**S1 Table. MPAD model parameters, sourced from Jia et al. [24].**

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| Climate-dependent parameters |
| *f*E | Non-diapause egg hatching rate |
| *f*dia | Diapause egg hatching rate |
| *f*L | Larva development rate |
| *f*P | Pupa development rate |
| *m*L | Larva mortality rate |
| *m*P | Pupa mortality rate |
| *m*A | Adult mortality rate |
| *β* | Oviposition rate by each female |
| *f*Ag | Gestating adult development rate |
| *k*L | Environmental carrying capacity for larvae |
| *k*P | Environmental carrying capacity for pupae |
| *z*1 | Binary function for diapause eggs oviposited |
| *z2* | Binary function for diapause egg hatching |
| *z*dia | Binary function for adult activity during diapause period |
|  |
| Climate-independent parameters |
| *mE* | Non-diapause egg mortality rate |
| *mdia* | Diapause egg mortality rate |
| *σ* | Percentage of females at emerging adult stage |
| *μem* | Emerging adult mortality rate |
| *μr* | Adult mortality rate related to seeking behavior |
| *γAem* | Emerging adult development rate |
| *γAb* | Blood-fed adult development rate |
| *γAo* | Ovipositing adult development rate |