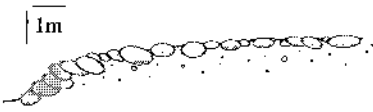


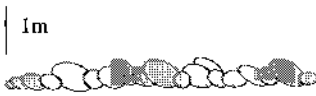

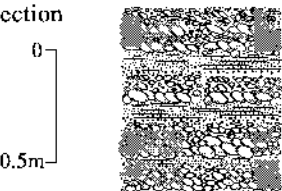
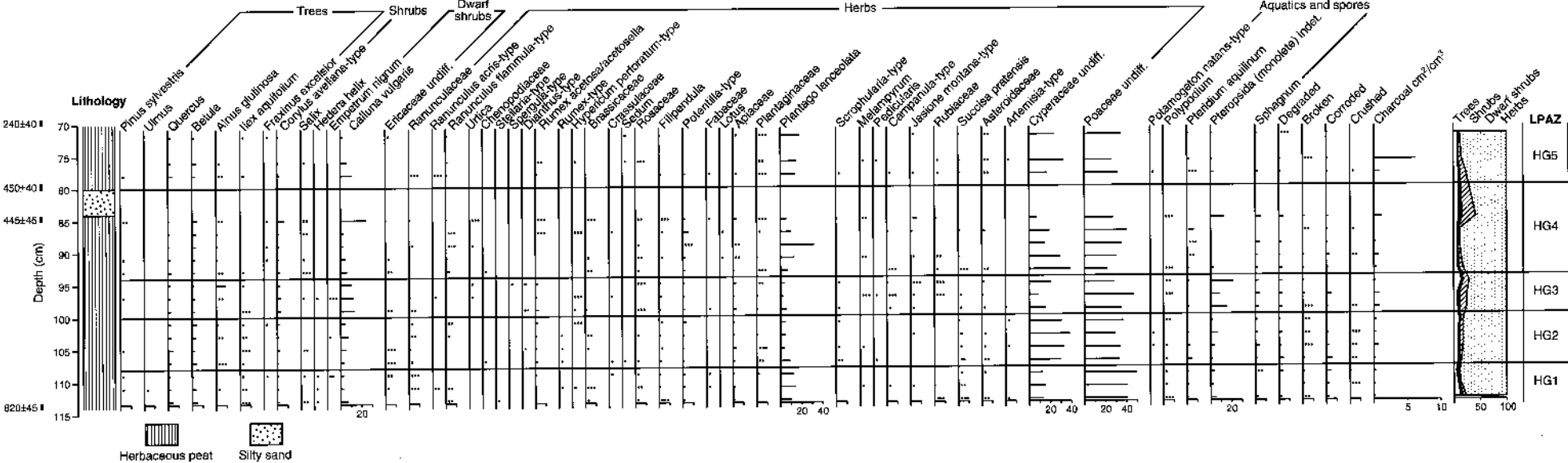
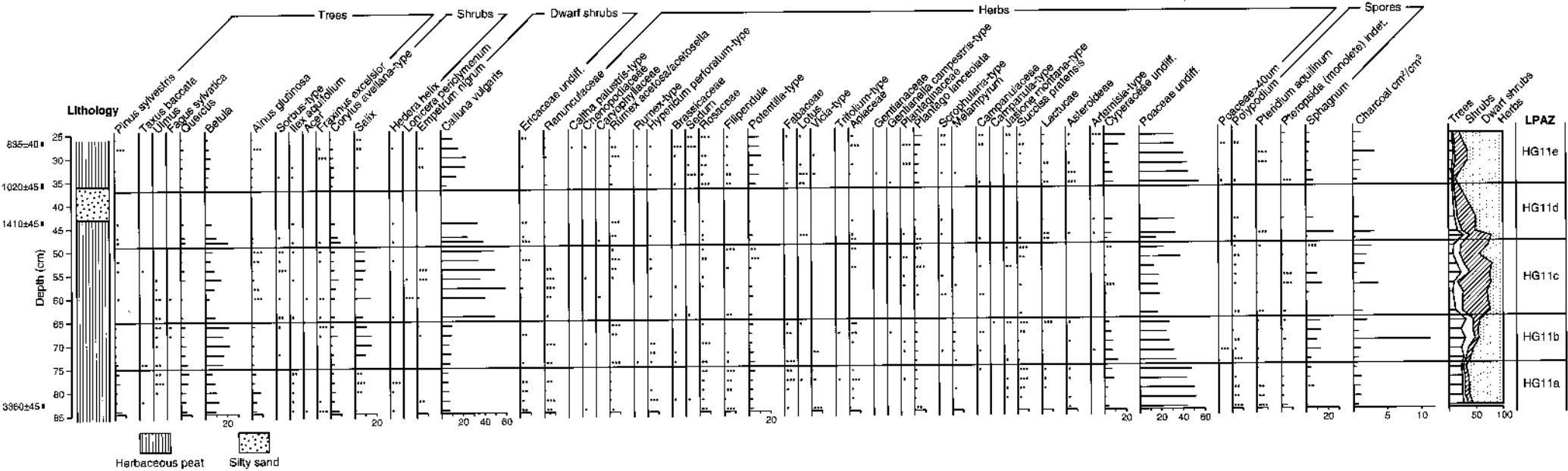


