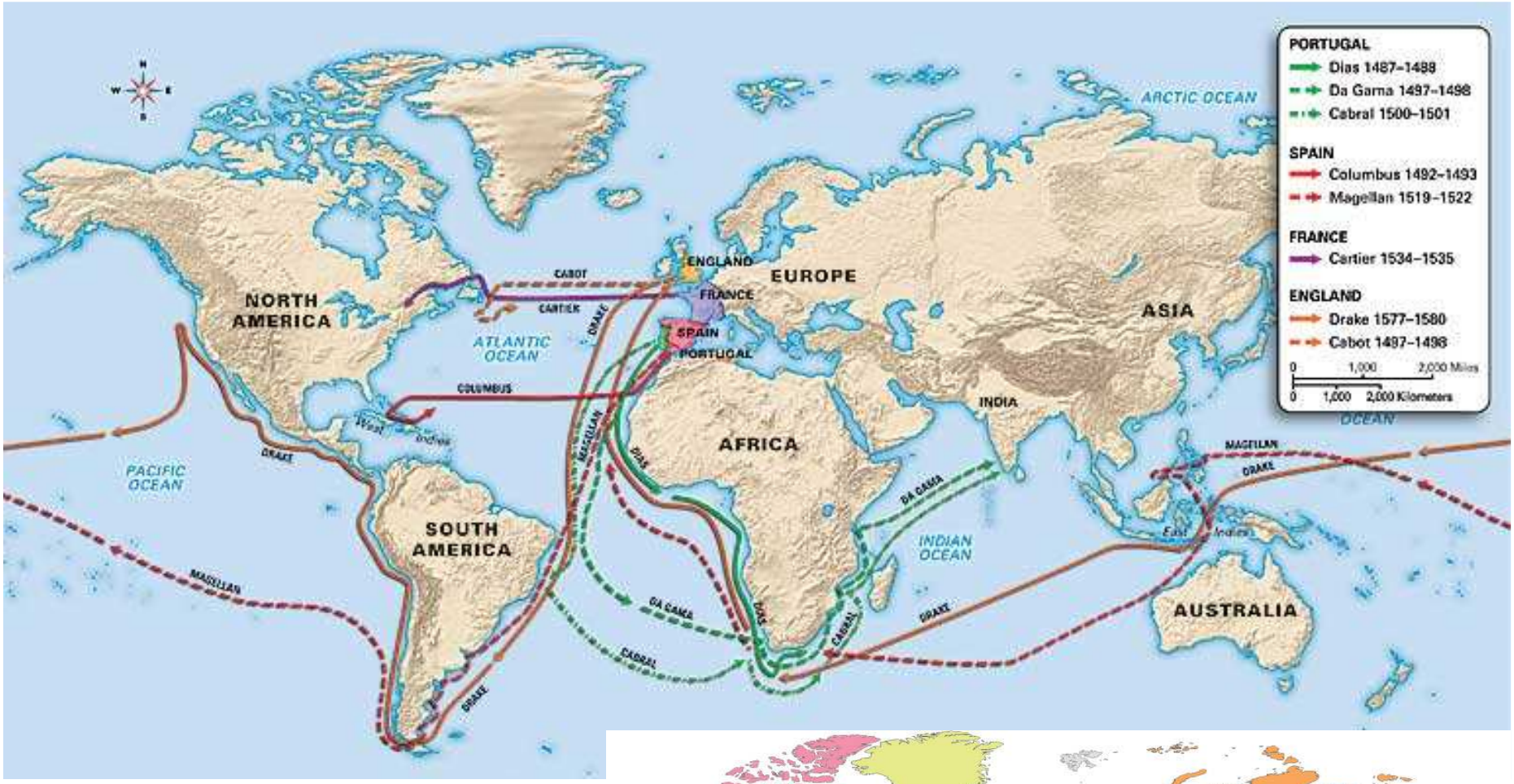
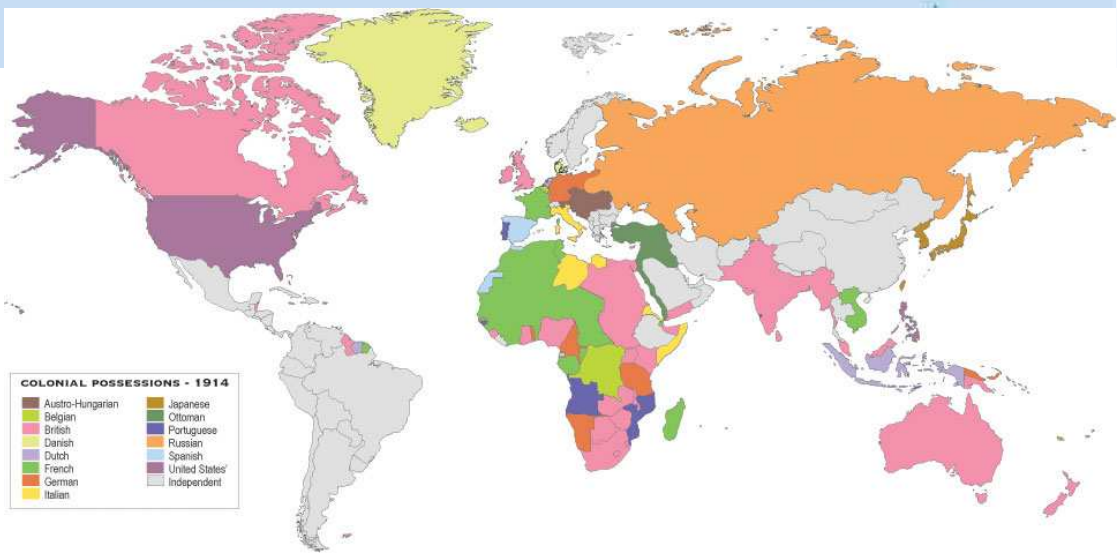
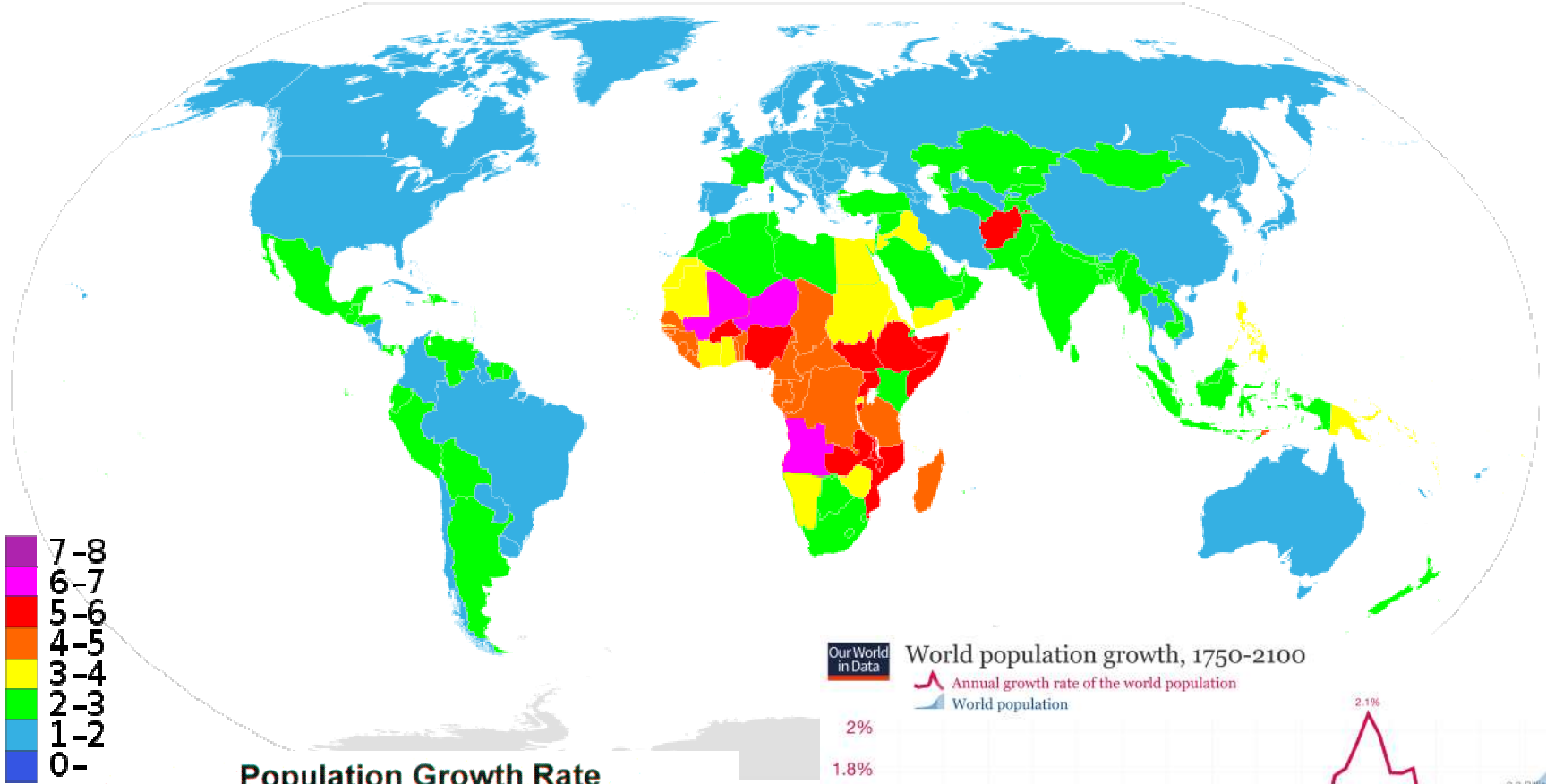
Současný stav přírody
… a fauny

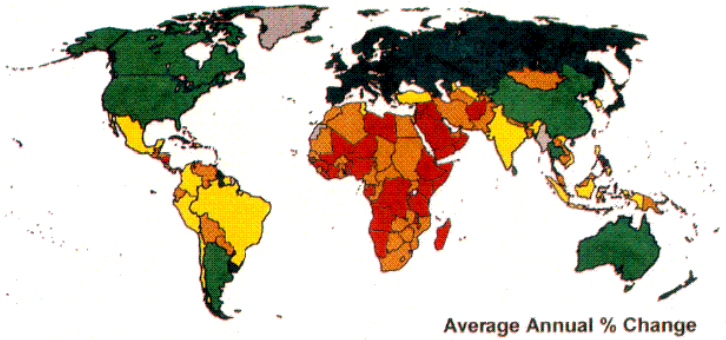




- „současnost“ začíná Kolumbovou plavbou
- (kam potom patří extinkce na Madagaskaru, některých ostrovech?)

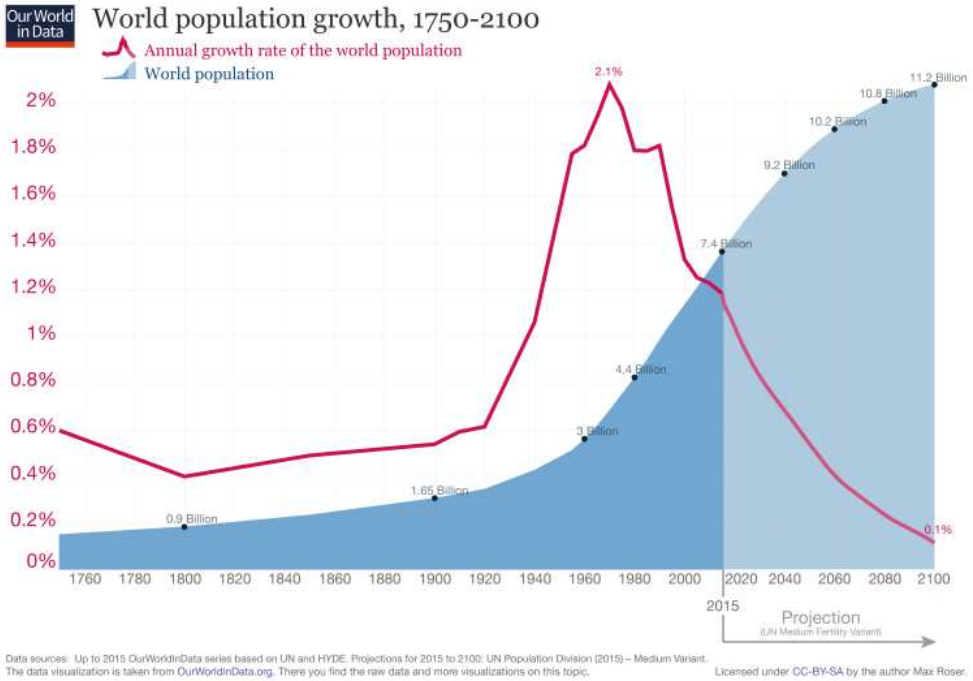


Population Growth Rate

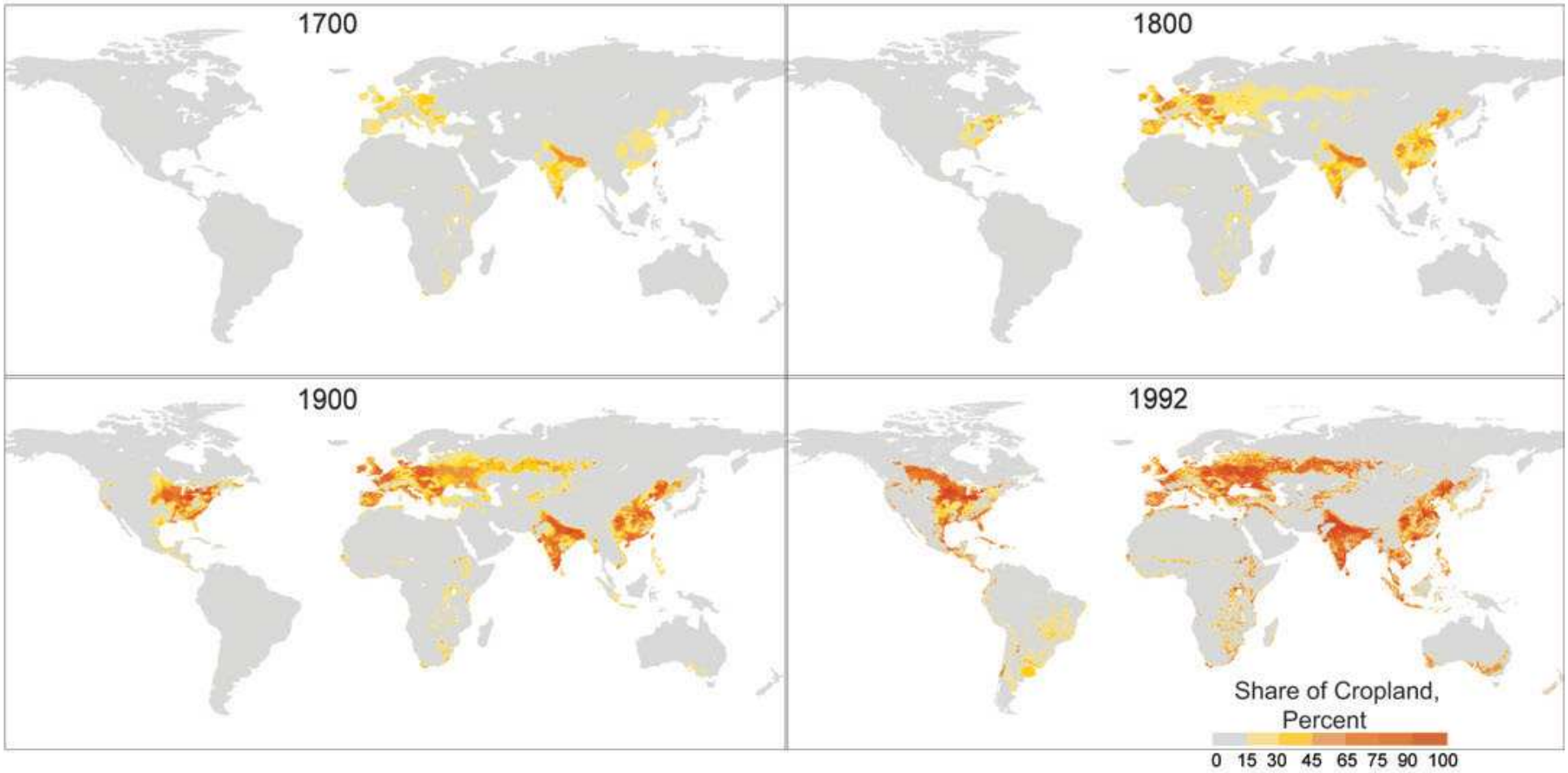


Source: United Nations Population Division, 1993.
Note: Data refer to 1990-95.

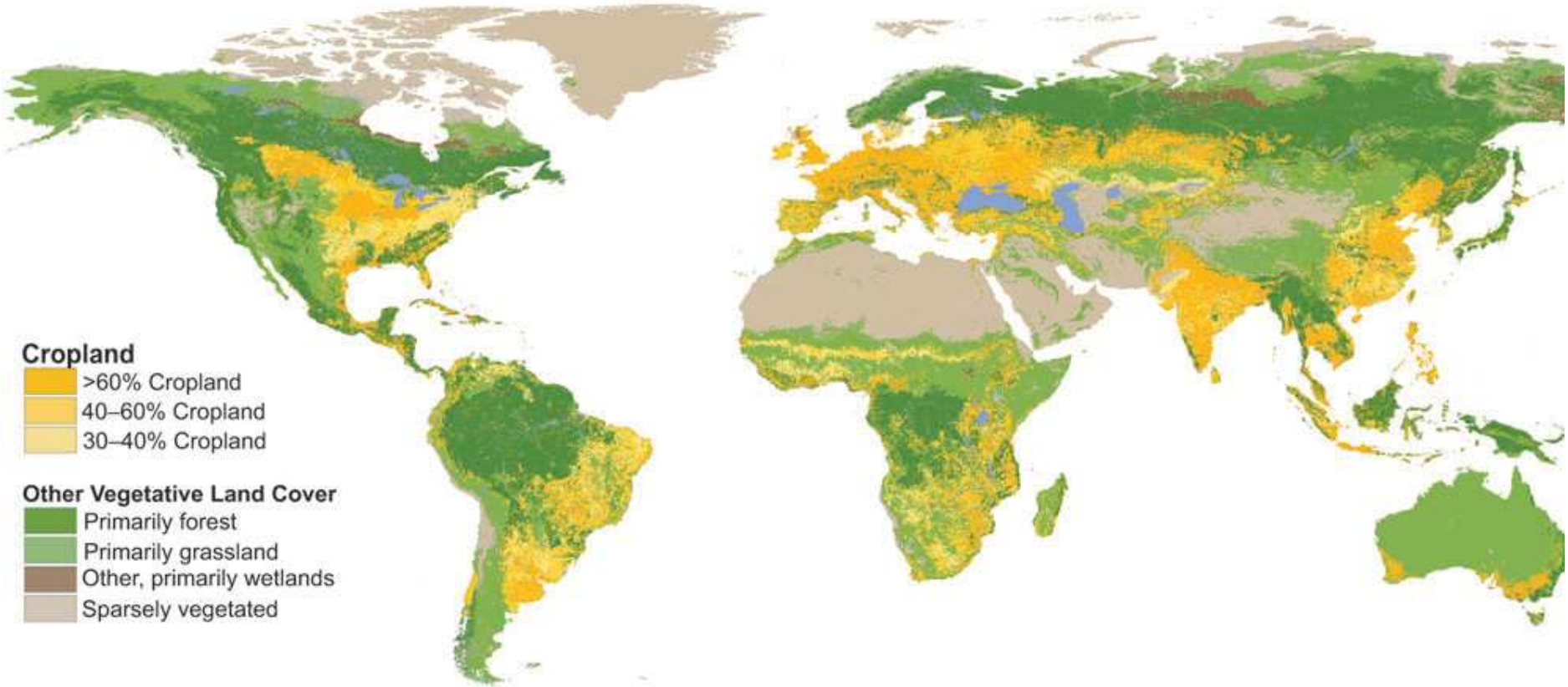
World Resources Institute



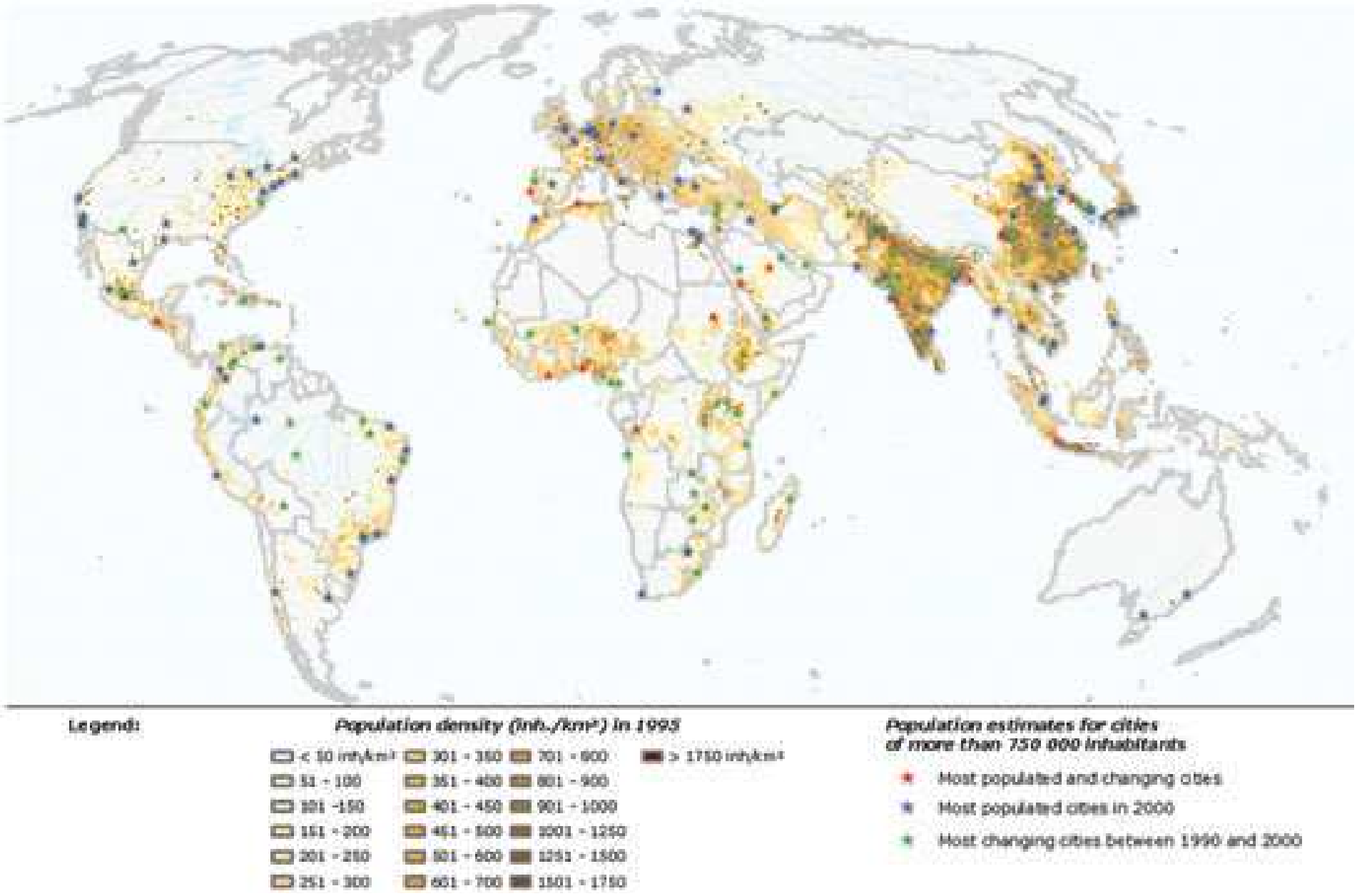
Data sources: Up to 2015 OurWorldInData series based on UN and HYDE. Projections for 2015 to 2100: UN Population Division (2015) – Medium Variant.
The data visualization is taken from OurWorldInData.org. There you find the raw data and more visualizations on this topic.



Evolution of Cultivated Systems from Pre-Industrial to Contemporary Times (Ramankutty et al. 2002)



Contemporary Global Extent of Cultivated Systems (Wood et al. 2000)



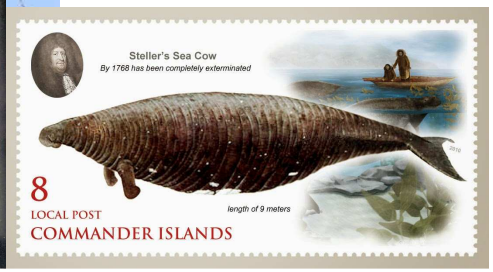
Areas of Rapid Land Cover Change Involving Changes in Urban Extent (Lepers et al. 2005)

Koroun bezzubý (*Hydrodamalis gigas*)

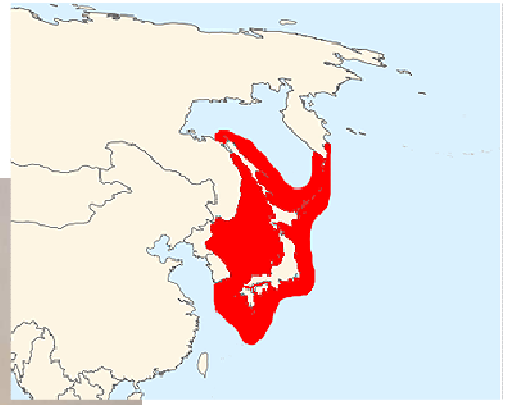
- 9 m, 8-10 tun
- chutné maso
- tuk bohatý na vitamíny
- kůže

Subfosilně severní Tichý oceán od Japonska po Kalifornii

1741 – objeven jako endemit Komandorských ostrovů (2500 jedinců)
1768 – uloven poslední kus
k vyhubení stačilo 27 let



Lachtan japonský, *Zalophus japonicus*



- komerčně loven „odjakživa“
- 1900s – 3000/rok, 1930s/“tucty“ za rok
- nespatřen od 50. let
- *sesterský druh L. kalifornského*
- *úvahy o klonování či křížení…*

Tuleň karibský, *Monachus tropicalis*

- mexický záliv, Karibik
- v 17-19. století non-stop loven
- na přelomu stol. chováván v ZOO
- naposled spatřen 1952
- za vyh. prohlášen 2008, po pátrání

Ono je spíš s podivem, že to *skoro všechna* mořská megagauna přežila.

