Chapter 9 A mass-movement site entirely in Pleistocene strata

R. G. Cooper

Introduction

In the landslide survey of Great Britain (Jones and Lee, 1994), 3042 landslides were recorded as either involving, or being entirely developed in, deposits of superficial origin. However, of the 346 at coastal locations, no classification was made, either of origin or type. For 19.7% of the 2696 at inland locations, origin was not specified further. Of the inland landslides for which the origin was specified, by far the largest numbers were in glacial deposits (74%) and periglacial deposits (18%). Of the remainder, landslides in fluvial deposits, fluvio-glacial deposits and deposits of contemporary processes each accounted for less than 2.7% of those of specified origin, while landslides in lacustrine, marine and aeolian deposits each accounted for less than 0.5%.

The one mass-movement GCR site entirely in Pleistocene deposits, at Trimingham in Norfolk (Figure 9.1) and (Figure 9.2), is a stretch of coastal cliffs undergoing rapid erosion. Such dynamic sites on coastal cliffs are frequently a focus for debate between those wishing to conserve the scientific features and those wishing to protect other interests (for example, where cliff retreat is consuming land that is valuable for some other purpose).

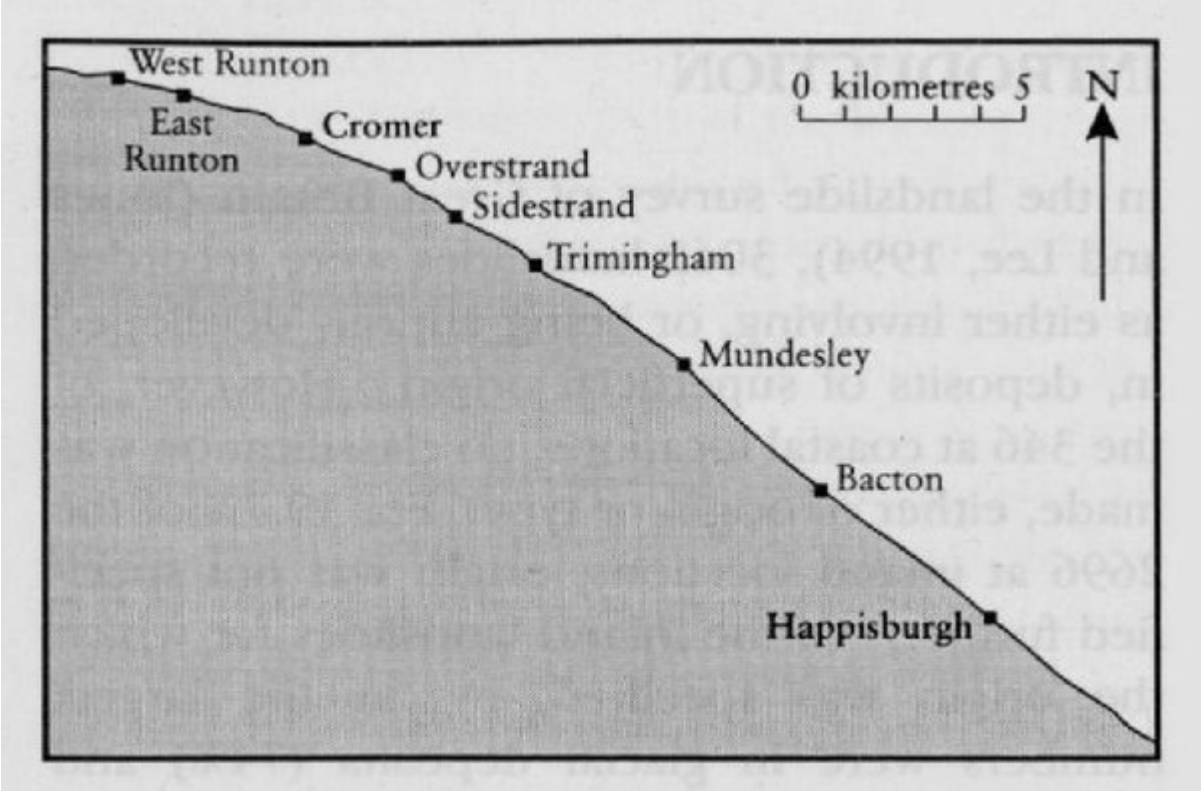
For mass-movement site-conservation purposes it is essential that the site is allowed to evolve naturally, unimpeded, in order for studies to be conducted into the natural evolution of the site. At Trimingham Cliffs, the cliff retreat is consuming agricultural land that is still valuable (specifically, for arable use). But this is not the case for the other mass-movement GCR sites that are located on the coast. For example, at the Axmouth–Lyme Regis GCR site, as at Folkestone Warren, retreat would be by means of collapses of the Chalk cliffs that back the slides. Specific prevention of this is not a practical possibility, but stabilization of the slipped masses in front of the Chalk cliffs would probably reduce the frequency and/or size of Chalk falls.

The landslips at Quiraing (see Trotternish Escarpment GCR site report, Chapter 6) on the Isle of Skye and Hallaig on the Isle of Raasay are considered far too large and deep-seated for stabilization to be contemplated. The land consumed by retreat of their backslopes would be, in any case, low-grade moorland, and this land is remote from human habitation. Black Ven in Dorset and Folkestone Warren in Kent are both subject to headslope retreat, but in both cases, the land consumed is low-grade pasture.

The implications of the fact that the one site entirely in Pleistocene deposits would, if allowed to continue receding, cut into valuable arable land, are discussed, along with the solutions advocated, in the account below.

References

(Figure 9.1) Areas of Pleistocene strata in East Anglia (shaded) and the location of the Trimingham Cliffs GCR site, described in the present chapter.



(Figure 9.2) Locality map of the Happisburgh–Cromer area of the north Norfolk Coast. After Kazi and Knill (1969).