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Headwater stream habitats – or why size isn't everything.

Headwater streams represent over two thirds of the length of flowing waters in the UK. Their small size and close relationship with riparian habitats mean they are sensitive to land-use changes.

These diminutive waterbodies, particularly those with seasonal flow, are often perceived as having low biological value. Their biodiversity value should not, however, be underestimated. These habitats play an important role in the functioning of river ecosystems downstream.



Headwater stream in an upland wooded catchment.

Aquatic headwater habitats are multifaceted, they include flowing water, isolated pools and wet sediments; they can be perennial or ephemeral; rainwater or groundwater fed. They support headwater specialist species in addition to taxa found in other aquatic habitats.

Surveys of a number of headwater streams in southern England illustrate the variety of taxa associated with these habitats.

A survey of a wooded headwater habitat, supported especially high numbers of the Golden Ringed Dragonfly *Cordulagaster boltonii*; where these larvae would 'sit and wait' for their prey, whilst partially buried amongst the ubiquitous leaf litter.



Cordulagaster boltonii

Damp marginal habitats associated with seasonally diminishing headwaters can provide suitable habitat for wetland taxa in addition to true aquatic species.

A survey of groundwater-fed headwater stream habitats recorded the exceptionally uncommon species of oligochaete worm *Embolocephalus velutinus*. This species is thought to live and forage within groundwater, utilising surface waters only where there is a constant upwelling of groundwater.

The importance of riparian vegetative habitats, associated with these narrow waterbodies can be illustrated by the abundance and variety of soldierfly species found within one spring-fed headwater. In a single section of channel four species were recorded amongst the aquatic and marginal herbaceous vegetation; *Oxycera rara*, the Four-barred Major; *Oxycera nigricornis*, the Delicate Soldier; *Stratiomys potamida*, the Banded General; and *Vanoyia tenuicornis*, Long-horned Soldier. The adults of these species are dependent on presence of the foliage of riparian trees, scrub and herbaceous umbelliferous plants.



Spring-fed headwater stream amongst lowland pasture.

The biodiversity value of these narrow habitats should not be underestimated. Their size means they are inextricably linked to neighbouring habitats, and as such are particularly vulnerable to changes in land-use.

