

Table 1: Ecology Content in Current Biology Textbooks, the National Science Education Standards (NSES) and the Guidelines from the North American Environmental Education Association (NAAEE). Min = Minimum, ✓ = Average or Max = Maximum Inclusion

	A	B	C	D	E	F	G	H	I	J	K	L	M	NSES	NAAEE
Physical environment (abiotic vs biotic)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ecosystems (habitat, community, etc.)	✓	✓	✓	✓	✓	✓	✓	✓	Min		✓	✓	✓	✓	✓
Biosphere defined (lithosphere, atmosphere, etc.)	✓	✓			✓	Min	✓	✓	Min	✓	✓		Ext		
Populations (general info, density, shape)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Min
Population Growth & Dynamics	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Population / Species Relationships (competition, parasitism, predation, etc.)	✓	✓	✓	✓	✓	Min	✓	✓	✓	✓	✓	✓	✓	✓	Min
Energy: Flow & Transformations (food webs, chains, pyramids)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Energy: Autotrophs vs. Heterotrophs	✓	✓	Min	✓	✓	Min	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cycles (O ₂ , N ₂ , CO ₂ , H ₂ O, etc.)	✓	✓	Min	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Biodiversity (biodiversity index)	✓		✓	✓	✓		Ext	✓	✓	✓		✓	✓		
Succession (primary, secondary, climax)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓			
Biomes Defined & Examples (Tundra, Tropical, etc.)	✓	✓	Min	✓	✓		✓	✓	✓	✓	✓	✓	Min		
Environmental harm (non pollution such as overpopulation, urbanization)	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	Min	✓	Min
Environmental harm (impact on land, water, air, through acid rain, ozone, thermal pollution, etc.)	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	Min	✓	
Conservation issues (natural resources)	✓	✓	✓		✓	✓	✓			✓	✓	✓	✓	✓	Ext
Relationship of evolution and ecology				✓											
Environmental ethics, decision making and action-taking	✓	✓	✓	✓	✓		Min			✓		✓	Ext	✓	Ext

Table 2: Presentation of Ecology Content in Current Biology Textbooks

	A	B	C	D	E	F	G	H	I	J	K	L	M
Ecology Content / Integrated (I) or Discrete (D)	D	I	D	D	D	D	I	D	D	D	D	D	D
If discrete is the content in the Beginning (B), Middle (M) or End (E) of the Text?	E	N/A	Note 1	E	E	E	N/A	B	E	E	E	E	M
Are Reading about Ecology Included in the Textbook?	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Approximate Number of Pages Devoted to Ecology	107	Note 2	63	46	91	63	Note 2	105	117	67	67	91	107
Total Pages in Book	1089	674	662	681	1025	691	527	1053	873	512	885	941	1081
Percent of Book Dedicated to Ecology	9.8	N/A	12.5	6	8.9	9.1	N/A	10.0	13	13	7.6	9.7	9.9

Note 1: *Biology: A Human Approach* is unique in its delivery of content. The book is organized around an instructional philosophy designed to Engage, Explore, Explain, Elaborate and Evaluate. The first part of the book contains the Engage, Explore and Explain sections. This section also contains many activities. The second part of the text contains a series of essays to Elaborate the content. Environmental science content was found in discrete sections in several parts of the book. The total number of pages dedicated to ecology is the sum of all such pages no matter where the content was found.

Note 2: Two books *An Ecological Approach* (BSCS, 1998) and *Biology: A Community Context* (Leonard and Penick, 1998) are written with environmental science as the central theme. Not unexpectedly, these books weave the ecology content throughout making a determination of total pages dedicated to such content difficult to determine.

Table 3: Types of Ecology Laboratory Activities included Current Secondary Biology Textbooks

	A	B	C	D	E	F	G	H	I	J	K	L	M
Number of Ecology-related Activities Included	18	22	12	4	11	6	10	12	4		6	19	5
Physical environment / Abiotic Issues	✓	✓		✓				✓					
Niche and Habitat					✓								✓
Water Quality		✓		✓									
Limiting Factors (including land area)	✓		✓						✓				
Population Interactions (Competition & Predation)	✓	✓	✓		✓	✓	✓	✓				✓	
Population Growth and Size	✓	✓	✓		✓			✓				✓	✓
Energy: Flow (food webs, chains, pyramids)		✓		✓			✓	✓			✓		
Cycles (O ₂ , N ₂ , CO ₂ , H ₂ O, etc.)	✓	✓				✓						✓	
Biodiversity / Ecodiverstiy	✓	✓		✓	✓		✓				✓		✓
Succession (primary, secondary, climax)	✓				✓			✓			✓	✓	
Soil and Composting	✓		✓				✓		✓		✓	✓	
Environmental harm		✓	✓		✓	✓		✓				✓	✓
Environmental Techniques (i.e. population size)	✓	✓											
Natural Section and Ecology					✓								
Conservation, Human Impact and Decision making	✓	✓					✓					✓	

Note - Some texts include several activities addressing the same content theme, therefore the checkmarks do not necessarily equal the total number of laboratory activities. Text "J" does not contain activities in the book itself.