

Summary of insect nitrogen content database analyzed in Fagan et al. American Naturalist 2002.

Functional Group	Ordinal Grouping	Family	Genus	Species	Nitrogen %	Body Length (mm)	Nitrogen Reference
herbivore	Coleoptera	Buprestidae	<i>Chalcophora</i>	<i>virginiensis</i>	9.9	26.5	Siemann and Elser unpublished
herbivore	Coleoptera	Cerambycidae	<i>Monochamus</i>	<i>sp.</i>	11.0	25.0	Siemann and Elser unpublished
herbivore	Coleoptera	Cerambycidae	<i>Typocerus</i>	<i>velutina</i>	10.7	12.8	Siemann et al. 1996
herbivore	Coleoptera	Chrysomelidae	<i>Leptinotarsa</i>	<i>decemlineata</i>	10.1	12.0	Elser unpublished
herbivore	Coleoptera	Chrysomelidae	<i>Paropsis</i>	<i>atomaria</i>	6.7	9.5	Fox and Macauley 1977
herbivore	Coleoptera	Curculionidae	<i>Pseudorhyncus</i>	<i>sp.</i>	9.3	2.7	Siemann et al. 1996
herbivore	Coleoptera	Curculionidae	<i>Sitona</i>	<i>hispidula</i>	10.4	4.0	Siemann et al. 1996
herbivore	Coleoptera	Elateridae	genus	<i>sp.</i>	12.3	17.5	Siemann and Elser unpublished
herbivore	Coleoptera	Mordellidae	<i>Mordellistena</i>	<i>sp.</i>	9.7	2.1	Siemann et al. 1996
herbivore	Coleoptera	Scarabaeidae	<i>Hoplia</i>	<i>modesta</i>	12.3	6.8	Siemann et al. 1996
herbivore	Coleoptera	Scarabaeidae	<i>Phyllophaga</i>	<i>sp.</i>	10.4	20.0	Siemann and Elser unpublished
herbivore	Coleoptera	Tenebrionidae	<i>Tenebrio</i>	<i>molitor</i>	8.0	14.5	Barker et al. 1998
herbivore	Panorpida	Bibionidae	<i>Bibio</i>	<i>sp.</i>	10.8	5.7	Siemann et al. 1996
herbivore	Panorpida	Chloropidae	<i>Oscinella</i>	<i>sp.</i>	9.3	2.2	Siemann et al. 1996
herbivore	Panorpida	Chloropidae	<i>Oscinella</i>	<i>pube</i>	9.7	4.2	Siemann et al. 1996
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>arizonae</i>	8.8	4.1	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>hydei</i>	7.7	3.5	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>mojavensis</i>	6.7	3.3	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>nigrospiracula</i>	7.9	3.5	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>pachea</i>	6.7	3.5	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>pseudoobscura</i>	8.9	3.5	Markow et al. 1999
herbivore	Panorpida	Drosophilidae	<i>Drosophila</i>	<i>simulans</i>	9.5	3.5	Markow et al. 1999
herbivore	Hemiptera	Alydidae	<i>Megalotomus</i>	<i>quinquespinosus</i>	10.8	12.8	Siemann et al. 1996
herbivore	Hemiptera	Aphididae	genus	<i>sp.</i>	5.7	2.1	Siemann et al. 1996
herbivore	Hemiptera	Aphididae	<i>Macrosiphum</i>	<i>liriodendri</i>	7.6	2.0	Van Hook et al. 1980
herbivore	Hemiptera	Cercopidae	<i>Lepyronia</i>	<i>gibbosa</i>	11.2	7.0	Siemann et al. 1996
herbivore	Hemiptera	Cercopidae	<i>Philaenus</i>	<i>bilineatus</i>	11.7	4.9	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Athysanus</i>	<i>argentarius</i>	11.6	6.8	Siemann et al. 1996

