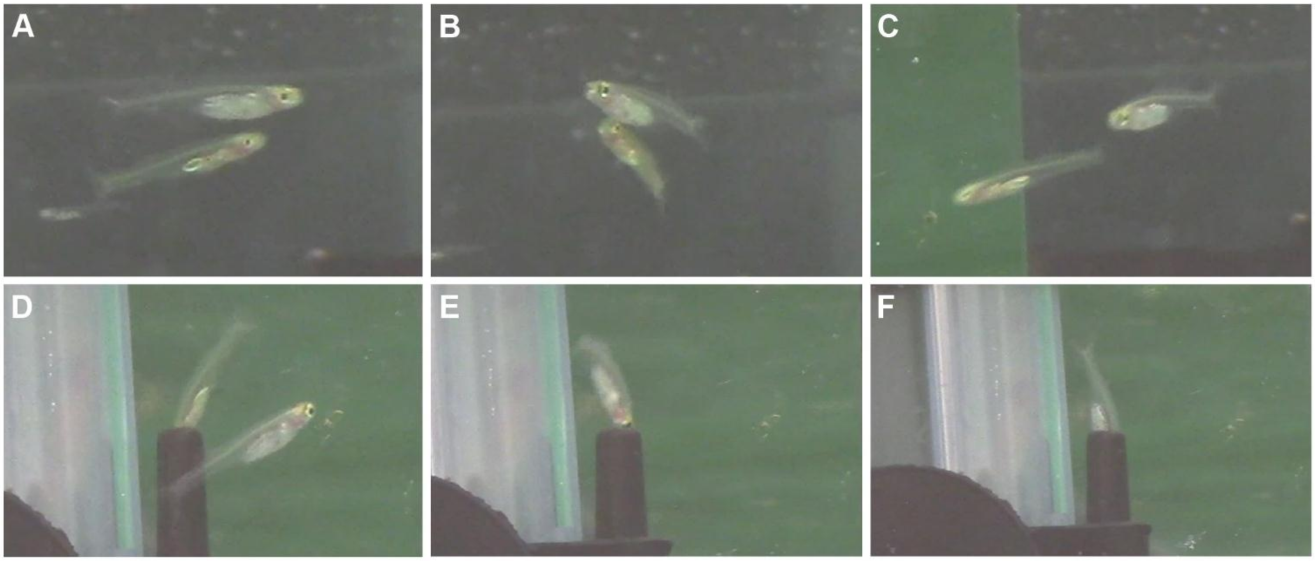

Fig. S1 (also see Movie 2). Video frames of *Danionella dracula* courtship behavior in the presence of a black vertical tube that was originally part of an underwater filtration system in a colony tank. (A) Males typically swim from nest sites to court females who were often schooling around the tank. Male swims below female. (B) Male rapidly moves his pectoral fins and vibrates his body back and forth beneath female egg vent. (C) Female follows male back to nest entry crevice (part of the underwater filter) that he swam closely around during the day. (D) Male enters headfirst into spawning crevice. (E) Female orients head towards spawning crevice. (F) Female swims headfirst into spawning crevice. After spawning, the female left the nest and the male emerged from the nest, swam closely around the nest, and then courted additional females throughout the day. Spawning cannot be directly observed, but is inferred to take place in enclosed crevices for two reasons. First, clutches of 12-24 eggs are found in the grooves of the sponge nests (see Fig. 1E) at any time of the light cycle following spawning interactions. Second, a male and/or a female are often found on top of an egg cluster within the grooves during daily nest checks.

