

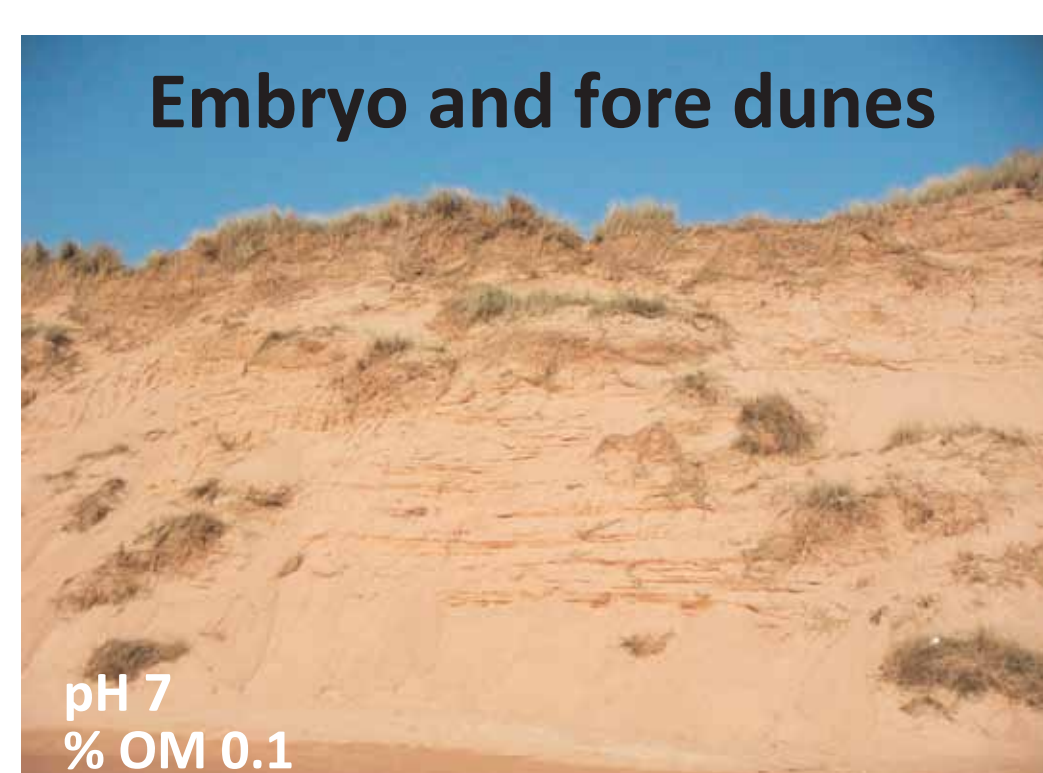
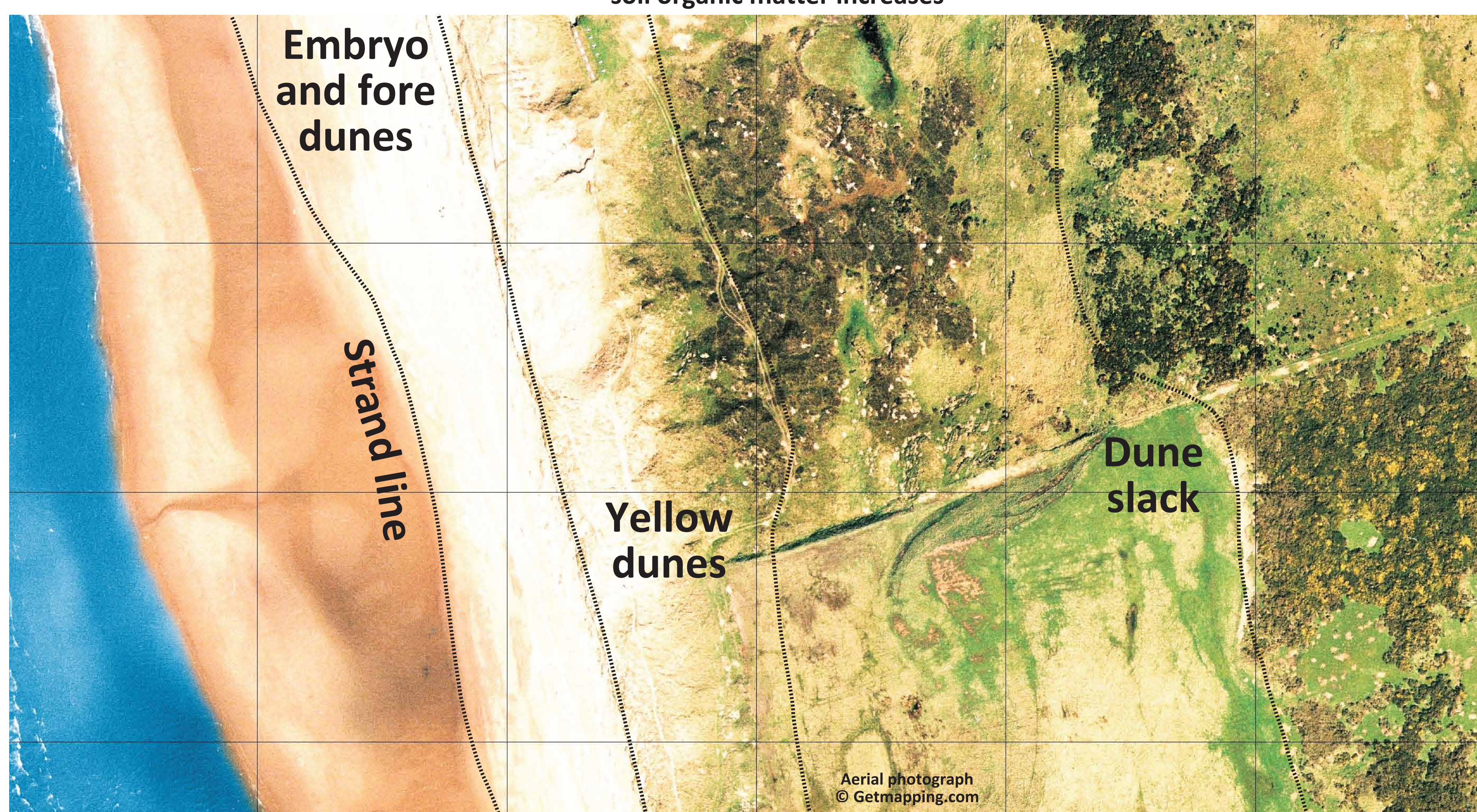
