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## Dunside

[SO 746 362], [SO 751 371]

(Potential GCR site)

### Highlights

This site, near Lesmahagow in Strathclyde, is the original type locality of the rare primitive thelodont *Loganellia scotica*. Other early fishes have been found here, and the site is internationally important because of the rarity of such ancient fish assemblages.

### Introduction

A stream section on Logan Water in the Lesmahagow inlier exposes the only known outcrop of the fish-bearing *Ceratiocaris* Beds. These are the lowest beds of the Kip Burn Formation of the Priesthill Group, of latest Llandovery or earliest Wenlock age (Figure 2.8). Murchison visited the area following the discovery of eurypterids by Robert Slimon, and subsequently published a description of the geology (Murchison, 1856b). Hunter (1885) gave the first written record of fishes collected from a nodule horizon at this site. Slimon had collected specimens of *Thelodus* and *Birkenia* during his original survey, but these remained unrecognized until his collection was re-examined following the description of fishes from other collections (MacNair, 1905). At this stage it was not realized that the Birk Knowes exposures were older than those on Logan Water and the fish species were all grouped together.

The geology of the site has been described by Murchison (1856b) and more recently by Jennings (1961), and the fish fauna by Hunter (1885), Traquair (1899b, 1905a) and MacNair (1905; see (Figure 2.4) and (Figure 2.8)).

### Description

The *Ceratiocaris* Beds consist of dark grey, carbonaceous, laminated siltstones with a very few olive mudstone bands. They are very fossiliferous, with common eurypterids, but relatively rare fishes (Jennings, 1961). This is the type locality for *Loganellia scotica* Traquair, 1899 and *Thelodus planus* Traquair, 1899. *Birkenia elegans* Traquair, 1899 and a possible second species of *Birkenia* also occur.

The first descriptions of the Lesmahagow vertebrate fauna were by Traquair (1899b, 1905a). Since the true stratigraphical relationships between the different fossiliferous horizons in the area were not known then, the fishes were divided into those from the 'Ludlow' Beds and those from the 'Passage' or Downtonian beds.

### Fauna

#### AGNATHA

Thelodonti: Thelodontida: Loganellidae

*Loganellia scotica* Traquair, 1898

Anaspida: Birkeniiformes: Birkeniidae

*Birkenia elegans* Traquair, 1898

Traquair described *Thelodus scoticus* and *T. planus*, both of which must have come from this site, and an indeterminate form from the 'Ludlow' Beds, and he listed *Birkenia elegans* as coming from the 'Passage' Beds.

*Loganellia scotica* is the earliest, complete British articulated thelodont, and it is known also from the *Jamoytius* Horizon at Birk Knowes (q.v.). *Thelodus planus* Traquair, 1899 was described from a single specimen found at the site in 1898 by A. Tait. The species is defined on the ornamentation of the scales, and may well prove to be a *nomen nudum* on further research (Turner, 1991).

*Birkenia* is rare in the *Ceratiocaris* Beds, but is the most common fish in the overlying fish beds of Lesmahagow and the Hagshaw Hills (see Shiel Burn and Slot Burn reports). The finds here are the stratigraphically lowest record of *Birkenia* in Scotland, and the material may represent a new species, rather than *B. elegans* as recorded ((Figure 2.11)A, B).

