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MOLLUSCS OF THE HIMALAYA

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INTRODUCTION

The Himalaya constitutes an important zoo-geographical region which harbours a large number of species of land and freshwater molluscs with a high percentage of endemicity.

An array of literature on molluscs of the Himalayan region in general, are available. Important reports which dealt with the molluscs of the Himalayan regions are as follows :

West and Northwest : Godwin-Austen (1899) presented a list of molluscs from Kashmir and a few other places in the western Himalaya. Hora (1928) separately discussed some important aspects of hibernation and aestivation in a few species of snails and slugs in Himachal Pradesh. Hora *et al* (1955) presented some interesting features of freshwater molluscs of Kashmir. Nevill (1878) gave an account of molluscs of Kashmir and its neighbourhood territories in the western Himalaya. Rajagopal and Subba Rao (1969, 1972) studied the entire land and freshwater molluscan fauna of Kashmir and presented comprehensive lists of species occurring there. Theobald (1878) gave notes on land and freshwater molluscs of Kashmir, particularly those of Jhelum valley below Srinagar.

Recent works on molluscs of the northwestern Himalaya include Davis et. al. (1986) and Davis and Subba Rao (1997) on the freshwater gastroped family Pomatiopsidae with description of a new species from Nainital; Subba Rao and Mitra (1995) which dealt with the species occurring in the eight districts of Uttar Pradesh, adjacent to the Himalaya.; Surya Rao and Mitra (1997) dealing with the molluscs collected from Nanda Devi Biosphere Reserve; Surya Rao and Mitra (in press) in two separate reports, on molluscs occurring in the 12 districts of Himachal Pradesh, adjacent to the Himalaya and also on the freshwater molluscs collected from the Renuka wetland, Himachal Pradesh. In addition to these, Annandale and Prashad (1923a, 1923b); Mozley (1935) and Woodward (1856) also made studies on molluscs of these areas.

East and Central : Molluscs of the eastern part are fairly well worked out. Major contributions to the knowledge of molluscs of these areas were from Godwin-Austen (1870, 1875, 1876a, 1876b, 1892, 1893); Godwin-Austen and Beddome (1894); Benson (1851, 1857, 1859a, 1859b) and Blanford (1862, 1865, 1868, 1870). Benson whose initial studies on land and freshwater molluscs in the sub-continent were a source of encouragement for the subsequent workers in the field, described 22 new species under 12 families. Blanford's studies included 13 new species under 9 families. Godwin-Austen who practically pioneered the serious and organised studies of land molluscs in

India, described approximately 100 species under different families like, Cyclophoridae, Diplommatinidae, Pupinidae, Corillidae, Helicarionidae, Subulinidae, Ariophantidae, Philomycidae, etc., from these areas. Besides, Annandale *et. al.*'s (1921) studies on the freshwater molluscs of Loktak Lake in Manipur included a few new species and a new planorbid genus *Indoplanorbis*. Preston (1914) made studies on a few species from Naga hills. Zoological Results of the Abor Hill Expedition (1911-12) included Ghosh (1913), Godwin-Austen (1914), Gude (1915) and Preston (1915a) in which a large number of species of land molluscs collected from the foot hills of Abor at the lower elevation of upto 2000 ft. (600 meter approx.) were described.

Recent works include Subba Rao *et. al.* (1994) on molluscs of Meghalaya wherein 223 species have been recorded; Dey *et. al.* (1985) on a collection of molluscs from Namdapha, Arunachal Pradesh; Mitra and Dey (1990) on some land molluscs collected from Darlak, Mizoram and Thakur *et. al.* (1992) who recorded 92 species of land and freshwater molluscs from the Darjeeling district of West Bengal including a large number of endemic species.

General Reports : In addition to these, Godwin-Austen (1910, 1920); Blanford and Godwin-Austen (1908); Gude (1914, 1921) and Preston (1915b) also dealt with molluscs of the Himalaya in general.

The geographical division of the Himalayan region in four zones, viz., Northwestern , Western, Central and Eastern have been done following Rodgers and Panwar (1988).

Though we do not have the data to correlate the distribution of species with altitudinal zonation, wherever possible the altitude from which a particular species was recorded has been mentioned.

Classification followed here is that of Vaught (1989).

SUMMARY AND DISCUSSION

In all, 689 species of land and freshwater molluscs (92 freshwater and 597 land) under 134 genera (31 freshwater and 103 land) and 45 families (15 freshwater and 30 land) are recorded here as occurring in the Himalayan region (Table - I). The eastern Himalaya represent 72.23% of the total species, followed by Central (18.13%), Northwestern (15.84%) and Western Himalaya (8.43%) Table - II.

FRESHWATER MOLLUSCS

Majority of the 92 species of freshwater molluscs (66) are recorded from the eastern parts. Northwestern and central parts record the least number of species. Lymnaeidae and Planorbidae, the two Pulmonate families are well represented in the northwest. Six species are endemic to Kashmir and also extend to other areas including Europe and Central Asia. Only 34 species have all India range of distribution, 18 are restricted to the east. Quite a few species are occurring in the east as well as Bangladesh, Myanmar etc. Out of the 92 species, 44 are endemic to the

Himalayan regions. Interestingly none of the species is common to all the four regions of the Himalaya. Six of the most widely distributed gastropod species viz. *Bellamya bengalensis typica* (Lamarck), *B. dissimilis* (Mueller), *Bithynia (Digoniostoma) pulchella* (Benson), *Lymnaea andersoniana* Nevill, *L. luteola typica* Lamarck and *Indoplanorbis exustus* (Deshayes) are each recorded from three regions. Distribution of the bivalves present a more interesting feature. Only two species are recorded from the whole Northwest and West, both of them are occurring throughout India. Kashmir records 4 species and all the 4 are endemic to Kashmir, the rigorous physical barriers may be the factor. Out of the 9 species of smaller bivalves (Pisidiidae) recorded, 7 are Himalayan. A few of the species are recorded from over 3000 m altitude. Incidentally *Pisidium stewarti*, a species from Tibet was recorded from above 4000 m, which happens to be a record for any bivalve species (Dance, 1967). The tiny gastroped genera, *Tricula, Erhaia* and *Ferrissia* are lotic in habit, occurring in flowing water bodies. All others being essentially stagnant water dwellers.

LAND MOLLUSCS

Out of 597 species of land molluscs recorded from the Himalaya in general, above 488 are recorded from the eastern and central parts, of which nearly 462 species (approx, 94.6%) are endemic to these areas. Eastern alone accounts for around 439 species among which around 379 (86.33%) species are endemic to this region and a number of species have extension to Myanmar, Bangladesh, China, etc.

The North-western and Western parts record 95 species of which 76 (80%) are endemic to these areas. Many of these species (e.g. genera like *Vallonia*, *Cerastua*, *Serina*, *Subzebrinus,* etc.) are palaearctic in origin, Kashmir with an unique status as a Zoo-geographical zone, has 51 species recorded from here, 15 of which are endemic. Seven species, *Subzebrinus boysiana* (Reeve), *Bradybaena radicicola* (Benson), *Lamellaxis gracile* (Hutton), *Kaliella barrakporensis* (Pfeiffer), *Plectotropis huttoni* (Pfeiffer), *Sitala rimicola* (Benson) and *Anadenus schlagintweiti* Heynemann, are common to both east and northwest. The number of species having all India range of distribution is less than 15 in all, and they include such ubiquitous species as *Gulella* (*Huttonella*) *bicolor*, *Lamellaxis gracile*, *Kaliella barrakporensis*, etc. A few species extend to Myanmar, China, Bangladesh and few other places in Europe and also central Asia. Endemicity of species in the Himalayan region is very high being above 94.6%. The genera like *Austenia*, *Girasia*, *Anadenus*, *Bensonies*, *Euaustenia*, *Philomycus*, *Oxytesta*, *Phaedusa*, *Pseudopomatias*, *Rahula*, are all Himalayan in distribution. Only three species *Kaliella barrakporensis* (Pfeifer), *Plectotropis huttoni* (Pfeiffer) and *Sitala rimicola* (Benson) are recorded from all the 4 regions of the Himalaya. Besides the Himalayan genera mentioned above, species like *Kaliella gratiosa* Godwin-Austen, *Subzebrinus nevilliana* (Theobald), *Macrochlamys vesicula* (Benson), *M. opipara* Godwin-Austen, *M. hodgsoni* (Benson), *Syama splendens* (Hutton), *Oxytesta orobia* (Benson), *M. glauca* (Pfeiffer) are recorded from the height of above 3000m (10,000ft). On the other hand, species like *Achatina fulica* (Bowdich) and *Filicaulis* (*Eleutherocaulis*) *altae* (Ferrussac) are recorded from Nongpoh in Meghalaya with an altitude of around 1000m and not beyond that. Incidentally, *A. fulica* which was introduced in Mussouri about a century back, failed to survive.

Among the families, Cyclophoridae, Helicarionidae, Subulinidae, Ariophantidae are the largely represented families with approximately 100 species under each. At the generic level, *Alycaeus* (96), *Macrochlamys* (76), *Diplommatina* (61), *Kaliella* (35), *Plectopylis* (23), *Cyclophorus* (23), *Subzebrinus* (18) and *Glessula* (18) are predominant.