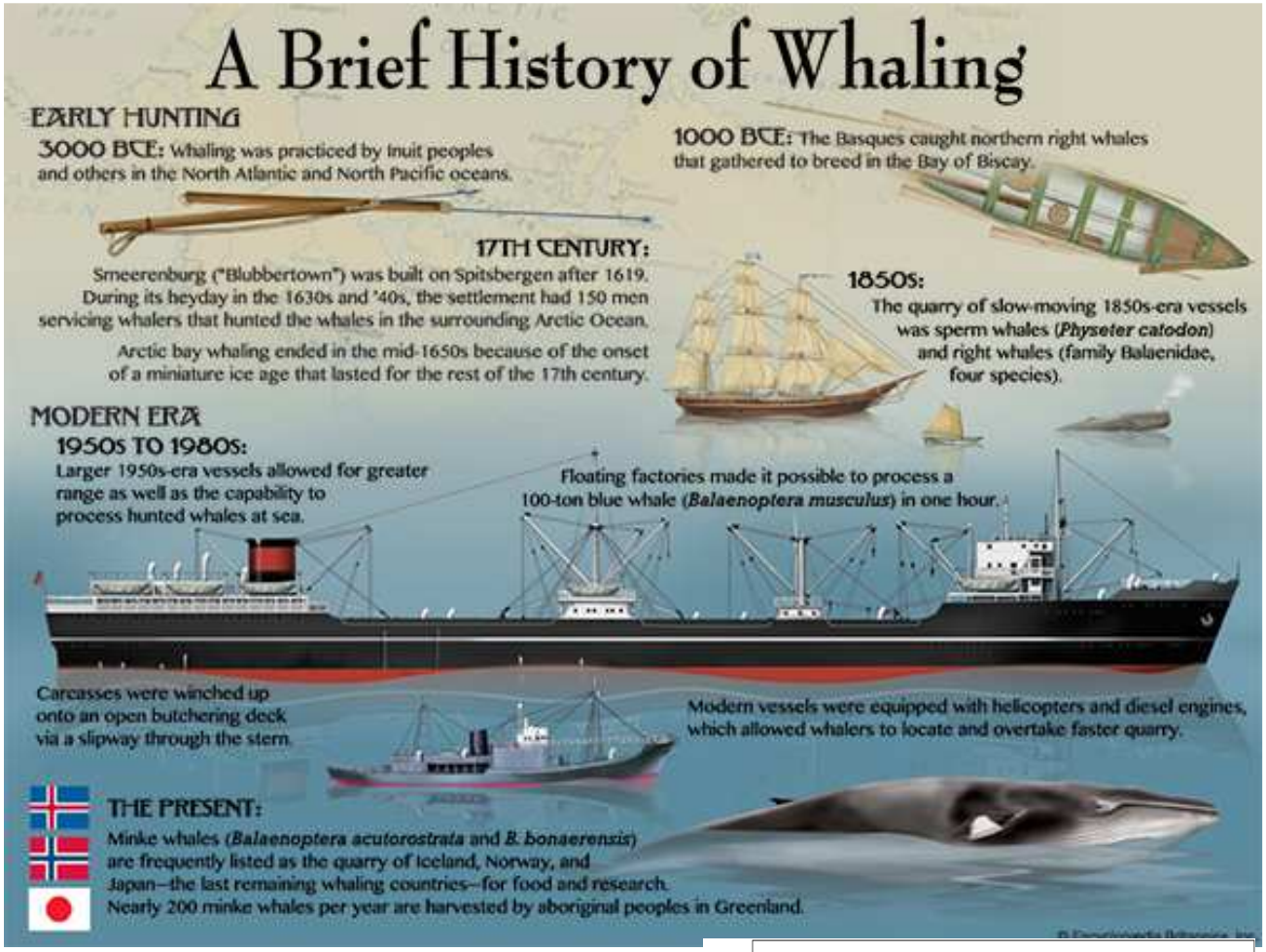
1946 - International Convention for the Regulation of Whaling: **kvóty**

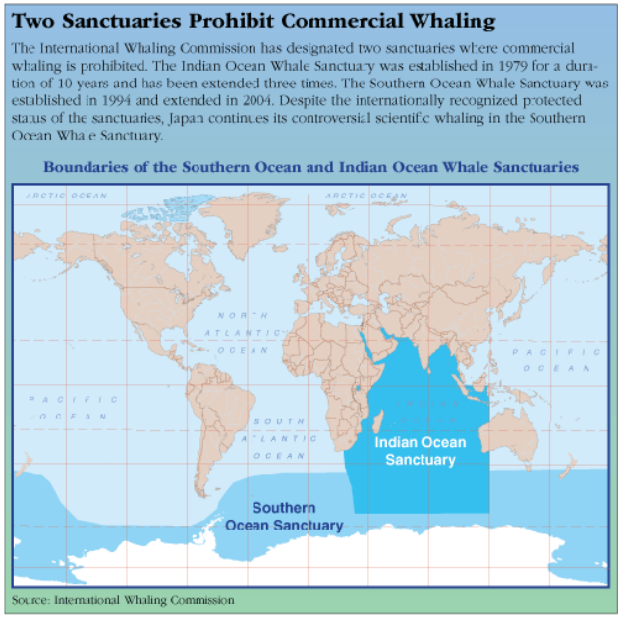
1979 – Indian Ocean Whaling Sanctuary

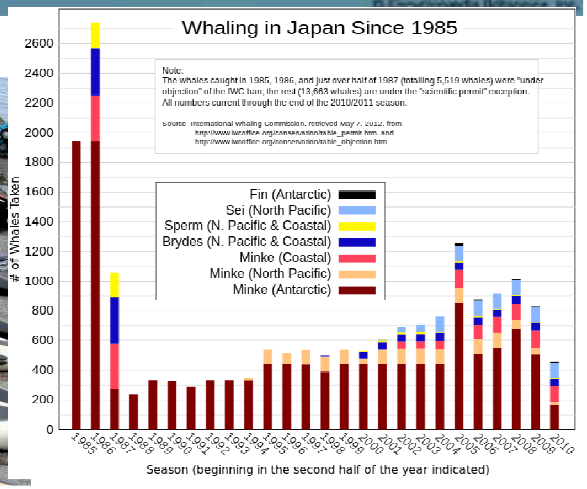
1994 – Southern Ocean Whaling Sanctuary

1982 - International Whaling Commission: **moratorium**

od 2010 – úvahy o zrušení moratoria







North Pacific Fur Seal Convention (1911)
– *první mezinárodní ochranářská dohoda*; nepřežila začátek války.
Fur Seal Act (1966)
Marine Mammal Protection Act (1972)
Dnes loví jen: Grónsko, Kanada, Namibie, Norsko, Rusko

Namibie

Year	Annual Quota	Catch
Before 1990	17,000 pups[80]	
1998–2000	30,000 pups[81]	
2001–2003	60,000 pups[81]	
2004–2006	60,000 pups, 7,000 bulls[81]	
2007	80,000 pups, 6,000 bulls[82]	
2008	80,000 pups, 6,000 bulls[82]	23,000 seals[83]
2009	85,000 pups, 7,000 bulls[84]	
2010	85,000 pups, 7,000 bulls[84]	

Kanada

Year	Harp Seals	Grey Seals
2016	66,800	1,612
2015	35,000	1,145
2014	60,000	82
2013	98,000	111
2012	71,000	8
2011	38,000	195
2010	69,000	7
2009	77,000	N/A
2008	218,000	N/A
2007	225,000	N/A
2006	355,000	N/A
2005	324,000	N/A
2004	366,000	N/A
2003	290,000	N/A
2002	312,000	N/A

Norsko

	Kvóta	Úlovek
2002		10,691[89]
2003		12,870[87]
2004	30,600[90]	14,746[87]
2005	30,600[91]	21,597[87]
2006	45,200[92]	17,037[87]
2007	46,200[93]	8,000[94]
2008	31,000[94]	1,260[95]
2011	49,400[96]	7673[96]

Pro srovnání:

V polovině 19. století na 500 000 ks ročně jen v oblasti New Foundlandu

Jacues Cousteau: *"The seal question is entirely emotional. We have to be logical. We have to aim our activity first to the endangered species. Those who are moved by the plight of the harp seal could also be moved by the plight of the pig – the way they are slaughtered is horrible."*

OPEN ACCESS Freely available online

PLOS ONE

Recovery Trends in Marine Mammal Populations

Anna M. Magera[1]*, Joanna E. Mills Flemming[2], Kristin Kaschner[3,4], Line B. Christensen[5], Heike K. Lotze[1]

1 Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada, 2 Department of Mathematics and Statistics, Dalhousie University, Halifax, Nova Scotia,

Nejasnosti:

- small offshore cetaceans
- marine mammals in low latitudes

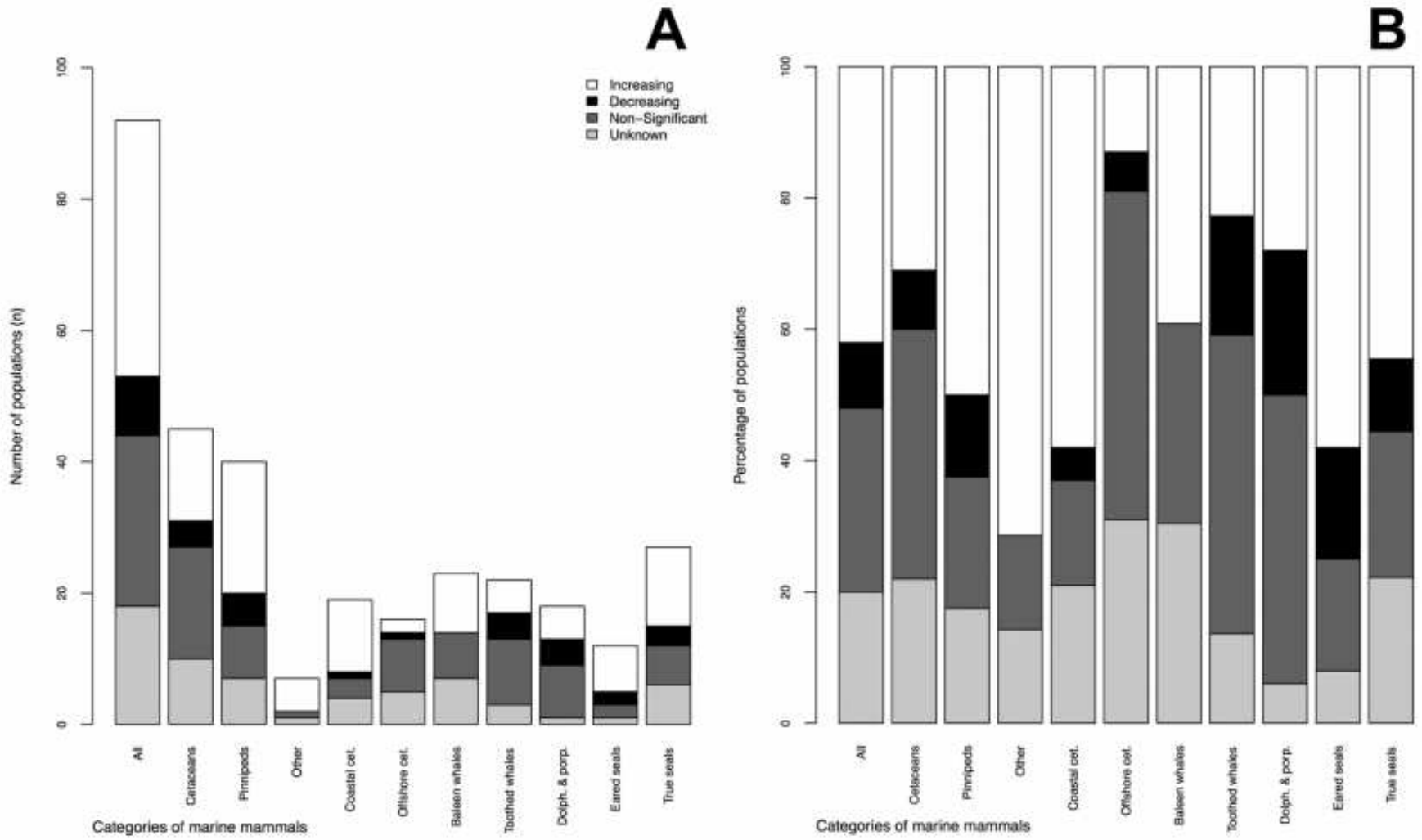
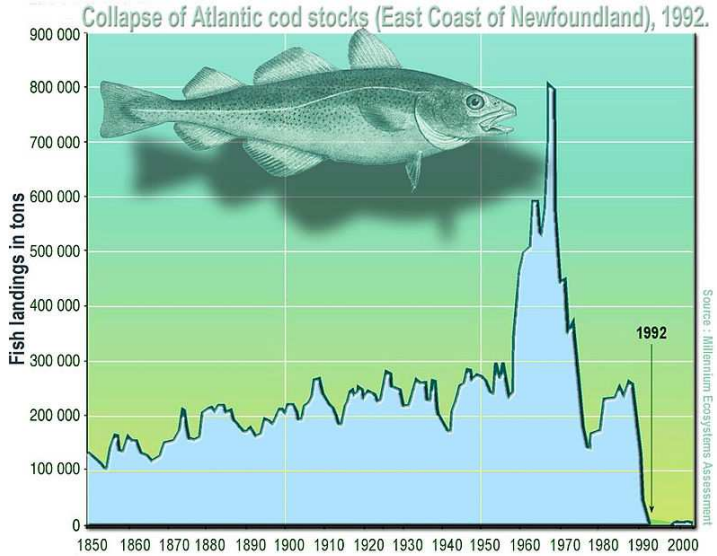
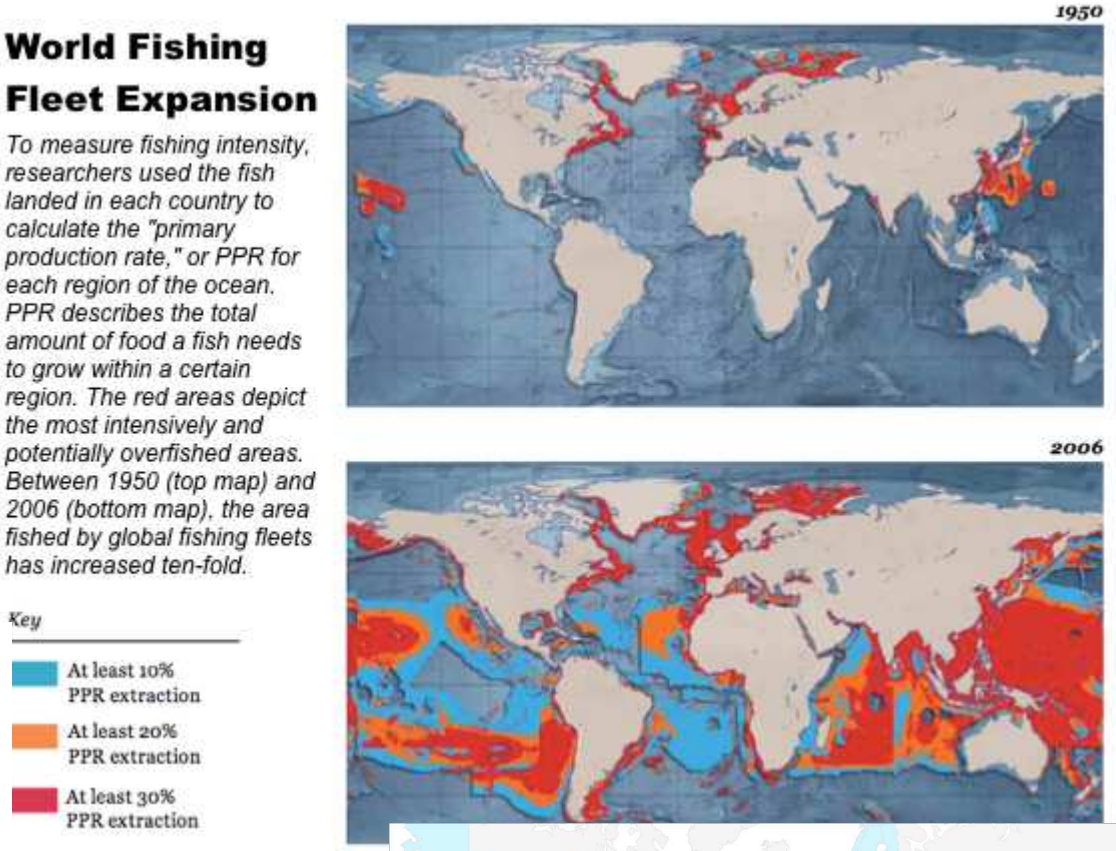


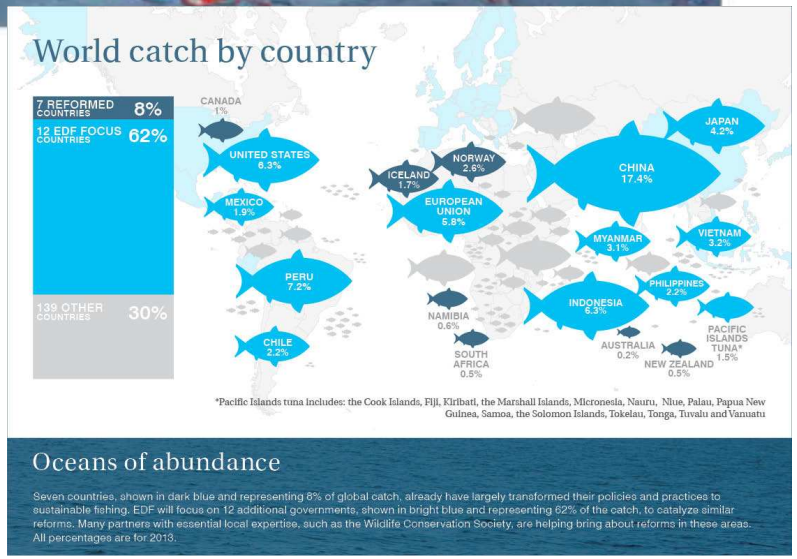
Figure 3. Trend classification for marine mammal populations by different categories as numbers (A) and proportions (B). Summary of results from robust weighted log-linear regressions for 92 (non-nested, including the largest possible areas) marine mammal populations. "Other" includes sirenians, polar bears and sea otters.

V MOŘÍCH NEŽIJÍ JEN SAVCI - OVERFISHING



Kolaps „zásoby“ tresky atlantské





Komerční ryby – třetina spp „vyžraná“, 47 procent na hraně

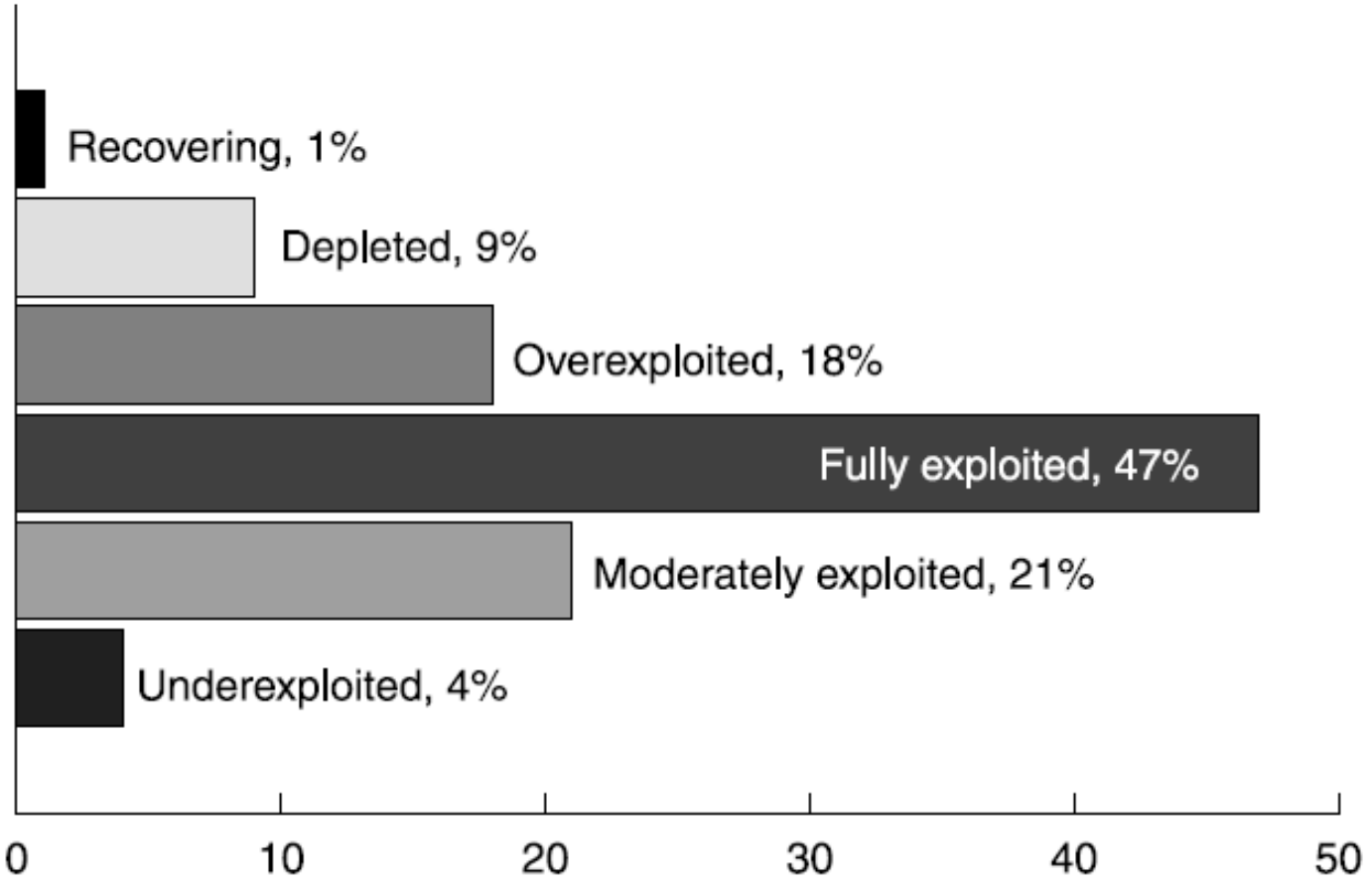


Figure 4.21. The State of Fish Stocks, 1999 (FAO 2000)

> Current Issue > vol. 103 no. 9 > Timothy E. Essington, 3171–3175, doi: 10.1073/pnas.0510964103

Fishing through marine food webs

Timothy E. Essington †, Anne H. Beaudreau, and John Wiedenmann ‡

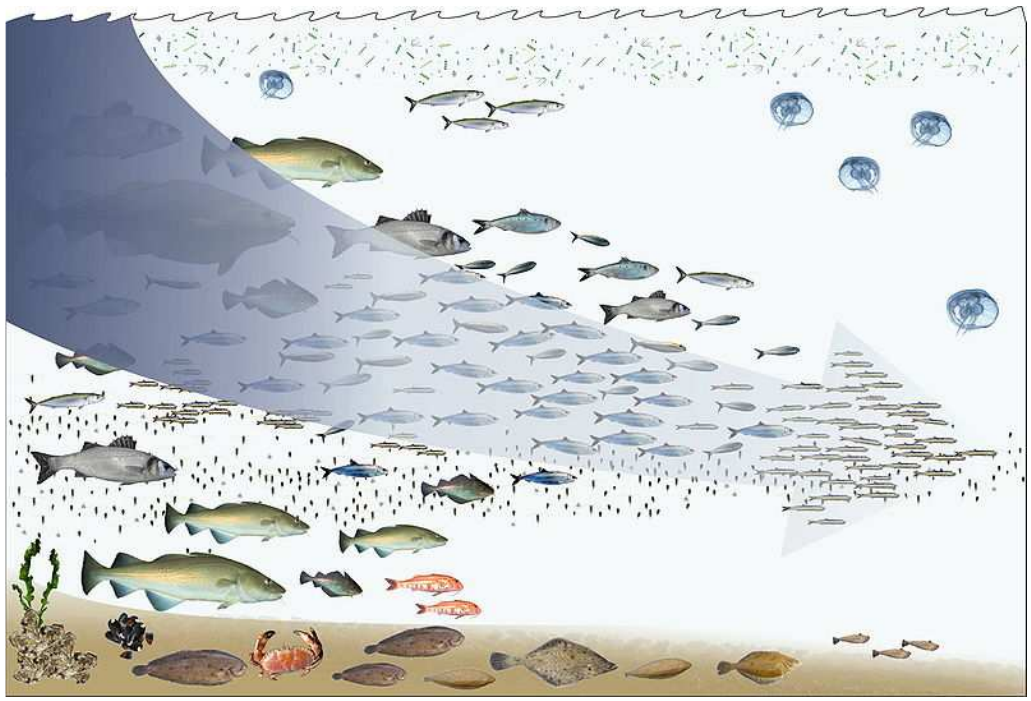
Author Affiliations

Communicated by David W. Schindler, University of Alberta, Edmonton, AB, Canada, December 29, 2005 (received for review May 26, 2005)

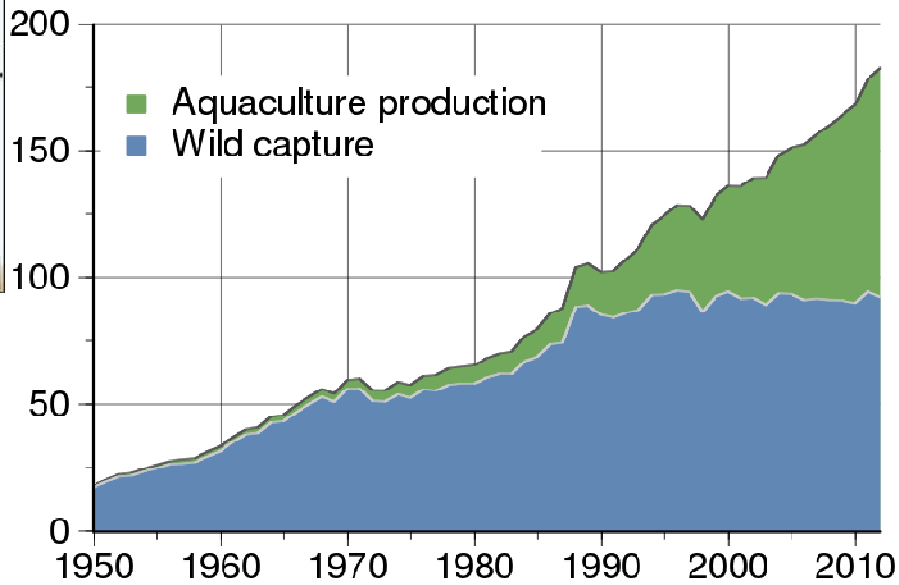
This Issue

February 28, 2006
vol. 103 no. 9
Masthead (PDF)
Table of Contents

PREV ARTICLE NEXT ARTICLE



- s vyžráním vrcholových predátorů se postupuje k menším, méně žádaným planktonivorním (apod.) rybám.

