mention epizoic fungi in his many publications and thus it seems likely that these fungi were much less abundant in this time.

Table 5 shows the frequency of infestion with epizoic fungi. A χ^2 test proves highly significant ($p < 0.001$) differences in the ratio of infested nests in comparisons of **pht P** **pht R** and **pht I** **pht R.** Significantly differ the fungus frequencies between **pht P^P** and **pht R^P** ($p < 0.01$). A pooled comparison of polygyneous nests of all phenotypes (19.1 % infested nests from a total of 267 nests) with monogyneous nests (1.85 % from a total of 162 nests) show a highly significant difference ($p < 0.001$).

	pht P^P	pht P^M	pht I^P	pht I^M	pht R^P	pht R^M
number of nests investigated	160	4	60	10	47	148
number of nests with epizoic fungi	38	0	11	0	2	3
ratio of nests with epizoic fungi	23.8 %	0 %	18.3 %	0 %	4.3 %	2.0 %

	pht P	pht I	pht R
number of sites	72	25	88
number of sites with fungi	29	6	5
ratio of sites with fungi	40.3 %	24.3 %	5.7 %

Table 5 Frequency of infestion of *Formica rufa* complex phenotypes with epizoic fungi.

Also of interest is the percentage of infested workers within the same nest. The infestion ratios were 0.265 ± 0.256 (range: 0.05 — 0.96) in 29 infested nests of **pht P,** 0.192 ± 0.164 (range: 0.05 — 0.70) in 11 infested nests of **pht I,** and 0.307 ± 0.268 (range: 0.05 — 0.60) in 4 infested nests of **pht R.** These are insignificant differences in each possible comparison.

These intranidal infestion rates and the data of Table 5 strongly suggest the observed differences to be the result of differing colony structure and colony foundation modes. The hypothesis different biochemical properties of cuticular surface (fungicide growth inhibition, nutritional growth limitation) were responsible for between-phenotype differences seems much less probable. Once a nest was infested, the deuteromycete distributed among the worker population with similar frequencies in each phenotype.

I can not remember that one of the 200–300 queens investigated with the microscope ever carried a fungus. If at all, then queens are undoubtedly much less infested than workers. An explanation could be the very intensive and persistent cleaning and licking of whole surface of the queens by the workers giving the fungus no chance for bulbil initiation. As a consequence, a single-queen nest foundation after dispersal flight will considerably reduce the infestion risk of the new colony whereas foundation through nest-splitting will often make the daughter nest as infested as the mother nest. This explains well the striking differences in parasitation between monogyneous and polygyneous colonies. I have seen polycalic colonies, three in **pht P** and two in **pht I,** where each nest was more or less infested. The fungi seem not to attack the ant's life directly, hyphes do not penetrate the cuticula nor damage the chitin layer. However, a negative effect is surely provided by overgrowth of sensory organs and by hindering movements in case of very heavy parasitation.

10. The proposed taxonomic designation and the concept of sympatric subspecies divergence

The exactly intermediate position of pilosity characters in **pht I** (3.1., 3.3.), the chorological arguments (6.), and the intermediate position of **pht I** in size (8.) and structure (5.2.) of nest populations strongly suggest we have an imperfect reproductive isolation between *F. rufa* **(pht R)** and *F. polyctena* **(pht P)** leading to the emergence of hybrid populations **(pht I).** However, the demonstration of three clear morpho-ecological phenotypes indicates that we should have relatively well-developed isolating factors and a certain selection on stability of these phenotypes. If not, we would have to expect a higher frequency of unclear samples.