

EXPOSICIÓN DOCUMENTAL VIRTUAL

LUIS ANTONIO MUÑOZ ALONSO

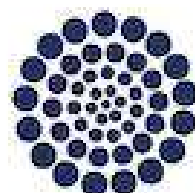
PRODUCCIÓN ACADÉMICA 1992–2023



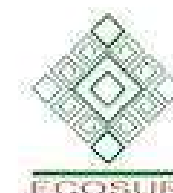
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PRESENTACIÓN

En esta exposición virtual te presentamos una muestra de la producción académica de **Luis Antonio Muñoz Alonso**, misma que forma parte del patrimonio documental del SIBE.

Además, podrás interactuar con los mapas de autorías y temas de investigación para conocer más sobre su colaboración con otros autores, y una liga donde podrás consultar la obra completa del autor.

Antonio se jubilará después de 31 años de trayectoria académica que desarrolló entre CIES y Ecosur.

Esperamos sea de tu interés

LUIS ANTONIO MUÑOZ ALONSO

Biólogo egresado de la UNAM, realizó su tesis sobre la Herpetofauna del Parque Ecológico Estatal de Omiltemi, Mpio. de Chilpancingo, Guerrero.

Inició su carrera académica en: Museo de Zoología (Fac. de Ciencias, UNAM), Centro de Ecología (UNAM) y Depto. de Herpetología (asistente de curador de la Colección Herpetológica) del Instituto Nacional de Recursos Bióticos de México (INIREB). Investigador y encargado del Museo de Zoología de la Esc. de Biología de la Universidad de Ciencias y Artes de Chiapas (UNICACH).

En 1992 se incorpora al CIES en la Unidad San Cristóbal de Las Casas como académico y curador de la Colección Herpetológica, fundada por él en 1988 cuando formaba parte de ECOSFERA. Esta colección es considerada entre las diez más importantes de su tipo en México y es referencia para la investigación en anfibios y reptiles de Chiapas y el Sureste de México.

Colaboró en la elaboración de planes de manejo de especies de reptiles (iguanas y tortugas) y diversas Áreas Naturales Protegidas (ANP).

Asesoró 38 tesis de licenciatura, maestría y estancias académicas sobre herpetofauna y biodiversidad del sureste de México y técnicas curatoriales de colecciones científicas.

Ha publicado 47 artículos científicos en revistas nacionales e internacionales, 12 capítulos de libro, y editado 2 libros.

Presidente de la Sociedad Herpetológica Mexicana A. C. (1998-2000). Tesorero y miembro fundador de la Asociación Civil *Natura et Cultura*. Asesor científico de diversas ANP del sureste de México. Presidente Ejecutivo del consejo asesor de la Reserva de la Biosfera Selva El Ocote. Miembro de 5 sociedades científicas, incluyendo el Grupo Especialista de Supervivencia de Especies de la International Union for Conservation of nature (IUCN; 2005-).

Sus proyectos de investigación han abordado los siguientes temas: sistemática y taxonomía de anfibios y reptiles, análisis herpetofaunísticos de ANP y otras áreas silvestres, análisis de distribución geográfica y biogeografía de la herpetofauna de Chiapas y del sureste de México, efectos de la fragmentación sobre la biodiversidad, monitoreo de biodiversidad para el manejo y conservación de poblaciones y comunidades de vertebrados, enfermedades emergentes en poblaciones de anfibios, funcionalidad y restauración del ecosistema con base en el manejo de fauna silvestre.





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Acta Oecologica

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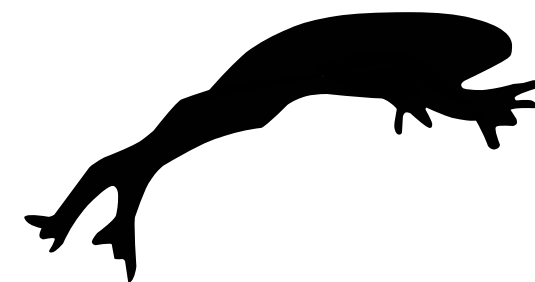


Applicability of biodiversity databases to regional conservation planning in the tropics: A case study evaluation of the effect of environmental bias on the performance of predictive models of species richness

Raúl Abel Vaca^{a,*}, Rocío Rodiles-Hernández^b, Miriam Soria-Barreto^c,
Luis Antonio Muñoz-Alonso^d, Alfonso A. González-Díaz^b, Miguel Angel Castillo-Santiago^e



The biodiversity data typically available for fitting distributional models in the tropics come from museum and scientific collections which are often incomplete and prone to sampling and environmental biases. Nevertheless, most studies undertaken in tropical regions assume that collection data offers a satisfactory environmental coverage without any quantitative assessment. In this study, we investigate the effects of differences in environmental bias and coverage provided by distributional data when aggregated into different grid cell sizes, on the performance of species richness-environment models and predictions. We use an extensive data compilation, including national and regional collections, on the distribution of amphibians, reptiles and fishes in the hydrologic region of the Usumacinta River as a case study. General additive models and environmental variables are used to construct predictive models at 40, 20, 10 and 5 km grid resolutions, based on well-sampled cells. The best multivariate models included nonparametric interaction terms for the effects of precipitation and temperature and suggested an altitudinal shift in the relative importance of energy and water in determining the distribution of species richness.

