Del campo al plato

Programa Virtual de Capacitación

Corredores biológicos internos

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Implementado por

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Global Nature Fund

Por encargo de

Ministerio Federal de Medio Ambiente, Protección de la Naturaleza y Seguridad Nuclear

de la República Federal de Alemania

En cooperación con

minae MINISTERIO DE AMBIENTE Y ENERGÍA

Programa virtual de capacitación

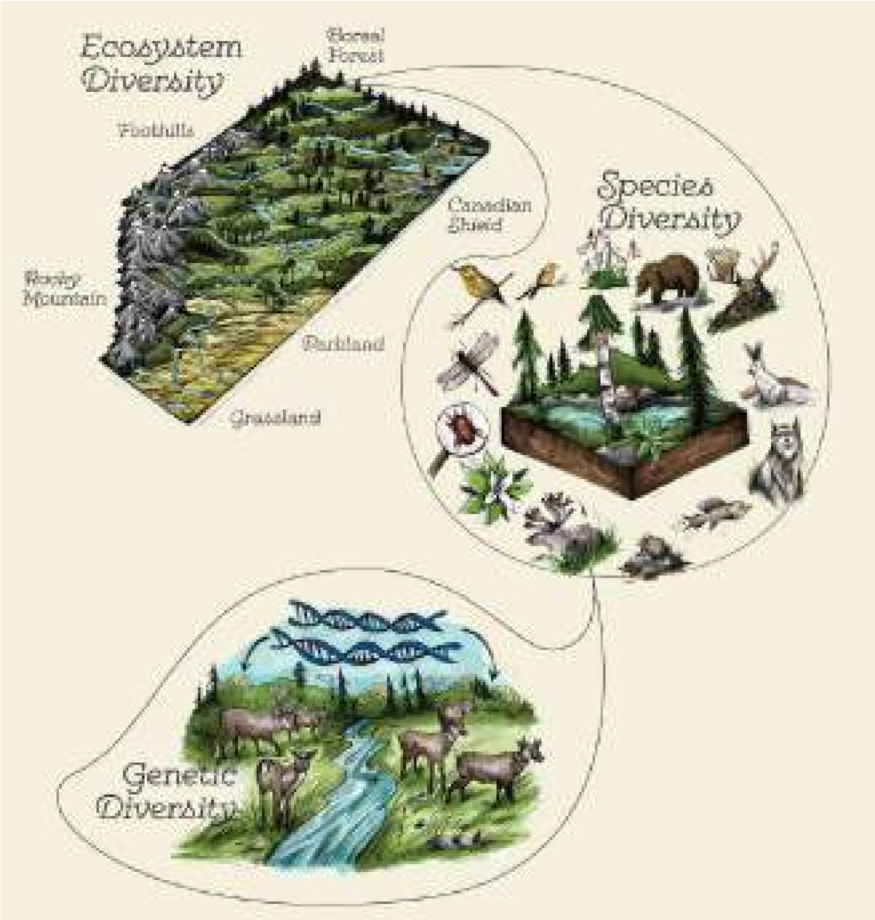
Webinar:

Corredores biológicos internos y su importancia en la agricultura

Facilitador
Esteban Brenes Mora, MSc
Costa Rica Wildlife Foundation
Biólogo

”Café con Sombra”
Deirdre Hyde

giz


Ecosystem Diversity
Boreal Forest
Foothills
Canadian Shield
Rocky Mountain
Parkland
Grassland
Species Diversity
Genetic Diversity

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¿POR QUÉ HABLAR
DE **BIODIVERSIDAD**?

ESTAMOS EN MEDIO DE UNA
CRISIS DE BIODIVERSIDAD

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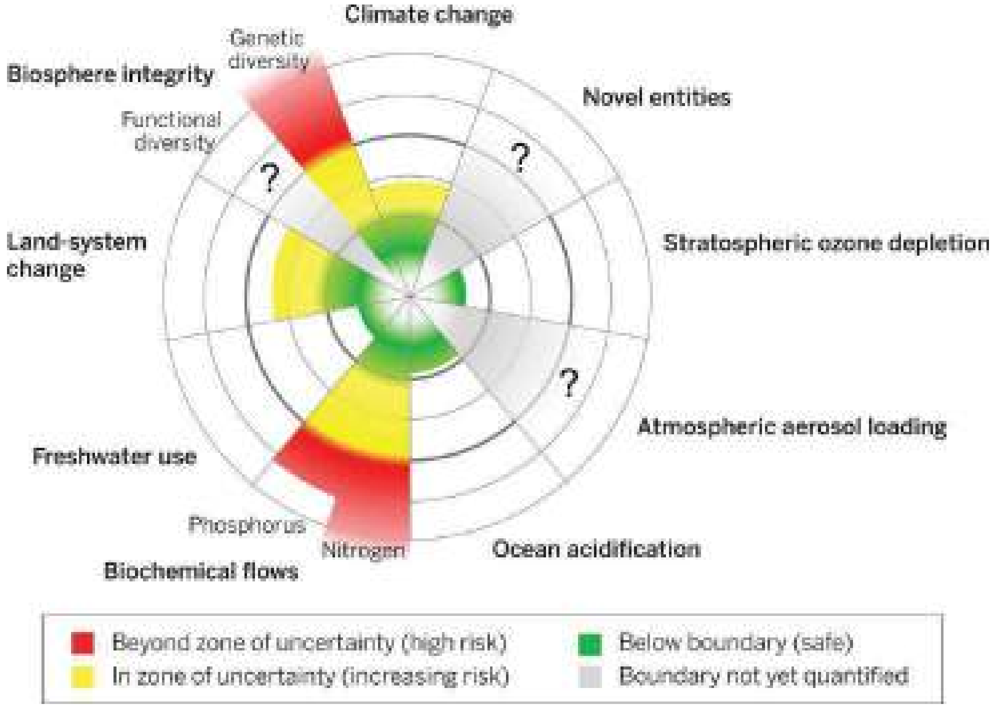

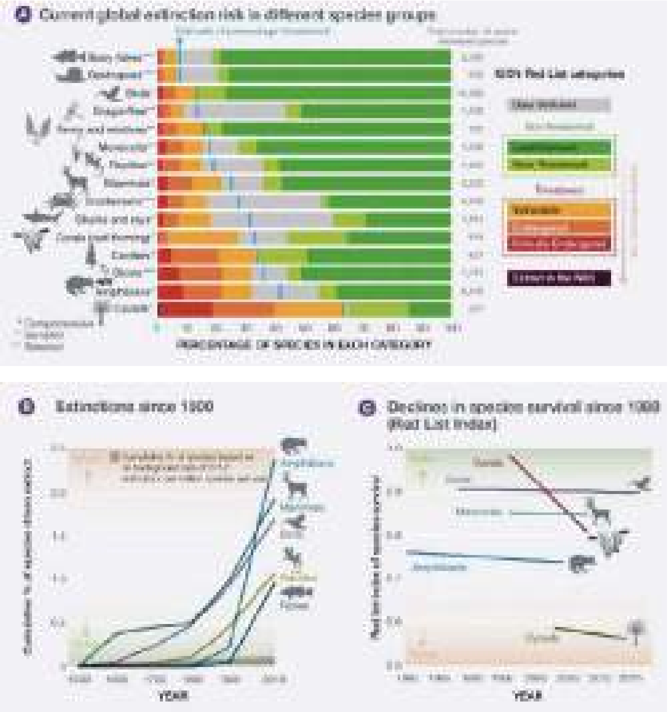

ipbes
Science and Policy for People and Nature

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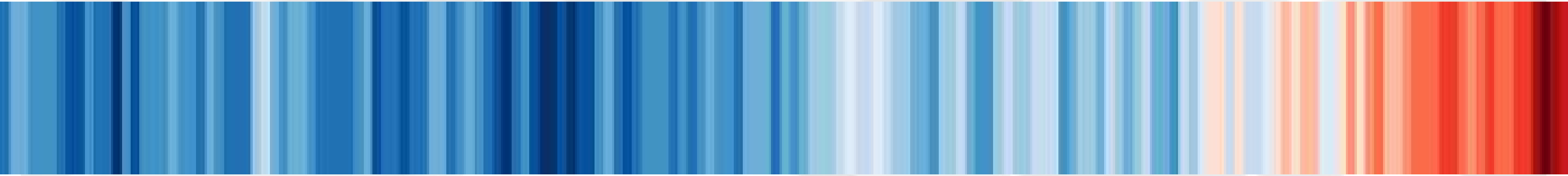
CAMBIO CLIMÁTICO



