Cambio Climático y Biodiversidad

Coloquio de Ingeniería Agrícola y de Biosistemas
3 de setiembre de 2015

La bolincha azul – 7 Diciembre 1972 (Apolo 17)

“we're not the first to discover this, but we'd like to confirm, from the crew of Apollo 17, that the world is round”

“all what I know of life is down there”


RADIO MARIA
RADIO MARIA

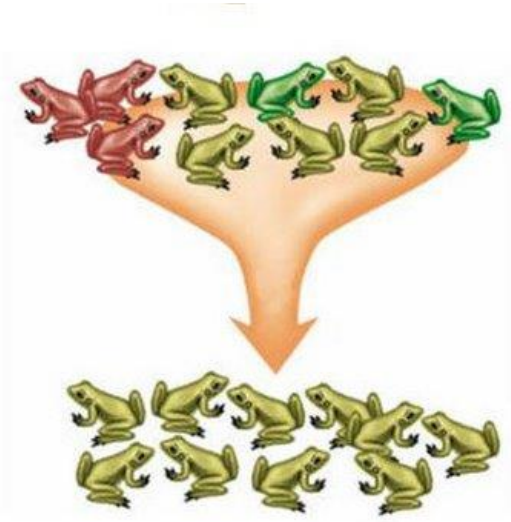

'Televisie etalage van de wereld'

Fenómenos creadores de especies

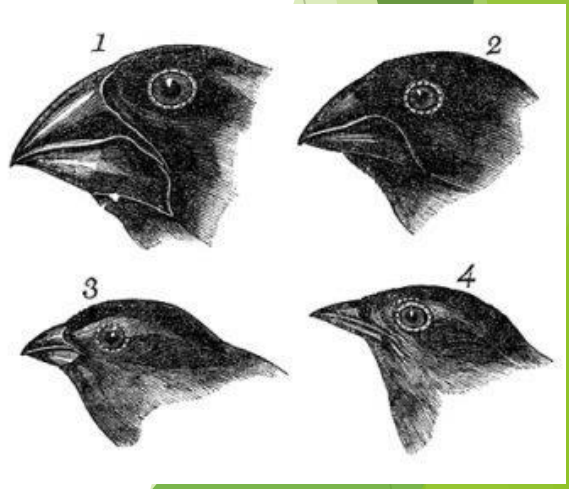
Mutación

Migración

Deriva genética



Selección natural



Efecto sobre biodiversidad

Sobre especies

Extinción/
Especiación

Diversidad genética/
Reproducción

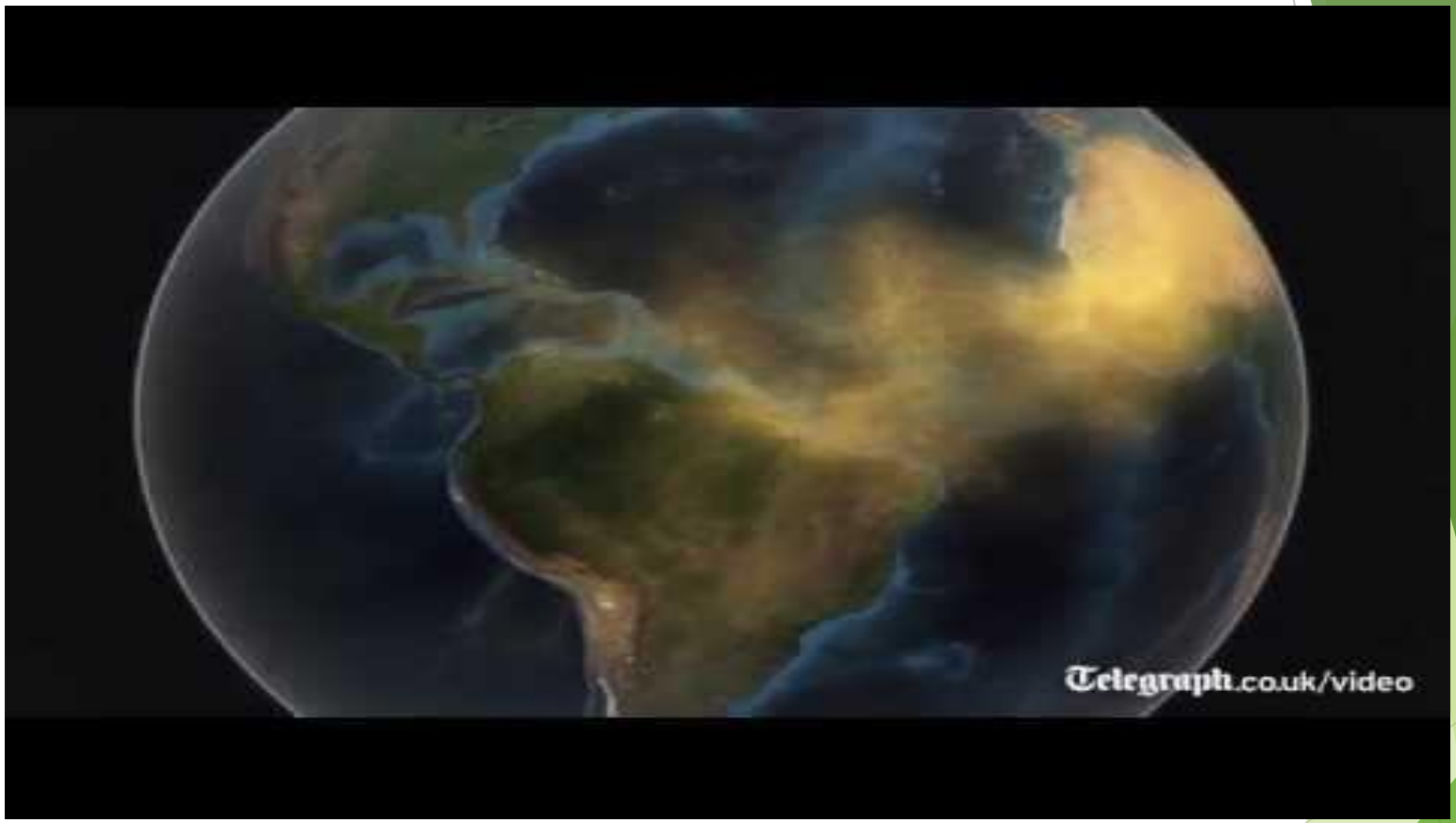
Historia natural/
Ecología

Sobre ecosistemas

Servicios ambientales

Flujo energético/
Redes tróficas

Fuerza de interacciones


Telegraph.co.uk/video

Imprimir

Enviar

Polvo del Sahara inhibe las lluvias en Costa Rica

POR HUGO SOLANO / hsolano@nacion.com - Actualizado el 25 de agosto de 2015 a: 04:06 p.m.

