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ASELLUS AQUATICUS (L.), ASELLUS MERIDIANUS (RACOVITZA) AND SPHAEROMA HOOKERI (LEACH) IN THE RYE AREA, S.E. ENGLAND

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INTRODUCTION

A general survey of aquatic invertebrates was begun on the Local Nature Reserve (LNR) and Site of Special Scientific Interest (SSSI) at Rye Harbour in June 1982 (Fig. 1) and extended to a greater variety of habitats and a wider area around Rye in 1984 (Fig. 2). Records are being made in accordance with the National Biological Recording Schemes, in particular for this study, the Non-Marine Isopod Survey Scheme. Valuable and often unique records have been made with a video camera attached to a microscope, adding titles, dates and an audio commentary when appropriate (Goldie-Smith 1983, 1986).

Asellus aquaticus (Fig. 3a) and Asellus meridianus (Fig. 3b) have been identified with the aid of the key by Gledhill et al (1976). Usually the difference in head colouration noted by Scourfield (1940) is adequate, with detailed examination of appendages in doubtful cases. Help was received in the early stages from Mr. G.D. Fussey and latterly from Dr. Steve Hopkin. Sphaeroma hookeri was identified by Dr. R.J. Lincoln and reference has subsequently been made to the keys and notes of Naylor (1972).

AQUATIC ISOPODS IN THE RYE HARBOUR LNR AND SSSI (FIG. 1)

Sphaeroma hookeri is a brackish water species and is limited strictly to the coastal strip. It is found abundantly in the small pond labelled "Doug. 4-6" and in Ternery Pool and has been recorded along the single drainage dyke called Nook Drain as far as site 9.

Asellus aquaticus is found in the shallow stream labelled "Ridge", which widens into a reedy pool, and is widely distributed in the deep flooded gravel pits of the Castle Water Estate towards the middle of the triangular area. It has been recorded at sites 1, 3, 4, 5, 8 and 10 on the pits themselves, in the reedy ditch (site 7) running from the pits to the northernmost limit of the triangle and in an extensive shallow ditch that follows a snakelike course through the pasture that is bounded on three sides by these pits. The Long Pit and Narrow Pits have not been investigated. The western side of the triangle is bordered mostly by sheep pasture with some arable land which drains towards the River Rother by a system of dykes with small sluices, divided for the purpose of this study into

