four-course rotation. The trials were established in 2009 at three sites (Norfolk, Leicestershire and Wiltshire) and a further site was added in 2010 (Bedfordshire). The first component of this study involves developing new seed mixes that can be established along the hedgebase that will complement or replace the existing flora. Monitoring of plants and invertebrates take place during the spring and summer. In the second component we are examining the benefits of establishing a rotational cropping system for wildlife crops. These will provide a source of pollen and nectar, seed food in winter and insect food in summer and build fertility so that crops are self-sustaining. Usage by plants, insects and birds and seed production will be assessed.

### **Development of perennial brood rearing cover**

We have studies underway in which we are comparing different seed mixes and methods of establishing perennial margin habitats. These habitats aim to provide brood rearing cover for grey partridge chicks and a source of pollen and nectar for insects. Measurement of plants, insects and usage by birds are being undertaken.

### **Investigating varieties of non-food crops for their impact on biodiversity**

Plant breeders may select genotypes of non-food crops to deliver benefits such as nitrogen fixation or animal health, however the consequences for wild invertebrates are rarely considered. We are working with the National Institute of Agricultural Botany (NIAB) and the James Hutton Institute to look at the effects of selecting particular genotypes or varieties of the legume Sainfoin (*Onobrychis viciifolia*) on pollinators. Using seven true lines of sainfoin we aim to look at differences in nectar production and quality and pollen quality to investigate the extent to which this may affect visiting insects. The study is being carried out on site at GWCT but may include some field work in the future.