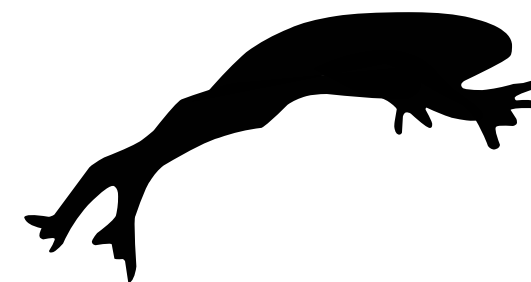


Known and estimated distribution in Mexico of *Batrachochytrium dendrobatidis*, a pathogenic fungus of amphibians



René Bolom-Huet¹  | Eduardo Pineda²  | Francisco Díaz-Fleischer¹  |
Antonio L. Muñoz-Alonso³  | Jorge Galindo-González¹ 

Chytridiomycosis caused by fungus *Batrachochytrium dendrobatidis* (Bd) is one of the decline global causes of amphibians. Currently, it is distributed throughout a broad range of climates and ecosystems around the world. An epidemic wave of chytridiomycosis began in North America, resulting in population decline and local extinction of many species, reconfiguring species composition of amphibian communities in the Americas. In Mexico, Bd has caused an amphibian population decrease, and its potential distribution area has not been determined. We reviewed the number of species infected, obtaining Bd frequency of infection by land use and vegetation type, and by elevation range. We examined the known distribution of Bd, estimated the potential distribution, and obtained the bioclimate variables relevant for Bd. Our results indicate that in Mexico, Bd has been detected in 78 species of amphibians in 10 families, from 29 different land use and vegetation types, with cloud forest having the highest number of cases (139) and infected species (15). Bd occurs over an elevation range of 1-3,300 m asl and is most frequent at 1,200-1,500 m asl (36%). In addition to the regions previously described as suitable for Bd, our model included desert, coastal, and tropical forest regions, revealing an increase in the area where amphibians could be at risk of infection. Distribution of Bd is mainly associated with temperature of the wettest quarter and potential evapotranspiration of the warmer quarter. We offer an estimate of the ideal conditions for Bd in Mexico, also information for future studies on Bd and the conservation of amphibians.





Revista Mexicana de Biodiversidad

Revista Mexicana de Biodiversidad 89 (Suplem. 2018): S79 - S99



Suplemento

Diversidad de la herpetofauna en la cuenca del Usumacinta, México

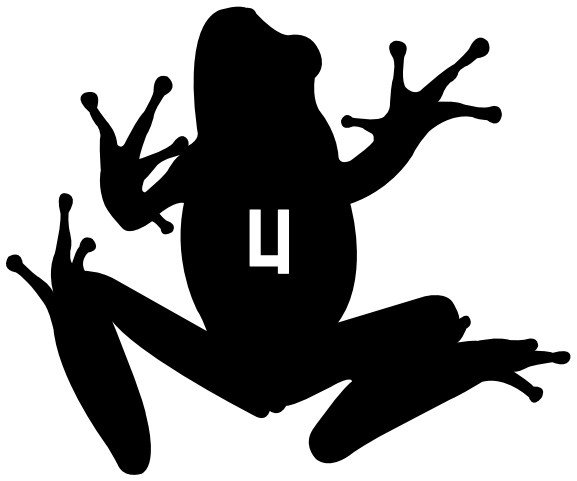


Diversity of the herpetofauna in the Usumacinta basin, Mexico


Luis Antonio Muñoz-Alonso *, Rocío Rodiles-Hernández, Nora Patricia López-León, Alondra González-Navarro, Alba Marina Chau-Cortés y Jorge Alberto Nieblas-Camacho

