Live Andes

Endangered wildlife ID and geo-mapping digital images for ecological studies

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The iconic Andean condor (*Vultur gryphus*), is found along the high Andes. This splendid male was close to the Chilean capital, Santiago.

Digital scouting camera used for locating and recording the shy and elusive mammals of the Chilean temperate rainforest.

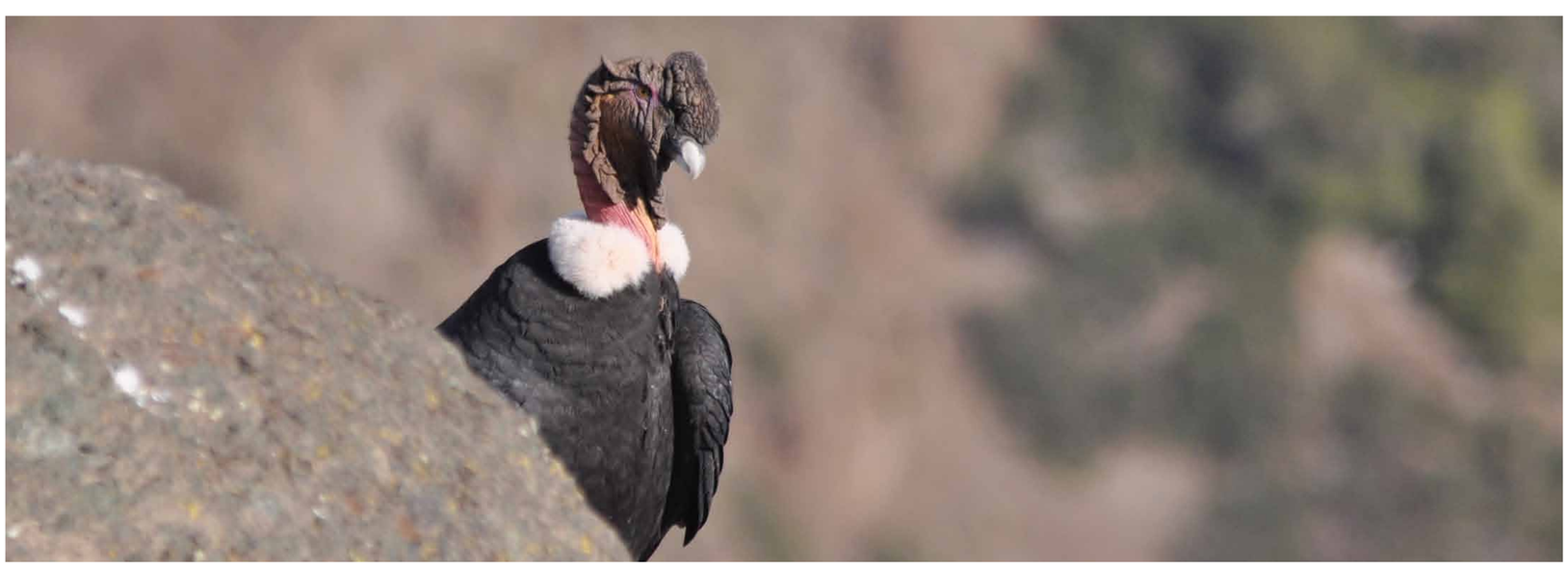
Endangered wildlife tends to inhabit complex fragmented ecosystems where human activities are in some way contributing to their scarcity. Camera trapping using trail monitor cameras (e.g. Reconyx™) is a novel technique that we have been using to study rare and cryptic species in fragmented forest habitats in Chile.

The ability to identify individuals, opens up the possibility to estimate population size of wild species. Spotted cats can often be distinguished by their unique patterns. The Kodkod (below) is one such species, endemic to the Chilean temperate rainforest. However, other cats, such as mountain lions and melanic (black) kodkod do not have enough distinguishing features for individual identification to be reliable.

Camera traps are useful for ecological studies of species that are both rare and elusive. Each image capture is accompanied by records of time, date and season and ambient temperature, and is location specific. Georeferenced information is fundamental for studies of endangered wildlife. Mapping of distribution and home range estimation, habitat modeling etc. is often limited by the difficulties involved to collect sufficient georeferenced data. The compilation of open-access regional or large-scale databases opens the possibility to combine information from different researchers covering widely distributed sites.

Determining population density is also a major challenge in ecology. Capture-recapture programs require individual identification of each animal. This is in itself a not-insignificant challenge that may be facilitated by image analysis technology. This position paper describes what is required to develop, combine and learn about software and applications that allows ID from digital images, metrics and scaling pictures of wild animals in natural scenarios and fast and simple uploading ecological data and pictures into an online mapping software (Bingmaps).

This is the first step towards an Andean Wildlife Decision-Support Platform called LiveANDES (Advanced Network for Distributions of Endangered Species) that we are developing, combining information from: Live Earth (Bing maps), Maxent, Presence & GIS software and a local database of camera trap images from digital cameras. This tool will allow local decision makers and conservation biologists to be able to map in Bing maps, valuable derived information for wildlife issues.



The Andean condor has distinctive facial markings that enable individual recognition for population surveys.

Kod kod cat (*Leopardus guigna*)

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bing Maps