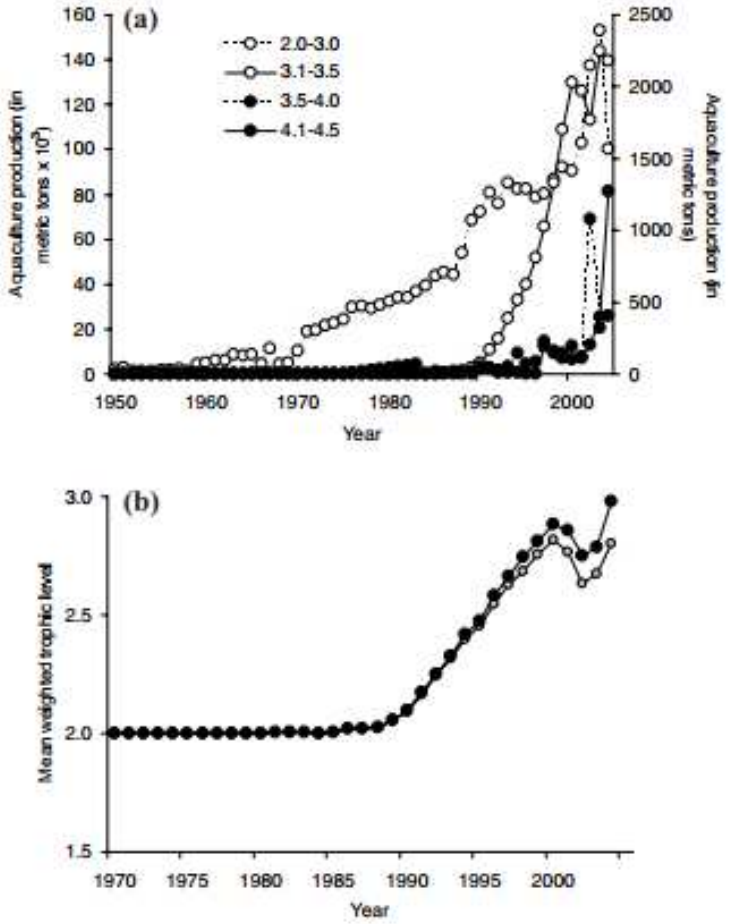


Conservation Biology

Farming up Mediterranean Food Webs

KONSTANTINOS I. STERGIOU,*§ ATHANASSIOS C. TSIKLIRAS,* AND DANIEL PAULY†

*Department of Zoology, School of Biology, Aristotle University of Thessaloniki, UP Box 134, Thessaloniki, 541 24, Greece
†Fisheries Centre, University of British Columbia, Vancouver, V6T 1Z4, Canada



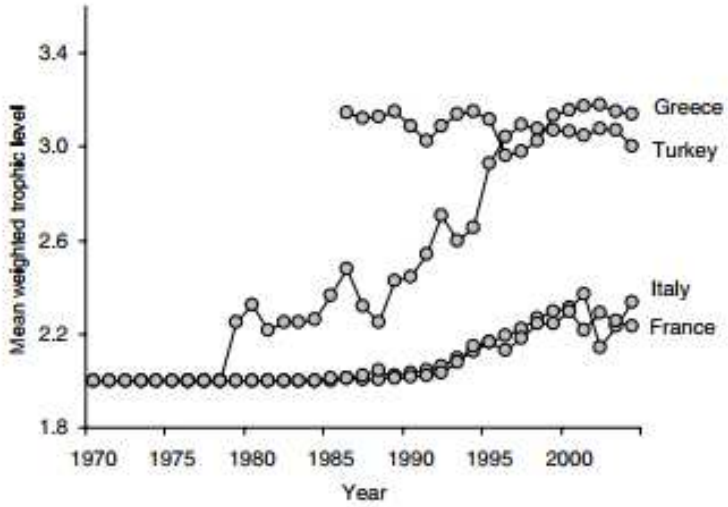


Figure 2. Mean weighted trophic level of the marine farmed species in the 4 main aquaculture countries for 1970–2004.

because the total allowable catch (29,500 t) had been reached (EU Press release-IP/07/1355). It is noteworthy that the capacity of tuna farms in the Mediterranean is about 55,000 t (CIESM 2007). The fact that the capacity of tuna farms greatly exceeds the total allowable catch

Freshwater Megafauna: Flagships for Freshwater Biodiversity under Threat

Article *in* BioScience · September 2017

- Definována jako druhy v dospělosti těžší než 30 km
- globálně 132 spp, z nich 58 ohroženo
- velká překryv s globální sladkovodní diverzitou
- flagships

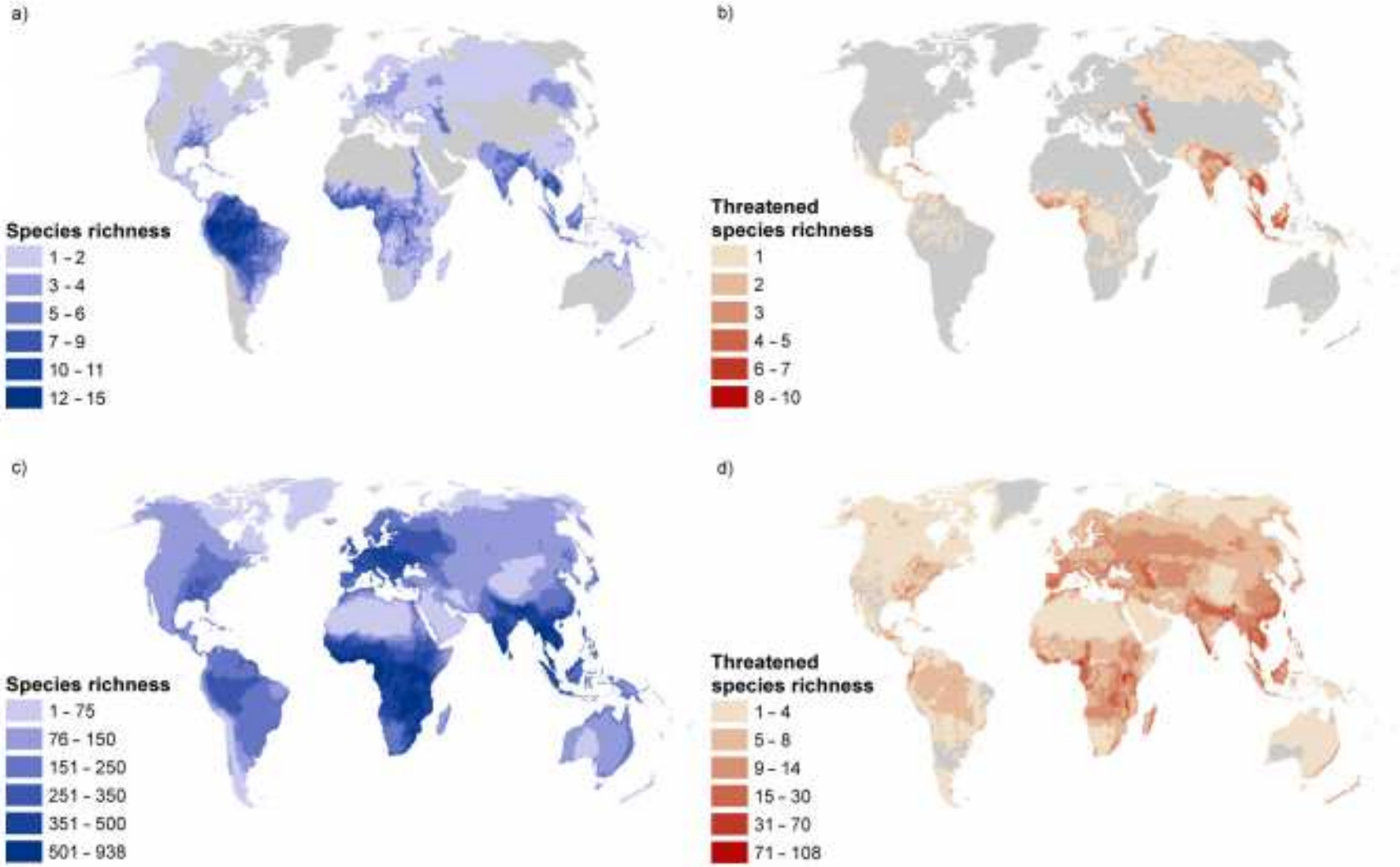
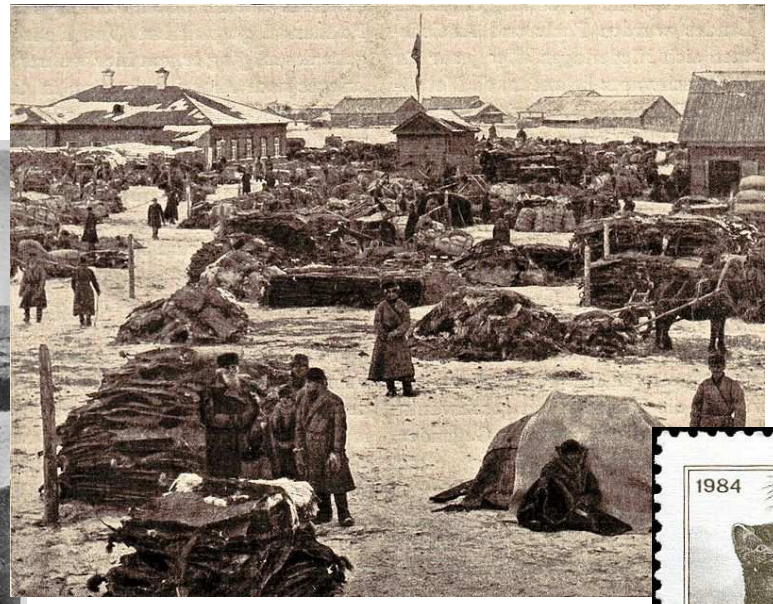


Figure 2. Richness maps: Species richness (a) and threatened species richness (b) of freshwater megafauna. Species richness (c) and threatened species richness (d) of freshwater species exclusive of megafauna (fishes, molluscs, odonates, plants, crabs, crayfish, shrimps, turtles, mammals, birds, and amphibians); gray areas are not inhabited by selected megafauna species. Note that the Americas, Australasia, China, Russia, and parts of the Middle East are incompletely assessed regions; therefore, richness is at least at the level depicted.

Belgické Kongo: Slonovina

Hunting party in India with five tigers and one rhinoceros possibly late 1920s

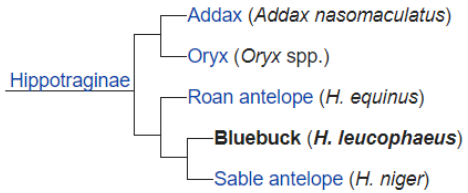
Americký západ: Bizoní kůže



Sibiř (ale i Aljaška, Kanada): Kožešiny

Kapsko

Antilopa modrá (*Hippotragus leucophaeus*) (early 1800s)



- divergence: 2.4 My

-konflikt molekulárních a jaderných genů (stává se)

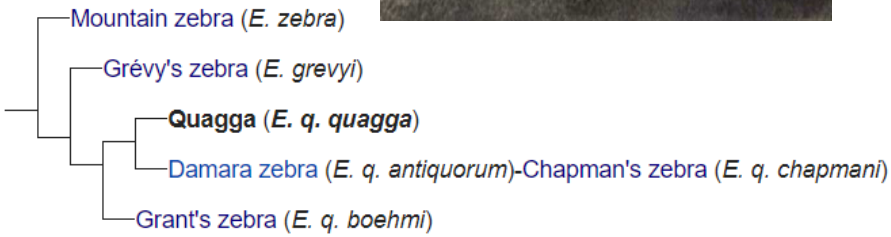
- **poctivý druh**

Phylogenetic position of the extinct blue antelope, Hippotragus leucophaeus (Pallas, 1766) (Bovidae: Hippotraginae), based on complete mitochondrial genomes

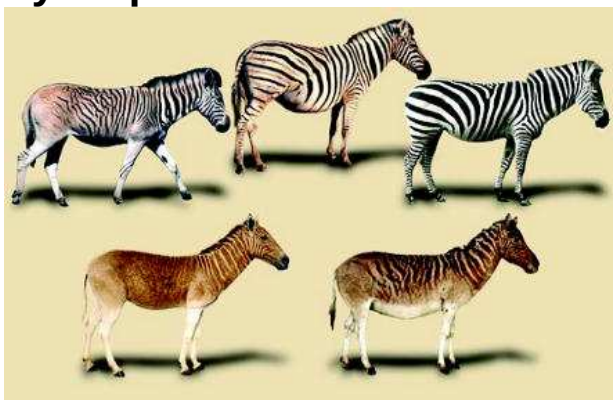
GonÇalo Espregueira Themudo ✉, Paula F. Campos

Zoological Journal of the Linnean Society, zlx034,
https://doi.org/10.1093/zoolinnean/zlx034
Published: 26 July 2017 **Article history** ▾

Zebra quagga (*Equus quagga quagga*) (ext 1880s)



- poddruh zebry stepní



Leonard et al., Biol Lett. 2005 Sep 22; 1(3): 291–295.

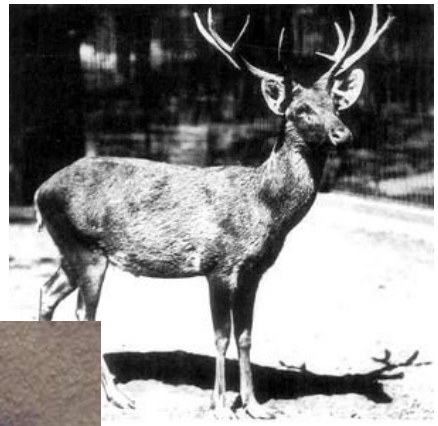
Které <u>velké</u> savce jsme tedy vyhubili? A kde?

1. druhy exW – typicky dlouho osídlené oblasti:

Pratur, jelen milu, kůň Przevalského, přímorožec šavlorohý, v podstatě i zubr…

2. docela dost poddruhů

osel nubijský, antilopka oribi keňská, voduška červená robertsova, buvolec stepní severoafrický, <u>kozorožec iberský pyrenejský, poddruhy tygra, lva …</u>



Jelen schomburgkův (*Rucervus schomburgki*)
Thajsko. Růst lidské populace a kultivace. 1930s.
... někteří stále doufají…

Gazela jemenská (*Gazella bilkis* Groves & Lay, 1985)
Popsána podle jedinců ulovených v 50. letech. V 80. letech v soukromém chovu v Kataru vyfotografována.

Gazela dlouhorohá (*Gazella saudiya*)
Dlouho pokládána za poddruh g. dorkas – proto její mizení nevzbudilo zájem ochranářů. 40 let ji nikdo neviděl…

Vakovlk tasmánský (*Thylacinus cynocephalus*)

- Původně obýval Austrálii a Novou Guineu, loven domorodci a vytlačen psem dingo, přežil jen v Tasmánii (již 17. st.)

- Extinkce v Tasmánii
  - škodná (odměna jeden dolar za vakovlka)
  - konkurence divokých psů
  - narušení přirozeného prostředí
  - úbytek kořisti
  - psinka

- 1930 – zastřelen poslední divoký kus
- 10.7.1936 – uzákoněna ochrana druhu
- 7.9.1936 - uhynul poslední jedinec v zajetí

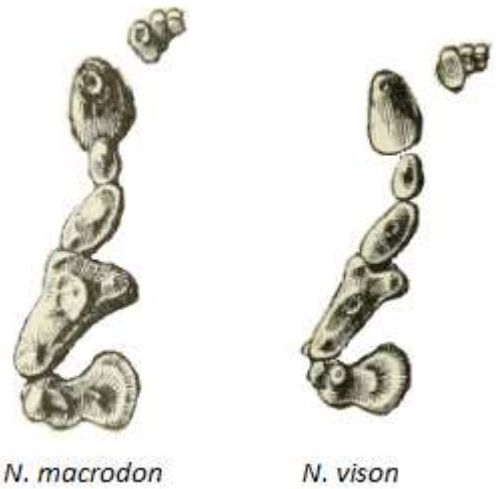
Další predátoři

Norek mořský, *Neovison macrodon* (Prentis, 1903)

Dental Divergence Supports Species Status of the Extinct Sea Mink (Carnivora: Mustelidae: *Neovison macrodon*)

Rebecca A. Sealfon Author Notes

Journal of Mammalogy, Volume 88, Issue 2, 20 April 2007, Pages 371–383,
https://doi.org/10.1644/06-MMM-A-227R1.1
Published: 20 April 2007 **Article history**



N. macrodon *N. vison*

- mořské pobřeží SV Severní Ameriky (cca po Maine)
- vybit lovem kožešin někdy v 19. století
- bizarně nemáme žádný celý exemplář (ale spoustu fragmentů koster z odpadních hromad domorodých lovců)

Pes bojovný (*Dusicyon australis*)

- Falklandy; ext. 1876
- ve skutečnosti krotké zvíře (bez nepřátel)
- pronásledován chovateli ovcí
- již Darwin varoval před jeho vybitím
- na poslední chvíli snaha o záchranu v londýnské ZOO

Kdo tedy vlastně vyhynul?

- 5 letounů
- 7 hmyzožravců

  (Karibik: nezofontové a štětinatci)
- 10 vačnatců
- 30 hlodavců

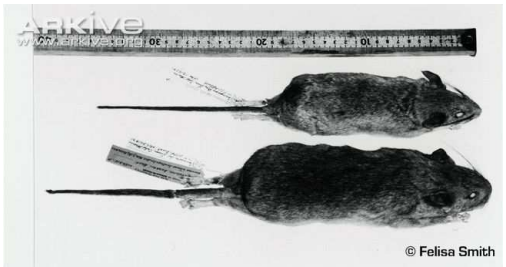
Kaloň paluánský, *Pteropus pilosus*

Palau, naposled 1870s

***Macropus greyi,* klokan greyův.** Velký klokan. Úrodný JV kontinentu, vystřílen… snaha o ex situ pozdě, ext 1924(36)

***Chaeropus ecaudatus,* bandikut dvouprstý**

Zatlačen do nitra kontinentu, kočky, psi, králíci…



***Neotoma bunkeri*, křeček Bunkerův**: ostrovy u Kalifornie, kočky

***Notomys macrotis*, klokanomyš ušatá**. Austrálie. Kočky atd.

***Rattus macleari*, krysa Maclearova**. Vánoční ostrov. Potkani…

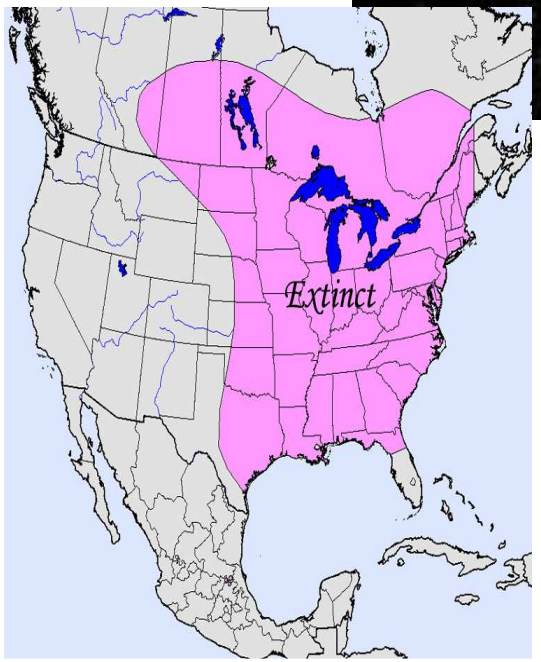
„Dojmologie“ k savcům:

- po „záchvatech vraždění“ se Evropané vzpamatovali (občas pozdě)
- vymřely spíše druhy s omezeným areálem (Kapsko, severní Afrika)
- překvapivě brzy ochranářské snahy
- velmi často ostrovní druhy
- velmi často invaze x konkurence x nemoci

Holub stěhovavý (*Ectopistes migratorius*)

- Původně jeden z **nejpočetnějších** druhů ptáků
- Lov pro chutné maso a použití jako sportovní terč
- Snadný lov kvůli hnízdění v koloniích

1888 – pozorováno poslední obrovské hejno
1896 – poslední kusy (cca 250 tis.) se shromáždily a utvořily hnízdní kolonii, ta však byla téměř kompletně vystřílena (přežilo 5 tis. ptáků)
1900 – zastřelen poslední divoký kus
1914 – zemřel poslední jedinec v zajetí (zoo Cincinnati, stejná klec kde pak zemřel poslední papoušek karolinský)



Papoušek karolinský (*Conuropsis carolinensis*)

- lov (škůdce, ozdobné peří)
-úbytek hnízdišť - změny krajiny (pokles počtu vykotlaných stromů a konkurence evropských včel)

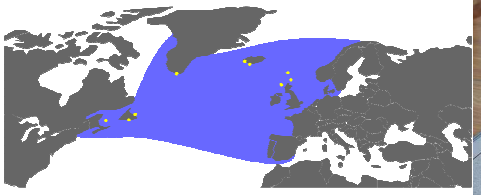
- virová infekce ?

Poslední divoký kus zastřelen 1906 nebo 1913
Poslední v zajetí zemřel v zoo Cincinnati 1918

Alka velká (*Pinguinus impennis*)

-5 kg těžký pták

- loven odjakživa, v 16, století už vzácný, později *sběr vajec,* posl. Pár zabit 1844 (Eldey u Islandu)



Kormorán Stellerův (***Phalacrocorax perspicillatus***)

-6-7 kg, sotva létal. Popsán 1741, vyhuben 1850. Kupodivu byl oblíbenou krmí

Kachna labradorská

- Už v době příchodu Evropanů nebyla hojná, lovena na zimovištích (Nová Anglie a okolí..)

Bukáček novozélandský

ENCYCLOPÆDIA Mauritiana

Extinct Birds of Mauritius

Mauritius Island

Dodo
Blue Pigeon
Broad-billed Parrot
Grey Parrot
Mascarene Coot
Mauritian Duck
Mauritius Owl
Mascarene Swan
Mauritius Night Heron
Red Rail
Bourbon Crested Starling

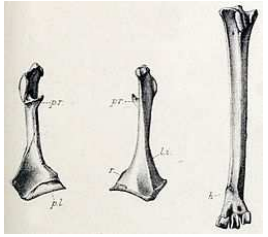
Rodrigues Island

Rodrigues Solitaire
Rodrigues Night Heron
Rodrigues Little Owl
Rodrigues Owl
Newton's Parakeet
Rodrigues Parrot
Rodrigues Pigeon
Rodrigues Rail
Rodrigues Starling

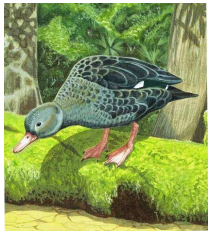
Ext. ca 1690

Holub lesní
(1830)

Lyska
mauricijská
(1693)



Kvakoš
muricijský
(1680s)



Kachna
mauricijská
(1690)

Papoušek
širokozobý
(ca 1680)

Husice
mauricijská
(ca 1680)

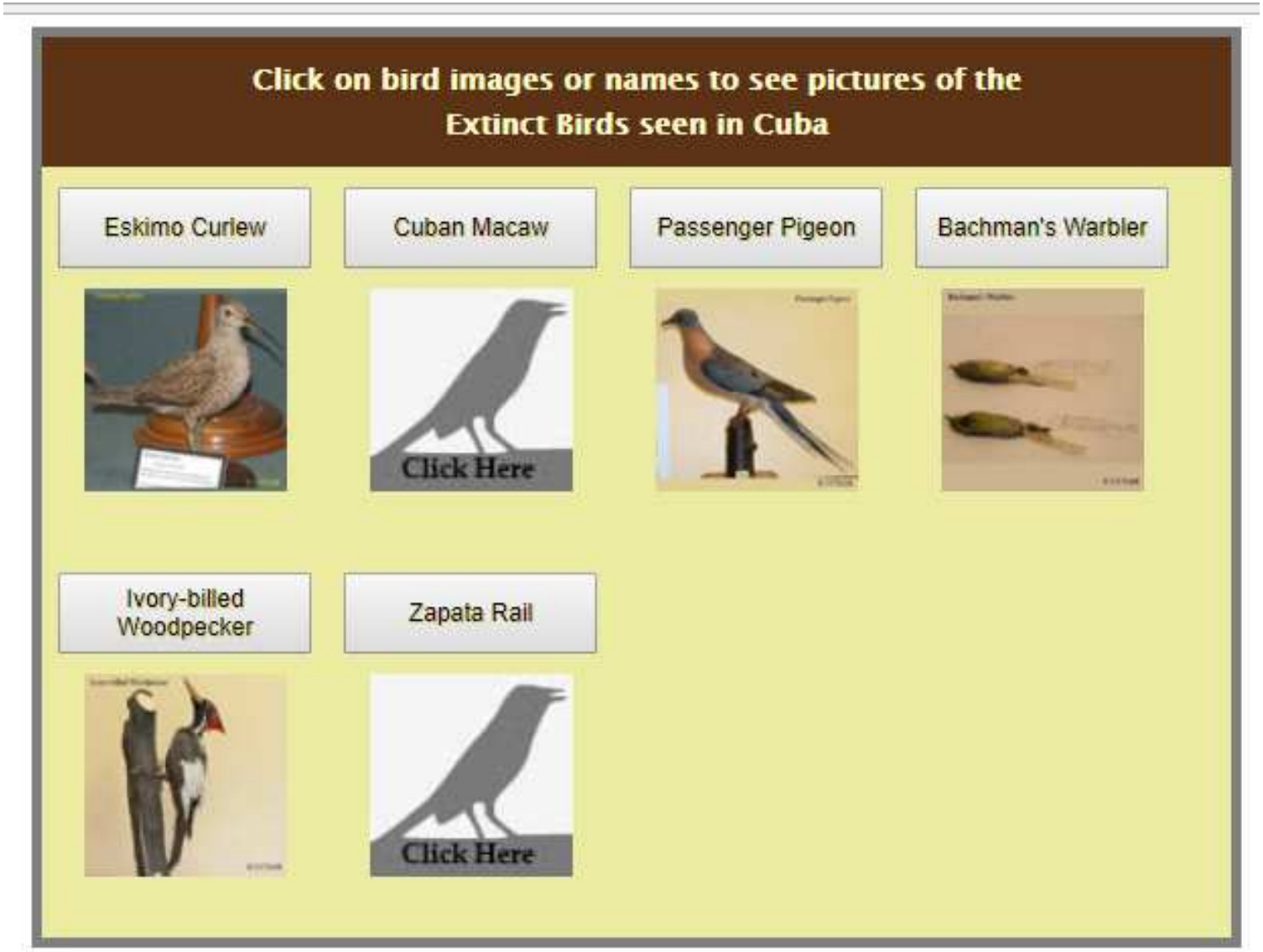
Chřástal
rezavý
(1700s)

Papoušek
Bensonův
(ca 1764)

Sovka
Sauzierova
(ca 1840)

Špaček
mauricijský
(1680s)

… Norfolk, Guam, Samoa, Vánoční ostrov, různé ostrovy kolem Afriky a podél Kalifornie, subantarktické ostrovy …



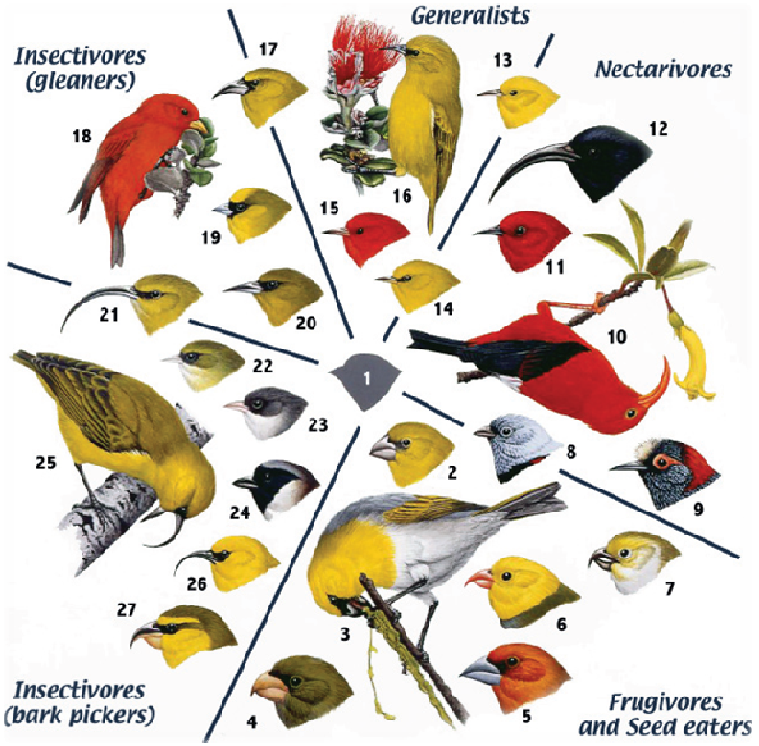
eturn Extinct Birds back to Birds seen in Cuba

„Dojmologie“ k ptákům:

- „užitkové“ druhy, kde jsme si poklesu všimli pozdě (alka, holub stěhovavý)

- ostrovy (!!!)