- Fenómeno del Niño hace que más masas de aire seco de este tipo lleguen hasta Centroamérica
- Meteorológico recomienda a personas con padecimientos respiratorios no hacer actividades al aire libre

La masa de polvo africano puede afectar a personas propensas al asma. A las 3:20 p. m. de este martes la atmósfera se veía así al sur de Tibás. (JOHN DURÁN)

Ampliar

PUBLICIDAD

ÚLTIMAS NOTICIAS

07:22 A.M. En vivo: Andrey Amador afronta etapa 12 de la Vuelta a España, Chris Froome ya no está en carrera

07:17 A.M. Presidente Otto Pérez Molina dice que se presentará ante juez

06:36 A.M. Ciudadanos de Guatemala celebran renuncia del presidente Otto Pérez Molina

05:53 A.M. Presidente de Guatemala Otto Pérez Molina renuncia tras orden de

MÁS

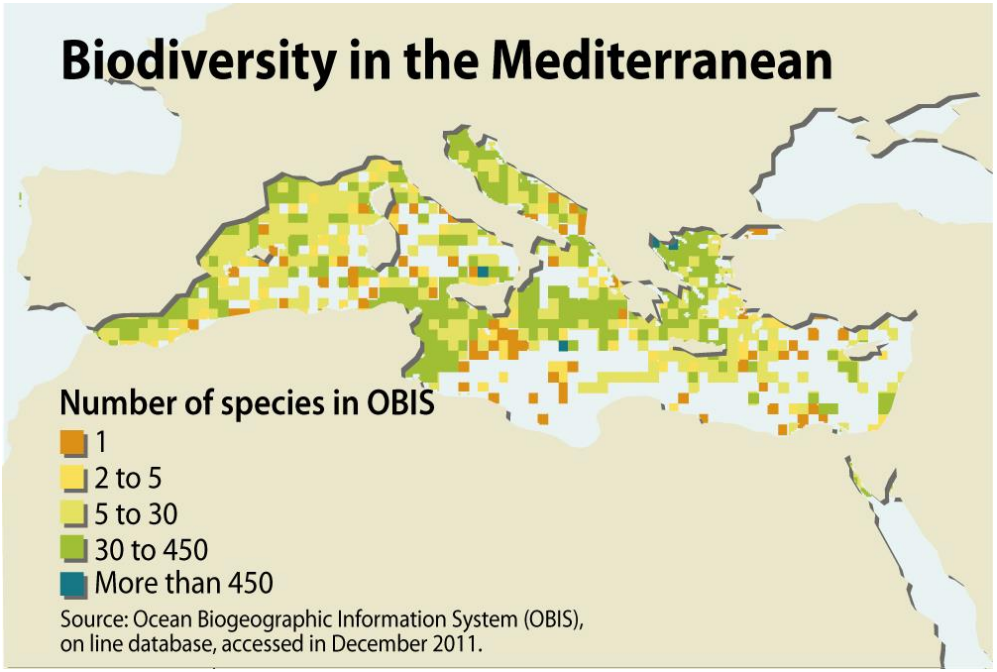
Efecto sobre biodiversidad

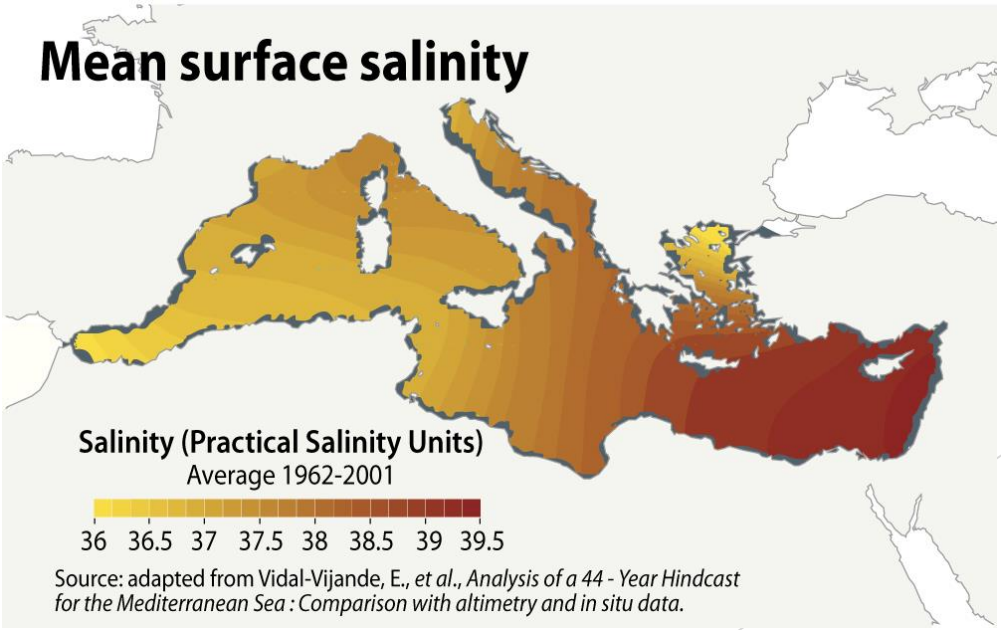
Sobre especies

Sobre ecosistemas

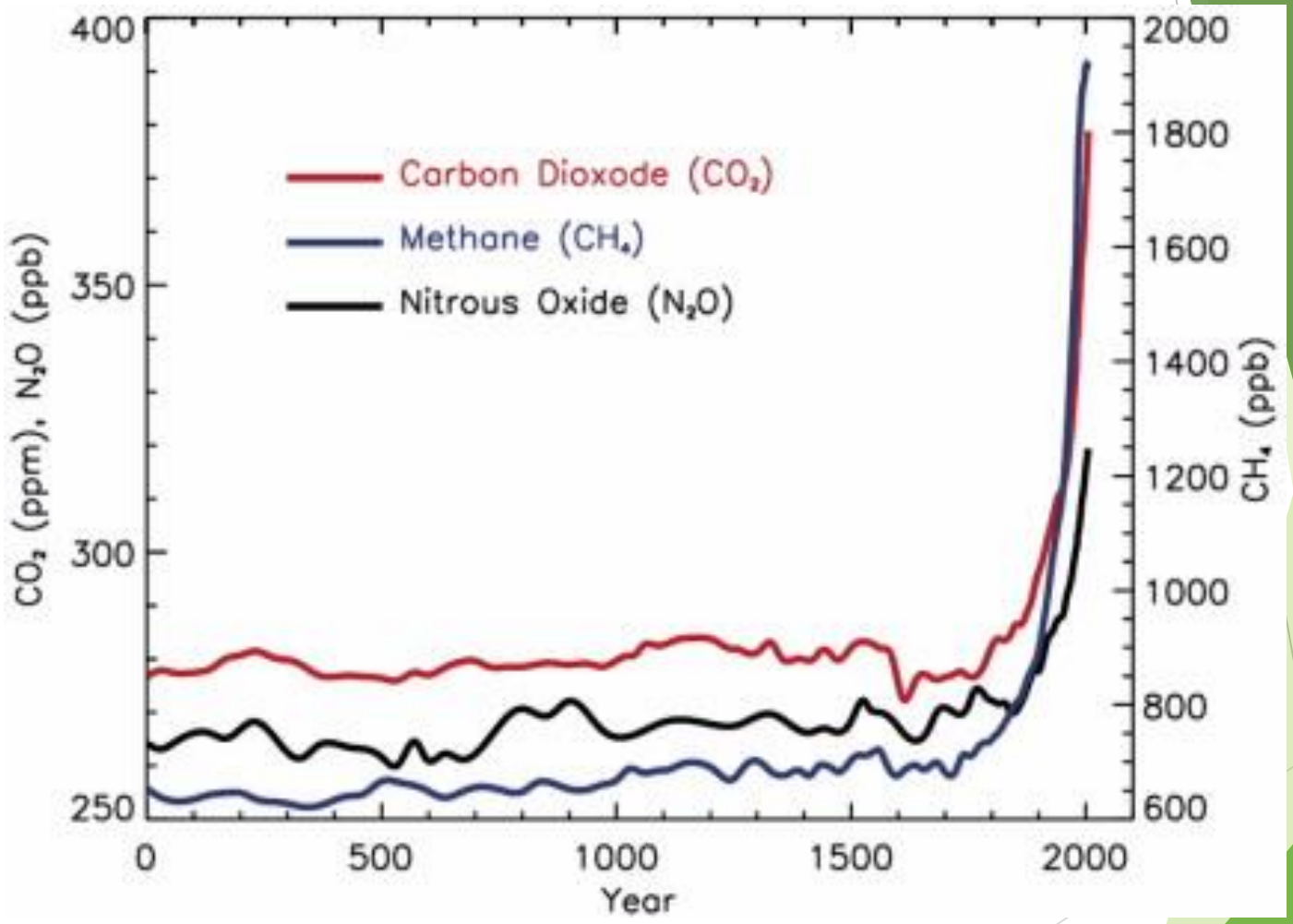
Efecto sobre biodiversidad

Cambio en el uso de la tierra
Contaminación
Degradación de suelos/aguas
Evolución ambiental
Fragmentación ecosistemas
Pérdida de hábitat
Explotación selectiva de especies
Introducción de especies foráneas
Agotamiento de ozono

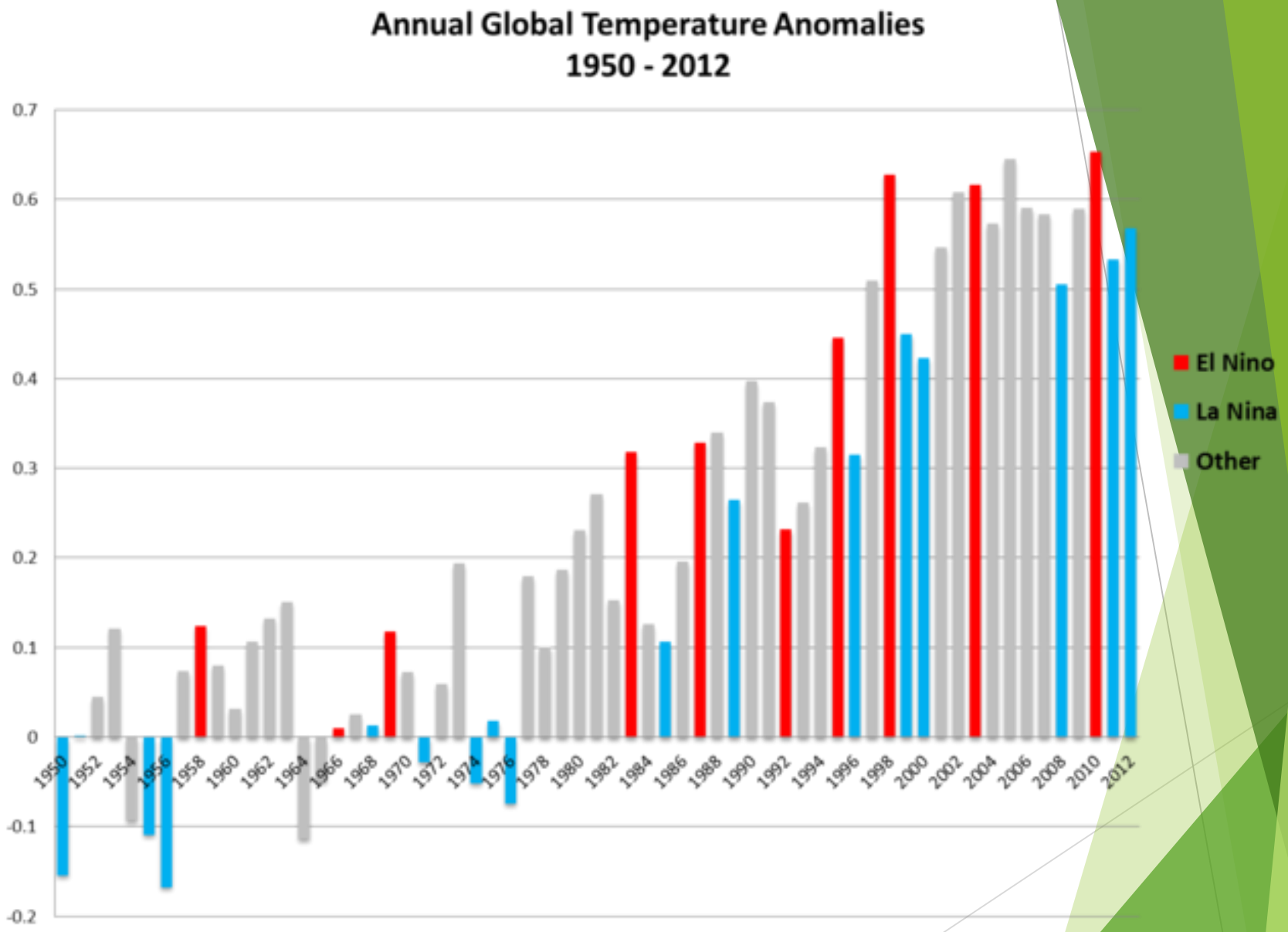

Biodiversity in the Mediterranean
Number of species in OBIS
1
2 to 5
5 to 30
30 to 450
More than 450
Source: Ocean Biogeographic Information System (OBIS), on line database, accessed in December 2011.


