Worcestershire Wildlife Trust Malvern Group, Sept 1st 2016

David Dennis: Butterflies of the Chilterns and Butterfly Conservation, and Mel Mason: Our Local Butterflies

The Malvern Group's first meeting of the season was an excellent double bill, with David Dennis speaking about the butterflies where he lives in the Chilterns, and Mel Mason talking about butterflies here in Worcestershire. David was Chairman of Butterfly Conservation from 2011 to 2014 and his knowledge was extensive and fascinating. He began his talk with some Chiltern specialities: Chalkhill Blue, Adonis Blue, Black Hairstreak, Duke of Burgundy, Purple Emperor and Silver-spotted Skipper, with excellent pictures of all these species. He showed us an amazing sequence of pictures of the life cycle of the Orange-tip butterfly, including the details of the metamorphosis of the caterpillar into a pupa, and then emerging into a butterfly. The Large Blue has been in the news recently after a remarkably successful reintroduction programme in this country; 10,000 have been recorded in Gloucestershire and Somerset, though none yet in Worcestershire. It has a bizarre life cycle; the caterpillars trick red ants into believing they are ant grubs. The ants then carry them into their nest and look after them, even though they feed on the real ant grubs in the nest.

Mel Mason mentioned the Essex Skipper, the most recent species to colonise our area. He talked about the Grayling, a speciality of the Malverns but

numbers are declining; considerable efforts are being made to improve habitat for this rare butterfly. We have Green, Purple and White-Letter Hairstreak, Dingy Skipper, Brown Argus, White Admiral, Silver-washed Fritillary and Drab Looper (a rare moth). Violets are plentiful on the southern Hills and a reintroduction programme of Pearl-bordered Fritillary is being considered. Sadly some of our common and much loved butterflies have not done well this year, especially Small Tortoiseshell and Peacock.

The next Indoor Meeting is on Thursday October 6th at 7.30pm at the Lyttelton Rooms, Church Street, Malvern. Dr Michael Leach will talk about Animals Behaving Badly.

Alison Uren

How does a caterpillar turn into a butterfly?

Tim Carter left the last meeting with this question in his mind; it was one that the speaker could not answer. Here is a summary of what he discovered for other interested members.

The caterpillar moults its skin several times as it grows. Moulting is controlled by two hormones released in response to signals from the nervous system. The signals reflect both internal conditions, such as nutritional state, and external ones, such as day length and temperature. Moulting hormone (the steroid 20-hydroxyecdysone) triggers the moult, while juvenile hormone (a lipid) ensures that the result of the moult is a larger caterpillar.

When conditions are right for pupation another dose of moulting hormone is produced but there is no juvenile hormone and this means that both behaviour and shape change during this moult, resulting in a pupa. All insects have segmented bodies, but those that undergo full metamorphosis have a set of dormant stem cells in the 'imaginal disc' of each segment. During pupation the tissues of the caterpillar are broken down and provide the materials needed for the stem cells to grow and develop into the adult organs associated with each segment: mouthparts and antennae on the head segments, legs and wings on the thoracic ones and reproductive organs in the abdomen.

During the final moult the adult butterfly breaks out of the case of the pupa, and pre-formed adult organs such as the wings are expanded by inflation of air channels in them, while the body and legs harden on exposure to air.

What an amazing process!

For more detailed information, including metamorphosis in amphibians, see http://www.ncbi.nlm.nih.gov/books/NBK9986/