Assessment of donkey temperament and the influence of home environment

J.M. French
The Donkey Sanctuary, Sidmouth, EX10 0NU, UK
(Accepted 24 November 1992)

ABSTRACT


The temperament of individual donkeys being sent to foster homes from the Donkey Sanctuary was evaluated with a calibrated-line rating method using eight pairs of contrary adjectives to describe traits, e.g. calm-nervous. The donkeys' attitude to other animals and people was also recorded. A factor analysis of normalized scores for the trait adjective pairs produced two factors: 'obduracy' and 'vivacity'. Once in their foster homes, the donkeys appeared more overtly outgoing. One explanation of this change in temperament is that pairs of donkeys in foster homes experience less social intimidation than those living in groups. The donkeys' attitude towards other donkeys and people was unaffected by their change in surroundings, but their behaviour towards other animals could change. Temperament assessment can assist in matching potential pets with homes, e.g. donkeys that were perceived as liking humans had a higher 'vivacity' score and donkeys that were reported to like dogs had a lower 'obduracy' score.

Keywords: Donkey; Temperament

INTRODUCTION

Re-homing schemes are vital for animal sanctuaries and shelters since they ease the pressure on accommodation. A simple, but reliable method of assessing animal temperament, i.e. the interaction between donkeys and people, should improve the success of such schemes. Furthermore, it is important to know whether the operation of such schemes have any effects on an animal's 'temperament', i.e. the interaction between animals and people.

Assessments of individual animals' temperaments has been reported for various species (including dogs, cats, rats, goats and rhesus monkeys). Some authors prefer to refer to an animal's overall behavioural 'style', or emotional 'tone' (Lyons, 1989), or 'individuality' (Mendl and Harcourt, 1988), rather than use 'temperament', because of difficulties with the interpretation of this

Correspondence to: J.M. French, The Donkey Sanctuary, Sidmouth, Devon, EX10 0NU, UK.
term. Goldsmith et al. (1987), for example, in their discussion paper on human temperament give four differing views on its definition, its elements, how it develops and whether it is a personological or relational construct.

Ratings of individual animal temperament have derived much from the discussion of the evaluation of human personality (Block, 1977). Ratings methods have the advantage of recognizing qualities of behaviour not addressed by direct recording techniques. Although this could be criticized as relying on the observers' subjective judgements, it can be argued that most methods of recording behaviour involve an element of observer judgement (see discussion in Feaver et al., 1986).

To monitor the temperament of a representative sample of donkeys requires a method that could be used by people who were in daily contact with them. In human psychology, observers' rating methods and, more recently, self-assessment questionnaires have been judged to provide useful information about an individual temperament (Kellner and Sheffield, 1973). These methods have been applied to the study of animals (dogs, Serpell, 1983; cats, Feaver et al., 1986; dairy goats, Lyons, 1989). Animal temperament, as assessed by such methods, appears to be an enduring and general characteristic of individuals (Lyons et al., 1988; Lyons, 1989), to be correlated with direct behavioural measures (Feaver et al., 1986) and also to reflect the overall pattern of behaviour occurring when conditions change (Stevenson-Hinde, 1983).

In this study the temperament of donkeys being re-homed was assessed to evaluate the use of a questionnaire within such a re-homing scheme, and to monitor the effects of the re-homing process itself on donkey's temperament.

ANIMALS, MATERIALS AND METHODS

Temperament assessment was by observer evaluation and was based on the overall patterns of behaviour over several months. The evaluation was recorded on a specifically designed form (Fig. 1). This form listed eight pairs of adjectives, each of which described the opposite extreme of a behavioural trait, e.g. calm/nervous. These adjectives had been selected as summarizing the 37 adjectives used to describe donkey temperament in the Donkey Sanctuary correspondence and so should cover a broad range of the behaviour shown by the domestic donkey. Each adjective was defined on the reverse of the form.

The trait adjective pairs were joined with a line on which observers marked the position between the two extremes that they thought best reflected the donkey's expression of that particular trait. The distance from the left-hand end of the line was used as the numerical score for the donkey for that trait (see calibrated-lines method in Feaver et al., 1986). Observers were also asked to assess the donkeys' general attitude towards other animals and people, i.e.
Questionnaire Form

Thank you very much for your help in filling in this form.

DONKEY'S NAME: ...................................
YOUR NAME: ...................................
DATE: ..................................

