

## Glossary of Terms

- affective processes.** Involuntary processes that do not require conscious thought. Breathing, digestion, and changes in palatability, for example, occur even while an animal sleeps or is anesthetized. They are intimately involved in changes in liking for foods.
- aversion.** Dislike for a food or place causing avoidance or rejection.
- chaos.** Lack of predictability in time and space.
- cognitive processes.** Voluntary processes that require conscious thought. Selecting particular foods or locations to forage, for example, are cognitive processes. Choosing to remain with the group or to forage alone involves the interplay between affective and cognitive processes.
- contiguity.** Proximity of a behavior and its consequences in time and space. Dynamic complexity arises when behaviors (actions) and consequences (outcomes) are detached in time and space.
- contingency.** Actions whose occurrence depend on specific environmental conditions that are subject to chance occurrences and hence probabilistic rather than deterministic. Behavior is contingent upon history of the social and physical environment, necessity, and chance.
- continuum.** A continuous whole whose parts cannot be separated. Nutrients and toxins interact in a dose-dependent manner along continua from bodily benefit (experienced as satiety) to bodily harm (experienced as malaise). The behavior of any individual is a continuum formed by the interaction of the genotype (history of the species passed down through the ages) and the environment (individual's experience of social and physical conditions beginning at conception).
- culture.** Social influences on behaviors such as food and habitat selection that involve learning behaviors from social models such as a mother.
- discriminate.** The ability to distinguish between similar stimuli based on different consequences. Goats, for example, discriminate between current season's and older growth twigs from the shrub blackbrush based on differences in their flavor and postingestive effects.
- emetic system.** System responsible for malaise—nausea, vomiting—in animals. It is a critical component of the affective (involuntary) system and plays a role in the formation of conditioned taste aversions to forages too high in toxins or nutrients.
- enteric.** Intestinal or more generally of the digestive system.
- feedback.** A process in which the factors that produce a result are themselves modified by that result. Behavior, for example, is a function of its consequences.
- flavor.** Integration within the central nervous system of a food's taste and odor.
- fluctuation.** The process of continually changing or varying in an erratic way.
- generalize.** A transfer of the effects of conditioning to similar stimuli. Lambs, for example, that have learned food preferences or aversions based on a flavor such as cinnamon generalize preferences and aversions to different foods (e.g., wheat and rice) that contain cinnamon.
- hedonic shift.** A shift in palatability following positive or aversive postingestive feedback from nutrients or toxins. Hedonic shifts are manifest as increases or as decreases in intake or preference for a particular food.
- herbivore.** Any of a diverse group of animals with special adaptations for eating plants as the primary component of their diets.
- intake.** Amount of food eaten.
- macronutrient** Nutrients such as energy and protein required in large amounts by animals on a daily basis. They have a large influence on palatability.
- malaise.** Aversive postingestive feedback due to excessive intake of nutrients or toxins, experienced as nausea or feelings of physical discomfort.
- metaphor.** The application of a word or phrase to an object or concept it does not literally denote, implying comparison with that object or concept.
- morphology.** Branch of biology that deals with the form and structure of animals and plants.
- nature.** The influence of the genotype, as manifest morphologically and physiologically, on behavior.
- negative punishment.** Decrease in the rate of a behavior due to removal of a positive reinforcer. Creatures placed in unfamiliar environments are punished (i.e., all of the familiar positive reinforcers have been removed).

**negative reinforcement.** Increase in the rate of a behavior to avoid an aversive consequence. Livestock move away from people to avoid aversive contact.

**neophobia.** Avoidance of anything new or different.

**neophyllia.** Ready acceptance of anything new or different.

**neurology.** Branch of biology that deals with the structure and function of the nervous system.

**novel food.** Any food that is new or different and unfamiliar.

**nurture.** The influence of the environment, beginning at conception, on behavior.

**nutrient-specific satiety.** Decrease in preference for the flavor of a food based on postingestive feedback from nutrients. Sensory-, nutrient-, and toxin-specific satiety interact to influence palatability and preference for different foods.

**palatability.** The interrelationship between a food's flavor (recognizable features including odor, taste, and texture) and its postingestive effects caused by nutrients and toxins (postingestive feedback). The relationship between flavor and feedback is influenced by a food's chemical characteristics and an animal's nutritional state and past experiences with the food.

**perturbation.** Something that causes disturbance and disorder or confusion.

**physiology.** Branch of biology that deals with the functions and vital processes of living organisms including their cells and organs.

**positive punishment.** Decrease in the rate of occurrence of a behavior due to aversive consequences.

**positive reinforcement.** Increase in the rate of occurrence of a behavior due to positive consequences.

**postingestive feedback.** Feedback from the cells and organs of the body to the central nervous system. The central nervous system integrates a food's flavor with its postingestive effects, due to nutrients and toxins, through postingestive feedback. Nerves for taste (hypoglossal, glossopharyngeal, and trigeminal nerves innervate the buccal cavity and pharynx) converge with nerves from the viscera (vagal and splanchnic nerves innervate the pharynx, respiratory and gastrointestinal tracts) in the solitary nucleus of the brainstem. From there, they synapse and relay throughout the brainstem, limbic system, and cortex. Thus, the central nervous system integrates the external (social and physical) and internal (cells and organs) environments.

**preference.** The choices an animal makes when given alternatives. Preference indices are typically calculated as the amount of a particular food eaten in a meal divided by the total amount of all foods eaten in the meal.

**ruminant.** Any of a suborder of cud-chewing mammals (e.g., giraffe, camel, cattle, bison, elk, sheep, goats, deer, antelope) having a stomach with four chambers (rumen, reticulum, omasum, abomasum).

**satiated (satiety).** Having had enough or more than enough so that all pleasure or desire is lost.

**self-organization.** The outcome of feedback-driven functions—in far-from-equilibrium systems—whose outcomes are structured at bifurcation points, determined by probabilistic laws.

**sensory-specific satiety.** Decrease in preference for the flavor of a food as it is consumed. Sensory-, nutrient-, and toxin-specific satiety interact to influence palatability and preference for different foods.

**social facilitation.** The performance of a pattern of behavior already in an individual's repertoire, as a consequence of the performance of the same behavior by other individuals.

**social learning.** Acquiring new behaviors through social interactions.

**toxin.** Any compound capable of producing toxicosis by impairing some aspect of animal metabolism. Everything is toxic, including oxygen, water, and all nutrients if ingested in high enough doses. Most plants, grasses included, contain toxins. Toxins typically set a limit on the amount of food an animal can ingest. They do not produce harmful effects if ingested in limited amounts. Under certain circumstances, animals have difficulty refraining from overingesting certain plants that contain toxins—the so-called poisonous plants.

**toxin-specific satiety.** Decrease in preference for the flavor of a food based on postingestive feedback from toxins. Sensory-, nutrient-, and toxin-specific satiety interact to influence palatability and preference for different foods.