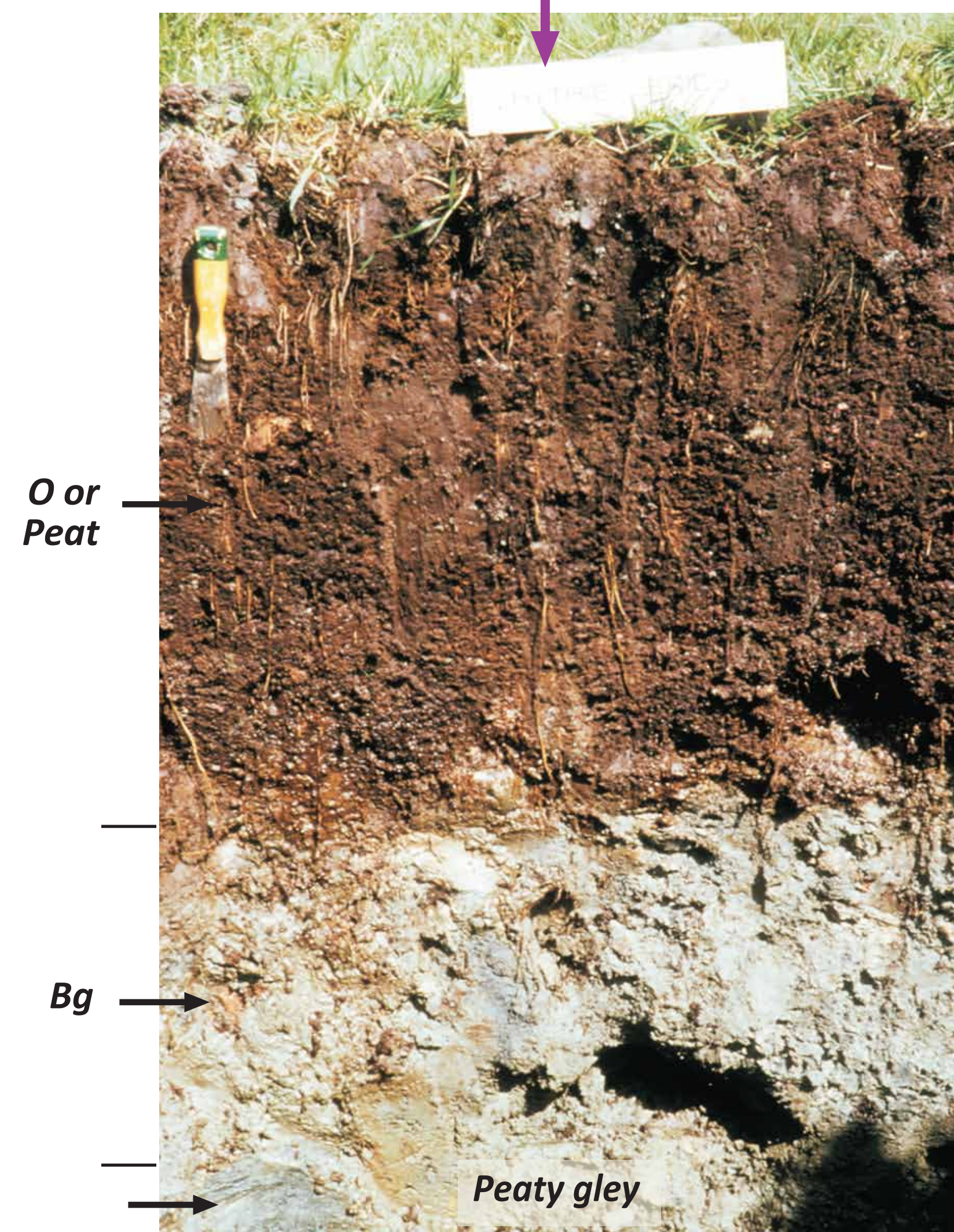


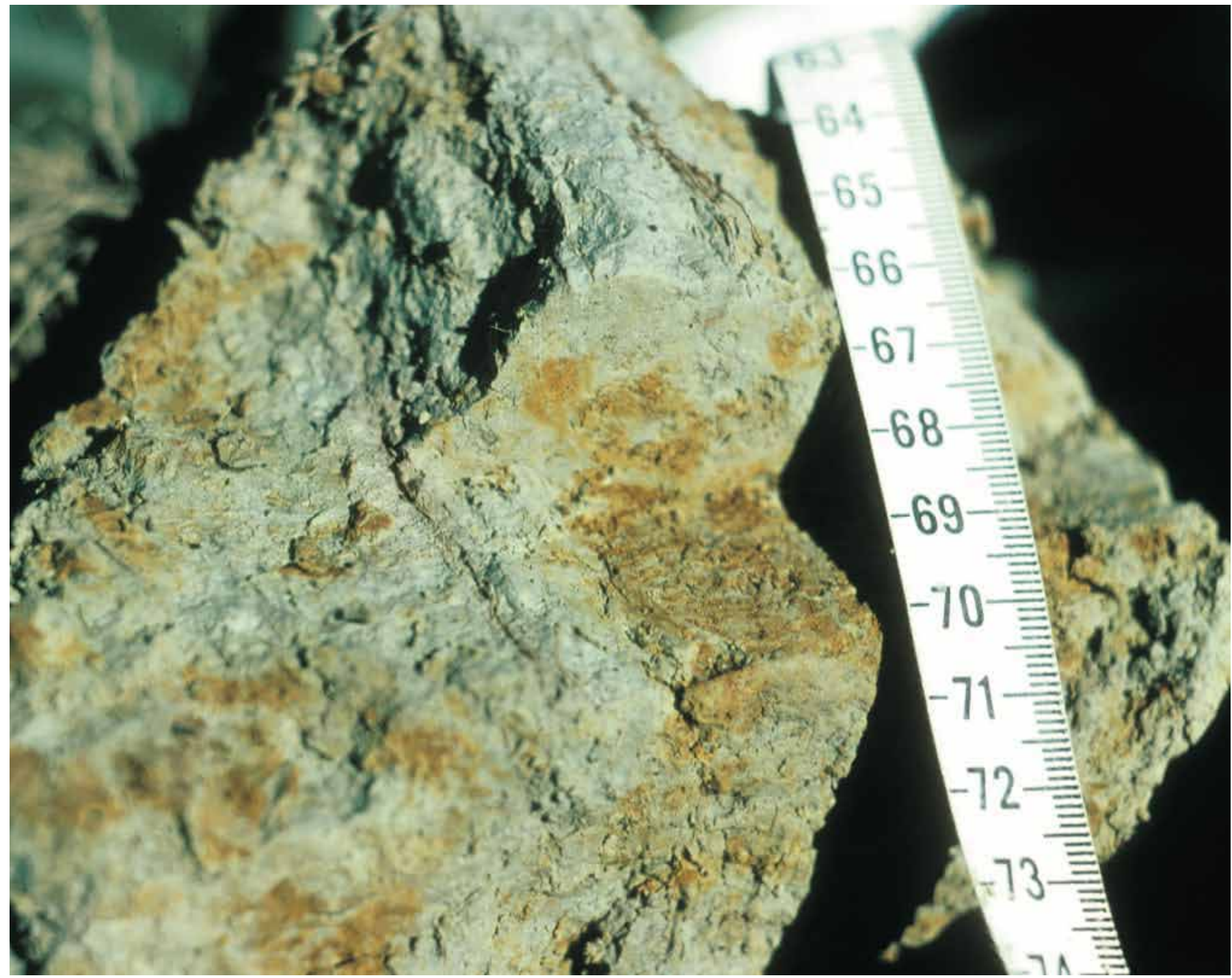
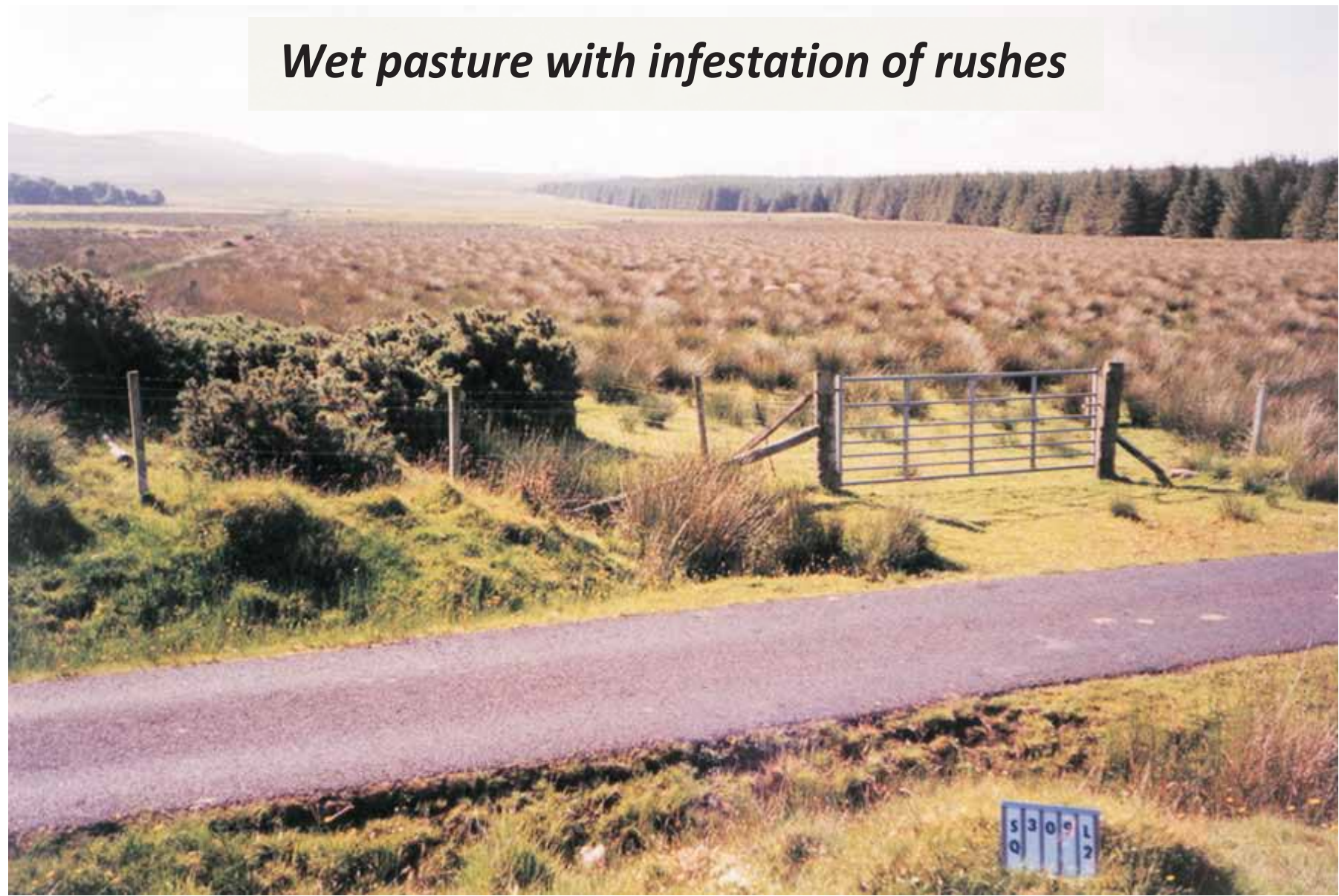
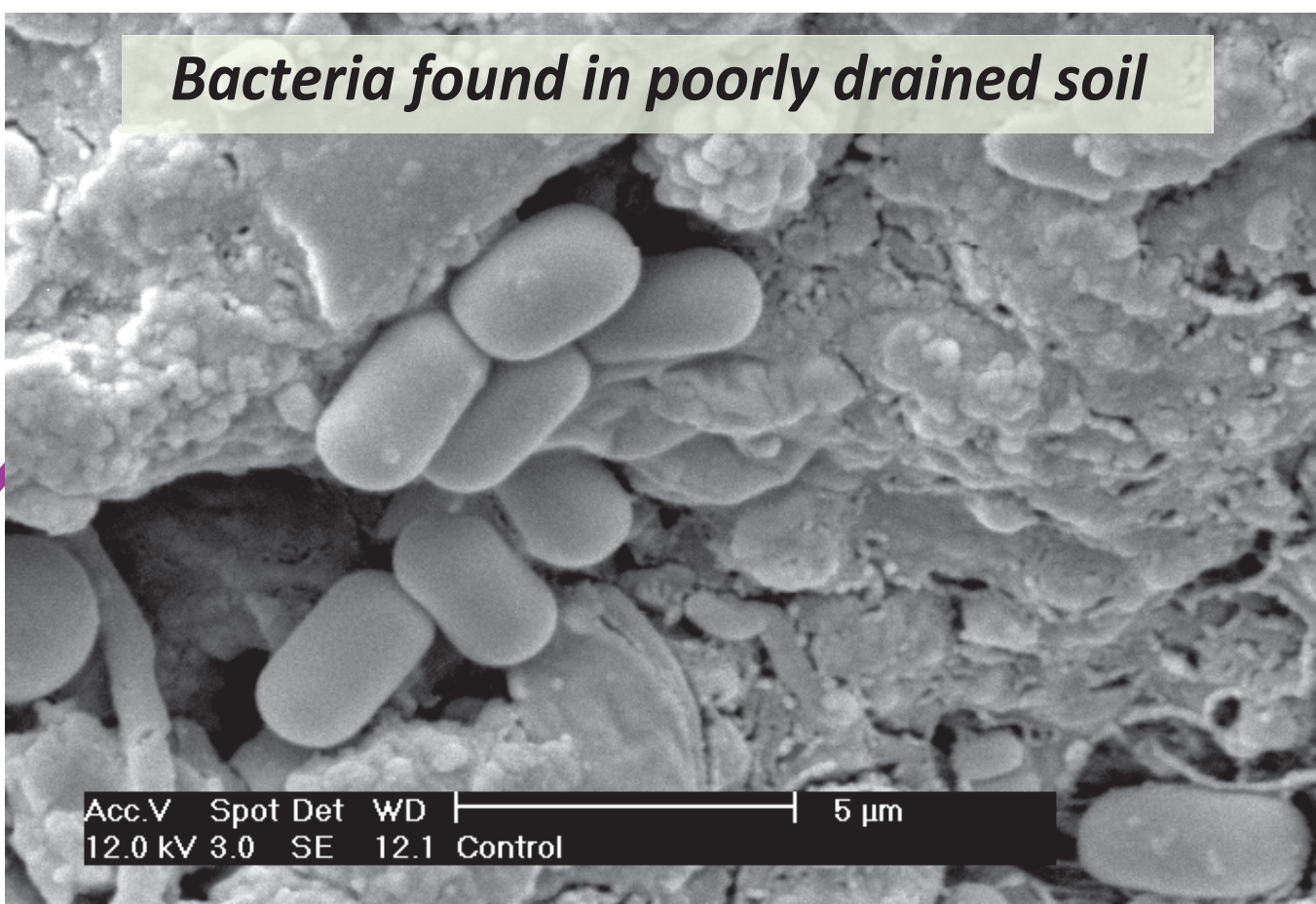
5. Gley Soils

General characteristics: The essential common feature of **poorly draining** gley soils is that, under periodic or permanent waterlogging, the subsoil experiences a lack of oxygen within the **pore space**. Consequently under **anaerobic** conditions the insoluble iron oxides (which cause the characteristic yellow, brown or reddish-brown colour to soils with adequate aeration) are reduced chemically and