Mean surface salinity
Salinity (Practical Salinity Units)
Average 1962-2001
36 36.5 37 37.5 38 38.5 39 39.5
Source: adapted from Vidal-Vijande, E., et al., Analysis of a 44 - Year Hindcast for the Mediterranean Sea : Comparison with altimetry and in situ data.

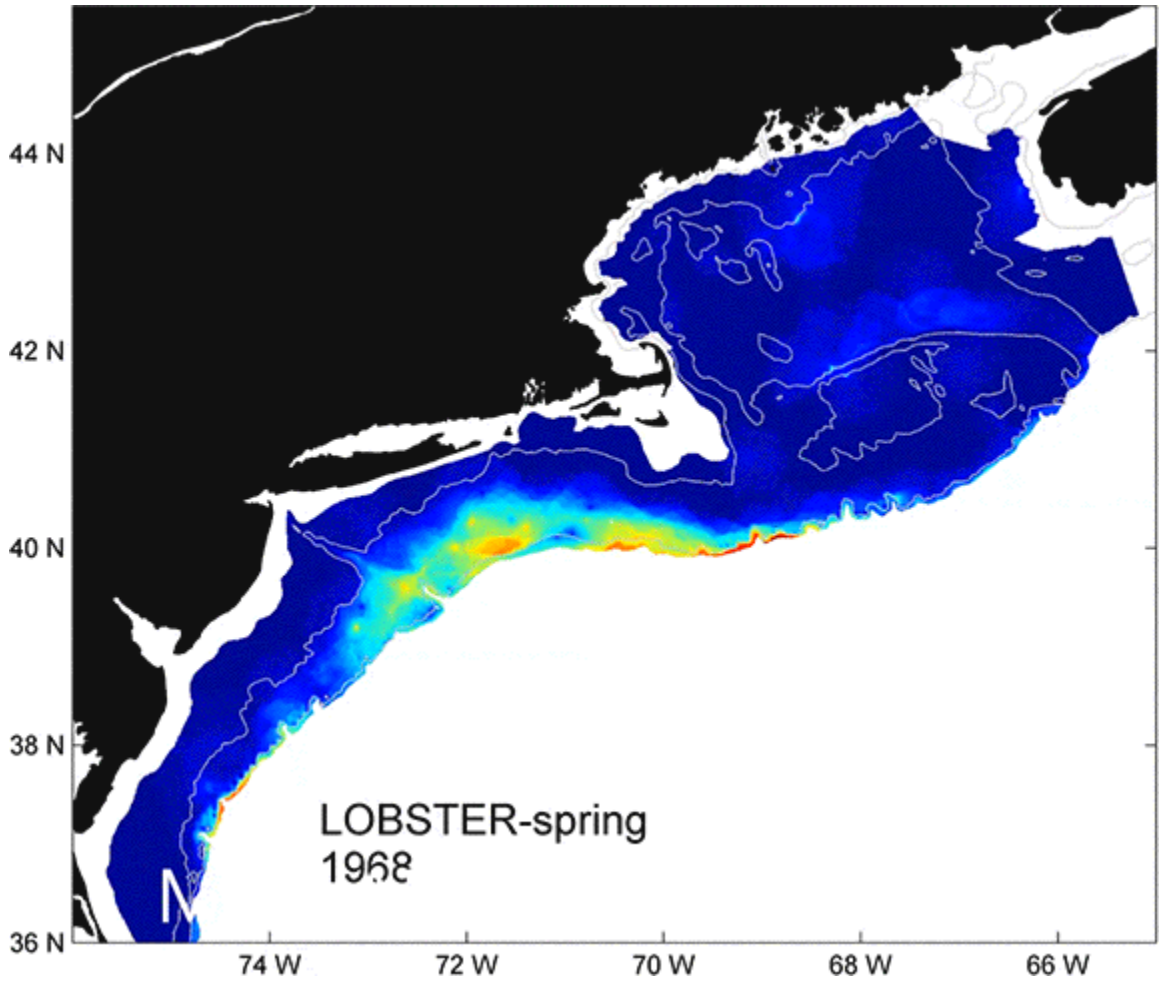
Y entonces qué con el cambio climático?



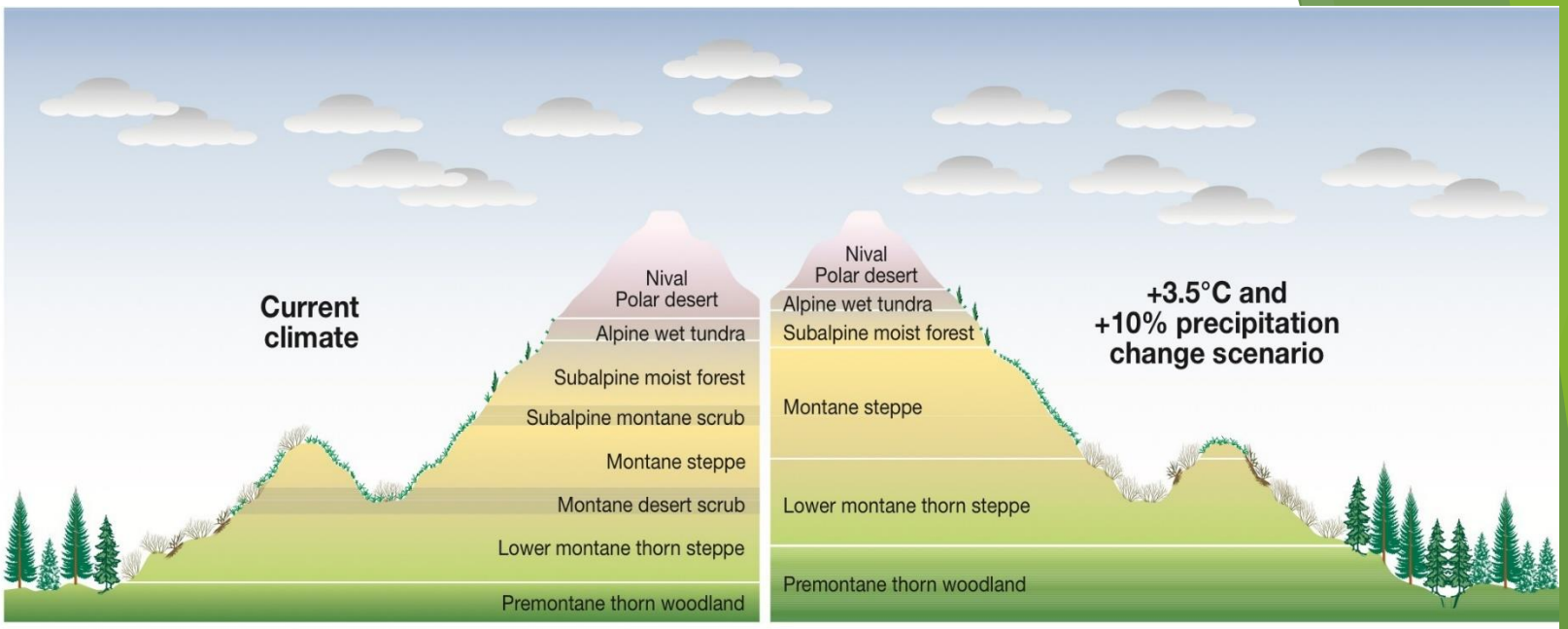
Cuarto informe del IPCC sobre CC, 2007


Annual Global Temperature Anomalies
1950 - 2012
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
El Nino
La Nina
Other