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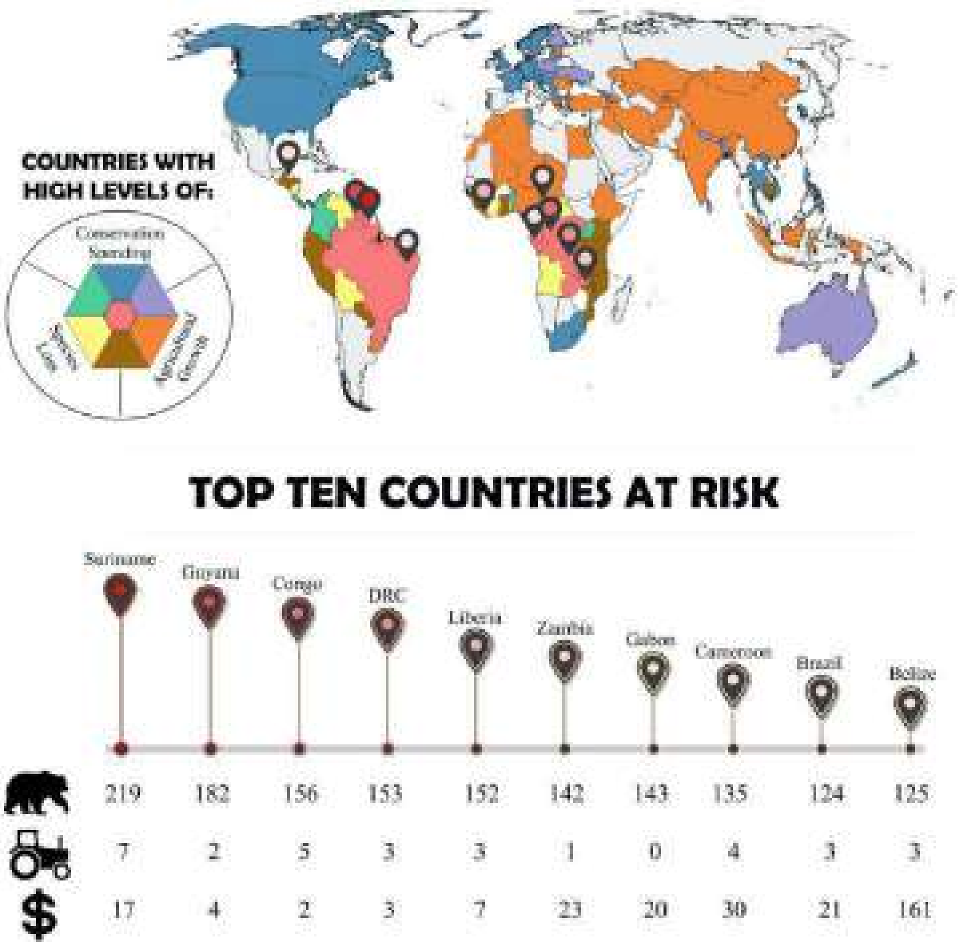

COUNTRIES WITH HIGH LEVELS OF:
Conservation Spending
TOP TEN COUNTRIES AT RISK
Suriname
Guyana
Congo
DRC
Liberia
Zambia
Gabon
Cameroon
Brazil
Belize
219 182 156 153 152 142 143 135 124 125
7 2 5 3 3 1 0 4 3 3
$ 17 4 2 3 7 23 20 30 21 161

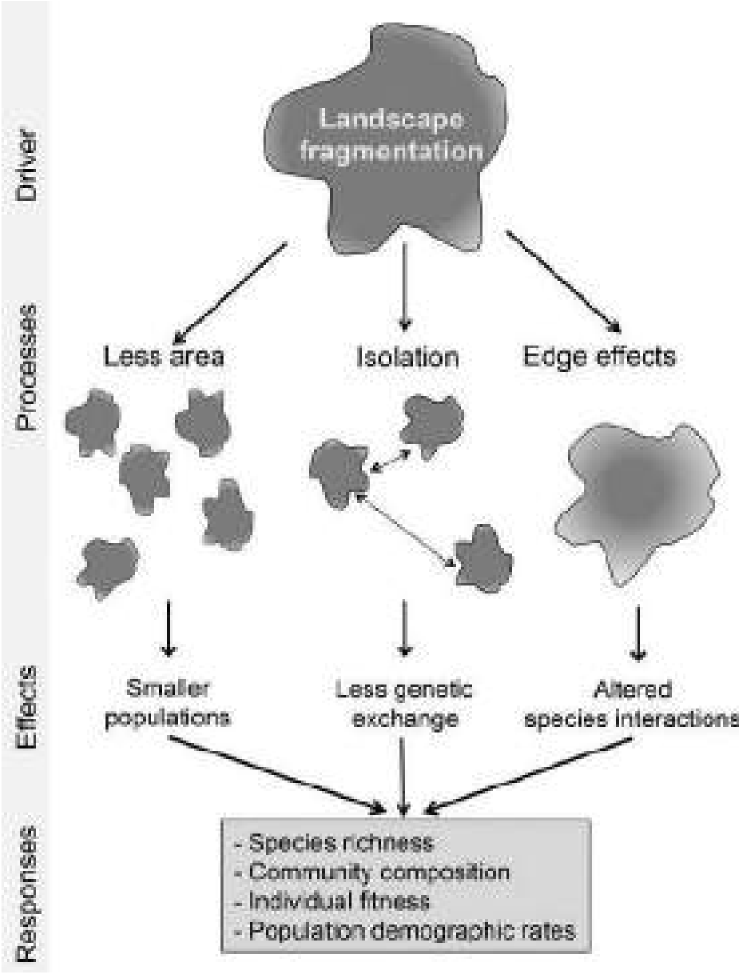
giz

USFWS & WCS 2018

Fragmentación
&
Perdida de hábitat

fragmentación *sust.*

Ecol. proceso en el cual un hábitat es transformado en fragmentos o “parches” más pequeños aislados entre sí por un área o “matriz” con propiedades diferentes a las del hábitat original.



Ibañez et al 2014

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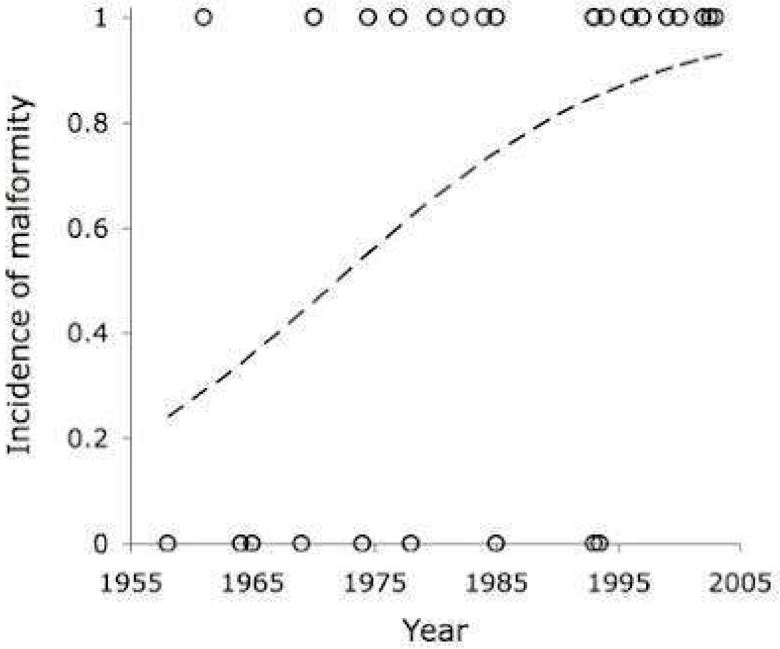
¿QUÉ PASA CUANDO NO HAY **CONECTIVIDAD**?


