There is no obvious difference between *nylanderi* and *slavonicus* in habitat selection and apparently they form equivalent ecological niches. Both taxa are closely associated with the temperate deciduous woodland, in particular with the *Quercus*-mixed-forest. In Fennoscandia they do not occur in the subboreal *Pinus-Betula* woodland, and in Central Europe their vertical distribution ends in the lower submontane region. Refugia of deciduous trees are thought to have survived the last Pleistocene in SW Iberia, S Italy and the Balkans (HUNTLEY 1988). In cores from Central European peat bogs the first *Quercus* pollen was detectable in the Preboreal around 9500 BP and was found in a higher percentage around 8000 BP (SCHUBERT 1966, FIRBAS 1949-52). The *Quercus*-mixed-forest was established here as predominant woodland vegetation in the warm period of the Atlantic (7500 - 6000 BP). The spreading of a *Leptothorax* species capable of dispersal by active flight should be at least as rapid as the passive transport of *Quercus* acorns by vertebrates. Therefore, it is reasonable to assume that ants and *Quercus* vegetation almost simultaneously invaded new areas and it is very likely that both taxa met in Central Europe and East Germany not later than 7000 BP.

Are there morphological gradients within the populations of *nylanderi* and *slavonicus* along a transsect from W to E or SW to NE and is there a substantially higher number of intermediates in the contact zone? An analysis of this question was performed in the following way. The distributional border depicted in Fig. 19 was used as reference line and each point of this line represents the transsect-km 0. The position of each locality was then described by the shortest distance from the border line. Localities W or SW of the border line have negative km values. This figure is termed in the following as »transsect-km«. The best chances to detect morphological gradients or putative hybrids are given when the most discriminative characters, in particular the discriminants D(2) and D(4) are considered. Fig. 20 and Tabs. 3 and 4 show the discriminant values of nest samples of workers and of individual queens as function of the transsect-km.

Table 3 Discriminant values of 393 nest samples of workers of *Leptothorax nylanderi nylanderi* and *Leptothorax nylanderi slavonicus* along a cumulative W-E transsect in Germany. The size of a nest sample varied between 3 and 7 workers. A total of 1600 workers was measured. The terminus »transect-km« must be interpreted as shortest distance to the distributional border of both taxa. The interval (-12, +13] marks the contact zone. D(2) was calculated from the two most discriminative ratios SPBA/HS and SPTI/HS with correction of allometric effects.

transsect-km interval	discriminant D(2) ***nylanderi***	discriminant D(2) ***slavonicus***
(-533,-112]	0.9250 ± 0.0309, n=22	
(-112, -87]	0.9270 ± 0.0300, n=21	
(-87, -62]	0.9449 ± 0.0273, n=14	
(-62, -37]	0.9380 ± 0.0251, n=45	
(-37, -12]	0.9399 ± 0.0255, n=52	
(-12, 13]	0.9490 ± 0.0231, n=37	1.0642 ± 0.0373, n=73
(13, 38]		1.0642 ± 0.0402, n=71
(38, 63]		1.0664 ± 0.0427, n=19
(63, 88]		1.0710 ± 0.0285, n=16
(88, 113]		1.0588 ± 0.0264, n=11
(113, 138]		1.0533 ± 0.0274, n=12