

THE LUNDY PONIES: THE IMPORTANCE OF PERSONALITY

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The social interactions of a herd of seven Lundy ponies, 4 mares and 3 foals, were observed for 18 hours over six days. 532 interactions were observed. The amount of 'aggressive', affiliative, 'submissive', 'ignoring' and 'other' behaviours performed and received by each pony was derived. The Lundy ponies engaged in more affiliative than aggressive activity, and most of the aggression was confined to the competitive feeding situation. No clear dominance hierarchy could be derived from the aggressive relations. Affiliation was strongest between mother and young and within peer groups, especially in foal peer groups. Measures of the amount of aggressive, affiliative, submissive and ignoring behaviour performed and received by each individual, whether each individual was predominately a performer or receiver and how socially involved an individual was demonstrated that each Lundy pony possessed a unique personality.

INTRODUCTION

Over seventy million years ago the ancestors of horses and other equids lived either alone, or at most in pairs (Schäfer 1977, 69). However equids are now categorised as 'gregarious' creatures who live in social groups and exhibit a wide range of social behaviours. It has been suggested that horses have become social primarily for defence against predators (Kiley-Worthington 1987, 131-132).

The concept of dominance is often invoked to explain the social organisation of the individuals living in groups. Traditionally the dominance order is based on outcome of aggressive relations between individuals and results in a 'social hierarchy'. Many authors have argued against this oversimplification of relations in a large number of species. (Wilson 1975 and Kiley-Worthington 1977 both provide excellent synopses of the kinds of problems associated with the loose use of 'dominance'.)

Since horses and ponies are herbivores who obtain the majority of their food by grazing there is little need for a dominance order to reduce the amount of competition over restricted food supplies, as grass is usually plentiful. Horses and ponies, just like other species, exhibit other behaviours in addition to the rather over emphasised aggression. Affiliative behaviour, in particular, has been highlighted as important in ensuring social cohesion with a herd (Kiley-Worthington 1987, 137). Social grooming is characteristic of affiliative behaviour (Schäfer 1977, 71).

Wild herds of ponies are often divided into family groups in order to ease management by the stallion (Schäfer 1975, 83). Kiley-Worthington (1987, 132) attributes the stability of horse societies to family groups. The most consistent bond is between a mare and her offspring, who remain with her until at least two years of age (*ibid*, 150). Bonds between peers, however, are almost as important.

Schäfer (1975, 72) observed that "*horses do not scratch the coats of all individuals equally*". The existence of friendships and preferred partners, likes and dislikes are well known and documented in horse societies. It is possible that these 'preferences' are governed partly by the previously mentioned strong associations between the mother and young (Schäfer 1975, 73) and between peers.

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Most people who have any prolonged contact with a group of animals will be able to label at least some of the individuals by their personality. Individual primates (Stevenson-Hine 1983), donkeys (French 1993), goats (Lyons 1988) and even octopuses (Mather and Anderson 1993) have been attributed with their own personalities. Williams (1986, 180) defines personality as 'the general consistency with which an animal behaves, its tendency to do certain things in certain situations'. It is important that the use of 'breed norms' is avoided as they can be very misleading. Arabs are known to be 'hypersensitive and flighty', whilst Shires are supposed to be 'placid'. However, not all Arabs are neurotic, nor all Shires sedate.

Part of the complex intricacies and subtleties found in the relationships between individual horses within a herd by Kiley-Worthington (1987, 146) were attributable to the existence of distinct personalities. A group of humans are not expected to share the same personalities and act in the same way as each other, so why should this be the case for non-human animals such as horses and ponies?

In 1975 Schäfer (*ibid*, 75) acknowledged the importance of 'strong' and 'weak' personalities in explaining the social organisation of a herd of horses and also the necessity for a stallion to possess a 'mature personality' in order to secure a mare (*ibid*, 84). In her study of thirteen horses Kiley-Worthington (1987, 140) examined aspects of each individuals' social behaviour in order to construct simple personality profiles. These included measures of performing and receiving aggressive and affiliative behaviour, the ratio of performing to receiving and total social involvement for each individual. Similar work carried out on the Lundy North Devon cattle (Randle 1993) demonstrated the existence of very different personalities within the herd. A more extensive study involving measures of individual cows' interactions with humans, objects and problem solving situations, in addition to the measures of social behaviour, demonstrated that cattle personality can be characterised by three different dimensions: 'social interactivity', 'wariness/reactivity' and 'outwardgoingness' (Randle 1994; 1995).

The Lundy ponies were introduced to the island in the 1920's by Mr. Martin Coles Harman, a former owner of the island. Although originally a cross between the New Forest and Welsh Mountain breeds they are now officially recognised as a breed in their own right, characterised by dun coats and a hardy constitution. The number of pure bred Lundy ponies was in serious decline until 1990 when a re-establishing programme was launched with the arrival of the Lundy stallion, *Braetor Lapwing*.