MINN.
Isle Royale
National Park
Ontario
CANADA
Ferry to
island
Copper
Harbor
41
Lake
Superior
CANADA
U.S.
Houghton
N
50 miles
MICH.
Marquette
WIS.
SOURCE: Google Maps
MARTHA THIERRY/DETROIT FREE PRESS



Räikkönen et al 2009

Adaptado de JC. Delgado 2019

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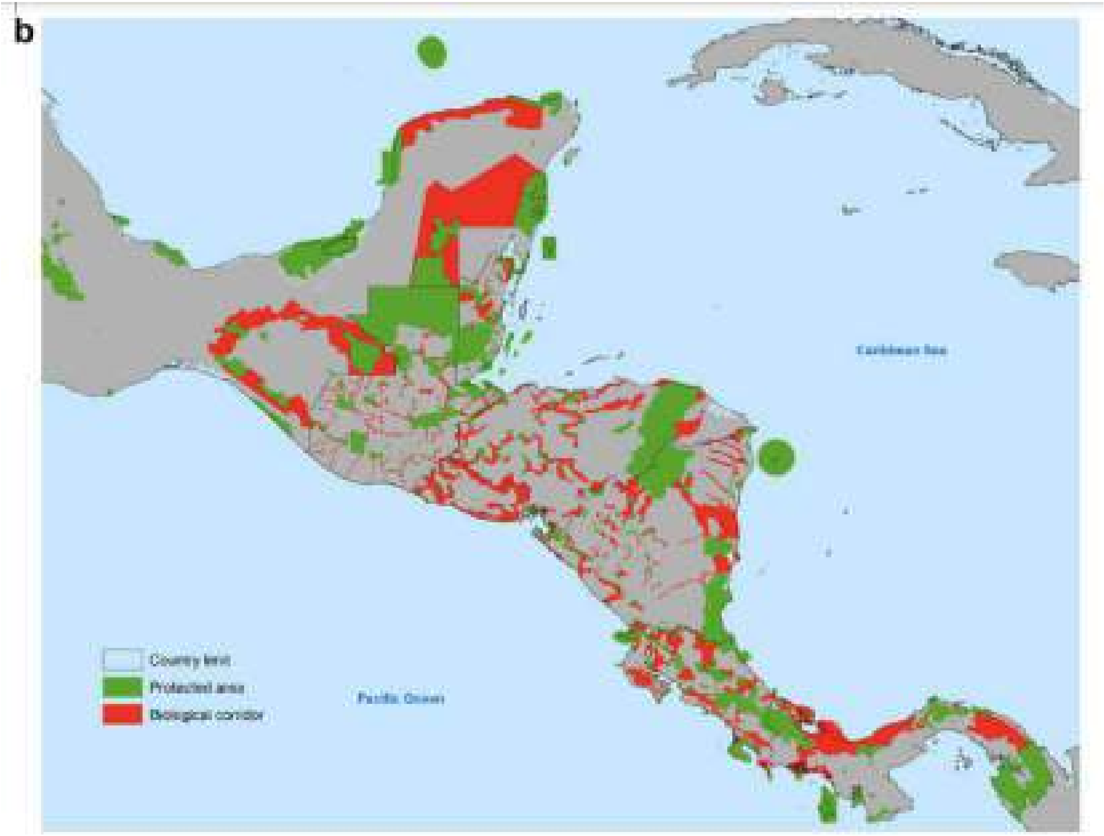
LOS CORREDORES BIOLÓGICOS SON VITALES

DeClerck et al 2010



DeClerck et al 2010

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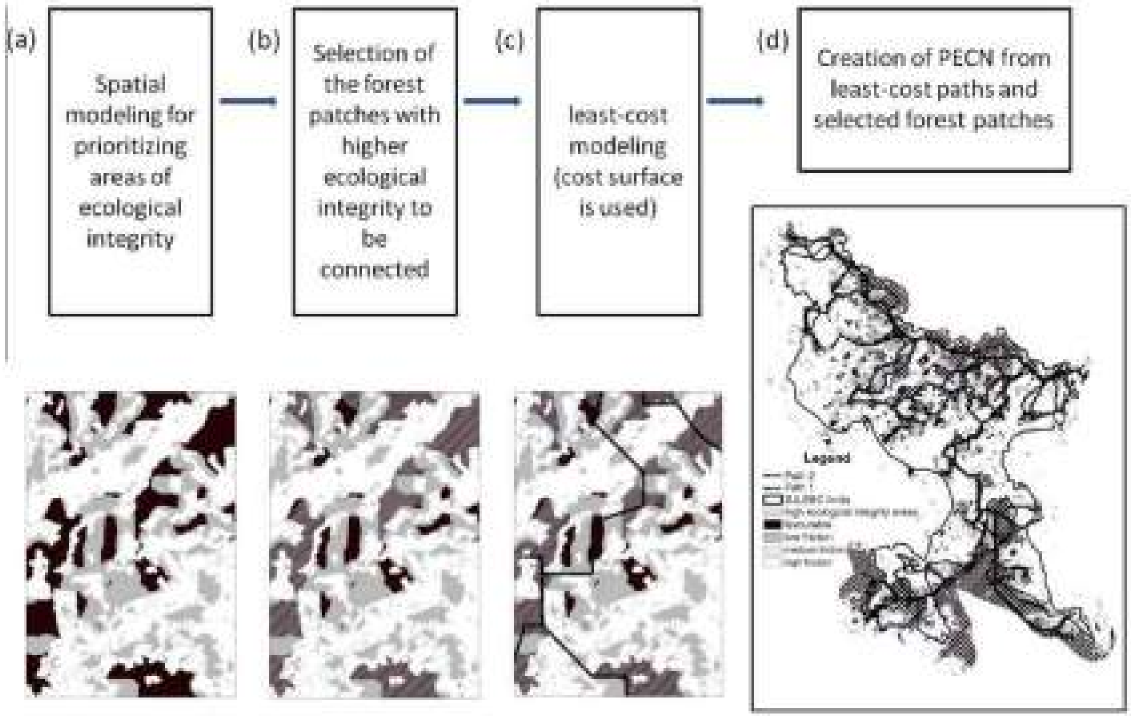
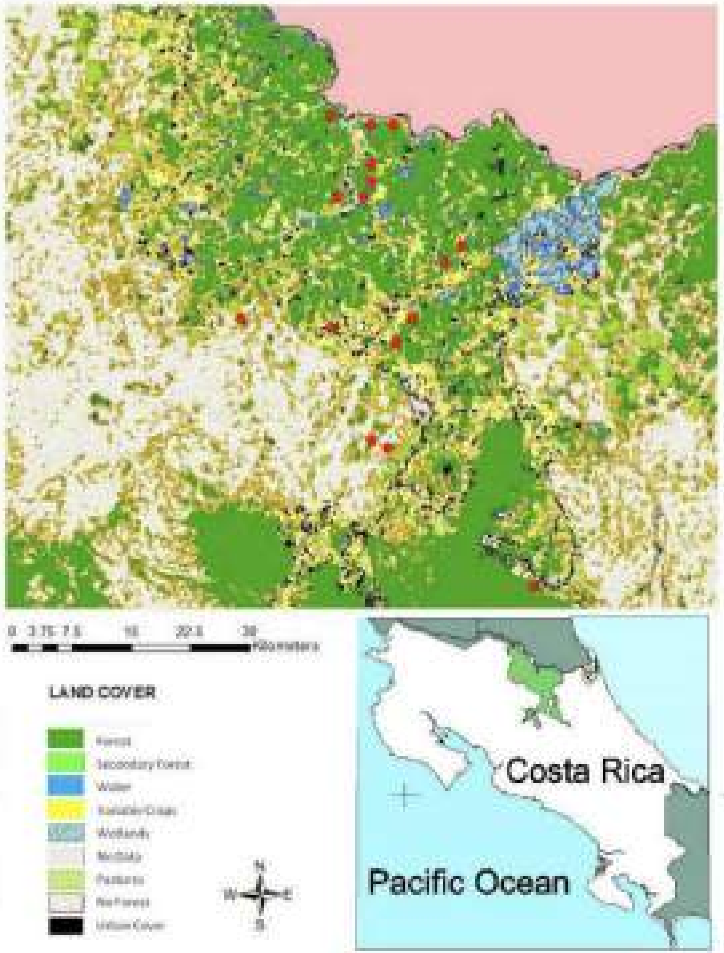
ACG
ACAHN
ACTo
ACC
ACT
ACLAC
ACLAP
ACOPAC
ACOSA
ACMC
MAPA DE CORREDORES BIOLOGICOS
AÑO 2017
(15997 Km²)

