

## Observation of Breeding Behavior in Captive Emperor Penguin

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The Port of Nagoya Public Aquarium started rearing Emperor Penguins (*Aptenodytes forsteri*) in 1998. However, breeding has not been successful. In nature they form huge colonies during the breeding season. They move around the colony freely but do not make nests so it is difficult to observe a particular individual continuously during breeding season. This study aimed to understand the breeding behavior of Emperor Penguins by continuous observation of individuals under captive conditions by video recording.

We observed two pairs of Emperor penguins during the breeding seasons (April to May) from 2012 to 2015. We recorded breeding behaviors in 4 categories: “bowing”, “presses female’s neck”, “lies down” and “mounts”.

“Bowling” was observed 95 times during one breeding season. It was seen in April only a few times. In May it was observed more frequently and in the 7-9 days before egg-laying, it was seen as many as 24 times in one day. “Presses female’s neck” was counted 98 times during one breeding season. We recorded this behavior a maximum of 11 times in one day, 7-9 days before egg-laying. “Lies down” was observed 14 times during one breeding season. It was observed only during the 6-17 days before egg-laying (maximum 4 times per day). They laid an egg 6-8 days after the last “lies down”. They did not lay any eggs in the year when “lies down” was not observed. “Mounts” was observed only 9 times during 4 years of observation. It was observed following the “lies down,” however, most attempts failed. The egg laid in 2015 was a fertile egg.

Our data suggests that an optimum period for insemination is the period when “lies down” behavior was observed. Therefore, in future attempts at non-invasive artificial insemination, the optimum timing may be determined by observing “lies down” behavior.