



Case Study 7.2 West Sedgemoor, Somerset – demonstrating how plant communities are situated in relation to topography and water levels

On peaty catchments, extensive areas of low-lying ground have been ditch-drained in historic times to turn wetlands into agricultural land. In these systems, water levels in the internal drainage ditches and the main river influence the water table across the site. Such sites are often subject to intensive water-level management. The Somerset Levels provide some of the best examples of ditch-drained, reclaimed peatlands where water levels are managed through internal ditch-level controls. A series of sluices and bunds allow the water to be held at different levels across the site, thus providing considerable variation in soil-water levels during the growing season. The variation in the ditch-water levels has been shown to influence the plant communities present; differences of less than 1.2 m result in a gradation from swamp and inundation communities capable of intensive management.

Vegetation communities are also affected by the interaction between ditch-water levels and past management. Where land has been cultivated in the past, fertility levels are enhanced and the structure of the peat can be lost. Areas with the same soil-moisture conditions can therefore support different plant communities depending on whether fertiliser has been applied in the past. A given ditch level may result in anoxic soil conditions in previously cultivated areas (because of the loss of soil structure), but not in uncultivated areas. Low-lying land of low fertility where the peat structure remains intact supports species-rich Kingcup-carnation sedge meadow (MG8) and Sedge lawn (MG14) vegetation whilst other areas of similar elevation that have been improved in the past support species poor Foxtail plash (MG13; see Chapter 8 of the technical handbook).

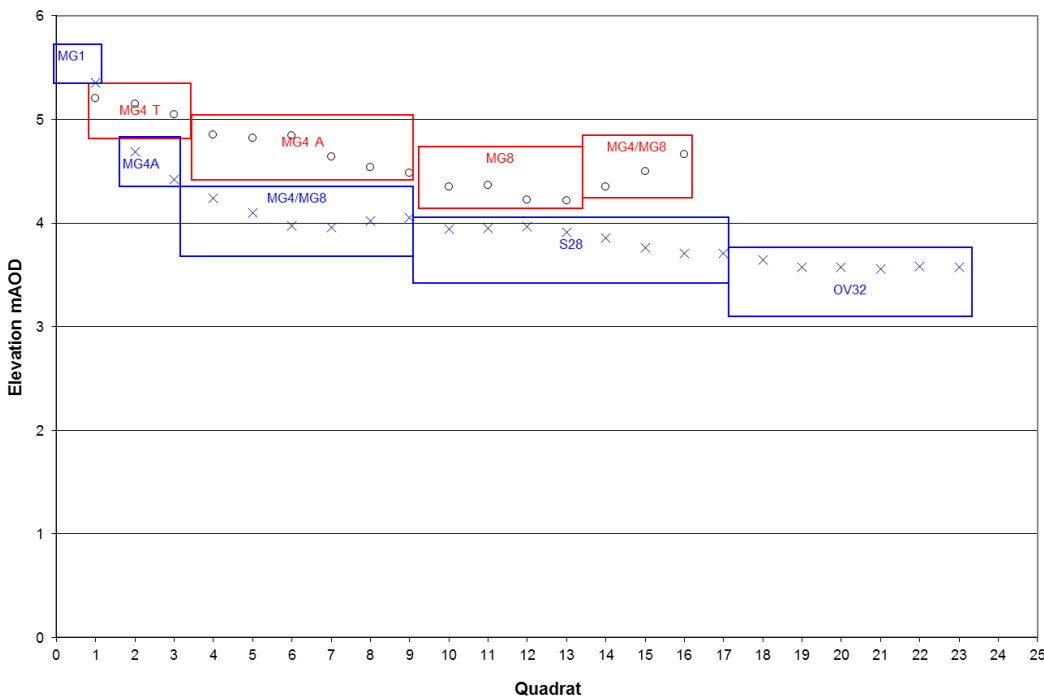


Figure 7.9 Field elevation relative to ditch-water level during the period March–May at West Sedgemoor, Somerset, 2003–2005. The plant communities are graded according to the elevation.

The wetter plant communities at West Sedgemoor, showing areas of species-rich Kingcup-carnation sedge meadow (MG8). © Mike Dodd



The drier plant communities at West Sedgemoor showing areas of Knapweed meadow (MG5) on the upper slopes of the reserve. © Harry Paget-Wilkes