ASEGURAR LA **CONECTIVIDAD** EN PAISAJE AGRÍCOLA ES **CLAVE** PARA LA **BIODIVERSIDAD**

Corredor Biológico San Juan – La Selva





Corredor Biológico San Juan – La Selva


a
b
c
d
Stealth Cam 073 F 07-16-2010 06:00:44
Stealth Cam 073 F 07-22-2010 04:11:52
HCO ScoutGuard 8.12.2010 7:02:54
HCO ScoutGuard 7.18.2009 11:24:06

LOS **REMANENTES BOSCOSOS EN EL AGROPAISAJE** SON **FUNDAMENTALES**


teletica.com
TN7
ANIMALES CAMINABAN POR
CALLE EN MEDIO DE FINCAS

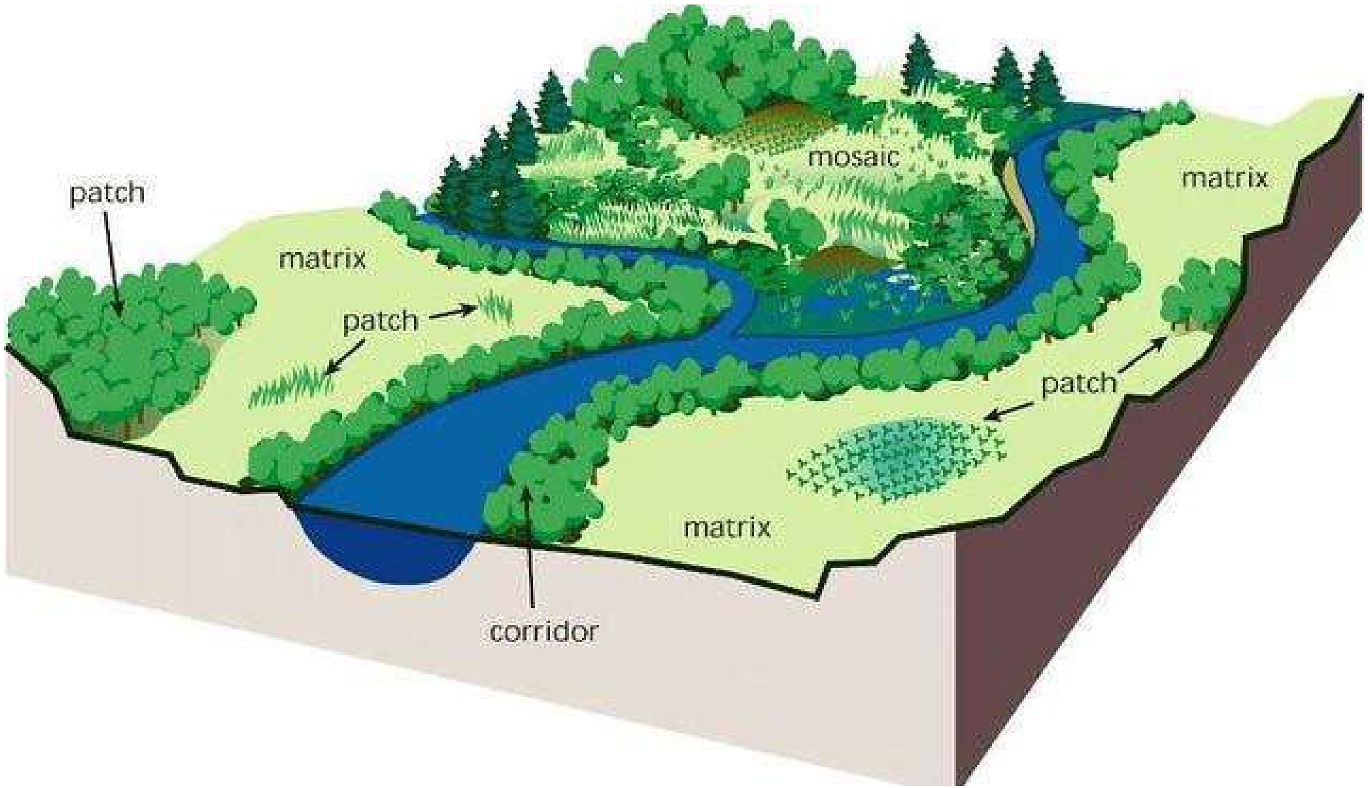
giz


Imagen tomada de Facebook

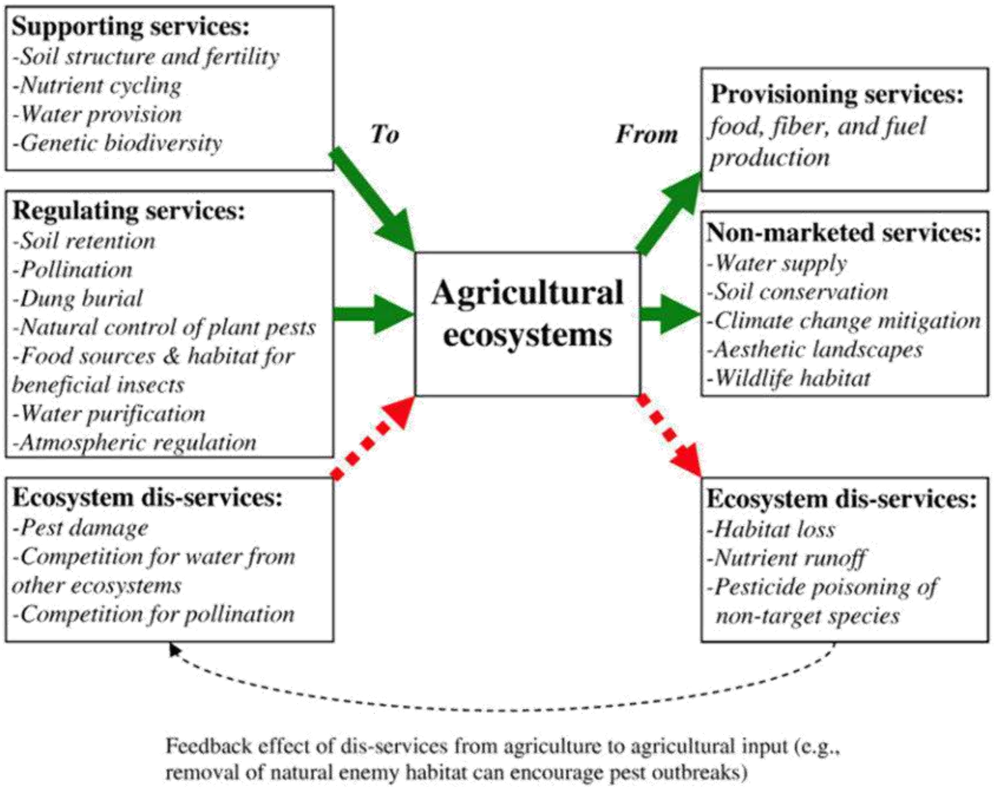
¿POR QUÉ PENSAR EN CONECTIVIDAD?