herbivore	Hemiptera	Cicadellidae	<i>Chlorotettix</i>	<i>unicolor</i>	11.2	6.0	Siemann et al. 1996
Functional Group	Ordinal Grouping	Family	Genus	Species	Nitrogen %	Body Length	Nitrogen Reference
herbivore	Hemiptera	Cicadellidae	<i>Commellus</i>	<i>comma</i>	9.9	4.3	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Dikraneura</i>	<i>sp.</i>	12.4	2.6	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Diplocolenus</i>	<i>configuratus</i>	12.1	3.9	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Doratura</i>	<i>stylata</i>	9.7	3.5	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Draeculacephala</i>	<i>sp.</i>	10.7	6.3	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Endria</i>	<i>inimica</i>	9.8	3.3	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Exitianus</i>	<i>exitiosus</i>	6.8	3.4	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Laevicephalus</i>	<i>unicoloratus</i>	9.9	2.6	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Macrosteles</i>	<i>fascifrons</i>	7.3	2.9	Siemann et al. 1996
herbivore	Hemiptera	Cicadellidae	<i>Quontas</i>	<i>sayi</i>	11.8	2.4	Siemann et al. 1996
herbivore	Hemiptera	Coreidae	<i>Acanthocephala</i>	<i>femorata</i>	11.3	26.5	Siemann and Elser unpublished
herbivore	Hemiptera	Coreidae	<i>Leptoglossus</i>	<i>phyllopus</i>	10.4	19.0	Siemann and Elser unpublished
herbivore	Hemiptera	Coreidae	<i>Merocoris</i>	<i>distinctus</i>	8.5	8.4	Siemann et al. 1996
herbivore	Hemiptera	Delphacidae	<i>Delphacodes</i>	<i>campestris</i>	9.8	2.6	Siemann et al. 1996
herbivore	Hemiptera	Delphacidae	<i>Prokelisia</i>	<i>dolus</i>	9.4	2.8	Huberty unpublished
herbivore	Hemiptera	Delphacidae	<i>Prokelisia</i>	<i>marginata</i>	10.8	3.0	Huberty unpublished
herbivore	Hemiptera	Delphacidae	<i>Stobaera</i>	<i>tricarinata</i>	9.1	3.3	Siemann et al. 1996
herbivore	Hemiptera	Dictyopharidae	<i>Scolops</i>	<i>sulcipes</i>	9.9	6.0	Siemann et al. 1996
herbivore	Hemiptera	Issidae	<i>Aphelonema</i>	<i>histrionica</i>	7.4	3.3	Siemann et al. 1996
herbivore	Hemiptera	Issidae	<i>Bruchomorpha</i>	<i>tristis</i>	9.3	3.2	Siemann et al. 1996
herbivore	Hemiptera	Issidae	<i>Fitchiella</i>	<i>robertsoni</i>	9.9	3.4	Siemann et al. 1996
herbivore	Hemiptera	Lygaeidae	<i>Ligyrocoris</i>	<i>diffusus</i>	8.9	5.0	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Labops</i>	<i>hirtus</i>	10.2	3.6	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Leptopterna</i>	<i>dolobrata</i>	9.4	7.3	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Lygus</i>	<i>lineolaris</i>	9.0	4.8	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Porpomiris</i>	<i>curtulus</i>	8.7	6.6	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Stenodema</i>	<i>vicinum</i>	11.3	6.1	Siemann et al. 1996
herbivore	Hemiptera	Miridae	<i>Trigonotylus</i>	<i>coelestialium</i>	10.5	5.0	Siemann et al. 1996
herbivore	Hemiptera	Pentatomidae	<i>Euschistus</i>	<i>servus</i>	12.3	8.0	Siemann and Elser unpublished
herbivore	Hemiptera	Pentatomidae	<i>Nezara</i>	<i>viridula</i>	10.9	15.5	Siemann and Elser unpublished