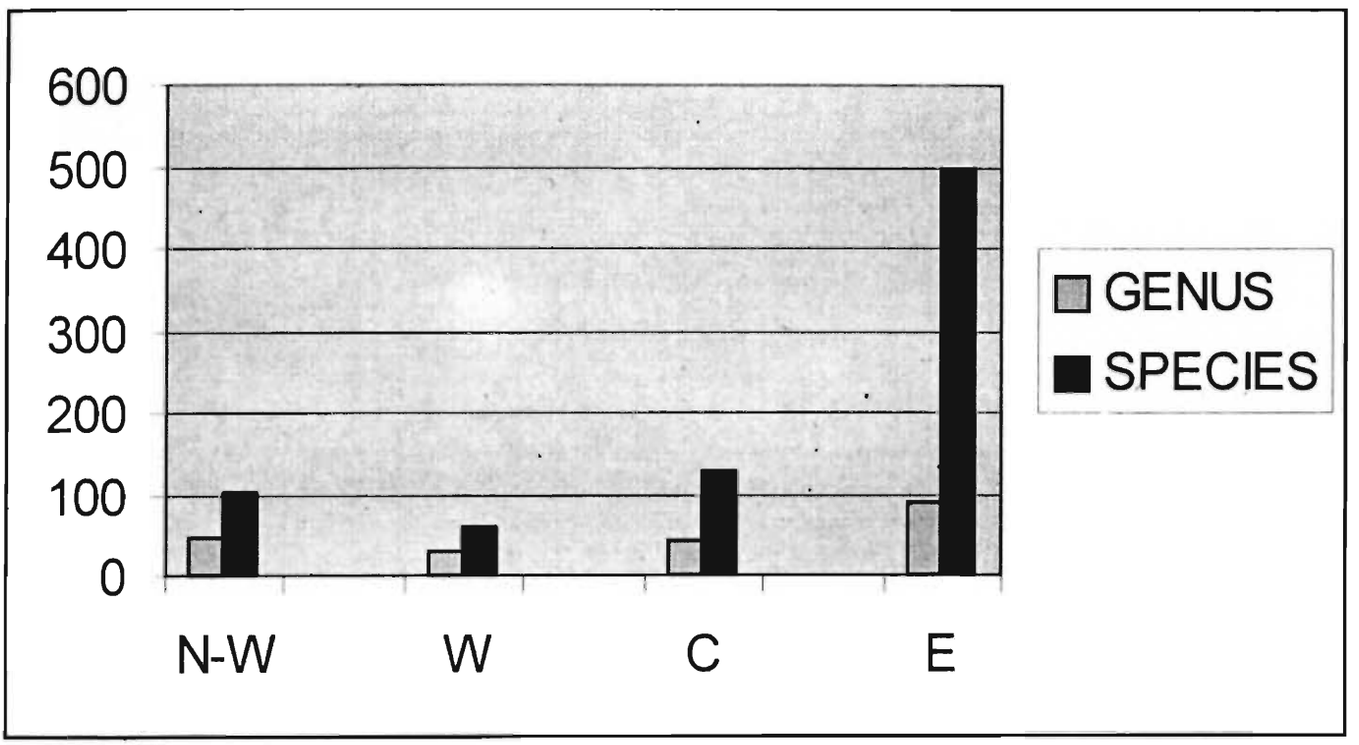
GENERAL

The towering range of the Himalaya and its foot-hills make an enormous impact on the distribution of molluscs, particularly the land forms. The number of species which are recorded in the Himalayan region (689) is just above 40% of the total number of Indian species. Total number of species endemic to the region is above 600 (above 80%). Family wise, all the families of Indian land molluscs are represented. Out of 20 families of freshwater molluscs recorded in India, 15 are represented. At the generic level, out of 137 genera of Indian land molluscs, 103 are recorded and out of 57 genera of freshwater molluscs 30 are represented. It is also revealed that the species recorded from eastern and central Himalaya, by far out number those recorded from the northwestern and western parts. Apparently the subtropic climatic condition with dense tropical evergreen forests producing a deep leaf and foliage litter, higher rainfall and less rigorous temperature extremes of the eastern and central Himalaya offer more suitable and favourable conditions for the molluscs, particularly the land forms, to thrive and flourish. Among the prominent genera *Cyclophorus*, *Alycaeus*, *Diplommatina*, *Cryptaustenia*, *Glessula*, *Kaliella*, *Oxytesta*, *Phaedusa, Plectopylis*, *Sitala* all of which are represented by a large number of species each, in the east-central, are totally absent or are just tokenly represented by 1 or 2 species each in the northwest-west. Strikingly, land operculates which are abundantly present in the east-central (approx. 250 spp. under 15 genera) are meagerly represented by 4 species under two genera in the other parts. The poor representation of land operculates indicates to the general atmospheric aridity of the west in contrast to the moist humid climate in the east. *Macrochlamys*, one of the most widely distributed pulmonate genera in India (plains and hills) is represented by 13 species from north-west and western part and 63 species from east and central. Interestingly, all the 13 western-north-western species are limited to those areas only. *Phaedusa* is represented by one endemic species in the north-west against 4 species in the east. On the other hand a few genera like *Parvatella*, *Syama*, which are represented in the north-west by a number of species each, are absent in the east. *Subzebrinus* which is represented by 16 species in the west-north-west, has only 2 species in the east.

The fauna of west and north-west Himalaya consists partly of oriental and partly of Palaearctic forms with some even of Ethiopian origin.

Kashmir, in particular, is the only region in India which shares many species with Central Asia, Europe and also Africa. *Pupisoma orcula*, *Vallonia costata*, *V. pulchella*, *Planorbis rotundatus*, *Gyraulus euphraticus*, *Hippeautis fontanus*, *Lymnaea lagotis* are some of such species. A few of these have radiated into endemic forms (*Bithynia tentaculata kashmirensis*). Two genera *Serina* and *Subzebrinus* the 'Palaearctic immigrants" (Gude, 1914) have migrated and colonised in India and have given rise to endemic species. Out of 18 species of *Subzebrinus* recorded from the Himalayan region, 16 are endemic to west-northwest.

The fauna of eastern zone include some of Indo-china or Malayan derivatives. A few of such species have extended their distribution starting from Nepal and China to east Himalaya to northwest up to Kashmir (*Lymnaea andersoniana*). Some range between Myanmar, north-west Himalaya through the east (*Indoplanorbis exustus*, *Hippeautis umbilicalis*). A few extend from east Himalaya to Myanmar and to the Andamans (*Macrochlamys pungi*). Some of the more common arid - zone species such as *Zootecus insularis*, *Pupoides coenopictus*, have very wide range of distribution from, Sahara and the Middle East to Western Himalaya, Gujarat, Rajasthan reaching down to the drier parts of the peninsular India.



N-W : North-Western Himalaya C : Central Himalaya
W : Western Himalaya E : Eastern Himalaya

Fig. 1. Histogram showing number of genera and species recorded from different zones of Himalaya.

Table I : Showing region-wise distribution of molluscs in the Himalaya

		North Western	Western	Central	Eastern	Elsewhere with Remarks
	1	2	3	4	5	6
	Phylum - MOLLUSCA Class - GASTROPODA Subclass - PROSOBRANCHIA Order - ARCHAEOGASTROPODA Family - HELICINIDAE					
1	*Pleuropoma arakanensis* Blanford	-	-	-	+	Myanmar
	Order - MESOGASTROPODA Family - CYCLOPHORIDAE Subfamily - CYLOPHORINAE					
2.	*Cyclophorus aborensis* Godwin-Austen	-	-	-	+	
3.	*C. aurora* (Benson)	-	-	+	-	
4.	*C. austenianus* Preston	-	-	-	+	
5.	*C. bapuensis* Godwin-Austen	-	-	-	+	
6.	*C. beddomeanus* Preston	-	-	-	+	
7.	*C. bensoni* Pfeiffer	-	-	-	+	
8.	*C. cybeus* (Benson)	-	-	-	+	
9.	*C. exul* Benson	-	-	+	-	
10.	*C. fultoni* Godwin-Austen & Beddome	-	-	-	+	
11.	*C. fusicolor* Godwin-Austen	-	-	-	+	
12.	*C. himalayanus* Pfeiffer	-	-	+	-	
13.	*C. khasiensis* Nevill	-	-	-	+	
14.	*C. koboensis* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
15. *C. muspratti* Godwin-Austen & Beddome	-	-	-	+	
16. *C. nagaensis* Godwin-Austen & Beddome	-	-	-	+	
17. *C. pealianus* Nevill	-	-	-	+	
18. *C. pearsoni* Benson	-	-	-	+	
19. *C. poeciloneurus* Godwin-Austen & Beddome	-	-	-	+	
20. *C. sidiensis* Godwin-Austen	-		-	+	
21. *C. stenomphalus* (Pfeiffer)	-	-	-	+	
22. *C. theobaldianus* Benson	-	-		+	Myanmar
23. *C. tryblium* Benson			+	-	
24. *C. zebrinus* (Benson)		-		+	China, Myanmar
25. *Cyathopoma garoense* Godwin-Austen	-			+	
26. *C. jawaiensis* Godwin-Austen	-			+	
27. *C. nevilli* Godwin-Austen	-			+	
28. *Scabrina pinnulifera* (Benson)	-			+	
29. *Theobaldius nivicola* (Godwin-Austen)	-			+	
30. *T. oakesi* (Godwin-Austen)	-			+	
31. *T. orites* Nevill		-	+	-	
32. *T. phaenotopicus* (Benson)	-		+	-	
Subfamily - ALYCAEINAE					
33. *Alycaeus aborensis* Godwin-Austen	-		-	+	
34. *A. asaluensis* Godwin-Austen	-	-	-	+	
35. *A. barowliensis* Godwin-Austen	-		-	+	
36. *A. beddomei* Godwin-Austen	-	-	-	+	
37. *A. bembex* Benson	-	-	+	-	
38. *A. bicrenatus* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
39. *A. birugosus* Godwin-Austen	-	-	-	+	
40. *A. brahma* Godwin-Austen	-	-	-	+	
41. *A. burrailensis* Godwin-Austen	-	-	-	+	
42. *A. burroiensis* Godwin-Austen	-	-	-	+	
43. *A. burti* Godwin-Austen	-	-	-	+	
44. *A. canaliculus* Godwin-Austen	-	-	-	+	
45. *A. chennelli* Godwin-Austen	-	-	-	+	
46. *A. conicus* Godwin-Austen	-	-	-	+	
47. *A. constrictus* (Benson)	-	-	+	-	
48. *A. costatus* Godwin-Austen	-	-	-	+	
49. *A. crenatus* Benson	-	-	-	+	
50. *A. crenulatus* Benson	-	-	+	-	
51. *A. crispatus* Benson	-	-	-	+	
52. *A. daflaensis* Godwin-Austen	-	-	-	+	
53. *A. dalingensis* Godwin-Austen	-	-	+	-	
54. *A. diagonius* Godwin-Austen	-	-	-	+	
55. *A. digitatus* Blanford	-	-	+	-	
56. *A. dihingensis* Godwin-Austen	-	-	-	+	
57. *A. dikrangensis* Godwin-Austen	-	-	-	+	
58. *A. distinctus* Godwin-Austen	-	-	-	+	
59. *A. duorugosus* Godwin-Austen	-	-	-	+	Myanmar
60. *A. edei* Godwin-Austen	-	-	-	+	
61. *A. elegans* Godwin-Austen	-	-	-	+	
62. *A. gemma* Godwin-Austen	-	-	-	+	
63. *A. gemmula* Benson	-	-	+	-	