This paper will examine the following aspects of the Lundy ponies behaviour:

- a. The distribution of different types of social behaviour
- b. The predominance of mother-young interaction
- c. Interactions within peer groups
- d. The existence of personalities

METHOD

a. SUBJECTS

At the time of this study there were nine Lundy ponies on the island. Seven individuals, four mares, a yearling filly, a seven month old colt foal and a two month old filly foal were involved in this study (see Table 1). (*Braetor Lapwing* and a companion mare, *Lundy Reedwarbler*, were separated at the time in order to prevent unwanted out of season foalings.)

TABLE 1

Details of the Lundy ponies studied

Name	Age	Sex	Dam	Sire
<i>Lundy Belinda</i>	24 years	mare	Lundy Hannah	Rosenharley Peadar
<i>Lundy Calloo</i>	18 years	mare	Lundy Sophie	Greenwood Minstrel
<i>Lundy Kittiwake</i>	14 years	mare	Lundy Nightingale	Midnight Minstrel
<i>Lundy Stonechat</i>	11 years	mare	Lundy Swallow	Knightwood Grenadier
<i>Lundy Pheonix</i>	12 months	filly	<i>Lundy Belinda</i>	Mozart
<i>Lundy Bewick</i>	7 months	colt foal	<i>Lundy Stonechat</i>	Breator Lapwing
<i>Lundy Wigeon</i>	2 months	filly foal	<i>Lundy Calloo</i>	Braetor Lapwing

Note. Italicised individuals involved in the study.

b. STUDY SITE AND MANAGEMENT

Although the Lundy ponies had the run of the island, they spent most of their time between Quarter Wall and Three Quarter Wall. The ponies were wormed twice a year in spring and autumn. The ponies had access to hay in a round feeder *ad libitum* and from November to April were provided with a small daily ration of soaked suger beet pulp between 9 and 10am. Foals are weaned at six to eight months, when they are head collared and taught to lead.

c. MATERIALS

Scoring sheets were developed for recording social interactions by hand.

d. PROCEDURE

The study was carried out between 5th and 11th April 1992. A preliminary session lasting two hours was spent identifying the individual ponies, and consolidating the classification of behaviours. This period also provided an opportunity for the ponies to become accustomed to being observed.

The observed behaviours were categorised as Aggressive, Affiliative, Submissive, Ignoring and Others. The constituent behaviours of these categories are shown in Table 2.

TABLE 2

Constituent behaviours of the five categories of social behaviour.

Aggressive	Affiliative	Submissive	Ignoring	Others
Kicking	Nicker	Withdraw	Ignoring	Nose Wrinkle
Tail Swishing	Neigh	Champing teeth		Watch another
Bottom Turn	Lick Head/Neck			Leg Strike
Bite	Lick Back/Rump			Ears Prick
Head Shake	Groom another			Snort
Ears Back	Suckle			Approach

The ponies were observed for 18 hours in all, over six days. Observations took place between 10am and 1pm, as this was when the ponies were thought to be most socially active. Owing to the small sample size and the close knit nature of the herd it was possible to keep all of the ponies in sight at any one time. Observations were therefore instantaneous, that is, noted down as and when they occurred.

Each observation of a social interaction included the identity of and behaviour engaged in by both the performer and receiver. A typical interaction might be:

Lundy Calloo bites *Lundy Kittiwake* who withdraws

In this example *Lundy Calloo* is the performer who performs an aggressive behaviour and *Lundy Kittiwake* is the receiver who receives aggression and reacts by performing a submissive behaviour.

RESULTS

A total of 532 interactions were recorded.

a. THE DISTRIBUTION OF DIFFERENT TYPES OF SOCIAL BEHAVIOUR

Fig 1 illustrates the distribution of the different types of social activity shown by the herd of Lundy ponies.

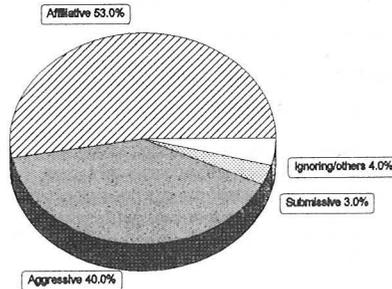
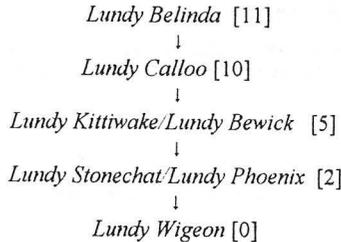


Fig 1. Distribution of social activity

The aggressive interactions occurring during the time that the ponies were fed sugar beet were examined and the number of aggressive actions carried out by each individual obtained. The aggressive hierarchy shown in Fig. 2 was derived.