Se presenta un estudio sobre la diversidad y riqueza de la herpetofauna de la cuenca del río Usumacinta, realizado a partir del análisis de 8,808 registros provenientes de colecciones científicas, de la base de datos faunística de la Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, la revisión de referencias bibliográficas y de trabajo de campo, entre agosto del 2014 y octubre del 2015 para 3 zonas (selva, lagunas y costa) en la cuenca del río Usumacinta. Se reportan 42 especies de anfibios y 110 de reptiles. La zona selva es la más rica en especies, con 136, siguiéndole la zona lagunas con 108 herpetozoos y la zona costa con una riqueza de 66 especies. Los valores del número efectivo de especies reportados (qD) indican diferencias entre las zonas estudiadas; el más alto para lagunas ($1D = 20.98 \pm 3.35$), el segundo para costa ($1D = 16.01 \pm 2.35$) y el último para zona selva ($1D = 11.63 \pm 1.64$). Se analiza la diversidad y composición de 3 gremios funcionales: anuros, tortugas y cocodrilos. Desde el punto de vista herpetofaunístico, las zonas selva y lagunas son las más importantes por su alta riqueza y diversidad de especies.





Taxonomic Status of a Population of Black *Ixalotriton* from Cerro Baúl, Chiapas, México

Sean M. Rovito ; Luis Antonio Muñoz Alonso; John F. Lamoreux; Meghan W. McKnight; Gabriela Parra-Olea

Journal of Herpetology (2017) 51 (4): 590–594.



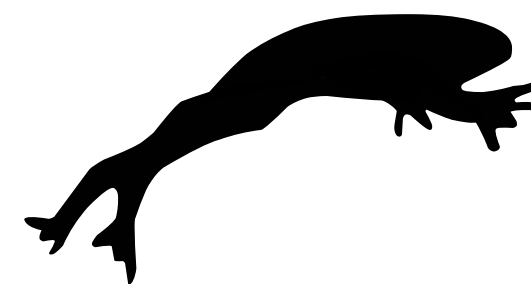
<https://doi.org/10.1670/16-103>

Only two species of *Ixalotriton*, *I. niger* and *I. parvus*, are currently known, and both are endemic to small regions of Chiapas, México. An additional population of black *Ixalotriton* has recently been reported from caves on Cerro Baúl, near the only known locality of *I. parvus*.

We conducted morphological and molecular analyses of animals from the new population and *I. niger* to determine whether they are conspecific. Animals from the Cerro Baúl population resemble *I. niger* morphologically, but they are somewhat divergent in mitochondrial sequence. We assign them to *I. niger* because of the lack of diagnostic morphological differences. This expands the range of *I. niger* to a second locality and puts the two species of *Ixalotriton* in sympatry, although they are separated by microhabitat. Protection for the new population is urgently needed, given declines in abundance of *I. niger* at the type locality.

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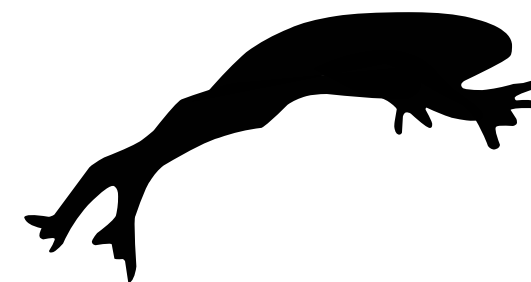
The database of the PREDICTS (Projecting Responses of Ecological Diversity In Changing Terrestrial Systems) project



Lawrence N. Hudson  Tim Newbold, Sara Contu, Samantha L. L. Hill, Igor Lysenko, Adriana De Palma, Helen R. P. Phillips, Tamera I. Alhusseini, Felicity E. Bedford, Dominic J. Bennett ... [See all authors](#) 

First published: 16 December 2016 | <https://doi.org/10.1002/ece3.2579> | Citations: 120

The PREDICTS project—Projecting Responses of Ecological Diversity In Changing Terrestrial Systems (www.predicts.org.uk)—has collated from published studies a large, reasonably representative database of comparable samples of biodiversity from multiple sites that differ in the nature or intensity of human impacts relating to land use. We have used this evidence base to develop global and regional statistical models of how local biodiversity responds to these measures. We describe and make freely available this 2016 release of the database, containing more than 3.2 million records sampled at over 26,000 locations and representing over 47,000 species. We outline how the database can help in answering a range of questions in ecology and conservation biology. To our knowledge, this is the largest and most geographically and taxonomically representative database of spatial comparisons of biodiversity that has been collated to date; it will be useful to researchers and international efforts wishing to model and understand the global status of biodiversity.