1	2	3	4	5	6
64. *A. generosus* Godwin-Austen	-	-	-	+	
65. *A. globulus* Godwin-Austen	-	-	-	+	
66. *A. granum* Godwin-Austen	-	-	-	+	
67. *A. graphicus* Blanford	-	-	-	+	Myanmar
68. *A. habiangensis* Godwin-Austen		-	-	+	
69. *A. hebes* Benson	-	-	-	+	
70. *A. inflatus* Godwin-Austen	-	-	-	+	
71. *A. jaintiacus* Godwin-Austen	-	-	-	+	
72. *A. kamakiaensis* Godwin-Austen		-	-	+	
73. *A. kezamaensis* Godwin-Austen	-	-		+	
74. *A. khasiacus* Godwin-Austen			-	+	
75. *A. khunhoensis* Godwin-Austen				+	
76. *A. lahupaensis* Godwin-Austen				+	Myanmar
77. *A. lectus* Godwin-Austen			+		
78. *A. lenticulus* Godwin-Austen		-	+		
79. *A. logtakensis* Godwin-Austen		-		+	
80. *A. lohitensis* Godwin-Austen				+	
81. *A. luyorensis* Godwin-Austen		-		+	
82. *A. macgregori* Godwin-Austen		-		+	
83. *A. magnificus* Godwin-Austen		-		+	
84. *A. magnus* Godwin-Austen	-	-	-	+	
85. *A. mangutensis* Godwin-Austen		-	-	+	
86. *A. montanus* Nevill		-	+	-	
87. *A. multicostata* Godwin-Austen		-	-	+	Myanmar
88. *A. multirugosus* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
89. *A. mundulus* Godwin-Austen	-	-	-	+	
90. *A. muspratti* Godwin-Austen	-	-	-	+	
91. *A. mutatus* Godwin-Austen	-	-		+	
92. *A. neglectus* Godwin-Austen	-	-	-	+	
93. *A. nitidus* Blanford		-		+	Myanmar
94. *A. nongtunensis* Godwin-Austen	-	-		+	
95. *A. notatus* Godwin-Austen		-	-	+	
96. *A. nowgongensis* Godwin-Austen		-		+	
97. *A. obscurus* Godwin-Austen	-	-		+	
98. *A. oglei* Godwin-Austen		-		+	
99. *A. okhaensis* Godwin-Austen	-	-		+	
100. *A. otiphorus* Benson	-	-	+	-	Myanmar
101. *A. panchitaensis* Godwin-Austen		-	-	+	
102. *A. panggianus* Godwin-Austen				+	
103. *A. paucicostatus* Godwin-Austen		-		+	
104. *A. peilei* Preston	-	-		+	
105. *A. perplexus* Godwin-Austen		-		+	
106. *A. physis* Benson		-	+	-	
107. *A. plectochilus* Benson	-	-	+	-	
108. *A. prosectus* Benson	-	-	-	+	
109. *A. pusillus* Godwin-Austen	-	-	-	+	
110. *A. rechilaensis* Godwin-Austen	-	-	+	-	
111. *A. rotundatus* Godwin-Austen	-	-	-	+	
112. *A. rugosus* Godwin-Austen	-	-	-	+	
113. *A. sculpturus* Godwin-Austen	-	-	-	+	

	1	2	3	4	5	6
114.	*A. sculptilis* Benson	-	-	-	+	Myanmar
115.	*A. serratus* Godwin-Austen	-	-	-	+	
116.	*A. sibbumensis* Godwin-Austen	-	-	-	+	
117.	*A. stoliczkai* Godwin-Austen	-	-	-	+	
118.	*A. strangulatus* (Pfeiffer)	+	-	-	-	
119.	*A. strigatus* Godwin-Austen	-	-	-	+	
120.	*A. stylifer* Benson	-	-	+	-	
121.	*A. subculmen* Godwin-Austen	-	-	-	+	
122.	*A. subhumilis* Mollendorff	-	-	+	-	
123.	*A. subinflatus* Godwin-Austen	-	-	-	+	Myanmar
124.	*A. teriaensis* Godwin-Austen	-	-	-	+	
125.	*A. theobaldi* Blanford	-	-	-	+	
126.	*A. toruputuensis* Godwin-Austen	-	-	-	+	
127.	*A. vesica* Godwin-Austen	-	-	-	+	
128.	*A. yamneyensis* Godwin-Austen	-		-	+	
129.	*Dioryx urceolus* Godwin-Austen	-	-	-	+	
130.	*D. urnula* (Benson)	-		+	+	
131.	*D. varius* Godwin-Austen	-		-	+	
	Subfamily - PTEROCYCLINAE					
132.	*Pterocyclus aborensis* Godwin-Austen	-	-	-	+	
133.	*P. brahmakundensis* Godwin-Austen	-	-	-	+	
134.	*P. magnus* Godwin-Austen	-		-	+	
135.	*P. miriensis* Godwin-Austen	-	-	-	+	
136.	*P. parvus* (Pearson)	-	-	-	+	
137.	*P. spiramentum* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
138. *Pearsonia assamensis* (Fulton)			-	+	
139. *P. hispida* (Pearson)			-	+	
140. *P. kempi* (Godwin-Austen)			-	+	
141. *P. luyorensis* (Godwin-Austen)		-	-	+	
142. *P. mastersi* (Hanley & Theobald)			-	+	
143. *P. minima* (Godwin-Austen)			-	+	
144. *P. nagaensis* (Godwin-Austen & Beddome)				+	
145. *P. nevilli* Godwin-Austen			-	+	
146. *P. plana* Godwin-Austen			-	+	
147. *P. simplex* Nevill		-	-	+	
Family - DIPLOMMATINIDAE					
148. *Diplommatina acutulus* Godwin-Austen	-		-	+	
149. *D. ambigua* Godwin-Austen	-		-	+	
150. *D. animula* Godwin-Austen	-		-	+	Myanmar
151. *D. austeni* Blanford	-		-	+	
152. *D. blanfordiana* Benson			+		
153. *D. burti* Godwin-Austen	-		-	+	
154. *D. butleri* Godwin-Austen			-	+	Myanmar
155. *D. chennelli* Godwin-Austen	-	-	-	+	
156. *D. commutata* Godwin-Austen	-	-	-	+	Myanmar
157. *D. compacta* Godwin-Austen	-	-	-	+	
158. *D. convoluta* Godwin-Austen	-	-	-	+	
159. *D. daflaensis* Godwin-Austen	-	-	-	+	
160. *D. decorosa* Godwin-Austen	-	-	-	+	
161. *D. delicata* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
162. *D. depressa* Godwin-Austen	-	-	-	+	
163. *D. diplochilus* Benson	-	-	-	+	
164. *D. distincta* Godwin-Austen	-	-		+	
165. *D. dohertyi* Godwin-Austen	-	-	-	+	
166. *D. domuncula* Godwin-Austen	-	-		+	
167. *D. elongata* Godwin-Austen	-	-	-	+	
168. *D. fallax* Preston	-	-	-	+	
169. *D. folliculus* (Pfeiffer)		+	-	-	
170. *D. frumentum* Preston		-		+	
171. *D. garoensis* Godwin-Austen	-	-	-	+	
172. *D. gibberosa* Godwin-Austen		-		+	
173. *D. gibbosa* Blanford		-	-	+	
174. *D. godwini* Mollendorff		-		+	
175. *D. homei* Godwin-Austen	-	-	-	+	
176. *D. huttoni* Pfeiffer	-	+			
177. *D. jaintiaca* Godwin-Austen	-	-	-	+	
178. *D. japvoensis* Godwin-Austen		-		+	
179. *D. jatingana* Godwin-Austen	-	-	-	+	
180. *D. khunhoensis* Godwin-Austen		-	-	+	
181. *D. labiosa* Blanford	-	-	-	+	
182. *D. lapillus* Godwin-Austen	-	-	-	+	Myanmar
183. *D. levigata* Godwin-Austen	-	-	-	+	
184. *D. miriensis* Godwin-Austen	-	-	-	+	
185. *D. munipurensis* Godwin-Austen	-	-	-	+	Myanmar
186. *D. nengloensis* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
187. *D. oligopleuris* Blanford	-	-	-	+	
188. *D. oviformis* Fulton	-	-	+	-	
189. *D. pachychilus* Benson	-	-	+	-	
190. *D. parvula* Godwin-Austen	-	-	-	+	
191. *D. perobesa* Preston	+	-	-	-	
192. *D. polypleuris* Benson	-	-	-	+	Myanmar
193. *D. pullula* Benson	-	-	+	-	
194. *D. regularis* Fulton	-	-	+	-	
195. *D. saltuensis* Godwin-Austen	-	-	-	+	
196. *D. scalaria* Blanford	-	-	-	+	
197. *D. semisculpta* Blanford	-		+	-	
198. *D. sherfaiensis* Godwin-Austen	-	-	-	+	
199. *D. silvicola* Godwin-Austen	-		-	+	
200. *D. subrubella* Godwin-Austen	-	-	-	+	
201. *D. subtilis* Godwin-Austen	-	-	-	+	
202. *D. succinea* Godwin-Austen	-			+	
203. *D. theobaldi* Godwin-Austen	-	-	+		
204. *D. thomsoni* Godwin-Austen	-	-	-	+	Myanmar
205. *D. tumida* Blanford	-	-	-	+	
206. *D. ungulata* Blanford	-	-	+	-	
207. *D. unicrenata* Godwin-Austen	-	-	-	+	
208. *D. venustula* Godwin-Austen	-	-	-	+	
209. *Gastroptychia insignis* Godwin-Austen	-	-	-	+	
Family - PUPINIDAE					
Subfamily - PUPINELLINAE					
210. *Nodopomatias oakesi* (Godwin-Austen)	-	-	-	+	