Note. Number of aggressive actions shown in brackets

Fig. 2. Aggressive hierarchy observed at feeding time

b. THE PREDOMINANCE OF MOTHER-YOUNG INTERACTION

The number of aggressive and affiliative interactions between each of the three dam-foal pairs was totalled (see Table 3). The average number of interactions with the rest of the ponies (other than the dam/foal) in the herd was also obtained for each dam and foal.

TABLE 3

Mother-offspring interaction							
Dam	Foal	Dam-foal		Foal-Dam		Total	Average
						Dam-foal	Interaction
						Interaction	
		<i>Agr Affil</i>		<i>Agr Affil</i>			
<i>L. Calloo</i>	<i>L. Wigeon</i>	0	1	0	25	26	16.1
<i>L. Belinda</i>	<i>L. Phoenix</i>	9	2	2	7	19	13.9
<i>L. Stonechat</i>	<i>L. Bewick</i>	0	1	1	21	23	25.6

c. INTERACTIONS WITHIN PEER GROUPS

The percentage of interactions engaged in by first, the mares with other mares and second, the foals with other foals, were calculated (see Table 4).

TABLE 4

Peer group interaction					
Percentage of mares' interactions				Percentage of foals' interactions	
Mare	with other mares			Foal	with other foals
<i>Lundy Calloo</i>	34			<i>Lundy Wigeon</i>	56
<i>Lundy Stonechat</i>	40			<i>Lundy Bewick</i>	47
<i>Lundy Belinda</i>	37			<i>Lundy Phoenix</i>	48
<i>Lundy Kittiwake</i>	53				

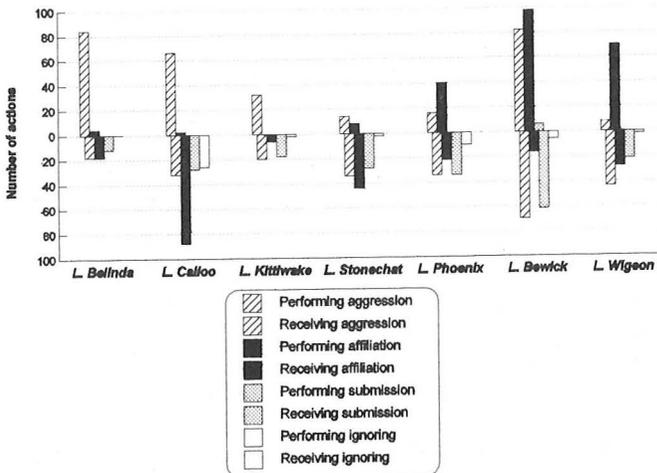


Fig. 3. Amount of each type of behaviour performed (upper) and received (lower) by each pony.

d. THE EXISTENCE OF PERSONALITIES

The total aggressive, affiliative, submissive and ignoring behaviour first, performed by, and second, received by, each individual was obtained. This information was combined in order to construct a personality profile for each of the seven Lundy ponies (see Fig. 3). The performing information is displayed on the upper part of the figure, whilst the

