

form friendship bonds; it is slightly bruising to our egos, though, to realize that they bond with us only for lack of better company.

Socioecology  
85

---

### *Friendship and Grooming*

If bonding was originally an evolutionary adaptation that supported the harem social structure, this basic drive in horses was probably reinforced over the course of evolution because it proved to have additional adaptive value. In one study of domestic horses, friendship bonds were found to have the effect of superimposing a second social hierarchy upon the dominance pecking order; low-ranking horses that formed an attachment to a higher-ranking horse often gained better access to food than did horses that they regularly submitted to in aggressive encounters. Being tolerated by or attached to a high-ranking horse that spent a lot of time beating up on other horses, in other words, offset to some degree the cost of being picked on.

Other studies, of feral horses, suggest that horses tend to form friendship bonds with horses of similar age and dominance rank. But even so, the mutual social support of a pair bond is an advantage in deflecting aggression from other horses. The instinct to form attachments clearly has survival value, separate and apart from reproduction.

An ability to form bonds is meaningless if you cannot tell who you are forming the bond with, and who you aren't, so a corollary requirement for group cohesion is an ability to recognize individuals. Studies of feral herds show that horses unquestionably have a keen ability to recognize and remember

individual horses—by sight, by smell, and by sound. Stallions immediately spot an intruder and readily single out members of their harems that have strayed into another group. Many instances have been observed of mares and foals recognizing one another by sound alone. The ability of horses to recognize individuals may also explain why some riding horses appear to know—and put to the test by disobedience—unfamiliar riders, and why some horses can be successfully managed only by certain people.

At the most basic instinctive level, grooming may play a key role in creating—and certainly in maintaining—bonds between horses. Grooming occurs frequently between pairs of horses, and is almost always simultaneous and mutual. The two horses stand head to tail, pull the lips back, and scratch one another with their bared incisors. If one horse stops, the other does too. Mutual grooming in feral horses occurs only between members of a single band, never between bands.

Although any single horse will usually spend considerably more time grooming one or two friends than grooming other members of the herd, every horse will at one time or another groom all, or nearly all, members of its band; the only mutual grooming combination not observed in feral horses studied in the western United States was between the dominant stallion and foals. Grooming also frequently occurs as an “appeasement” gesture following an aggressive encounter between members of the group.

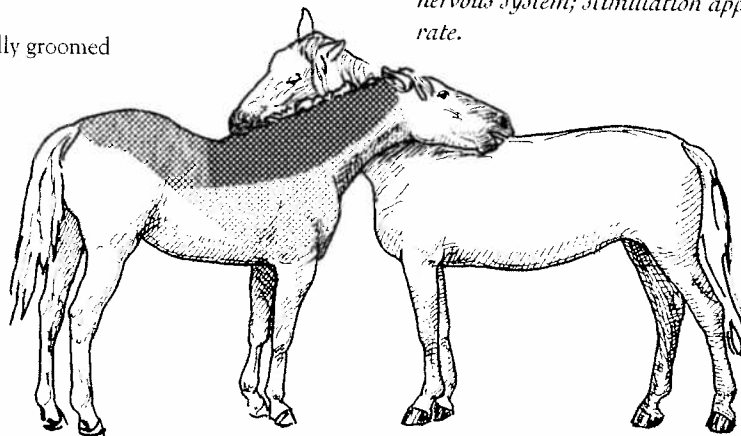
Grooming may have its roots in the removal of parasites from areas that an animal cannot easily reach itself—and mutual grooming in horses does concentrate on the neck, withers, base of the mane, back, and rump (figure 4.1). But in horses, as in many mammals, it has become ritualized as a way to cement social relations. Horses normally maintain a

“personal space” against intrusion, engaging in threat displays against horses that approach closer than 1.5 meters. The necessarily close contact between pairs of grooming horses per force lowers these barriers and strengthens the social bond. The ritual nature of grooming is also apparent in the behavior of foals and young horses, who will frequently clap their teeth together with lips apart as a submissive gesture toward older horses. Foals will engage in “unilateral” grooming of adults in response to aggressive moves, and teeth clapping, which involves the same motions of the mouth that occur in grooming, appears to be a ritualized version of this behavior.

In the evolution of social signals this is quite a familiar pattern. Social signals in effect draw upon preexisting material. A lizard whose visual system and brain have evolved to detect fast-moving insect prey will use a rapid up-and-down head bob as a courtship signal—it is a gesture that the species is already “hard wired” to respond to. Grooming may have

- Most often groomed
- ▨ Often groomed
- ▤ Occasionally groomed

FIGURE 4.1 *The preferred grooming sites are concentrated near a major nerve of the autonomic nervous system; stimulation appears to lower heart rate.*



begun as a utilitarian matter of survival (removing harmful parasites), but its social consequences (facilitating the creation of pair bonds and reducing aggression within the herd) have over time led to its ritualization.

Interestingly, at least one line of evidence suggests that the ability of grooming to reduce tension between individuals may also have been hard-wired. A recent study by two French biologists, Claudia Feh and Jeanne de Mazières, found that when tame horses were groomed by humans at the site they most frequently chose when grooming one another (the lower neck), their heart rate decreased significantly—about 11 percent in adults and 14 percent in foals. Grooming at a site never chosen by horses themselves (the lower shoulder to elbow) had no effect on heart rate. The preferred site lies close to a major ganglion, or bundle of nerve tissue, which may account for the effect.

The point is not that the “purpose” of grooming is to lower heart rate; the point is rather that, because grooming happens to have this pleasurable, calming effect, it has naturally been drawn upon in the course of social evolution as a means of both cementing pair bonds and appeasing aggression. The physiological roots explain why grooming was “chosen” as a social signal in the first place; but it was the adaptive value of grooming within the horse’s social structure that led to its being ritualized.

The importance of grooming to horses is apparent in the passive behavior they show toward an unlikely companion, the cattle egret. These birds have been observed perching for up to 50 minutes at a time on the backs of feral ponies, picking off flies; egrets will also sometimes accompany ponies on the ground, and the ponies tolerate them as they strike at their legs, underbelly, and flanks.

Similarly, grooming is clearly an important ingredient in the bond between humans and horses; scratching and petting play an important part in "breaking" horses and gaining their trust, as well as in communicating praise.

---

### *Aggression Versus Violence*

Although it may not seem obvious to anyone who has watched horses shoving, biting, kicking, and squealing at one another, the establishment of a dominance pecking order among horses is actually a way to avoid violence.

As with all group-dwelling animals, actual acts of physical aggression between horses are the exception. A new horse placed into a group will typically fight it out physically. But within two days its place in the hierarchy is usually well established. It has learned whom it may threaten with impunity and whom it had better give way to without a fight whenever there is a conflict over food, water, or personal space.

A study of free-ranging domestic ponies on the Isle of Rhum in Scotland found that more than 80 percent of aggressive encounters between animals consisted of threats with the head alone—pinning back the ears and extending the neck—and that kicks or even threats to kick were rare. Studies of feral horses in the western United States found this to be even more the case in dominance confrontations between a herd stallion and mares: 98 percent of the time the stallion had only to lower his head to get a mare to move.

Studies of domestic, feral, and Przewalski's horses all find remarkable consistency in the number of threats horses issue to their fellow herd members, an average of 1.5 per hour per