

Waterbirds were surveyed at the north-western end of Peery Lake, a large freshwater overflow lake on the Paroo River, between October 1990 and January 1994, following a major flood that filled the lake in April 1990. Before drying, the lake was recharged by a moderate flood in January 1993 and retained water throughout the study. The survey area comprised about 555 hectares or 11 percent of the lake, plus the adjacent shoreline. Over nine survey periods, a total of 54 waterbird species was recorded, of which eight species were recorded breeding, although only in low numbers. Species richness in individual survey periods ranged between 17 and 42 species. The number of waterbirds in the survey area varied greatly between survey periods, from 636 to 14 359. Two species, Pink-eared Duck *Malacorhynchus membranaceus* and Grey Teal *Anas gracilis*, accounted for about 60 percent of all waterbirds, but the common species varied between survey periods. The responses of waterbirds to the two flood events were markedly different. Waterbird numbers were initially low after the first flood, peaking 27 months after flooding. By contrast, waterbird numbers were high in the first year after the second flood, but fell sharply 12 months after flooding. The abundance and diversity of recorded on this small portion of Peery Lake affirmed the lake's importance to waterbirds. The study also showed the dynamic and highly variable nature of the waterbird fauna, whose response to particular flood cycles at the lake can differ widely and cannot be predicted by simple measures such as the size and salinity of the lake.