- často nelétavé druhy (lysky, chřástalové)

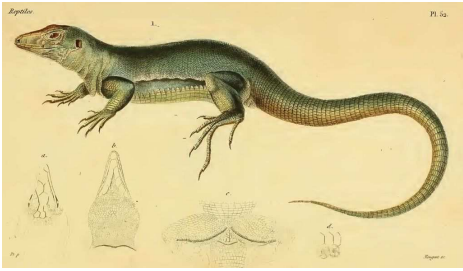


PLAZI (25 spp):

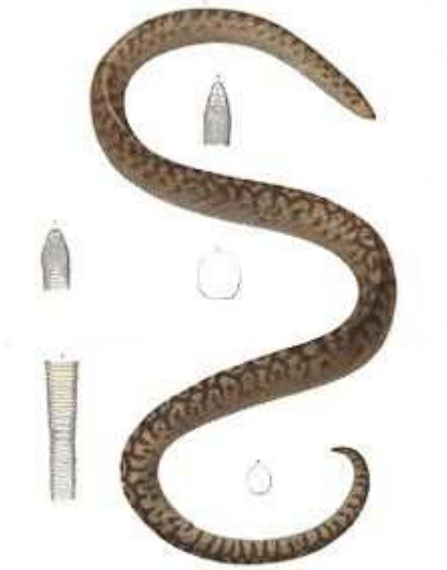
Pagekon *Haplopdactylus delcourti*
- Ńový Zéland

Amejva obrovská, *Ameiva major*

Martinik



Bolyerie mauricijská, *Bolyeria multocarinata*
- Round Island u Mauricia



Velescink kapverdský, *Mecroscincus coctei*

Kapverdské os.

--- opět ostrovy, reliktní biotopy a oblasti, dost želv

--- a taky dost druhů, které vzápětí někde našli

Kožnatka černavá, *Nissonia nigricans*

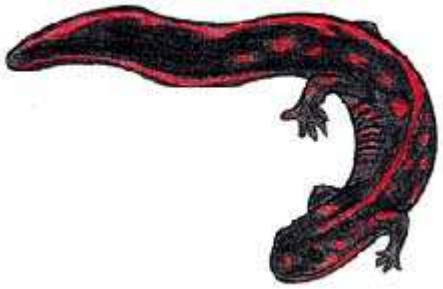
„…v několika chrámových jezírkách v Asssámu a Bangladéši…“ (ExW)

-Vzápětí nalezena i v „divočině“

Želva yunnanská, *Cuora yunnanensis*

pokládaná za vyhynulou; pak se našla na trzích, vzápětí i v „divočině“ …

OBOJŽIVELNÍCI (39 spp.)

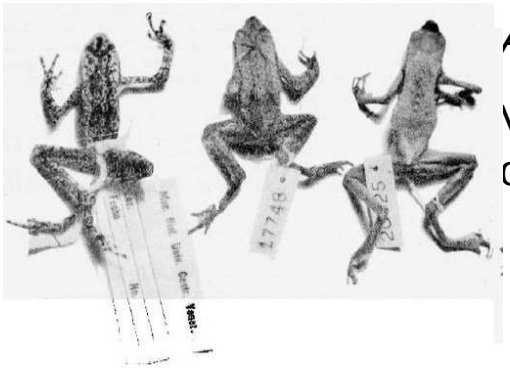


Hypselotriton wolterstorffi (čolek Wolterstorffův)

Endemit 1 jezera v Junanu. 1980s. Znečištění, introdukce ryb…

Pseudophilatus adspersus

Ext. 1930s. Příslušník rodu endemického v Z. Ghátech a na Cejlonu, mnoho jich vymřelo.



Atelopus vogli

Venezuela, nespatřena od 30. let.

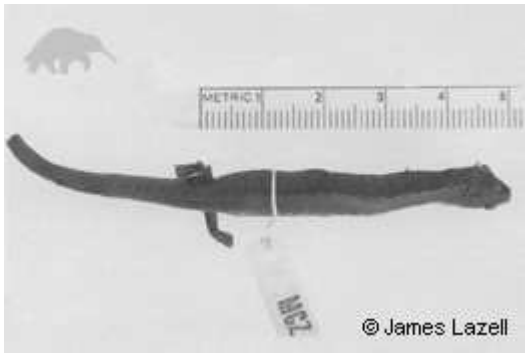
2013 SOUTHEASTERN NATURALIST 12(4):851–856

The Status of *Plethodon ainsworthi* Lazell: Extinct, Extant, or Nonexistent?

John G. Himes[1] and David C. Beckett[2,*]

„vyhynulý“ *Plethodon ainsworthi*

- sbírán v 60. letech
- popsán 1988 (jako „vyhynuý“)
- nově se ukázalo, že je identický s *Plenthodon missisipi …*

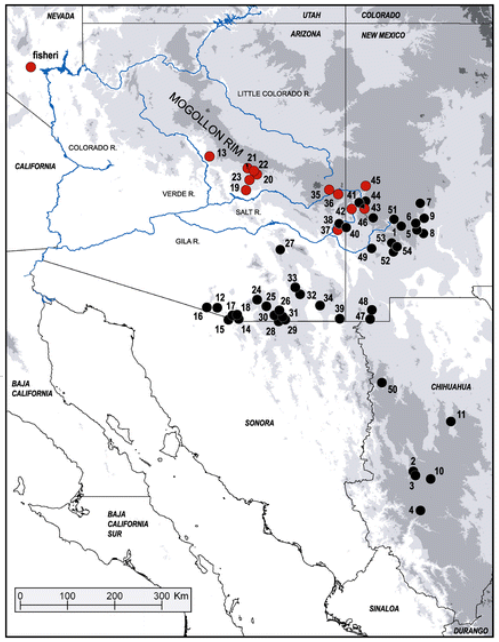


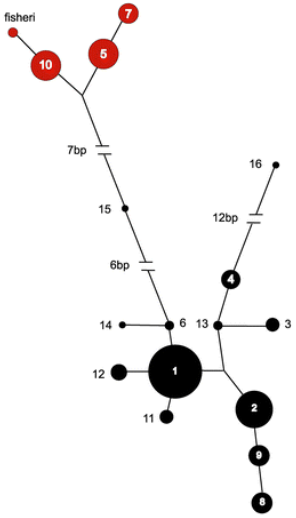
Conservation Genetics
October 2011, Volume 12, Issue 5, pp 1379–1385 | Cite as

Resurrecting an extinct species: archival DNA, taxonomy, and conservation of the Vegas Valley leopard frog

Authors Authors and affiliations

Evon R. Hekkala, Raymond A. Saumure, Jef R. Jaeger, Hans-Werner Herrmann, Michael J. Sredl, David F. Bradford, Danielle Drabeck, Michael J. Blum





Žába *Lithobates fischeri*

- podobný příběh. Totožná s *Lithobates chiricahuensis*

ARTICLES

Herpetological Review, 2010, 41(2), 150–152.

Reconsidering Extinction: Rediscovery of *Incilius holdridgei* (Anura: Bufonidae) in Costa Rica After 25 Years

JUAN ABARCA
Department of Biology, Universidad Nacional de Costa Rica Heredia, 40101, Heredia, Costa Rica

FIG. 1. Adult male *Incilius hodridgei* (UCR 20657), found in Alto El Roble, Costa Rica, 25 years after the last observation in the 1980s. Pho-

WILDLIFE MANAGEMENT
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Research Article

Factors limiting early life stage survival and growth during endangered Wyoming toad reintroductions

Julia S. Polasik ✉, Melanie A. Murphy, Tyler Abbott, Kim Vincent

First published: 28 December 2015 Full publication history

DOI: 10.1002/jwmg.1031 View/save citation

Ropucha *Anayrus baxteri* – též mezitím našli a stačili rozjet chovný program…

Dojmologie k HERPTILES:

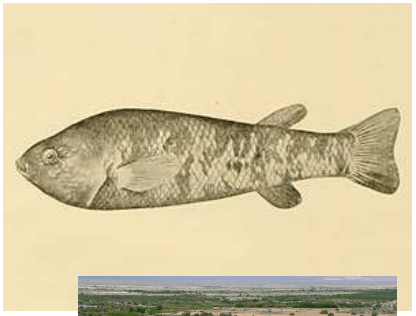
- občas si herpetologové nejsou jisti, fauna holt není známá dokonale
- občas vše vyřeší taxonomie
- u plazů často ostrovy; u obojživelníků podivné biotopy

Ryby (102 spp.)

Pstruh severoafrický.

Jediné jezero v Maroku, nepřežil introdukci kapra.

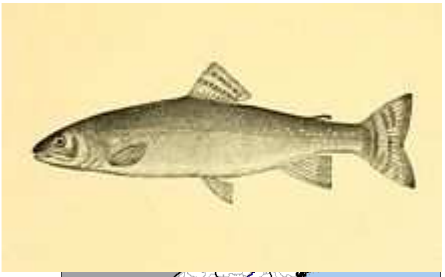
1930s…

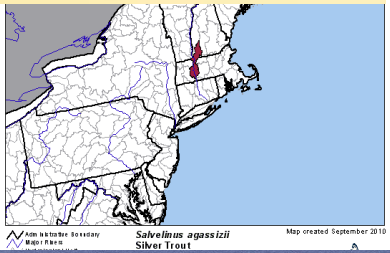


***Cyprinodon merriami*,**

Gudea merriamova.

1950s. Prameniště v pouštní oáze v Nevadě. Introdukované živorodky a obojživelníci..



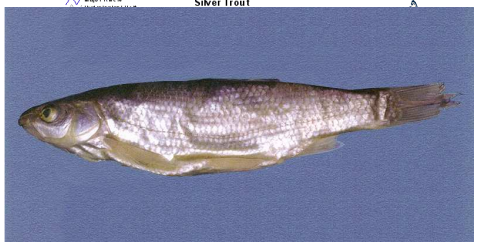


***Salvelinus agassizi*, Siven agassizův**

1930s. Obýval 2 postglaciální jezera v New Hampsire.

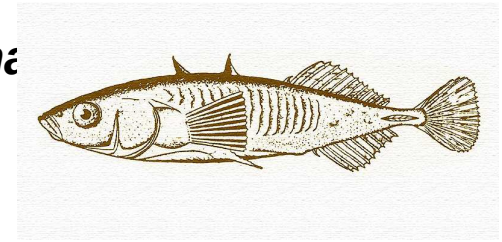
***Nototropis saladonis*, Jeleček saladonský**

Několik málo řek v Mexiku, dokonce se lovil … znečištění. 1980s



***Chondrostoma scodrense*, ostroretka albánská**

Skodarské jezero, znečištění



Koljuška rumunská, *Gasterosteus crenobiontus*

1960s. Přítoky slaného jezera Techirghiol. Hybridizace s kolj. tříostnou.

Haplochromis xenostoma

- Příklad **desítek** uváděných vyhynulých druhů cichlid z afrických jezer

- **introdukce „**okouna“ robalo nilského

- mnohé druhy se ale při dalších výzkumech „vynořují“ – možná to nebude tak zlé…

Dojmologie k vyhynulým rybám

• dobře prozkoumané oblasti světa (Evropa, Severní Amerika, Izreael + Middle East, Austrálie, Madagaskar…)

• „sexy“ lokality – Africká jezera, pouštní oázy…

• drobná reliktní povodí (opět jezera, reliktní jezera, pouštní oázy, krasové oblasti…)

• znečitštění, změna vodních poměrů, velmi často kompetice nebo křížení s introdukovanými druhy

• z rozs. oblastí světa chybí data (např. Indočína, Andská oblast, čínské krasové oblasti…?)

… hmyz (jen! 61 spp.)

Potápník *Megadytes ducalis*

Brazílie. Znám jen typový exemplář.

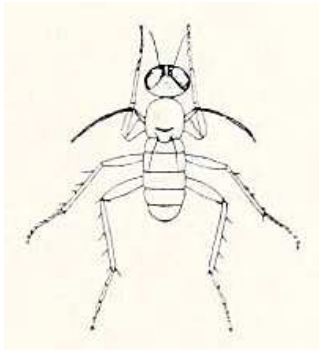
Vážka *Sympetrum dilatatum*
Sv. Helena, 1930s

Střevlík *Mecoderma punctellum*

Stephens Island, Nový Zéland, 1930s
Těžba lesů?

strašilka *Pseudobactricia ridleyi*

Singapur, 1900s.
Zástavba a sběr pro tradiční medicínu.



Bezkřídlá moucha *Emperoptera mirabilis*

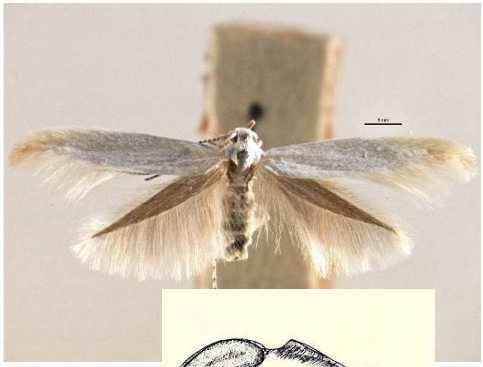
Havaj. 1950s?
Invazní mravenci apod.

Chrostík *Hydropsyche tobiasi*

Rýn. Naposled sbírán 1938, popsán r. 1977, nikdy již nenalezen.

Znečištění?

… z toho motýli (27 spp.)



Pouzdrovníček *Coleophora leucochrysella*

Středozápad USA, vázba na (ekologicky vyhynulý) kaštanovník americký. 1900s.

+++ ca 5 druhů vázaných na Castanea dentata…

Píďalka *Scotorythra megalophylla*

Havaj, 1900s. Odlesnění.

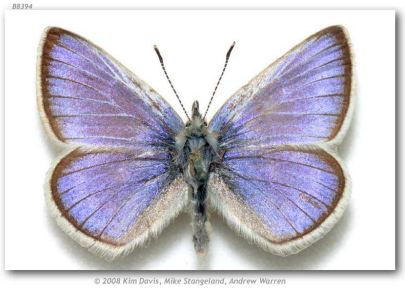
Osenice Agrotis laysaensis

Havaj, 1900s. Kultivace, králíci atd.

+++ ca 15 druhů z Havaje

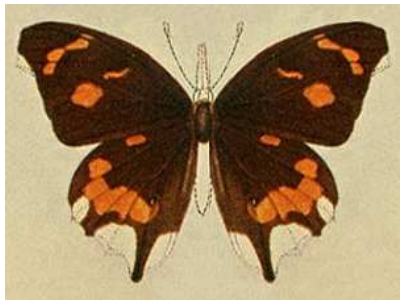
Modrásek *Deloneura immaculata*

Znám z 1860s, „několik dnes hustě zalesněných údolí V. Kapska“ (**vybití zvěře?**)



Modrásek Glaucopsyche xerces

1940s, zástavba pobřežních lokalit v Kalifornii.



Libythea cinyras

Mauritius. Dochoval se jen holotyp.

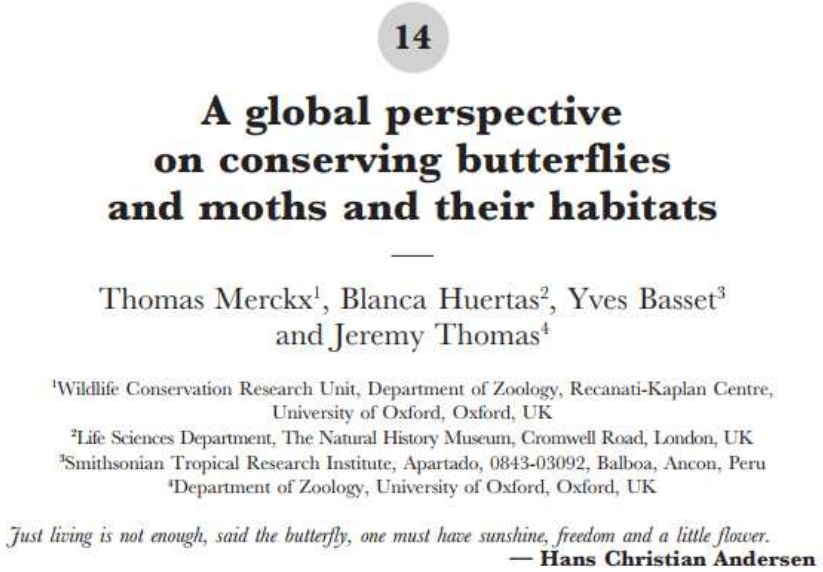
Dojmologie k vyhynulému hmyz

• Skoro nic se neví

• Prozkoumaná území (Kalifornie, západní Evropa), nebo hodně zkoumané systémy (*Castanea dentata* a její herbivoři)

• Ostrovy – ale musí to být ostrovy „civilizované“ (Havaj, Nový Zéland, N. Kaledonie, Mauricius…)

• Zatím překvapivě málo zdokumentovaných extinkcí i z hyper-endemických oblastí (Mediterán, Kapsko, Kalifornie…)



14

A global perspective on conserving butterflies and moths and their habitats

Thomas Merckx[1], Blanca Huertas[2], Yves Basset[3] and Jeremy Thomas[4]

[1]Wildlife Conservation Research Unit, Department of Zoology, Recanati-Kaplan Centre, University of Oxford, Oxford, UK
[2]Life Sciences Department, The Natural History Museum, Cromwell Road, London, UK
[3]Smithsonian Tropical Research Institute, Apartado, 0843-03092, Balboa, Ancon, Peru
[4]Department of Zoology, University of Oxford, Oxford, UK

Just living is not enough, said the butterfly, one must have sunshine, freedom and a little flower.
— Hans Christian Andersen

MĚKKÝŠI – v přehledech „mrtvol“ jich je překvapivě hodně

***Epioblasma* („velevrub“)**

- rod koncentrovaný na V Severní Ameriky

-15 spp (z 23) EX

***Pleurobema* spp. („velevrub)**

-i v tomto východo-americkém rodě podezřele hodně EX spp

Kuželnatka *Lotia alveus*

-ať taky máme něco z moří

- porosty trávy *Zostera* na SV USA .. Dřív hojná, nespatřená 60 let

Časté druhy „reliktních povodí“

Graecoanatolica macedonica

-endemit Dorjanského jezera

Pyrgulopsis nevadensis

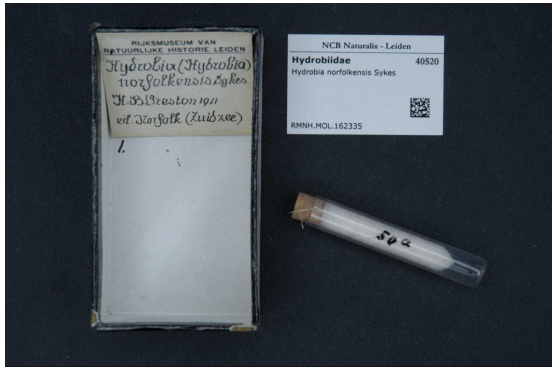
Povodí jezer Walker Lake a Pyramid Lake v Nevadě

Elimia pygmea

„Alabama“. Východ USA má takových druhů hodně (v tomto a dalších rodech)

Ostrovů …

Posticobia norfolkensis
Norfolk Isl.



Amphicyclotulus guadelupensis
Guadelupe

Incerticyclus martinicensis

Martinik

Decimace ostrovních radiací – Havajské ostrovy

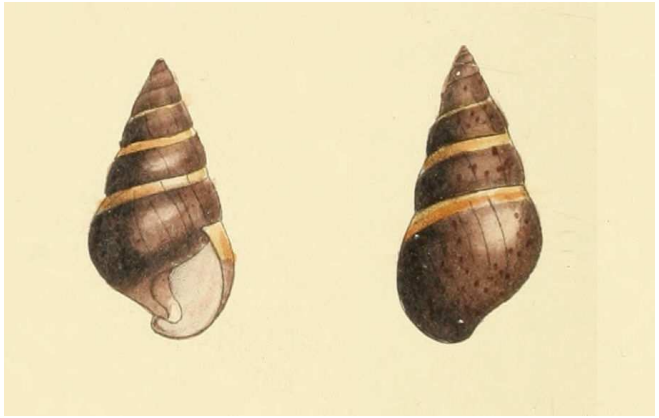
Achatinella spp. 15 ze 40 vyhynulo, všechny ohroženy

Ext. *Achatinella bulmoides*

Ohr. *Achatinella vallida*

- odlesnění, změna kultur
- invazní krysy, chameleoni, plž ***Euglandina rosea***

Amastra spp., 12 ze 16 druhů EX



Carelia spp., 20 ze 21 druhů EX

Decimace ostrovních radiací – Francouzská Polynésie

- *Partula affinis*
- *Partula arguta* †
- *Partula atilis* †
- *Partula aurantia* †
- *Partula auraniana* Hartman, 1888
- *Partula auriculata* †
- *Partula bilineata* †
- *Partula clara*
- *Partula clarkei* †
- *Partula cootei* †
- *Partula compressa*
- *Partula crassilabris* †
- *Partula cuneata* †
- *Partula cytherea* †
- *Partula dentifera* †
- *Partula desolata* †
- *Partula dolichostoma* †
- *Partula dolorosa* †
- *Partula emersoni*
- *Partula eremita* †
- *Partula faba* †
- *Partula filosa* † (=Partula diminuta)
- *Partula formosa* †
- *Partula garretti* †
- *Partula gibba*
- *Partula guamensis* †
- *Partula hebe*
- *Partula hyalina*
- *Partula jackieburchi* †
- *Partula labrusca* †
- *Partula laevigata*
- *Partula langfordi* †
- *Partula leptochila* †
- *Partula levistriata* †
- *Partula lutea* †
- *Partula magistri* †
- *Partula makatea* †
- *Partula martensiana* (=Partula rufa)
- *Partula meyeri*
- *Partula mirabilis*
- *Partula mooreana*
- *Partula navigatoria*
- *Partula nodosa*
- *Partula otaheitana*
- *Partula pearcekellyi* †
- *Partula planilabrum* †
- *Partula producta* †
- *Partula protracta* †
- *Partula pyramis* Hartman, 1886
- *Partula radiolata*
- *Partula remota* †
- *Partula rosea*
- *Partula rustica* †
- *Partula sagitta* †
- *Partula salifana* †
- *Partula suturalis*
- *Partula taeniata*
- *Partula thalia* †
- *Partula tohiveana*
- *Partula tristis*
- *Partula turgida* †
- *Partula umbilicata* †
- *Partula varia*

Invazní Achatina – „biologická kontrola“ Euglandinou … ☹

Volume 37, Issue 1 January 2003 , pp. 91-96

Cite
Get

From 61 species to five: endemic tree snails of the Society Islands fall prey to an ill-judged biological control programme

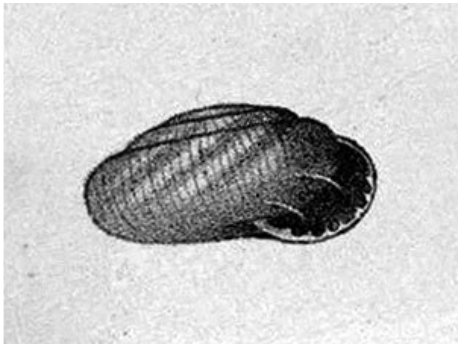
Trevor Coote [a1] and Éric Loève [a2]

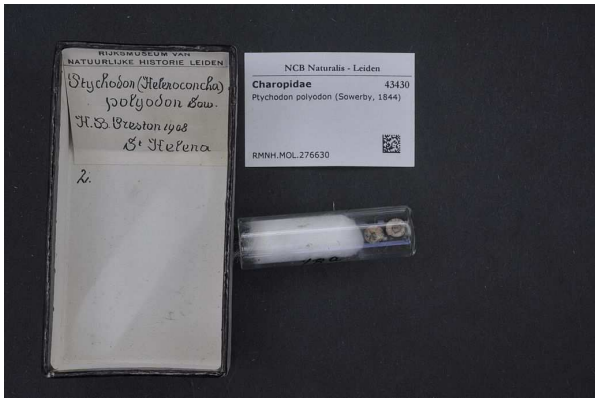
https://doi.org/10.1017/S0030605303000176 Published online: 11 February 2003

Decimace ostrovních radiací - i nenápadné rody

Svatá Helena:

Helenococha spp.
5 ze 6 spp. vyhynulo, zbylý CR





Cookovy ostrovy:

Sinoploea spp.
9 ze 16 spp EX

Opět Francouzská Polynésie

Mauthodonta spp., 10 ze 12 EX

… a nesmí chybět Mauritius

Gonidomus newtoni,
endemický rod

.. Tam žádná rodová radiace, ale cca 10 „mrtvol“ z různých skupin

I zde ale občas najdeme „fantomové druhy“

„vyhynulá“ *Bythinella austriaca* synonymizovaná s *Bythinella conica*

Beitrag

Revision of selected species of Bythinella Moquin-Tandon1856 from Central Europe using morphology, anatomy and DNA barcodes (Caenogastropoda: Rissooidea)

Boeters, Hans D.; Knebelsberger, Thomas

Archiv für Molluskenkunde International Journal of Malacology Band 141 Heft 1 (2012), p. 115 - 136

veröffentlicht: Jun 1, 2012

JAK NA TOM TEDY JSME?

Table 4 Comparison of rates of threat for groups of molluscs

	~Described valid species diversity	Extinct	Critically endangered	Endangered	Vulnerable	All red list categories (Excluding LC)	Rate of threat
Mollusca		289	265	222	488	2,085	
Gastropoda	~78,000	258	213	194	473	1,882	0.024
Freshwater	~4,000	57	45	62	204	520	0.130
Terrestrial	~24,000	197	166	130	265	1,281	0.053
Marine	~50,000	4	2	3	6	84	0.00168

Source: 2006 IUCN Red List of Threatened Species (www.redlist.org). Rate of threat is estimated from number of Red Listed species (excludes Least Concern) as a percent of estimated currently valid species diversity; does not take into account proportion of species assessed and thus may not accurately reflect relative rate of threat across categories. LC: Least Concern

Toto jsou **pouze akvatické druhy**

Fig. 2

Hotspots of gastropod diversity. A–H. Springs and groundwater. I–Q. Lakes. R–X. Rivers. Y. Monsoonal wetlands. A: South western U.S.; B: Cuatro Cienegas basin, Mexico; C: Florida, U.S.; D: Mountainous regions in Southern France and Spain; E: Southern Alps and Balkans region; Northern Italy, Austria, former Yugoslavia, Bulgaria, Greece; F: Great Artesian basin, Australia; G: Western Tasmania, Australia; H: New Caledonia. I: Titicaca,

tatic-content.springer.com/image/art%3A10.1007%2Fs10750-007-9012-6/MediaObjects/10750_2007

Hydrobiologia (2008) 595:149–166
DOI 10.1007/s10750-007-9012-6

FRESHWATER ANIMAL DIVERSITY ASSESSMENT

Global diversity of gastropods (Gastropoda; Mollusca) in freshwater

Ellen E. Strong · Olivier Gargominy · Winston F. Ponder · Philippe Bouchet

Pouze akvatické druhy II.

