

Welcome Swallow *Hirundo neoxena* breeding ecology in the Yarra Valley, southern Victoria: nest use and the incubation stage

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Welcome Swallows *Hirundo neoxena* breeding in eleven sites less than or equal to 12 kilometres apart in southern Victoria were studied over three successive seasons. Many aspects of nest use and egg production and survival agreed with information derived from a compendium of records for other temperate Australian localities. However, significant seasonal differences occurred in: (a) the percentage of active nests in a season that were not newly-constructed (100%, 86% and 77.5%), (b) the timing of laying of first and second clutches in a particular nest or site and (c) the causes of egg failure; parental desertion due to low ambient temperatures and for other reasons was significant only in 2009, egg 'disappearance' was particularly common in 2010 and 2011 and egg loss through flooding was particularly prominent in 2010. Variation among the largest colonies was limited to: (a) the relative use of newly-constructed nests and (b) the causes of egg failure; desertion at low ambient temperatures was particularly prominent in one colony, causing 29 per cent of egg failures. Egg failure due to flash flooding and the parents' death, respectively, were significant only in one colony each. Variations in rainfall and its impact and in ambient temperature probably accounted for some seasonal and spatial variability in pre-hatching breeding ecology.