NOAA, 2014

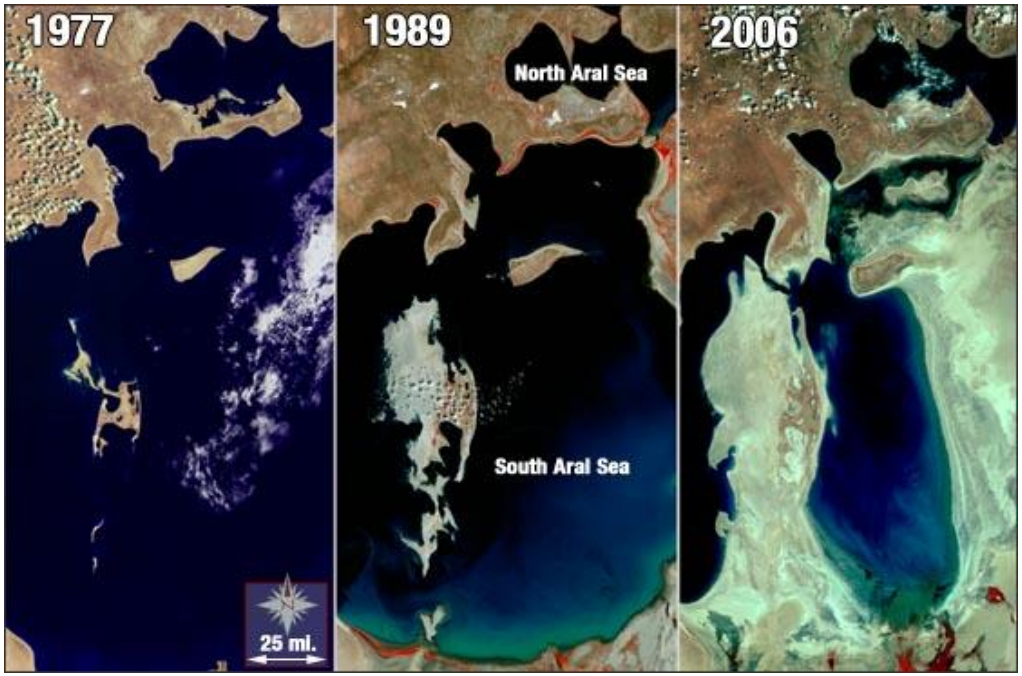


Variaciones en dinámica de vida de especies?

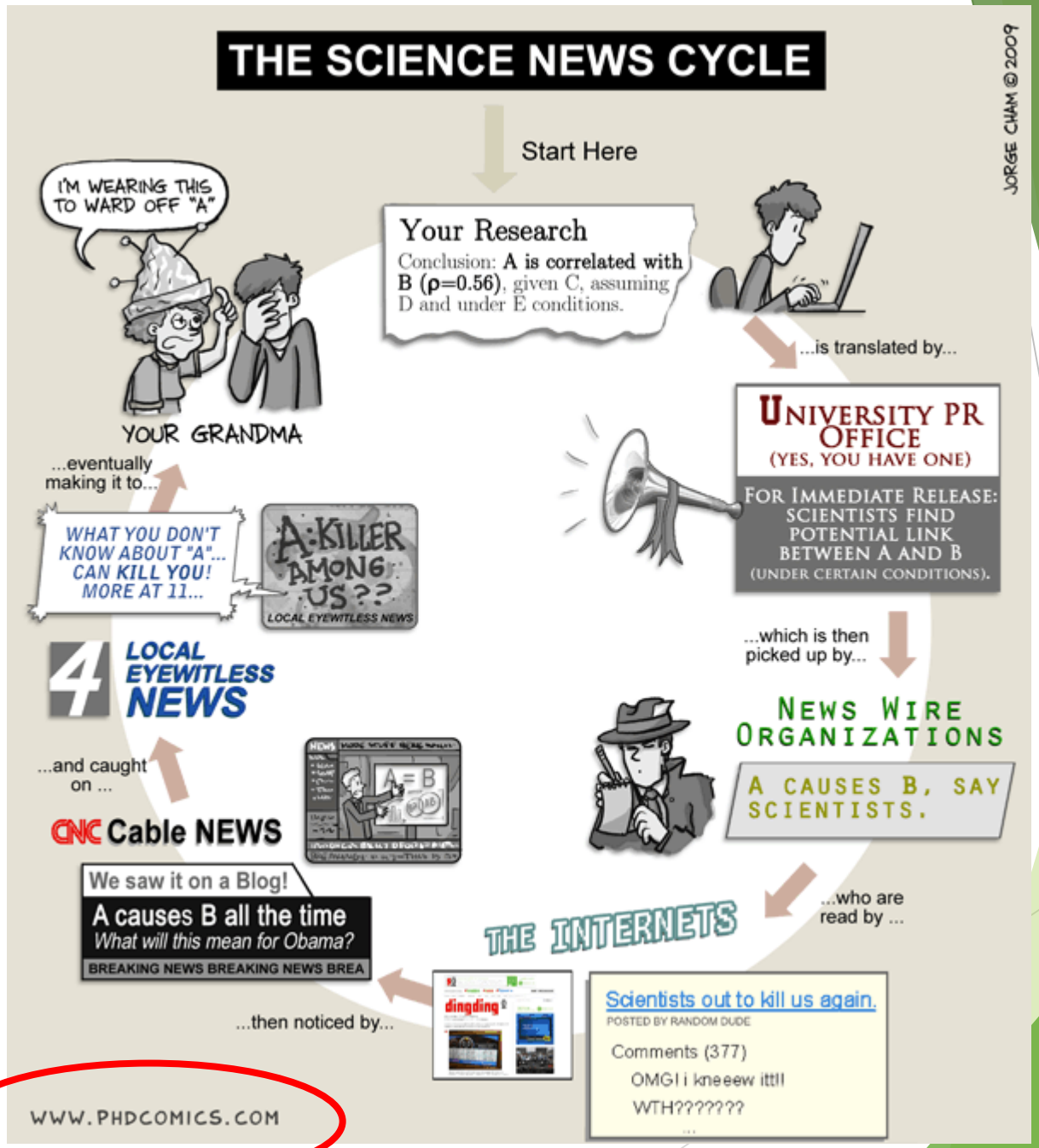


Sources: UNEP/GRID-Arendal 2008; Benitson 1994; Watson *et al*. 1995.