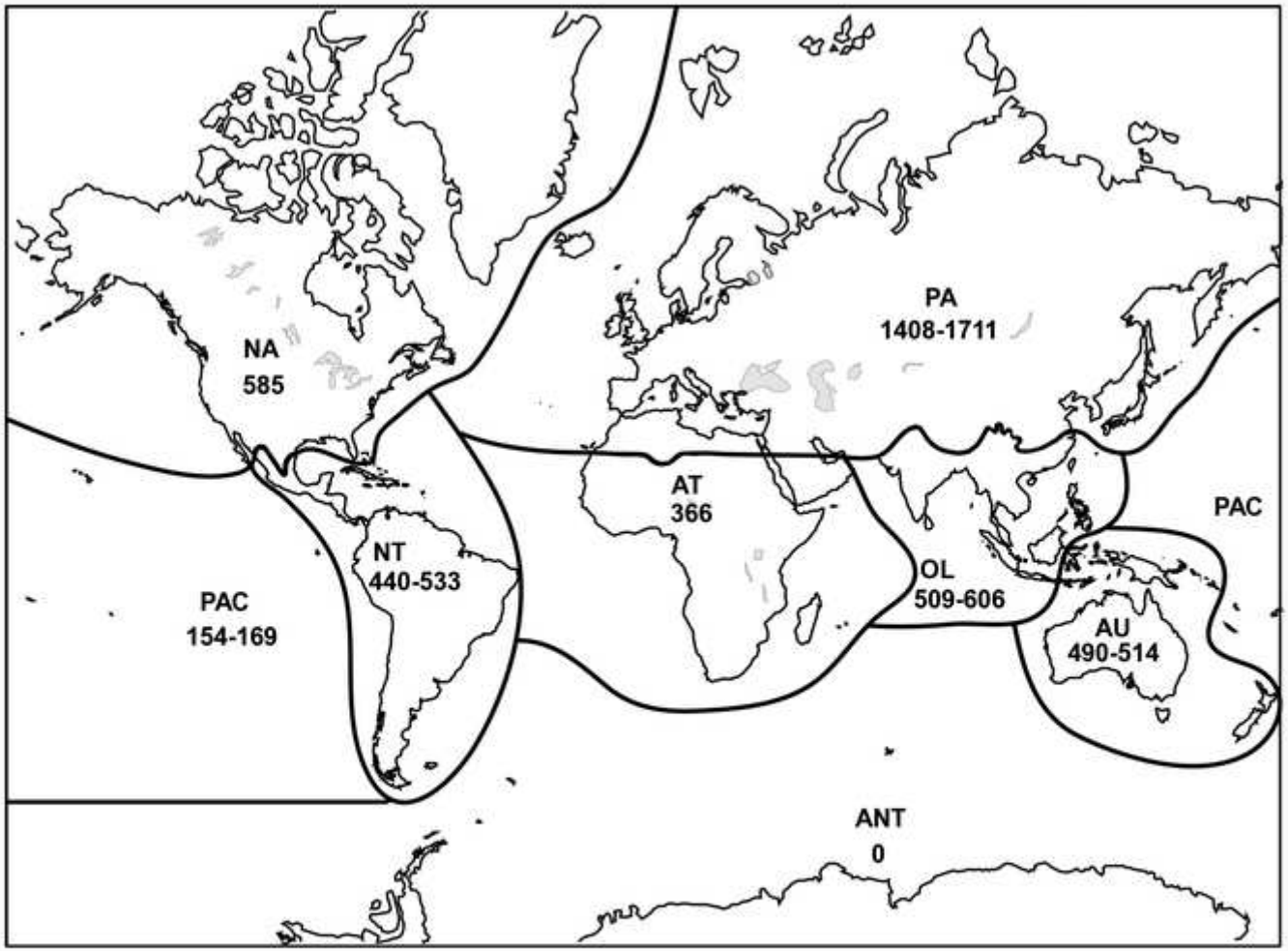


Fig. 3

Distribution of freshwater gastropod species per zoogeographic region. PA—Palaearctic, NA—Nearctic, NT—Neotropical, AT—Afrotropical, OL—Oriental, AU—Australasian, PAC—Pacific Oceanic Islands, ANT—Antarctic

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Charles Lydeard, Robert H. Cowie, Winston F. Ponder, Arthur E. Bogan, Philippe Bouchet, Stephanie A. Clark, Kevin S. Cummings, Terrence J. Frest, Olivier Gargominy, Dai G. Herbert Robert Hershler, Kathryn E. Perez, Barry Roth, Mary Seddon, Ellen E. Strong, Fred G. Thompson
Author Notes

BioScience, Volume 54, Issue 4, 1 April 2004, Pages 321–330,
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CLAIRE RÉGNIER ✉, BENOÎT FONTAINE, PHILIPPE BOUCHET

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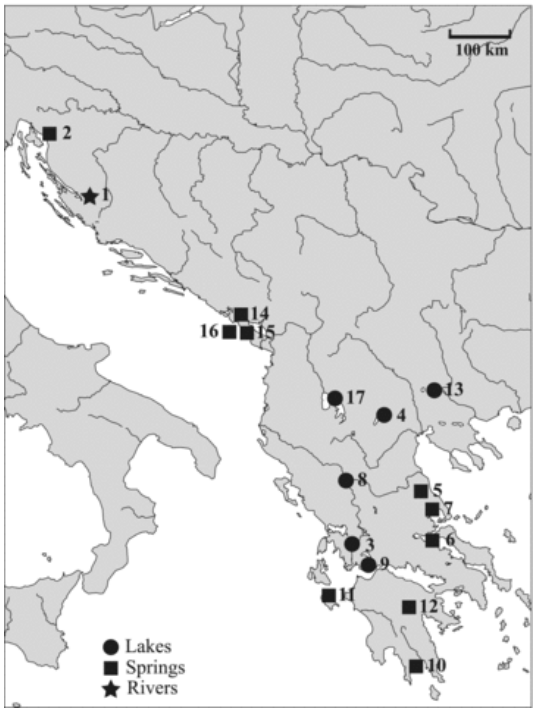
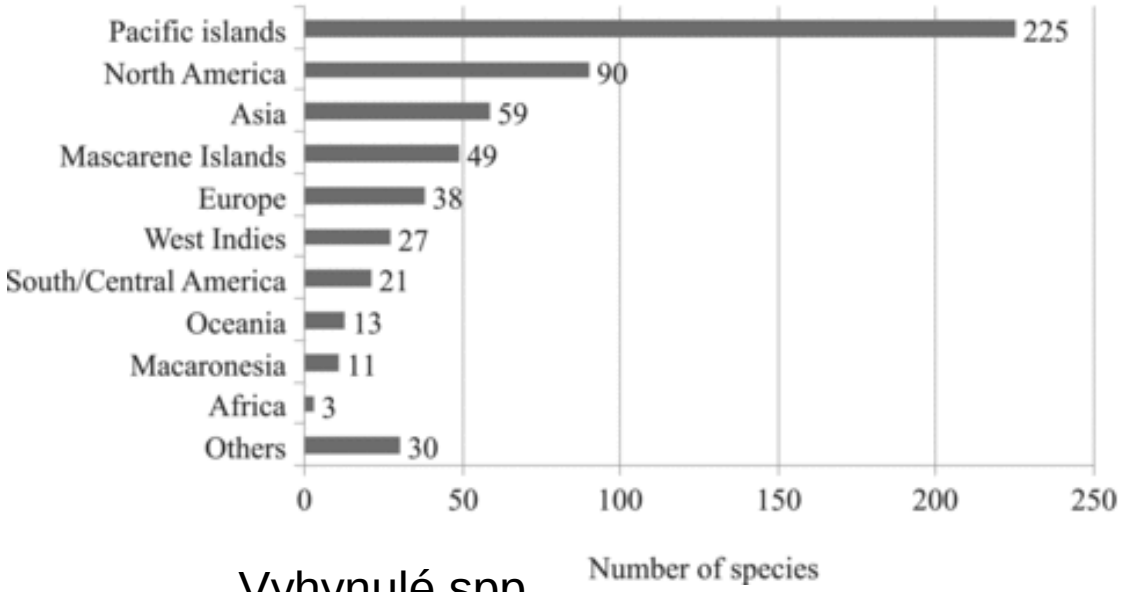


Lokality vyhynulých spp. - Balkán



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Charles Lydeard, Richard L. Mayden

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Journal of Animal Ecology

Impending extinctions of North American freshwater mussels (Unionoida) following the zebra mussel (*Dreissena polymorpha*) invasion

ANTHONY RICCIARDI, RICHARD J. NEVES, JOSEPH B. RASMUSSEN

First published: July 1998 Full publication history

MLŽI

high densities (>3000 m−2) of *Dreissenia polymorpha*, native mussel populations are extirpated within 4–8 years following invasion

PLŽI

„… gastropods have the highest modern extinction rate yet observed, 9,539 times greater than background rates...“

Background vs. current extinction rates

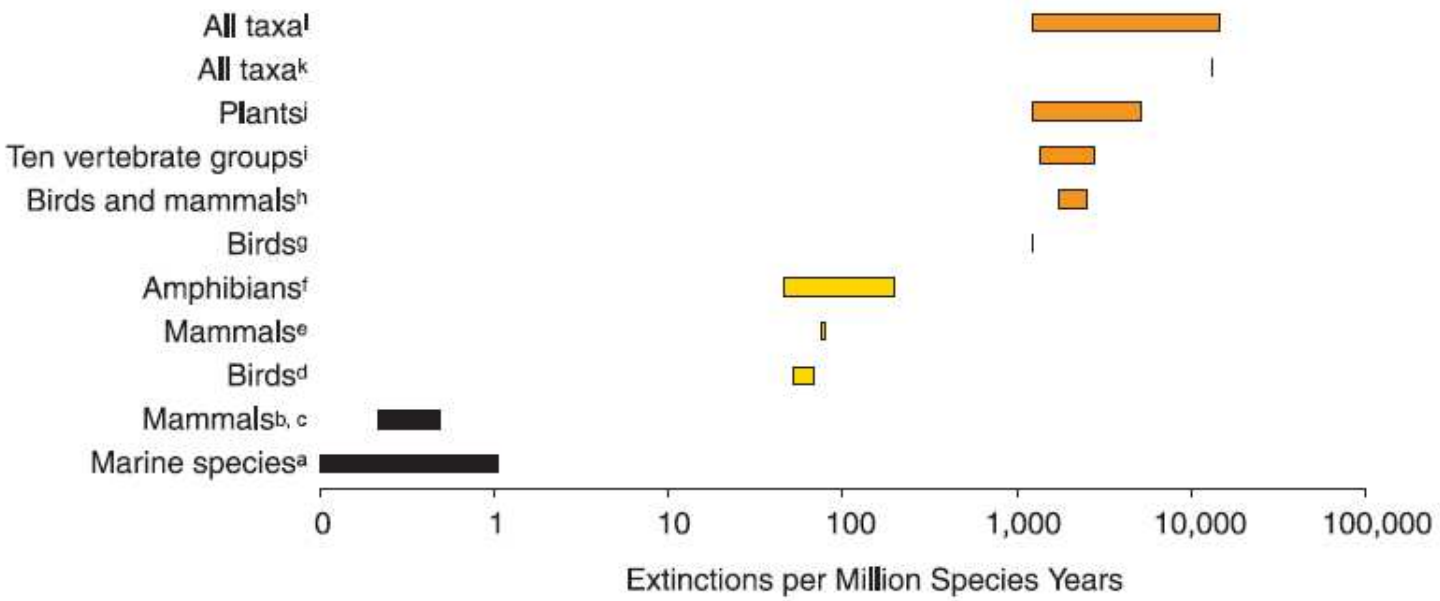
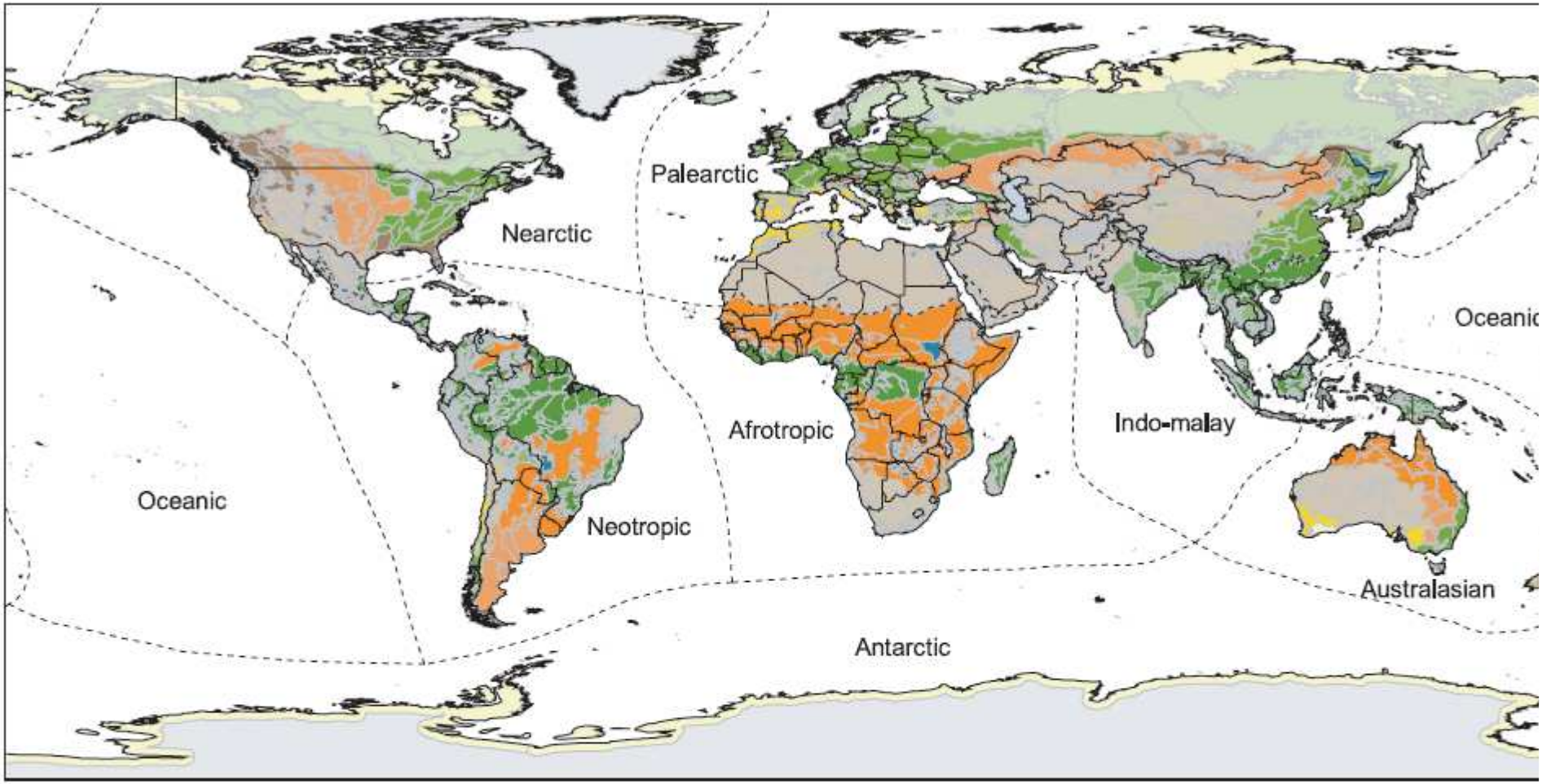


Figure 4.22. Background and Contemporary Extinction Rates. Background extinction rates are in black, extinction rates based on observed extinctions over the past 100 years are in yellow and estimated contemporary extinction rates using a number of different approaches are in orange. Based on background extinction rates from the fossil record: [a]May (1995), [b]Alroy (1998) (lower estimate of 0.21), [c]Foote (1997) (higher estimate of 0.46). Observed extinctions over the past 100 years: [d], [e], [f]Baillie et al. (2004). Projections based on threatened species: [g]Pimm and Brooks (1997), [h]Smith et al. (1993) (also uses recently extinct species), [i]Mace (1994). Plant extinctions using species-area curve with assumptions about habitat loss from agricultural/urban expansion and from climate change: [i]MA *Scenarios*, Chapter 10. Increased energy consumption: [k]Ehrlich (1994). Species-area relationship from deforestation rates: four studies in [l]Reid (1992).



Biome

- TMF: Tropical and sub-tropical moist broadleaf forests
- TDF: Tropical and sub-tropical dry broadleaf forests
- TCF: Tropical and sub-tropical coniferous forests
- TeBF: Temperate broadleaf and mixed forests
- TeCF: Temperate coniferous forests
- BF: Boreal forests/taiga
- TG: Tropical and sub-tropical grasslands, savannas, and shrublands
- TeG: Temperate grasslands, savannas, and shrublands
- FG: Flooded grasslands and savannas
- MG: Montane grasslands and shrublands
- T: Tundra
- MF: Mediterranean forests, woodlands, and scrub
- D: Deserts and xeric shrublands
- M: Mangroves

- Lakes
- Rock and ice

- Biogeographic realm
- Country

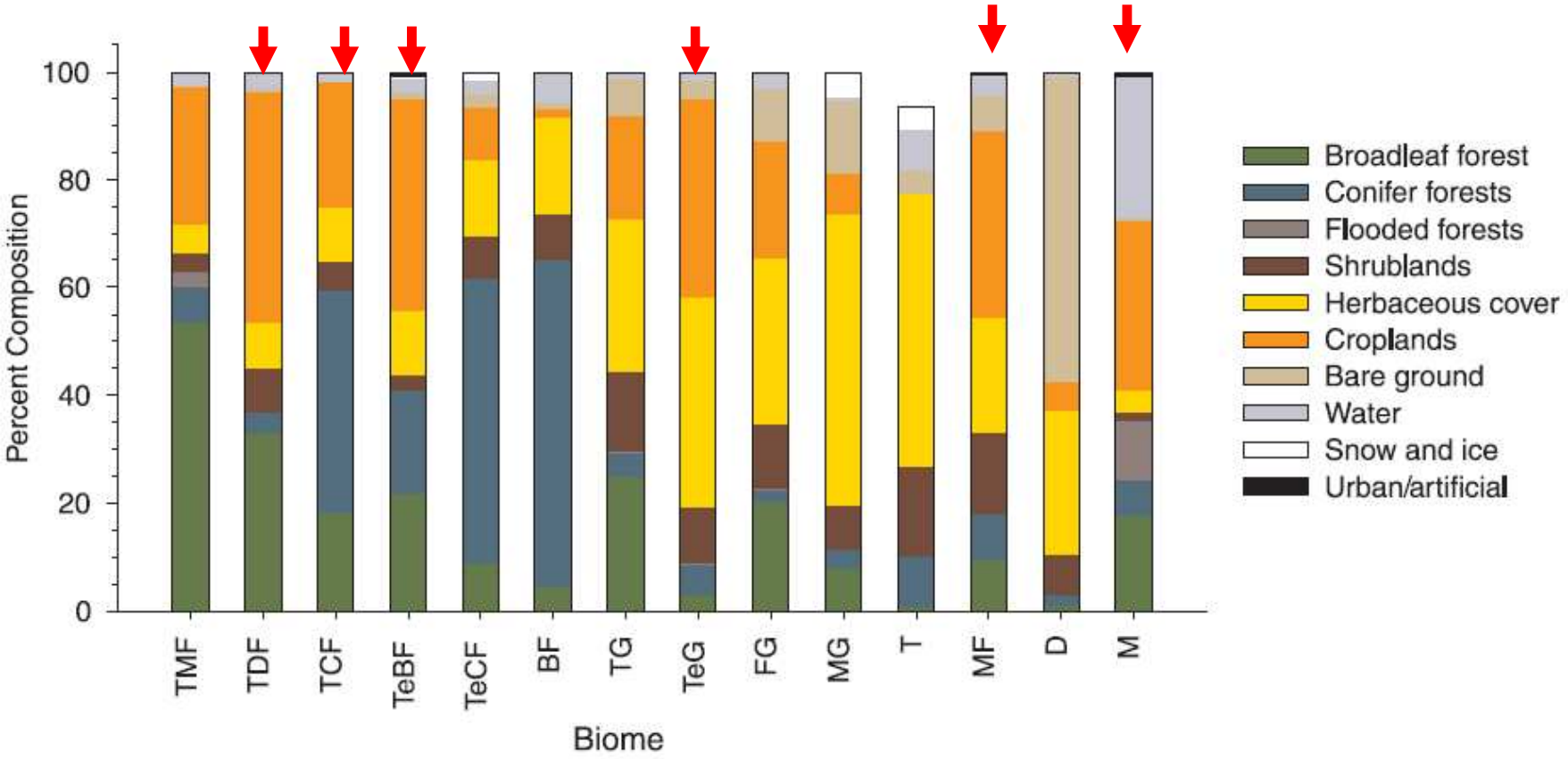


Figure 4.6. Land Cover Composition of 14 Terrestrial Biomes. Biome codes as in Figure 4.3. Tundra bar does not reach 100% because 7% of this biome was unclassified by the land cover dataset.

Biome

- TMF: Tropical and sub-tropical moist broadleaf forests
- TDF: Tropical and sub-tropical dry broadleaf forests
- TCF: Tropical and sub-tropical coniferous forests
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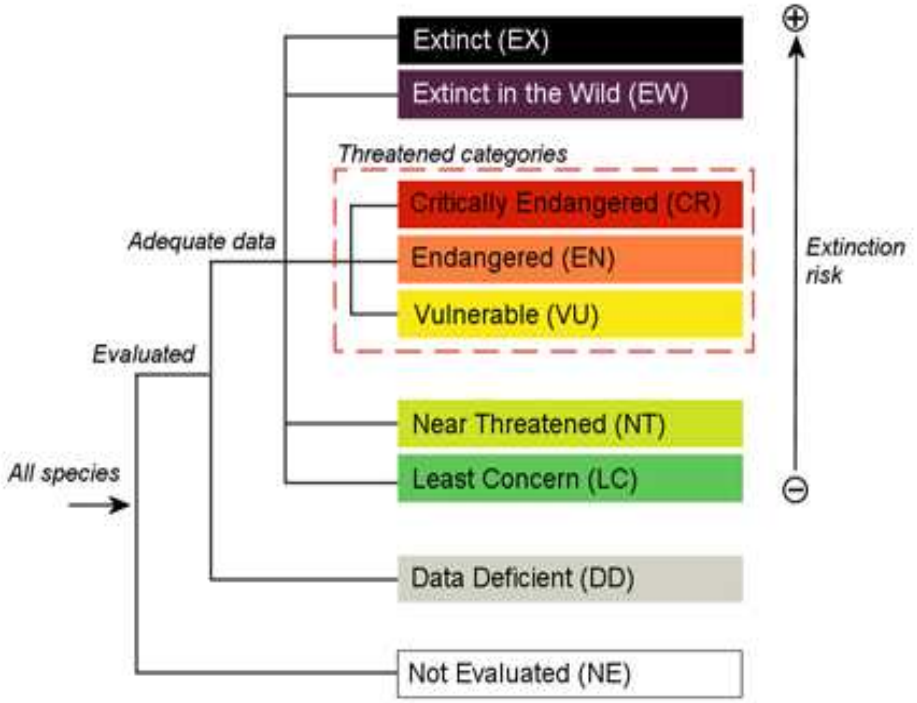
- MF: Mediterranean forests, woodlands, and scrub
- D: Deserts and xeric shrublands
- M: Mangroves

Lakes
Rock and ice

Biogeographic realm
Country
Ecoregions

IUCN Red List

- od roku 1963
- standardní kritéria od 1994
- spolupráce (např. Bird Life International…)
- postupné rozšiřování taxonomikého záběru



SUMMARY OF THE FIVE CRITERIA (A-E) USED TO EVALUATE IF A TAXON BELONGS IN AN IUCN RED LIST THREATENED CATEGORY (CRITICALLY ENDANGERED, ENDANGERED OR VULNERABLE).[1]

A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3 & A4	≥ 80%	≥ 50%	≥ 30%

A1 Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased.

A2 Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

A3 Population reduction projected, inferred or suspected to be met in the future (up to a maximum of 100 years) *[(a) cannot be used for A3]*.

A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

based on any of the following:

(a) direct observation *(except A3)*
(b) an index of abundance appropriate to the taxon
(c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality
(d) actual or potential levels of exploitation
(e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.

B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)

	Critically Endangered	Endangered	Vulnerable
B1. Extent of occurrence (EOO)	< 100 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

C. Small population size and decline

	Critically Endangered	Endangered	Vulnerable
Number of mature individuals	< 250	< 2,500	< 10,000
AND at least one of C1 or C2			
C1. An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2. An observed, estimated, projected or inferred continuing decline AND at least 1 of the following 3 conditions:			
(a) (i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
(ii) % of mature individuals in one subpopulation =	90–100%	95–100%	100%
(b) Extreme fluctuations in the number of mature individuals			

D. Very small or restricted population

	Critically Endangered	Endangered	Vulnerable
D. Number of mature individuals	< 50	< 250	D1. < 1,000
D2. *Only applies to the VU category* Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.	-	-	D2. typically: AOO < 20 km² or number of locations ≤ 5

E. Quantitative Analysis

	Critically Endangered	Endangered	Vulnerable
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)	≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)	≥ 10% in 100 years

1 Use of this summary sheet requires full understanding of the *IUCN Red List Categories and Criteria* and *Guidelines for Using the IUCN Red List Categories and Criteria*. Please refer to both documents for explanations of terms and concepts used here.

