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Sarah Diamond, then at the University of North Carolina, Chapel Hill, and her colleagues analysed a data set on UK butterflies such as the speckled wood (Pararge aegeria, pictured) during a period in which the country’s spring temperatures rose by 1.5°C. Butterflies that eat a lower diversity of plant species as caterpillars showed larger shifts in emergence time. The authors suggest that the butterflies may be tracking changes in their host plants’ annual schedules.

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The effects of opossum shrimp

An analysis of more than a century’s worth of ecosystem data has revealed how the introduction of a single species of shrimp to a US lake led to a cascade of changes in the food web.

Bonnie Ellis at the University of Montana’s Flathead Lake Biological Station in Polson and her colleagues examined published data from Flathead Lake (pictured) dating back to the end of the nineteenth century. They found that the opossum shrimp (Mysis diluviana), which was introduced into the lake in the mid-1980s, became a food source for the previously introduced but theretofore unobtrusive lake trout, which now dominates the lake.

The lake trout went on to eat all of the kokanee salmon, depriving eagles of their annual spawning kokanee feast. In addition, the shrimp consume large zooplankton, so small zooplankton now dominate. Because the latter do not consume as much algae, algal levels have increased, leading to a 21% rise in photosynthesis. Proc. Natl Acad. Sci. USA doi:10.1073/pnas.1013006108 (2011)

Best of two microscopes

Electron microscopes allow cell biologists to visualize the tiniest of cellular features, but struggle to locate rare features or events. Fluorescence light microscopy (FM) is well suited to this task, but its resolution is low. So Marko Kaksonen, John Briggs and their colleagues at the European Molecular Biology Laboratory in Heidelberg, Germany, combined the two modalities to image rare...