

IN BRIEF

ENVIRONMENTAL MICROBIOLOGY

Environmental and anthropogenic controls over bacterial communities in wetland soils

Hartman, W. H. *et al. Proc. Natl Acad. Sci. USA* **105**, 17842–17847 (2008)

Freshwater wetlands form a link between terrestrial and aquatic ecosystems, and the composition of wetland microbiota is important for nutrient fluxes. A comparison of selected freshwater wetlands showed that wetlands converted to agricultural use had the highest microbial diversity; wetland restoration decreased microbial diversity to the lower levels seen in reference wetlands. This might reflect the increase in anoxia and acidity found in the restored and unperturbed wetlands. Of the environmental factors tested, pH values correlated most strongly with increased microbial diversity. Another difference between the wetlands in use for agriculture and restored wetlands was the decrease in the ratio of Proteobacteria to Acidobacteria, which is an indicator of the trophic status of the soil.

BACTERIAL PATHOGENESIS*Mycoplasma suis* invades porcine erythrocytes

Groebe, K. *et al. Infect. Immun.* 17 Nov 2008 (doi:10.1128/IAI.00773-08)

Mycoplasma suis, long considered an extracellular haemolytic pathogen, has been detected inside erythrocytes for the first time. When pigs were infected with *M. suis* 08/07 they became bacteraemic, and bacteria were detected by scanning electron microscopy in a large form and a small form. The large form was tightly associated with erythrocytes and was frequently detected in cup-shaped invaginations of the host cell. Antibiotic treatment reduced the number of bacteria detected by fluorescence microscopy, but the bacterial load detected by PCR was only slightly reduced, indicating that the bacteria were sequestered in a protected niche. Indeed, using both transmission electron microscopy and double-label immunofluorescence microscopy (which could distinguish intracellular and extracellular bacteria) the authors showed that *M. suis* 08/07 was present inside erythrocytes. This finding has implications for the detection, pathogenesis and treatment of *M. suis* infection.

VIRAL INFECTIONMetagenomic analysis indicates that stressors induce production of herpes-like viruses in the coral *Porites compressa*

Vega Thurber, R. L. *et al. Proc. Natl Acad. Sci. USA* **105**, 18413–18418 (2008)

Widespread death of corals has inspired researchers to search for coral pathogens. Herpes-like viral particles have been observed in coral, and herpes virus genes have previously been detected in coral genomes. Using deep sequencing, Vega Thurber *et al.* show that eukaryotic viral sequences occur within stressed colonies of *Porites compressa*. Associated with the coral were 19 virus families, of which the best represented, and most strongly stress induced, was the *Herpesviridae*. Herpesviruses increased in abundance after a temperature increase of 3°C and reached peak levels 4 hours after the temperature change. The sequences of these viruses provide insights into herpesvirus evolution, but a role for herpes-like viruses in coral disease has yet to be proven.