Kterékoli z kritérií je uplatnitelné

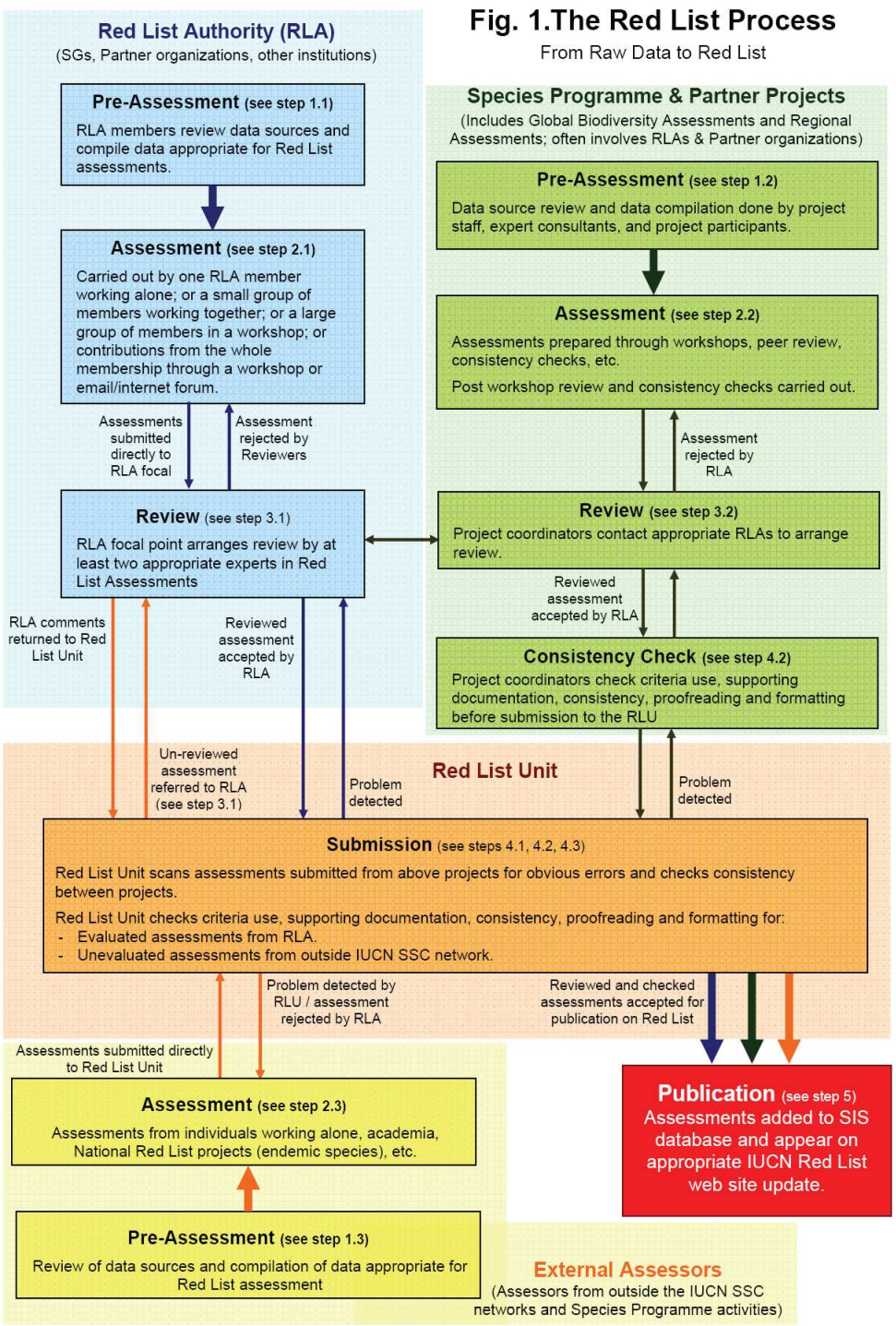
Pokles počtu jedinců

Velikost/fragmentovanost areálu

Rychlost poklesu populace

Velmi malá populace

Kvantitativní analýza (modely)



Pozor

- aby se něco dostalo do RL, musí to být „hodnoceno“

- smysl má hovořit o **savcích, ptácích, obojživelnících** ….

- méně již plazíh, sladkovodních rybách … a pár dalších skupinách

IUCN RED LIST

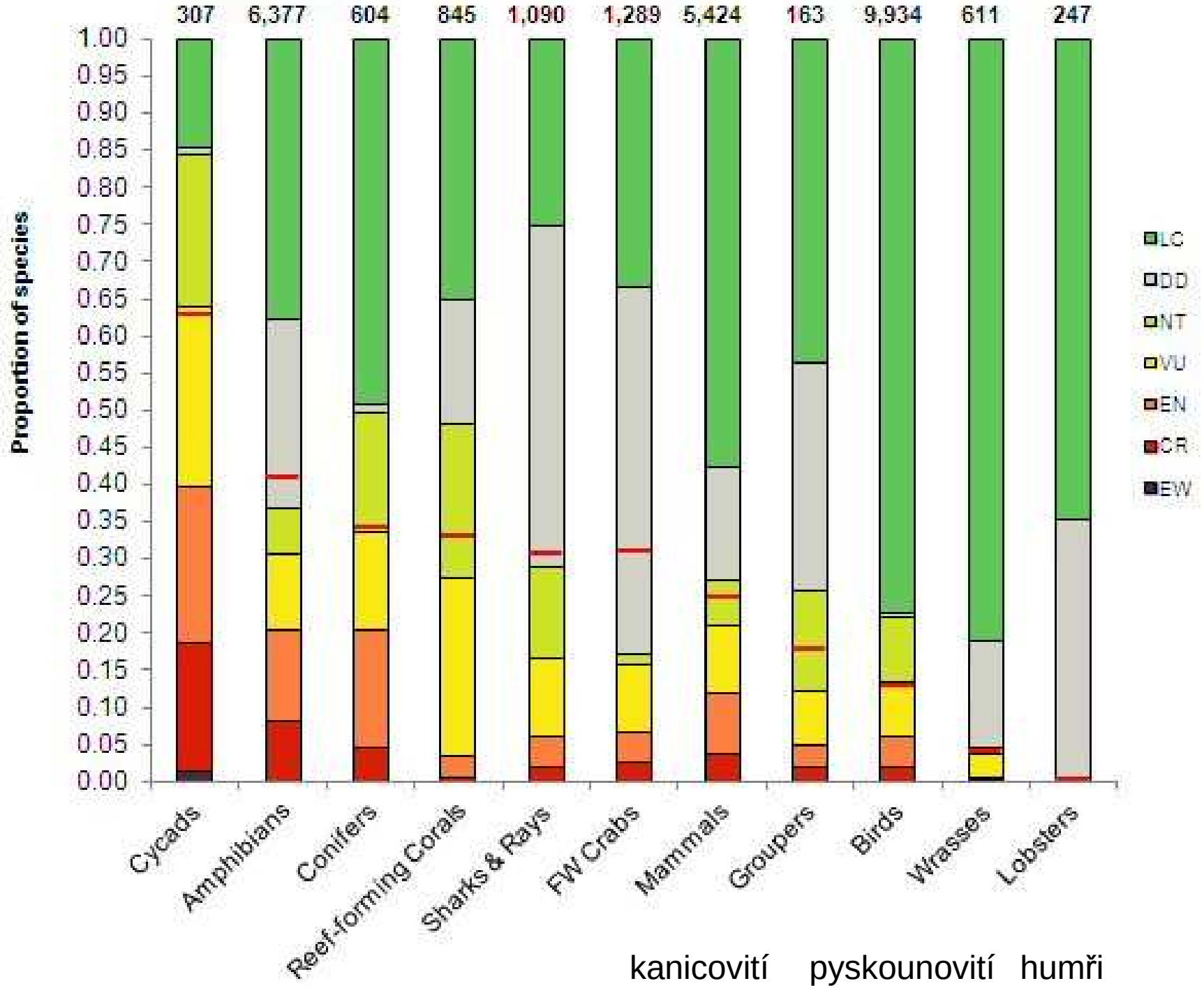
Table 3a: Status category summary by major taxonomic group (animals)

Class*	EX	EW	Subtotal (EX+EW)	CR	EN	VU	Subtotal (threatened spp.)	NT	LR/cd	DD	LC	Total
MAMMALIA	77	2	79	196	446	498	1,140	324	0	834	3,124	5,501
AVES	130	4	134	197	389	727	1,313	880	0	60	7,677	10,064
REPTILIA	22	1	23	151	313	383	847	279	2	759	2,156	4,066
AMPHIBIA	34	2	36	519	773	656	1,948	390	0	1,633	2,404	6,411
CEPHALASPIDOMORPHI	1	0	1	2	0	3	5	1	0	3	20	30
MYXINI	0	0	0	1	2	6	9	2	0	30	35	76
CHONDRICHTHYES	0	0	0	20	44	116	180	133	0	502	273	1,088
ACTINOPTERYGII	61	7	68	389	484	1,041	1,914	294	10	2,105	5,583	9,974
SARCOPTERYGII	0	0	0	1	0	1	2	0	0	0	3	5
HOLOTHUROIDEA	0	0	0	0	7	9	16	0	0	244	111	371
ECHINOIDEA	0	0	0	0	0	0	0	1	0	0	0	1
ARACHNIDA	0	0	0	4	5	12	21	2	0	9	3	35
CHILOPODA	0	0	0	0	0	1	1	0	0	0	0	1
DIPLOPODA	0	0	0	1	6	7	14	0	0	7	10	31
CRUSTACEA	12	1	13	137	179	407	723	72	9	1,153	1,193	3,163
INSECTA	60	1	61	120	215	500	835	221	3	1,020	2,090	4,230
MEROSTOMATA	0	0	0	0	0	0	0	1	0	3	0	4
ONYCHOPHORA	0	0	0	3	2	4	9	1	0	1	0	11
CLITELLATA	1	0	1	1	0	4	5	2	0	0	0	8
POLYCHAETA	0	0	0	1	0	0	1	0	0	1	0	2
BIVALVIA	29	0	29	66	53	45	164	48	5	169	283	698
GASTROPODA	281	14	295	482	427	798	1,707	466	1	1,471	1,897	5,837
CEPHALOPODA	0	0	0	0	0	0	0	1	0	148	46	195
ENOPLA	0	0	0	0	0	2	2	1	0	3	0	6
TURBELLARIA	1	0	1	0	0	0	0	0	0	0	0	1
ANTHOZOA	0	0	0	6	23	202	231	175	0	147	289	842
HYDROZOA	0	0	0	1	2	2	5	1	0	2	8	16
TOTAL	709	32	741	2,298	3,370	5,424	11,092	3,295	30	10,304	27,205	52,667

IUCN Red List Categories: EX - Extinct, **EW** - Extinct in the Wild, **CR** - Critically Endangered, **EN** - Endangered, **VU** - Vulnerable, **LR/cd** - Lower Risk/conservation dependent, **NT** - Near Threatened (includes **LR/nt** - Lower Risk/near threatened), **DD** - Data Deficient, **LC** - Least Concern (includes **LR/lc** - Lower Risk/least concern).

* Mammalia (mammals), Aves (birds), Reptilia (reptiles), Amphibia (amphibians), Cephalaspidomorphi (lampreys and hag fish), Chondrichthyes (sharks, skates, rays and chimaeras), Actinopterygii (bony fishes), Sarcopterygii (coelacanth), Holothuroidea (sea cucumbers), Echinoidea (sea urchins, starfish, etc), Arachnida (spiders and scorpions), Chilopoda (centipedes), Diplopoda (millipedes), Crustacea (crustaceans), Insecta (insects), Merostomata (horshoe crabs), Onychopora (velvet worms), Clitellata (leeches and earthworms), Polychaeta (marine bristle worms), Bivalvia (mussels and clams), Gastropoda (snails, etc), Enopla (nemertine worms), Turbellaria (flatworms), Anthozoa (sea anemones and corals), Hydrozoa (corals)

Class*	EX	EW	Subtotal (EX+EW)	CR	EN	VU	Subtotal (threatened spp.)	NT	LR/cd	DD	LC	Total
MAMMALIA	77	2	79	196	446	498	1,140	324	0	834	3,124	5,501
AVES	130	4	134	197	389	727	1,313	880	0	60	7,677	10,064
REPTILIA	22	1	23	151	313	383	847	279	2	759	2,156	4,066
AMPHIBIA	34	2	36	519	773	656	1,948	390	0	1,633	2,404	6,411
CEPHALASPIDOMORPHI	1	0	1	2	0	3	5	1	0	3	20	30
MYXINI	0	0	0	1	2	6	9	2	0	30	35	76
CHONDRICHTHYES	0	0	0	20	44	116	180	133	0	502	273	1,088
ACTINOPTERYGII	61	7	68	389	484	1,041	1,914	294	10	2,105	5,583	9,974
SARCOPTERYGII	0	0	0	1	0	1	2	0	0	0	3	5
HOLOTHUROIDEA	0	0	0	0	7	9	16	0	0	244	111	371
ECHINOIDEA	0	0	0	0	0	0	0	1	0	0	0	1
ARACHNIDA	0	0	0	4	5	12	21	2	0	9	3	35
CHILOPODA	0	0	0	0	0	1	1	0	0	0	0	1
DIPLOPODA	0	0	0	1	6	7	14	0	0	7	10	31
CRUSTACEA	12	1	13	137	179	407	723	72	9	1,153	1,193	3,163
INSECTA	60	1	61	120	215	500	835	221	3	1,020	2,090	4,230



kanicovití pyskounovití humři

KDE NÁM VYMÍRALY DRUHY?

Figure 4.24. Locations of Extinct and Extinct in the Wild Mammal, Bird, and Amphibian Species since 1500 (Baillie et al. 2004)

Mění se nějak globální situace? Časové srovnání u ptáků

		1988	1994	2000	2004
Number of species in each category	EX	115	130	128	129
	EW		4	3	4
	PE				18
	CR	1,030	168	182	161
	EN		235	320	345
	VU		704	681	689
	NT (including CD)	634	886	727	773
	Total (EW to NT)	1,664	1,997	1,913	1,990
	LC	7,987	7,537	7,755	7,720
	DD		66	79	78
	NE	1	4	3	0
	NR	678	711	564	528
	Total	10,445	10,445	10,445	10,445
Number of species undergoing status changes for given reason	Recent genuine status change		25	128	42
	Genuine status change since first assessment		0	30	19
	Knowledge		957	912	139
	Taxonomy		349	396	104
	Criteria revision		0	1	2
	Other		5	6	0
	Total		1,336	1,473	306
Other statistics	Number of species undergoing genuine status changes[a] (percent of previous total excluding EX, DD, LC, NE, NR)		60 (3.6)	145 (7.3)	45 (2.4)
	Percent change in RLI		−2.14	−3.83	−0.93
	Percent change/year in RLI		−0.36	−0.64	−0.23
	Cumulative percent change in RLI		−2.14	−5.97	−6.90

Table includes categories for Houbara bustard *(C. undulata)* and Saker falcon *(F. cherrug)* that were revised by BirdLife International for the 2004 IUCN Red List but subsequent to BirdLife International. (2004c); see Materials and Methods.

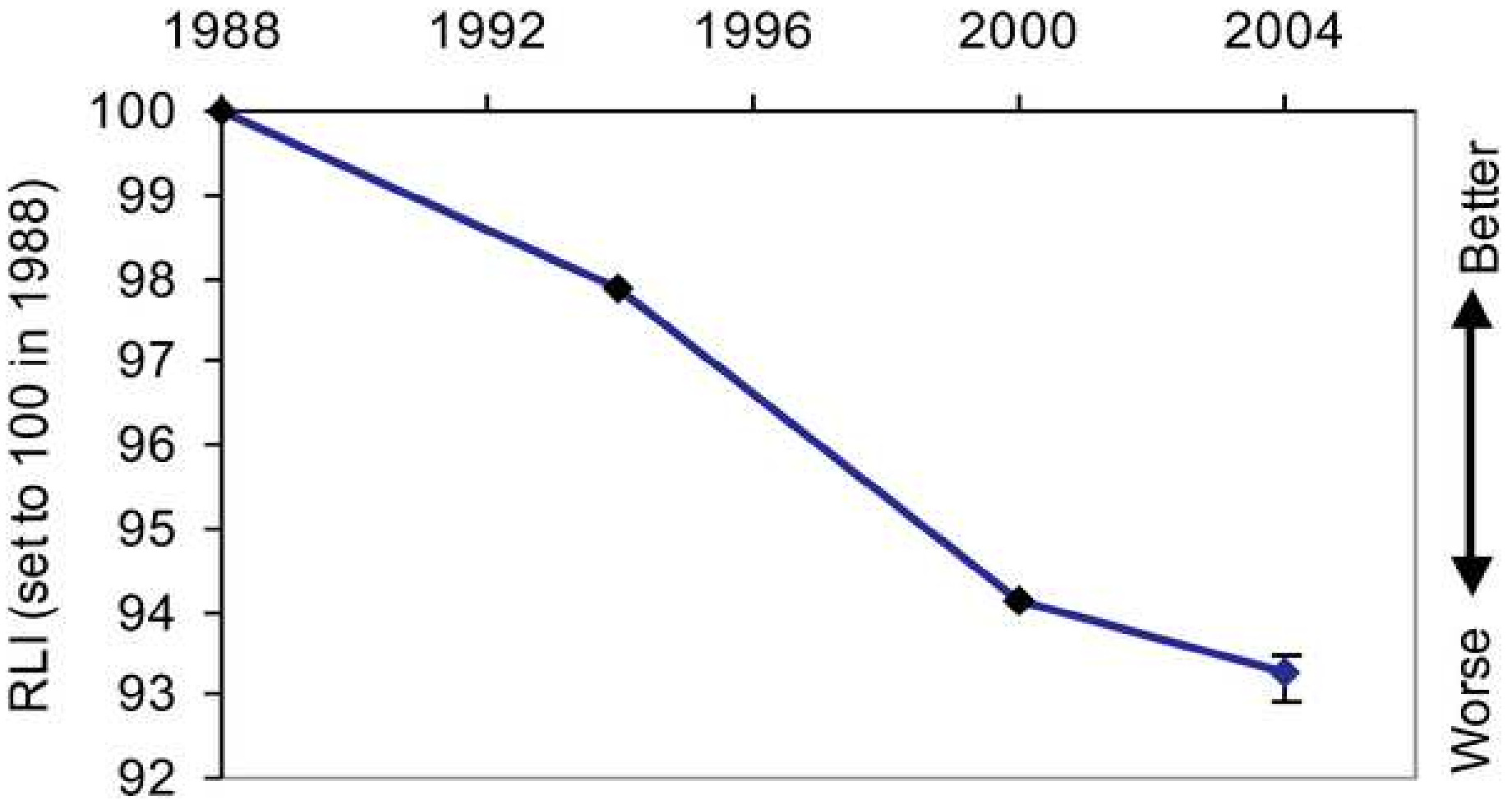
[a] Includes categories retrospectively adjusted owing to category revisions coded as 'genuine status change since first assessment'.

CD, Conservation Dependent; CR, Critically Endangered; DD, Data Deficient; EN, Endangered; EW, Extinct in the Wild; EX, Extinct; LC, Least Concern; NE, Not Evaluated; NR, Not Recognised; NT, Near Threatened; PE, Possibly Extinct; VU, Vulnerable.

DOI: 10.1371/journal.pbio.0020383.t002

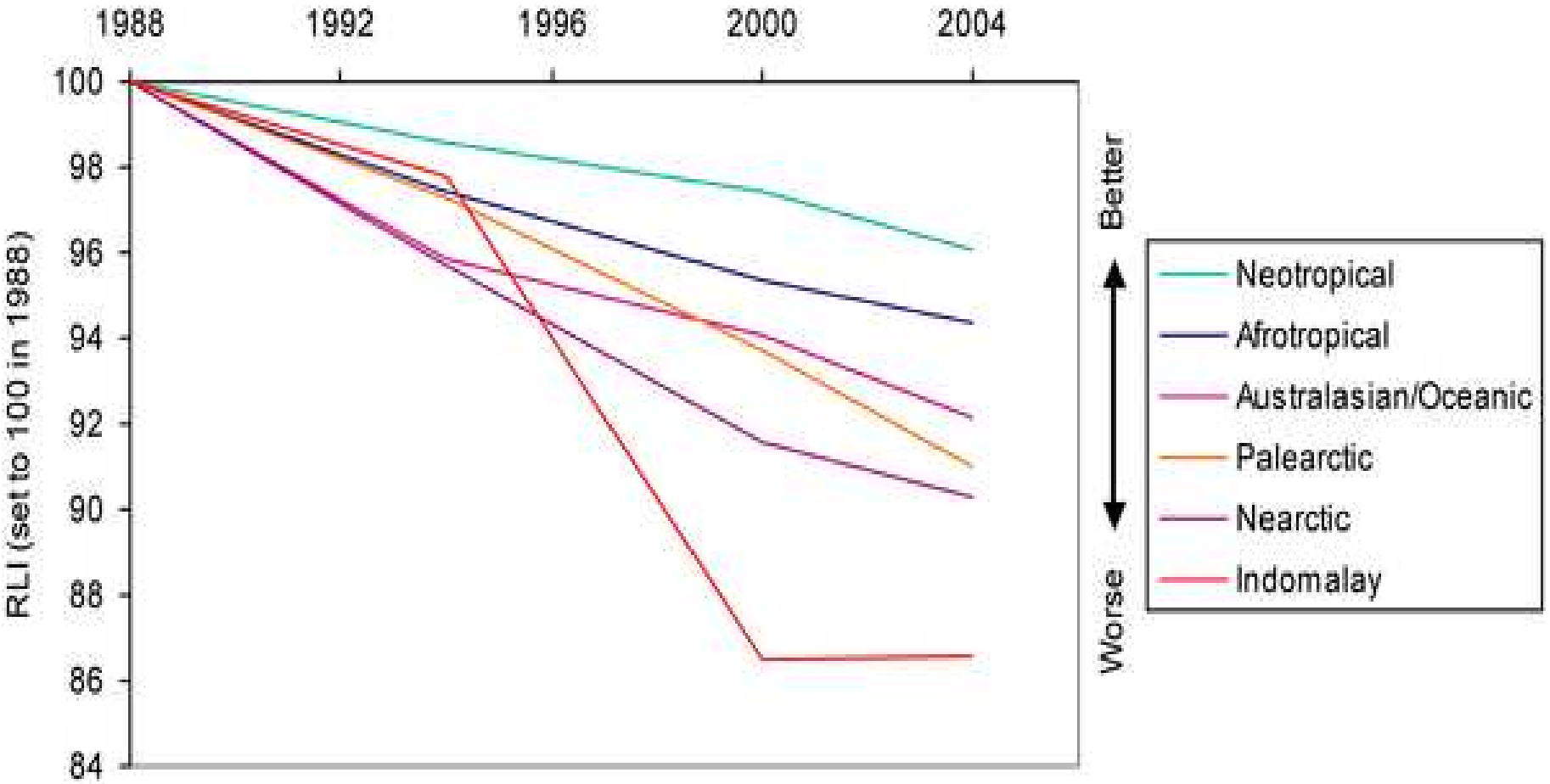
Butchart SHM, Stattersfield AJ, Bennun LA, Shutes SM, et al. (2004) Measuring Global Trends in the Status of Biodiversity: Red List Indices for Birds. PLoS Biol 2(12): e383. doi:10.1371/journal.pbio.0020383

•**Figure 1. The RLI for All Bird Species**



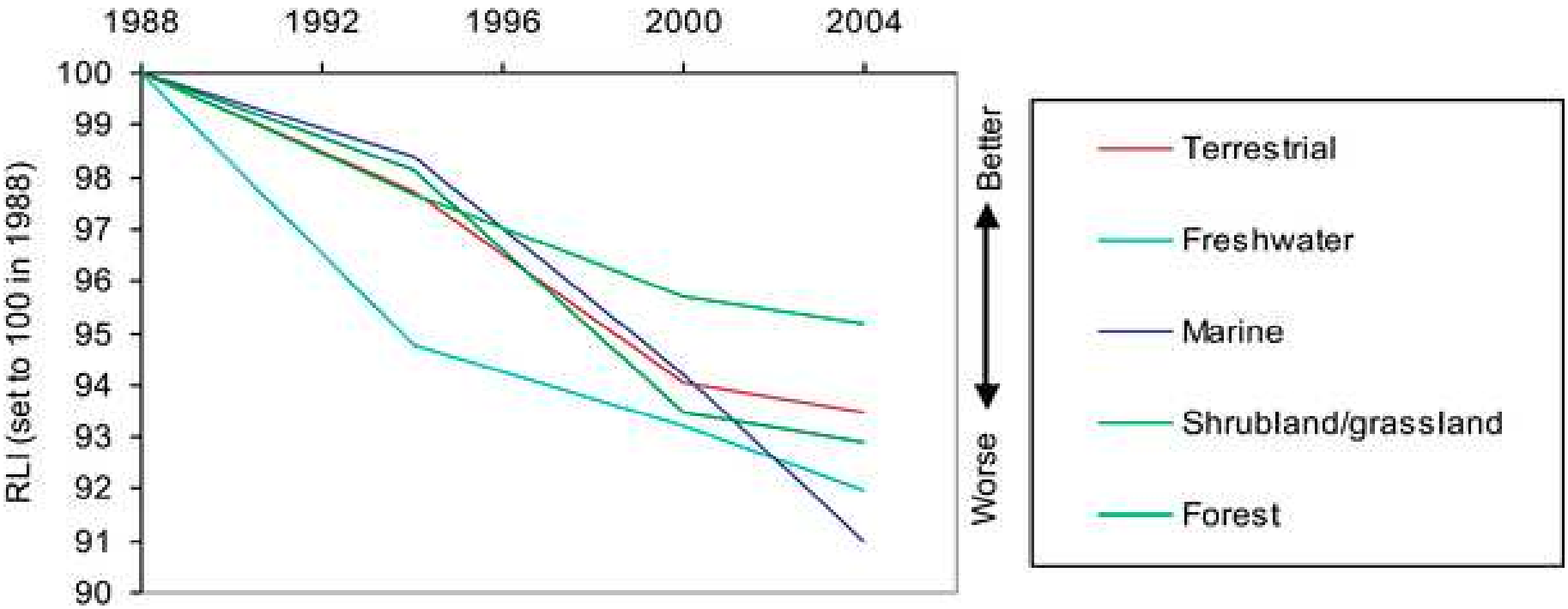
Butchart SHM, Stattersfield AJ, Bennun LA, Shutes SM, et al. (2004) Measuring Global Trends in the Status of Biodiversity: Red List Indices for Birds. PLoS Biol 2(12): e383. doi:10.1371/journal.pbio.0020383
http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0020383

•**Figure 4. RLIs for Birds in Different Biogeographic Realms**



Butchart SHM, Stattersfield AJ, Bennun LA, Shutes SM, et al. (2004) Measuring Global Trends in the Status of Biodiversity: Red List Indices for Birds. PLoS Biol 2(12): e383. doi:10.1371/journal.pbio.0020383
http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0020383

•**Figure 5. RLIs for Birds in Different Habitats**

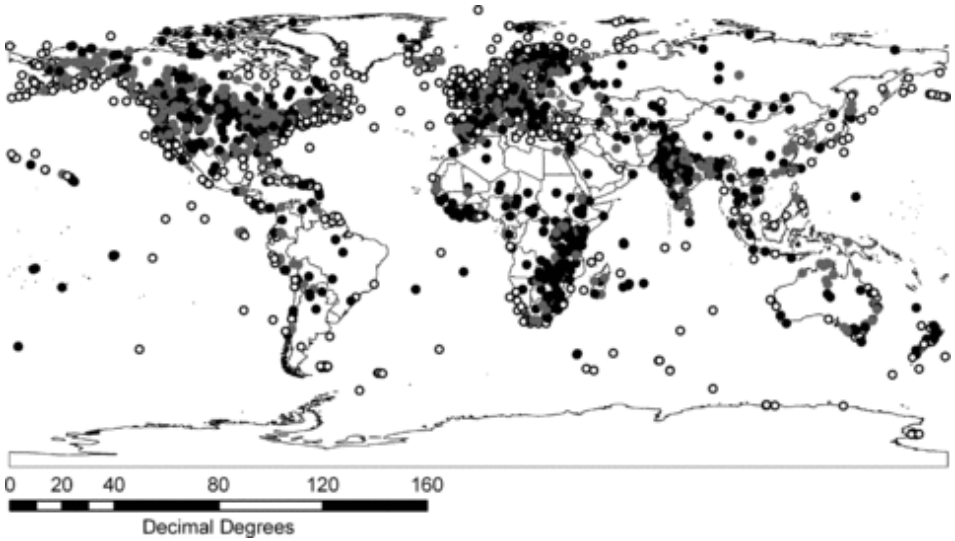


Butchart SHM, Stattersfield AJ, Bennun LA, Shutes SM, et al. (2004) Measuring Global Trends in the Status of Biodiversity: Red List Indices for Birds. PLoS Biol 2(12): e383. doi:10.1371/journal.pbio.0020383
http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0020383