1	2	3	4	5	6
211. *N. sibbumensis* (Godwin-Austen)	-	-	-	+	
212. *Pseudopomatias grandis* (Godwin-Austen)	-	-	-	+	
213. *P. himalayae* (Benson)	-	-	+	+	
214. *P. luyorensis* Godwin-Austen	-	-	-	+	
215. *P. pleurophorus* (Benson)	-	-	-	+	
216. *P. sibbumensis* Godwin-Austen	-	-	-	+	
217. *Raphaulus aborensis* Godwin-Austen	-	-	-	+	
218. *R. assamicus* Godwin-Austen	-	-	-	+	
219. *R. blanfordi* (Benson)	-	-	+	+	
220. *R. luyorensis* Godwin-Austen		-	+	+	
221. *R. miriensis* (Godwin-Austen)	-	-	-	+	
222. *R. oakesi* Godwin-Austen	-	-	-	+	
223. *R. yamneyensis* Godwin-Austen	-	-	-	+	
224. *Schistoloma funiculatum* (Sowerby)	-	-	+	+	
225. *S. tanychilum* (Godwin-Austen)	-	-	-	+	
Family - AMPULLARIIDAE					
226. *Pila olea* (Reeve)		-		+	
227. *P. theobaldi* (Hanley)	-	-	-	+	Myanmar
Family - VALVATIDAE					
228. *Valvata piscinalis* (Mueller)	+	-	-	-	Europe
Family - BITHYNIIDAE					
229. *Bithynia tentaculata kashmirensis* Nevill	+	-	-	-	
230. *B. (Digoniostoma) pulchella* (Benson)	+	-	-	+	Throughout India,Malaya Archepalago, Myanmar
231. *B. (D.) cerameopoma* (Benson)	+	-	-	+	Throughout the plains

1	2	3	4	5	6
232. *B. (D.) textum* Annandale	-	-	-	+	
Family - POMATIOPSIDAE					
Subfamily - TRICULINAE					
233. *Tricula montana* Benson	-	+	-	+	Sri Lanka
234. *Erhaia nainitalensis* Davis and Rao	-	+	-	-	
Family - VIVIPARIDAE					
235. *Bellamya bengalensis f. typica* (Lamarck)	+	-	+	+	Throughout India
f. mandiensis (Kobolt)	+	-	-	-	Maharashtra
f. balteata (Benson)	-	-	+	+	
236. *B. crassa* (Benson)	-		+	+	Orissa, Bangladesh
237. *B. crassispiralis* (Annandale)			-	+	
238. *B. dissimilis* (Mueller)	+	+	-	+	Throughout India
239. *B. micron* (Annandale)	-	-	-	+	
240. *Cipangopaludina lecythis* (Benson)	-	-	-	+	Myanmar, China and Bangladesh
241. *Angulyagra oxytropis* (Benson)	-	-	-	+	
242. *A. microchaetophora* (Annandale)	-	-	-	+	
Family - ASSIMINEIDAE					
243. *Acmella milium* (Benson)	-	-	-	+	
244. *A. tersa* (Benson)	-	-	-	+	
Family - THIARIDAE					
245. *Thiara scabra* (Mueller)	-	-	-	+	Throughout Indian plains
246. *Melanoides tuberculata* (Mueller)	+	-	-	+	Throughout India, plains and hills except Kashmir - a cosmopolitan species

1	2	3	4	5	6
247. *Tarebia lineata* (Gray)	-	-	+	+	Plains of India, also Myanmar, Sri Lanka
Family - PLEUROCERIDAE					
Subfamily - MELANATRINAE					
248. *Brotia costula* (Rafinesque)	-	-	+	+	Gangetic plains, Malaya Archepelago, Myanmar
249. *Sulcospira huegeli* (Philippi)	-	-	-	+	Western Ghat
Subfamily - PALUDOMINAE					
250. *Paludomus* (*P.*) *blanfordiana* Nevill	-	-	-	+	Myanmar
251. *P.* (*P.*) *conica* (Gray)	-	-	+	+	Bangladesh
252. *P.* (*P.*) *pustulosa* Annandale		-		+	
253. *P.* (*P.*) *regulata* Benson	-	-	+	+	Myanmar
254. *P.* (*P.*) *reticulata* Blanford	-	-		+	
255. *P.* (*P.*) *stephanus* (Benson)	-	-		+	Bangladesh
256. *P.* (*Tanalia*) *loricatus* Reeve	-			+	Sri Lanka
Sub class - GYMNOMORPHA					
Order - SOLEOLIFERA					
Family - VERONICELLIDAE					
257. *Fillicaulis* (*Eleutherocaulis*) *alte* (Ferussac)	-	-	-	+	(1000m) also in plains
Family - RATHOUISIIDAE					
258. *Atopos* (*Padangia*) *kempii* Ghosh	-	-	-	+	

1	2	3	4	5	6
Subclass - PULMONATA					
Order - BASOMMATOPHORA					
Family - LYMNAEIDAE					
259. *Lymnaea* (*Pseudosuccinea*) *acuminata f. typica* Lamarck	+	-	-	+	Throughout Indian plains
f. biacuminata Annandale & Rao	+	-	-	-	S. India
f. malleata Annandale & Rao	+	-	-	+	Throughout Indian plains
f. patula Troschel	+	-	-	+	do
f. rufescens Gray	+	-	-	+	do
260. *L.* (*P.*) *luteola f. australis* Annandale & Rao	+	-	-	+	do
f. ovalis Gray	+	-	-	+	Myanmar, Sri Lanka
f. succinea Deshayes	+	+	-	+	
f. typica Lamarck	+	+	-	+	Plains of India
261. *L.* (*P.*) *gedrosiana* Annandale & Prashad	+	-	-	-	
262. *L.* (*Radix*) *auricularia* Linnaeus	+	-	-	-	N. Asia, Europe
263. *L.* (*R.*) *brevicauda* Sowerby	+	-	-	-	
264. *L.* (*R.*) *lagotis* (Schrank)	+	-	-	-	Tibet, Central Asia
265. *L.* (*R.*) *peregra* (Mueller)	+	-	-	-	Tibet, Europe
266. *L.* (*R.*) *persica* Issel	+	+	-	-	Persia
267. *L.* (*Galba*) *andersoniana* Nevill	+	+	+	+	China, Nepal
268. *L.* (*G.*) *hookeri* Reeve	-	-	+	-	Tibet
269. *L.* (*G.*) *truncatula* (Mueller)	+	-	-	-	Europe, Ethiopea
Family - PLANORBIDAE					
270. *Planorbis planorbis tangitarensis* Germain	+	-	-	-	Central Asia
271. *P. rotundatus* Poiret	+	-	-	-	Europe

