

# Data from: Reduction of baseline corticosterone secretion correlates with climate warming and drying across wild lizard populations

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## Abstract

1. Climate change should lead to massive loss of biodiversity in most taxa but the detailed physiological mechanisms underlying population extinction remain largely elusive so far. In

vertebrates, baseline levels of hormones such as glucocorticoids (GCs) may be indicators of population state since their secretion to chronic stress can impair survival and reproduction. However, the relationship between GC secretion, climate change and population extinction risk remains unclear. 2. In this study we investigated whether levels of baseline corticosterone (the main GCs in reptiles) correlate with environmental conditions and associated extinction risk across wild populations of the common lizard *Zootoca vivipara*. 3. First, we performed a cross-sectional comparison of baseline corticosterone levels along an altitudinal gradient among 14 populations. Then, we used a longitudinal study in 8 populations to examine the changes in corticosterone levels following the exposure to a heat wave period. 4. Unexpectedly, baseline corticosterone decreased with increasing thermal conditions at rest in females, and was not correlated with extinction risk. In addition, baseline corticosterone levels decreased after exposure to an extreme heat wave period. This seasonal corticosterone decrease was more pronounced in populations without access to standing water. 5. We suggest that low basal secretion of corticosterone may entail down-regulating activity levels and limit exposure to adverse climatic conditions, especially to reduce water loss. These new insights suggest that rapid population decline might be preceded by a down-regulation of the corticosterone secretion.

## Usage Notes

### **dataset\_corticosterone\_JAE-2018-00071**

This dataset includes the individual values of corticosterone and the associated timing of capture, population and individual characteristics, and reproductive measures.

## References

This dataset is supplement to <https://doi.org/10.1111/1365-2656.12843>

## Keywords

ectotherm, temperature, population extinction, corticosterone, *Zootoca vivipara*, Altitude, water availability

## Data Files

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## Files

1 files for this dataset

dataset_corticost...- 2018-00071.xlsx	98.61 kB	application/vnd.openxmlformats- officedocument.spreadsheetml.sheet
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