

## DUNE AND BEACH DRIVING

### What should I do?

Gnaraloo does not allow visitors to drive any vehicles, including 4Wheel drives, bikes and/or quad bikes, in the fragile dune system or on beaches along Gnaraloo's coastline.

*The dunes and beaches are not just sand, they are living ecosystems, full of life! We would greatly appreciate your support in protecting the Gnaraloo dunes, beaches and ecosystems from vehicle impacts!*

### Why is this important?

#### ***Fossils and Heritage artefacts are found within the dunes and along Gnaraloo's coastline***

Driving in these areas would destroy archaeological, paleontological and heritage artefacts (known and still to be excavated). It would disturb sediments and sands surrounding bone and shell fragments that are essential for scientists to be able to date items. This research is globally important as it investigates and identifies probable causes of massive historical destruction of life, with implications for current questions on climate change and pressures on contemporary society. For more information about this, refer to the DVD called 'Death of the Mega beasts' by Franco Di Chiera, 2009.

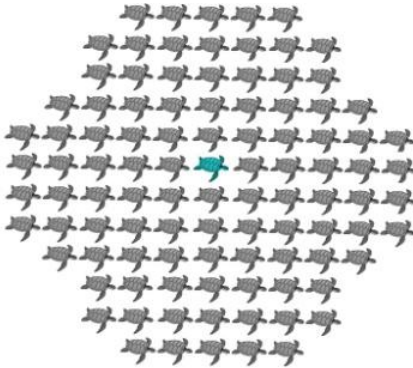
#### ***Vegetation stabilizes dunes that are habitat to diverse species***

Vehicle movements in the Gnaraloo dune system would trample vegetation that would cause or aggravate existing blow-outs and destroy habitat. The dune system is extremely fragile, highly mobile and sensitive to disturbances. The dunes and immediately surrounding areas provide habitat to diverse animal species. Vegetation stabilizes the dunes and contains dune movements. Vegetation takes a significant period of time to establish and survive in the extreme conditions at Gnaraloo. Blow-outs are formed when protective vegetation is lost, allowing strong winds to remove sediments and cover adjacent areas. Blow-outs can expand to kilometres in size and smother everything in their way! Your co-operation will ensure that Gnaraloo does not turn into a dust bowl with significant loss of biodiversity.

#### ***Endangered turtles and birds breed on beaches***

Gnaraloo is situated adjacent to the *Ningaloo Marine Park* within the *Ningaloo National Heritage listed area*. Beaches along the entire Gnaraloo coastline house significant sea turtle rookeries which are critical breeding areas for endangered sea turtles as well as birds. This includes Loggerhead (*Caretta caretta*), Hawsbill (*Eretmochelys imbricata*) and Green (*Chelonia mydas*) turtles, all species of conservation concern (IUCN Red List). Great pressure is exerted on the population numbers of sea turtles worldwide. It is currently estimated that only 1 in 10,000 turtles hatched along the Ningaloo coast will survive to reach reproductive maturity, an event which in itself may take upwards of 30 years to commence!

The image below demonstrates the mortality rates of turtle hatchlings along the Ningaloo coast, with the grey hatchlings representing the 9,999 turtles that do not make it and the blue hatchling representing the 1/10,000 turtles that survives to reproduce.



By driving on and over the beach, you would be disturbing turtle nests submerged within the sand, including impacting egg chambers and creating wheel ruts that make it difficult for turtle hatchlings to quickly and safely reach the ocean before consumption by a multitude of terrestrial predators, such as sand crabs and sea gulls.

Please help us to look after the Gnaraloo turtles by keeping all vehicles off beaches! For more information about the Gnaraloo turtles, please see *Gnaraloo Turtle Conservation Program* page on Facebook and [www.gnaraloo.com](http://www.gnaraloo.com).

### ***The hidden world of sand***

Beach sand contains a hidden world of life. Macrobenthic Invertebrate organisms that are invisible to the naked eye live in beach sands in the tiny spaces between grains of sand. This includes sea-snails, shrimp and other tiny animals. Some of these fauna are so small that they tunnel between sand grains and others clean the sand as they eat. While easily overlooked, these organisms are important building blocks of the eco system, including supporting fish and bird life. Vehicle driving on beaches causes compaction which crushes this life, reducing biodiversity, biomass and abundance, and destroys important eco-system functions. For more information, see the program '*Beach driving crushes critters*', Catalyst, ABC TV (Australia).

**Thank you, the Gnaraloo team.**