	1	2	3	4	5	6
272.	*Gyraulus barrackporensis* (Clessin)	-	+	-	-	West Bengal, Tibet
273.	*G. convexiusculus* (Hutton)	+	-	-	+	Widely distributed plains of India, Iran to Philippines
274.	*G. euphraticus* (Mousson)	+	-	-	-	Essentially Palaearctic, Afghanisthan
275.	*G. labiatus* (Benson)	+	-	-	-	Plains of India, Myanmar
276.	*G. ladacensis* Nevill	+	-	-	-	Tibet
277.	*G. pankongensis* (von Marten)	+	-	-	-	Tibet
278.	*Camptoceras* (*Calmenella*) *subspinosum* Annandale & Prashad	+	-	-	-	
279.	*Segmentina* (*Polypylis*) *calatha* (Benson)	+	-	-	+	Plains of Eastern India
280.	*Hippeautis* (*H.*) *fontanus* (Lightfoot)	+	-	-	-	Europe
281.	*H.* (*Helicorbis*) *umbilicalis umbilicalis* (Benson)	-	+	-	+	Myanmar, Indonesia
	Family - BULLINIDAE					
281.	*Indoplanorbis exustus* (Deshayes)	+	+	-	+	Cosmopolitan species, throughout South east Asia
	Family - ANCYLIDAE					
283.	*Ferrissia baconi* (Bourguignat)	-	-	+	-	Myanmar
284.	*F. ceylanica* (Benson)	-	-	-	+	Sri Lanka
285.	*F. verruca* (Benson)	-	-	-	+	
286.	*F. viola* Annandale & Prashad	-	-	-	+	

1	2	3	4	5	6
Order - STYLOMMATOPHORA					
Suborder - ORTHURETHRA					
Family - PUPILLIDAE					
287. *Pupilla eurina* (Benson)	+	-	-	-	Nepal
288. *P. gutta* (Benson)	+	-	-	-	
289. *P. muscorum* (Linnaeus)	+	+	-	-	China
290. *Pupoides coenopictus* (Hutton)	+	-	-	-	Delhi, Gujarat, South India
Family - VALLONIIDAE					
291. *Vallonia costata* (Mueller)	-	+	-	-	North America, North Africa, Europe
292. *V. ladakensis* Nevill	+	+	-	-	
293. *V. pulchella* (Mueller)	-	+	-	-	North America, North Africa, Europe
Family - VERTIGINIDAE					
294. *Pupisoma cacharicum* Godwin-Austen	-	-	-	+	
295. *P. orcula* (Benson)	+	-	+	-	South Africa, Japan
296. *P. seriola* (Benson)	-	-	+	+	
297. *Boysidia plicidens* (Benson)	+	-	-	+	
298. *Gastrocopta huttoniana* (Benson)	+	+	-	-	Penninsular India
Family - ORCULIDAE					
299. *Orcula* (*Sphyradium*) *himalayanum* (Benson)	+	+	-	-	
Family - PYRAMIDULIDAE					
300. *Pyramidula humilis* (Benson)	+	-	-	-	
Family - BULIMINIDAE					
301. *Mirus ceratina* (Reeve)	-	+	-	-	

	1	2	3	4	5	6
302.	*M. nilagirica* (Pfeiffer)	-	-	-	+	South India
303.	*M. smithei* (Benson)	+	+	-	-	
304.	*M. vicaria* (Blanford)	-	-	-	+	
305.	*Subzebrinus arcuata* (Kuester)	+	+	-	-	
306.	*S. beddomeanus* (Nevill)	+	-	-	-	
307.	*S. boysiana* (Reeve)	-	+	+	-	
308.	*S. candelaris* (Pfeiffer)	+	+	-	-	
309.	*S. coelebs* (Pfeiffer)	+	+	-	-	
310.	*S. domina* (Benson)	+	-	-	-	
311.	*S. eremita* (Reeve)	+	-	-	-	
312.	*S. hazarica* Gude	+	-	-	-	
313.	*S. kuluensis* (Kobelt)	-	+	-	-	
314.	*S. kunawurensis* (Reeve)	-	+	-	-	
315.	*S. longstaffi* Gude	+	-	-	-	
316.	*S. mainwaringiana* (Nevill)	+	+	-	-	
317.	*S. nevilliana* (Theobald)	+	-	-	-	
318.	*S. nivicola* (Reeve)	+	-	-	-	
319.	*S. pretiosa* (Reeve)	+	+	-	-	
320.	*S. rufistrigata* (Nevill)	+	+	-	-	
321.	*S. sindica* (Reeve)	-	-	+	+	
322.	*S. vibex* (Kuester)	-	+	-	-	
	Family - CERASTUIDAE					
323.	*Cerastua segregata* (Reeve)	+	+	-	-	

1	2	3	4	5	6
Suborder - MESURETHRA					
Family - CLAUSILIIDAE					
Subfamily - PHAEDUSINAE					
324. *Phaedusa aborensis* Godwin-Austen	-	-	-	+	
325. *P. annandalei* Preston	-	-	-	+	
326. *P. bacillum* (Hanley & Theobald)	-	-	-	+	Myanmar
327. *P. cylindrica* (Pfeiffer)	+	-	-	+	
328. *P. ios* (Benson)	-	-	+	+	
329. *P. monticola* Blanford	-	-	-	+	
330. *P. shimangensis* Godwin-Austen	-	-	-	+	
331. *P. waageni* (Stoliczka)	+	-	-	-	
332. *Oospira assaluensis* (Blanford)	-	-	-	+	
333. *O. ferruginea* (Blanford)	-	-	-	+	
334. *O. loosjesiana* (Ray)	-	-	-	+	
335. *O. loxostoma* (Benson)	-	-	-	+	
Suborder - SIGMURETHRA					
Family - FERRUSSACIIDAE					
336. *Cecilioides balanus* (Reeve)	+	+	-	-	
337. *Coilostele scalaris* Benson	+	+	-	-	
Family - SUBULINIDAE					
338. *Bacillum casiacum* (Reeve)	-	-	-	+	
339. *B. daflaensis* (Godwin-Austen)	-	-	-	+	
340. *B. erosum* (Blanford)	-	-	+	-	
341. *B. muspratti* Gude	-	-	-	+	
342. *B. orthoceras* (Godwin-Austen)	-	-	-	+	

1	2	3	4	5	6
343. *Curvella blanfordi* Gude	-	-	+	-	
344. *C. khasiana* (Godwin-Austen)	-	-	+	+	
345. *C. munipurensis* (Godwin-Austen)	-	-	-	+	
346. *C. sikkimensis* (Reeve)	-	-	+	-	
347. *Glessula aborense* Godwin-Austen	-	-		+	
348. *G. baculina* Blanford		-	+	+	
349. *G. burrailensis* Godwin-Austen		-	-	+	
350. *G. butleri* Godwin-Austen			-	+	
351. *G. crassilabris* (Benson)	-		+	+	Myanmar
352. *G. crassula* (Reeve)		-	+	+	
353. *G. hastula* (Benson)		-	+	-	Myanmar
354. *G. hebes* (Pfeiffer)	-	-	-	+	
355. *G. huegeli* (Pfeiffer)	+	-	-		
356. *G. illustris* Godwin-Austen		-		+	
357. *G. notigena* (Benson)		-	+		Maharashtra
358. *G. naja* Pilsbry	-	-	-	+	
359. *G. oakesi* Godwin-Austen	-		-	+	
360. *G. orobia* (Benson)	-		+	+	
361. *G. pertenuis* (Blanford)	-	-	-	+	Myanmar
362. *G. pyramis* (Benson)	-	-	-	+	China
363. *G. subjerdoni* Beddome	-	-	+	-	Peninsular India
364. *G. tenuispira* (Benson)	-	-	+	+	Bangladesh, Myanmar
365. *Lamellaxis gracile* (Hutton)	+	-	+	+	Throughout India, Myanmar, Pakisthan, Sri Lanka

1	2	3	4	5	6
366. *L. latebricola* (Reeve)	+	-	+	+	
367. *L. nevilli* (Godwin-Austen)	-	-	-	+	
368. *Zootecus insularis* (Ehrenberg)	+	-	-	-	Plains of India, mostly drier part
Family - ACHATINIDAE					
369. *Achatina fulica* (Bowdich)	-	-	-	+	
Family - STREPTAXIDAE					
Subfamily - STREPTAXINAE					
370. *Streptaxis daflaensis* Godwin-Austen	-	-	-	+	
371. *S. theobaldi* Benson	-	-	-	+	
Subfamily - ENNEINAE					
372. *Ennea blanfordiana* Godwin-Austen	-	-	-	+	
373. *E. milium* Godwin-Austen	-	-	-	+	
374. *E. nagaensis* Blanford	-	-	-	+	
375. *E. stenopylis* Benson	-	-	+	+	
376. *E. vara* Benson	-	-	-	+	
377. *Gulella* (*Huttonella*) *bicolor* (Hutton)	-	-	-	+	Throughout India, Myanmar, Sri Lanka
Family - PLECTOPYLIDIDAE					
378. *Plectopylis* (*Endothyrella*) *affinis* Gude	-	-	-	+	
379. *P.* (*E.*) *blanda* Gude	-	-	-	+	
380. *P.* (*E.*) *fultoni* Godwin-Austen	-	-	-	+	
381. *P.* (*E.*) *gregorsoni* Gude	-	-	-	+	
382. *P.* (*E.*) *hanleyi* Godwin-Austen	-	-	+	-	
383. *P.* (*E.*) *macromphalus* Blanford	-	-	-	+	