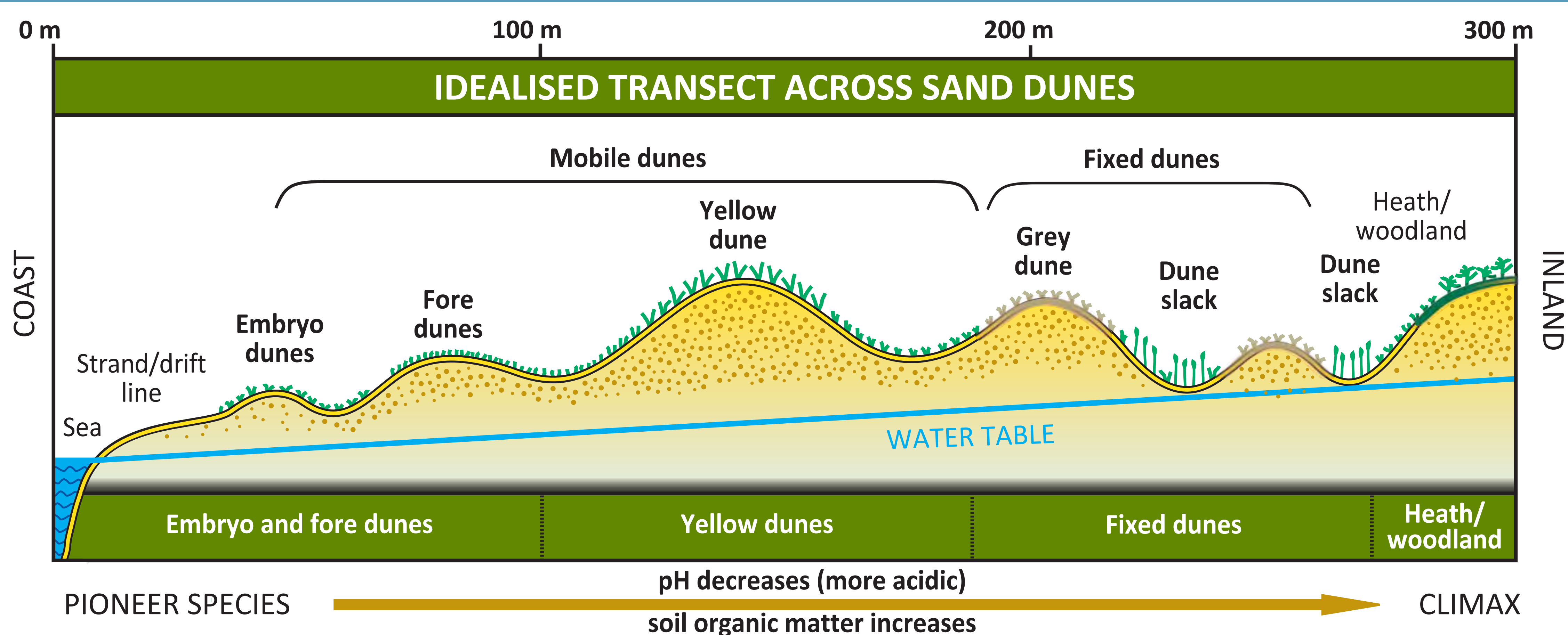
6. Sand Dunes – 1

