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Editorial Board / Aims and Scope

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Articles in Press

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1. Editorial Board / Aims and Scope

2. Does use of the torpor cut-off method to analyze variation in body temperature cause more problems than it solves? Original Research Article
Pages 373-375
Justin G. Boyles, Ben Smit, Andrew E. McKechnie
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3. Baby in the bathwater: Should we abandon the use of body temperature thresholds to quantify expression of torpor? Original Research Article
Pages 376-379
R.M. Brigham, C.K.R. Willis, F. Geiser, N. Mzilikazi
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4. Effects of photoperiod on energy intake, thermogenesis and body mass in Eothenomys miletus in Hengduan Mountain region
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Pages 380-385
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5. Influence of altitude, habitat and microhabitat on thermal adaptation of cicadas from Southwest Texas (Hemiptera: Cicadidae)
Original Research Article
Pages 386-389
Allen F. Sanborn, Polly K. Phillips, James E. Heath, Maxine S. Heath
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Highlights
► We examine the influences of altitude, habitat and microhabitat on thermal responses. ► Thermal responses of cicadas appear to be adaptations to their specific habitats. ► Thermal responses do not significantly correlate with body size. ► Maximum voluntary tolerance and heat torpor temperatures correlate with altitude. ► Microhabitat selection can also influence thermal response variability.

6. Evidence for thermoregulatory behavior during self-paced exercise in the heat
Original Research Article
Pages 390-396
Zachary J. Schlader, Stephen R. Stannard, Toby Mündel
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Highlights
► This study formally evaluated self-paced exercise in heat as a model to investigate the control of human thermoregulatory behavior. ► Reductions in exercise intensity in heat were found to be thermoregulatory behaviors. ► The data presented support the use of self-paced exercise in heat as a model to evaluate thermal behavior in humans.

7. Fever and inflammatory cytokine response in rats injected subcutaneously with viral double-stranded RNA analog, polyinosinic:polycytidylic acid (Poly-I:C)
Original Research Article
Pages 397-402
Peter Kamerman, Musi Skosana, Lisa Loram, Bridget Mitchell, Juliane Weber
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Highlights
► Subcutaneous injection of TLR-3 agonist Poly-I:C is pyrogenic in rats. ► Subcutaneous Poly-I:C induces increases in local and circulating cytokines. ► Poly-I:C-induced chemokine CINC-1 (CXCL1) may be a novel mediator of fever.

8. A model for the time–temperature–mortality relationship in the chilli-susceptible beetle, Alphitobius diaperinus, exposed to fluctuating thermal regimes
Original Research Article
Pages 403-408
H. Colinet, L. Lalouette, D. Renault
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Graphical abstract

Highlights
This article focuses on insect cold tolerance under fluctuating or constant temperatures. Under fluctuating thermal conditions, survival increases regularly with the duration of recovery. Under fluctuating thermal conditions, survival increases regularly with recovery temperature. A model shows that cold survival increases exponentially with recovery temperature and duration.

Assessing population and environmental effects on thermal resistance in Drosophila melanogaster using ecologically relevant assays

Highlights

- We describe and employ an ecological relevant method to estimate thermal resistance in small insects.
- A latitudinal cline for cold tolerance was detected for Drosophila melanogaster populations.
- Acclimation at variable temperatures increases tolerance to both low and high temperatures.
- Populations adapted to variable temperature environments have wider thermal limits.
- Different measures of cold resistance are often not strongly correlated.

The effects of high temperature and wallow on physiological responses of swamp buffaloes (Bubalus bubalis) during winter season in Thailand

Highlights

- Objective was to measure the effect of wallowing on buffaloes’ physiology.
- Results showed that wallowing can lower rectal temperature, $T_3$ and cortisol.
- Use of wallowing is an effective way of alleviating heat stress in buffaloes.

Common-intersection hypothesis of development rate lines of ectotherms within a taxon revisited

Highlights

- Demonstrated the common-intersection hypothesis of development rate lines.
- Combined the common-intersection hypothesis with the rate isomorph hypothesis.
- Proposed that intrinsic optimum temperatures of species within a taxon are equal.

Phenotypic flexibility in passerine birds: Seasonal variation of aerobic enzyme activities in skeletal muscle

Highlights

- We examined seasonal variation in muscle aerobic enzymes in three small birds.
- Winter increases in citrate synthase activity occurred only in some species.
- Winter increases in beta-HOAD activity occurred only in some species.
- Aerobic enzyme activities do not change consistently with season in small birds.

Thermal tolerance of Frankliniella occidentalis: Effects of temperature, exposure time, and gender

Highlights

- The thermal tolerance of Frankliniella occidentalis, an invasive pest, was evaluated in present study.
- Survival rate of F. occidentalis was significantly...
affected by temperature, exposure time, and gender. ► Both rapid cold and heat hardening response were found in this species. ► These results may provide necessary basis on distribution and control of this pest.

14 Application of infrared thermography to the study of behavioural fever in the desert locust
Original Research Article
Pages 443-451
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Highlights
► Infrared (IR) is an accurate method of body temperature measurement for ectotherms. ► Calibration of infrared cameras require incorporation of emissivity. ► Temperature fluctuations within the camera may alter IR output. ► By comparison, thermocouples are subject to variability. ► IR application showed infected locusts fever earlier than previously recognised.

15 Energy advantages of orientation to solar radiation in three African ruminants
Original Research Article
Pages 452-460
Robyn S. Hetem, W. Maartin Strauss, Bert G. Heusinkveld, Steven de Bie, Herbert H.T. Prins, Sipke E. van Wieren
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Highlights
► Eland, blue wildebeest and impala did not preferentially orientate north/south. ► During winter, species preferred to orientate perpendicular to incident solar radiation. ► During summer, species preferred to orientate parallel to incident solar radiation. ► 60% of animal orientation preference could be accounted for by the energy savings.

16 Cutaneous thermal thresholds of tropical indigenes residing in Japan
Original Research Article
Pages 461-468
Joo-Young Lee, Ilham Bakri, Sayo Toramoto, Yutaka Tochihara
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Highlights
► No significance exists between the residence duration in Japan and thermal sensation. ► Tropical natives are less sensitive to warm/cool sensations than temperate natives. ► Inter-threshold sensory zone is wider in tropical natives than in temperate natives. ► Heat acclimatization of the tropical is retained for up to 5 year residence in Japan.

17 Thermal manipulations during broiler embryogenesis improves post-hatch performance under hot conditions
Original Research Article
Pages 469-474
Y. Piestun, O. Halevy, D. Shinder, M. Ruzal, S. Druyan, S. Yahav
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Highlights
► Effects of thermal manipulation (TM) during embryogenesis of broiler to improve thermotolerance were studied. ► TM reduced metabolic rate of elderly broilers improving their feed conversion. ► Greater muscle growth and lower relative weight of abdominal fat pad were found in the TM chickens.

18 Temperature acclimation of gross cardiovascular morphology in common carp (Cyprinus carpio)
Original Research Article
Pages 475-477
Steven Young, Stuart Egginton
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Highlights
► The growth response of two aerobic muscle types in common carp held at different water temperatures are not the same. ► Acclimation to cold (5 °C) induces
ventricular enlargement, while acclimation to warm 25 °C is without effect on ventricle size. ★ Relative red muscle mass is positively correlated with the acclimation temperature, i.e. reduced with decreasing temperature. ★ These results likely reflect disuse-related atrophy of the red muscle (MO₂ declines with a decrease in temperature). ★ Non-linear thermal compensation of the ventricular mass likely reflects increased stroke work in the cold.