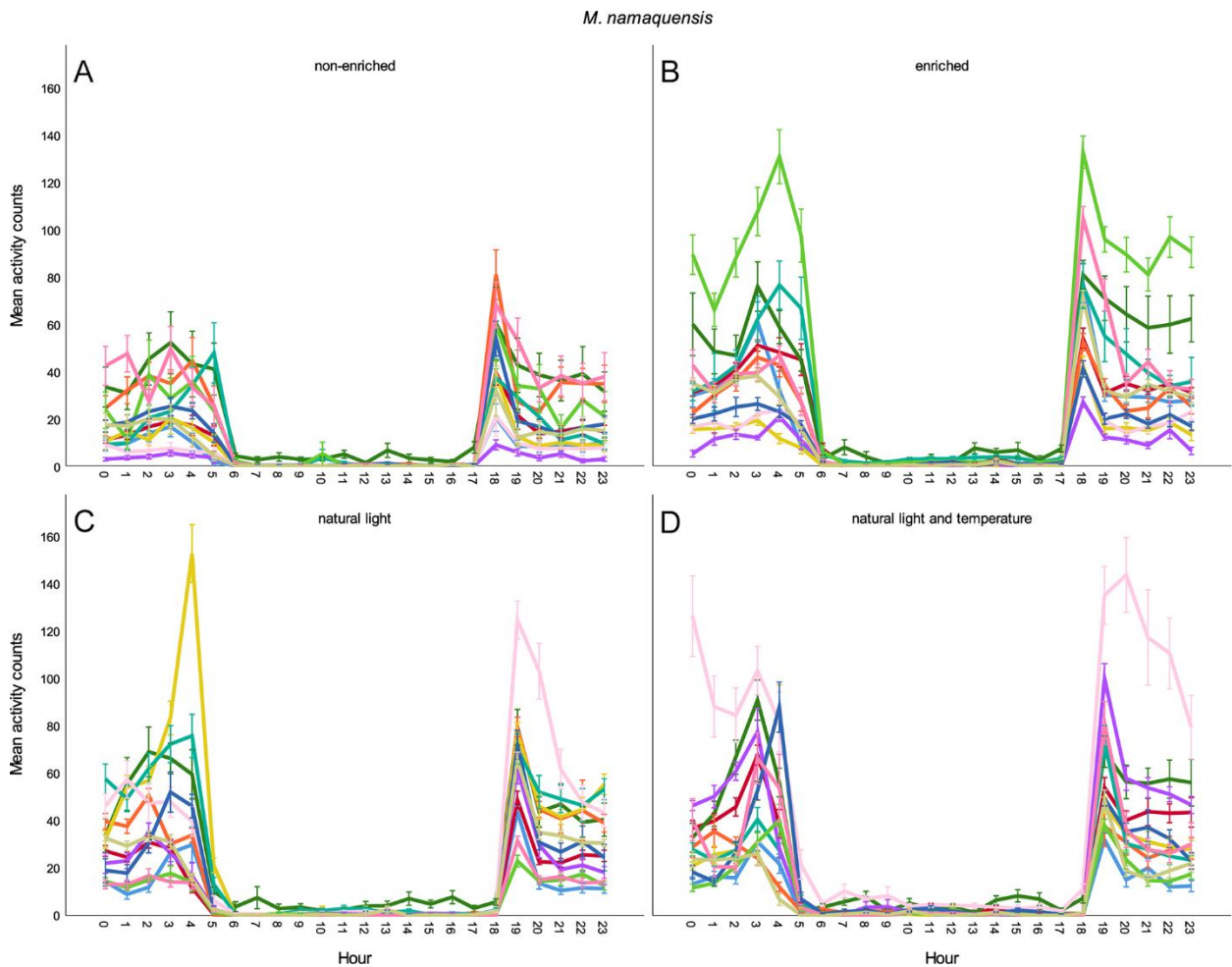