Acta Herpetologica

Comparative cytogenetics of two species of ground skinks: *Scincella assata* and *S. cherriei* (Squamata: Scincidae: Lygosominae) from Chiapas, Mexico

RICCARDO CASTIGLIA^{1,*}, ALEXANDRA M.R. BEZERRA², OSCAR FLORES-VILLELA³, FLAVIA ANNESI¹, ANTONIO MUÑOZ⁴, EKATERINA GORNUNG¹

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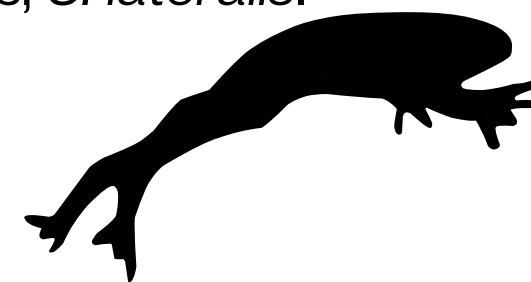
² Departamento de Zoologia, Universidade de Brasília, ICB, Asa Norte, CEP 70910-900, Brasília, DF, Brazil

³ Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México, A.P. 70-399, México D.F. 04510

⁴ El Colegio de la Frontera Sur - San Cristóbal de las Casas Carr. Panamericana y Av. Periférico Sur s/n 29290 San Cristóbal de las Casas, Chiapas, México





Standard karyotypes of two species of the genus *Scincella*, *S. assata* and *S. cherriei*, both from Chiapas State, Mexico, were described for the first time. The diploid chromosome number was 28 in *S. assata*, whereas 30 in *S. cherriei*. The karyotypes of the two species, while differing in the number of microchromosomes, 14-15 in *S. assata* and 16-17 in *S. cherriei*, share four pairs of large metacentric, two pairs of medium-sized metacentric, and one particular pair (number 7) of chromosomes. Female *S. assata* carries chromosome pair 7 composed of two identical medium-sized subtelocentric chromosomes. This chromosome pair is heteromorphic in males of both species, i.e., one component of the pair is similar to the homomorphic chromosomes 7 of the *S. assata* female, while the other is nearly one-half the size of its counterpart and resembles a microchromosome. The homology of such externally different elements is deducted from the presence of an asymmetric bivalent in spermatocytes at diplotene-diakinesis. Female *S. cherriei* was not available. We suspect that the two *Scincella* species possess an XY sex determination system, as previously reported for the North American congeneric species, *S. lateralis*.





The conservation status of the world's reptiles

Monika Böhm^a  , Ben Collen^a, Jonathan E.M. Baillie^b, Philip Bowles^c, Janice Chanson^{d e},
Neil Cox^{c d}, Geoffrey Hammerson^f, Michael Hoffmann^g, Suzanne R. Livingstone^h, Mala Ram^a,
Anders G.J. Rhodinⁱ, Simon N. Stuart^{j k l m n}, Peter Paul van Dijk^l, Bruce E. Young^o,
Leticia E. Afuang^p, Aram Aghasyan^q, Andrés García^r, César Aguilar^s, Rastko Ajtic^t,
Ferdi Akarsu^u...George Zug^{cy}



Effective and targeted conservation action requires detailed information about species, their distribution, systematics and ecology as well as the distribution of threat processes which affect them. Knowledge of reptilian diversity remains surprisingly disparate, and innovative means of gaining rapid insight into the status of reptiles are needed in order to highlight urgent conservation cases and inform environmental policy with appropriate biodiversity information in a timely manner. We present the first ever global analysis of extinction risk in reptiles, based on a random representative sample of 1500 species (16% of all currently known species). To our knowledge, our results provide the first analysis of the global conservation status and distribution patterns of reptiles and the threats affecting them, highlighting conservation priorities and knowledge gaps which need to be addressed urgently to ensure the continued survival of the world's reptiles. Nearly one in five reptilian species are threatened with extinction, with another one in five species classed as Data Deficient. The proportion of threatened reptile species is highest in freshwater environments, tropical regions and on oceanic islands, while data deficiency was highest in tropical areas, such as Central Africa and Southeast Asia, and among fossorial reptiles. Our results emphasise the need for research attention to be focussed on tropical areas which are experiencing the most dramatic rates of habitat loss, on fossorial reptiles for which there is a chronic lack of data, and on certain taxa such as snakes for which extinction risk may currently be underestimated due to lack of population information. Conservation actions specifically need to mitigate the effects of human-induced habitat loss and harvesting, which are the predominant threats to reptiles.