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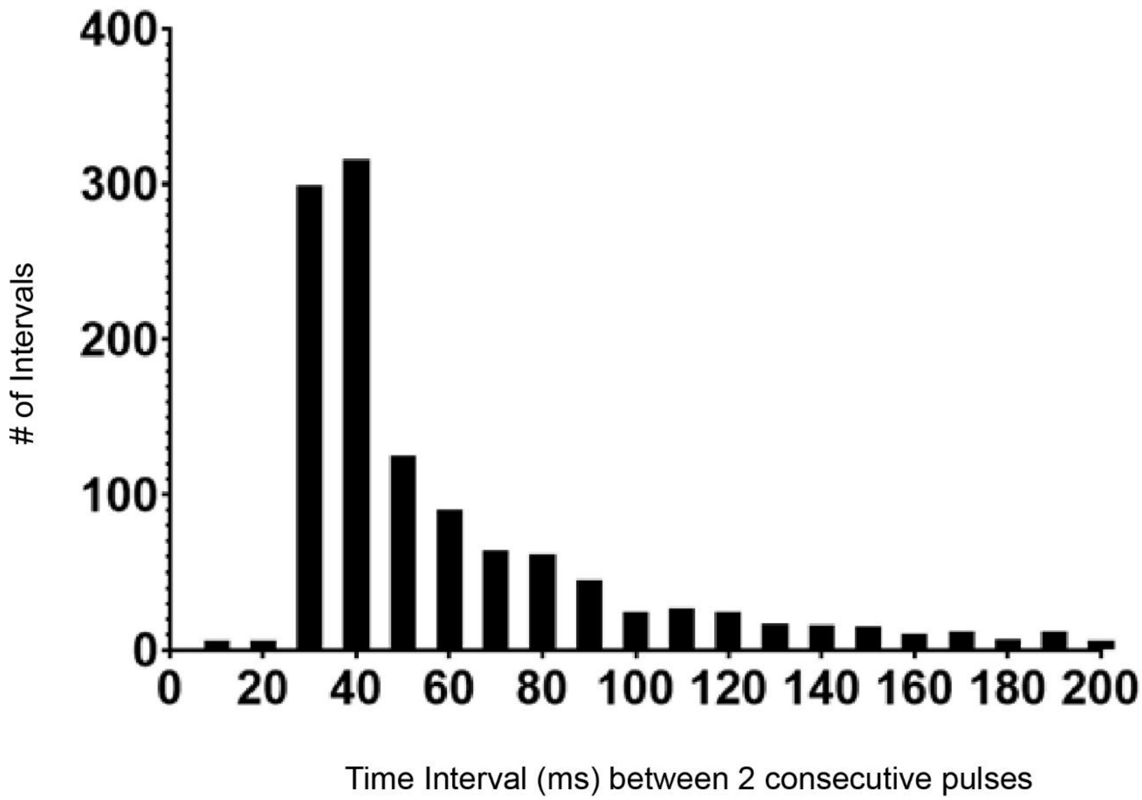


Fig. S2. Frequency distribution of intervals (ms) measured between two consecutive individual sound pulses (includes all males in both size-matched (n=16) and size-mismatched (n=12) dyads). The mode and peak are 34 ms.

