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## Bream (*Abramis brama*), a new fish species confirmed in Loch Lomond

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Loch Lomond is of national importance. Its range of habitats, diversity of species and rare populations of powan (*Coregonus lavaretus*) and freshwater feeding river lampreys (*Lampetra fluviatilis*) warrant high conservation status (Lyle & Maitland, 1994; Maitland et al, 2000). It is also of value for tourism, including sport fisheries for migratory trout (*Salmo trutta*), salmon (*Salmo salar*) and pike (*Esox lucius*), bringing money to the area.

Historical records demonstrate that the species composition of the fish community has remained stable over a very long period, until recently, when a series of introductions of fish species new to the catchment has resulted in successful colonisation by a number of species (Maitland, 1972; Adams, 1994; Maitland et al, 2000). Invasive species currently found in Loch Lomond include dace (*Leuciscus leuciscus*), chub (*Leuciscus cephalus*) (Adams et al, 1990), crucian carp (*Carassius carassius*) (Adams & Mitchell, 1992), gudgeon (*Gobio gobio*) (Maitland et al, 2000) and ruffe (*Gymnocephalus cernuus*) (Winfield et al, 1996; Adams & Maitland, 1998). Invasive species can result in fundamental changes in the ecosystem; in Loch Lomond changes have occurred in prey taken by predatory species such as pike (Adams, 1991), heron (*Ardea cinerea*) (Adams & Mitchell, 1995) and otters (*Lutra lutra*) (McCafferty, 2005). Once an invasive fish species has colonised a large lake like Loch Lomond, it is essentially impossible to remove.

On the 17th January 2006 during a gill netting survey, a single bream (*Abramis brama*) was caught in the south-west of Loch Lomond near the entrance to the River Fruin (NS 364 855). The bream was 472 mm fork length and weighed 1693.4g. Scale reading indicated that the fish was 9 years old.

Bream has never been confirmed within Loch Lomond although its presence has been strongly suspected. There has been a report of a specimen caught in the River Endrick (Maitland et al, 2000), and a report of a roach (*Rutilus rutilus*) X bream hybrid (Adams & Maitland, 1991). It is unknown whether this fish had been a lifelong resident in Loch Lomond, or whether it was introduced as an adult to either the loch or a tributary. The capture of this new invasive species in Loch Lomond highlights the problems with unchecked

unregulated species movements in Scotland. However, it is hoped that recent legislation by the Scottish parliament, the Aquaculture and Fisheries (Scotland) Bill 2007 (Scottish Parliament, 2007), will prevent, or at least reduce, the number of such movements. In future, it will be illegal in Scotland to move any species of fish from one water body to another without a licence. The use of fish as live bait is prohibited, which is believed to be one of the main ways in which alien fish species, such as ruffe, became established in Scottish waters.

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