herbivore	Hemiptera	Psyllidae	genus	sp.	10.6	2.2	Siemann et al. 1996
Functional Group	Ordinal Grouping	Family	Genus	Species	Nitrogen %	Body Length	Nitrogen Reference
herbivore	Hymenoptera	Argidae	<i>Arge</i>	<i>sp.</i>	11.0	10.0	Schroeder and Malmer 1980
herbivore	Hymenoptera	Diprionidae	<i>Neodiprion</i>	<i>sertifera</i>	7.1	8.5	Larsson and Tenow 1979, Fogal and Kwain 1974
herbivore	Hymenoptera	Pamphiliidae	<i>Nerotoma</i>	<i>faciata</i>	11.0	11.5	Schroeder and Malmer 1980
herbivore	Panorpida	Arctiidae	<i>Diacrisia</i>	<i>virginica</i>	6.9	14.5	Schroeder and Malmer 1980
herbivore	Panorpida	Arctiidae	<i>Euchaetias</i>	<i>egle</i>	7.6	14.0	Schroeder 1977
herbivore	Panorpida	Arctiidae	<i>Hyphantria</i>	<i>cunea</i>	7.9	13.0	Schroeder and Malmer 1980
herbivore	Panorpida	Geometridae	<i>Hydria</i>	<i>prunivorata</i>	8.5	11.0	Schroeder and Malmer 1980
herbivore	Panorpida	Geometridae	<i>Hydria</i>	<i>undulata</i>	8.5	11.0	Schroeder 1975
herbivore	Panorpida	Geometridae	<i>Scopula</i>	<i>sp.</i>	7.9	6.0	Schroeder and Malmer 1980
herbivore	Panorpida	Lasiocampidae	<i>Malacasoma</i>	<i>americana</i>	7.9	16.0	Schroeder and Malmer 1980
herbivore	Panorpida	Limacodidae	<i>Phobetron</i>	<i>pithecum</i>	9.8	12.5	Schroeder and Malmer 1980
herbivore	Panorpida	Lycaenidae	<i>Satyrium</i>	<i>liparops</i>	8.5	10.0	Schroeder and Malmer 1980
herbivore	Panorpida	Lymantriidae	<i>Lymantria</i>	<i>dispar</i>	9.5	22.5	Montgomery 1982
herbivore	Panorpida	Lymantriidae	<i>Lymantria</i>	<i>monacha</i>	9.3	13.5	Hattenschwiler and Schafellner 1999
herbivore	Panorpida	Lymantriidae	<i>Orygia</i>	<i>leucostigma</i>	6.2	15.5	Schroeder and Malmer 1980
herbivore	Panorpida	Noctuidae	<i>Acronicta</i>	<i>hasta</i>	6.7	18.0	Schroeder and Malmer 1980
herbivore	Panorpida	Noctuidae	<i>genus</i>	<i>sp.</i>	7.7	16.4	Siemann et al. 1996
herbivore	Panorpida	Noctuidae	<i>Polia</i>	<i>latex</i>	7.4	21.5	Schroeder and Malmer 1980
herbivore	Panorpida	Noctuidae	<i>Pseudaletia</i>	<i>unipuncta</i>	8.7	22.0	Landry et al 1986
herbivore	Panorpida	Noctuidae	<i>Simyra</i>	<i>herici</i>	6.6	16.0	Schroeder and Malmer 1980
herbivore	Panorpida	Noctuidae	<i>Spodoptera</i>	<i>eridania</i>	8.8	19.0	Landry et al 1986
herbivore	Panorpida	Noctuidae	<i>Spodoptera</i>	<i>frugiperda</i>	9.2	20.0	Landry et al 1986
herbivore	Panorpida	Notodontidae	<i>Heterocampa</i>	<i>sp.</i>	10.0	18.4	Schroeder and Malmer 1980
herbivore	Panorpida	Notodontidae	<i>Shizura</i>	<i>unicornis</i>	8.5	17.5	Schroeder and Malmer 1980
herbivore	Panorpida	Nymphalidae	<i>Danaus</i>	<i>plexippus</i>	9.8	31.0	Schroeder 1977
herbivore	Panorpida	Nymphalidae	<i>Limenitis</i>	<i>astyanax</i>	7.7	26.0	Schroeder and Malmer 1980
herbivore	Panorpida	Papilionidae	<i>Papilio</i>	<i>glaucus</i>	7.4	32.5	Schroeder and Malmer 1980
herbivore	Panorpida	Saturniidae	<i>Callosamia</i>	<i>promethia</i>	8.8	25.0	Schroeder and Malmer 1980, Landry et al 1986