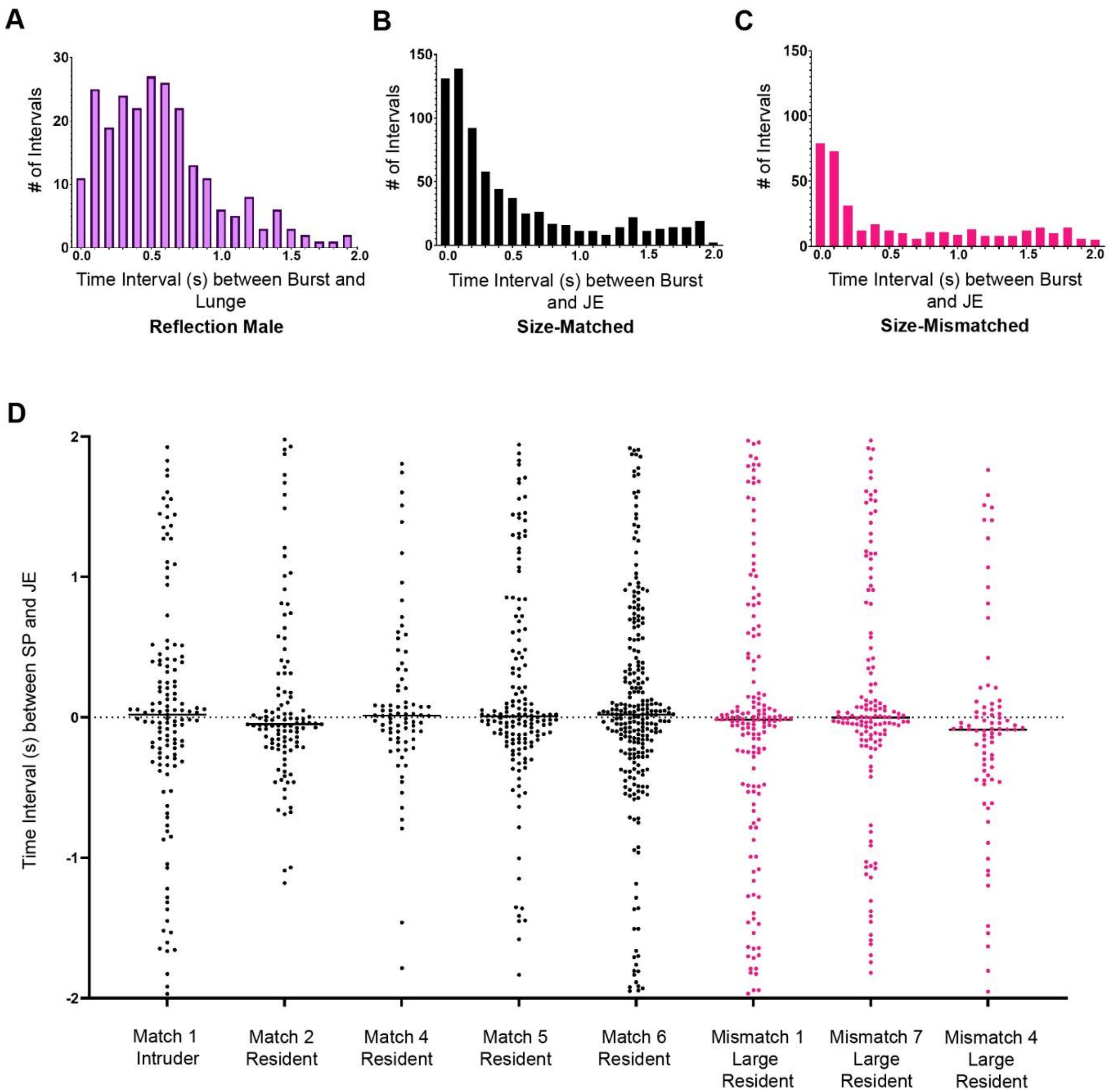


Fig. S3. Frequency and scatterplot distributions of intervals measured between two consecutive individual behavioral events. A. Frequency distribution of intervals (s) measured between a burst of sound and a lunge. B, C. Frequency distribution of intervals (s) measured between a burst of sound and an extension of the lower jaw (JE) in high sound producing and high jaw extending males in size-matched (B, n=5) and size-mismatched (C, n=3) dyads. D.

Scatterplots of intervals (s) measured between a burst of sound and an extension of the lower jaw (JE) in high sound producing and high jaw extending males in size-matched and size-mismatched dyads. Negative values indicate intervals between a burst of sound and a jaw extension that happened before the sound burst. Positive values indicate intervals between a burst of sound and a jaw extension that happened after the sound burst.

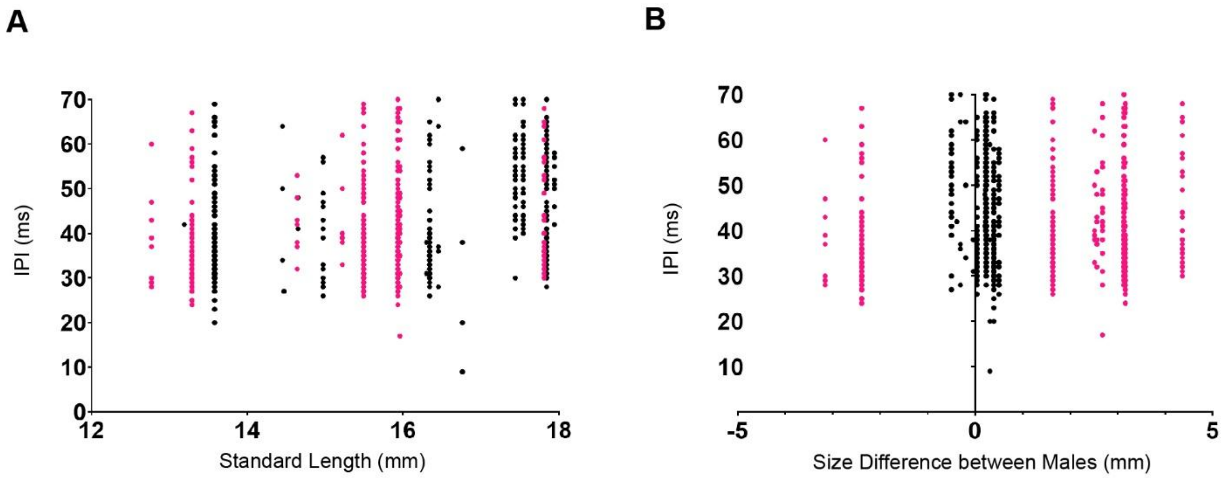


Fig. S4. Scatterplots of individual male standard length (A) or size difference between competitors in a dyad (B) by inter-pulse interval (IPI). Black circles indicate measurements from individual males in size-matched contests (n=16) and salmon pink circles from individual males (n=12) in size-mismatched contests (n = 422 and 456 pulses in size-matched and size-mismatched dyads, respectively, for both A and B). A. Individual male standard length (mm) plotted by IPI (ms). B. Size difference (mm) between two males in dyad plotted by IPI.

