

Glossary



This glossary includes definitions of terms as we use them in the book. Most of these terms are used multiple times and in different chapters, but they are always used with the same meaning. The list is not exhaustive, and the reader should refer to the Index to locate definitions of other terms.

Assemblage—all amphibians that occur at a site at a particular time and from which samples are taken. We use *assemblage* in an ecological sense and imply no historical component to the unit. See also **community**.

Audio strip width—twice the maximum straight-line distance at which an observer can hear a calling male frog from a point on the transect perpendicular to the calling individual.

The width is determined separately for each species by each observer.

Bayesian statistics—an approach to the estimation of population parameters by the use of inverse probability and, in particular, Bayes's theorem.

Biodiversity—jargon for *biological diversity*.

Biological diversity—the variety of all living organisms on earth. The term encompasses several levels of diversity, including genetic (individual), species, and ecosystem. This book focuses on species diversity.

Biphasic complex life cycle—typical life cycle of an amphibian that involves at least two stages (adult and larva) often with different morphologies and habits. The different stages

usually occupy different habitats (terrestrial and aquatic).

Call intensity—the loudness of a frog call, measured in decibels.

Call rate—the number of calls given by a frog in a specified period of time. For individual frogs, usually, the number of advertisement calls per second or minute.

Closed population—a population that remains unaltered demographically during the study period; immigration, emigration, mortality, and natality are nonexistent or negligible.

Community—a term used in the ecological literature to denote an association of interacting populations of various species, often implying some organization more than the sum of the individual species interactions. We avoid use of the term *community*; we use **assemblage** to denote amphibians that occur at a site, regardless of ecological organization.

Dominance—a term used in diversity indices that is equivalent in meaning to the preferred term, **species evenness**.

Drift fence—an upright, fencelike structure, usually made of metal or plastic, that intercepts an amphibian as it moves through the environment. Drift fences usually are placed in strategic locations (e.g., around a breeding pond) and direct amphibians toward a sampling device (e.g., a pitfall trap).

Equitability—a term equivalent to **species equitability**.

Evenness—a term equivalent to **species evenness**.

Explosive breeding—breeding periodicity in which most or all individuals in a population synchronize reproductive activity to a period of hours. Such breeding is characteristic of species in arid areas and usually is triggered by rainfall.

Funnel trap—a tubular or rectangular trap with one or two inwardly directed funnel-shaped openings. Such traps are used with drift fences to capture terrestrial or aquatic amphibians.

General collecting—specimen collecting with no specific target species or habitat. Any area may be searched, and all species potentially are of interest. Specimens are acquired as they are encountered.

Homogeneity of samples—constancy of the relative proportions of species, regardless of sample sizes.

Inventory—study of a specific area, site, or habitat to determine the number of species present (i.e., species richness).

Line transect—sampling approach in which a line (usually straight) is laid out in a habitat using a random procedure. The observer walks the line and counts all observed amphibians of interest. The procedure is used to estimate species' abundances within a habitat or across a gradient.

Mark-recapture techniques—methods for determining population size that involve capturing, marking, and releasing animals, and subsequently recapturing or resighting them one or more times.

Microhabitat—limited subset of a habitat at a site; usually defined by the presence of an amphibian (e.g., leaf litter between tree buttresses in lowland tropical evergreen rain forest).

Monitoring—study of the abundance of individuals in one or more populations of a species at a site through time.

Monte Carlo method for simulation—method for solving a mathematical problem through the use of sampling procedures. A stochastic model of a mathematical process is constructed and then tested with data drawn randomly from a computer-generated, simulated population.

Number-constrained sampling—sampling that continues until a prescribed number of amphibians has been included in the sample. The procedure may be used in systematic sampling surveys (SSS) and transect sampling.

Operative temperature—a single-number representation of the thermal environment of an amphibian; includes environmental factors of air and substrate temperatures, radiation, humidity,

soil moisture, and wind speed, as well as amphibian properties of shape, size, integumentary reflectivity, and skin permeability.

Pattern mapping—an individual-specific recognition procedure that relies on recording with sketches or photographs the components of a color pattern that are unique for an individual amphibian. The unique pattern is used as a basis for recognizing individuals at a later time without reliance on other marking techniques.

PIT tag—a marking tag made of a passive integrated transponder (PIT) that relies on passive radio-frequency identification of a 10-digit hexadecimal number read with a scanner and portable reader.

Pitfall trap—a can or bucket buried flush with the substrate that traps amphibians that fall into it; an effective sampling device when used with a drift fence.

Prolonged breeding—a breeding periodicity in which individuals in a species population are reproductively active (calling males and amplexing pairs) over a prolonged period (usually weeks or months); often characterized by male territorial behavior.

Random sample—a sample that has been selected by a random process.

Relative abundance—proportional representation of species in a sample.

Richness—a term equivalent to **species richness**.

Sequential sampling—a sampling procedure in which single individuals (or elements) or groups of individuals are selected in order. The results of the selection determine whether sampling is to continue—that is, sample size is not predetermined but depends on the results obtained.

Short-term collecting—generally nonquantitative sampling that does not cover the full range of seasons and habitats at a site. When used with time-constrained sampling, comparisons between habitats are possible. Sometimes used as part of complete species inventories.

Species dominance—in diversity indices, a term equivalent to the preferred term, **species evenness**. The term is also used to refer to the most abundant species.

Species equitability—a term equivalent to **species evenness**.

Species evenness—a measure of the distribution of individuals among species in an assemblage.

Species richness—the number of species observed in an assemblage. The term used in diversity studies.

Strip transect—a sampling technique in which a line (usually straight) is laid out using a random procedure, and all amphibians observed or heard within a fixed distance perpendicular to the line are counted. The procedure is used to estimate species abundances and densities within habitats or across gradients.

Time-constrained sampling—a sampling procedure that provides data on the numbers of individuals or species collected per person-hour of effort. Effort should be standardized, and sampling should be stratified by habitat. The method is most effective with assemblages of comparable size and species densities and is used with complete species inventories, visual encounter surveys, and breeding site surveys.

Tracking—any of a number of techniques used to follow individual organisms under natural conditions.

Trespass—the undetected movement of an amphibian across a drift-fence-and-trap system around a breeding pond.

U.S. \$—United States dollars.

Vernal pond—a pond that fills in the spring of the year (often from snowmelt or rain) and that is used by amphibians, especially in temperate forests, for breeding.

Voucher—one or more individuals or a part or parts thereof that are representative of the population of a particular species and serve to document the occurrence of that species at a site. To fulfill its function, the voucher must be deposited in a museum and available for study.