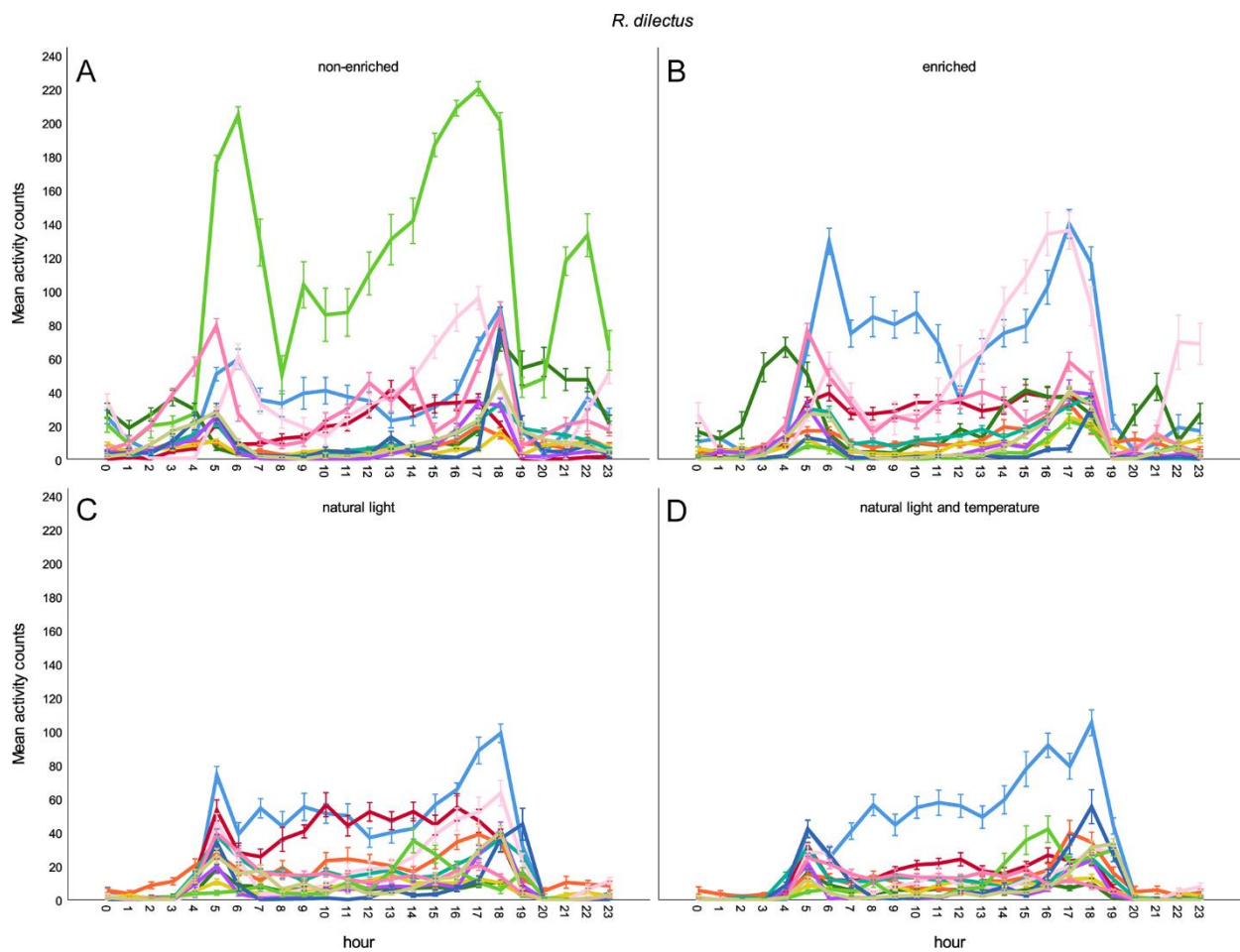**Supplementary material:**