Cambios en características de ecosistemas?



Mar de Aral (Kazajistán y Usbekistán)


THE SCIENCE NEWS CYCLE
JORGE CHAM © 2009
Start Here
Your Research
Conclusion: A is correlated with B (ρ=0.56), given C, assuming D and under E conditions.
...is translated by...
UNIVERSITY PR OFFICE
(YES, YOU HAVE ONE)
FOR IMMEDIATE RELEASE: SCIENTISTS FIND POTENTIAL LINK BETWEEN A AND B
(UNDER CERTAIN CONDITIONS).
...which is then picked up by...
NEWS WIRE ORGANIZATIONS
A CAUSES B, SAY SCIENTISTS.
...who are read by ...
THE INTERNETS
Scientists out to kill us again.
POSTED BY RANDOM DUDE
Comments (377)
OMG! i kneeew it!!!
WTH???????
...
...then noticed by...
dingding
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...eventually making it to...
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A: KILLER AMONG US??
LOCAL EYEWITLESS NEWS
I'M WEARING THIS TO WARD OFF "A"
YOUR GRANDMA
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ECOLOGY LETTERS

Ecology Letters, (2013) **16**: 58–71 doi: 10.1111/ele.12098

IDEA AND PERSPECTIVE

Beyond climate change attribution in conservation and ecological research

Camille Parmesan,[1,2]* Michael T. Burrows,[3] Carlos M. Duarte,[4,5,6] Elvira S. Poloczanska,[7] Anthony J. Richardson,[7,8] David S. Schoeman[9,10] and Michael C. Singer[2]

Abstract

There is increasing pressure from policymakers for ecologists to generate more detailed 'attribution' analyses aimed at quantitatively estimating relative contributions of different driving forces, including anthropogenic climate change (ACC), to observed biological changes. Here, we argue that this approach is not productive for ecological studies. Global meta-analyses of diverse species, regions and ecosystems have already given us '*very high* confidence' [*sensu* Intergovernmental Panel on Climate Change (IPCC)] that ACC has impacted wild species in a general sense. Further, for well-studied species or systems, synthesis of experiments and models with long-term observations has given us similarly high confidence that they have been impacted by regional climate change (regardless of its cause). However, the role of greenhouse gases in driving these impacts has not been estimated quantitatively. Should this be an ecological research priority? We argue that development of quantitative ecological models for this purpose faces several impediments, particularly the existence of strong, non-additive interactions among different external factors. However, even with current understanding of impacts of global warming, there are myriad climate change adaptation options already developed in the literature that could be, and in fact are being, implemented now.

Keywords

Anthropogenic climate change, biodiversity, biological projections, climate change, climate change attribution, conservation planning, ecological modelling, global warming, IPCC.

Ecology Letters (2013) **16**: 58–71

REVIEW

CORRECTED 1 APRIL 2011; SEE LAST PAGE

Beyond Predictions: Biodiversity Conservation in a Changing Climate

Terence P. Dawson,[1] Stephen T. Jackson,[2] Joanna I. House,[3] Iain Colin Prentice,[3,4,5] Georgina M. Mace[4,6]*

Climate change is predicted to become a major threat to biodiversity in the 21st century, but accurate predictions and effective solutions have proved difficult to formulate. Alarming predictions have come from a rather narrow methodological base, but a new, integrated science of climate-change biodiversity assessment is emerging, based on multiple sources and approaches. Drawing on evidence from paleoecological observations, recent phenological and microevolutionary responses, experiments, and computational models, we review the insights that different approaches bring to anticipating and managing the biodiversity consequences of climate change, including the extent of species' natural resilience. We introduce a framework that uses information from different sources to identify vulnerability and to support the design of conservation responses. Although much of the information reviewed is on species, our framework and conclusions are also applicable to ecosystems, habitats, ecological communities, and genetic diversity, whether terrestrial, marine, or fresh water.

How Reliable Is the Current Generation of Predictions?

Climate-change impacts on biodiversity, both positive and negative, are already manifest in recent widespread shifts in species ranges and phenological responses (*6*, *7*). Although human land use remains the main driver of present-day species extinction and habitat loss (*8*), climate change is projected to become equally or more important in the coming decades (*9*, *10*). Assessing the biodiversity consequences of climate change is complicated by uncertainties about the degree, rate, and nature of projected climate change (*11*), the likelihood of novel and disappearing climates (*12*), the diversity of individual-species responses to a broad suite of interacting climate variables (*6*), and interactions of climate-change effects with other biotic factors (e.g., competition, trophic relationships) and stressors (land use, invasive species, pathogens, pollutants) (*13*, *14*).

Syntheses of climate change and biodiversity for decision-makers, conservation organizations, and governments (*1*, *2*, *15*) have relied heavily

Great Barrier Reef

Great Barrier Reef species more at risk from climate change, says study

Tropical species with smaller geographical ranges are more likely to die out in a warming climate than those that can adapt by 'invading' new regions

Joshua Robertson

Monday 24 August 2015 21.23 BST

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Studies have shown 'high levels of extinction risk in local marine populations' thanks to human impact and climate change. Photograph: AIMS/EPA

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Ciencia

Animales, confundidos por cambio climático en Ártico

Las aves migran antes de tiempo, los zorros no las encuentran para cazarlas y los osos polares terminan comiendo huevos.