1	2	3	4	5	6
384. *P. (E.) minor* Godwin-Austen	-	-	-	+	
385. *P. (E.) miriensis* Gude	-	-	-	+	
386. *P. (E.) oakesi* Gude	-	-	-	+	
387. *P. (E.) pinacis* (Benson)	-	-	+	-	
388. *P. (E.) plectostoma* (Benson)	-	-	+	+	
389. *P. (E.) sowerbyi* Gude	-	-	-	+	
390. *P. (Endoplon) aborensis* Gude	-	-	-	+	
391. *P. (Chersaecia) austeni* Gude	-	-	-	+	
392. *P. (C.) bedfordi* Gude	-	-	-	+	
393. *P. (C.) brahma* Godwin-Austen	-	-		+	
394. *P. (C.) munipurensis* Godwin-Austen	-			+	Myanmar
395. *P. (C.) muspratti* Gude		-	-	+	
396. *P. (C.) nagaensis* Godwin-Austen		-		+	
397. *P. (C.) oglei* Godwin-Austen	-	-	-	+	
398. *P. (C.) shiroiensis* Godwin-Austen		-		+	
399. *P. (C.) serica* Godwin-Austen	-	-	-	+	
400. *P. (C.) williamsoni* Gude	-			+	
Suborder - ELASMOGNATHA					
Family - SUCCINEIDAE					
401. *Succinea crassinuclea* Pfeiffer	+		-	-	
402. *S. elegantior* Annandale	-	-	-	+	
403. *S. indica* Pfeiffer	+	+	-	-	
404. *S. rutilans* Blanford	-		-	+	

1	2	3	4	5	6
Family - HELIXARIONIDAE					
Subfamily - SESARINAE					
405. *Sesara diplodon* (Benson)	-	-	-	+	Bangladesh
406. *S. episema* Ponsonby	-	-	-	+	
407. *S. galea* (Benson)	-	-	-	+	
408. *S. globosa* Godwin-Austen	-	-	-	+	
409. *S. harmeri* Gude	-	-	-	+	
410. *Kaliella animula* Godwin-Austen	-	-	-	+	
411. *K. annandalei* Godwin-Austen	-	-	-	+	
412. *K. barrakporensis* (Pfeiffer)	+	+	+	+	A cosmopolitan species
413. *K. bhutanensis* Godwin-Austen	-	-	+	-	
414. *K. bullula* (Hutton)	+	+	-	-	
415. *K. burrailensis* Godwin-Austen	-	-	-	+	
416. *K. chennelli* Godwin-Austen	-	-	-	+	
417. *K. cherraensis* Godwin-Austen	-	-	-	+	
418. *K. conulus* (Blanford)	-	-	-	+	
419. *K. dikrangensis* Godwin-Austen	-	-	-	+	
420. *K. costulata* Godwin-Austen	-	-	-	+	
421. *K. elongata* Godwin-Austen	-	-	-	+	
422. *K. fastigiata* (hutton)	+	-	-	+	
423. *K. flatura* Godwin-Austen	-	-	+	+	
424. *K. gratiosa* Godwin-Austen	-	-	-	+	
425. *K. kasiaca* Godwin-Austen	-	-	-	+	
426. *K. kezamahensis* Godwin-Austen	-	-	-	+	
427. *K. lailangkotensis* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
428. *K. lhotaensis* Godwin-Austen	-	-	-	+	
429. *K. jaintiaca* Godwin-Austen	-	-	-	+	
430. *K. manipurensis* Godwin-Austen	-	-	-	+	
431. *K. nana* (Hutton)	+	-	+	-	
432. *K. nagaensis* Godwin-Austen	-	-	-	+	
433. *K. nevilli* Godwin-Austen	-	-	+	-	
434. *K. nongsteinensis* Godwin-Austen	-	-	-	+	
435. *K. richilaensis* Godwin-Austen	-	-	+	-	
436. *K. risinula* Godwin-Austen	-	-	-	+	
437. *K. rissomensis* Godwin-Austen	-	-	+	-	
438. *K. ruga* Godwin-Austen	-	-	-	+	
439. *K. paucistriata* Godwin-Austen	-	-	-	+	
440. *K. shillongensis* Godwin-Austen	-	-	-	+	
441. *K. sikkimensis* Godwin-Austen	-	-	+	-	
442. *K. sadiyaensis* Godwin-Austen	-	-	-	+	
443. *K. subcostulata* Godwin-Austen	-	-		+	
444. *K. teriaensis* Godwin-Austen	-	-	-	+	
445. *Rahula aborensis* Godwin-Austen	-	-	-	+	
446. *R. bascauda* (Benson)	-	-	-	+	
447. *R. bacaudula* Godwin-Austen	-	-	-	+	
448. *R. burrailensis* Godwin-Austen	-	-	-	+	
449. *R. corys* (Benson)	-	-	-	+	
450. *R. daflaensis* Godwin-Austen	-	-	-	+	
451. *R. dihingensis* Godwin-Austen	-	-	-	+	
452. *R. koboensis* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
453. *R. lhotaensis* Godwin-Austen	-	-	-	+	
454. *R. macropleuris* (Benson)	-	-	+	-	
455. *R. munipurensis* Godwin-Austen	-	-	-	+	
456. *Rasama kala* (Godwin-Austen)	-	-	+	-	
457. *Sivella castra* (Benson)	-	-	+	+	Also in plains
458. *Tadunia oakesi* Godwin-Austen	-	-	-	+	
Family - ARIOPHANTIDAE					
Subfamily - DYAKIINAE					
459. *Staffordia daflaensis* Godwin-Austen	-	-	+	+	
460. *S. toruputuensis* Godwin-Austen	-	-	-	+	
Subfamily - PARMARIONINAE					
461. *Parmarion martensi* Simroth	-	-	-	+	
Subfamily - GIRASIINAE					
462. *Girasia burtii* (Godwin-Austen)	-	-	-	+	
463. *G. cinera* (Godwin-Austen)	-	-	-	+	
464. *G. crocea* (Godwin-Austen)	-	-	-	+	
465. *G. dalhousiae* Godwin-Austen	+	-	-	-	
466. *G. dikrangensis* (Godwin-Austen)	-	-	-	+	
467. *G. gladstonei* (Godwin-Austen)	-	-	-	+	
468. *G. hookeri* Gray	-	-	-	+	
469. *G. maculosa* Godwin-Austen	-	-	-	+	
470. *G. pankabariensis* Godwin-Austen	-	-	+	-	
471. *G. radha* (Godwin-Austen)	-	-	-	+	
472. *Austenia aborense* Godwin-Austen	-	-	-	+	
473. *A. alba* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
474. *A. annandalei* Godwin-Austen	-	-	+	-	
475. *A. butleri* (Godwin-Austen)	-	-	-	+	
476. *A. cacharica* (Godwin-Austen)	-	-	-	+	
477. *A. gigas* (Benson)	-	-	-	+	
478. *A. nagaensis* (Godwin-Austen)	-	-	-	+	
479. *A. sikkimensis* (Godwin-Austen)	-	-	+	-	
480. *A. siyomensis* Godwin-Austen	-	-	-	+	
481. *A. solida* (Godwin-Austen)	-	-	-	+	
482. *Cryptaustenia bicolor* Godwin-Austen	-	-	-	+	
483. *C. durrangensis* (Godwin-Austen)	-	-	-	+	
484. *C. globosa* (Godwin-Austen)	-	-	-	+	
485. *C. heteroconcha* (H. Blanford)	-	-	+	-	
486. *C. ovata* (H. Blanford)	-	-	+	-	
487. *C. silcharensis* (Godwin-Austen)	-	-	-	+	
488. *C. succinea* (Reeve)	-	-	+	-	
489. *C. verrucosa* (Godwin-Austen)	-	-	-	+	
490. *Cryptogirasia rubra* (Godwin-Austen)	-		-	+	
491. *Dihangia koboensis* Godwin-Austen	-	-	-	+	
Subfamily - MACROCHLAMYDINAE					
492. *Macrochlamys albulus* Godwin-Austen	-	-	-	+	
493. *M. atricolor* (Godwin-Austen)	-	-	-	+	Myanmar
494. *M. bapuensis* Godwin-Austen	-	-	-	+	
495. *M. beata* Godwin-Austen	-	-	-	+	
496. *M. bilineata* Godwin-Austen	-	-	-	+	
497. *M. burkalli* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
498. *M. cacharica* Godwin-Austen	-	-	-	+	
499. *M. castaneo labiata* Godwin-Austen	-	-	-	+	
500. *M. dalingensis* Godwin-Austen	-	-	+	-	
501. *M. damsangensis* Godwin-Austen	-	-	+	-	
502. *M. darjilingensis* Godwin-Austen	-	-	+	-	
503. *M. decussata* (Benson)	-	-	-	+	
504. *M. dorani* Godwin-Austen	-	-	-	+	
505. *M. fragosus* Godwin-Austen	-	-	-	+	
506. *M. glauca* (Pfeiffer)	+	+	-	-	3000m
507. *M. godwini* Tryon	-	-	-	+	
508. *M. hardwickii* Godwin-Austen	-	-	-	+	
509. *M. hengdanensis* Godwin-Austen	-	-	-	+	
510. *M. hepatizon* Godwin-Austen	-	-	-	+	
511. *M. hippocastanum* Godwin-Austen	-	-	-	+	
512. *M. hodgsoni* (Benson)	-	-	+	-	3000m
513. *M. hookeri* Godwin-Austen	-	-	-	+	
514. *M. koliaensis* Godwin-Austen	-	-	-	+	
515. *M. kuluensis* Blanford	-	+	-	-	
516. *M. lahupaensis* Godwin-Austen	-	-	-	+	
517. *M. lhotaensis* Godwin-Austen	-	-	-	+	
518. *M. longicauda* Godwin-Austen	-	-	-	+	
519. *M. lubrica* (Benson)	-	-	+	-	
520. *M. luyorensis* Godwin-Austen	-	-	-	+	
521. *M. mahadeoensis* Godwin-Austen	-	-	-	+	
522. *M. molecula* (Benson)	-	-	-	+	Myanmar