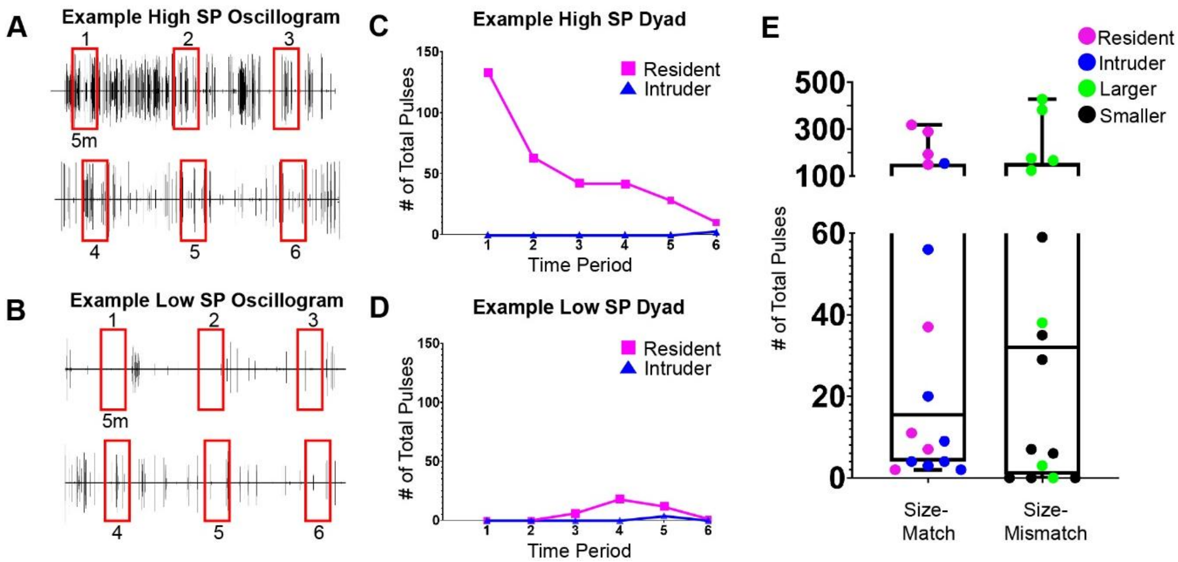
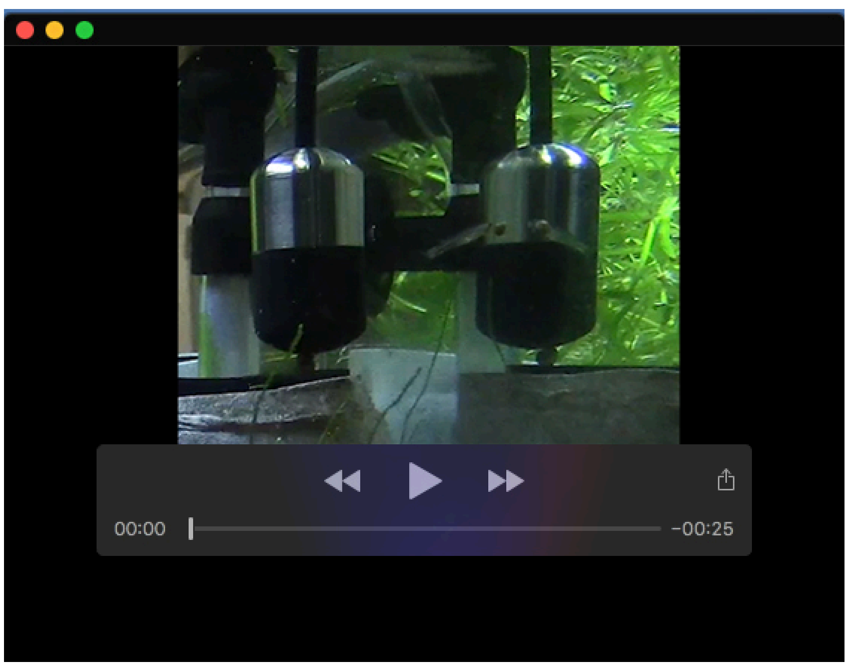


