

BREEDING ECOLOGY OF *CYGNUS CYGNUS BUCCINATOR* IN WYOMING

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Cygnus cygnus buccinator breeding in the mountain lake habitat of northwestern Wyoming was studied during the 1977, 1978 and 1979 nesting seasons. From 72 nesting attempts the swans hatched 1.8 and fledged 0.47 cygnets per active nest. Clutch size at 55 nests averaged 4.05. Hatching rate of eggs ($n = 270$) was 48.5%; nesting success was 71% in 1977, 41% in 1978 and 71% in 1979. Flooding of nests was the major cause of egg loss and nest failure.

Swans that laid above-average clutches incubated with higher constancy, longer sessions, shorter recesses and fewer recesses per day than swans with below-average clutches. Cygnets from large clutches suffered significantly lower mortality than those from clutches of four eggs or fewer.

Pre-fledging cygnet mortality totalled 75% of the surviving cygnets; 23% were conspicuously retarded in growth. Moribund cygnets showed extreme weakness, emaciation, deformities and leech parasitism.

Stability of the *C. c. buccinator* population in Idaho-Montana-Wyoming depends upon cygnet production at Red Rock Lakes National Wildlife Refuge. Cygnet production in off-refuge habitats is inadequate to maintain the current number of off-refuge breeding pairs. Without expansion or qualitative improvement of winter food resources, population growth is unlikely.

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