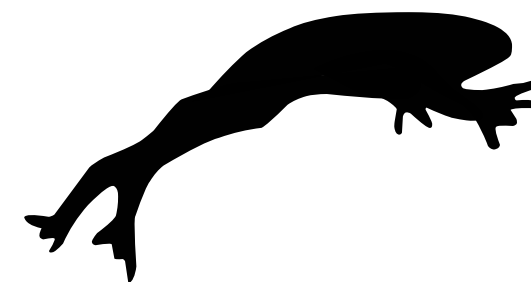
Abundancia, uso de hábitat, microhábitat y hora de actividad de *Ameiva undulata* (Squamata: Teiidae) en un paisaje fragmentado del Soconusco chiapaneco



Abundance, habitat, microhabitat use, and time of activity of *Ameiva undulata* (Squamata: Teiidae) in a fragmented landscape in the Chiapas Soconusco

Rodrigo Macip-Ríos^{1✉}, Saúl López-Alcaide² y Antonio Muñoz-Alonso³

La transformación de los ambientes naturales hacia ambientes manejados como cultivos o pastizales conlleva un impacto directo en la abundancia de las especies que ahí habitan. Se ha registrado que algunos cultivos, como los cafetales de sombra diversificada tienen un menor efecto en la abundancia de las especies y que incluso pueden incrementar su abundancia. En un mosaico de cafetales diversificados y bosques nativos en el Soconusco chiapaneco, se evaluó la abundancia por mes, utilización del hábitat, microhábitat y hora de actividad en la lagartija *Ameiva undulata* en, durante noviembre del 2000 a abril del 2002. La abundancia más alta fue registrada en febrero. La mayoría de organismos se observó en cafetales de sombra diversificada y en microhábitats asociados a la hojarasca. A lo largo del día, la mayor actividad se registró de las 11:00 a 12:00 h, seguida por un decremento continuo en el nivel de actividad hasta las 18:00 h. Los resultados indican que esta lagartija presenta una mayor abundancia en ambientes con insolación y perturbación media, condiciones que están poco representadas en ambientes conservados como los bosques mesófilos y las selvas medianas, o bien, en ambientes altamente transformados y sin sombra como los pastizales.



Batrachochytrium dendrobatidis:
UN HONGO PATÓGENO DE ANFIBIOS



Gustavo E. Quintero Díaz, Antonio Muñoz Alonso y Karen R. Lips

El hongo *Batrachochytrium dendrobatidis* (orden Chytridiales) produce una enfermedad infecciosa en anfibios y algunos reptiles. Es culpable de extinciones y declinaciones de sus poblaciones en Ecuador, Venezuela, Nueva Zelanda, España y Estados Unidos (Berger et al., 1998; Longcore et al., 1999; Bosch et al., 2000; Bonaccorso et al., 2003).

Con el objetivo de conocer si en las poblaciones de anuros de dos zonas montañosas del norte y sur de Chiapas existía evidencia de la presencia del hongo *B. dendrobatidis*, se llevó a cabo un estudio (2003-2004) en tres arroyos permanentes de los municipios Jitotol de Zaragoza, Pueblo Nuevo Solistahuacán y Rayón, así como en cuatro arroyos del Polígono I de la Reserva de la Biosfera el Triunfo (Rebitri), en los municipios de Albino Corzo y Mapastepec. Se observó que las especies en la zona norte del estado estaban infectadas por el hongo, siendo este el primer reporte de *B. dendrobatidis* para la zona norte de Chiapas (Quintero-Díaz et al., 2004) y el segundo para México (Lips et al., 2004). Por su parte, en la Rebitri, el hongo no fue detectado. Cabe mencionar que la frecuencia del ataque del hongo varió significativamente entre especies, afectando en mayor proporción a las ranas arborícolas de mayor tamaño como *Plectrohyla acanthodes*, y también varió entre temporadas, provocando mayor daño durante la época de secas en comparación con la de lluvias.





RESEARCH

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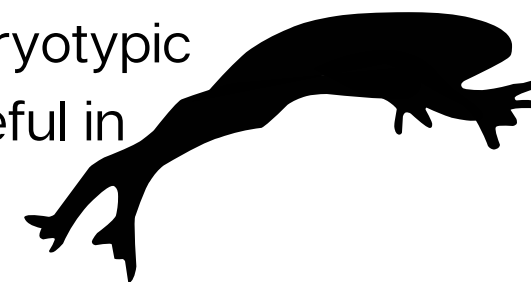
Pattern of chromosomal changes in 'beta' *Anolis* (Norops group) (Squamata: Polychrotidae) depicted by an ancestral state analysis

Riccardo Castiglia^{1*}, Oscar Flores-Villela², Alexandra Maria Ramos Bezerra^{3,4}, Antonio Muñoz⁵ and Ekaterina Gornung¹

Background: Neotropical lizards, genus *Anolis* (Polychrotidae), with nearly 380 species, are members of one of the most diversified genera among amniotes. Herein, we present an overview of chromosomal evolution in 'beta' *Anolis* (*Norops* group) as a baseline for future studies of the karyotypic evolution of anoles. We evaluated all available information concerning karyotypes of *Norops*, including original data on a recently described species, *Anolis unilobatus*. We used the phylogeny of *Norops* based on DNA sequence data to infer the main pattern of chromosomal evolution by means of an ancestral state analysis (ASR).