Living planet index

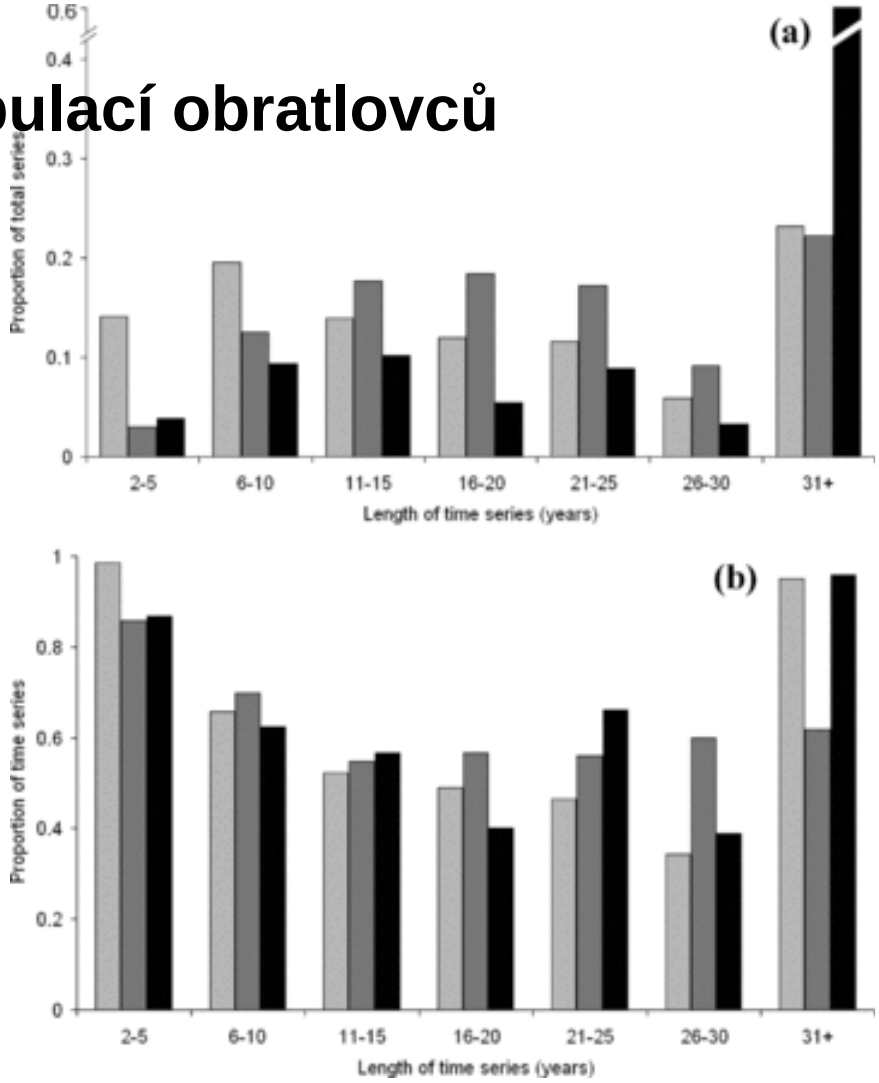
- založen na časových řadách populací obratlovců

(Colle et al., 2009, Conserv. Biol. 23, 317–327)

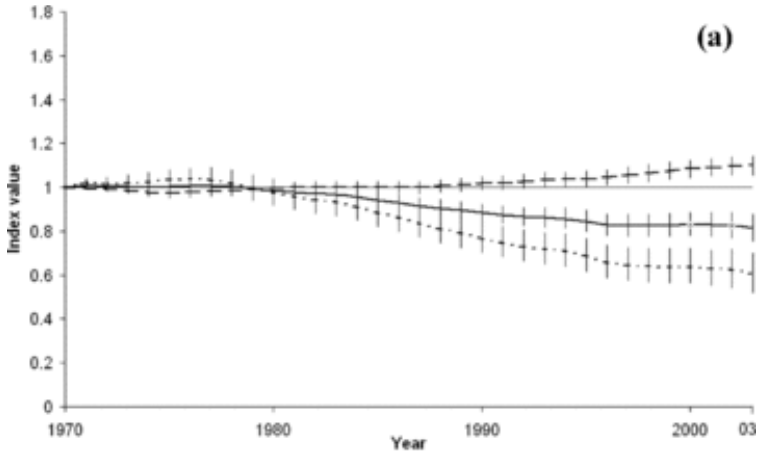


Geographic distribution:

terrestrial (black), **freshwater** (gray), **marine** (white) populations included …

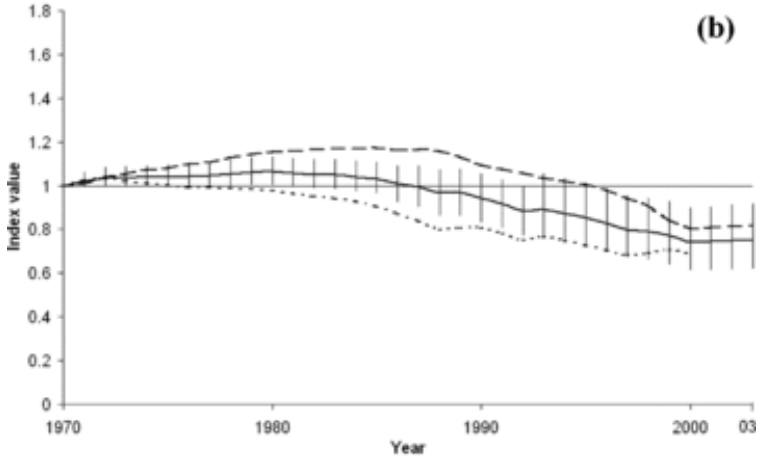


Délka použitých časových řad (a) všech (b) s neinterpolovanými daty … **freshwater** (light gray), **marine** (dark gray), and **terrestrial** (black) (4218 populations).



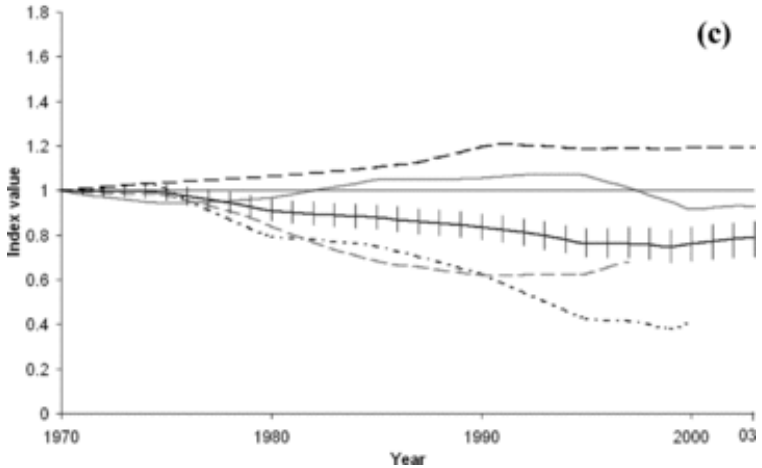
Suchozemští obratlovci

temperate *dashed,* ***tropical*** *dotted,* ***global*** *solid (739 spp, 1585 populací)*



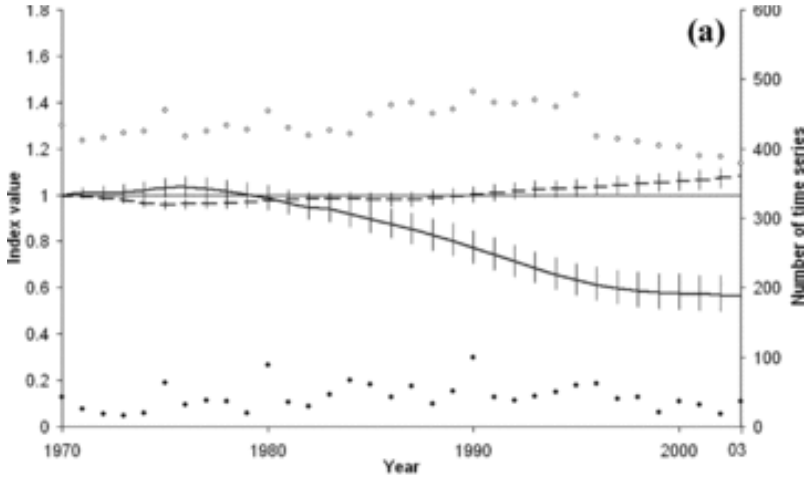
Sladkovodní obratlovci

temperate *dotted,* ***tropical*** *dashed,* ***global*** *solid (375 spp, 1442 populací)*

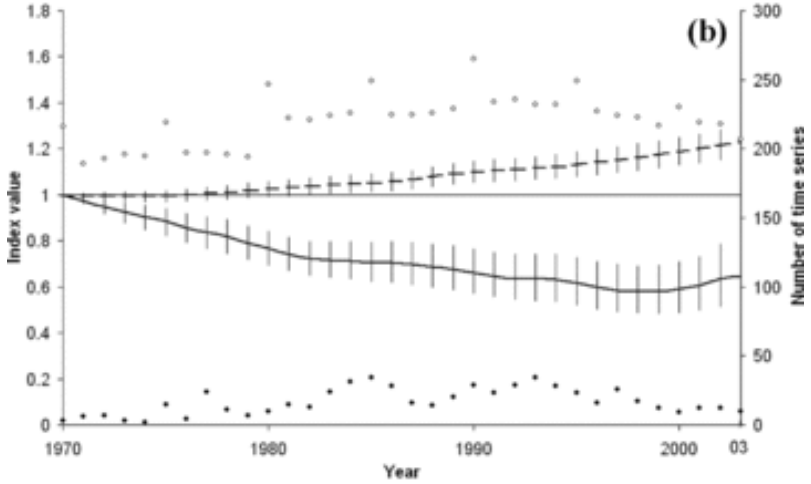


Mořští obratlovci

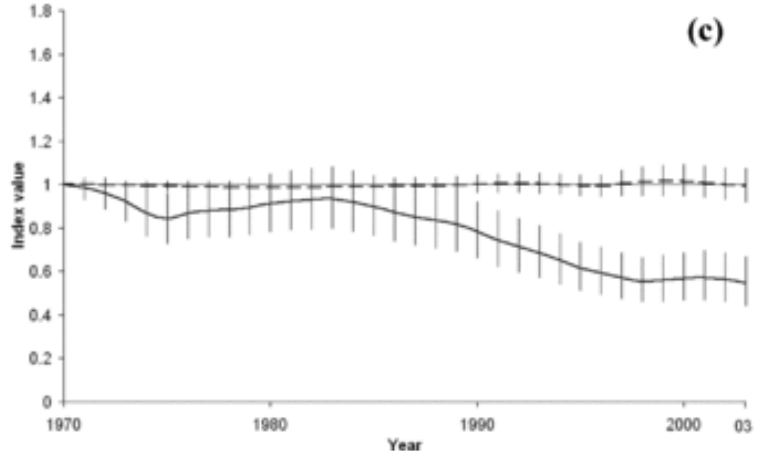
Atlantic *heavy dashed,* ***Pacific*** *light solid,* ***Southern Ocean*** *light dashed,* ***Indian Ocean*** *dotted,* ***global marine*** *heavy solid (297 spp, 1191 populací).*



Nearktická terestrická (dashed) a **Etiopská terestrická** (solid)



Temperátní lesy (dashed) a **tropické lesy** (solid)



Ptáci grasslandů (dashed) a **savci grasslandů** (solid)

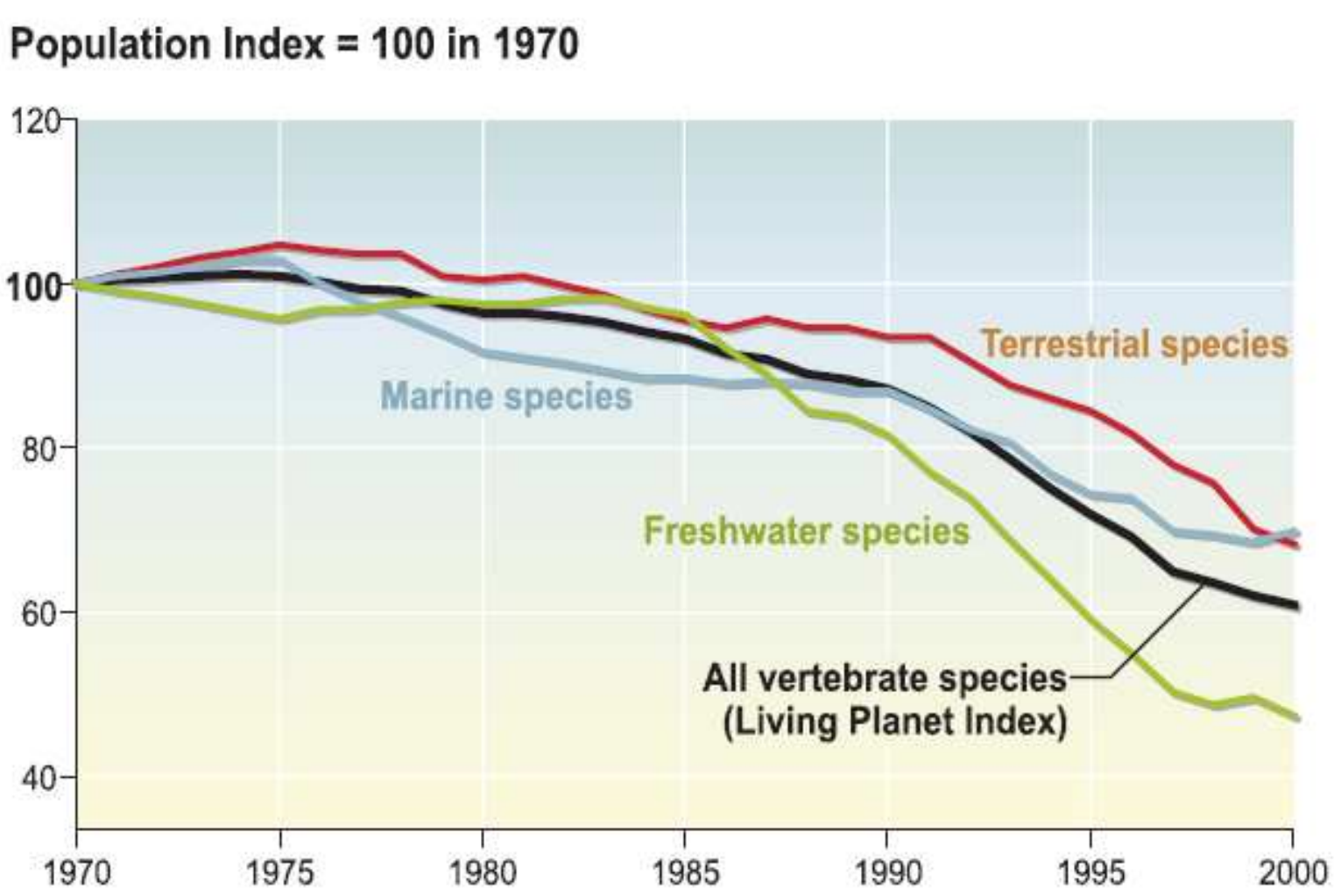
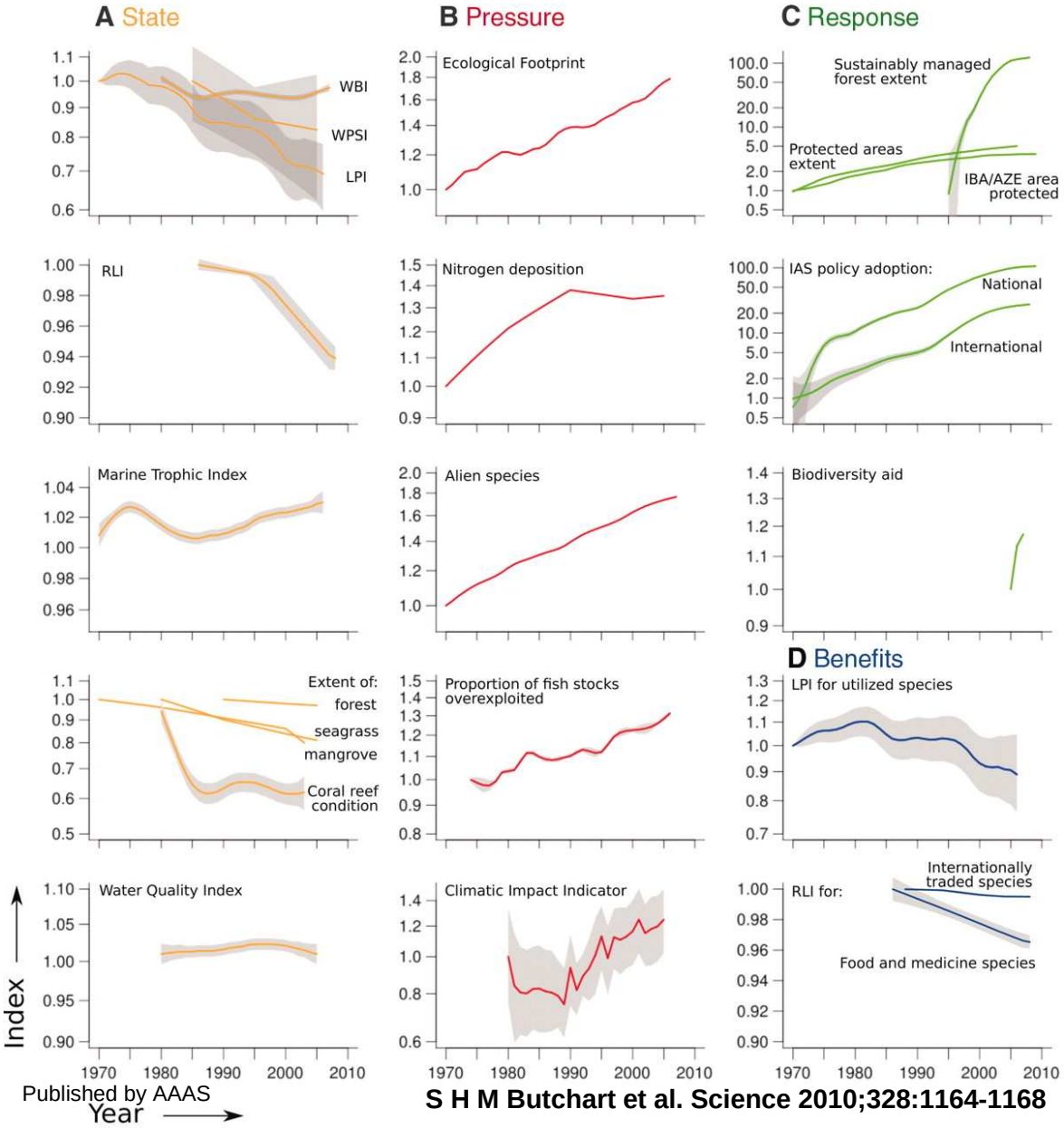


Figure 28.4 The Living Planet Index, 1970–2000. The Living Planet Index is an indicator of the state of the world's biodiversity: it measures trends in populations of vertebrate species living in terrestrial, freshwater, and marine ecosystems.

Fig. 1 Indicator trends for (A) the state of biodiversity, (B) pressures upon it, (C) responses to address its loss, and (D) the benefits humans derive from it.



Published by AAAS

S H M Butchart et al. Science 2010;328:1164-1168

(spíš příklad, jak lze „globální stav“ měřit)

Science
AAAS

Afričtí savci – čím menší populace, tím spíše klesá (!)

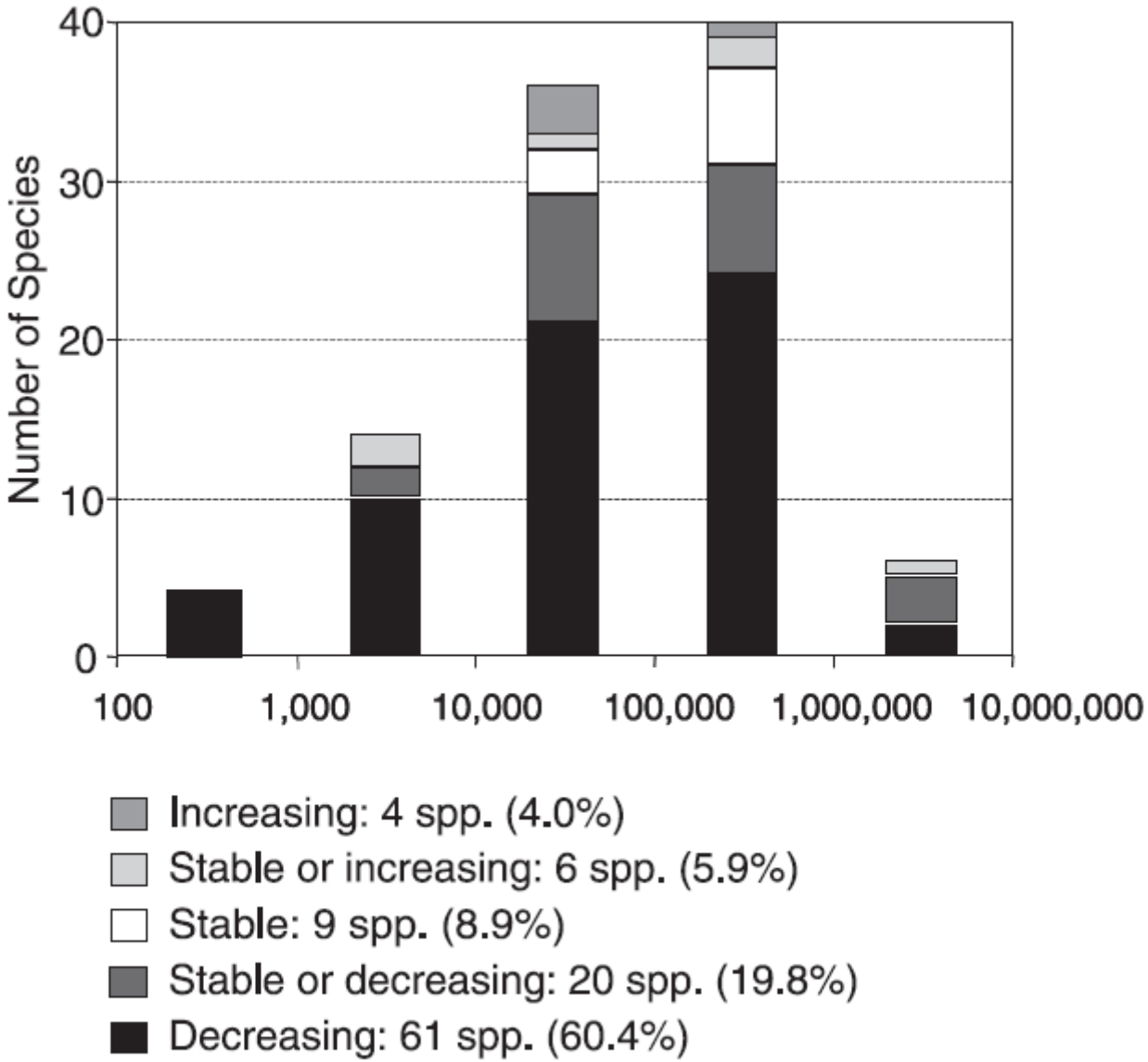


Figure 4.20. Trends in 101 African Large Mammal Species

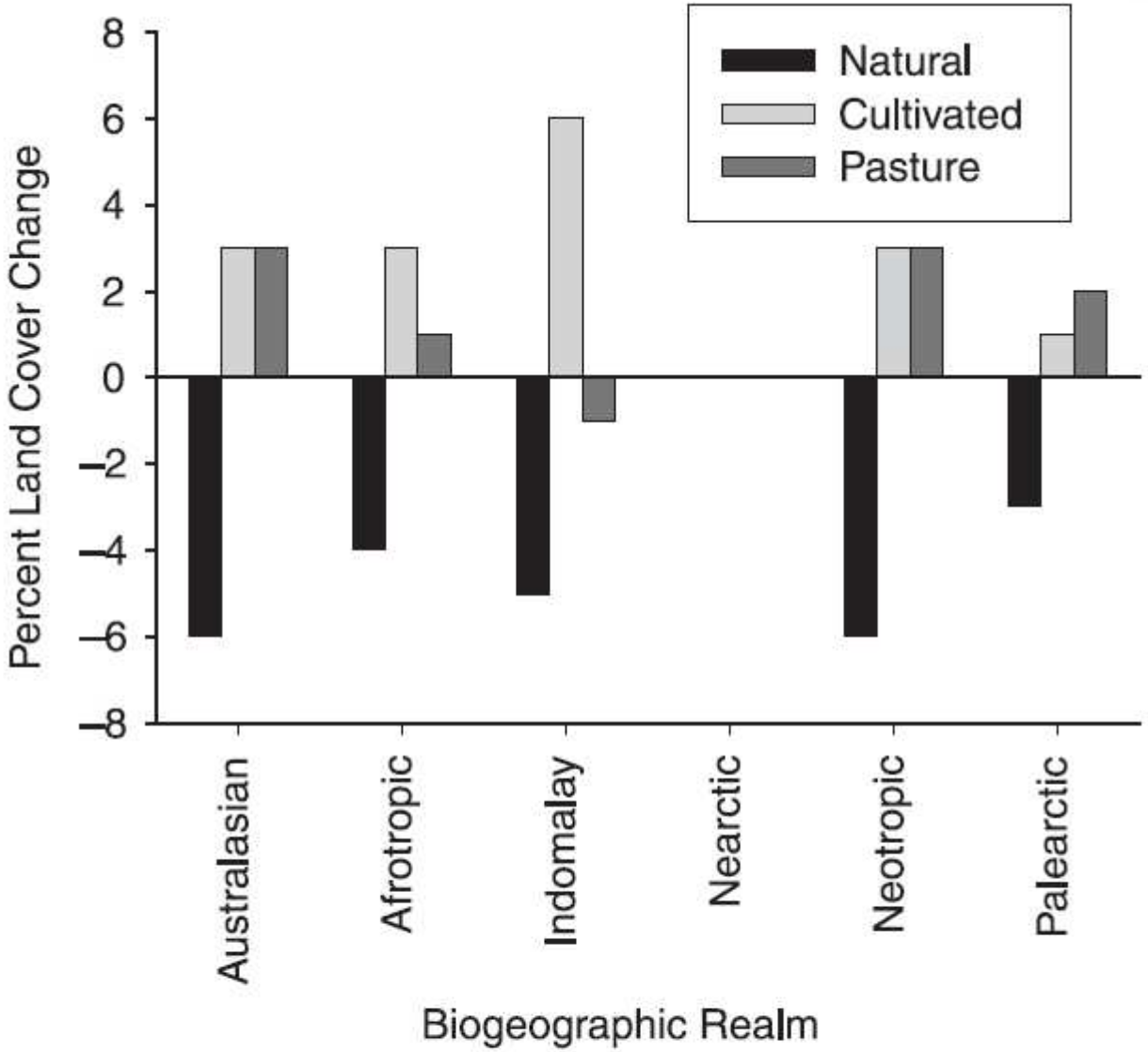


Figure 4.28. Percentage Change (1950–90) in Land Area of Biogeographic Realms Remaining in Natural Condition or under Cultivation and Pasture. Two biogeographic realms are omitted due to lack of data: Oceania and Antarctica.

