Public Abstract

First Name:Rachel

Middle Name:Gerrard

Last Name:Felton

Adviser's First Name:Duane

Adviser's Last Name:Keisler

Co-Adviser's First Name:Christopher

Co-Adviser's Last Name:Tubbs

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Title:IDENTIFICATION OF CALIFORNIA CONDOR (*GYMNOGYPS CALIFORNIANUS*) ESTROGEN RECEPTORS 1 AND 2 AND THEIR ACTIVATION BY SUSPECTED ENDOCRINE DISRUPTING CONTAMINANTS

The recovery of the critically endangered California condor has required significant human intervention and management. Inland condor populations primarily face challenges associated with lead poisoning, which contributed to this species nearly becoming extinct. Coastal condors scavenge marine megafauna that offer reduced lead exposure, but increased potential for exposure to endocrine disrupting contaminants (EDCs) such as DDTs, PCBs, and chlordanes. Specifically, EDCs found at high concentrations in southern California marine megafauna also appear elevated in condors, potentially leading to impaired reproductive function, such as the observed production of thin eggshells by coastal compared to inland birds. To investigate the effects of EDCs on condor reproduction we have cloned condor estrogen receptors 1 and 2 (ESR1 and ESR2). With regard to ESR2, this represents the first confirmed, full-length, coding sequence of this gene identified for any bird of prey. Condor ESR activation by suspected EDCs was characterized with the highest treatment of contaminant resulting in the greatest response for both ESR1 and ESR2. In general, condor ESR2 was more sensitive to EDCs compared to ESR1; with PCB52, PCB138, PCB153, bisphenol A, dieldrin, *trans*-nonachlor, *p,p'* -DDD, and *p,p'* -DDE all stimulating significantly higher activation of ESR2 than of ESR1. While the concentrations EDCs are decreasing along the California coast the bioassay presented could be used as tool to screen food sources at release sites to determine if disruptive levels of EDCs are present.