Results: We identified 11 different karyotypes, of which 9 in the species had so far been used in molecular studies. The ASR indicated that a change in the number of microchromosomes was the first evolutionary step, followed by an increase in chromosome numbers, likely due to centric fissions of macrochromosomes. The ASR also showed that in nine species, heteromorphic sex chromosomes most probably originated from six independent events.

Conclusions: We observed an overall good correspondence of some characteristics of karyotypes and species relationships. Moreover, the clade seems prone to sex chromosome diversification, and the origins of five of these heteromorphic sex chromosome variants seem to be recent as they appear at the tip nodes in the ancestral character reconstruction. Karyotypic diversification in *Norops* provides an opportunity to test the chromosomal speciation models and is expected to be useful in studying relationships among anole species and in identifying cryptic taxa.





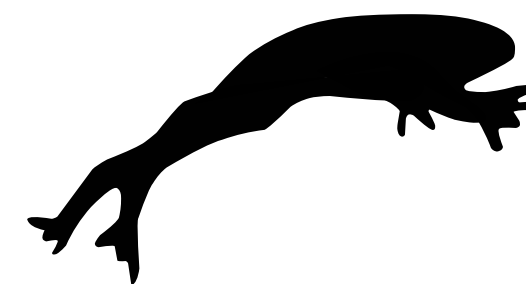
CAPÍTULO 15

INTERRELACIÓN DE CONOCIMIENTO TRADICIONAL Y CIENTÍFICO PARA LA CONSERVACIÓN DE LA DIVERSIDAD BIOLÓGICA Y CULTURAL EN EL VOLCÁN TACANÁ



Autores: Christiane Junghans, Benigno Gómez, Ana Horváth, Antonio Muñoz y Eduardo Chamé

Se modificó el esquema tradicional de estudios zoológicos al combinar técnicas de campo con el conocimiento local para el reconocimiento de sitios de muestreo y la bioecología de varios grupos funcionales (anfibios, reptiles, mamíferos e insectos) en cafetales y bosque mesófilo en el área de influencia de la Reserva de la Biosfera Volcán Tacaná. Al mismo tiempo, se realizó un estudio etnozoológico para recopilar el conocimiento tradicional mam de la fauna, así como su uso y manejo, por medio de un nuevo método denominado Evaluación Participativa Etnozoológica Rápida. Al conjuntar la concepción mam de la naturaleza con los resultados de los estudios sobre biodiversidad, es posible pensar en el desarrollo a corto plazo de programas de monitoreo biológico multitaxa de manera participativa. La información obtenida será presentada en un museo rural que será un punto de encuentro para el intercambio de experiencias, la difusión de nuevos hallazgos y como espacio de capacitación.





ORIGINAL ARTICLE

Species formation and geographical range evolution in a genus of Central American cloud forest salamanders (*Dendrotriton*)

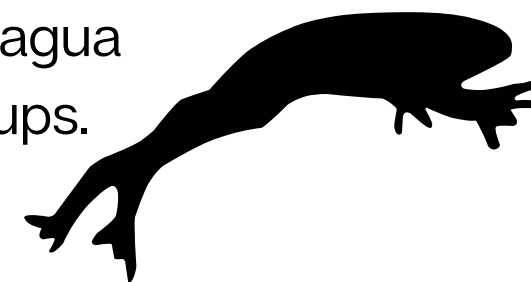


Sean M. Rovito , David B. Wake, Theodore J. Papenfuss, Gabriela Parra-Olea, Antonio Muñoz-Alonso, Carlos R. Vásquez-Almazán

First published: 15 March 2012 | <https://doi.org/10.1111/j.1365-2699.2012.02696.x> | Citations: 20

Montane Central America offers an ideal system for testing geographical hypotheses of species diversification. We examined how the complex geological history of Nuclear Central America has shaped the diversification of a genus of cloud-forest-inhabiting salamanders (*Dendrotriton*). We applied parametric models of geographical range evolution to determine the predominant mode of species formation within the genus and to test existing hypotheses of geographical species formation in the region.

Models of geographical range evolution, when combined with robust species-tree estimates, provide insight into the historical biogeography of taxa not available from phylogenies or distributional data alone. Vicariant species formation, rather than peripatric or gradient speciation, appears to have been the dominant process of diversification, with most divergence events occurring within or between ancient highland areas. The apparent dispersal of *Dendrotriton* to the Quaternary-age volcanoes raises the possibility that the rich salamander community there is composed of species that dispersed from geologically older areas. The Motagua Valley appears not to have been as important in vicariant species formation within *Dendrotriton* as it is within other groups.



