

## First record of larval sea lamprey *Petromyzon marinus* L. in the Endrick Water, Loch Lomond

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Three lamprey species are known to occur in Scotland: European river *Lampetra fluviatilis* and brook lamprey *L. planeri*, and the sea lamprey *Petromyzon marinus*. Although detailed records of their distribution remain scarce, lampreys have been sampled from 79 Scottish regions (ERA 2005). The sea lamprey is the rarest species in both records and surveys and has been recorded nationally in just 35 rivers, although their continuing presence in some is uncertain (ERA 2005).

The Endrick Water drains the South East catchment of Loch Lomond into its south basin. The river contains scientifically important populations of brook and river lamprey, and has been designated a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) as a result (Bond 2003; Hume 2011). Although several lamprey surveys have been conducted in recent years (Maitland et al. 1994; Gardiner et al. 1995; Gardiner & Stewart 1997, 1999; Forth Fisheries Foundation 2004; Hume 2011; Watt et al. 2011) adult sea lamprey have been recorded only very occasionally in the Endrick Water, and they have not been observed since the 1960s (Hunter et al. 1959; Maitland 1966). Spawning is believed to be restricted to the efferent River Leven between the barrage (NS 393 894) and footbridge (NS 394 793) in Balloch (Maitland et al. 1994; Gardiner et al. 1995). Despite extensive sampling of larval habitat around the Loch Lomond basin in recent years, sea lamprey ammocoetes have until now only been recorded in the River Leven.

On March 21<sup>st</sup> 2012 a single sea lamprey ammocoete was collected immediately downstream of Drymen Bridge on the Endrick Water (NS 473 874) in static traps designed to capture adult lampreys on their upstream spawning migration. This individual measured 151 mm in total length and was 4.6 g wet weight. Positive identification as *Petromyzon* as opposed to *Lampetra* spp. was confirmed from the following meristic and morphometric characteristics (Fig. 1): trunk myomeres 71 (*P. marinus* 67-74; *Lampetra* spp. 58-64), oral hood fully pigmented (*Lampetra* spp. upper/lower lip unpigmented), caudal fin spade-like (*Lampetra* spp. typically rounded),

robust head region (*Lampetra* spp. distinct pre-nostril region) (Renaud 2011). Sea lamprey larval duration is typically five years, although it can be as long as 19 years as growth rates vary enormously, so an accurate age estimate of just one individual is fraught with uncertainty. Based on typical values from other U.K. populations this individual is likely to be 3-5 years old, indicating that spawning took place in the Endrick Water at sometime between May/June 2007-2009 (Hardisty 1969; Bird et al. 1994).



Fig. 1. *P. marinus* ammocoete

Throughout Scotland larval *Petromyzon* are recorded in very low densities compared with *Lampetra* spp., even in rivers known to contain strong adult spawning populations (APEM 2004; ERA 2004; Watt et al. 2008). There remains the possibility that sea lamprey spawn in the Endrick Water in small numbers, but; that adults are not detected because trapping methodology excludes the larger body size of mature sea lamprey, and sea lamprey ammocoetes are not detected during routine surveys due to their inherent scarcity. Currently, the Endrick Water is a stronghold for lamprey in Scotland, with both *L. fluviatilis* and *L. planeri* populations being of international conservation importance (Bond 2003). If indeed this isolated record of larval *P. marinus* represents the first indication that the species now maintains a spawning population within the Endrick Water, there is an implication that the conservation strategy for this river should be modified to include sea lamprey as a qualifying feature of the SAC.

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