

Leadership roles in movements of free-roaming Konik horses (*Equus caballus*) in a Dutch reserve

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We observed the activity and movements of Konik horses (*Equus caballus*) in order to determine the initiators of movements and the individuals taking the lead in movements of the main groups. We conducted our observations between March-June 2010 along the shores of the Rhine river, in the Blauwe Kamer reserve, in the Netherlands. The horses were introduced to the reserve alongside with cattle to prevent the growth of the forest and maintain the grass habitat. We videotaped all observations on two digital video cameras, one providing the general view of the group and the other scanning and focusing on the individuals, to aid with identification. Horses were recognized based on individual profiles that were created for each one, consisting of photos of both sides and notes of the main characters, such as orientation and coloration of the mane, prominent scars and markings, etc. Twenty three horses (not counting foals) were organized in two harem groups with 11 individuals (two of which were dominant stallions) in the large group and six individuals (one of which was a stallion) in the second group. These two main groups were always within sight of each other, and two bachelor males moved usually in their vicinity. An additional group of three young bachelor males roamed elsewhere in the reserve. We divided the movements of the horses to local movements while grazing and to long-distance movements, in which the horses moved to a different grazing location, to a pond of water, resting area or groups of trees that were used by the horses for scratching themselves. During the local movements, any two of the three oldest females in the large harem group were enough to cause the whole group to follow them and gradually change position within the pasture. The smaller harem always followed the large harem's movements. The long-distance movements of the large harem were sometimes initiated by one of the harem stallions that herded their group and at other times – by the oldest females. Soon after the movement was clearly initiated, the dominant

stallions positioned themselves in the back of the group or in the center and had no influence on the direction of move that was only determined by the leading females. In the long-distance movements too, the small harem followed the large harem group, and the two bachelor males usually followed behind them. Social interactions included aggressive interactions between the two dominant males within the large harem or between dominant stallions and the two bachelor males accompanying the two harems. In addition, dominant males courting or attempting to mate with mares sometimes caused a turmoil that eventually initiated movement of the harems.

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