Below are several pairs of words which describe temperament. Each pair is joined by a line. The midpoint of the line is marked. Please put a cross on each line at the point you think best reflects your donkey's temperament.

for example;

'The donkey is generally calm' would be scored as

CALM |---X-------------|-------------------| NERVOUS

'My donkey is slightly more nervous than calm' would be scored as

CALM |-----------------|---X-------------| NERVOUS

Please mark the following:

STOID |----------------|-----------------| PLAYFUL
SHY |----------------|-----------------| OUTGOING
CALM |----------------|-----------------| NERVOUS
GENTLE |----------------|-----------------| ROUGH
OBLIGING |----------------|-----------------| WILFUL
FRIENDLY |----------------|-----------------| SPITEFUL
CONTENT |----------------|-----------------| AGITATED
HANDLING
EASY |----------------|-----------------| DIFFICULT

Please tick the following:

My donkey

<table>
<thead>
<tr>
<th>Likes</th>
<th>Dislikes</th>
<th>Indifferent</th>
<th>Don't know</th>
</tr>
</thead>
</table>

dogs
other donkeys
other animals
i.e.
children
other people
i.e.

Fig. 1.

whether donkeys liked, disliked or were indifferent to them. They were not advised on which specific behaviours, e.g. aggression or avoidance to use as indicators of the donkeys' attitude.
Pilot study

Five observers used the form to assess the temperament of donkeys resident at the sanctuary, some knew the donkeys well whereas others had handled them for only a few days. The method was checked for intra-observer reliability (observer consistency); all observers evaluated three donkeys on two occasions which were 10 days apart (Table 1 (a)). Inter-observer reliability was checked as follows: observers were divided into two groups, three observers scored six donkeys and two observers scored 18 donkeys (Table 1 (b)). One observer scored three donkeys, once a week for 6 weeks, showing that scores for each trait were both consistent for individual donkeys (with a minimum reliability coefficient of 0.913) and valid, i.e. donkeys scored significantly differently from each other.

Feedback from the observers resulted in some revision of the form to clarify the scoring instructions and some pairs of adjectives were changed to clarify their meaning. The definitions of the adjectives were removed since ob-

<table>
<thead>
<tr>
<th>Adjective pair</th>
<th>Observer 1</th>
<th>Observer 2</th>
<th>Observer 3</th>
<th>Observer 4</th>
<th>Observer 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentle-rough</td>
<td>0.926</td>
<td>0.973</td>
<td>0.979</td>
<td>0.277</td>
<td>-0.009</td>
</tr>
<tr>
<td>Shy-outgoing</td>
<td>0.997</td>
<td>0.996</td>
<td>0.966</td>
<td>0.459</td>
<td>0.213</td>
</tr>
<tr>
<td>Calm-nervous</td>
<td>0.995</td>
<td>0.995</td>
<td>0.988</td>
<td>0.814</td>
<td>0.758</td>
</tr>
<tr>
<td>Obliging-wilful</td>
<td>0.999</td>
<td>0.999</td>
<td>0.916</td>
<td>0.642</td>
<td>0.307</td>
</tr>
<tr>
<td>Friendly-spiteful</td>
<td>0.995</td>
<td>1.000</td>
<td>0.979</td>
<td>0.402</td>
<td>0.445</td>
</tr>
<tr>
<td>Content-agitated</td>
<td>0.900</td>
<td>0.616</td>
<td>0.985</td>
<td>0.569</td>
<td>0.341</td>
</tr>
<tr>
<td>Staid-playful</td>
<td>0.411</td>
<td>0.381</td>
<td>-0.656</td>
<td>-0.076</td>
<td>-0.104</td>
</tr>
<tr>
<td>Easy handling–difficult</td>
<td>0.918</td>
<td>0.879</td>
<td>0.946</td>
<td>0.663</td>
<td>0.755</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjective pair</th>
<th>Three observers</th>
<th>Two observers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentle-rough</td>
<td>0.992</td>
<td>0.982</td>
</tr>
<tr>
<td>Shy-outgoing</td>
<td>0.950</td>
<td>0.906</td>
</tr>
<tr>
<td>Calm-nervous</td>
<td>0.974</td>
<td>0.932</td>
</tr>
<tr>
<td>Obliging-wilful</td>
<td>0.993</td>
<td>0.864</td>
</tr>
<tr>
<td>Friendly-spiteful</td>
<td>0.892</td>
<td>0.996</td>
</tr>
<tr>
<td>Content-agitated</td>
<td>0.719</td>
<td>0.946</td>
</tr>
<tr>
<td>Staid–playful</td>
<td>-0.609</td>
<td>0.204</td>
</tr>
<tr>
<td>Easy handling–difficult</td>
<td>0.984</td>
<td>0.993</td>
</tr>
</tbody>
</table>

