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Mitochondrial sequence variation suggests extensive cryptic diversity within the Western Palearctic *Daphnia longispina* complex

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ABSTRACT: We report on a discovery of six divergent lineages within the European *Daphnia longispina* complex from various localities in central to northeast Europe. The levels of divergence from well-known species of the complex suggest that they represent as yet unrecognized distinct taxa. These newly recognized lineages always coexisted in syntopy with widespread species of the complex. Particularly rich in cryptic diversity (with four of the six lineages present) was the delta of the River Pechora in northern European Russia, a region not covered by an ice sheet during most of the last glacial period. We suggest that ice-free regions of northeastern Europe may have been important refugia for planktonic species, and still are overlooked hot spots of diversity. Our findings confirm that the real diversity within widespread crustacean planktonic taxa is much higher than presently recognized. The potential presence of cryptic species should be considered in ecological studies.

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