

# 7. Sand Dunes – 2

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## Stage in dune succession

|                      |                       | Mobile dunes   |   | Fixed dunes  |  |  |
|----------------------|-----------------------|--|---|--|--|--|
|                      |                       | Embryo and fore dunes  | Yellow dunes  | Grey dunes   | Dune slack   | Heath/ woodland  |
| Dune characteristics |                       | <ul style="list-style-type: none"> <li>On-shore winds</li> <li>Seaweed (humus build up)</li> <li>Sand building up</li> <li>Transient</li> <li>Alkaline sand</li> </ul> | <ul style="list-style-type: none"> <li>Surface continually blown away and replenished by fresh sand</li> <li>Reduced wind speed</li> <li>Top of dunes above high tide level</li> </ul>                      | <ul style="list-style-type: none"> <li>Increased humus content</li> <li>Surface lichens</li> <li>Sand no longer accumulating</li> <li>Marram grass not able to compete well</li> </ul> | <ul style="list-style-type: none"> <li>Damp, low lying hollows</li> <li>High water table in winter</li> <li>Soil acidic and pH variable</li> </ul> | <ul style="list-style-type: none"> <li>Acid soil and increased organic matter content</li> <li>Nutrient rich</li> <li>Shelter developed</li> </ul> |
|                      | Plant characteristics | <ul style="list-style-type: none"> <li>Scattered individuals</li> <li>Low growing prostrate habitat</li> <li>Waxy leaves</li> </ul>                                    | <ul style="list-style-type: none"> <li>Salt intolerant</li> <li>Thrives on being buried by sand</li> <li>Inrolled leaves</li> <li>Long tap roots</li> <li>Underground rhizomes to stabilise sand</li> </ul> | <ul style="list-style-type: none"> <li>Many plants now co-existing</li> <li>Mainly perennials</li> <li>Stabilising plants liking increased organic matter content</li> </ul>           | <ul style="list-style-type: none"> <li>Moisture loving plants</li> </ul>   | <ul style="list-style-type: none"> <li>Acid loving plants co-existing</li> <li>Woody perennials plus understory species</li> </ul>                 |
| Example plant        |                       |   |    |    |   |   |
|                      |                       | e.g. Sandwort  | e.g. Marram grass   | e.g. Grey lichen and heather   | e.g. Rushes  | e.g. Heather and woodland  |

### Glossary

**BUILDING STAGE:** plants trap sand and grow with it, binding the sand together with their roots. The humus created by decaying pioneer plants creates more fertile growing conditions, and the soil becomes less alkaline as pioneer plants grow and trap rainwater. Less hardy plants can now grow and start to shade out the pioneers. As plants colonise the dunes, the sand disappears and the dunes change colour - from yellow to grey.

**CLIMAX STAGE:** taller plants (such as trees) and more complex plant species (like moorland heathers) can now grow. Plants from earlier stages die out because of competition for light and water. When the water table reaches, or nearly reaches, the surface, dune slacks can occur. Plants which are specially adapted to be water-tolerant grow here.

**PIONEER STAGE:** where seeds are blown in by the wind or washed in by the sea. The rooting conditions are poor due to drought, strong winds, salty sea-water immersion and alkali conditions created by sea shells. The wind moves sand in the dunes and this allows rainwater to soak through rapidly.

**PLANT SUCCESSION/SERE:** sequence of plant communities inhabiting the same site.

**PSAMMOSERE:** an ecological succession developed on sand dunes.

**SALTATION:** vigorous bouncing and hopping of sand particles along the surface.

**STRAND/DRIFT LINE:** zone exposed to the influence of salt water resulting in unsuitable conditions for plant growth.