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Fundamentals of Soil Science

2.3. Soil Horizons

... Weathering of bedrock produces unconsolidated debris that serves as the **parent material** for the evolution of soils that eventually reflect the integrated effect of remaining soil forming factors: climate, living matter, relief, and time. Exposure of parent material to the weather, under favorable conditions, will result in the establishment of photosynthesizing plants. Their growth results in the accumulation of some organic residues. Animals (such as earthworms), bacteria, and Fungi join the biological community and feed on these organic remains. Breakdown of organic residues sets free the nutrients contained therein for another plant growth cycle. The microorganisms and animals feeding

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on the organic debris become a part of the total organic matter complex. When the surface layer of the soil reaches a reasonable thickness and assumes a darkened color because of the accumulation of organic matter, an **A horizon** comes into existence.

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... Most soils form in sediments (a product of erosion) instead of from in the direct weathering of bedrock. Where soil evolution occurs in sediments, horizon evolution may produced rapidly by comparison to evolution directly from hard bedrock. Pore spaces in sediments permit deep rooting by plants and facilitate removal of soluble compounds by percolating water. Suspended colloidal-sized particles are translocated by percolating water; however, the suspended colloidal particles tend to move only a few feet before they become lodged or precipitated. The result is the formation of a zone under A horizon where colloidal particles accumulate. This zone is designated a **B horizon**. The most common colloids accumulating in B horizons are clay, organic matter, and oxides of iron and aluminum. ... In forest soils in humid regions, the leaching of material out of the A horizons causes

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the lower part of the A horizon to become “bleached” or light colored. This light colored horizon is now called **E horizon**

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References

Foth, H. D. 1978. Fundamentals of Soil Science. John Wiley & Sons, New York, USA

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