Live Andes (Advanced Network for the Distribution of Endangered Species)

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Overview

- Who are we?
- Why we need Live Andes?
- Challenges in Latin America
- Current solutions
- Our solution
- Demo
Our aim is to study wildlife species to suggest conservation actions

We use all sorts of techniques in the field and monitoring wildlife need new technologies and ICT
Species classification for evaluation of extinction risk
Monitoring the state of change of biodiversity
Provide a global context for the establishment of conservation priorities at the local level

International Union for Conservation of Nature and Natural Resources
Why data sharing for endangered species is needed?

Extinction Risk

- There are more than 18,000 species threatened in the world
- Many remain unclassified

(IUCN Red List)
Species monitoring requires updated information about species distribution.

Species presence records and mapping are increasingly important for IUCN classification.

(IUCN workshop in Santo Domingo, Dominican Republic, January 2011)
IUCN – Red List of Threatened Species: criteria

Occupancy area

Extending of occurrence

Location

Extreme fluctuations
Species Distribution Models

Modeling from species presence records

Key data for mapping distribution of endangered species: **Sightings**
The problem: Wildlife Data Challenges in Latin America

We are facing an era of data-intensive science (Jim Gray’s 4th paradigm of scientific exploration), but...

- Wildlife species are not easy to detect (data generation challenge)
- Poor technological training (knowledge challenge)
- Institutions are not coordinated (data sharing challenge)
Data Generation Challenge

- We still know little about many endangered species
- Many animals are not easy to detect (cryptic behavior, low population density, inaccessible habitats)
- Extensive surveys and adequate equipment are expensive

Citizen science may play a role:

Outdoors visitors to natural areas
Knowledge Challenge

- Government officers lack of technology and skills to upload data
- There are training and language barriers to use available computational tools (e.g. GIS, computational models)
Government agencies have little experience sharing wildlife data and sometimes run parallel database systems for the same topic.

Sharing protocols are absent.

Cloud computing is almost none.

Many useful studies end up stored in papers or emails without being utilized.

Citizen science records of wildlife are not considered.
Wildlife Digital Databases – Geo-referenced Data

Digital collections from museums, universities and other institutions

GBIF

Arctos

Avian Knowledge Network

VeriNet BETA
## Wildlife Digital Databases – Georeferenced Data

Bias in wildlife datasets for some species and countries

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>GBIF records</th>
<th>GBIF georeferenced records*</th>
<th>Arctos records</th>
<th>Arctos georeferenced records*</th>
<th>MaNIS, HerpNET records*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ranita de Darwin</td>
<td><em>Rhinoderma darwinii</em></td>
<td>903</td>
<td><strong>13</strong></td>
<td>10</td>
<td>7</td>
<td><strong>13 (5)</strong></td>
</tr>
<tr>
<td>Gato Güiña</td>
<td><em>Leopardus guigna</em></td>
<td>31</td>
<td><strong>16</strong></td>
<td>0</td>
<td>0</td>
<td><strong>19 (13)</strong></td>
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<td>Gato Colo Colo</td>
<td><em>Leopardus colocolo</em></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Pudu</td>
<td><em>Pudu pudu</em></td>
<td>47</td>
<td>27</td>
<td>6</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Comadrejita trompuda</td>
<td><em>Rhyncholestes raphanurus</em></td>
<td>36</td>
<td><strong>35</strong></td>
<td>1</td>
<td>1</td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

* Many records are from the same localities. Records in parenthesis represent different localities.
Global database programs are not really useful at regional scale
Citizen-Science Portals

**eBird**
Portal for reporting birds
[www.ebird.org](http://www.ebird.org)

**Observado.org**
Dutch portal, mainly European users
[www.observado.org](http://www.observado.org)
Citizen-oriented Portals for Reporting Biodiversity Sightings

- Portals for uploading photos and locations, oriented at the general public
- Good for improving general knowledge about biodiversity more than producing scientific data

www.projectnoah.org
Live ANDES: Advanced Network for Distributions of Endangered Species

Web Portal for uploading, visualize, and download wildlife species records & analyze them for conservation actions
Aimed at improving wildlife knowledge and conservation
Promoting data sharing among citizens, scientists and government agencies & contribute to meet IUCN global classification species criteria
Live ANDES: Advanced Network for Distributions of Endangered Species

Observing endangered species is not always possible: One single sighting may provide key information.

Citizen science

Citizens learn about wildlife and gather data for research and management.

Scientists access to more data for analyses and can share results with policy makers.

Officials and policy makers can manage their data, share it among them and have feedbacks with the scientific community & citizens.
Wildlife Data Gathering Workshop for Park Rangers

Topics covered: GPS, data accuracy, data management and storage and Web tools

Río de los Cipreses National Reserve
Andean Mountains in Central Chile
Bienvenidos

Live ANDES es un portal que permite compartir y visualizar registros especiales de vida silvestre, con el objetivo de aportar al conocimiento y conservación de la biodiversidad.

La versión actual del portal permite ingresar registros de aves, anfibios, reptiles y mamíferos terrestres de Chile.

En estos momentos Live ANDES se encuentra en un periodo de evaluación, por lo que podría presentar problemas de funcionamiento.

Welcome

Live ANDES is a portal that allows you to share and view space records of wildlife, with the aim of contributing to the understanding and conservation of biodiversity.

The current version of the portal allows to enter records of birds, amphibians, reptiles, and terrestrial mammals in Chile.

Currently Live ANDES is located in a period of assessment, so it could present problems.
Live ANDES - Data quality control

- Species scientific names have to be selected from a valid list
- Species photos for guiding proper identification are available
- Users can upload their own photo to support their records
- By selecting the location in the map, the user is forced to a minimum zoom level for adequate precision (the mountain lion in the sea problem!)
- Species distribution polygon can be uploaded
- Data outside species distribution polygon are withheld for approval
Live ANDES – Windows Phone

- Online and Offline mode
- Species photos and location can be uploaded using phone camera and GPS
- Nearby sightings can be explored using GPS location
Partnership with the Ministry of Environment
National portals in other Latin America countries and a network with conservation programs
Advanced analysis tools; distribution models, extent of occurrence calculation, spatial analyses
Institutional portals; group statistics, data sharing controls, access to additional data
Live ANDES – Demo

www.liveandes.org
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