

Publication

Among- and within-population variation in sperm quality in the simultaneously hermaphroditic land snail *Arianta arbustorum***JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 50537**Author(s)** Minoretti, N; Baur, B**Author(s) at UniBasel** [Baur, Bruno](#) ;**Year** 2006**Title** Among- and within-population variation in sperm quality in the simultaneously hermaphroditic land snail *Arianta arbustorum***Journal** Behavioral ecology and sociobiology**Volume** 60**Number** 2**Pages / Article-Number** 270-280**Keywords** sperm length, sperm longevity, sperm velocity, sperm number, sperm competition

Sperm competition models on the evolution of sperm size assume associations with another sperm quality trait, sperm longevity. Sperm length can also provide an indication of possible mechanisms affecting motility and thus fertilization success. Despite their importance, however, detailed mechanisms of sperm competition at the gamete level are poorly understood. In simultaneously hermaphroditic land snails, sperm traits and cryptic female choice are assumed to be crucial in determining fertilization success. We examined the variation in sperm length and number among individuals from four natural populations of the land snail *Arianta arbustorum*, a species with multiple mating and long-term sperm storage. We also assessed variation in velocity, motility and longevity of sperm in snails from two of the four populations. Independent of shell size, sperm length differed among populations and, to a minor extent, even among individuals within populations. Mean sperm length of a snail was not correlated with the number of sperm delivered in a spermatophore. The mean sperm velocity (=VCL) did not differ between snails from two populations. However, VCL varied among snails. Percentage motility and longevity of sperm differed between snails from the two populations. No correlations were found between length, velocity, percentage motility and longevity of sperm. To conclude, individual snails differed in sperm quality, and this variation may partly explain the differential fertilization success between *A. arbustorum* snails. Moreover, our findings did not support the positive association between sperm length and longevity assumed by sperm competition models for internally fertilizing species.

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