SUMMARY

Decapod crustaceans form the major stock of intertidal fauna at Karwar and surrounding area. Though abundant, no information is available so far on the hermit crabs of Karwar area. Thus, the present work forms the first comprehensive account of the less known Decapod crustaceans (Anomura, Paguroidea) of this area.

Materials included in the present study were collected from intertidal, sublittoral and littoral, rocky, muddy and sandy shores and estuaries.

The thesis includes 4 parts dealing with systematics, larval development, behaviour and salinity studies.

The taxonomic account in the thesis includes detailed description of 16 species belonging to 2 families - Diogenidae and Paguridae, the former represented by 5 genera, viz., Paguristes, Clibanarius, Diogenes, Dardanus and Troglopagurus and the latter by a single genus, Pagurus, respectively.

Of the 16 species described, 2 are new to science, named in the thesis as Diogenes A (proposed to be named as Diogenes maclaughlinei) and Diogenes B (proposed to be named as Diogenes karwarensis). All the remaining 14 species are recorded for the first time from Canara coast in the
Karnataka state.

Following is the list of species dealt with in the thesis.

A. Genus Paguristes
   1. *P. incomitatus* Alcock

B. Genus Clibanarius
   2. *C. infraspinatus* Hilgendorf
   3. *C. padavensis* de Man
   4. *C. aequabilis* var. *merguiensis* de Man
   5. *C. prethusa* de Man

C. Genus Diogenes
   6. *D. diogenes* (Herbst)
   7. *D. affinis* Henderson
   8. *D. planimanus* Henderson
   9. *D. violaceus* Henderson
   10. *D. miles* (Herbst)
   11. *Diogenes A.* n. sp.
   12. *D. avarus* Heller
   13. *Diogenes B.* n. sp.

D. Genus Dardanus

E. Genus Troglopagurus
   15. *T. manaarensis* Henderson

F. Genus Pagurus
   16. *P. kulkarnii* Sankolli
Detailed taxonomic information with illustrations of each of the above species is given along with information on synonymy, distribution range, colour in live condition and materials examined.

Key for identification of the material is given wherever necessary.

The laboratory reared life history studies have been carried out so as to get a better authenticity of identification and also in throwing light on some taxonomic problems.

The following 9 species were reared in the laboratory of which 5 through complete metamorphosis and remaining 4 only zoeal stages.

<table>
<thead>
<tr>
<th></th>
<th>species</th>
<th>Number of stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paguristes incomitatus</td>
<td>2 + 1 + 5</td>
</tr>
<tr>
<td>2</td>
<td>Clibanarius aequabilis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>var. marguiensis</td>
<td>4 + 1</td>
</tr>
<tr>
<td>3</td>
<td>Diogenes diogenes</td>
<td>3 + 1</td>
</tr>
<tr>
<td>4</td>
<td>Diogenes planimanus</td>
<td>3 + 1 + 1</td>
</tr>
<tr>
<td>5</td>
<td>Diogenes violaceus</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Diogenes A. n. sp.</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Diogenes B. n. sp.</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Dardanus setifer</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Troglopagurus manaarensis</td>
<td>3 + 1</td>
</tr>
</tbody>
</table>
In the genus *Troglopagurus*, the present work forms the first informative account of the laboratory reared larvae; genera *Paguristes* and *Dardanus* are described for the first time from Indian waters.

The behaviour of hermit crabs with reference to the shell entering, shell search and use of sensory and motor structures in shell entering are studied in 2 species, viz., *Clibanarius padavensis* and *Diogenes avarus*. Hermit crabs exhibit a stereotyped manipulation before housing themselves into the shell. Also, ablation of sensory and motor structures in different combinations reveal that vision do not play any role in shell entering, pereiopods performing the detection and entry.

The salinity tolerance studies were conducted on adults of following 8 species for the first time to evidence the disappearance of some of the adults during monsoon period from the intertidal region

1. *Paguristes incomitatus*
2. *Clibanarius padavensis*
3. *C. aequabilis* var. *merguensis*
4. *C. arethusa*
5. *Diogenes planimanus*
6. *Diogenes miles*
7. *Diogenes B. n. sp.*
8. *Pagurus kulkarnii*
The experiments show that the sandy shore hermit crabs are most sensitive to salinity dilutions followed by the rocky shore forms; estuarine forms being most plastic with high resistance to salinity variations. The reaction to salinity dilutions are better expressed by berried females in shedding their eggs.