

CYCLIC TRIADS IN GROUPS OF 'KONIK POLSKI' IN NATURE PARK „DVIETES PALIENE”

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First Konik polski horses were introduced from the Netherlands in 1999 in Pape. Currently, in Latvia there are about 22 Konik polski herds, which live in the number of protected and private areas. Horses exchange should occur between the protected areas to increase genetic potential of herds and limit population density. Group hierarchy, horses rank and group cyclic triads must be considered during horses exchange, because after two or even one horse exclusion usually follows the whole group division. The horse, which are involved in great number of cyclic triads, get a central place in cyclic triads. In that case, their disappearance or removal could result in a reduction in cyclicity, as well as in major changes in network structure and even function (McDonald & Shizuka, 2012).

Within a strictly linear hierarchy, all dyads have a dominant-subordinate relation, and dominance relation for every set of three players (triads) are 'transitive': when individual A dominates B and B dominates C, then A also dominates C (Shizuka&McDonald, 2012). Cyclic triads occur when A dominates B, B dominates C, and C dominates A. Cyclic triad results in dominance relations that are unresolved and prevents the linear arrangements of rank (Shizuka&McDonald, 2012).

Observations have been made from April until October in 2012 in nature park "Dvietes paliene". There were made records of 27 horses behaviour during study. These horses form 5 groups. 17 agonistic behavior elements were selected as related to dominant/subordinate or winner/loser interactions. The data were collected at randomly distributed times and weather conditions during daylight period. The total time of observation amounted 148 h. The linearity of hierarchies was established by calculating Kendall index K . ($K=1$ when no cyclic triads d exist. $K=0$ when the number of cyclic triads d is maximal.)

$K=1$ was calculated in one group, which consisted of one stallion and three mares. $K\approx 0,88$ was calculated in one group, which also consisted of one stallion and three mares. K was a little smaller because no agonistic interactions were observed between two middle ranked mares. Individuals may avoid interacting when two similarly ranked individuals gain little benefit from outranking each other (Shizuka&McDonald, 2012). K was relatively small (0,47 and 0,64) in multiple male and female groups, and amount of cyclic triads were higher (4,25 and 7,5). In the bachelor group, which consist of five stallions, K was 0,75 and cyclic triads d was 1,25.

The increase in the number of stallions in the harem, probably will increase the chance of success in conflicts with another groups of horses, but, because of large number of stallions, the mutual competition within the group will also increase. As a result it is difficult to establish transitive triads (also linear hierarchy) and cyclic triads occur constantly.

Key words: Konik polski, cyclic triads, behavior, Dvietes paliene

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