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EVIDENCE OF BIRTH OF A SEA OTTER ON LAND IN CENTRAL CALIFORNIA

There has been considerable speculation and some circumstantial evidence suggesting that sea otters, *Enhydra lutris,* in the wild, may give birth on land or in the water. Scammon (1874) states that otter pups ". . . are brought forth upon the kelp . . .". Fisher (1940), referring to the California population, states that parturition takes place in kelp beds. Barabash-Nikiforov (1947), at Mednyi Island, U.S.S.R., observed two sea otters on shore with newborn pups and afterbirth nearby and, therefore concluded that birth takes place on land. Kenyon (1969), in Alaska, determined the orientation of 43 near-term fetuses and found about an equal number of them cephalically or caudally oriented. He suggests that caudal presentation would be adaptive for aquatic birth, and concluded that parturition in sea otters normally takes place on land. Sandegren, Chu, and Vandevere (1973), in California, observed a sea otter in the water with a newborn pup, a bloody ano-genital area and an umbilical cord protruding from the vagina. They subsequently observed the passage of blood and afterbirth into the water and concluded, probably correctly, that the pup had been born in the water. Differences observed in northern versus southern populations were attributed to differences in haulout behavior; northern populations haulout frequently and "California otters are rarely seen ashore" (Sandegren *et al.* 1973).

The following observations were made in my studies of haulout patterns of sea otters. I used a 50 x 80 Questar telescope at a distance of approximately 150 m. Observations were continuous until light conditions precluded seeing the otters. Times are Pacific Standard. Conditions for viewing were excellent with high overcast and calm winds and seas.

On 25 May 1981 at 0831 h an otter with a very small pup was sighted hauled-out on an intertidal reef located approximately 1 km south of Breaker Point, San Luis Obispo Co., California. The female's head, shoulders, and sides were dry, indicating that she had been out of the water for more than a few minutes. She was vigorously grooming a very small pup that was completely wet, showed no signs of life and had small patches of membranous material and blood adhering to its pelage. About 5 cm of the umbilical cord was still attached to the pup's abdomen and 10 to 20 cm of the cord could be seen protruding from the vagina of the female. The female's chest was wet, where the pup lay, as were the flippers and ano-genital area. Based on these observations I estimated that the pup had been born within a few minutes of being sighted.

After approximately 2 minutes of grooming by the female the pup began to show signs of life by weakly moving its flippers and head. At 0846 h a membranous bag (about 10 cm in diameter) filled with fluid protruded from the vagina.

At this point the female, lying supinely, stopped grooming the pup, rolled forward and bit the sack which ruptured and released the fluid. She immediately resumed grooming the pup and continued uninterrupted for 98 min. In the total observation period (432 min) the female groomed the pup 70% of the time, rested for 26% and self-groomed for only 4% of the period. After the continuous 98 min pup-grooming session, grooming bouts were shorter, ranging from one to 45 min. Self-grooming bouts were short (3–8 min) and infrequent. Rest periods were short (21–31 min), but were more frequent.

At 0944 h, 73 min after observations began, the placenta and associated tissues were passed in less than 3 sec. The female paid no attention to the afterbirth which was quickly dragged away and consumed by an attending western gull, *Larus occidentalis.* In the remainder of the observation period, no further material passed from the female and the vulva appeared clean.

By 0930 h the pup was dry and fluffy and could move all four legs and weakly shake its head. Several times the pup was in a position where nursing could have occurred; it nuzzled the female's fur, but I saw no suckling. When the female was self-grooming, and occasionally during rest periods, the pup was placed on the algae covered rocks, but 83% of its time was spent on the female's chest and abdomen.

These observations reveal some interesting aspects of the behavior of parturient sea otters in California. The mother spends much of the time grooming the neonate. This probably has several functions, i.e. cleaning, stimulating circulation and breathing of the newborn, and possibly establishing and reinforcing the maternal bond. Birth sometimes occurs on land. In this instance there were no nearby large expanses of giant kelp, *Macrocystis pyrifera.* The dominant kelp is bull kelp, *Nereocystis lutkeana,* which in this area does not form a dense surface canopy until July. In such areas pupping on land may occur, and in areas where beds of kelp persist throughout the year, aquatic births (as reported by Sandegren *et al.* 1973) may be common. Therefore, environmental differences and individual variation are probably more important in determining the place of parturition in sea otters than are behavioral differences between populations.

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