tección de ecosistemas

Protecting Ecosystems with Science

Human population growth and the expansion of industrial activities into wild areas have impacted ecosystems in ways that are silently threatening the equilibrium of endemic species.

In regards to this, Dr. Gonzalo Medina, Dean for the Faculty of Ecology and Natural Resources at the Universidad Andrés Bello, is leading research that seeks to determine the effects of diseases from introduced animal species on endemic fauna.

"Our work has centered on studying the impact of diseases such as rabies, leptospirosis, toxoplasmosis, canine distemper, and canine parvovirus on endemic species with conservation issues, as well as on introduced species, such as the domestic dog and North American mink," explains Dr. Medina.

Also participating in ongoing research are Dr. Daniel Pons, investigator for the Department of Mathematics of the Faculty of Exact Sciences at the Universidad Andrés Bello, and investigators from the Universities of Concepción, Kansas, and Massachusetts. In the first stage, the research team embarked on long campaigns to the Magallanes, Aysén, Los Lagos, and Los Ríos Regions to obtain blood samples from endemic fauna.

Mathematical and spatial models were then used to predict the distribution of pathogens and pathogen reservoirs, as well as the effects of variables such as landscape and climate changes. Related to this, Dr. Daniel Pons explains that, "The dynamics under study are complemented by field and geospatial data. These data have guided the search for physical-mathematical models, with simplicity a priority. Through these models, we are able to incorporate quantitative and qualitative data to obtain conclusions."

"Using this methodology, we were able to identify a bird flu strain in the Antarctic different to the strains discovered globally," adds Dr. Pons.

Dr. Gonzalo Medina concludes that, "Our results facilitate the development of systems for disease prevention in people and endemic animal species. Likewise, our data could act as an alert for possible cases of infectious diseases in people according to region and coexistence with reservoir, host, or vulnerable species."