**Supplement 2. Our methods**

To obtain data on the temperature response function of growth we reared young instar larvae of various species of libellulids for periods of four weeks, in some cases the duration was extended to five weeks (Suppl. Table 1). Eggs were obtained by catching females while mating or being about to lay their eggs. The females were then held by their wings with their ovipositor in tubes filled with water, which initiated oviposition. The eggs were kept together in clutches until they hatched after 14-20 days of incubation at 20°C. The larvae were separated after few days when they had reached at least instar 3, since 2nd instar larvae turned out to have relatively high mortality.

The growth rate was monitored in larvae reared at five different temperatures: 16°C, 21°C, 24°C, 28°C and 32°C. In few cases we also used 12°C. Individual larvae were placed in separate plastic containers filled with water (volume: 20 ml) and containing some moss serving as perch. The containers were placed in five different water basins, one for each temperature regime. The water basins were heated or cooled to their specific assigned temperature and circulation was provided to achieve a homogenous temperature throughout the basins. The actual water-temperature was recorded daily and the stated temperatures are the mean temperatures over the whole six weeks. Four of the five temperatures could be kept on a very constant level (± 0.1°C), only what was planned to be a constant 20°C turned out to be 21°C in average with little deviation.

Because our main focus was on temperature-correlated growth rate variation, we did not vary the other relevant variables for development, i.e. photoperiod and food availability (cf. Corbet et al. 2006). The photoperiod was fixed at 14 h light to 10 h darkness per day. The light intensity was 600 Lux. *Artemia salina* naupliae (Crustacea: Branchiopoda) served as food during the first three weeks. Since the naupliae stay alive only for few hours in freshwater the dragonfly larvae were fed once every day. After three weeks, when the larvae got larger, additional *Daphnia* sp. were supplied. Due to the small containers and the presence of a perch the food was easily reachable for the larvae and we suppose that the nutrition was on a high level, although we cannot be certain that it was *ad libitum*. Remaining dead food was removed every other day to minimize water pollution.

Every larva was size-measured at the beginning of the experiment using head-width (the maximum distance across the eyes). Thereafter size was monitored in intervals of one week, hence four times in total if the duration was four weeks. To measure a larva it was placed on a millimeter scale and photographed under a microscope. The head width was measured using the image analyzer software *ImageJ* (National Institutes of Health, U.S.A., Version 1.44). The growth rate of each individual larva was estimated by plotting the head width against the days of measurements, starting with the initial measurement as day 1. We used linear regression to estimate the slope of the growth curve, which is then the individual growth rate in mm day-1. Over the whole development the growth may follow a different model, probably the von Bertalanffy growth equation (e.g. Moenickes et al. 2012). However, over the time period the larvae were reared in our experiment the linear fit did not deviate drastically. Also fits of size data over time from the field worked well with a linear model (Suhling et al. 2004). From the individual growth rates we calculated mean growth rates for each temperature separately for each species and egg clutch studied, which was then used for estimating temperature response models via the O’Neill function described in the main text. Values for growth rates at five different temperatures were sufficient for estimating *T*opt and *Q*10, given that the value for the lethal temperature (*T*max) was set. Values for *Tm*ax could anyhow not be estimated from our experiments since growth rates at our highest temperature, 32°C, were still quite high. We therefore used 40°C as an approximation for *T*max, based on the data available for UTL (see main text). Also the maximum growth rate was estimated, i.e. the apex of the respective temperature response curve.