29 de agosto del 2015

COMPARTIR ESTA NOTA (74)
Recomendar 70
Twittear 2
G+1 2
Compartir
COMENTAR ESTA NOTA (0)

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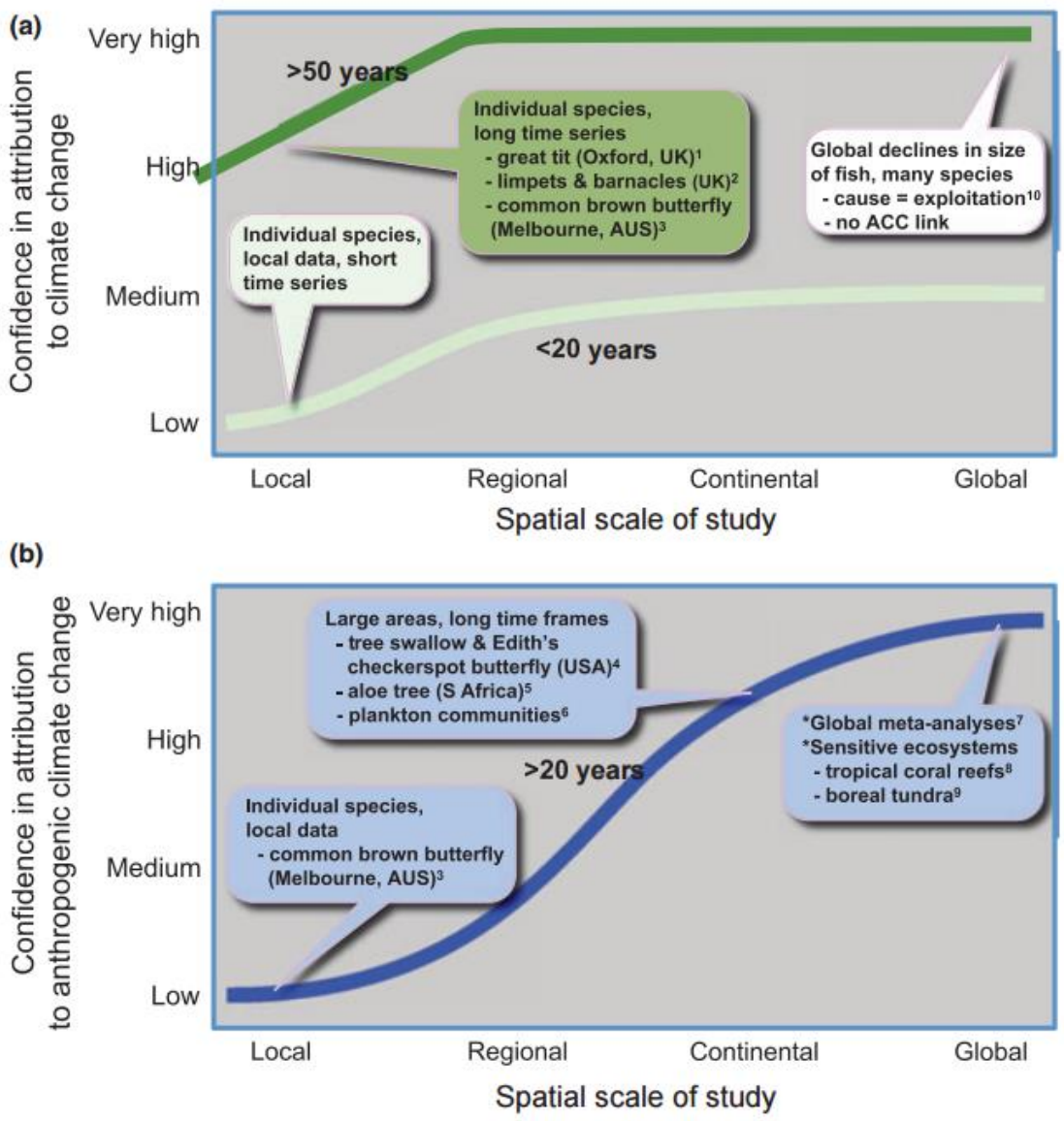
velo
Gatlinburg Travelodge Inn & Suites Gatlinburg
Desde 36.147 CRC
Reserva ahora

Otras noticias de Ciencia

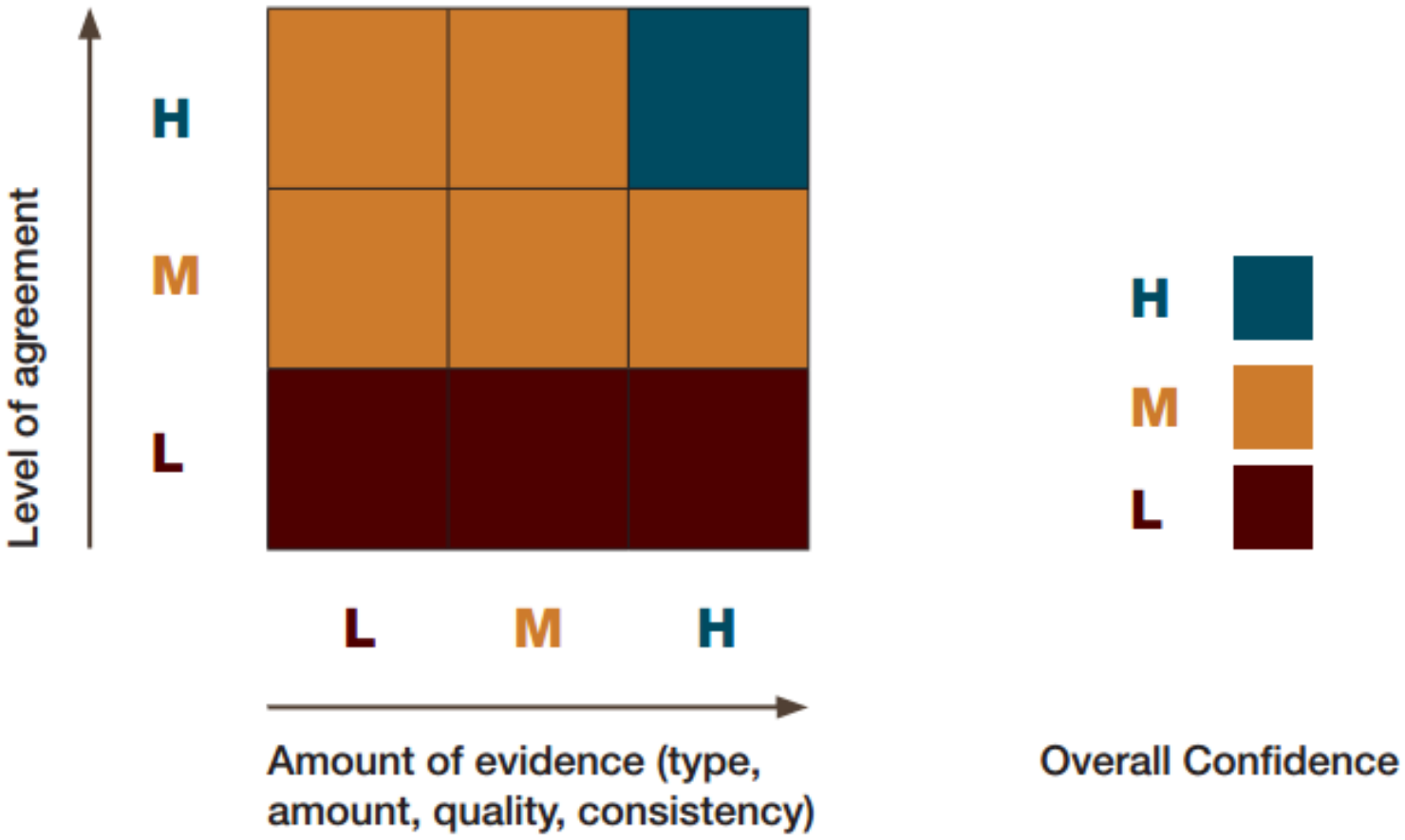
Se pierden bosques del tamaño de Uruguay por la deforestación

