

Table S1. List of definitions of the ecological niche (in chronological order) and their thematic category.

Reference	Definition(quote)	Category
Grinnell (1917)	Variables associated with the presence of a species (e.g. <i>Toxostoma redivivum</i>). (not quote)	Habitat
Elton (1927)	The status of an animal in its community, its place in the biotic environment, its relations to food and enemies.	Role
Grinnell (1928)	The ultimate distributional unit within which each species is held by its structural and instinctive limitations.	Habitat
Gause (1934)	Place a given species occupies in a community.	Environment
Elton (1950)	The mode of life and especially the mode of feeding of an animal.	Trophic
Dice (1952)	The ecologic position that a species occupies in a particular ecosystem, a consideration of the habitat that the species concerned occupied for shelter, for breeding sites and for other activities, the food that it eats and all the other features of the ecosystem that it utilizes. The term does not include, except indirectly, any consideration of the functions that the species serves in the community.	Environment
Clarke (1954)	The function of the species in the community, rather than its physical place in the habitat.	Habitat
Macfadyen (1957)	Niche as a multidimensional entity.[not well developed]	n-dimensional
Hutchinson (1957)	An n-dimensional hypervolume defined on axes representing all of the ecological factors relative to the species and every point in which corresponds to a state of the environment which permits the species to exist indefinitely.	n-dimensional
Odum (1959)	The position or status of an organism within its community and ecosystem resulting from the organism's structural adaptations, physiological responses, and specific behavior (inherited and/or learned).	Role
Weatherley (1963)	The nutritional role of the animal in its ecosystem, that is, its relations to all the foods available to it.	Trophic
Root (1967)	The niche is composed of several dimensions, each corresponding to some requisite for a species.	n-dimensional
MacArthur (1968)	Niche breadth is the "distance through" a niche along some particular line in niche space. (not quote)	n-dimensional
Odum and Barrett (1971)	The physical space and the functional role of a species in the community and its position in environmental gradients of temperature, moisture, pH, soil and other conditions of existence.	Habitat & Role
Van Valen (1971)	An adaptive zone in the niche of any taxon, especially a supra-specific one, and has two more or less independent components. One involves use of resources and the other involves resistance to predation and parasitism.	Resources
Vandermeer (1972)	A set of habitats.	Habitat
Clapham Jr (1973)	All the bonds between the population and the community and ecosystem in which it is found.	Habitat & Role
Maguire Jr (1973)	The genetically (evolutionarily) determined capacity (range of tolerance) and pattern of biological response of an individual, a species population or the whole species to environmental conditions.	Environment
Whittaker, Levin, and Root (1973)	Intracommunity role of the species.	Role

Wuenschel (1974)	The set of all environmental variables (habitat) and all organism responses and both the habitat and total response are subsets of the niche.	Habitat
Lack (1974)	The places where a species feeds within its habitat.	Trophic
Pianka (1974)	The sum total of the adaptations of an organismic unit. All the various ways in which a given organismic unit conforms to its environment. [periodic table of niches]	n-dimensional
Pielou (1975)	The set of conditions that a particular species experiences.	Environment
Colwell and Fuentes (1975)	A hypervolume in a space defined by axes representing the biotic and abiotic factors to which populations in the community respond differentially. The response of organisms to different environments is an essential component of the niche.	n-dimensional
Whittaker and Levin (1975)	The complete functional role a species within a given community.	Role
Pianka (1976)	Resource utilization spectra through both theoretical and empirical work of a growing school of population biologists.	Resources
Diamond (1978)	Resources a species uses, where it finds them and the strategy by which it harvests them.	Resources
Hurlbert (1981)	The realized niche should be defined as the set of resources used and it can apply to individual, population, species etc.	Resources
Pulliam (1988)	The set of environments where population growth rate is positive, in the absence of migration.	Environment
Leibold (1995)	I suggest the term requirement niche be used to describe requirements (Hutchinsonian) and impact niche for the per capita effects of species on their environments (Eltonian). Total niche is the combination of two.	Requirements
Jackson and Overpeck (2000)	Potential niche is the portion of environmental space that is capable of supporting populations of a species at time t, defined as the intersection of the fundamental niche for the species with the realized environmental space for time t. The potential niche will change shape, size and position within the environmental space as the realized environmental spaces changes through time and as the fundamental niche changes through evolution.	Environment
Pulliam (2000)	The landscape in the NICHE model (that we suggest) consists of a two-dimensional array of grid cells. The landscape represents the environmental conditions in 'ordinary physical space' and corresponds to what Hutchinson called 'biotope'.	Environment
Chase and Leibold (2003)	A joint specification of environmental conditions or variables that allow a species to have positive intrinsic growth rate along with the effects of that species on those environmental variables.	Environment
Kearney (2006)	A subset of those environmental conditions which affect a particular organism, where the average absolute fitness of individuals in a population is greater than or equal to one.	Environment
Cain, Bowman, and Hacker (2008)	The physical and biological conditions that the species needs to grow, survive and reproduce.	Environment
McInerney and Etienne (2012)	A term to describe abstractions of an organism's relationship to an 'ecosystem' as described by both effect and response interactions the organism has, both directly and indirectly, with and on other biotic/abiotic objects that are part of that ecosystem.	Environment

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