Fig. S5. Total sound production (SP, pulse number) by *Danionella dracula* males in dyadic contests. (A) Representative oscillogram of high SP; rows 1 and 2 from one continuous 2 h record. Red boxes indicate the six 5min sampled time periods (1-6) spaced 15 min apart. (B) Representative oscillogram of low SP; rows 1 and 2 from one continuous 2h record. Red boxes indicate the six sampled time periods. (C) Example high SP from size-matched dyad in 'A', showing total pulse number for individual fish over sampled time periods. Magenta squares indicate resident fish's SP values and blue triangles indicate intruder fish's SP values, which are at or near zero during all time periods (0 pulses in periods 1-5; 2 in period 6). (D) Example low SP from size-matched dyad in 'B', displayed as in 'C'. Magenta squares indicate resident fish's SP values, which peaks at 20 sound pulses in period 4, and blue triangles indicate intruder fish's SP, which is also at or near zero during all time periods (0 in periods 1-4, 6; 4 in period 5). (E) Boxplots of individual SP values in size-matched (n=16; left boxplot; magenta = resident fish, blue = intruder fish) and size-mismatched (n=16; right boxplot; green = larger fish, black = smaller fish). Break in y axis from 60-100 total pulses for best visualization of all SP values. Black horizontal line within box indicates median used to designate individuals as high or low sound producers

Table S1. Principal component analysis of multi-pulse burst in size-matched and size-mismatched dyadic contests: Loading Coefficients.

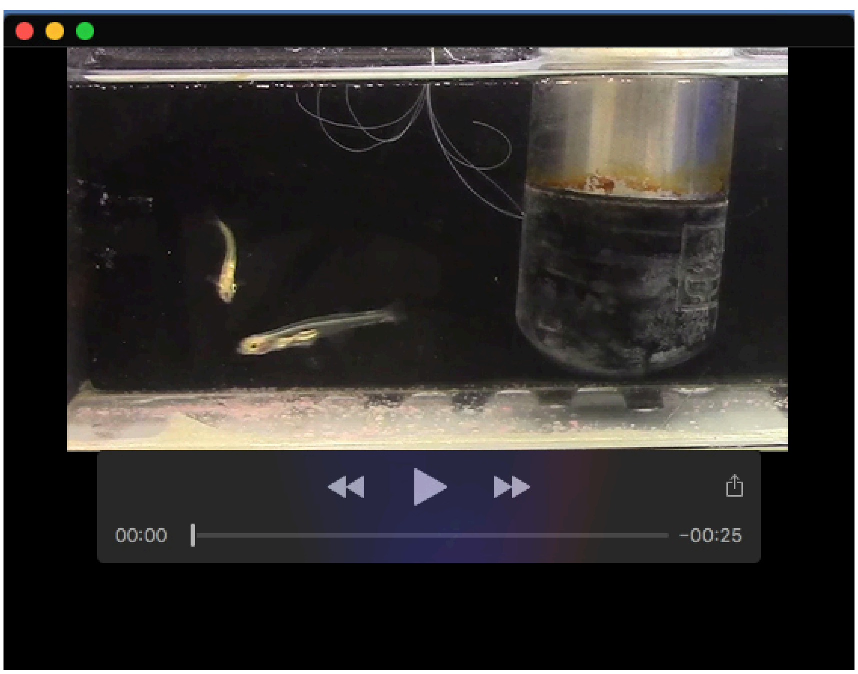
	Size-matched	Size-mismatched
Type of multi-pulse burst	**PC1** (77%)	**PC1** (65%)
Two pulse	0.96	0.97
Three pulse	0.99	0.92
Four pulse	0.92	0.68
Five pulse	0.86	0.59
Six pulse	0.59	---- *

*Six pulse bursts were never observed in size-mismatched contests



Movie 1. A male fish lunges at its own reflection in the tank wall, producing sound pulses and extending the lower jaw.

Movie 2. Male swims below female and vibrates his body and head back and forth beneath the female's egg vent. Male then swims back to nest entry crevice and female swims behind male to same nest entry crevice. Movie zooms in to show male as he swims headfirst into nest entry crevice and female orients head towards crevice before swimming headfirst into crevice.



Movie 3. In a dyadic interaction, a male orients head towards other male and lunges at the other male, producing a series of sound pulses and extending his lower jaw. The other male swims away from the lunging male.