

Fig S1. Transcripts show significant fold-change between different stages of adult life. Heatmap is based on FPKM values. Transcript similarity, clustered by Euclidean distance, is shown on the left. The 25 subclusters created by “cutting” the tree at 30% are highlighted by vertical bars.

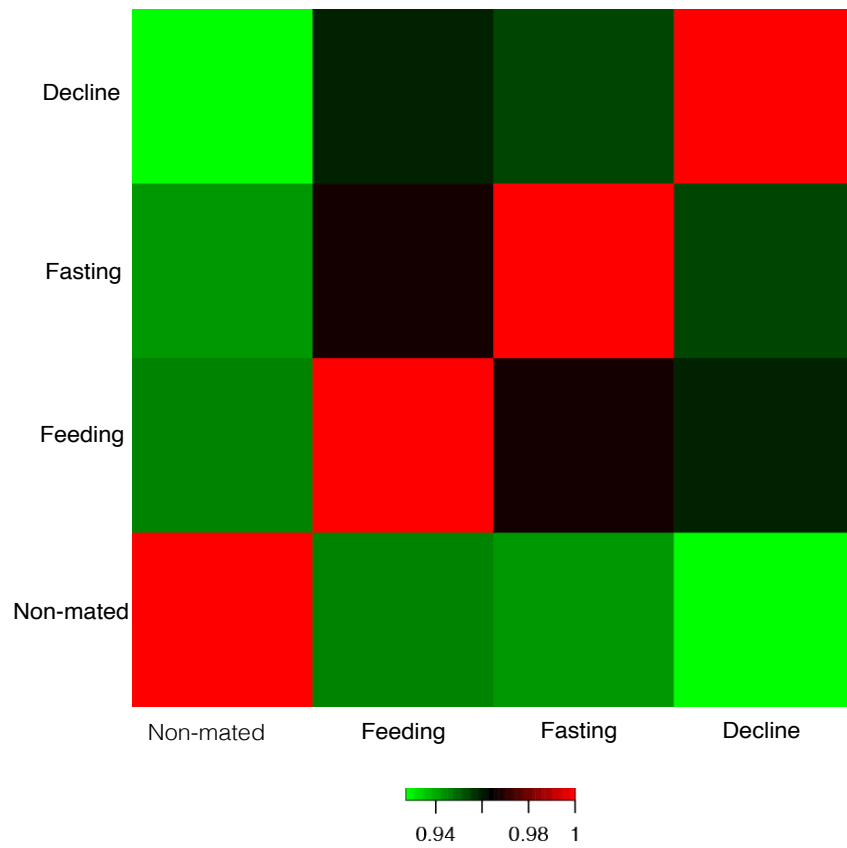


Fig S2. Behavioral stage correlation matrix heatmap.

