

Conservation endocrinology sheds light on a changing world

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As species rapidly adapt to altered landscapes and a warming climate, scientists and stakeholders need new techniques to monitor ecological responses and plan future conservation efforts. Writing in *BioScience*, Stephen McCormick of the US Geological Survey and Michael Romero of Tufts University describe the emerging field of conservation endocrinology and its growing role in addressing the effects of environmental change. The authors argue that, bolstered by the development of new field-sampling techniques, researchers working in this area are poised to make substantial contributions to the wider field of conservation biology.

At the heart of this research lies the endocrine system, the set of glands that release hormones and other products directly to the blood. This system "functions to communicate and coordinate internal development, homeostasis, and response to [environmental change](#)" write the authors. Accordingly, this makes the endocrine [system](#) "an attractive target for conservation research," which "will be a major component in conservation decisions."

The value of endocrine approaches is wide ranging, according to McCormick and Romero. Applications can span the measurement of birds' altered stress hormones in response to ecotourism to drone-collected blowhole spray from whales, which may contain hormonal clues about the species' broader health. Other applications include the monitoring of human-introduced endocrine disruptors in aquatic systems and various hormonal changes induced by urbanization, hunting, invasive

species, habitat disruption, marine noise, and many other potential stressors.

Looming large among conservation endocrinology's research targets are the threats posed by climate change. Species responses to a warming climate are often complex and could involve unforeseen pressures—for instance, if higher temperatures lead to greater winter activity but no concomitant rise in food availability, animals may starve. With this complexity as backdrop, measurements of altered stress hormones could "serve as early warning systems for the impact of temperature at the individual and population level."

The authors close with a call for researchers to expand their knowledge of the field as a means of improving conservation as a whole. According to McCormick and Romero, the "combination of novel techniques, basic research, and training of students will help stimulate [conservation](#) endocrinology and its contributions to the global environment."

Provided by American Institute of Biological Sciences

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