Refugio de Vida Silvestre el Nogal


Refugio de Vida Silvestre Montaña del Tigre
Google Earth
N
1 km


patch
matrix
patch
mosaic
matrix
patch
matrix
corridor

Los **corredores** internos aseguran **servicios clave** para la **producción**



Zhang et al 2007

Imagen: WWF

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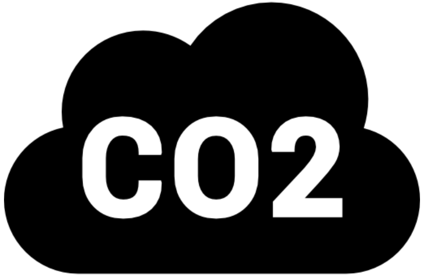
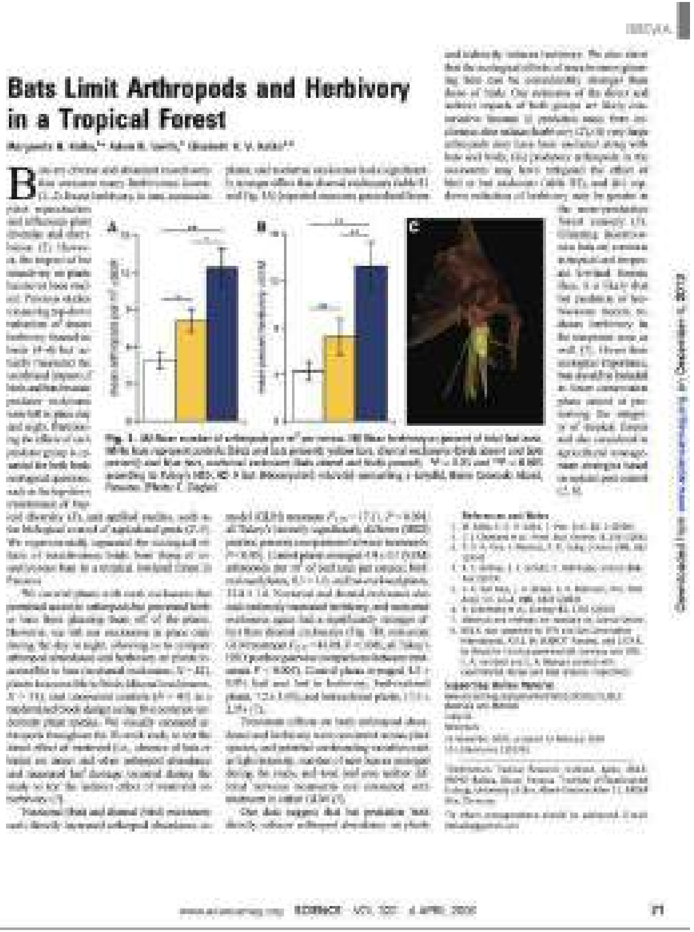

CO2

SERVICIOS DIRECTOS: CONTROL DE PLAGAS


Bats Limit Arthropods and Herbivory in a Tropical Forest

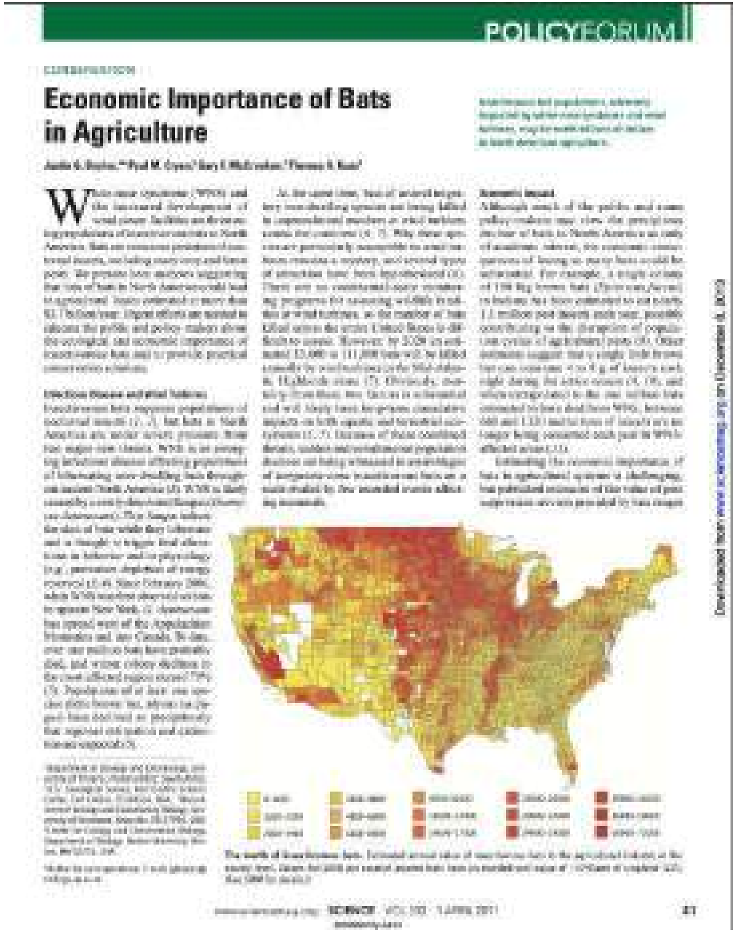

POLICYFORUM
Economic Importance of Bats in Agriculture

Table 1. Value of pest control service provided by the Brazilian free-tailed bat (*Tadarida brasiliensis*) in the Winter Garden region of south-central Texas

Cost or value	*Low egg/larvae survival*	*Reference case*	*High egg/larvae survival*
Avoided crop damage	$121	$638	$1519
Avoided pesticide cost (private)	$0	$100	$200
Avoided pesticide cost (social)	$0	$3	$6
Total annual value	$121	$741	$1725

Units are thousands of $US unless otherwise noted.

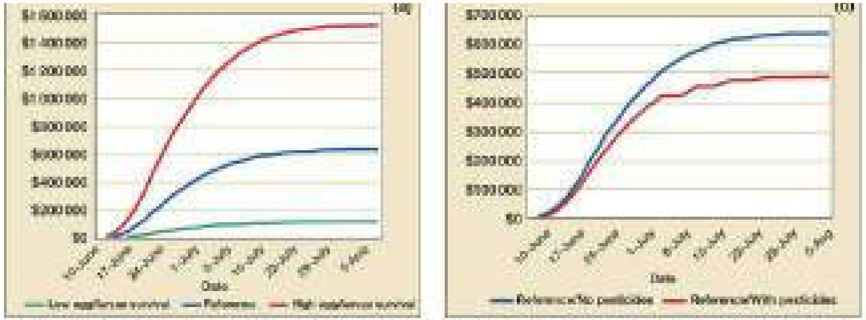


Figure 3. Estimated annual value of insect pest control provided by the Brazilian free-tailed bat (T brasiliensis) to the cotton crop in the Winter Garden region of south-central Texas. (a) Results assume no use of pesticides. (b) The blue line shows the reference case without pesticides, while the red line assumes the use of pesticides.

