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Natural change

The harsher an environment, and the more extreme or prolonged the changes it experiences, the fewer species of plants and animals will be able to survive in it over the long term, but in favourable conditions (which include the absence of most potential competitors and predators) these few may appear in vast multitudes. This applies as much to wetlands as to the highest tidal zone of the sea, or a desert in bloom after a brief downpour.

Paradoxically, most wetland plants and animals are so well adapted to change that species diversity in (for example) a billabong may decrease if it remains permanently flooded. The refilling of a billabong after a dry spell will trigger seed germination of aquatic plants which will colonise areas where more terrestrial species grew for a while, until drowned by the rising waters. As the drowned plants decay they fertilise plankton blooms, providing an abundant food source for young animals such as tadpoles and fish fingerlings. In turn, many of these become food for passing waterbirds hunting over exposed mudflats (see Plate 28) as the water levels fall again during the next dry season.

More permanent waters are less common but are essential for animals which can't migrate or survive drying out, particularly fishes. In Australia, nearly all of these are predators, whether on microscopic or larger animals, and their presence changes the ecological balance where they are present. This is most obvious in northern waters where fishes can breed and disperse on a grand scale during the wet season (see Plate 15), most of their offspring ending up trapped in temporary waters, yet the relatively few survivors will remain as significant predators in almost every permanent pool that was linked by the floods that came before.