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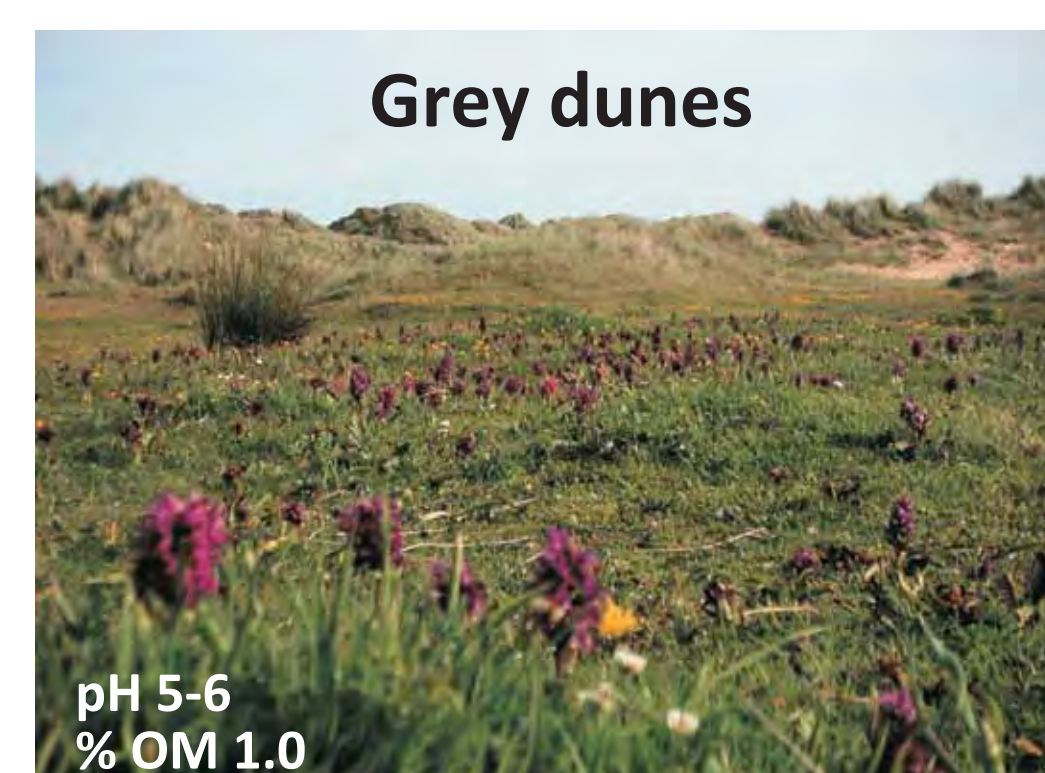
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Embryo dunes are small and persist above the high tide, colonised by a few scattered **pioneer** plants e.g. **Sandwort** and **Lyme grass**. Humus builds up by decaying colonising sea couch grass. Organic matter content is low. Nutrients are low and there is poor water retention and alkaline conditions.



Yellow dunes are raised above the beach, less salty and more stable where the dune building grass is **Marram**, with **red fescue**, **sand sedge** and **ragwort**.



Grey dunes where there is complete vegetation cover and shelter, enables a wide range of plants to persist. pH decreases and species composition can be rich. **Orchids**, **harebell**, **heather** and **bracken** coexist here.



Heath/woodland vegetation grows, over time, where soils are acid and there is higher organic matter content (*i.e.* high humus) and more shelter. **Heather**, **birch**, **oak**, **pine**.

Sand Dunes: The **psammosere** (plant succession initiated on sand) comprises partially vegetated sand and covers 5 000 ha in Scotland, with over 500 vegetation types, in a dry, salty, mobile, environment lacking in nutrients. Dune belts illustrate the development of vegetation from **pioneer** species to **climax** (evolution of plant communities), a process which may take several hundred years, but occurs over only a few hundred metres of shoreline.

To enable the development of a sand dune system, it requires;

- i) a plentiful supply of sand
- ii) strong winds to transport sand particules through **saltation**
- iii) an obstacle to trap the sand e.g. a plant

Plants are central to the formation, growth and character of sand dunes.

The dune system is split into four zones which represent stages in the plant **succession**. The **succession** changes the environment at a site, leading to modifications of the soils and microclimate in a way which favours the establishment of the next group of species, which replace the former.

Eventually a **climax** community is established, when the vegetation is in a state of equilibrium with the environment, and there is no further influx of new species.