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ABSTRACT

The current population of North American African elephants is not self-sustaining due in part to the fact that nearly one-third of captive females exhibit irregular or no ovarian cyclicity. Surveys and direct behavioral observations of elephants were used to determine how social and environmental captivity-related factors affect ovarian activity. Temperament, health and socio-environmental surveys were distributed to all facilities housing adult female African elephants. Survey results suggested that age and long-term, exclusive relationships of captive herds contribute to some dominant elephants being acyclic. To gain an understanding of the interactions between captive African elephants and how they contributed to social rank and ovarian status, behavioral observations were conducted on 33 females (18 cycling and 15 noncycling) at 14 facilities. The body movements and 'trunk to' behaviors initiated by one elephant towards another were monitored as well as responses to the placement of a novel substance, bull urine, in the exhibit. Age and social rank rather than ovarian status controlled the types and degree of interactions among the females. Elephants used more subtle and social behaviors than overt aggression to reinforce rank with the dominance hierarchy. Social rank and ovarian activity, with the covariate of age, contributed more to the response of female African

elephants to bull urine than any one factor alone. Based on the surveys and behavioral observations, age, social rank and ovarian cyclicity status were strongly related among captive African elephants. In some situations, it appears that the energy dominant cows expend towards captive herdmates may negatively affect ovarian cyclicity status.

Knowledge of these relationships could be used in management decisions to create captive herds that have an older, dominant, noncycling female, thus allowing younger, subordinate females to cycle normally and potentially breed. Future studies could determine the impact of presenting bull products, urine or temporal gland secretions, long-term on efforts to jump start ovarian activity in young, noncycling cows. The role of estrogens in controlling chemical signaling among African elephants should also be investigated.