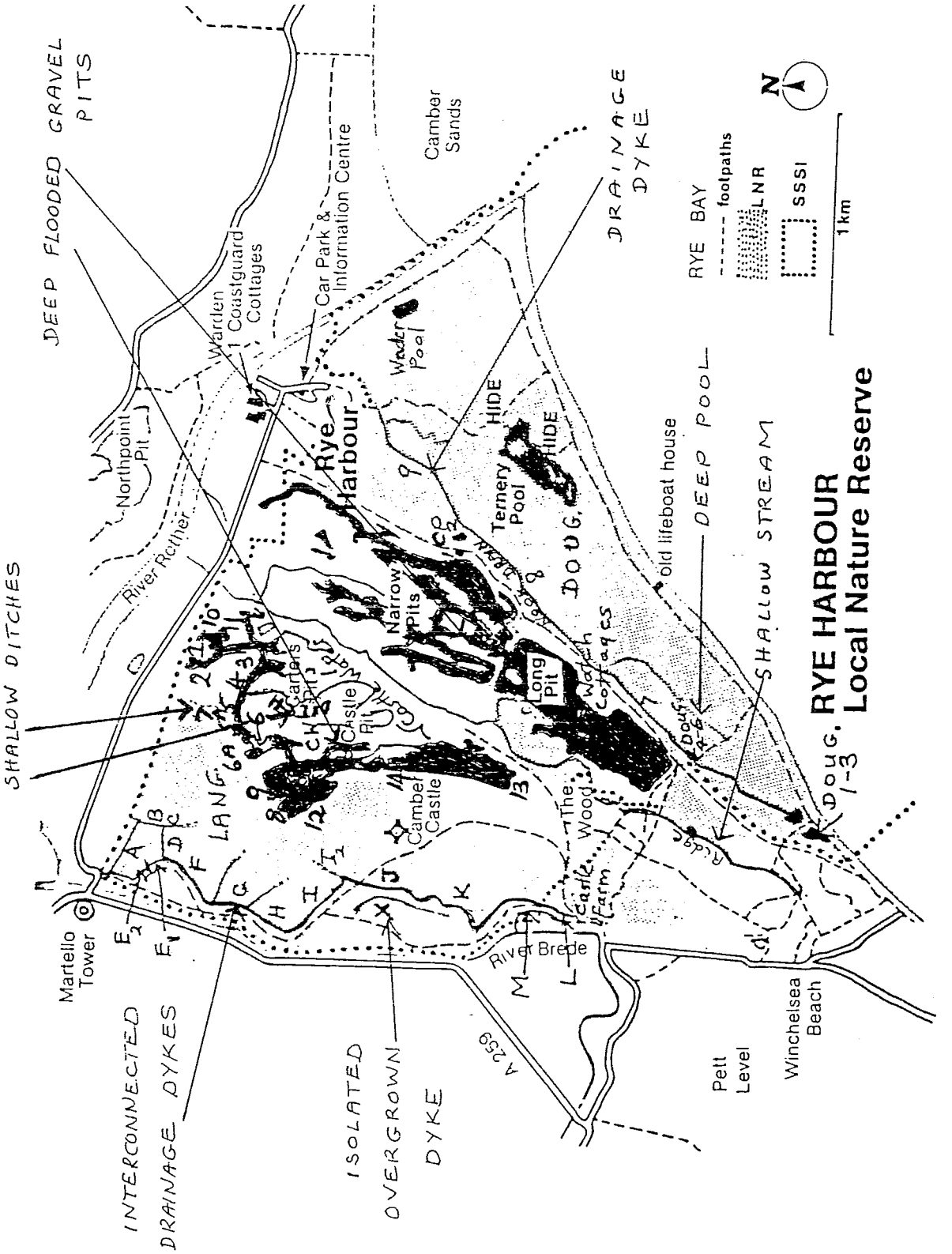

Fig. 1 : Sampling sites on the Rye Harbour LNR and SSSI

alphabetical sections. Although further investigation is needed here, it is significant that Asellus aquaticus has been recorded abundantly in the overgrown Dyke X which has been isolated from the free flow of the system by the filling in at its southern end. It has also been recorded in Dyke I_2, a cul-de-sac which may dry up completely in the summer and at the junction of Dykes D,E and F. Whereas Dykes D and E are in the main flow, Dyke E is restricted by having to pass under a gated trackway.

AQUATIC ISOPODS IN THE RYE AND HASTINGS AREA (FIG. 2)

The distribution patterns of Asellus aquaticus and Asellus meridianus have been studied in detail by Williams (1962a, 1962b, 1963, 1979) and Steel (1961), with reference to physical and chemical factors and associated flora and fauna. The numerous theories concerning their distribution have been reviewed by Moon & Harding (1981) with distribution maps and a full list of references. Given a plentiful supply of inorganic and organic food, it seems that calcium and sodium concentrations may have a direct relationship with this pattern. In general however, the reasons for their distribution are far from being solved.

The numbers of large fish in the moat around Bodiam Castle may explain the apparent absence of Asellus there; possibly the depth of the moat (over 2 m) and the steepness of the banks are also factors. Asellus aquaticus is present in the very small pool in the garden at Moat Farm, Iden, but I have not so far recorded it from the large deep pond which represents part of the ancient moat itself. Asellus aquaticus and Asellus meridianus were found together in abundance in a 'scrape' in Filsham reedbeds, St. Leonards-on-Sea. The distribution of the two species discovered so far is summarised in Table 1.

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REFERENCES

GLEDHILL, T., SUTCLIFFE, D.W. & WILLIAMS, W.D. (1976). Key to British Freshwater Crustacea: Malacostraca. Scient. Publ. Freshwat. biol. Ass. No. 32, 72pp.

Table 1 : Distribution of Asellus aquaticus and Asellus meridianus in the Rye and Hastings area

Habitat	A. aquaticus	A. meridianus
Flooded gravel pits	Castle Water Estate, Rye Harbour. Moneypenny Pits, East Guldeford.	-
Drainage dykes	Rye Harbour LNR. Valentine's Dyke, Shirley Farm.	The Dowels Appledore. "Smuggler's End", Winchelsea Beach.
Shallow reedy ditch	Site 7 and "Ditch" on Castle Water Estate.	-
Suburban ditch	-	Tennis Club, Rye.
Old bomb crater	-	"Smuggler's End", Winchelsea Beach.
Shallow stream	"Ridge", Rye Harbour LNR.	-
Large reservoir	-	Powdermill, Sedlescombe.
Small reservoir	Dumbourne Farm, Tenterden.	-
Private lake	"Twin Sisters", Iden.	-
Small garden pond	Moat Farm, Iden.	"Stratton", Fairlight.
Large garden pond	Smallhythe Place. Shirley Farm.	-
Old duckpond	Brede Watch Pond.	-
Field pond	Leasam House.	Peasmarsh Place. Bosney farm.
Woodland pond	-	Flatropers Wood.
"Scrape" in reedbed	Filsham, St. Leonards.	Filsham, St. Leonards.