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herbivore	Panorpida	Saturniidae	<i>Hyalophora</i>	<i>cecropia</i>	9.0	31.5	Scriber 1977, Schroeder and Malmer 1980, Landry et al 1986
herbivore	Panorpida	Sphingidae	<i>Manduca</i>	<i>sexta</i>	9.5	58.0	Landry et al 1986, Woods unpublished
herbivore	Panorpida	Sphingidae	<i>Sphinx</i>	<i>sp.</i>	8.2	38.0	Schroeder and Malmer 1980
herbivore	Panorpida	Tortricidae	<i>Choristoneura</i>	<i>fumiferana</i>	8.7	8.5	Mattson et al. 1983
herbivore	Lower Neoptera	Acrididae	<i>Aeropedellus</i>	<i>clavatus</i>	11.9	17.8	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Ageneotettix</i>	<i>deorum</i>	11.0	14.9	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Chorthippus</i>	<i>curtipennis</i>	11.1	16.5	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Chortophaga</i>	<i>viridifasciata</i>	11.7	22.4	Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Encoptolophus</i>	<i>sordidus</i>	11.3	23.1	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Hesperotettix</i>	<i>speciosus</i>	11.1	17.9	Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>angustipennis</i>	11.8	19.0	Siemann and Elser unpublished
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>bivittatus</i>	10.2	30.0	McGinnis and Kasting 1967, Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>dawsoni</i>	12.6	15.2	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>femurrubrum</i>	11.4	22.4	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>keeleri</i>	10.7	18.5	Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>packardii</i>	11.0	31.0	Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Melanoplus</i>	<i>sp.</i>	12.0	23.0	Uvarov 1966, McHargue 1917
herbivore	Lower Neoptera	Acrididae	<i>Mermeria</i>	<i>bivittata</i>	10.0	31.0	Robel et al. 1998
herbivore	Lower Neoptera	Acrididae	<i>Nomadacris</i>	<i>septemfasciata</i>	7.4	50.0	Bodenheimer, 1951; Lapp and Rohmer, 1937
herbivore	Lower Neoptera	Acrididae	<i>Orphulella</i>	<i>pelidna</i>	12.1	17.0	Siemann and Elser unpublished
herbivore	Lower Neoptera	Acrididae	<i>Orphulella</i>	<i>speciosa</i>	11.6	14.9	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Pardalophora</i>	<i>apiculata</i>	11.6	30.4	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Phoetaliotes</i>	<i>nebrascensis</i>	12.1	20.0	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Pseudopomala</i>	<i>brachyptera</i>	11.8	27.0	Siemann et al. 1996
herbivore	Lower Neoptera	Acrididae	<i>Schistocerca</i>	<i>americana</i>	9.8	75.0	Siemann and Elser unpublished
herbivore	Lower Neoptera	Acrididae	<i>Schistocerca</i>	<i>gregaria</i>	9.4	50.0	Bodenheimer, 1951; Uvarov 1966, Das 1945, Lapp and Rohmer, 1937
herbivore	Lower Neoptera	Acrididae	<i>Schistocerca</i>	<i>paranensis</i>	8.2	30.3	Uvarov 1966, Basso Stajano & Escalante Rossi 1947