The Impact of Conservation on the Status of the World's Vertebrates



[MICHAEL HOFFMANN](#), [CRAIG HILTON-TAYLOR](#), [ARIADNE ANGULO](#), [MONIKA BÖHM](#), [THOMAS M. BROOKS](#), [STUART H. M. BUTCHART](#), [KENT E. CARPENTER](#), [JANICE CHANSON](#),

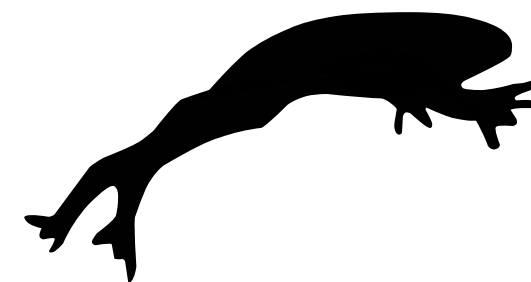
[BEN COLLEN](#), [...], AND [SIMON N. STUART](#)

+164 authors

[Authors Info & Affiliations](#)

SCIENCE • 26 Oct 2010 • Vol 330, Issue 6010 • pp. 1503-1509 • DOI: 10.1126/science.1194442

Using data for 25,780 species categorized on the International Union for Conservation of Nature Red List, we present an assessment of the status of the world's vertebrates. One-fifth of species are classified as Threatened, and we show that this figure is increasing: On average, 52 species of mammals, birds, and amphibians move one category closer to extinction each year. However, this overall pattern conceals the impact of conservation successes, and we show that the rate of deterioration would have been at least one-fifth again as much in the absence of these. Nonetheless, current conservation efforts remain insufficient to offset the main drivers of biodiversity loss in these groups: agricultural expansion, logging, overexploitation, and invasive alien species.





Amphibian population declines in montane southern Mexico: resurveys of historical localities



Karen R. Lips^a  , Joseph R. Mendelson III^b, Antonio Muñoz-Alonso^c,
Luis Canseco-Márquez^d, Daniel G. Mulcahy^b

Declines of amphibian populations have been well documented in the US, Canada, and Central America, but little is known regarding the status of amphibian populations in Mexico. In 2000, we surveyed 43 transects from 3 upland regions in Guerrero and Oaxaca, Mexico. We found 161 adult amphibians belonging to 39 species, representing only 19–48% of the anuran fauna known from these regions. We found one dead (*Eleutherodactylus saltator*) and one dying frog (*Ptychohyla erythromma*) from two different streams near Chilpancingo, Guerrero. Both frogs were infected with *Batrachochytridium dendrobatidis*, a pathogenic fungus involved in other declines of amphibian populations. We collected 368 tadpoles; 60 (19%) tadpoles from 9 different streams among the three regions were missing mouthparts, which is indicative of infection by chytrid fungus. We report additional data from the state of Chiapas, Mexico, that document declines, disease, and apparent extirpations from that region as well. Overall, we report 31 populations (representing 24 species) that appear to have been extirpated, including populations of as many as 11 endemic species that have been missing for 16–40 years and may be extinct.





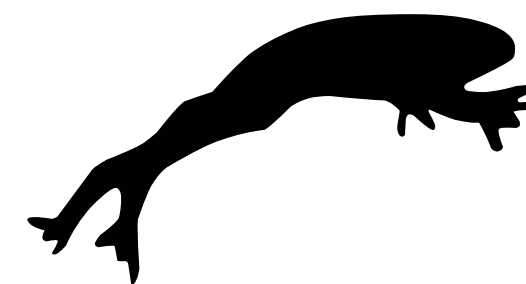
Diversidad de lagartijas en cafetales y bosque primario en el Soconusco chiapaneco