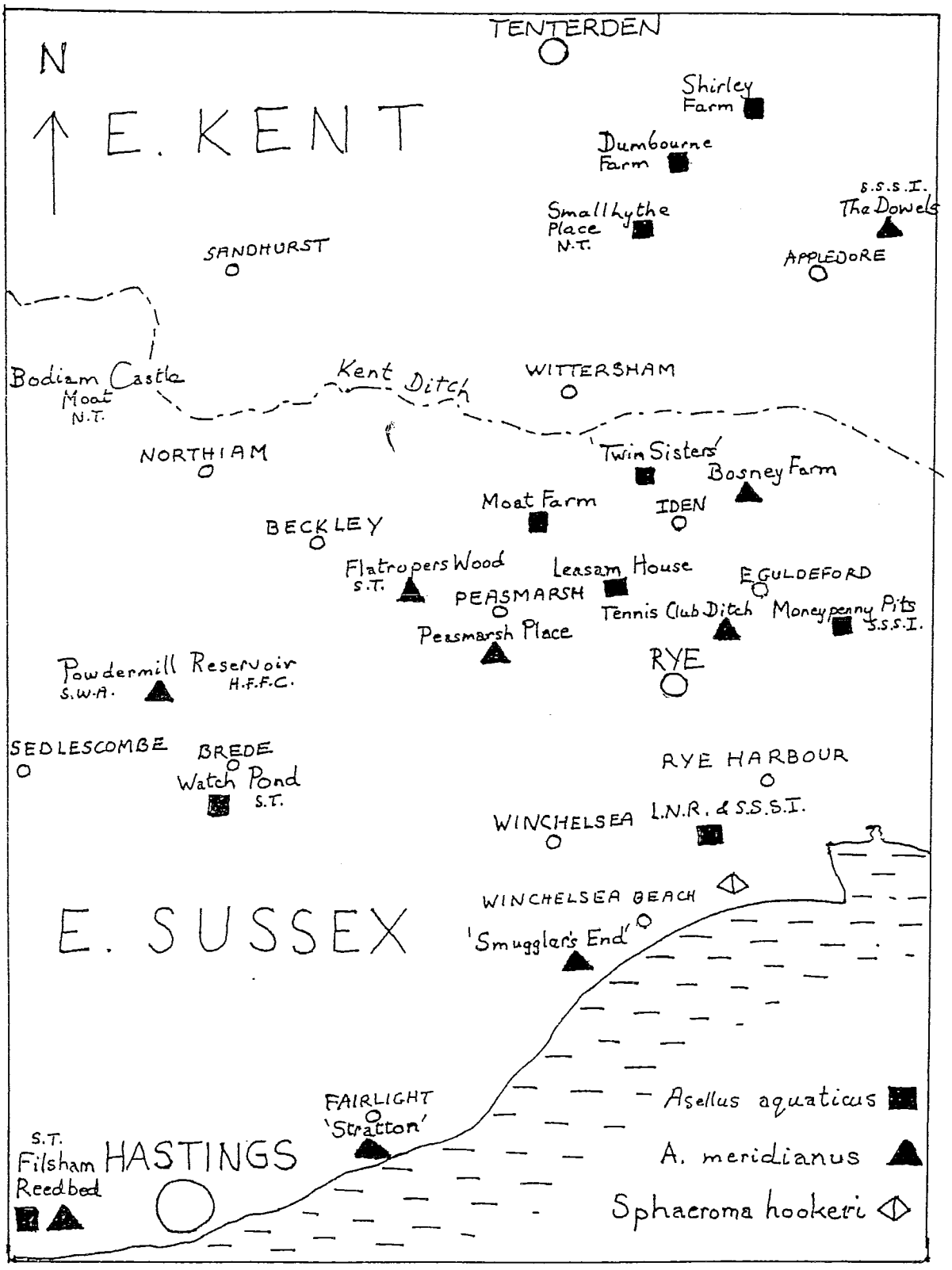

Fig. 2 : Sites in the Rye and Hastings area where Asellus aquaticus, Asellus meridianus and Sphaeroma hookeri have been found.

