D. pacis, from larvae which are still present. In this group of Leptothoracini the larvae usually hibernate once, and often twice, before pupation.

In Table 3 these species are arranged according to decreasing overall morphological similarity with the host species, *L. acervorum*. *D. kutteri* and *D. goesswaldi* could be interchanged, being about equally similar to the host species. *D. pacis* with a glossy cuticle and a longer postpetiolar spine is clearly more different, and *H. sublaevis* is very distinct because of its large head, antennal scrobes, toothless secateur-like mandibles and very marked petiolar and postpetiolar appendages.

With reference to karyotypes a parallel sequence cannot be found. *H. sublaevis* has the lowest chromosome number (n = 20) among the parasites. *D. kutteri* may have a haploid number of 23 or 25, depending upon the population (FISCHER 1987). *D. pacis* has n = 26, and for *D. goesswaldi* the exact number could not yet be ascertained, but is close to n = 28. I do not intend to suggest a linear evolutionary increase or decrease of chromosome numbers in this group, however, the parasites in general have higher numbers than the species of the host group, subgenus *Leptothorax* s. str.: *Harpagoxenus canadensis* with n = 18 has the same number as one of its host-species of the *L. muscorum*-group, others of this group have n = 17 and n = 15. Among the slaves of *H. sublaevis*, *L. muscorum* has n = 17 and *L. gredleri* n = 11, less than *L. acervorum* with n = 13 (FISCHER 1987).

The available evidence thus does not speak well for a descent of the workerless *Doronomyrmex* parasites from the slavemaker *Harpagoxenus*, this being different from the *Epimyrma/Chalepoxenus* case. The opposite way, an evolution of the slave-maker from an already workerless parasite, also appears improbable.

Table 4. **The four known ant groups comprising "clusters" of social parasites which represent different types of parasitism**

Host-species group	Inquilines	Temporary parasites	Slave-makers	"Degenerate" forms
Formica sensu lato (incl. *Serviformica*)	*F. talbotae* *F. dirksi*	*F. rufa* (obligatory) *F. lugubris, aquilonia* and others (facultative) *Coptoformica* spp.	*Polyergus* spp. (obligatory) *Rossomyrmex* (obligatory) *Raptiformica* spp. (facultative)	
Tetramorium	*T. microgyna* *T. parasiticum* *Teleutomyrmex schneideri*	----------?----------	*Strongylognathus* spp.	*S. testaceus* *Anergates atratulus*
Leptothorax (*Myrafant*)	*L. minutissimus*		*L. duloticus* *Protomognathus americanus* *Epimyrma* spp. *Myrmoxenus gordiagini* *Chalepoxenus* spp.	*E. kraussei, E. corsica* *E. adlerzi* *C. brunneus*
Leptothorax (*Leptothorax*)	*Doronomyrmex kutteri* *L. faberi* *Doronomyrmex goesswaldi*[1] *D. pacis*[1] *D. pocahontas*[1]		*Harpagoxenus* sublaevis, *H. canadensis* (*H. zaisanicus* presumably = *sublaevis*)	

[1] *Doronomyrmex goesswaldi* and *D. pacis* are no typical inquilines, see text. – *D. pocahontas* in laboratory culture produced numerous workers, its state is unsettled as yet.