**FACT SHEET - COASTAL DUNES 1 of 3**

**Why are the dunes important?**
They protect our homes from wind and waves.
They provide habitat for a rich ecosystem of plants and animals.

**Dune Formation**

**Foredune:** Is the front of the dune, where the beach meets the dune. The foredune is formed by sand particles being blown up the beach. The foredune gradually becomes larger and larger and plants begin to grow on it. The Foredune bears the brunt of the coastal weather with harsh wind, waves and salt spray.

Plants that grow on the Foredune will be salt and wind-adapted plants like grasses and shrubs.

Plants will often adopt a windswept look due to the constant pressure from coastal weather (onshore winds, salt spray, hot sun, undercutting from waves).

**Secondary Dune:** Behind the foredune is the secondary dune. This is more protected that the foredune and so the conditions are not as harsh.

**Swale:** The trough or lower part between the foredune and the secondary dune is called the swale. Often plants that prefer more protection and stability will grow here like running postman Kennedia prostrata, orchids and Moonah’s Melaleuca lanceolata.

Dunes are formed through the process of Succession. Succession is the process where an ecosystem is formed over time.

**The Process**
- The wave action of the ocean, deposits sand on our beaches.
- The sand is gradually is pushed up the beach by wind and waves.
- When the sand is dry the wind blows the sand up the beach into mounds.
- Gradually pioneer plants will begin to grow in the sand.
- When these plants live out their lifecycle they will die.
- When they die and rot the nutrients they collected in life, will go back to the sand helping to make the sand more nutrient enriched.
- More plants will be able to grow in the nutrient enriched sand.
- Slowly more and more different species of plants will grow and a biodiverse ecosystem will become established.
Vegetation
Vegetation stabilises dunes. It:
• traps sand to form new dunes,
• provides habitat and
• protects dunes from natural erosion and erosion caused by human activity (walking/driving/riding through dunes causing erosion).

Dune stability is important. Without plants to protect the dunes they would be very sensitive to erosion - they would just blow away!

Natural disturbance to dunes
• Salt spray.
• Sand abrasion.
• Erosion (dune blowouts).
• Accretion (build up of sand).
• Wind blasting.
• Wave attack (king tides).

Human activity causing disturbance to dune ecosystems
• Vehicle disturbance.
• Pest animals (foxes, rabbits, cats and dogs)
• Pest plants (weedy garden species like Agapanthus)
• Rubbish (Google Tangaroa Blue Ocean Care Society and Surfcoast Surfrider Foundation).
• Inappropriate use/ trampling (walking off paths, horse riding without permits).
• Sea level rise cause by rise in global temperature melting the icecaps.
Dune rehabilitation
• Reconstruction through earthmoving equipment to provide a stable planting environment.
• Construct dune forming fencing to trap sand blown from the beach.
• Revegetation of newly established dune to protect it from wind erosion. Indigenous pioneer plants are planted first then follow up with other indigenous plants.
• Construct fences, access paths and signage to direct foot and vehicular traffic away from the rehabilitated area.
• Ongoing maintenance to create permanent self sustaining dune system. Eg follow up plantings, infrastructure repair, inspections for weed invasion.

Interactions in the Dunes
Trees growing in the dune’s swale can act as a storm shutter; this means that the canopy of the trees blocks out much of the wind and rain and encourages the wind to flow over the top of the canopy and not damage the understory plants growing below. This is an example of how the weather, the dune shape, and the vegetation interact.

Dunes are a critically important part of coastal geography and need protection. Many coastal communities and volunteers are helping to protect them by:

How you can help
• Stay off dunes
• Keep your pets restrained on the beach and locked up at night
• Volunteer with groups like the Great Ocean Road Coastal Committee and Coast Action groups which exist all along the Victorian coast.

Contact