herbivore	Lower Neoptera	Tettigoniidae	<i>Scudderia</i>	<i>texansis</i>	10.8	18.6	Siemann et al. 1996
Functional Group	Ordinal Grouping	Family	Genus	Species	Nitrogen %	Body Length	Nitrogen Reference
herbivore	Palaeoptera	Baetidae	<i>Beatis</i>	<i>sp.</i>	10.7	7.0	T. Tibbets unpublished
herbivore	Palaeoptera	Ephemerellidae	<i>Ephemerella</i>	<i>sp. 1</i>	9.7	5.0	T. Tibbets unpublished
herbivore	Palaeoptera	Ephemerellidae	<i>Ephemerella</i>	<i>sp. 2</i>	9.4	5.0	T. Tibbets unpublished
predator	Coleoptera	Carabidae	<i>Calosoma</i>	<i>scrutator</i>	11.1	29.5	Siemann and Elser unpublished
predator	Coleoptera	Carabidae	<i>Pasimachus</i>	<i>sp.</i>	10.7	28.5	Siemann and Elser unpublished
predator	Coleoptera	Coccinellidae	<i>Coccinella</i>	<i>7-punctata</i>	9.6	7.6	Siemann et al. 1996
predator	Coleoptera	Coccinellidae	<i>Hippodamia</i>	<i>parenthesis</i>	13.0	4.7	Siemann et al. 1996
predator	Coleoptera	Gyrinidae	<i>Gyrinus</i>	<i>sp.</i>	9.3	3.9	Siemann and Elser unpublished
predator	Coleoptera	Lycidae	<i>Calopteron</i>	<i>sp.</i>	9.7	15.0	Siemann and Elser unpublished
predator	Panorpida	Asilidae	genus	<i>sp.</i>	11.4	18.0	Siemann and Elser unpublished
predator	Panorpida	Asilidae	<i>Tolmerus</i>	<i>sp.</i>	11.6	7.2	Siemann et al. 1996
predator	Panorpida	Chamaemyiidae	<i>Chamaemyia</i>	<i>sp.</i>	8.0	2.6	Siemann et al. 1996
predator	Panorpida	Dolichopodidae	<i>Medeterus</i>	<i>sp.</i>	8.6	2.6	Siemann et al. 1996
predator	Panorpida	Syrphidae	<i>Platycheirus</i>	<i>sp.</i>	10.5	3.5	Siemann et al. 1996
predator	Panorpida	Tabanidae	<i>Chrysops</i>	<i>montanus</i>	12.2	3.9	Siemann et al. 1996
predator	Panorpida	Tabanidae	<i>Tabanus</i>	<i>sp.</i>	11.1	20.0	Siemann et al. 1996
predator	Panorpida	Tachinidae	genus	<i>sp.</i>	11.9	11.0	Siemann and Elser unpublished
predator	Hemiptera	Lygaeidae	<i>Geocoris</i>	<i>uliginosus</i>	10.4	3.1	Siemann et al. 1996
predator	Hemiptera	Nabidae	<i>Nabicula</i>	<i>subcoleoprata</i>	11.2	8.7	Siemann et al. 1996
predator	Hemiptera	Nabidae	<i>Nabis</i>	<i>americanoferus</i>	10.7	6.1	Siemann et al. 1996
predator	Hemiptera	Nepidae	<i>Ranatra</i>	<i>sp.</i>	10.2	34.5	Siemann and Elser unpublished
predator	Hemiptera	Reduviidae	<i>Hammcerus</i>	<i>purcis</i>	11.3	26.0	Siemann and Elser unpublished
predator	Hemiptera	Reduviidae	<i>Sinea</i>	<i>diadema</i>	11.7	12.2	Siemann et al. 1996
predator	Hymenoptera	Eulophidae	<i>Tetrastichus</i>	<i>sp.</i>	8.6	1.6	Siemann et al. 1996
predator	Hymenoptera	Formicidae	<i>Dolichoderus</i>	<i>plagiatus</i>	10.6	2.6	Siemann et al. 1996
predator	Hymenoptera	Pompilidae	genus	<i>sp.</i>	12.5	23.0	Siemann and Elser unpublished
predator	Hymenoptera	Vespidae	genus	<i>sp.</i>	12.3	10.0	Siemann and Elser unpublished
predator	Hymenoptera	Vespidae	<i>Polistes</i>	<i>sp.</i>	12.3	25.0	Siemann and Elser unpublished
predator	Hymenoptera	Vespidae	<i>Vespula</i>	<i>sp.</i>	11.2	18.0	Siemann and Elser unpublished
predator	Lower Neoptera	Mantidae	<i>Stagmomantis</i>	<i>limbata</i>	11.9	62.0	Woods unpublished

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predator	Lower Neoptera	Tettigoniidae	<i>Conocephalus</i>	<i>saltans</i>	10.7	12.3	Siemann et al. 1996
predator	Lower Neoptera	Tettigoniidae	<i>Conocephalus</i>	<i>strictus</i>	11.7	15.2	Siemann et al. 1996
predator	Lower Neoptera	Tettigoniidae	<i>Neoconocephalus</i>	<i>sp.</i>	11.4	26.4	Robel et al. 1998
predator	Lower Neoptera	Tettigoniidae	<i>Orchelimum</i>	<i>vulgare</i>	11.4	15.0	Robel et al. 1998
predator	Palaeoptera	Coenagrionidae	<i>Nehalennia</i>	<i>irene</i>	12.3	23.9	Siemann et al. 1996
predator	Palaeoptera	Libellulidae	<i>Sympetrum</i>	<i>obtusum</i>	11.9	30.6	Siemann et al. 1996
predator	Aranae	Araneidae	<i>Araneus</i>	<i>pratensis</i>	11.6	3.2	Siemann et al. 1996
predator	Aranae	Lycosidae	<i>Lycosa</i>	<i>sp.</i>	11.7	15.3	Siemann et al. 1996

Reference sources for nitrogen content data from Fagan et al. American Naturalist 2002.

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