Figure 1. The Brazilian free-tailed bat (Tadarida brasiliensis).

Cleveland et al 2006

RESEARCH ARTICLE

The effect of local land use on aerial insectivorous bats (Chiroptera) within the two dominating crop types in the Northern-Caribbean lowlands of Costa Rica

Priscilla Alpízar[1¤*], **Bernal Rodríguez-Herrera**[1], **Kirsten Jung**[2]

1 Escuela de Biología, Universidad de Costa Rica, San Pedro de Montes de Oca, San José, Costa Rica,
2 Institute of Evolutionary Ecology and Conservation Genomics, University of Ulm, Ulm, Baden-Württemberg, Germany

¤ Current Address: Institute of Evolutionary Ecology and Conservation Genomics, University of Ulm, Ulm, Baden-Württemberg, Germany
* priscilla.alpizar-alpizar@uni-ulm.de, prisalp55@gmail.com

Check for updates

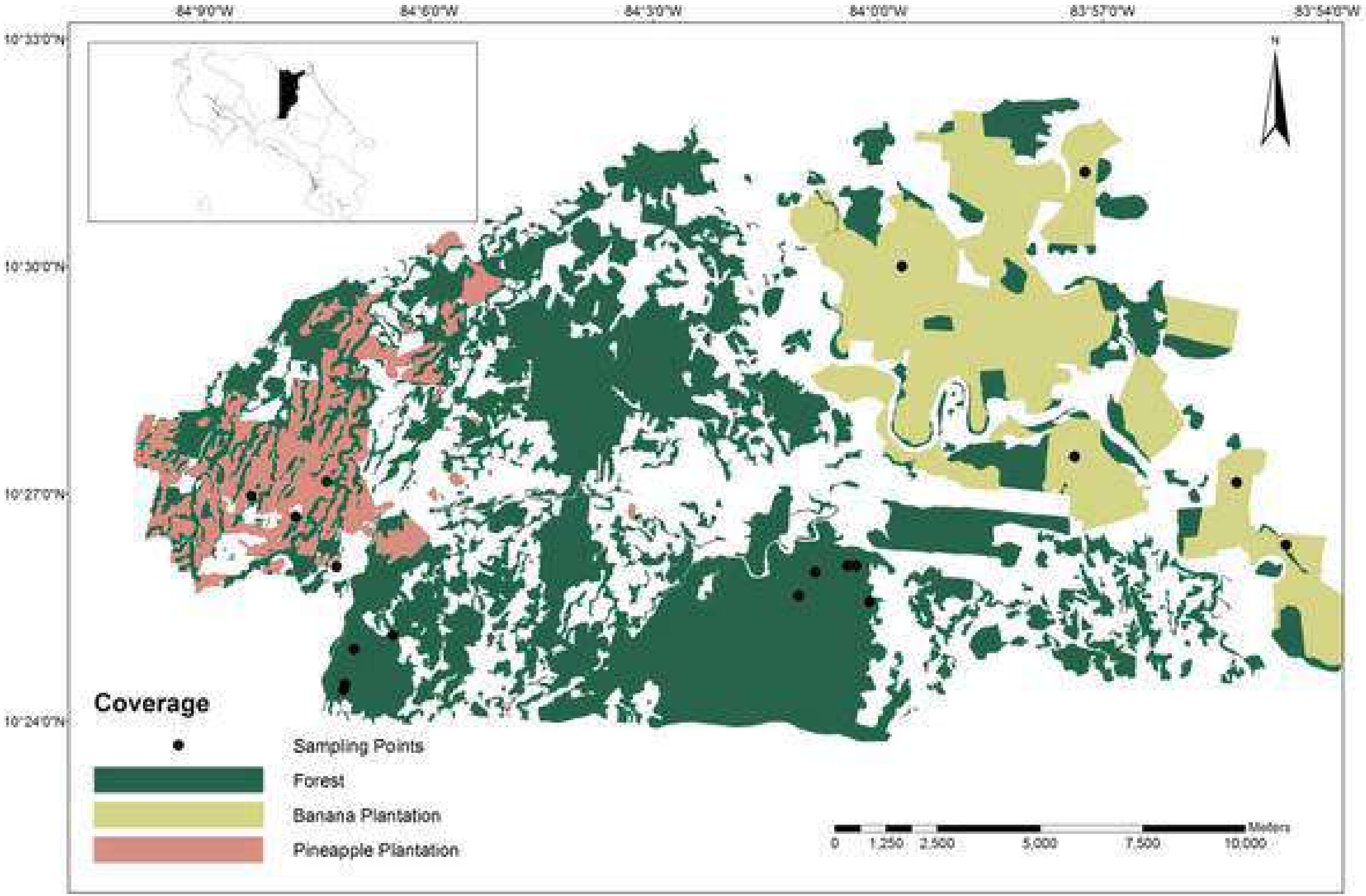
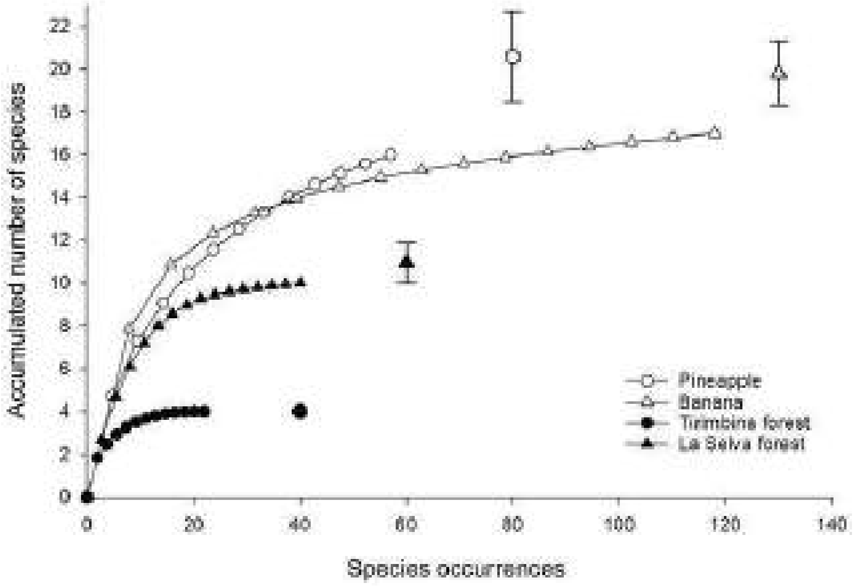

84°9'0"W
84°6'0"W
84°3'0"W
84°0'0"W
83°57'0"W
83°54'0"W
10°33'0"N
10°30'0"N
10°27'0"N
10°24'0"N
N
Coverage
Sampling Points
Forest
Banana Plantation
Pineapple Plantation
0
1,250
2,500
5,000
7,500
10,000
Meters

Table 1. Mean bat activity (passes min^{-1} per night) and total count of feeding buzzes of aerial insectivorous bats in each site category by species.

