
Late Palaeogene of the Hampshire Basin

Deposition of the Tertiary sediments of the Hampshire Basin (including the Isle of Wight) began slightly later than in the London Basin, with the Late Palaeocene Reading Formation, the Early Eocene London Clay Formation, and the Early to Late Eocene Bracklesham Group (Insole and Daley, 1985; Edwards and Freshney, 1987). These deposits represent a major Late Palaeocene–Early Eocene marine transgression from the North Sea over East Anglia and southeastern England as far west as Dorset. The sequence in the Hampshire Basin spans from the latest Palaeocene to the Mid-Oligocene, and it consists of lateral equivalents of the Belgian and Paris basins including sands, clays and thick deposits of lignite.

The Bracklesham Group is comprised of marine and continental facies that appear to have been deposited throughout Eocene time.

The marine units of the Group are restricted to the east, while in the Isle of Wight it is in part continental, and the commonest fossils are leaves and palynomorphs. The succeeding 'Barton Sands' and lower part of the Headon Hill Formation (Totland Bay Member; Late Eocene) are marine in the lower section and broadly continental toward the top. The upper parts of the Headon Hill Formation (Colwell Bay Member to Seagrove Bay Member; latest Eocene), and the Bembridge Limestone and Bouldnor formations (Early to Mid-Oligocene), which is confined to the north of the Isle of Wight, consist of mainly continental facies, with rare marine-influenced units in the Cranmore Member of the Bouldnor Formation (Insole and Daley, 1985). This whole sequence, barring the 'Barton Sands' at the base, is placed in the Solent Group (Insole and Daley, 1985).

Fossil fishes are relatively common within all divisions of the Bracklesham Group, the Barton Clay and Headon Hill Formation (Hooker and Ward, 1980). Rare amphibian remains have also been found in Barton Clay of Barton Cliff (q.v.; Milner, 1986) and Headon Hill Formation at Hordle Cliff (q.v.) and Headon Hill (q.v.; Rage and Ford, 1980; Meszoely *et al.*, 1984; Milner *et al.*, 1982). Fish material is rarer in the overlying Osborne Beds, Bembridge Marls and Hampstead Beds of the Isle of Wight. Most finds are tiny fish teeth, scales and teleost otoliths, and are usually recovered by bulk sampling of the unconsolidated sediments. Amphibians and small reptile remains have been recorded from the Osborne Beds in the Fishborne area of the Isle of Wight [SZ 537 941]–[SZ 556 934] (Rage and Ford, 1980) and a Lower Oligocene amphibian assemblage is preserved in foreshore exposures of the Lower Hamstead Beds at Cranmore Ledge, Bouldnor Cliff, Isle of Wight ([SZ 370 900]–[SZ 405 920]; Milner, 1986).

Collections of Late Palaeogene fossil fish are in the NHM. A brief *Illustrated Guide to the British Middle Eocene Vertebrates* (Kemp *et al.*, 1990) and a guide to the fossils of the Bracklesham Beds (Bone, 1985) have been published privately.

Fish sites

Sporadic fish material has been recovered from many localities spread throughout the entire Hampshire Basin Late Palaeogene outcrop, and in exposures on the Isle of Wight. However, most of these sites have only yielded fragmentary remains of one or two fish species and thus, only the more significant ones are listed below (taken mainly from Hooker and Ward, 1980).

HAMPSHIRE: Yateley (Bracklesham Group, Earnley Formation; [SU 826 611]; 29 species; James, Ward and Cooper, 1976); Lee-on-Solent (Bracklesham Group, Marsh Farm and Huntingbridge Division; [SU 552 014]–[SU 563 002]; over 50 species; see report); Highcliffe, Christchurch (Barton Clay, Beds A1–3; [SZ 199 928]–[SZ 224 930]; 33 species and one frog vertebra referable to 'discoglossid 1' of Milner *et al.*, 1982; Burton, 1929; Ward, 1980; Milner, 1986); Barton Cliff, Christchurch (Barton Clay, Beds B–H; [SZ 218 930]–[SZ 252 925]; 24 species; see report); Taddiford–Long Mead End, Milford (Barton Beds, Barton Sand I–K; [SZ 251 925]–[SZ 263 923]; 11 species; Burton, 1929, 1933); Hordle Cliff (Headon Hill Formation; Lower–Middle Headon Beds; [SZ 263 923]–[SZ 273 918]; nine species of fish, four species of amphibian; see report); Park Hill, Lyndhurst (Headon Hill Formation, Middle Headon Beds, *Venus* Bed; [SU 302 058]; ten species; Ward,

1980).

ISLE OF WIGHT: Whitecliff Bay (London Clay–Osborne Beds; [SZ 638 898]; 19 species; Fisher, 1862; White, 1921); Headon Hill (Headon Hill Formation, Lower–Upper Headon Beds and Osborne Beds; [SZ 315 858]–[SZ 318 862]; three species of fish, four species of amphibian; see report); Colwell Bay (Headon Hill Formation, Middle Headon Beds, *Venus* and Oyster Bed; [SZ 327 878]–[SZ 328 881]; ten species; White, 1921); Wotton Creek, Fishbourne (Osborne Beds; [SZ 55 92]; one species of discoglossid frog; Rage and Ford, 1980); Kingsquay (Osborne Beds; [SZ 538 941]–[SZ 556 934]; two species; see report); Bouldnor Cliff, Hamstead (Hamstead Beds; [SZ 370 900]–[SZ 405 920]; two species of fish, five species of amphibian; Milner, 1986).

SUSSEX: Bracklesham Bay (Bracklesham Group, Wittering–Selsey Divisions; [SZ 823 951]–[SZ 825 947]; over 160 species; see report); Selsey (Bracklesham Group, Selsey Division; [SZ 825 947]–[SZ 843 932]; 18 species; Curry *et al.*, 1978).

Six sites are selected as GCR sites on the basis of their important Late Eocene fish faunas:

1. Bracklesham Bay, West Sussex ([SZ 823 951]–[SZ 825 947]). Early-Middle Eocene, Bracklesham Group (Wittering, Earnley, Marsh Farm and Selsey Divisions).
2. Lee-On-Solent, Hampshire ([SU 552 014]–[SU 563 002]). Middle Eocene, Bracklesham Group (Marsh Farm and Huntingbridge Division).
3. Barton Cliff, Hampshire ([SZ 218 930]–[SZ 252 925]). Late Eocene, Barton Clay, Beds B-H.
4. Hordle Cliff, Hampshire ([SZ 263 923]–[SZ 273 918]). Late Eocene, Headon Hill Formation, Lower and Middle Headon Beds.
5. Headon Hill, Isle of Wight ([SZ 315 858]–[SZ 318 862]). Late Eocene-Early Oligocene, Headon Hill Formation (Lower, Middle and Upper Headon Beds) and Osborne Beds. This site is reported in Chapter 15 where it is treated as one for amphibians.
6. Kings Quay, Isle of Wight ([SZ 538 941]–[SZ 556 934]). Late Eocene-Early Oligocene, Osborne Beds.

[References](#)