Figure 1S: The average locomotor activity counts per hour (± SEM) of individual *Micaelamys namaquensis* during the 24 hours of the day during the four different light cycles. Light (A) Non-enriched cycle (LD$_{NE}$) with a square wave light cycle (6-18L) and a constant T$_a$ of 25°C; (B) Enriched cycle (LD$_E$) with the same environmental conditions than LD$_{NE,}$ but with added enrichment items; (C) natural light cycle (LD$_N$) with a simulated dawn and dusk (5-7am and pm); (D) natural temperature cycle (LD$_{NT}$) where ambient temperature cycled between 16 (04h00) and 30°C (15h00).
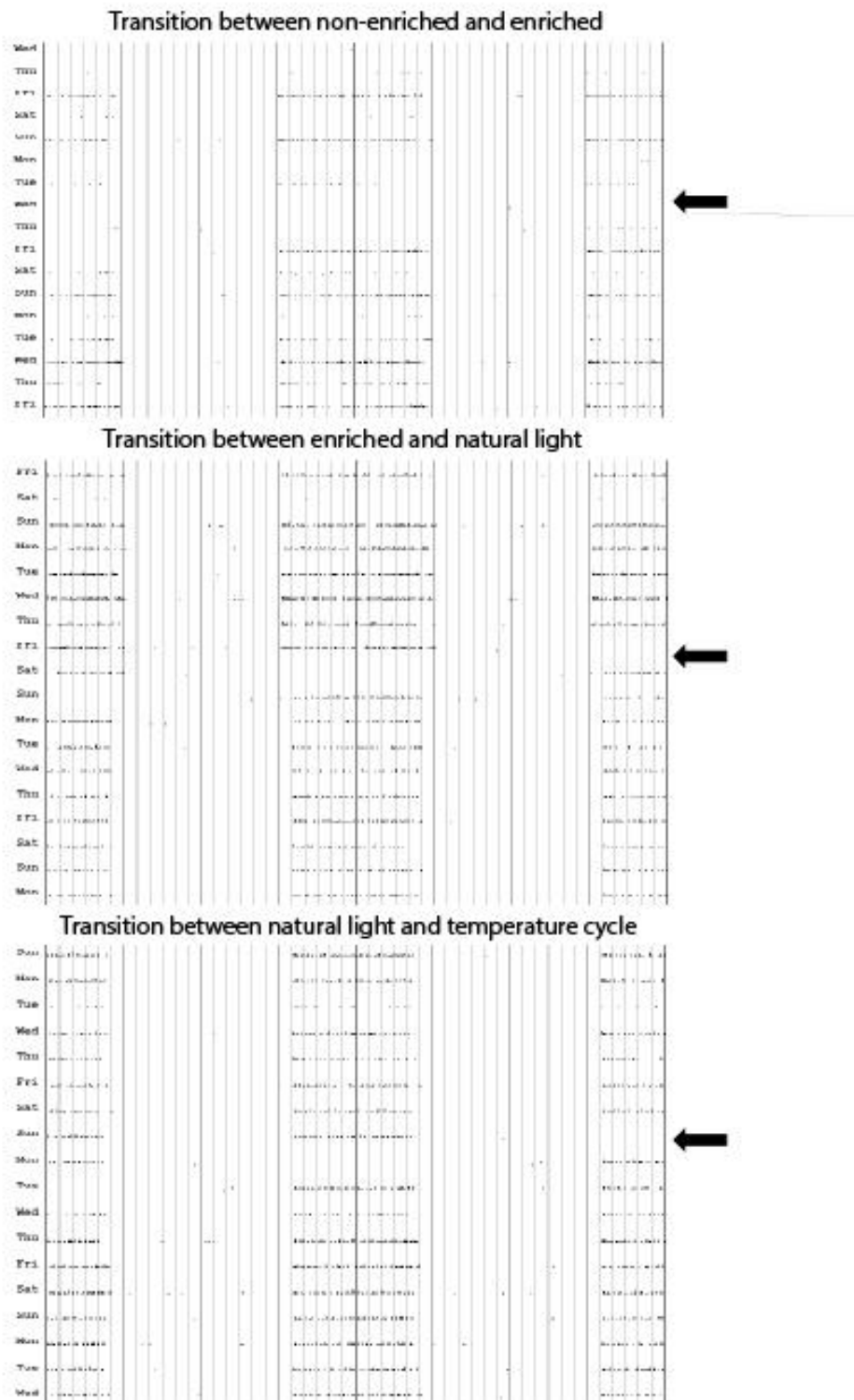
Figure 2S: The average locomotor activity counts per hour (± SEM) of individual *Rhabdomys dilectus* during the 24 hours of the day during the four different light cycles. Light (A) Non-enriched cycle (LD$_{NE}$) with a square wave light cycle (6-18L) and a constant T$_a$ of 25°C; (B) Enriched cycle (LD$_E$) with the same environmental conditions than LD$_{NE}$, but with added enrichment items; (C) natural light cycle (LD$_N$) with a simulated dawn and dusk (5-7am and pm); (D) natural temperature cycle (LD$_{NT}$) where ambient temperature cycled between 16 (04h00) and 30°C (15h00).

Figure 3S:

M. namaquensis transitions between light/temperature phases

The arrow indicates the day of transition, above the arrow is days that were analysed for the light / temperature cycle above, below the arrow are days of the subsequent cycle that were not analysed.

Transition between non-enriched and enriched

Transition between enriched and natural light

Transition between natural light and temperature cycle

Figure 4S:

R. dilectus transitions between light/temperature phases

The arrow indicates the day of transition, above the arrow is days that were analysed for the light / temperature cycle above, below the arrow are days of the subsequent cycle that were not analysed.

Transition between non-enriched and enriched

Transition between enriched and natural light

Transition between natural light and temperature cycle