

GROUPING PATTERN OF JAPANESE WILD BOAR (*Sus scrofa leucomystax*)

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Abstract: Seven types of social group were recognized for adult Japanese wild boars (≥ 2 years old). However, males were always solitary and females most frequently formed basic family groups (1 female with her young). Since a basic family group contains only one adult (mother) it is concluded that both male and female Japanese wild boars were basically solitary. Continuous observations on social groups revealed that group formations in adults changed throughout the year in relation to the timing of farrowing.

Keywords: Wild boar, *Sus scrofa leucomystax*, Suidae, Social behaviour, Family groups, Asia.

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1. Introduction

The Wild boar (*Sus scrofa*) is widely distributed and abundant, but the knowledge of its social system is still extremely limited. It is mainly due to the difficulty of direct observation in the wild.

Recently, Dardaillon (1988) reported quantitative data on social groupings of the Wild boar in France. However, since she did not identify individuals, the stability of group memberships and kin relationships remained uncertain. The present study aims to clarify social groupings of Japanese Wild boar (*Sus scrofa leucomystax*) by direct observations on a population of identified individuals.

2. Study area and methods

The study was conducted in the Rokko mountain area in central Japan from 1982 to 1988. Since 1979, wild boars in the area have been fed voluntarily by inhabitants. Direct observations of wild boars were carried out at provisioning sites, and we observed wild boars for more than 2000 hours. Wild boars appearing there were individually identified by pattern of notches on ears.

Social groups of adult wild boars (≥ 2 years old) were classified into 7 types as follows: 1. solitary male; 2. solitary female; 3. adult female group, (AFG); 4. basic family group (BFG) = 1 female with her infants (<1 year old) or juveniles (1 year old); 5. extended family group (EFG) = 1 female with her both infants and

previous young; 6. surplus family group (SFG) = 1 female with her infants and females without young; 7. multifamily group (MFG) = several females with their infants, juveniles or both infants and previous young.

3. Results

Table 1 shows seasonal distributions of social groups. All males were solitary in every season (except for temporal consort groups with estrous females) whereas females were categorized into 6 types of group. The frequency of the 6 types of group was relatively stable among seasons ($\chi^2 = 2.68$, $p > 0.95$). BFGs were most frequent, accounting for 59% of the total of the 6 types of group. MFGs and Solitaries accounted for further 15% and 11% of the groups, respectively.

During the study period, a total of 63 social groups have been observed over one month (Tab. 2). Solitary males were never observed to form a group with any other individuals, while in females, solitaries sooner or later formed BFGs by farrowing.

All BFGs, except 5 which disappeared from the observation sites, maintained until the next farrowings. When mothers formed BFGs with their new youngs, their previous youngs generally became independent of their mothers (16 out of the 23 cases). Some mothers allowed their previous female youngs to remain in the new BFGs, so that EFG or SFG were formed. If a mother had a stillbirth or lost the whole litter

Table 1: Seasonal distribution of social groups of the Wild boar in Rokko mountain area.

Social groups	Spring n	Summer n	Autumn n	Winter n	Total n
Male Solitary	13	18	9	20	60
Female Solitary	6	10	5	3	24
BFG	31	40	25	29	125
AFG	0	2	0	0	2
EFG	3	6	4	4	17
SFG	4	4	2	3	13
MFG	6	11	8	6	31

early in the nursing stage (4 cases), she usually reformed a BFG with her previous female youngs (3 cases). Two of such 3 BFGs developed to MFGs by simultaneous farrowings of mothers and daughters.

AFGs broke down when a partner farrowed or developed to a MFG by the partners' simultaneous farrowing. Both EFGs and SFGs were maintained until the next farrowing. After farrowing, mothers formed new groups (BFG, EFG or MFG) with farrowing youngs, but those which could not produce youngs joined her daughter's BFG or became solitary.

MFGs were formed by the simultaneous farrowings of females in a group. Adult female associations in MFG sometimes lasted for several years through simultaneous farrowings. However, when a female did not produce youngs she became solitary, formed a BFG with her previous female youngs or did a SFG with her partner's BFG.

4. Discussion

The basic social unit of the Japanese Wild boar in the Rokko mountain range was formed by a solitary male or a female in a BFG; EFGs, MFGs, SFGs and AFGs were occasionally formed.

Some authors reported the Wild boar as gregarious (Gundlach, 1968; Frädrieh, 1974), probably because of forming a SFG or a MFG.

However, since BFG contains only one adult (mother), it is concluded that both male and female Japanese wild boars in our population are basically solitary.

In the formation of adult female associations, familiarity between individuals in the same social group in addition to kin relationships played an important role. Individuals which had dispersed into other social groups were not observed to regroup.

Table 2: Number of social groups which have been observed over one month.

Social groups	n
Male Solitary	6
Female Solitary	6
BFG	32
AFG	2
EFG	5
SFG	5
MFG	7
Total	63

Social groups of wild boars were generally stable throughout the year between post and pre-farrowing seasons, and the changes of group formations were mainly caused by farrowing.

Matriarchal groups were generally disrupted at farrowing time, and such disruption seems to be the rule in most other areas (Gundlach, *op. cit.*; Frädrieh, *op. cit.*; Dardaillon, *op. cit.*). In the present study, however, previous female youngs occasionally remained in the group of their mother and newly born youngs, while all male youngs separated from their mothers at farrowing time.

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