Lizard diversity in coffee crops and primary forest in the Soconusco Chiapaneco



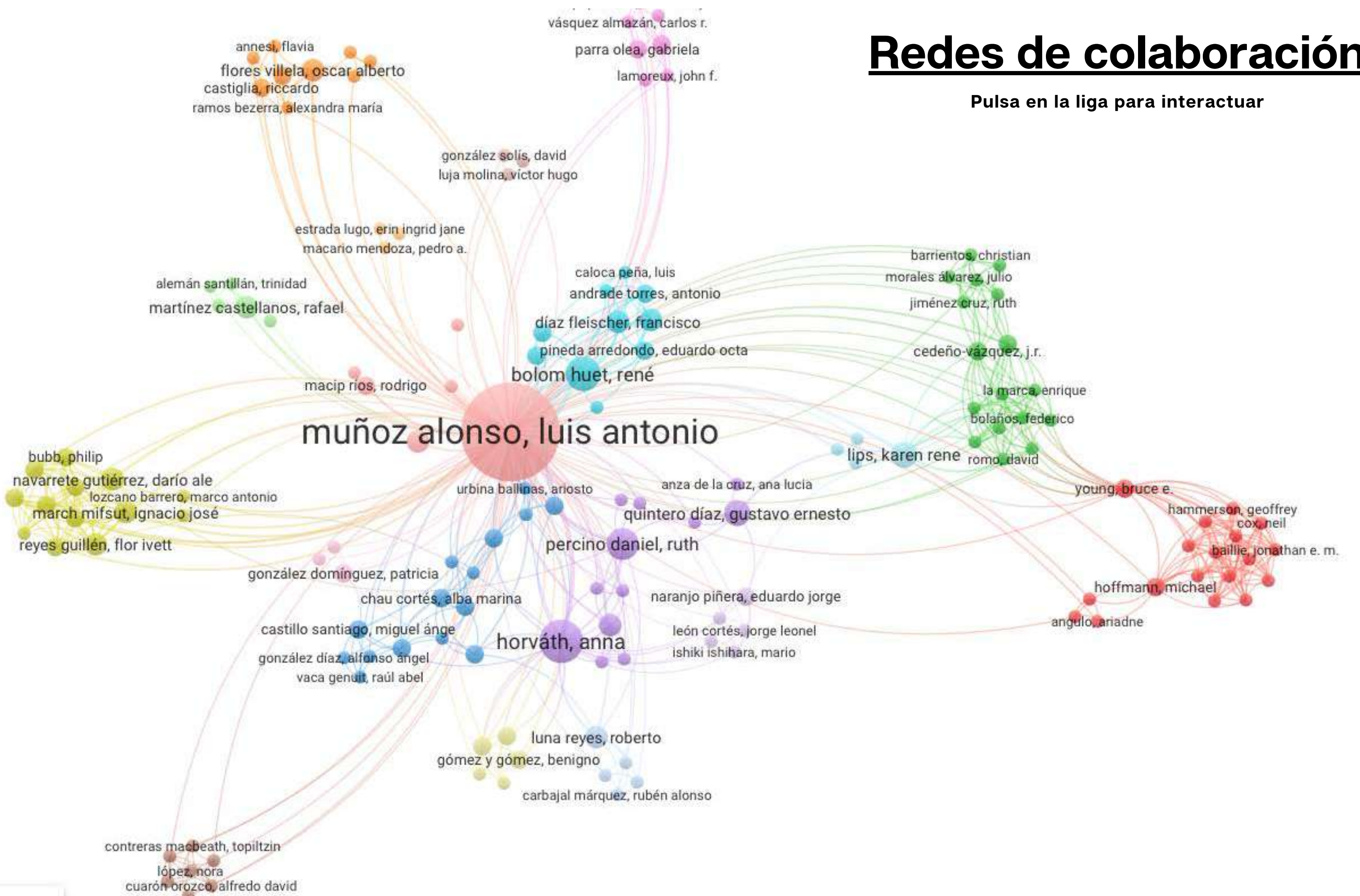
Rodrigo Macip-Ríos^{1*} y Antonio Muñoz-Alonso²

La fragmentación y el cambio de uso del suelo hacia actividades primarias intensivas son los factores que tienen más peso en la pérdida de la biodiversidad; no obstante, existen tipos de manejo que pueden tener un equilibrio entre la productividad y la conservación del ambiente; entre ellos se encuentran agrosistemas, como los cafetales, que han sido considerados refugios de la diversidad biológica. En este trabajo se determinó el efecto de estos agrosistemas en la diversidad de lagartijas, encontrándose que es mayor en los cafetales con sombra diversificada de baja altitud que en los sitios de vegetación primaria como la selva mediana y el bosque mesófilo; dicha diversidad se explica porque en los cafetales hay una mayor riqueza de microhábitats disponibles para las lagartijas, los cuales se generan por el tipo de manejo del agrosistema. Este trabajo apoya los cafetales como una opción para la conservación de la biodiversidad; además, se registran observaciones sobre aspectos ecológicos importantes relacionados con las lagartijas, como la apertura y la sobreposición del nicho espacial (microhábitat).



Redes de colaboración

Pulsa en la liga para interactuar



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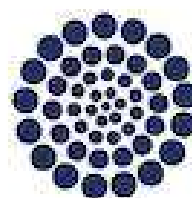


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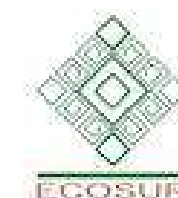
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