Un informe reveló que en 2014 desaparecieron 18 millones

Aislados durante un



Parmesan et al. 2013. Ecology Letters 16: 58–71



Gobierno del Reino Unido, 2012

Alta confianza de su efecto

Cambios en fenología de plantas
Crecimiento poblacional en plantas invasoras
Cambios en distribución de patógenos de plantas
Incremento en plantas que colonizan suelo

Cambios en tiempos de migración en aves
Migración de insectos y aves que los consumen
Poblaciones más grande de aves durante invierno

Alta confianza de su efecto

Tiempos en eventos relacionados con ciclo de vida en anfibios

Incremento en la mortalidad de juveniles en mamíferos
Incremento en distribución de mamíferos marinos

Movimientos latitudinales (más al norte o sur) en insectos


IMPACTOS DEL CAMBIO CLIMÁTICO SOBRE LA BIODIVERSIDAD Y LOS SERVICIOS ECOSISTÉMICOS CON ÉNFASIS EN ÁREAS SILVESTRES PROTEGIDAS: SÍNTESIS DEL ESTADO DEL ARTE 2009-2011
Por encargo de:
giz
Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
SINAC
minae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¿Quiénes somos?
Cambio climático
Agenda Internacional
Agenda Nacional
Actualidad
DCC
DIRECCION DE CAMBIO CLIMATICO
Hacia un Desarrollo Bajo en Emisiones y Resiliente al Cambio Climático

Pounds et al. 2006. Widespread amphibian extinctions from epidemic disease driven by global warming. Nature 439: 161-167.

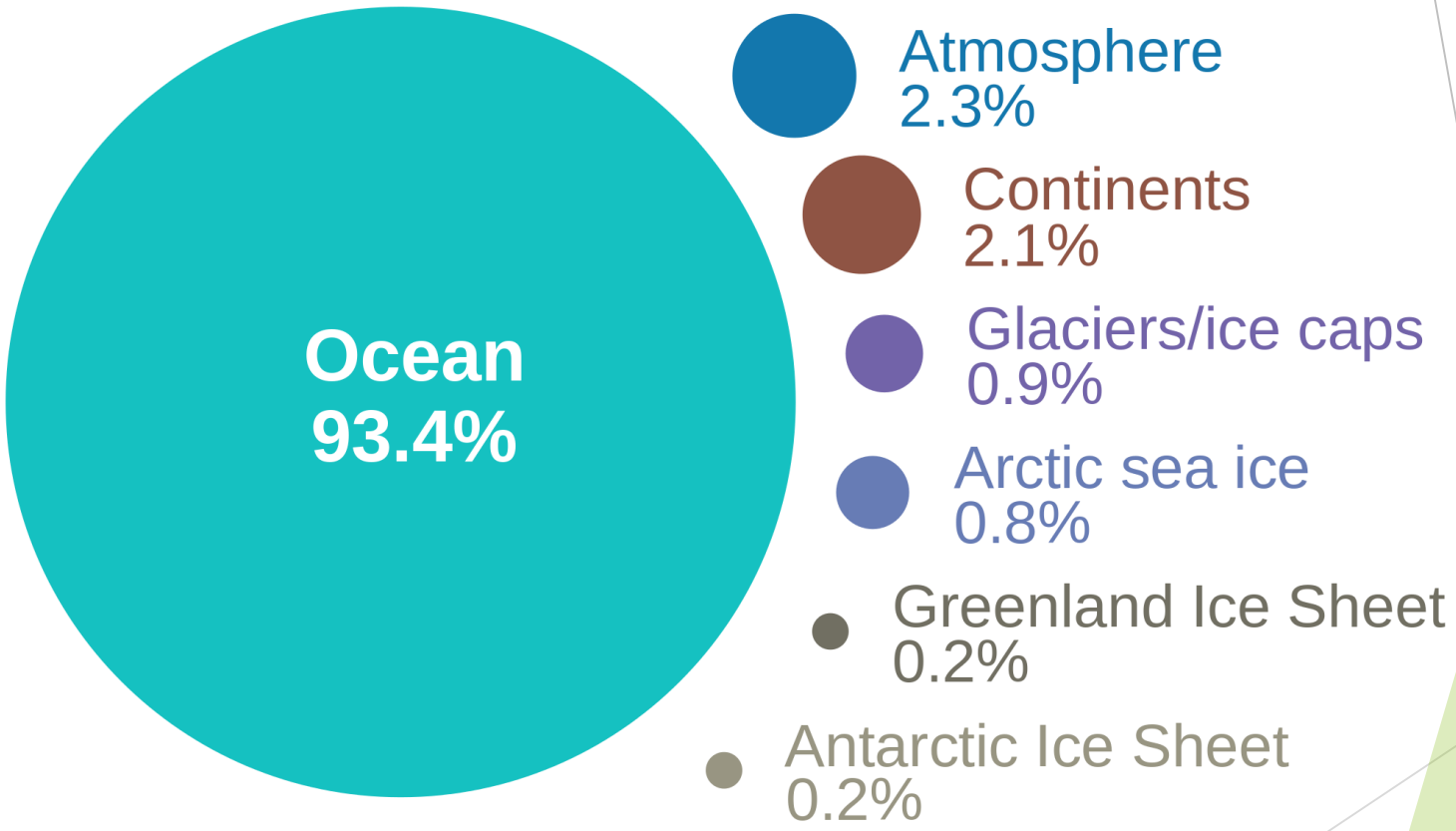
Whitfield et al. 2007. Amphibian and reptile declines over 35 years at La Selva, Costa Rica. PNAS 104: 8352–8356

Wake DB. 2007. Climate change implicated in amphibian and lizard decline. PNAS 104: 8201–8202.

Durant et al. 2013. Reproductive phenologies of phyllostomid bats in Costa Rica. Journal of Mammalogy

Feeley et al. 2013. Compositional shifts in Costa Rican forests due to climate-driven species migrations. Global Change Biology 19: 3472–3480

Hacia dónde se dirigen los efectos del cambio climático en términos de biodiversidad?



2007 IPCC AR(4)