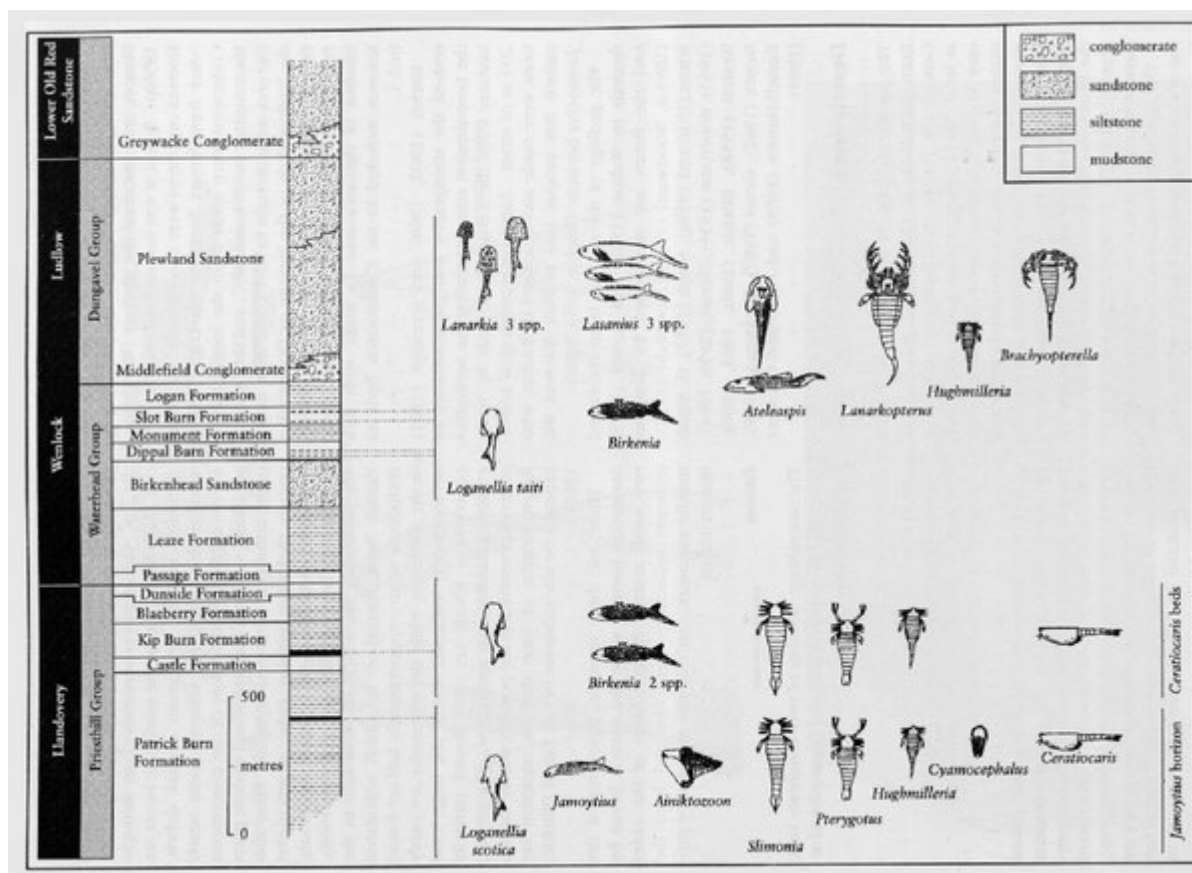
## Interpretation

The locality at Dunside has produced a very similar vertebrate and arthropod fauna to that at Birk Knowes, but it dates from a slightly younger formation. The main differences between the two assemblages lie in the absence of *Jamoytius* and *Ainiktozoon* at Dunside, and the presence there of *Birkenia*. *Birkenia* cf. *elegans* was recently reported together with thelodont denti-cies from County Mayo, north-western Ireland (Palmer *et al.*, 1989), in a postulated extension of the Midland Valley of Scotland. The implication is of an aquatic connection between these two areas, some 500 km or more in length (see (Figure 2.2)).