GOLDIE-SMITH, E.K. (1983). A limnological study of the S.S.S.I. and L.N.R. at Rye Harbour: list of species authoritatively verified to date. Ann. Rep. Rye Harbour L.N.R. Manag. Cttee. 1983, 58-62.

GOLDIE-SMITH, E.K. (1986). Asellus in the South-east. Newslett. Br. Isopod Stud. Grp., No. 21, 1.

MOON, H.P. & HARDING, P.T. (1981). A preliminary review of the occurrence of Asellus (Crustacea: Isopoda) in the British Isles. Monks Wood Experimental Station, 21 pp.

NAYLOR, E. (1972). British Marine Isopods. Synop. Brit. Fauna (New Series) No. 3, Linnaean Society of London, 86pp.

SCOURFIELD, D.J. (1940). Note on the difference in the colouration of the head in Asellus aquaticus and Asellus meridianus. Essex Nat., 26, 268-270.

STEEL, E.A. (1961). Some observations on the life history of Asellus aquaticus (L.) and Asellus meridianus Racovitza (Crustacea: Isopoda). Proc. zool. Soc. Lond., 137, 71-87.

WILLIAMS, W.D. (1962a). The geographical distribution of the isopods Asellus aquaticus (L.) and A. meridianus Rac. Proc. zool. Soc. Lond., 139, 75-96.

WILLIAMS, W.D. (1962b). Notes on the ecological similarities of Asellus aquaticus (L.) and A. meridianus Rac. Hydrobiol., 20, 1-30.

WILLIAMS, W.D. (1963). The ecological relationships of isopod crustaceans Asellus aquaticus (L.) and A. meridianus Rac. Proc. zool. Soc. Lond., 140, 661-679.

WILLIAMS, W.D. (1979). The distribution of Asellus aquaticus and A. meridianus (Crustacea, Isopoda) in Britain. Freshwat. Biol., 9, 491-501.

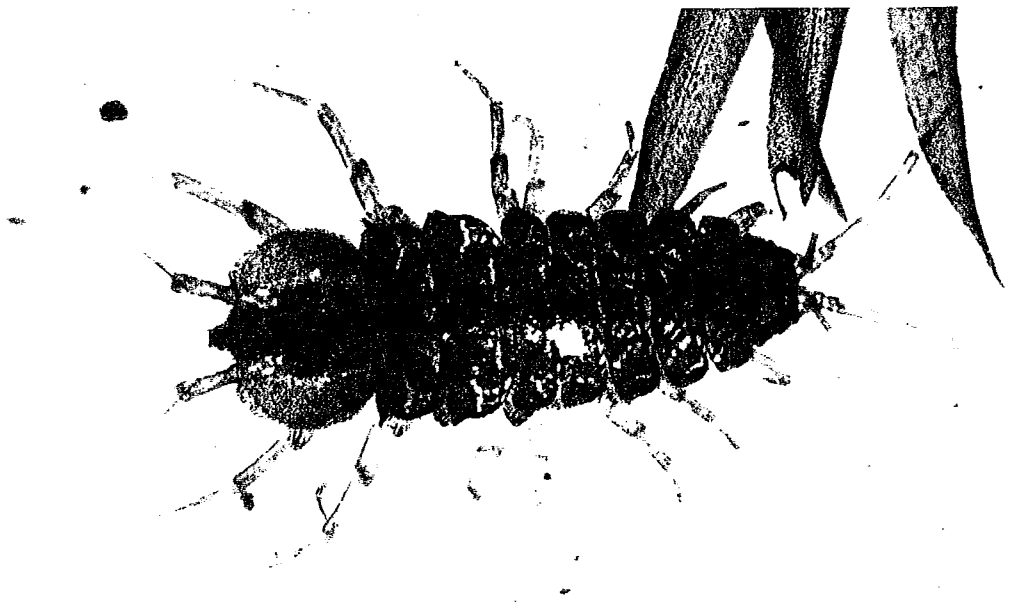

Fig. 3a : Asellus aquaticus (10 mm in length) from Filsham Reedbed. Note that the poorly-pigmented area on the head is divided in two.

Fig. 3b : Asellus meridianus (7 mm in length) from Filsham Reedbeds. Note that the poorly-pigmented area on the head is not divided.