

NEEDS OF ANIMALS

A need can be defined as a requirement that is a consequence of the biology of the animal to obtain a particular resource or respond to a particular environmental or bodily stimulus. Animals have a range of functional systems controlling body temperature, nutritional state, and social interactions. Together, these functional systems allow the individual to control its interactions with its environment and hence to keep each aspect of its state within a tolerable range. When an animal acts to return to this tolerable range, we say that it has a need.

Some needs are for particular resources, such as water or heat. However, the means of obtaining a particular objective have also become important to the individual animal. For example, various species will work, in the sense of carrying out actions that result in food presentation, even in the presence of food. Hence pigs* need to root in soil or some similar ground, hens need to dust-bathe, and animals of these species need to build a nest before giving birth or laying eggs. Needs therefore range from those that can be satisfied in a simple way, for example, by ingesting water, to complex ones involving a variety of sensory input or sufficient contact with other members of the species.

Some reports and laws refer separately to physiological needs and behavioral or ethological needs. However, while the recognition of a need may depend on an effect on the physiology of an animal or the urgent and energetic attempts of an animal to show a particular behavior, the need is in the brain of the individual. Hence the need itself is not physiological or behavioral but may be satisfied only when some physiological imbalance is prevented or corrected, or when some particular behavior is shown.

Some needs are associated with feelings (*see* FEELINGS OF ANIMALS), and these feelings are likely to change when the need is satisfied. If the existence of a feeling increases the chances that the individual will carry out some adaptive action and hence be more likely to survive, the capacity to have such a feeling is likely to have evolved by natural selection. Further, if the state of an individual in certain conditions is desirable from an evolutionary viewpoint, there should be a propensity for that individual to have good feelings. On the other hand, if a state is one that should be quickly altered, it should be associated with unpleasant feelings that prompt avoidance or some other action. Feelings are part of a mechanism to achieve an end, just as adrenal responses or temperature regulatory behavior are mechanisms to achieve an end.

Research on needs is of two kinds. Preference tests (*see* PREFERENCE AND MOTIVATION TESTING) in which the strength of positive preference is quantified give information about what is important to the subject animal. Studies in which a need is not satisfied and the extent of poor welfare is assessed using indicators of abnormal behavior, negative preference, physiology, immunosuppression, disease, injury, and so on, also indicate the importance of the resource concerned in terms of biological effects.

Selected Bibliography. Broom, D. M., Animal Welfare Defined in Terms of Attempts to Cope with the Environment, *Acta Agricultura Scandinavica, Section A, Animal Science*, Supplement 27 (2996): 22-28; Broom, D. M., and K. G. Johnson, *Stress and Animal Welfare* (London: Chapman and Hall, 1993); Hughes, B. O., and I. J. H. Duncan, The Notion of Ethological "Need," Models of Motivation, and Animal Welfare, *Animal Behaviour* 36 (1988): 1696-1707; Toates, F., and P. Jensen, Ethological and Psychological Models of Motivation: Towards a Synthesis, in J.-A. Meyer and S. Wilson (Eds.), *From Animals to Animats* (Cambridge, MA: MIT Press, 1991), 194-205; Vestergaard, K., The Regulation of Dustbathing and Other Behaviour Patterns in the Laying Hen: A Lorenzian Approach, in R. Moss (Ed.), *The Laying Hen and Its Environment*, *Current Topics in Veterinary Medicine and Animal Science* 8 (1980): 101-113.

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