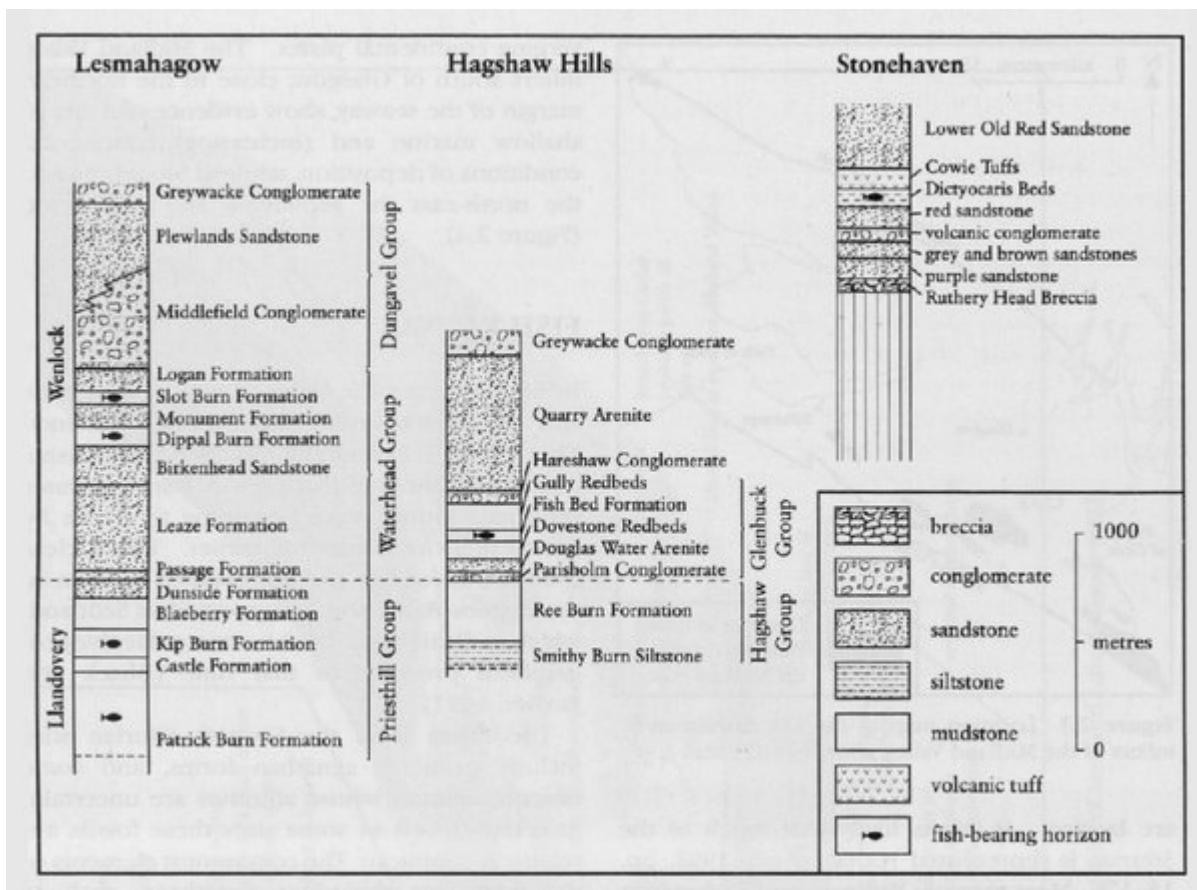
## Conclusion

The conservation value of this key early Silurian fish site lies in its remarkable fauna of up to four fish species, associated with predatory eurypterid arthropods. It differs from the nearby older site, Birk Knowes, in the presence of the anaspid fish *Birkenia*.

