REPRODUCTION IN A POPULATION OF YELLOW-BELLIED MARMOTS (*MARMOTA FLAVIVENTRIS*)

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ABSTRACT.—The annual reproductive cycle within a yellow-bellied marmot population was studied in the central Sierra Nevada of California about 30 mi. N Lake Tahoe. Seventy animals were live-trapped and ear-tagged, and the reproductive organs of 47 marmots were examined histologically. The approximate date of emergence from hibernation apparently was governed by the time of spring thaw. The animals were ready to breed when they emerged, so the thaw apparently would determine the time of mating and copulation, parturition, weaning, and juvenile emergence from the natal burrow. During the 2-week mating and copulation period, almost all adult females, but few subadults, became pregnant. The average gravidum per pregnant female was 4.8 and litter size was slightly higher. The adult sex ratio was approximately equal, as judged by trapping records. However, juvenile males were seen much more often than adult males. A high population in 1966 dropped to a low level in 1967, seemingly as a result of over-winter loss. Juveniles grew most rapidly, followed by subadults, and then by adults. The average number of active days required to grow 1 centimeter in length was 4.7 days for juveniles, 11 days for subadults, and 16 days for adults.

The reproductive biology of the yellow-bellied marmot (*Marmota flaviventris*) is not well known. Couch (1930) made general field observations on the species in Washington and Armitage (1962, 1965) commented incidentally on marmot reproduction. Recently, Pattie (1967) added notes on the life history of this species. More information has been reported on reproduction in the woodchuck (*M. monax*). Hamilton (1934) conducted detailed initial studies on woodchuck biology and Grizzell (1955) expanded Hamilton's work. Snyder and Christian (1960) made a thorough study of woodchuck reproductive biology.

This paper reports some aspects of the reproductive biology of the yellow-bellied marmot during two successive breeding seasons near the University of California's Sagehen Creek Field Station, 7 mi. NW Truckee, Nevada County, California. The main study area is on the east slope of the Sierra Nevada at elevations between 5500 and 7100 feet. Granite outcrops and rock slides are common throughout the region, and grassy meadows occur along creek bottoms. The basin of Sagehen Creek is in the broad ecotone between the yellow pine forest of the mid-elevation Sierra Nevada and the sagebrush scrub of the Great Basin, following the terminology of Munz (1959). A secondary study area is in the yellow pine forest on the west slope of the mountains 14 miles from the field station.

MATERIALS AND METHODS

Field work, totaling 690 hours, was conducted from April to September 1966 and from July to September 1967. Fifty-three animals were live-trapped, marked, and released in 1966 and 17 more in 1967. In addition, 41 marmots were collected in 1966 and six in 1967. Methods of trapping and handling woodchucks were described by Trump and