<p>Viscous debris flow lobes</p> <p>Viscous debris flows form narrow or lobate depositional lobes (length/width ratios 2:1-5:1) and grade upslope into incised channels flanked by paired levees. They possess sharp lateral margins, steep snouts and steep flanks. Depositional relief ranges from 1.0-2.5m, width from 4.0-15.0m and surface gradients range from 10-25°. Surface deposits consist of clast supported boulders, cobble gravel and variable amounts of sand and fines. Local excavation revealed fines increased with depth and clasts became matrix supported in zones. Clusters of surface boulders are common, particularly around the front and lateral margins, and the average B-axis length of the ten largest clasts (b max) ranged up to 0.75m. Clasts in the lobe front commonly possess strongly developed compressional fabrics and a-b planes are orientated perpendicular to the lobe front.</p>	
<p>Dilute debris flow lobes</p> <p>Dilute debris flow lobes are similar to viscous types, but exhibit several distinguishing features related to a higher water content, and hence lower shear strength of the mobilised flow. For instance, depositional relief of lobes is less than 1.0m, lateral margins are less steep and prominent (length/width ratios 3:1-5:1) and clast fabrics are poorly developed. Maximum clast size ranges up to 0.45m.</p>	
<p>Transitional flow lobes and splays</p> <p>Transitional flows form lobes and splays composed of poorly sorted masses of clast supported boulders (b max: 1.80m), cobble and gravel with interstitial sand and fines. Clast imbrication is poorly developed and exposures occasionally exhibit crude stratification. Surface relief is highly irregular and characterised by boulder clusters and dewatering collapse depressions. The depositional relief of individual lobes and splays ranges from 0.5-2.5m, surface gradient ranges from 10-20° (length/width ratios 3:1-5:1).</p>	
<p>Stream flow boulder lobes and bars</p> <p>Fluvial boulder lobes and bars consist of well sorted boulders with b max ranging up to 850mm and clast long axes are generally orientated perpendicular to the flow direction. These lobes are narrow and are up to 14.00m in length (length/width ratios 3:1). Depositional relief ranges from 0.30-1.00m and surface gradient ranges from 5-10°. Lobes are often fronted by large boulders which appear to have acted as flow obstacles and triggered stoss side deposition. Therefore, these lobes may have been formed by progressive upstream clast accretion, similar to antidune bedforms (Allen, 1985), but their inherent coarseness prevented their destruction.</p>	
<p>Stream flow cobble bars</p> <p>Fluvial cobble bars are composed of lozenge-shaped spreads of gravel cobble with occasional boulders and interstitial coarse sand. Clast long axes are generally orientated perpendicular to the flow direction and display strong imbrication. Bars range up to 15.00m length (length/width ratios 3:1) and depositional relief ranges from 0.20-0.30m. Surface gradient ranges from 3-10°. Larger clasts within the bar occasionally appear to have acted as flow obstacles and a corresponding clast free zone often occurs immediately downstream, flanked by thin trails of cobbles and boulders.</p>	
<p>Sheetflood gravels and cobbles</p> <p>Sheetflood deposits comprise stacked planar sheets of imbricated gravel and cobble with interstitial sand, and fine upwards into laminated sand. Exposed sheetflood sequences may contain up to 4 separate planar sheets, overlying both erosive and non-erosive contacts, and are equivalent to the sheetflood couplets described by Blair and McPherson (1994). Their surface form comprises multiple lozenge shaped bars up to 10m in length, 3m in width and with depositional relief of less than 0.10m. Surface gradient ranges from 2-15°.</p>	<p>section</p> 

Hag's Glen alluvial fan section 6: percentage pollen diagram



Hag's Glen alluvial fan section 11: percentage pollen diagram



DATA REPOSITORY

Figure DR1: Percentage pollen diagram for selected taxa from Section 6 (Hag's Glen alluvial fan complex). The pollen diagrams were drawn using Tilia and Tiliagraph version 2 and are divided into local pollen assemblage zones (LPAZs) based on changes in the representation of principal pollen and spore taxa using CONISS (Grimm, 1991). The pollen data are presented as percentages of total land pollen (TLP), excluding spores and aquatics. Spores and aquatic pollen are also expressed as percentages of total land pollen. A cross denotes one pollen grain. Uncalibrated radiocarbon determinations are shown in the pollen diagrams.

Figure DR2: Percentage pollen diagram for selected taxa from Section 11 (Hag's Glen alluvial fan complex). See Figure DR1: for further details.