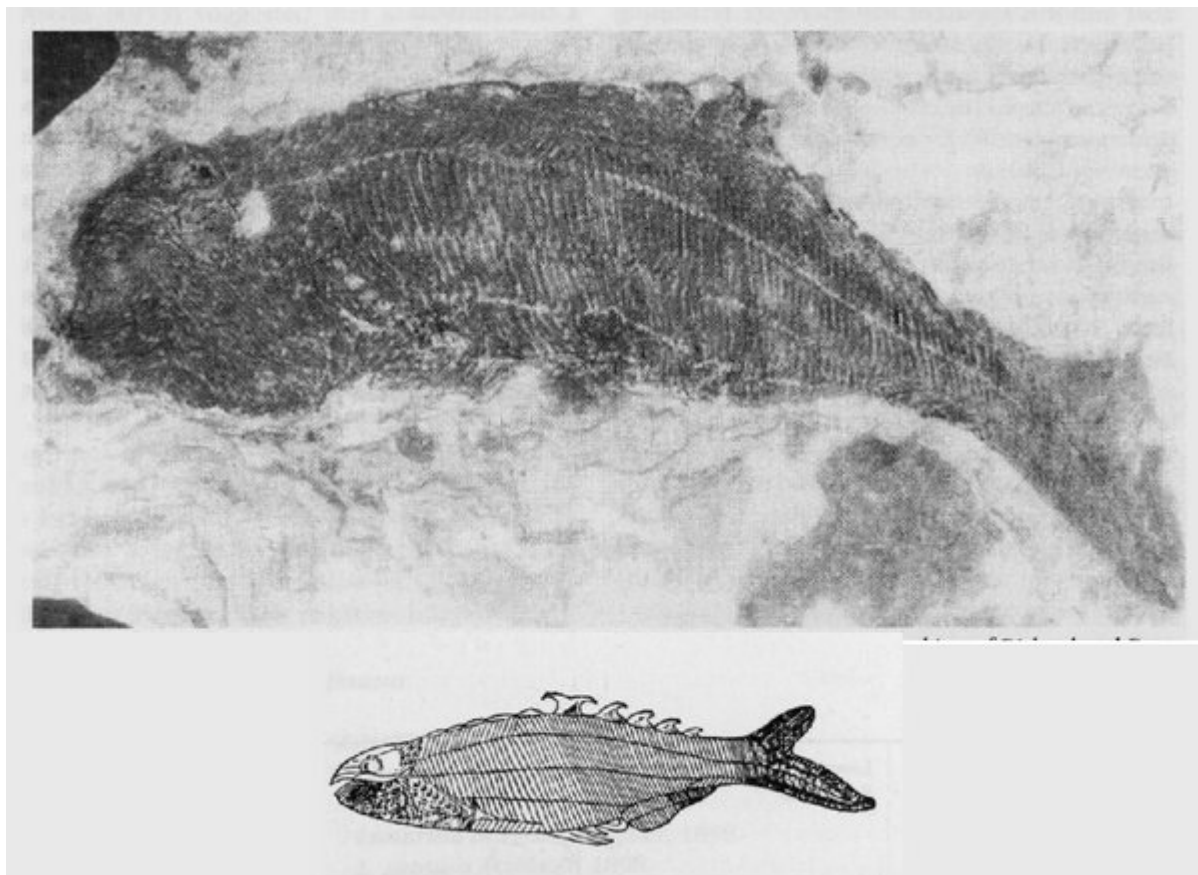
## References



(Figure 2.8) The Silurian succession in the Lesmahagow inlier (from Ritchie, 1985). Three vertebrate-arthropod faunal assemblages are distinguished: the *jamoytius* horizon (lowest), the *Ceratiocaris* Beds in the Kip Burn Formation, and the (latest) fish beds in the Dippal Burn and Slot Burn Formations. *Ainiktozoon* is known only from the *Jamoytius* horizon.



(Figure 2.4) Silurian successions in the inliers of the Midland Valley (after Cameron and Stephenson, 1984).



(Figure 2.11) A *Birkenia elegans* Traquair. Well-preserved specimen from the ?Wenlockian of Birkenhead Burn, Shanks Castle, photographed under water, x 2, GLAHM V 8384 (Photo: courtesy of the Hunterian Museum, Glasgow). B *Birkenia elegans* Traquair. A restoration of this anaspid, the original fossil being c. 10 ems long (after Stetson, 1927).

