

DUNE INVERTEBRATES



DYNAMIC DUNESCAPES

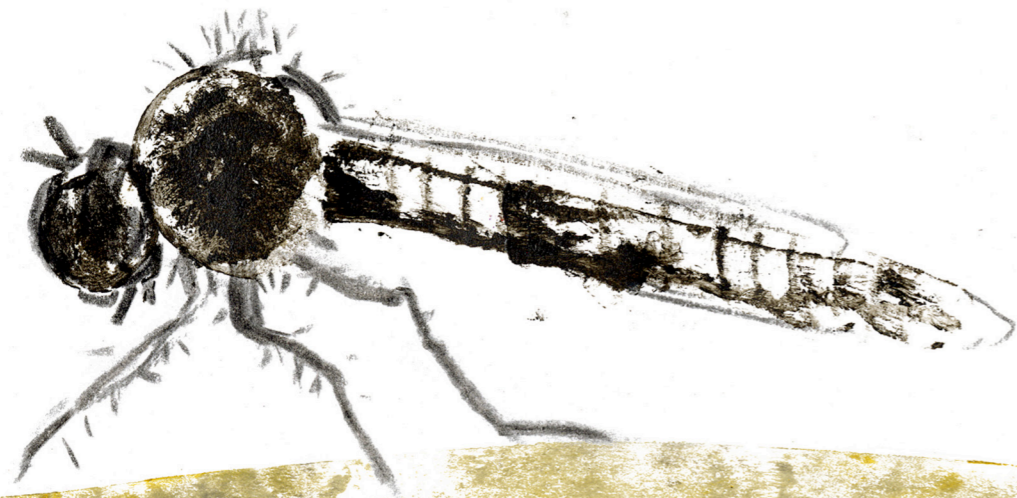


INTRODUCTION

Areas of bare sand in dune systems are incredibly important for the many invertebrates that have evolved to make use of this habitat. The combination of open sand, wildflower and nectar-rich areas and long marram grass, all within the same vicinity, can be vital for their breeding success. Unfortunately, these habitats are under threat for a variety of reasons, especially over-vegetation caused by a lack of grazing, increased atmospheric nitrogen deposition and/or invasive plants. However, work is being carried out across England and Wales as part of the Dynamic Dunescapes project, to rejuvenate sandy areas and support the diverse life of this amazing habitat. Find out more at www.dynamicdunescapes.co.uk



DUNE ROBBER FLY



- * fearsome predators with piercing mouthparts.
- * the most potent toxin known of any fly.
- * prey includes beetles, wasps, other robber flies and the odd spider.
- * often catch prey in flight then perch to suck out its innards and leave the husk.
- * a bristly moustache and stout, long, spiky legs.
- * female lays eggs on lee side of dunes, plunging ovipositor deep into sand and then using bristles on her abdomen to sweep sand over the hole.

MINOTAUR BEETLE



- * one of the 60 types of dung beetle in the UK.
- * 2cm long with shiny black carapace.
- * males have three horns used to protect their burrow.
- * adults emerge in autumn, mate and choose a spot to dig a tunnel near a rabbit latrine.
- * use their strong front legs to dig a tunnel up to one and a half metres underground.
- * males roll rabbit dropping along the ground into the burrow where the female shapes it into a tube and puts them into side-chambers in the tunnel.
- * then female lays an egg in each chamber. The larvae hatch, eat the droppings and emerge as adults in autumn.

BEE WOLF



RED-BANDED SAND WASP



- * a solitary wasp; up to 17mm long.
- * thick antennae, yellow abdomen with black stripes and yellow face.
- * after mating, females dig burrows in sand up to a metre long with up to 34 side burrows, in which they lay eggs.
- * the females prey on honey bees, stinging and paralyzing them to store as food for their larvae.
- * they bring back up to 6 bees per nesting burrow, lay an egg on one of the bees and seal the burrow with sand.
- * adult bee wolfs feed on nectar and are important pollinators.

- * a large solitary wasp.
- * the female digs a short tunnel in bare sand, temporarily covers it, then goes to hunt for caterpillars.
- * she paralyzes the caterpillar and carries it back to the tunnel on foot as they can be 10x the weight of the wasp.
- * an egg is laid on the caterpillar and the entrance to the tunnel is blocked off and camouflaged.
- * they often take caterpillars from other nests ~~or~~ remove other wasps' larvae and lay their own egg instead as this is less laborious, hence the need for careful concealment of tunnels.

GOLD-FRINGED MASON BEE



GRIZZLED SKIPPER



- * a solitary mason bee.
- * female's bodies are covered in dense orange-tawny hairs, which form fringes along their abdomen.
- * males appear a couple of weeks earlier and defend small territories containing empty snail shells.
- * females build their nests in empty snail shells. They make several nest cells in each shell, separating them with mastic (chewed-up leaves and saliva).
- * over-winter as non-emerged adults in shell cells and emerge in April.

- * charcoal brown wings, chequered with a pattern of white spots.
- * appears in early May and can continue flying till late June.
- * only have one brood usually.
- * small light green eggs are laid on underside of larval foodplant. When caterpillar hatches, it spends 2 to 3 months in a silk tent on its host plant.
- * pupates in vegetation near to the ground for 9 months.

DUNE TIGER BEETLE



- * one of the fastest insects in the world, they can run 2.5 metres per second.
- * has large eyes for spotting prey, which they kill with their powerful mandibles.
- * to be active, they need a body temperature of around 35 degrees C; too hot and they stay in the shade of the marram grass or take flight; too cold and they stay in their burrow.
- * dig burrows in the sand, 20 to 30 cm deep, to shelter in at night or when too cold and also to lay their eggs in.
- * metallic red-brown with cream markings.
- * extremely endangered.

SAND BEAR SPIDER



- * a fore dune specialist, its ideal habitat is bare sand.
- * a type of wolf spider. They do not spin webs. They have excellent eyesight and pounce on their prey, injecting it with poison.
- * the mottled body coloration and dark rings on its legs, which help to break up its outline, make it highly camouflaged against the sand.
- * adults excavate burrows in the sand, which they retreat to when disturbed.
- * they carry their babies on their abdomens, which have special hairs that the spiderlings cling to until they are ready to disperse on silk parachutes.

DUNE CHAFER



GLOW WORM



- * adults are seen from May to August.
- * they graze on a wide variety of foliage.
- * females dig down into loose sand to lay eggs 30 to 60 cm below the surface.
- * after hatching, the larvae eat the roots of the marram grass.
- * they spend two years underground as larvae moving through three developmental phases or instars. During the autumn they dig down deeper into the sand to overwinter.

- * they are beetles not worms!
- * stay in their larval form for 2 years.
- * larvae feed on slugs and snails. They inject toxins, which dissolve their prey and then eat the resulting 'soup'.
- * the adult form has no mouth so cannot feed and only live for 2 or 3 weeks. They have one job: reproduction.
- * the females are flightless. They climb up a grass stalk and, using bioluminescence, emit a greenish light from their bottoms to attract the males.
- * the males have large photosensitive eyes and fly around looking for females.

ABOUT THE AUTHOR AND ILLUSTRATION TECHNIQUE

Pip Cook is an apprentice with Cornwall Wildlife Trust, working on the Dynamic Dunescapes engagement team. Her illustration technique for the insects in this resource involved block printing using parsnips (other root vegetables can be used!) and Caligo Safe Wash Relief Ink in sepia. Details were then completed using a charcoal stick. Coloured areas were painted on to paper using a brush or roller, then cut out and collaged on to the page. To see a video of how to make a print, go to www.dynamicdunescapes.co.uk





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