

First record of river lampreys (*Lampetra fluviatilis*) in the River Garnock, Ayrshire.

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The national survey of lampreys in Scotland (ERA, 2005) noted records of river lamprey *Lampetra fluviatilis* (L.) and sea lamprey *Petromyzon marinus* L. in 17 and nine river catchments respectively in south west Scotland, although the recent presence in some catchments remained uncertain. Migratory lampreys are of conservation interest and are regarded as an important indicator species in EU Water Framework Directive assessments of transitional waters, i.e. estuaries and reduced salinity sea lochs.

Records of lampreys in SEPA surveys of transitional waters are sparse (O'Reilly, 2000) and their occurrence there may best be inferred by observations in adjacent upstream freshwater bodies. This monitoring approach, collating records from river surveys and anecdotal observations of migratory lampreys, was adopted by SEPA in 2014 in a Citizen Science lamprey project in south west Scotland (O'Reilly *et al.*, 2016). The SEPA surveys in 2014 and review of anecdotal accounts highlighted the continued presence of sea lampreys in the River Leven, their recent occurrence in the River Clyde, a first record from the Black Cart, and first records of spawning sea lampreys in the Rivers Kelvin, Doon and Garnock. However, no new records of river lamprey came to light.

On 16th Sept 2016 electro-fishing was undertaken by SEPA on the River Garnock upstream of Dirrans Bridge (NS 30716 42342) near Kilwinning. The aim was to capture European eels *Anguilla anguilla* to assess their body burden of persistent organic pollutants. Sampling took place in a 50 m stretch of river between the pipeline/footbridge and the weir upstream. In addition to eels, there was a by-catch of around twenty good sized lampreys. Four eels and five lampreys were transferred to a holding container for closer examination (Fig. 1A). The lengths of the lampreys were measured as 29.5, 28.6, 32.0, 31.8, and 33.1 cm. Their size, oral disc tooth structure, dorsal fin separation and uniform coloration indicated that they were all river

lampreys (Gardiner, 2003). The lampreys were returned to the river and one was subsequently photographed *in situ* attached to a stone (Fig. 1B).

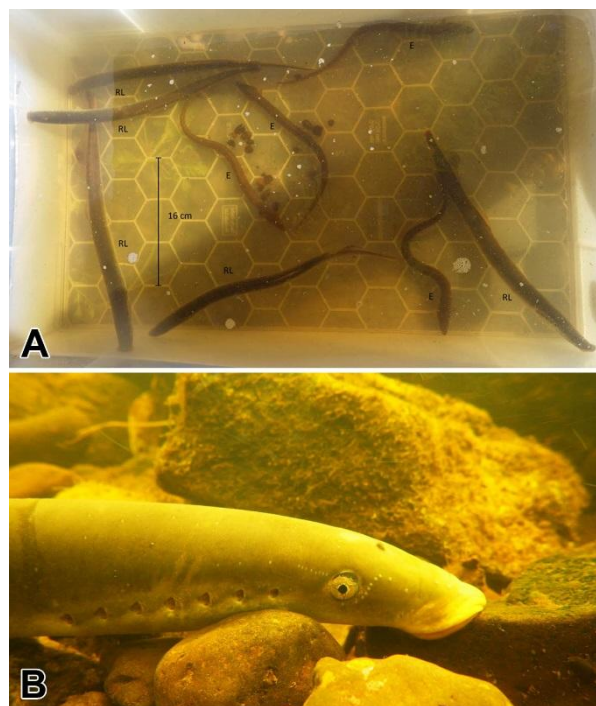


Fig. 1. (A) River lampreys (RL) *Lampetra fluviatilis* and European eels (E) *Anguilla anguilla* from the River Garnock in 2016. (B) A river lamprey *Lampetra fluviatilis* in the River Garnock in 2016.

Until recently only the non-migratory brook lamprey *Lampetra planeri* (Bloch) was known from the River Garnock. Both the river lamprey and the brook lamprey have been recorded from the nearby River Irvine. As the estuaries of the Garnock and Irvine merge as they enter Irvine Bay, it might be expected that migratory lampreys would enter both river systems. The sea lamprey was first recorded in the River Garnock by a local naturalist in 2012 and subsequently observed by SEPA in 2014. There have been no reports yet of sea lampreys in the River Irvine. The finding of river lampreys in the River Garnock in 2016 represents the first record from this catchment. It occurred at the same location, Dirrans Bridge, where sea lampreys were recorded in 2014 and it is possible that both species may spawn in this area. River lampreys migrate in the autumn, although spawning does not take place until the spring (Maitland, 2003). Weirs may act as barriers to lamprey migration (Nunn *et al.*, 2008). It is not certain if migratory lampreys can ascend the weir at Dirrans Bridge or if suitable spawning grounds occur further upstream.

A recent overview of the conservation of lampreys in Scotland is provided by Hume (2017) and cites south west Scotland as a stronghold for the river lamprey.

However, their status in many rivers remains uncertain and it may be beneficial to target future surveys at potential lamprey spawning areas to reveal important sites of value for conservation (Gardiner & Stewart, 1997).

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