A rough guideline for acceptability is a correlation of at least 0.7 (Martin and Bateson, 1986).
servers had not used them; either observers felt they knew what the adjectives meant, or they failed to look on the reverse of the form. The questionnaire was restricted to a single side of A4 paper.

Full study

The temperament of individual donkeys being sent to foster homes from the Donkey Sanctuary was evaluated. In the sanctuary's fostering scheme, donkeys are put into a fostering group (of about 15 individuals) where they are regularly handled. They usually enter the group as established pairs or they are paired later with another single donkey. Over a period of 3 months every donkey entering the fostering group was assessed by sanctuary staff and then reassessed when the donkey left to go to a foster home. Subsequently, foster homes were asked to assess their donkeys within the first month of arrival and were then sent a second questionnaire a few months later when the donkeys were assumed to have settled in. A total of 51 foster homes were contacted, of which 45 returned both forms (an 88% return rate).

Normalized scores for the trait adjective pairs were analyzed using principal-component factor analysis (PCA) with a varimax rotation (PCA analysis of ratings of rhesus monkeys' behavioural style was used by Stevenson-Hinde and Zunz (1978) to distinguish individuals). The data met the necessary conditions for a PCA analysis, i.e. the number of subjects should be at least equal to the number of measures, the distribution of variables should be normal and continuous variables, and there should be a linear relationship, but no interaction between variables.

As it was possible that the donkeys' previous experience of home life would have affected their behaviour in their foster home, factor scores were analyzed with respect to the number of years spent at the Sanctuary and in homes.

RESULTS

The PCA analysis produced two factors. Factor 1 was loaded on rough, wilful, spiteful, agitated and difficult to handle, and was labelled 'obduracy'. Factor 2 was loaded and playful, outgoing, and calm, and was labelled 'vivacity' (Table 2).

Factor scores were compared using a Wilcoxon matched pairs signed rank test. There was no change in factor scores whilst the donkeys were being trained in the fostering group nor whilst they were settling into their foster homes. However, when the mean factor scores in the foster homes were compared with those in the fostering group, the 'obduracy' score was significantly higher ($N=38$, $Z=-2.94$, $P=0.003$) though the 'vivacity' score was similar.

'Obduracy' of donkeys in their foster home was found to be affected by the number of years that they had spent outside the sanctuary. Incomplete histo-
TABLE 2

Factor Analysis

<table>
<thead>
<tr>
<th>Adjective pair</th>
<th>Factor 1-'obduracy'</th>
<th>Factor 2-'vivacity'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staid--playful</td>
<td>0.259</td>
<td>0.721</td>
</tr>
<tr>
<td>Shy--outgoing</td>
<td>-0.144</td>
<td>0.880</td>
</tr>
<tr>
<td>Calm--nervous</td>
<td>0.439</td>
<td>-0.629</td>
</tr>
<tr>
<td>Gentle--rough</td>
<td>0.794</td>
<td>0.283</td>
</tr>
<tr>
<td>Obliging--wilful</td>
<td>0.851</td>
<td>0.107</td>
</tr>
<tr>
<td>Friendly--spiteful</td>
<td>0.769</td>
<td>-0.245</td>
</tr>
<tr>
<td>Content--agitated</td>
<td>0.741</td>
<td>-0.323</td>
</tr>
<tr>
<td>Easy handling--difficult</td>
<td>0.822</td>
<td>-0.105</td>
</tr>
</tbody>
</table>

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.786 Barlett's Test of Sphericity = 1304.207 Significance = 0.000

ries meant that the number of homes the donkeys had been in during this time were a minimum estimate. Mean ‘obduracy’ score was negatively correlated with the number of years donkeys had spent in homes, i.e. the more homes donkeys had experienced the easier they were to handle (years spent at the sanctuary, Spearman \( r = -0.177, P = 0.131 \); years spent in previous homes, Spearman \( r = -0.427, P = 0.002 \)). Multiple regression showed that donkeys that had experienced two or more homes were significantly less ‘obdurate’ (i.e. easier to handle) in foster homes than those donkeys that were in their first or second home (donkeys in their first and second home, (d.f. 1,51), \( F = 5.59, P = 0.022 \); donkeys from more than two homes, (d.f. 1,41), \( F = 11.05, P = 0.002 \)). However, their ‘obduracy’ at the sanctuary was not influenced by their homing history. The donkeys ‘vivacity’, either in foster homes or at the sanctuary, was not affected by their homing history.

