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## Species management sheet: Sea aster mining bee

The Sea Aster mining bee (*Colletes halophilus*) is a rare bee associated with the margins of saltmarshes and other coastal habitats. The Sea aster mining bee has a restricted UK distribution, with particularly strong populations found on the East Anglian coast and Thames Estuary area. Unfortunately intense development pressure and rising sea levels associated with climate change are threatening this vulnerable species by reducing available nesting sites and Sea aster (*Aster tripolium*) stands.

This is a striking solitary mining bee with reddish brown hair on its thorax and a black abdomen with clearly defined pale whitish to yellow bands (males are smaller and paler). It is one of three closely related *Colletes* species which can be difficult to identify but are usually ecologically distinct.

### Life cycle

The Sea aster mining bee is active from late August (occasionally July) until October (occasionally November). Males emerge first and can be seen scouting for females to mate with. Females then excavate a nest burrow with around 5–6 cells which she will provision, mainly with pollen and nectar from Sea aster flowers. Nests are often in large aggregations, typically at the transition zone between intertidal saltmarsh and dry land. Their nest burrows are often excavated in soils with a high sand content and little vegetation cover. They forage on a limited number of plant species, mainly from the Asteraceae family. However, Sea

aster is particularly important, with the bee's emergence synchronised with the plant's flowering period.

### Co-operation with environmental organisations

The creation of small nesting mounds along the coastline may help provide stepping stones of nesting habitat for the

### Case study: Coalhouse Fort

Grasslands at Coalhouse Fort in East Tilbury have been managed annually to create nesting opportunities for the Sea aster mining bee. Rectangular areas of grassland adjacent to Sea aster stands are strimmed at the end of July or early August, prior to the bee emerging. The grass is cut as short as possible to expose bare ground areas. Thin strips of longer grass approximately 7-8cm wide are left, at intervals of approximately 1m, to provide shelter and act as landmarks.



Management techniques at Coalhouse Fort © Kara Alicia Hardy



Sea aster, the bee's preferred forage plant © Kara Alicia Hardy



Sea aster mining bee and other ground nesting species. However, the participation of both nature conservation organisations and local authorities is required to successfully improve connectivity and allow the species to expand its range into currently unoccupied areas.

### Creating nesting sites

Creating habitat near to large stands of Sea aster could offer new opportunities for this species. Guidelines for nest creation are as follows:

- South-facing raised banks can be created using material scraped from sites with a high sand content.
- Create an undulating surface with pits and mounds to provide a range of microhabitats and microclimates that mimic their natural habitat.
- Maintain areas of bare ground by cutting the vegetation and scraping back to bare earth will help suppress dominant vegetation such as coarse grasses.

### Mitigation options for new development projects

It would be beneficial for new developments along the coast and in the Thames Estuary area to incorporate invertebrate habitat. This could help minimize the progressive impact of development projects squeezing coastal habitats.

- Habitat creation should precede the commencement of development work to allow time for colonisation.
- Bare ground should be managed annually on a 2-3 year rotation in between November and March.



Stands of Sea aster at Colne Point Reserve, St. Osyth © Kara Alicia Hardy



Sea aster mining bee foraging on Sea aster © Steven Falk

- Appropriate invertebrate surveys should be carried out before and after work, to monitor the success of mitigation.

### Managed re-alignment opportunities

Managed realignment involves the creation of new sea wall defences further inland, while existing seawalls are breached and tidal inundation is allowed to flood behind them. This may create or restore saltmarsh habitats, with the potential to benefit the Sea aster mining bee. However re-alignment may also be detrimental if nests are inundated, so it is recommended that new nest sites are created pre-breach and prior to the emergence of this bee:

- Clear the vegetation of banked areas that are safe from inundation, or create nest sites adjacent to new saltmarsh.
- Use a bulldozer to create islands of raised Sea aster stands, that will be above the flood line after inundation.



Vertical faces readily exploited by the bee © Kara Alicia Hardy

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