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Species management sheet: Scarlet malachite beetle

The Scarlet malachite beetle (*Malachius aeneus*) is one of Britain's rarest beetles. It is a dark greenish bronze with striking bright red markings on the wing cases. Close inspection reveals long body hairs and a pale yellow face in the males. The larvae live in dry thatch or timber, while the adults are found in meadows with tall flowering grasses.

Once widespread across eastern and southern England, inappropriate management of habitat has led to a massive decline in range since the 1930s. The Scarlet malachite beetle is now confined to only a few sites across Essex and Hampshire, and it is listed as a priority species under Section 41 of the NERC Act 2006.

Life Cycle

Scarlet Malachite beetles emerge as adults from the end of April until July. They lay their eggs in roof thatch and timber structures, where their larvae hatch and live. The larvae feed on the young of other insects, especially flies, solitary bees and wasps and other species of beetle, which also favour the dry habitat that thatch provides. The larvae pupate over winter and emerge as adults the following spring. The adults then live and feed in grass-rich meadows.

Distribution

The only remaining populations are found in Essex and Hampshire, but recent surveys indicate these are declining. It is possible that undetected populations of the beetle exist in other counties such as Hertfordshire, Dorset and Somerset, although these have yet to be confirmed.

Habitat

Scarlet malachite beetle larvae require large, open sunny areas of thatch free of shade. Areas in full sun provide a dry stable environment and attract other insects such as

flies and solitary bees and wasps. Adult beetles require meadow habitat in full sun containing tall grasses with large pollen rich flower heads, particularly Meadow Foxtail (*Alopecurus pratensis*). These flowers serve as a source of pollen and as a 'platform' for breeding where males compete for the attention of females. Thatched buildings need to be in close proximity to meadow habitat, with a connecting area free of obstructions and shade to allow emerging adults to successfully reach meadow habitat. Grasses such as Cock's-foot (*Dactylis glomerata*) and Crested dog's-tail (*Cynosurus cristatus*) are used by the beetle after Meadow foxtail has finished flowering, and in the



Modern records in dark green



Scarlet malachite beetle habitat © Ian Hughes

absence of grass pollen, they will feed on the flowers of Greater plantain (*Plantago major*), Cow parsley (*Anthriscus sylvestris*) and buttercups (*Ranunculus spp.*)
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Reasons for decline

Inappropriate management of both thatch and meadow habitat is believed to have caused the dramatic decline of Scarlet malachite beetles. The larvae are dependent on

thatch for their development; and the loss, repair, removal, replacement and shading of thatch have all negatively impacted larval numbers. For adults, the loss of meadows and shading of those that remain along with early cutting are believed to have severely limited the availability of vital flowering grass heads they need. Other factors, such as pesticide use, are thought to have contributed to the decline.



Scarlet malachite beetle nursery © Ian Hughes

Habitat Management

Supplementary larval habitat: Providing a 'larval nursery' is recommended if only one thatched building is present. The box should be layered with old dry wood and thatch, and contain a central frost-proof cavity protected by 30cm thick insulation. Ideally, the entire structure, including a rainproof roof, should be protected by mesh to prevent access by birds. Place the structure in full sun approximately 20 metres from the thatched building. It can take up to three years for Scarlet malachite beetle larvae to occupy the structure.

Encourage tall flowering grass species: Especially Meadow foxtail, but also Cock's-foot and Crested dog's-tail to provide a continuous source of pollen from late April until mid-July. Minimise shade and developing scrub within the meadow, as Meadow foxtail does not persist under such conditions. Flower species such as Greater plantain, Cow parsley and buttercups are a food source when grass pollen is scarce and should also be encouraged to grow in the meadow.

Supplementary adult habitat: If the meadow is small or a great distance from the larval habitat, you can provide temporary mobile planters to serve as additional habitat and stepping stones for beetle movement. Mobile planters can be a 100cm x 50cm wooden box, or even a wheelbarrow, planted with Meadow foxtail and other suitable plants.

Countryside stewardship

Habitat can be managed for the Scarlet malachite beetle under the new Countryside Stewardship scheme.

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