1	2	3	4	5	6
523. *M. munipurensis* Godwin-Austen	-	-	-	+	
524. *M. murdochi* Godwin-Austen	-	-	-	+	
525. *M. nengloensis* Godwin-Austen	-	-	-	+	
526. *M. nuda* (Pfeiffer)	+	-	-	-	
527. *M. opipara* Godwin-Austen	-	-	+	-	
528. *M. originaria* Godwin-Austen	-	-	-	+	
529. *M. pacata* Godwin-Austen	-	-	-	+	
530. *M. patane* (Benson)	-	-	+	-	
531. *M. perfragilis* Godwin-Austen	-	-	+	-	
532. *M. planuscula* (Hutton)	+	-	-	-	
533. *M. plicifera* Blanford	-	-	-	+	
534. *M. psittacinus* Godwin-Austen	-	-	-	+	
535. *M. pungi* (Theobald)	-	-	-	+	Andaman, Myanmar
543. *M. rakaensis* Godwin-Austen	-	-	+	-	
544. *M. richilaensis* Godwin-Austen	-	-	+	-	
538. *M. roberti* Godwin-Austen	-	-	-	+	
539. *M. rorida* (Benson)	-	-	+	-	
540. *M. rotungensis* Godwin-Austen	-	-	+	+	
541. *M. rozamiensis* Godwin-Austen	-	-	-	+	
542. *M. rubellocincta* (Blanford)	-	-	-	+	
543. *M. rusticola* Godwin-Austen	-	-	-	+	
544. *M. salmonea* (Ancey)	-	-	-	+	
545. *M. sata* Godwin-Austen	-	-	-	+	
546. *M. sathilaensis* Godwin-Austen	-	-	+	-	
547. *M. sequins* Godwin-Austen	-	-	+	-	

1	2	3	4	5	6
548. *M. shengorensis* Godwin-Austen	-	-	-	+	
549. *M. shimangensis* Godwin-Austen	-	-	-	+	
550. *M. shisha* (Godwin-Austen)	-	-	-	+	
551. *M. superflua* Blanford	-	-	+	-	
552. *M. tanirensis* Godwin-Austen	-	-	-	+	
553. *M. terminus* Godwin-Austen	-	-	-	+	
554. *M. tugurium* (Benson)	-	-	+	-	2100m
555. *M. uda* Godwin-Austen	-	-	-	+	
556. *M. umbraticola* Godwin-Austen	-	-	-	+	
557. *M. vesicula* (Benson)	-	+	-	-	3000m
558. *M. zemoensis* Godwin-Austen	-	-	+	-	
559. *M. (Euaustenia) cassida* Hutton	-	+	-	-	
560. *M. (E.) gurhwalensis* (Godwin-Austen)	+	+	-	-	
561. *M. (E.) monticola* (Pfeiffer)	+	+	-	-	
562. *M. (E.) paurhiensis* (Godwin-Austen)	-	+	-	-	
563. *M. (E.) theobaldi* (Godwin-Austen)	+	+	-	-	
564. *M. (Parvatella) altivaga* (Godwin-Austen)	+	-	-	-	
565. *M. (P.) austeniana* (Nevill)	+	-	-	-	
566. *M. (P.) flemingi* (Pfeiffer)	+	+	-	-	
567. *M. (P.) magnifica* Reeve	+	-	-	-	
568. *Bapuia rengingensis* Godwin-Austen	-	-	-	+	
569. *Bensonies aborensis* (Godwin-Austen)	-	-	-	+	
570. *B. angelica* (Pfeiffer)	+	+	-	-	
571. *B. camura* Benson	-	-	+	-	
572. *B. convexa* (Reeve)	+	+	-	-	

	1	2	3	4	5	6
573.	*B. jacquemonti* (v. Martens)	+	-	-	-	
574.	*B. jamuensis* (Theobald)	+	-	-	-	
575.	*B. mainwaringi* (Godwin-Austen)	-	-	+	-	
576.	*B. monticola* (Hutton)	+	+	-	-	
577.	*B. nepalensis* Blanford	-	-	+	-	
578.	*B. theobaldiana* Godwin-Austen	+	+	-	-	
579.	*Dalingia bhutanensis* Godwin-Austen	-	-	+	-	
580.	*Khasiella austeni* (Blanford)	-	-	-	+	
581.	*K. chloroplax* (Benson)	+	-	-	-	
582.	*K. climacterica* (Benson)	-	-	-	+	
583.	*K. dinoensis* Godwin-Austen	-	-	-	+	
584.	*K. falcata* Blanford	-	-	-	+	Myanmar
585.	*K. hyba* (Benson)	+	+	-	-	
586.	*K. kashmirensis* (Nevill)	+	-	-	-	
587.	*K. serrula* (Benson)	-	-	-	+	
588.	*K. sonamurgensis* (Nevill)	+	-	-	-	
589.	*K. tandianensis* (Theobald)	+	-	-	-	
590.	*K. vidua* (Hanley & Theobald)	-	-	-	+	
591.	*Oxytesta aborensis* Godwin-Austen	-	-	-	+	
592.	*O. blanfordi* (Theobald)	-	-	+	-	
593.	*O. castor* (Theobald)	-	-	-	+	
594.	*O. cycloplax* (Benson)	-	-	+	-	
595.	*O. oglei* Godwin-Austen	-	-		+	
596.	*O. orobia* (Benson)	-	-	+	-	2400m
597.	*O. oxytes* (Benson)	-	-	+	+	

1	2	3	4	5	6
598. *O. pollux* (Theobald)	-	-	-	+	
599. *O. siyomensis* Godwin-Austen	-	-	-	+	
600. *Rotungia willamsoni* Godwin-Austen	-	-	-	+	
601. *Syama masuriensis* Godwin-Austen	-	+	-	-	
602. *S. prona* (Nevill)	+	+	-	-	
603. *S. splendens* (Hutton)	+	+	-	-	
604. *S. theobaldi* Blanford & Godwin-Austen	+	+	-	-	
605. *Taphrospira excavata* Blanford	-	-	-	+	
Subfamily - DURGELLINAE					
606. *Durgella aborense* Godwin-Austen	-	-	-	+	
607. *D. assamica* Godwin-Austen	-	-	-	+	
608. *D. kempi* Godwin-Austen	-	-	-	+	
609. *D. khasiaca* Godwin-Austen	-	-	-	+	
610. *D. mairangensis* Godwin-Austen	-	-	-	+	
611. *D. salius* (Benson)	-	-	+	+	
612. *D. seposita* (Benson)	-	-	+	-	
613. *Ibycus fissidens* Heynemann	-	-	+	-	
614. *I. minutus* (Godwin-Austen)	-	-	-	+	
615. *Sitala crenicincta* Godwin-Austen	-	-	-	+	
616. *S. gromatica* Godwin-Austen	-	-	-	+	
617. *S. intonsa* Godwin-Austen	-	-	-	+	
618. *S. phulongensis* Godwin-Austen	-	-	-	+	
619. *S. recondita* Godwin-Austen	-	-	-	+	
620. *S. rimicola* (Benson)	-	+	+	+	
621. *S. srimani* Godwin-Austen	-	-	-	+	

1	2	3	4	5	6
622. *S. uvida* Godwin-Austen	-	-	-	+	
Family - VITRINIDAE					
623. *Vitrina pellucida* (Mueller)	+	-	-	-	
Family - ZONITIDAE					
624. *Oxychilus fulva* Draparnaud	+	-	-	-	
625. *O. lucida* Draparnaud	+	-	-	-	
Family - LIMACIDAE					
626. *Limax* (*Kasperia*) *mayae* Godwin-Austen	+	+	-	-	
627. *Deroceras laeve* (Mueller)	-	-	+	+	
Family - CAMAENIDAE					
628. *Amphidromus masoni* (Godwin-Austen)	-	-	-	+	
629. *A. sinensis* (Benson)	-	-	-	+	China
630. *A. sylheticus* (Reeve)	-	-	-	+	
631. *Chloritis delibrata* (Benson)	-	-	-	+	Myanmar
632. *C. gabata* Gould	-	-	-	+	Myanmar
633. *C. ochthoplax* (Benson)	-	-	-	+	Myanmar
634. *Ganesella acris* (Benson)	-	-	-	+	
635. *G. galea* (Benson)	-	-	-	+	
Family - HYGROMIIDAE					
Subfamily - CAMAENINAE					
636. *Trichia hispida* (Linnaeus)	+	-	-	-	
Family - BRADYBAENIDAE					
637. *Bradybaena cestus* (Benson)	-	-	-	+	
638. *B. radicicola* (Benson)	-	+	+	-	
639. *Aegista catostoma* (Blanford)	-	-	-	+	Myanmar, China