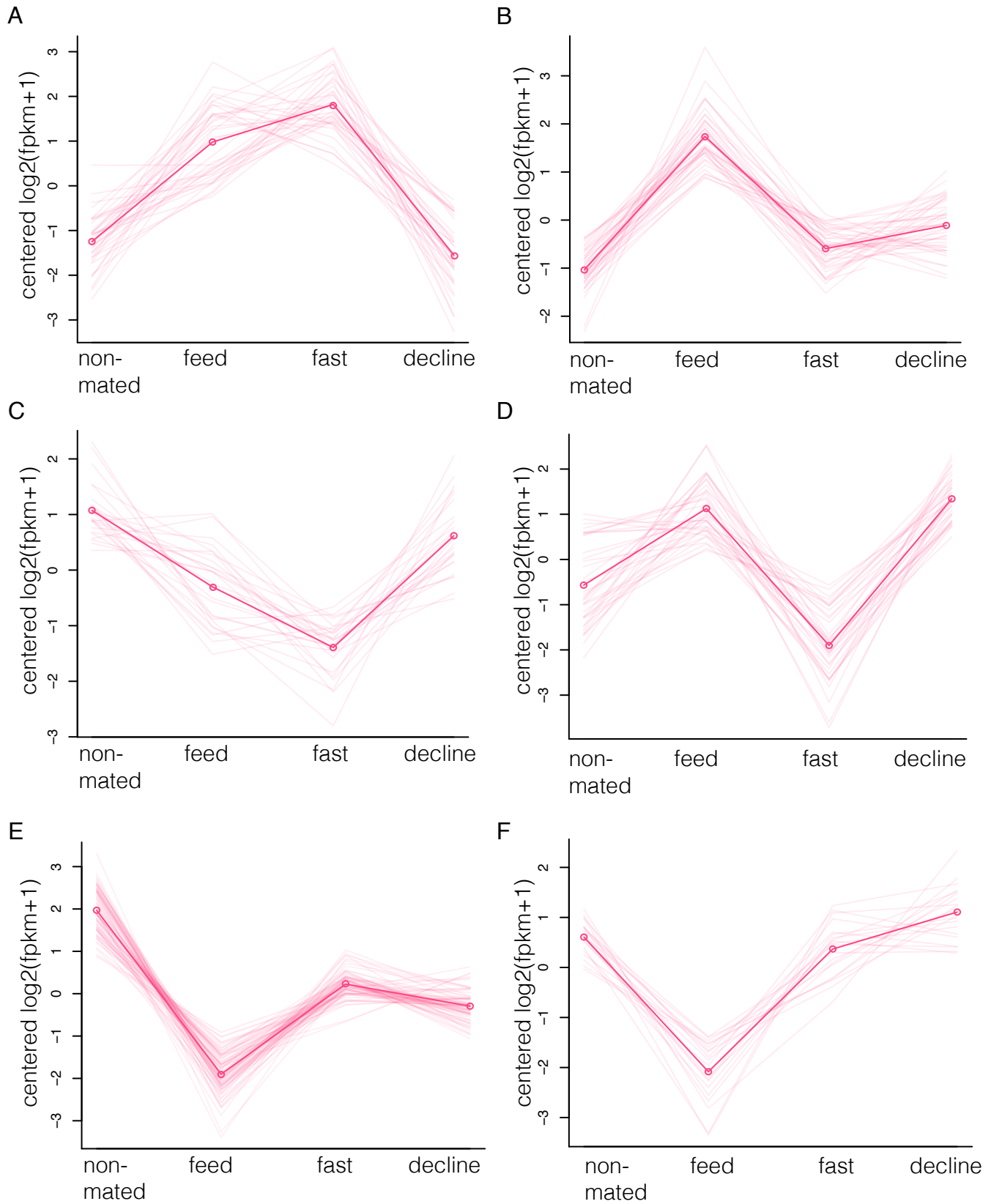


Fig S3. Subclusters eliminated due to departure from monotonicity.

