



# IN THE FIELD: SEARCHING FOR SANDHILL RUSTIC *LUPERINA NICKERLII* (FREYER)

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## INTRODUCTION

**S**andhill Rustic *Luperina nickerlii* occurs as four separate subspecies in the British Isles, all of which are illustrated on Plate 2. *L. nickerlii gueneei* was first discovered at Rhyll in 1860 or 1861 and is now found in North Wales, Cheshire and Lancashire. *L. n. knilli* was first discovered in south-west Ireland in 1964 and is still apparently restricted to this area. *L. nickerlii demuthi* was first discovered in Essex in 1963 but wasn't identified as *L. nickerlii* until 1973; it is now found in Kent, Essex and Suffolk. *L. nickerlii leechi* was first discovered in Cornwall in 1974 and is still only known to occur on one site there.

All of these subspecies are coastal in Britain, occurring either on sand dune, shingle beach, cliff or saltmarsh, and probably experience salt water inundation or spray at all stages but especially during the overwintering larval stages. The larvae feed on Sand Couch *Elytrigia juncea* (ssp. *gueneei* and ssp. *leechi*), Common Saltmarsh-grass *Puccinellia maritima* (ssp. *demuthi*) or Red Fescue *Festuca rubra* (ssp. *knilli*, although there is some possibility that *knilli* feeds on *Elytrigia*). On the continent *nickerlii* is not coastal; for example, in Germany it is associated with warm, sandy places where Sheep's Fescue *Festuca ovina* occurs.

## FIELD TECHNIQUES

The adult is the easiest stage to find. *Luperina nickerlii* is cryptically coloured, each subspecies matching the background habitat, so that they can be difficult to see. When looking for this species survey, if possible, in the middle of the habitat (e.g. on salt marshes) or on the seaward edge (e.g. the foredune habitat on sand dunes), as all subspecies appear reluctant to travel away from their breeding sites. This may mean a long walk to reach the front of the dunes. The optimum survey time is after midnight (when the males become very active) and they will fly nearly until dawn; the females seem reluctant to fly. Pairing is generally late in the night, after about 02.00hrs. Surveys can be carried out by light-trap or torchlight. Light-traps (actinic or MV) work well if it is warm and still (especially for ssp. *demuthi*), but the catch will be mainly males.

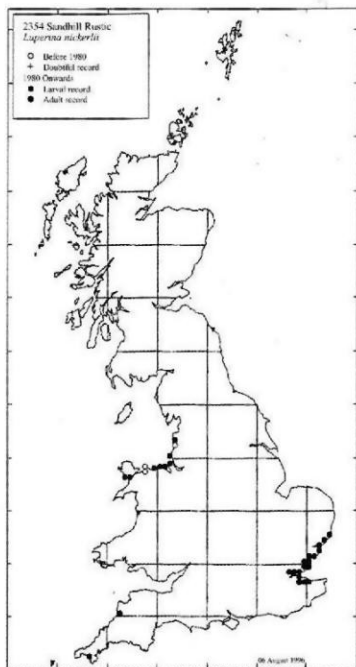


Figure 1. Distribution of Sandhill Rustic *Luperina nickerlii* Records (from Waring in press with some additional records added).

Alternatively, *nickerlii* (especially females) can be found sitting on the foodplant by torchlight, from soon after dusk until near dawn—the best method is to crouch down and look for the light reflection in their eyes. They will be there whatever the weather (even if very cold), but may be hiding in the longer grass if very windy or wet. The best light to use is a high-powered rechargeable halogen searchlight rather than a lantern because it provides a directional beam and the moths can be seen several metres away (especially mating pairs).

The main flight period is between mid-August and early September with peak flight activity occurring around 31 August, but moths have been found as late as the end of September. As with Flounced Rustic *L. testacea* there is no evidence that they come to sugar, although females will drink water. It is possible (though difficult) to find adults of ssp. *gueneei* and ssp. *leechi* during the day by searching through clumps of Sand Couch; I have never found ssp. *demuthi* by day.