the ferric iron changed to ferrous iron prior to **translocation** from the soil profile. Minerals with iron in the ferrous form impart a **grey or bluish-grey colour** to the subsoil. The gleying process is not necessarily permanent and where intermittent, intense **mottling** and grey colours are characteristic. Where surface wetness is a feature throughout the year, the horizons are generally rich in organic matter, often intergrading into peat deposits. Soil water often contains decomposition products of organic matter. *Derivation: from the Russian words glei = compact bluish grey*

SOIL FORMING FACTORS	
PARENT MATERIAL	Highly variable from coastal sands to glacial till deposits.
VEGETATION/ORGANISMS	Wetlands to wet moorlands. Many anaerobic organisms found.
CLIMATE	Relatively warm, humid to alpine conditions with precipitation > evaporation so leaching is active.
TOPOGRAPHY	In topographic situations where the groundwater is seasonally high (groundwater gleys) or in low-lying sites where an impermeable soil horizon impedes drainage and temporarily saturates the upper horizons during excessive rainfall periods (surface water gleys).
TIME	Long-term since end of last ice age, 10,000 years.



ORGANIC MATTER BREAKDOWN



Block of gleyed soil with distinct mottles - grey colours denote gradual depletion of iron because of reducing conditions, "rusty" mottles depict zones enriched with ferric compounds within well-aerated pathways such as old root channels or distinct pores.

Uses: In their natural state, gleys support a range of wet plant species often used for rough grazing or forestry. Drainage has allowed many of the better gley soils to be developed for agricultural use, often as productive grassland for dairy or beef cattle production.