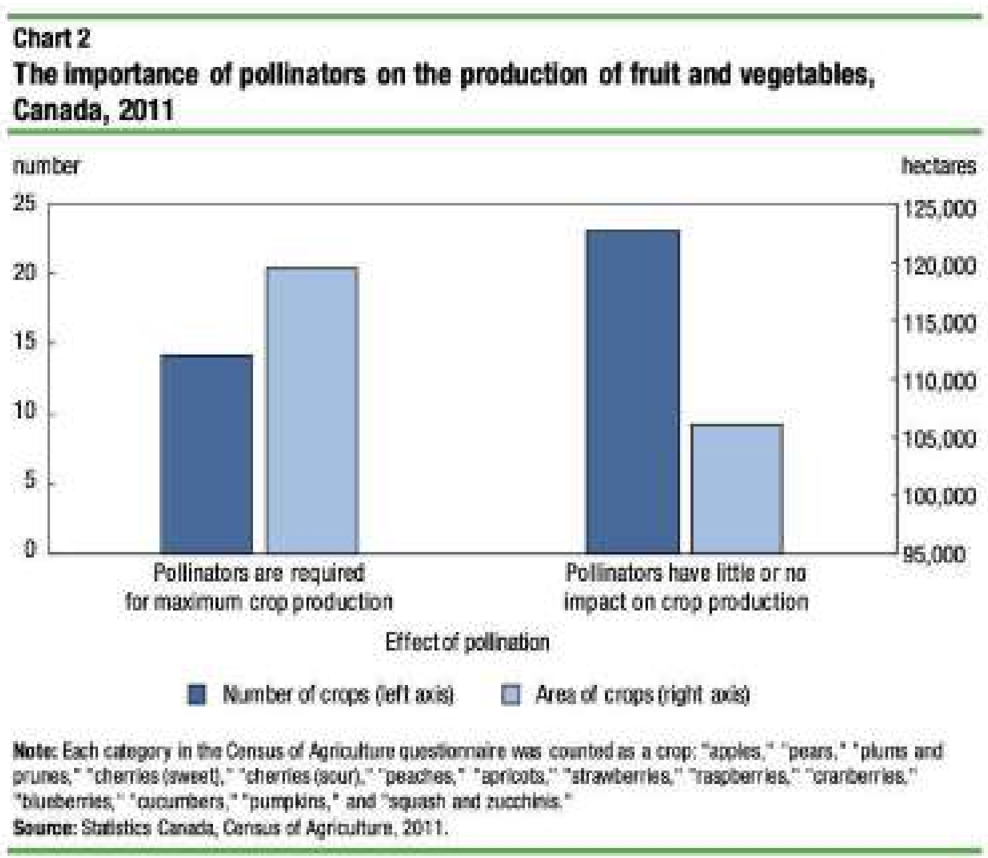
Species	Abbr.	Family	Passes min^{-1} per night			Difference among categories		Total count of feeding buzzes	N
			Banana	Pineapple	Forest	χ^2	p		
Centronycteris centralis	C.cen	EMB	0	0	2.122	23.24	<0.05	18	1203
Cormura brevirostris	C.bre	EMB	0.051	0.012	0.034	3.99	0.14	1	38
Diclidurus albus	D.alb	EMB	0.003	0	0			0	1
Eptesicus brasiliensis/furinalis	E.bf	VES	0.898	0.302	0.092	26.44	<0.05	15	411
Eumops sp.	Eum	MOL	0.311	0.325	0.009	22.73	<0.05	0	185
Lasiurus ega	L.ega	VES	0.029	0.004	0			0	10
Molossus currentium/sinaloae	M.cs	MOL	3.156	1.032	0.141	34.48	<0.05	94	1334
Molossus molossus	M.mol	MOL	0.016	0.028	0			0	12
Myotis albescens	M.alb	VES	0.133	0.040	0	23.61	<0.05	1	52
Myotis elegans	M.ele	VES	0.022	0	0			1	7
Myotis nigricans	M.nig	VES	1.003	0.607	0.055	21.13	<0.05	26	500
Myotis riparius	M.rip	VES	0.003	0	0.016			0	10
Noctilio spp.	Noct	NOC	0.048	0.004	0			0	16
Peropteryx kappleri	P.kap	EMB	0.140	0.012	0.002	15.81	<0.05	2	48
Peropteryx macrotis	P.mac	EMB	0.014	0.008	0			1	6
Pteronotus davyi	P.dav	MOR	0	0.004	0			0	1
Pteronotus gymnonotus	P.gym	MOR	0.003	0	0			0	1
Pteronotus parnellii	P.par	MOR	0	0.008	0.042	10.52	<0.05	1	26
Rhogeessa io	R.io	VES	0	0.004	0			0	1
Saccopteryx bilineata	S.bil	EMB	1.254	0.048	0.169	12.88	<0.05	20	503
Saccopteryx leptura	S.lep	EMB	0.432	0.052	0.048	10.52	<0.05	21	176
Various species		PHY	0.276	0	0.007			0	102
Not identified			0.105	0	0.035			1	53

[1] Bat families recorded in this study were: Emballonuridae (EMB), Molossidae (MOL), Mormoopidae (MOR), Noctilionidae (NOC), Phyllostomidae (PHY), and Vespertilionidae (VES).
[2] Difference between categories were only calculated for aerial insectivorous bat species with more than 20 bat passes during the entire study using Kruskal-Wallis test with df=2.
[3] Mean bat activity has been multiplied by 10 in this table to obtain numbers with less decimals.
[4] Total count of bat passes min^{-1} for all study sites is also given (N).



Alpizar et al 2019

SERVICIOS DIRECTOS: POLINIZACIÓN



Alpizar et al 2019

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TENDIENDO PUENTES PARA LA CONECTIVIDAD EN EL AGROPAISAJE

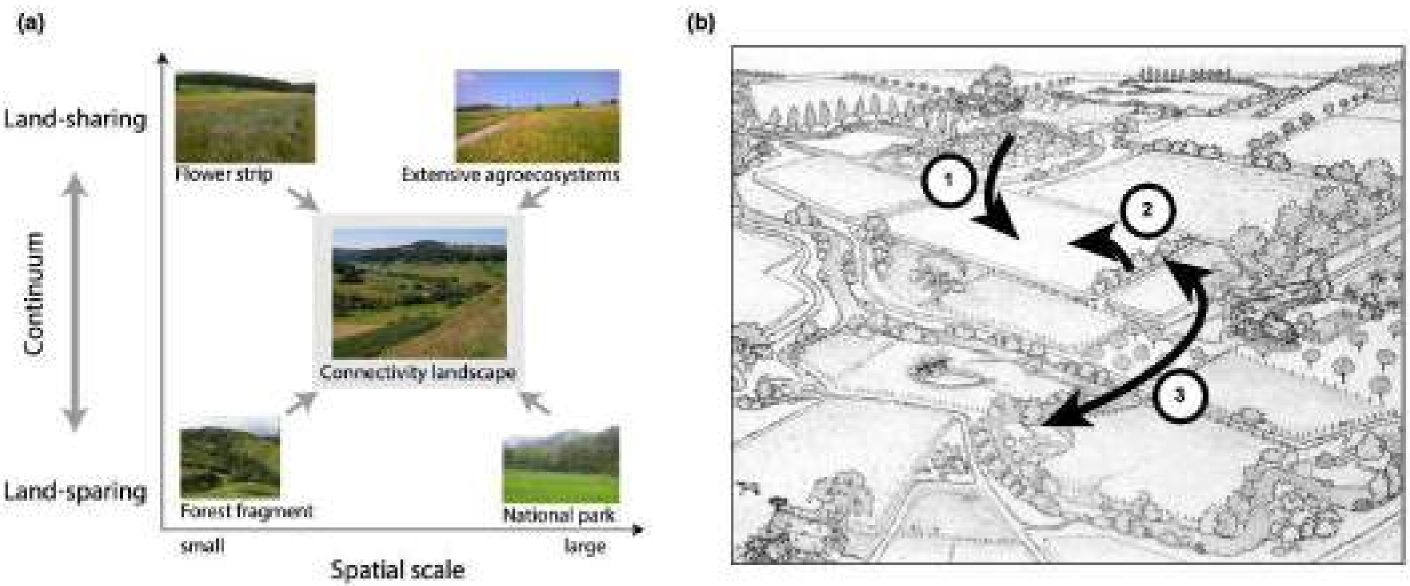

FIGURE 2 Land-sharing/-sparing connectivity landscapes. (a) Land-sharing and land-sparing measures cover multiple spatial scales and fall along a sharing–sparing continuum. Their combination in land-sharing/-sparing connectivity landscapes promotes both biodiversity conservation and the provisioning of ecosystem services. (b) High connectivity across the agricultural landscape matrix is needed for land-sharing and land-sparing to be successful. The connectivity matrix ensures (1) spillover from (spared) natural habitats to agroecosystems as well as (2) spillover from (shared) crop boundaries to agroecosystems. In addition, (3) landscape connectivity facilitates immigration and species dispersal, counteracting possible extinctions in spared habitats and providing response diversity in changing environments

Grass et al 2018

86 | Journal of Applied Ecology LUKE ET AL.