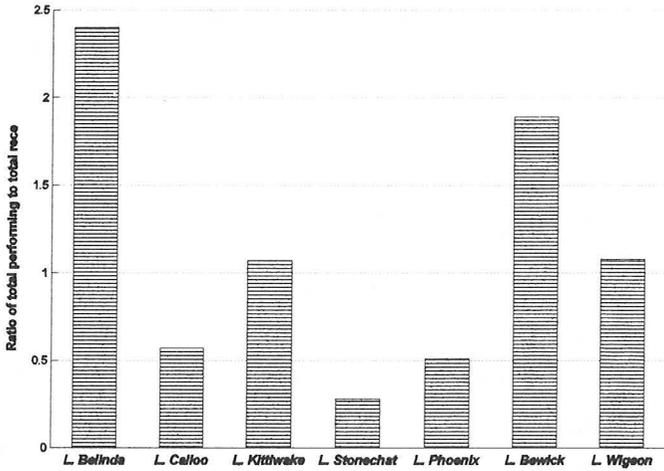


Fig.4. The total performing to total receiving ratio of each pony

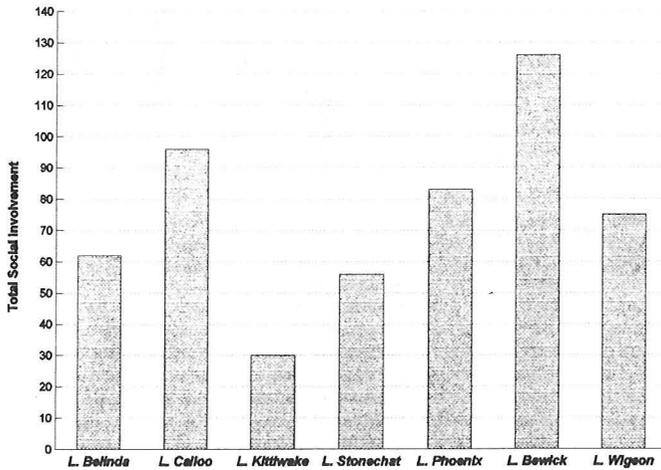


Fig. 5. The total social involvement of each pony

receiving information is depicted on the lower part. The ratio of total behaviour performed to total behaviour received was also derived (see Fig. 4). A value greater than 1.0 indicates that the individual performs more than he/she receives and a value of less than 1.0 indicates that the individual receives more than he/she performs. The total social interaction engaged in by each individual was also calculated (see Fig. 5). Together these graphs present an outline of the personality of each pony.

DISCUSSION

Only forty percent of the interactions between the Lundy ponies were aggressive. Furthermore, 30.7 percent of the total aggression observed occurred during feeding time which constituted only 2.5% of the total observation time. By feeding a small amount of a desirable food, sugar beet, a competitive situation was invoked, in which aggressive encounters are only to be expected. Closer analysis of the aggressive hierarchy shown in Figure 1 indicates that *Lundy Belinda* and *Lundy Calloo* are the most aggressive individuals in a competitive feeding situation. It must be noted however that this aggressive hierarchy is not linear, since there are two pairs of individuals who are equally aggressive (*Lundy Kittiwake* and *Lundy Bewick*, and *Lundy Stonechat* and *Lundy Phoenix*). In such a small sample these 'pairs' represent a substantial deviation from a linear hierarchy. In addition to this, it was not possible to derive a clear dominance order from the aggressive interactions occurring outside of the competitive feeding situation.

Assessment of the other behaviours exhibited by the ponies demonstrated that the relations between the Lundy ponies are complex. The Lundy ponies engaged in more affiliative interactions than aggressive interactions. This can be taken as evidence of social cohesion, already noted to be important in horse society (Williams 1986, Kiley-Worthington 1987). It is likely that affiliation tempers aggressive relations and further disrupts the linearity of the aggression based dominance order.

As to be expected the relations between the mares and their foals were strong, and formed an important basis of the Lundy pony society. Table 3 shows that two of the three mare-foal pairs interacted more with each other than with the other members of the herd. The seven month old colt, *Lundy Bewick*, was particularly active with others apart from his mother. This could have been because at the time of the study he was the only male in the herd. It could of course just be that he was a particularly active individual.

Interactions within peer groups were also considerable indicating that the Lundy ponies build up strong relationships with their contemporaries. The percentages shown in Table 4 indicate that the relations between foals appear to be stronger than those between the mares.

Inspection of Figures 3, 4 and 5 illustrate that the Lundy ponies possess very different personalities from each other. The oldest mare, *Lundy Belinda*, was not especially socially involved overall, but was clearly a performer of almost exclusively aggressive behaviours. The next eldest mare, *Lundy Calloo*, was one of the most socially involved ponies, however she was a definite receiver of all types of behaviour, but notably of affiliation. Of all the ponies she was ignored the most. The two younger mares, *Lundy Kittiwake* and *Lundy Stonechat*, were the least socially involved overall. *Lundy Kittiwake* received almost as much behaviour as she performed and she received mostly aggression. *Lundy Stonechat* on the other hand was plainly a receiver who received both affiliation and aggression. Not surprisingly all three of the youngsters received the most aggression, probably a case of equine discipline in action. The young filly *Lundy Wigeon* was the least socially involved of the three, whilst *Lundy Phoenix* the yearling filly and *Lundy Bewick* the 7 month old colt were two of the most socially involved individuals in the herd, *Lundy Bewick* outstandingly so. *Lundy Wigeon* received as much as she performed and the majority of the behaviour she performed was affiliative. *Lundy Phoenix* was a more reserved individual, receiving more than she performed. Finally *Lundy Bewick*, as already noted above, was heavily occupied in social activity. He was a clear performer of all behaviours.

CONCLUSION

It was difficult to define an aggressive hierarchy during the competitive feeding

situation when most aggressive interactions occur. There was no evidence of an aggressive hierarchy outside of feeding time. Affiliative behaviour played an important role in determining the structure of the Lundy pony society. Affiliative relationships were especially obvious between mares and their foals, and between peers. Each of the seven Lundy ponies observed possessed a unique personality, as determined by the types of behaviour they performed and received, whether they were predominantly performers or receivers and how socially involved they were overall.

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