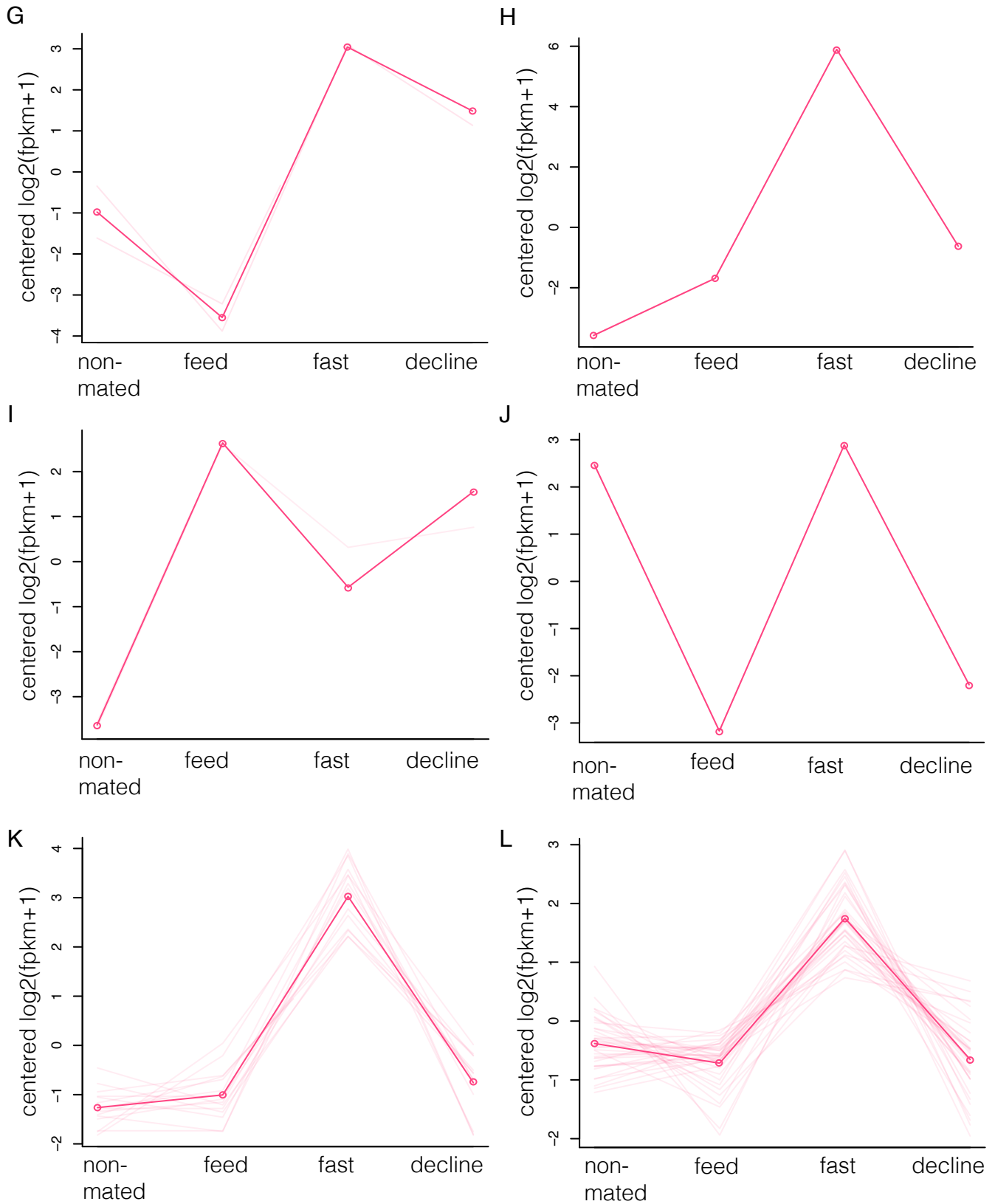


Fig S3, continued

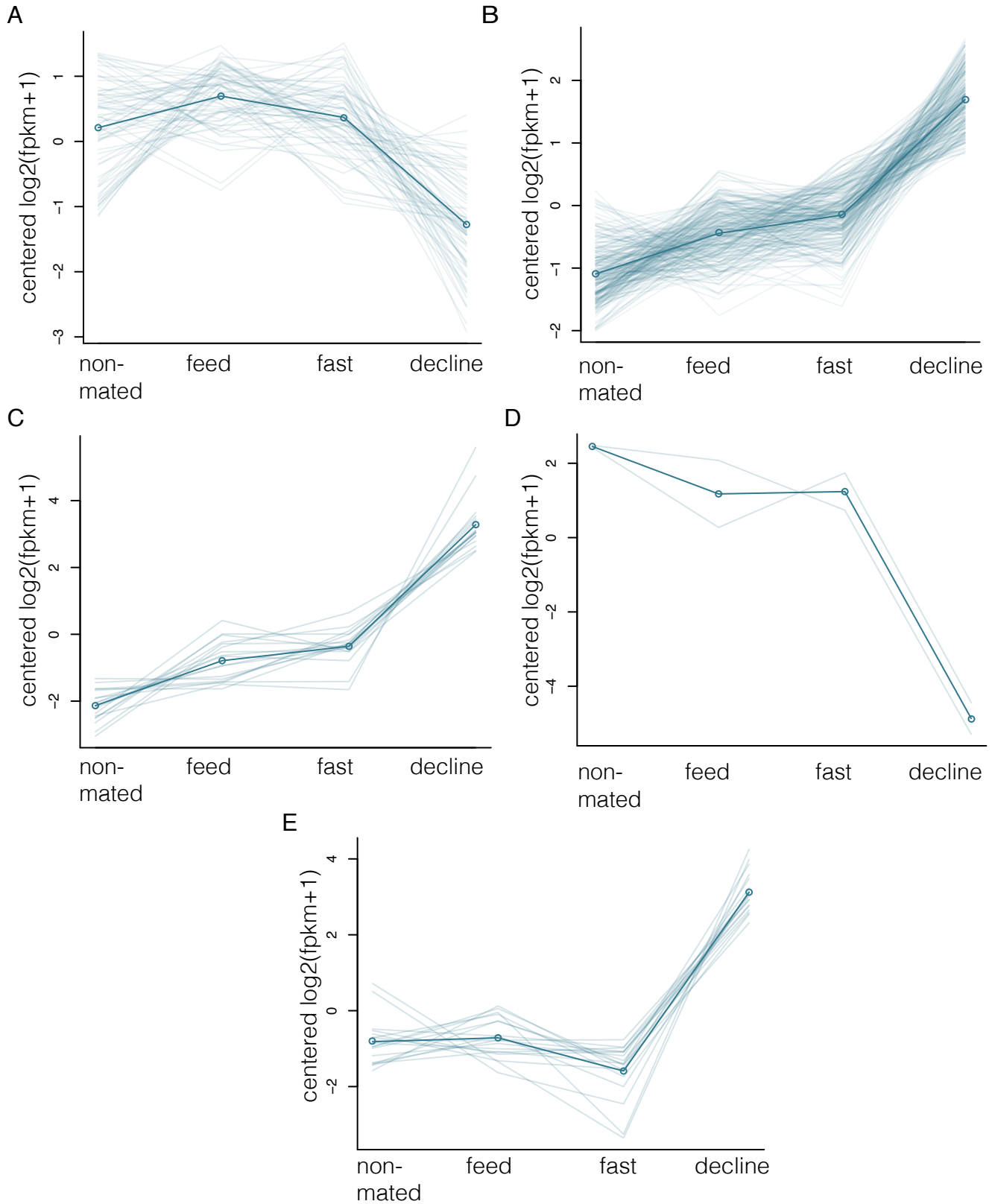


Fig S4. Subclusters eliminated because the changes were most marked in the decline stage.

