Effect of an anthropogenic disturbance on plasma corticosterone levels in the desert iguana, *Dipsosaurus dorsalis*

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Perturbations in an organism's environment can stimulate a suite of physiological reactions collectively known as the stress response. The stress response is generally presumed to represent an adaptation that promotes survival by restoring homeostasis (e.g., by mobilizing energy stores and curtailing energetically expensive processes that are not of immediate importance). One major component of the vertebrate stress response is the hypothalamic-pituitary-adrenal axis. This axis is stimulated by the recognition of a stressor by the brain, resulting in the output of glucocorticoids from the adrenal cortex. These glucocorticoids are crucial to the reestablishment of physiological balance. However, chronic activation of the stress response leading to chronic elevations in glucocorticoids may have deleterious effects on the long-term health of a population, via suppression of growth, immune function, and reproduction. The goal of this study was to determine if glucocorticoid concentration in free-living desert iguanas increases with proximity to a high-traffic road. Baseline blood samples were collected from lizards living in a homogeneous habitat between 0 and 1000 m from a major road in the Coachella Valley of California, USA, from April to September 2004. Plasma was assayed for corticosterone (CORT), the main glucocorticoid in lizards and a proposed bio-indicator of stress in natural populations. Because variation in physiological stress can also be detected by examining the adrenal responsiveness to an acute stressor, a second blood sample was collected from a subset of lizards after fifteen minutes of handling. Additionally, the relative abundance of desert iguanas (number of lizards seen per unit effort) was determined by walking transects at 50 meter increments parallel to the road. These results will help determine if corticosterone level is a useful tool to monitor biological stress and population health in lizards and will help develop methods that can be used in applied conservation biology.