Health and safety issues are important when surveying for Sandhill Rustic. Check the tide at all times if near the sea, especially if using a generator on saltmarsh habitat (on an Essex saltmarsh I wondered why my lamps had gone out, only to find my generator under water!). It is possible to get trapped at night by the incoming tide, especially on narrow fingers of saltmarsh or sand dune. In some areas it may be worth notifying the coastguard that bright lights will be in operation. Cliff work in Ireland can also be dangerous. Small actinic traps left overnight in isolated dunes and saltmarsh near the sea, collected early the following morning, are an excellent way of surveying for Sandhill Rustic.

Late instar larvae and pupae may be dug in season (May–July) from the sand or saltmarsh, but this method owes a lot to chance and is fairly destructive. Small larvae overwinter inside the foodplant and may be found if an entrance hole is present. Larger larvae may sometimes be found in a loose sheath of sand held together by silk (see Plate 2).

## IDENTIFICATION

There can be some confusion with Flounced Rustic *L. testacea*, especially when comparing dark specimens of *demuthi*. The differences are set out in Table 1. It should not be necessary to examine the genitalia, except in very worn specimens.

Table 1. Differences between Flounced Rustic *L. testacea* and Sandhill Rustic *L. nickerlii*

Flounced Rustic	Sandhill Rustic
<i>Upperside</i>	
Coarse forewing.	Silky forewing.
Reniform stigma not white edged (may be pale edged).	Reniform stigma usually white edged.
Orbicular stigma fairly large.	Orbicular stigma small and round.
<i>Underside</i>	
No pale patch beyond reniform stigma.	Pale patch beyond reniform stigma.
Dot-like reniform stigma.	Larger reniform stigma.
<i>General impression</i>	
Browner, larger.	Paler, silky.

## FUTURE RESEARCH

With the important exception of ssp. *demuthi*, the Sandhill Rustic has a western distribution in Britain. It could occur as far west as the Isles of Scilly and as far north as western Scotland. Habitats may include maritime cliff with Red Fescue, sand dune and shingle beach with Sand Couch, saltmarsh with Common Saltmarsh-grass, or possibly even inland sandy heaths with Sheep's Fescue. Possible areas where the species could occur but is not presently known include Braunton Burrows in Devon, Ogmores-by-Sea and the Gower Peninsula in Wales, Drigg Dunes in Cumbria, and Ardnamurchan, Findhorn and the Isle of Mull in Scotland. It is well worth looking in some of these places.

The distribution of Sandhill Rustic in Britain is difficult to explain. The four distinct subspecies are each separated by at least 320km. However, the disjunct distribution and recent discovery of new sites (e.g. by Ian Wallace in Lancashire, Adrian Wander *et al.* in north Wales and the Suffolk Moth Group in Suffolk) indicate that other colonies may be present in Britain on sand dunes or saltmarshes. In Germany the Sandhill Rustic is increasing its range, and it may do so in Britain; indeed, we don't know how long some of the British populations have been present. Ian Wallace has shown that in Lancashire *gueneei* can colonise new areas at least 3km from donor sites.

I have been studying the Sandhill Rustic in Britain for over 15 years and regularly monitor the population near my home in Cornwall. It is a fascinating species, with a range of subspecies occupying different habitats in different parts of Britain and Ireland, yet there are still many unanswered questions about why it occurs where it does and how long it has been present there. The discovery of new sites, if made, will enhance our knowledge of the Sandhill Rustic, lead to a better understanding of the relationship of the subspecies to each other and help us decide whether it is a recent colonist or a survivor from earlier times when its habitat was more extensive around the coast of Britain. I would be very grateful for any new records.

## ACKNOWLEDGEMENTS

Thanks to Paul Waring for the use of the map reproduced in Figure 1, from the forthcoming JNCC review of the nationally scarce and threatened macro-moths of Great Britain, to which some additional records have been added.

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