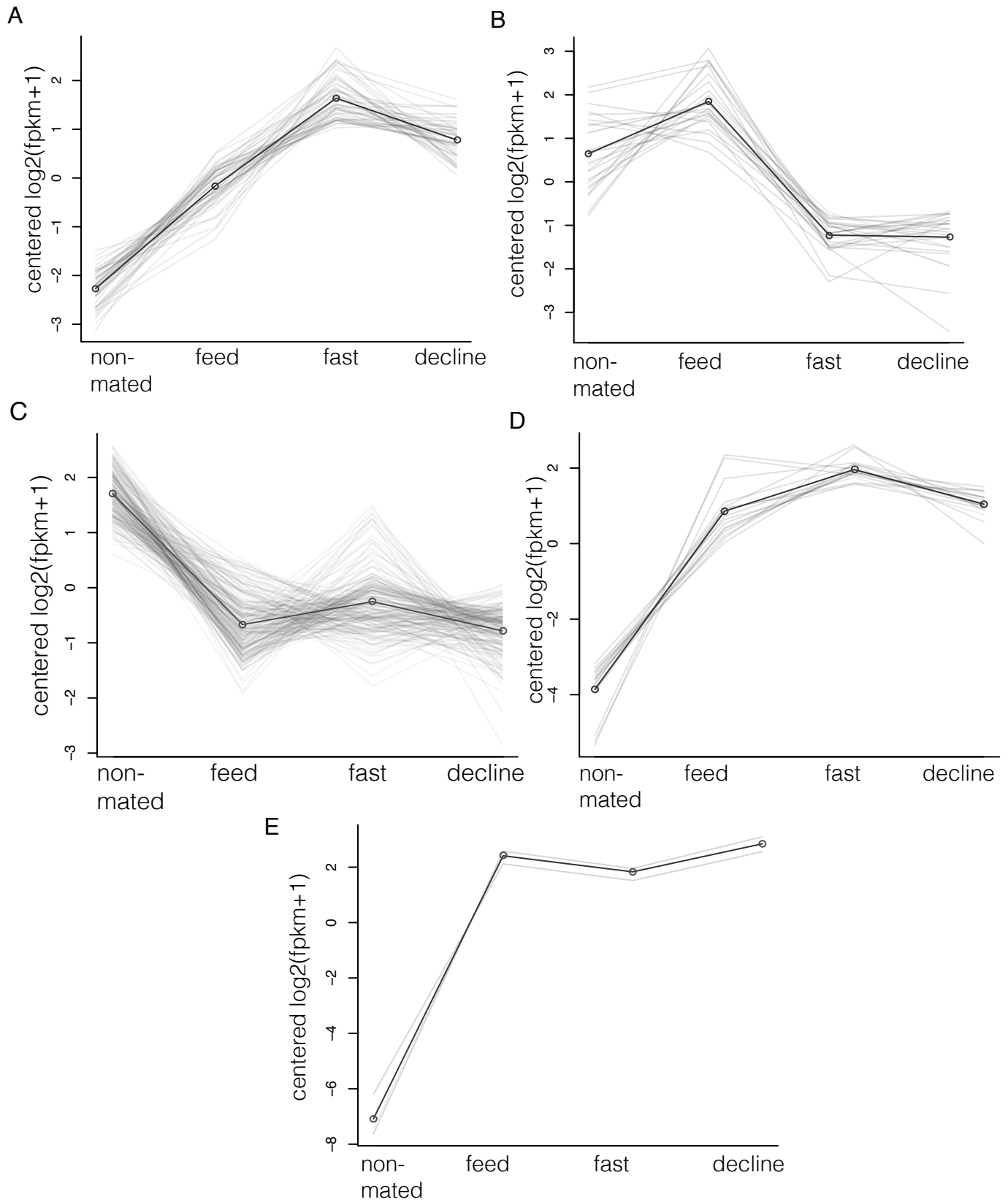


Fig S5. Subclusters subsequently eliminated from further consideration, as described in the text.



**Movie 1. Female Octopus Behavior.**

Female octopuses undergo remarkable behavioral changes following reproduction. Sexually mature, non-mated octopuses are active predators. In the first stage of maternal brooding, feeding females remain den-bound even as they capture prey. Brooding females then begin fasting. In the last stage before death, females in decline exhibit signs of precipitate organismal senescence, including over-grooming, prolonged periods outside of the den, and self-destructive behaviors.