1	2	3	4	5	6
640. *A. coeni* Preston	-	-	-	+	
641. *A. congenor* Preston	-	-	-	+	
642. *A. (Plectotropis) huttoni* Pfeiffer	+	+	+	+	Myanmar, China
643. *A. (P.) nutans* Gude	-	-	-	+	
644. *A. (P.) tapeina* (Benson)	-	-	-	+	
645. *Cathaica bactriana* (Hutton)	+	-	-	-	
646. *C. mataiaensis* (Nevill)	+	-	-	-	
647. *C. phaeozona* von Martens	+	-	-	-	Turkistan
Family - ARIONIDAE					
648. *Anadenus altivagus* (Theobald)	+	+	-	-	
649. *A. beebei* Cockerell	-	+	-	-	
650. *A. blanfordi* Godwin-Austen	-	-	+	-	
651. *A. giganteus* Heynemann	-	+	-	-	
652. *A. jerdoni* Godwin-Austen	+	-	-	-	
653. *A. modestus* Theobald	+	-	+	-	
654. *A. schlagintweiti* Heynemann	+	+	-	-	
Family - PHILOMYCIDAE					
655. *Philomycus (Meghimatium) campestris* Godwin-Austen	-	-	-	+	
656. *P. (M.) monticola* (Godwin-Austen)	-	-	-	+	
Class - BIVALVIA					
Order - UNIONOIDA					
Family - UNIONIDAE					
Subfamily - UNIONINAE					
657. *Physunio (Velunio) velaris* (Sowerby)	-	-	-	+	

1	2	3	4	5	6
658. *Scabies crispata* (Gould)	-	-	-	+	Thailand, Myanmar
659. *Solenaia soleniformis* (Benson)	-	-	-	+	
Subfamily - AMBLEMINAE					
660. *Lamellidens corrianus* (Lea)	-	-	+	+	Common throughout plains of India, Myanmar Bangladesh
661. *L. marginalis* (Lamarck)	-	-	+	+	do
662. *L. jenkinsianus* (Benson)	-	-	-	+	Bangladesh
L. jenkinsianus daccaensis (Preston)	-	-	-	+	Bangladesh
L. jenkinsianus obesa (Hanley & Theobald)	-	-	-	+	Bangladesh, Myanmar
663. *Parreysia* (*P.*) *corbis* (Benson)	-	-	-	+	
664. *P.* (*P.*) *corrugata laevirostris* (Benson)	-	-	-	+	Bihar, Andhra Pradesh, Bangladesh
P. (*P.*) *corrugata nagpoorensis* (Lea)	-	-	-	+	Andhra Pradesh, Orissa, Gujarat, Maharashtra
665. *P.* (*P.*) *favidens assamensis* (Preston)	-	-	-	+	Bihar
666. *P.* (*P.*) *gowhattensis* (Theobald)	-	-	-	+	
667. *P.* (*P.*) *sikkimensis* (Lea)	-	-	+	+	
668. *P.* (*P.*) *smaragdites* (Benson)	-	-	-	+	Myanmar
669. *P.* (*P.*) *triembolus* (Benson)	-	-	-	+	Plains of India
670. *P.* (*Radiatula*) *andersoniana* (Nevill)	-	-	+	+	Myanmar
671. *P.* (*R.*) *bonneaudi* (Eydoux)	-	-	-	+	West Bengal, Myanmar
672. *P.* (*R.*) *involuta* (Benson)	-	-	-	+	Bangladesh
673. *P.* (*R.*) *lima* (Simpson)	-	-	+	+	
674. *P.* (*R.*) *nuttaliana* (Lea)	-	-	-	+	
675. *P.* (*R.*) *occata* (Lea)	-	-	-	+	Plains of India,Bangladesh

1	2	3	4	5	6
676. *P. (R.) olivaria* (Lea)	-	-	-	+	Eastern India
677. *P. (R.) pachysoma* (Benson)	-	-	-	+	
678. *P. (R.) theobaldi* (Preston)	-	-	-	+	
679. *Trapezoideus exolescens exolescens* (Gould)	-	-	-	+	Myanmar
Order - VENEROIDA					
Family - CORBICULIDAE					
680. *C. assamensis* Prashad	-	-	-	+	Bangladesh
681. *Corbicula cashmirensis* Deshayes	+	-	-	-	
682. *C. striatella* Deshayes	+	-	-	+	Throughout India
Family - PISIDIIDAE					
683. *Pisidium (P.) casertanum* (Poli)	+	-	-	-	
684. *P. (Odhneripisidium) atkinsonianum* Theobald	-	-	+	+	
685. *P. (O.) ellisi* Dance	-	-	+	-	
686. *P. (O.) mitchelli* Prashad	+	-	-	-	
687. *Sphaerium (S.) austeni* Prashad	-	-	-	+	
688. *S. (S.) indicum* Deshayes	+	-	+	-	Common throughout plains of India
689. *S. (S.) kashmirensis* Prashad	+	-	-	-	

Table - II

Total number of genera : 134
Total number of species : 689

			1 North Western	2 Western	3 Central	4 Eastern
	Class	GASTROPODA				
	Subclass	PROSOBRANCHIA				
	Order	ARCHAEOGASTROPODA				
1.	Family	HELICINIDAE	-	-	-	G1 S1
	Order	MESOGASTROPODA				
2.	Family	CYCLOPHORIDAE	G1 S1	- -	G4 S23	G8 S124
3.	Family	DIPLOMMATINIDAE	G1 S1	G1 S2	G1 S7	G2 S51
4.	Family	PUPINIDAE	-	-	G3 S4	G4 S16
5.	Family	AMPULLARIIDAE	-	-	-	G1 S2
6.	Family	VALVATIDAE	G1 S1	-	-	-
7.	Family	BITHYNIIDAE	G1 S3	-	-	G1 S3
8.	Family	POMATIOPSIDAE	-	G2 S2	-	G1 S1
9.	Family	VIVIPARIDAE	G1 S2	G1 S1	-	G3 S8
10.	Family	ASSIMINEIDAE	-	-	-	G1 S2

		1 North Western	2 Western	3 Central	4 Eastern
11. Family	THIARIDAE	G1 S1	-	G1 S1	G3 S3
12. Family	PLEUROCERIDAE	-	-	G2 S3	G3 S9
Suborder	GYMNOMORPHA				
Order	SOLEOLIFERA				
13. Family	VERONICELLIDAE	-	-	-	G1 S1
14. Family	RATHOUISIIDAE	-	-	-	G1 S1
Subclass	PULMONATA				
Order	BASOMMATOPHORA				
15. Family	LYMNAEIDAE	G1 S10	G1 S3	G1 S2	G1 S3
16. Family	PLANORBIDAE	G5 S10	G2 S2	-	G3 S3
17. Family	BULINIDAE	G1 S1	G1 S1	-	G1 S1
18. Family	ANCYLIDAE	-	-	G1 S1	G1 S3
Order	STYLOMMATOPHORA				
Suborder	ORTHURETHERA				
19. Family	PUPILLIDAE	G2 S4	G1 S1	-	-
20. Family	VALLONIIDAE	G1 S1	G1 S3	-	-
21. Family	VERTIGINIDAE	G3 S3	G1 S1	G1 S2	G2 S3

			1 North Western	2 Western	3 Central	4 Eastern
22.	Family	ORCULIDAE	G1 S1	G1 S1	-	-
23.	Family	PYRAMIDULIDAE	G1 S1	-	-	-
24.	Family	BULIMINIDAE	G2 S14	G2 S12	G1 S2	G2 S3
25.	Family	CERASTUIDAE	G1 S1	G1 S1	-	-
	Suborder	MESURETHRA				
26.	Family	CLAUSILIIDAE	G1 S2	- -	G1 S1	G2 S11
	Suborder	SIGMURETHRA				
27.	Family	FERRUSSACIIDAE	G2 S2	G2 S2	-	-
28.	Family	SUBULINIDAE	G3 S4	- -	G4 S14	G4 S23
29.	Family	ACHATINIDAE	-	-	-	G1 S1
30.	Family	STREPTAXIDAE	-	-	G1 S1	G3 S8
31.	Family	PLECTOPYLIDIDAE	-	-	G1 S4	G1 S21
	Suborder	ELASMOGNATHA				
32.	Family	SUCCINEIDAE	G1 S2	G1 S1	-	G1 S2

		1 North Western	2 Western	3 Central	4 Eastern
33. Family	HELIXARIONIDAE	G1 S4	G1 S2	G3 S12	G5 S44
34. Family	ARIOPHANTIDAE	G5 S25	G5 S18	G11 S36	G17 S103
35. Family	VITRINIDAE	G1 S1	-	-	-
36. Family	ZONITIDAE	G1 S2	-	-	-
37. Family	LIMACIDAE	G1 S1	G1 S1	G1 S1	G1 S1
38. Family	CAMAENIDAE	-	-	-	G3 S8
39. Family	HYGROMIIDAE	G1 S1	-	-	-
40. Family	BRADYBAENIDAE	G2 S4	G2 S2	G2 S2	G2 S7
41. Family	ARIONIDAE	G1 S4	G1 S4	G1 S2	-
42. Family	PHILOMYCIDAE	-	-	-	G1 S2
Class Order	BIVALVIA UNIONOIDA				
43. Family	UNIONIDAE	-	-	G2 S5	G6 S24

		1 North Western	2 Western	3 Central	4 Eastern
Order	VENEROIDA				
44. Family	CORBICULIDAE	G1 S2	-	-	G1 S2
45. Family	PISIDIIDAE	G2 S4	-	G2 S3	G2 S2
	TOTAL	G47 (35.34%)	G28 (20.30%)	G44 (33.08%)	G90 (67.67%)
		S109 (15.84%)	S59 (8.43%)	S126 (18.13%)	S497 (72.23%)

G = Genera
S = Species

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