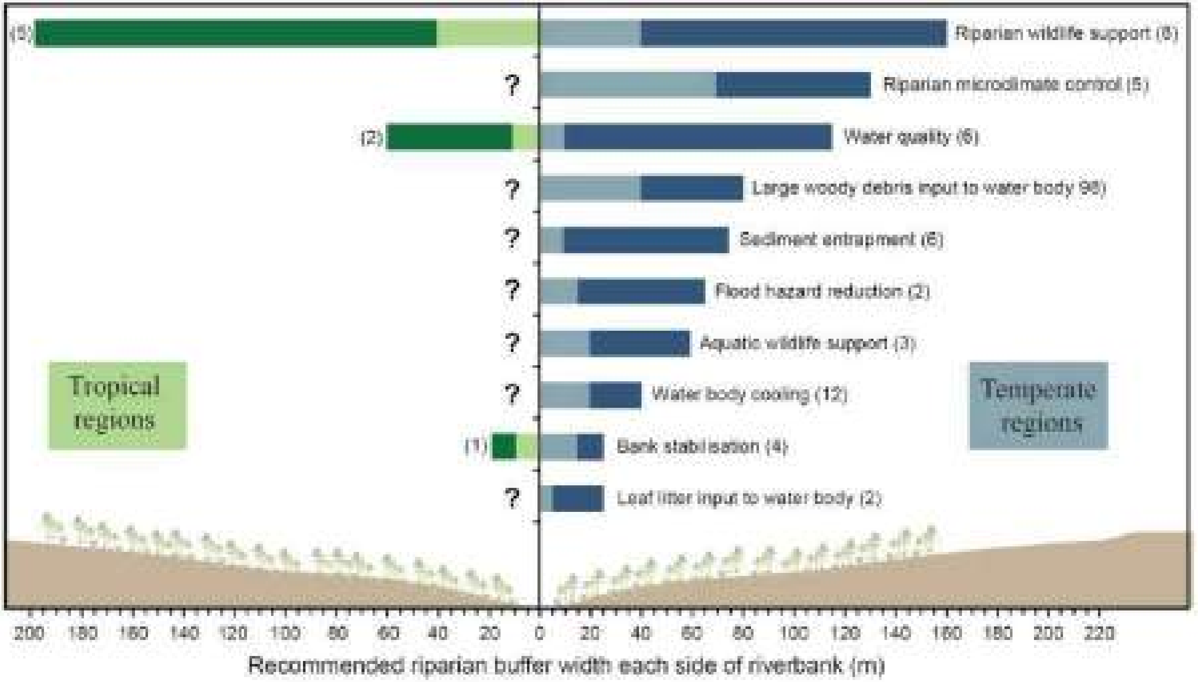

FIGURE 1 Minimum (light shading) and maximum (dark shading) riparian buffer widths recommended to protect riparian functions in temperate (evidence for North America in Collins et al., 2006) and tropical regions (material in this manuscript and Barclay et al., 2017). The number of studies on which the recommendations are based are in parentheses

Luke et al 2018

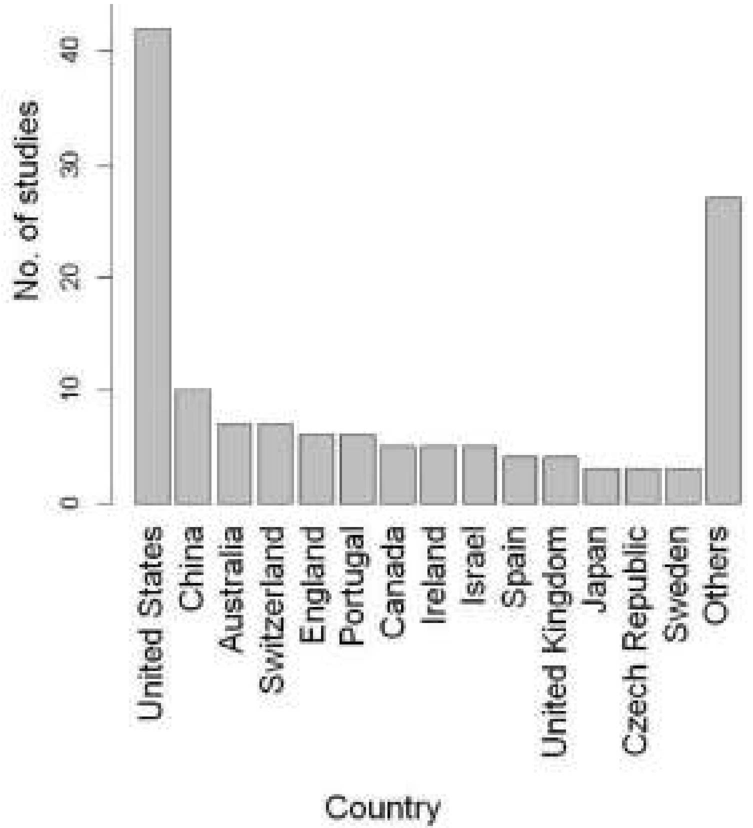

Fig. 3. Number of studies done on aerial insectivorous bats' diets by country in which the field work was done.

Note. The countries with only one study are: Afghanistan, Belgium, Bolivia, Costa Rica, Italy, Kazakhstan, Latvia, Mexico, Pakistan, Poland, Seychelles, Slovenia, Sri Lanka, Swaziland, South Africa, Tajikistan, Tanzania, Tasmania, Uzbekistan, Zambia, Zimbabwe.
Note. The countries with two studies are: Brazil, India, Iran, Germany, Kirghizstan, Madagascar, Puerto Rico, Slovakia, Thailand.

Alpizar et al 2019

PLANEAR INTEGRALMENTE PARA **COEXISTIR**

Marchini et al. in prep.

CERTIFIED
JAGUAR
FRIENDLY™

JAGUAR

Panthera onca

Population Trend:
Decreasing

IUCN Status:

NEAR THREATENED

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PROTAGONISMO DE **PRODUCTORES COMPROMETIDOS**

Monitoreo de vida silvestre como herramienta de conservación de la biodiversidad

ESTRUCTURA DEL PAISAJE

FUNCIONALIDAD PARA BIODIVERSIDAD

RESTAURACIÓN Y MANEJO

”Café con Sombra”
Deirdre Hyde

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@osaconservation

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www.bairdstapir.org

Del campo al plato
Programa virtual de capacitación

Ronda de preguntas de los participantes

Moderadora: Sussan Morales, GIZ
Facilitador: Esteban Brenes Mora, Costa Rica Wildlife Foundation

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¡Muchas gracias!

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Global Nature Fund

Por encargo de

Ministerio Federal de Medio Ambiente, Protección de la Naturaleza y Seguridad Nuclear

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