Donkey temperament was found to be linked with their attitudes to other animals. Donkeys that liked children were less timid, i.e. had a higher ‘vivacity’ score than donkeys that disliked children, whether the donkeys were at the sanctuary or a foster home (\( N = 5, W = 120, Z = -2.22, P = 0.026 \)). This reflected their upbringing within a household and their subsequent familiarity with humans. Those donkeys that liked dogs were more ‘obdurate’ than others when in a group at the sanctuary, but not when in a foster home (\( N = 53, W = 438, Z = -2.42, P = 0.015 \)).

DISCUSSION

The questionnaire method used for assessing donkey temperament produced reliable and valid results and by concentrating on traits that were important in human–animal interactions, it may prove more generally useful. Other authors have questioned the usefulness of this method (Mendl and
Harcourt, 1990), particularly given the potential enormity of variation between owners' reports and their lack of independent verification. This study shows that the method can produce remarkably consistent results. However, it must be noted that the group receiving the questionnaires had already committed themselves to providing approved facilities for the donkeys and therefore would be highly motivated to take part in the study.

A donkey's acceptability as a pet depends, not only on its successful interaction with its immediate carers, but also on its reaction to other members of the household. For donkeys the temperament assessment generated some useful selection criteria, e.g. donkeys that liked children had a higher 'vivacity' score than others and donkeys that got on well with dogs had a lower 'obduracy' score when kept in groups, but not once in the homes. Podberscek et al. (1991) have also suggested that temperament has an influence on the animals' attitudes towards familiar and unfamiliar humans. For this re-homing scheme these data suggest that the bolder, more assertive donkeys will be better matched with family homes and more timid donkeys should go to homes where there are no children or dogs. Other data showed that whilst donkeys' attitudes towards people remained constant, their attitude towards other animals could change.

These data indicated that donkeys that had been pets in several homes were more likely to be re-homed successfully. This is not because other donkeys failed to settle down within the first month, as temperament did not change during the settling in period. Possibly donkeys that have lived in a variety of homes are less attached to one location or to one owner. Certainly different early rearing experiences have been shown to contribute to the development of stable long-term differences in behavioural expression of temperament (Clark and Galef, 1977; Price, 1978; Lyons, 1989), but our data were insufficiently detailed to investigate this possibility.

It would seem that within a particular management system donkey temperament was stable and unaffected by increased familiarity with its human carers. This may be because the donkeys were still spending most of their day with other donkeys rather than with humans. When the donkeys change location (and also companions) their temperament changed. This has also been reported for cats when they changed location (Feaver et al., 1986) and for monkeys when they experienced a change in their social group (Stevenson-Hinde et al., 1980). The effect on donkey temperament of moving them from a group in a farm environment to a pair in a home environment is perceived by the donkeys' carers as the donkeys becoming more assertive. This could be explained by donkeys in pairs experiencing less social intimidation than those living in groups, or by them becoming less fearful of people within the first month in their foster home, or by fosterers being less experienced at handling donkeys than the sanctuary staff.
CONCLUSION

A donkey's 'temperament', i.e. the interaction between donkeys and people, is altered by the social system in which it lives and by its previous experience of that system.

The assessment of animal temperament by a carefully designed questionnaire can produce reliable and valid data. A questionnaire, like the one used for donkeys, that concentrates on those traits that are important in the interaction between animals and people may prove to be a useful aid in matching would-be adopters of rescued animals with the right pet.

ACKNOWLEDGEMENTS

This study was supported by the Donkey Sanctuary, and was initiated and encouraged by Dr E.D. Svendsen and Mr. P.A. Svendsen. I acknowledge the cooperation of the sanctuary staff, in particular the efforts of Tracey Warren and Jacqui Welsman who assessed nearly a hundred donkeys and invaluable contribution of the families fostering the donkeys.

REFERENCES