Změna využití půdy po biogeo-oblastech za půlstoletí

Kde je nejvíc ohrožených druhů … po biomech, a procenticky

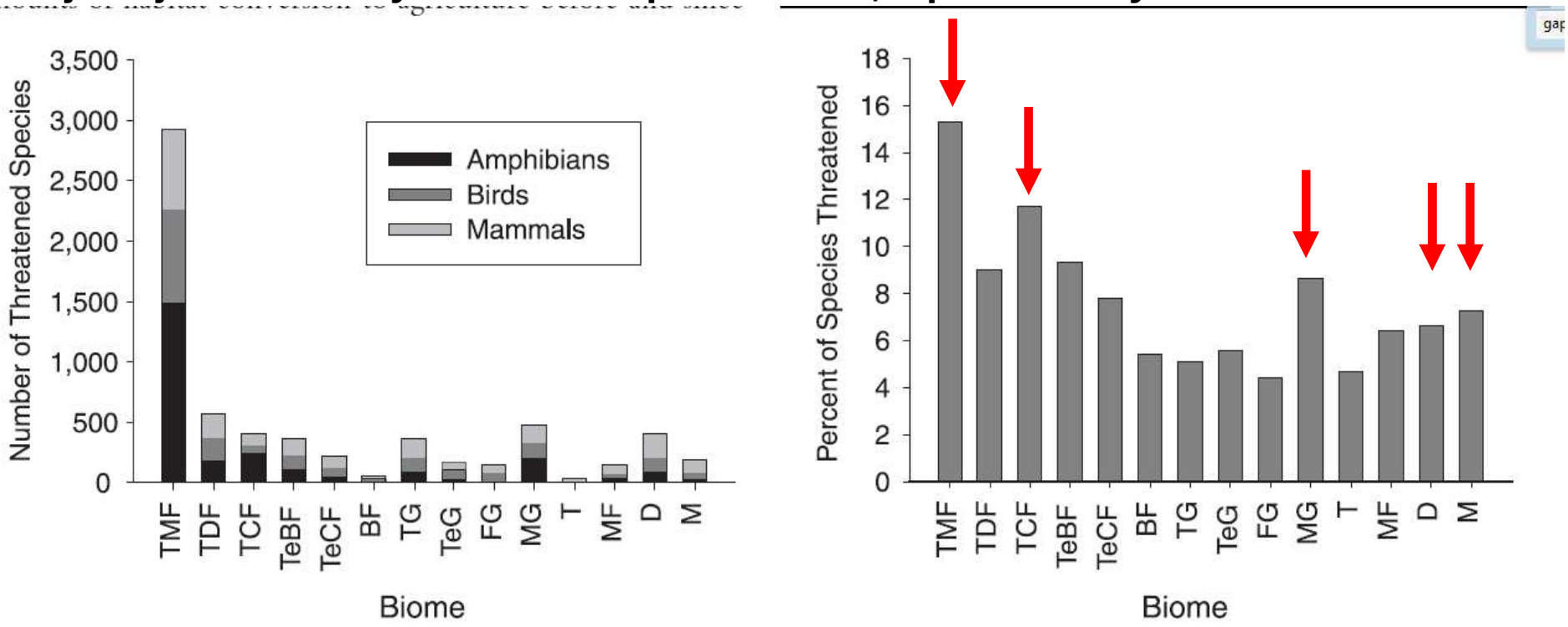


Figure 4.27. Patterns of Species Threat among the World's 14 Terrestrial Biomes. The figures show the raw numbers of threatened species (i.e., ranked as Critically Endangered, Endangered, or Vulnerable by the IUCN) and the percentage of each biome's species that are threatened. Reptiles have not been completely assessed. Biome codes as in Figure 4.3 (in Appendix A).

Biome

- TMF: Tropical and sub-tropical moist broadleaf forests
- TDF: Tropical and sub-tropical dry broadleaf forests
- TCF: Tropical and sub-tropical coniferous forests
- TeBF: Temperate broadleaf and mixed forests
- TeCF: Temperate coniferous forests
- BF: Boreal forests/taiga
- TG: Tropical and sub-tropical grasslands, savannas, and shrublands
- TeG: Temperate grasslands, savannas, and shrublands
- FG: Flooded grasslands and savannas
- MG: Montane grasslands and shrublands
- T: Tundra
- MF: Mediterranean forests, woodlands, and scrub
- D: Deserts and xeric shrublands
- M: Mangroves

- Lakes
- Rock and ice

- Biogeographic realm
- Country
- Ecoregions

A ohrožení po oblastech, opět i procenticky

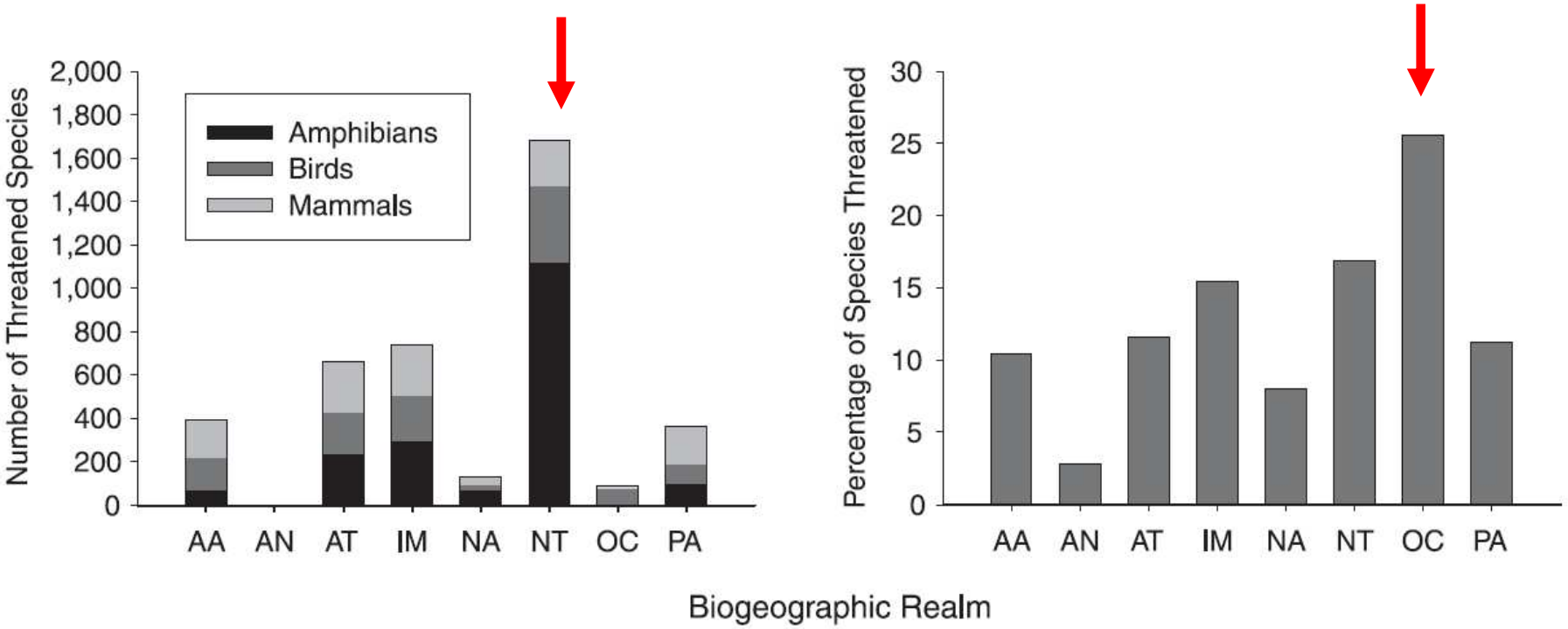


Figure 4.29. Patterns of Species Threat among the World's Eight Terrestrial Biogeographic Realms. The figures show the raw numbers of threatened species (i.e., ranked as Critically Endangered, Endangered, or Vulnerable by the IUCN) and the percentage of each realm's species that are threatened. Reptiles have not been completely assessed. Realm codes as in Table 4.3.

Trendy evropských ptáků – ilustrace regionálních a biotopových specifik

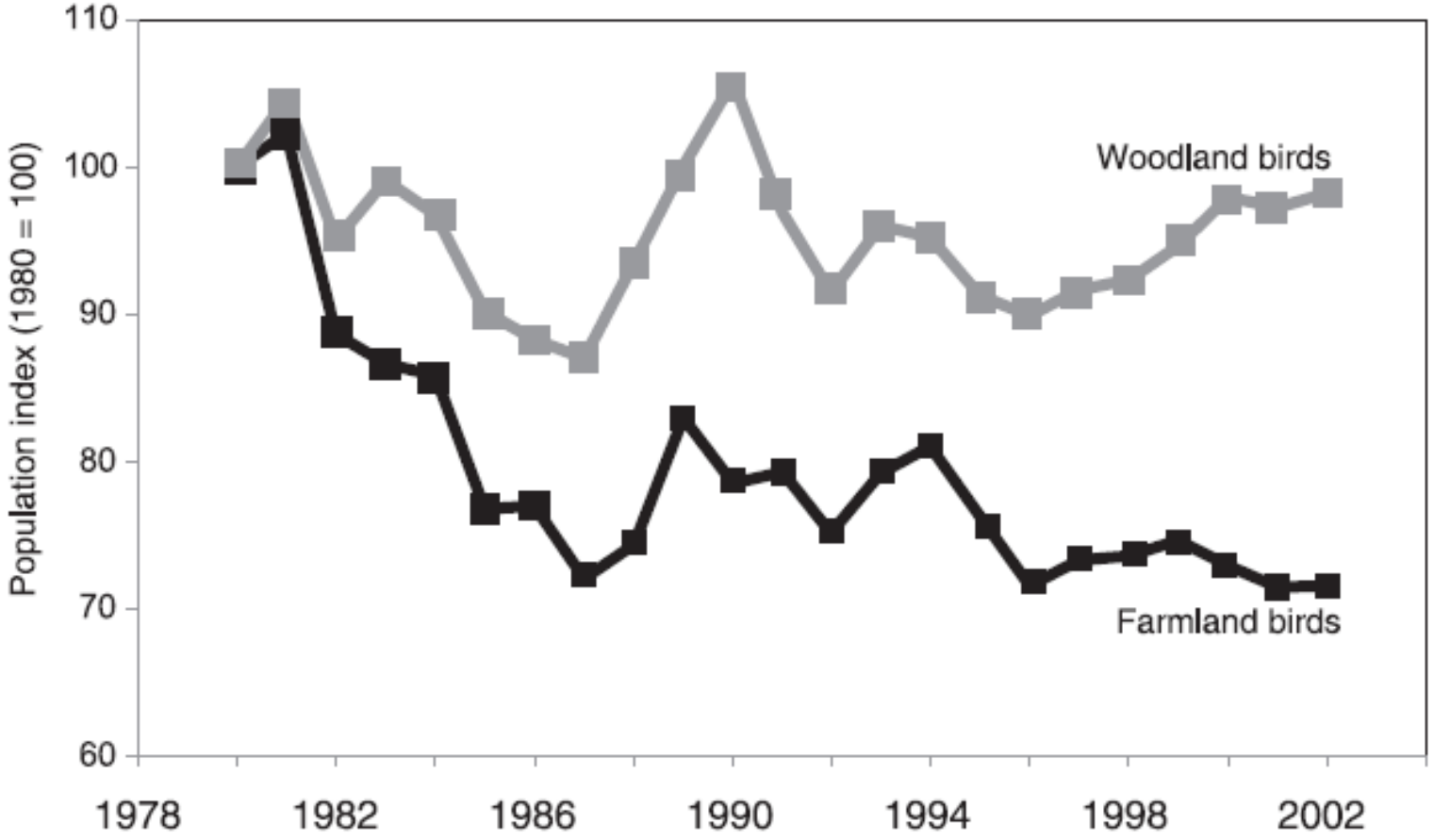
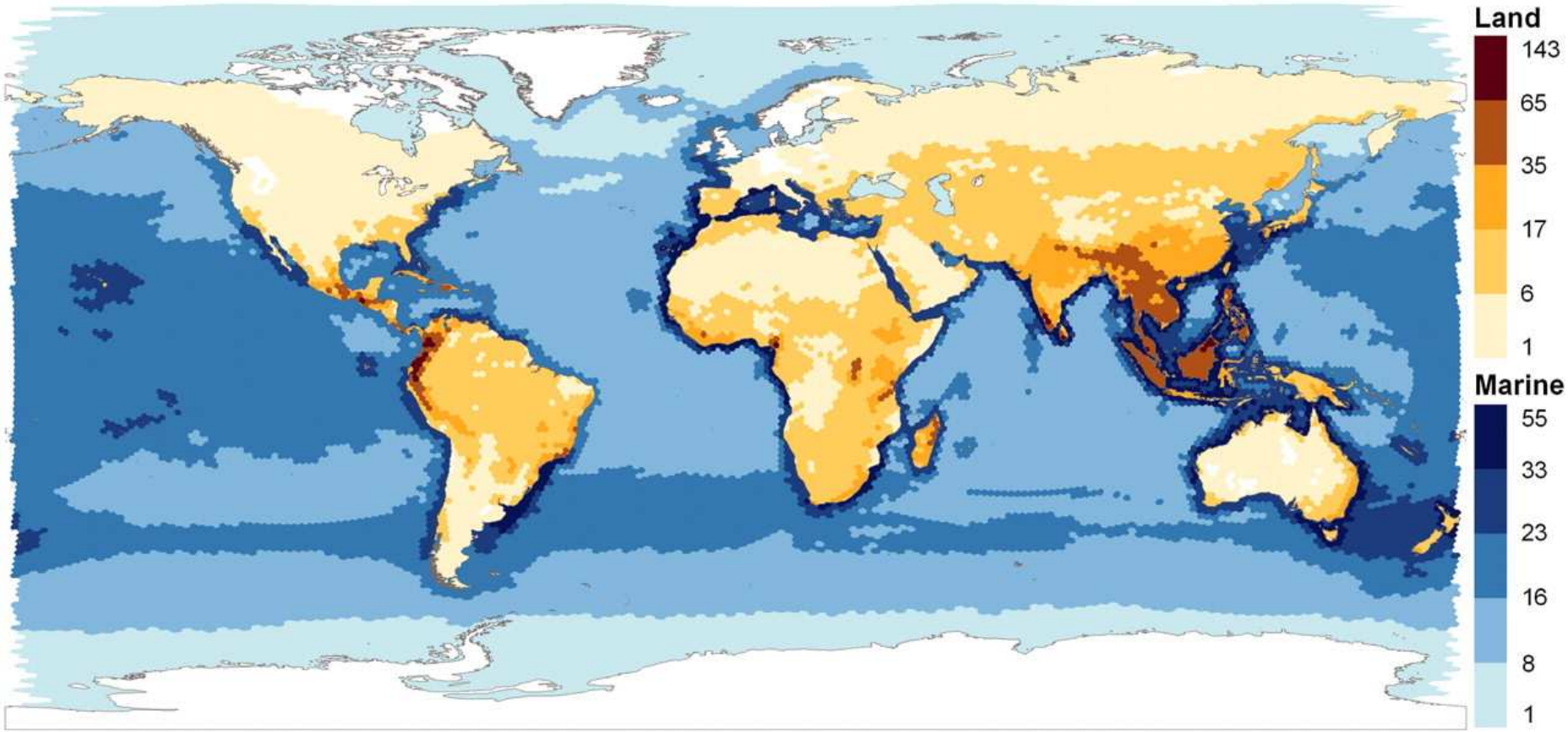


Figure 4.17. Trends in Common Farmland and Woodland Birds in Europe since 1980 (data courtesy of the Pan-European Common Bird Monitoring Scheme)

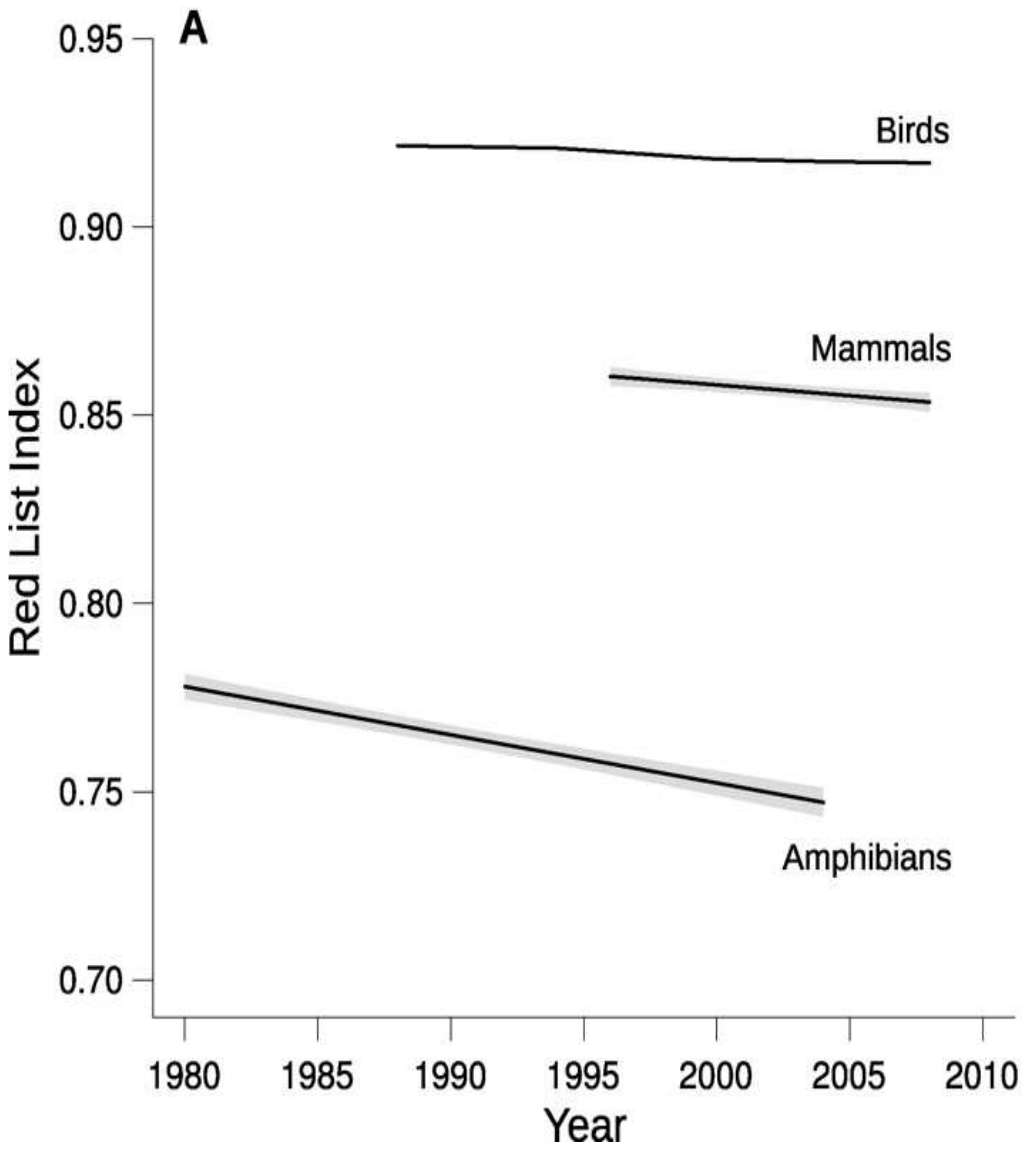
Ochrana a status obratlovců



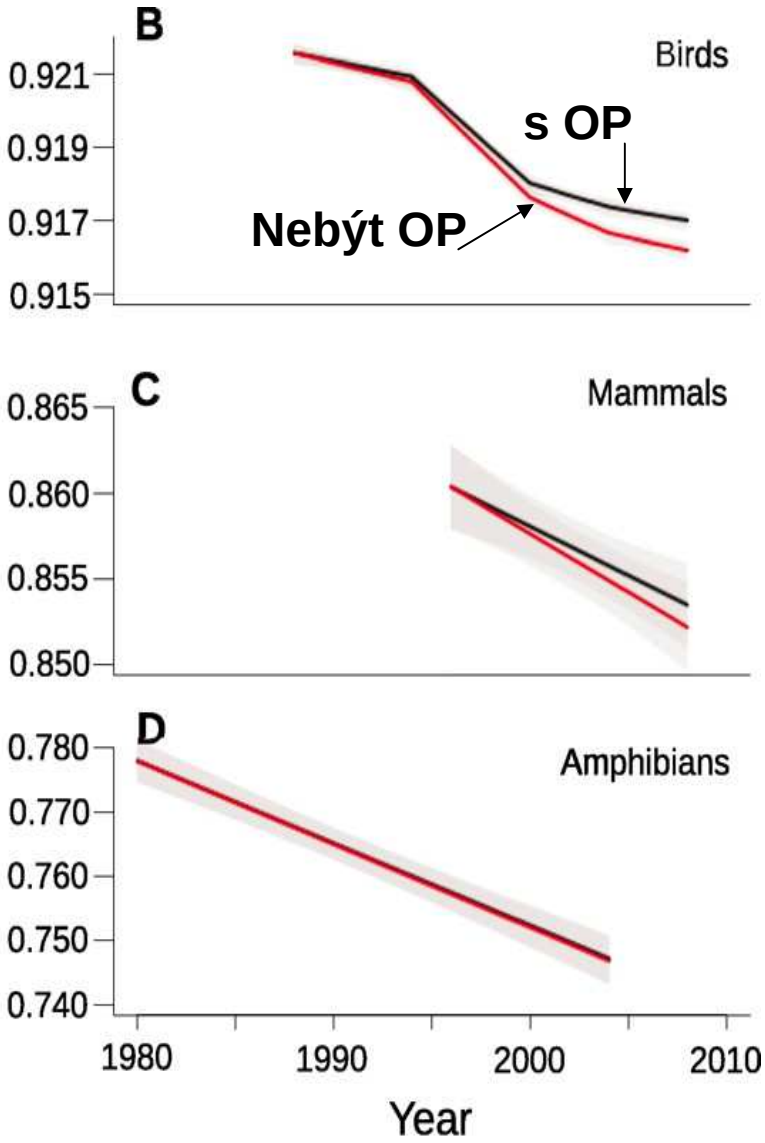
Mapa světové ohroženosti – počet RL druhů ba pixel

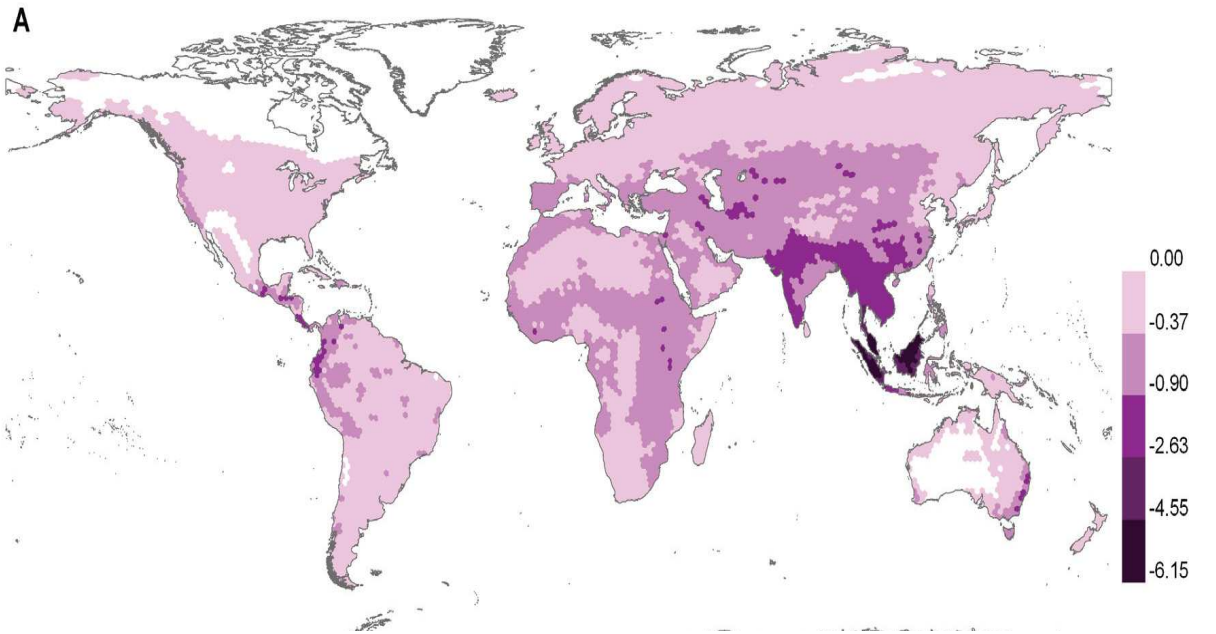
Hoffmann et al., 2010, *Science* 330, 1503-1509

Red List Index

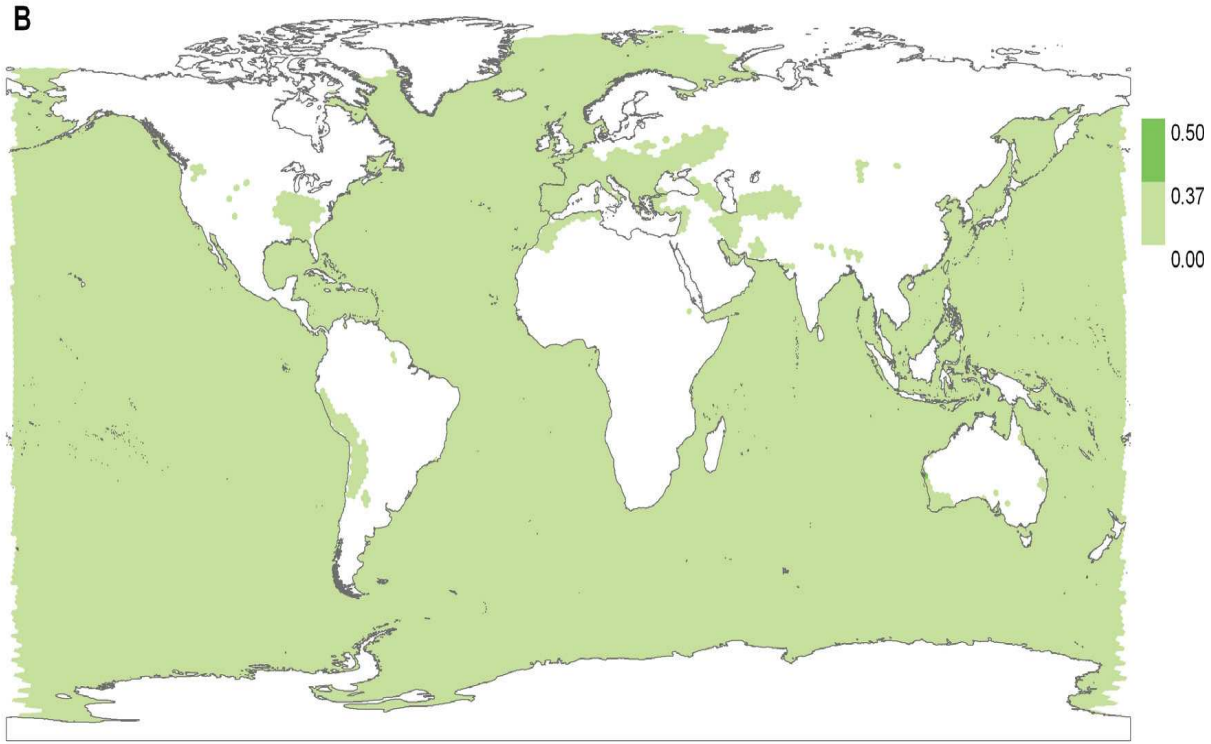


Srovnání

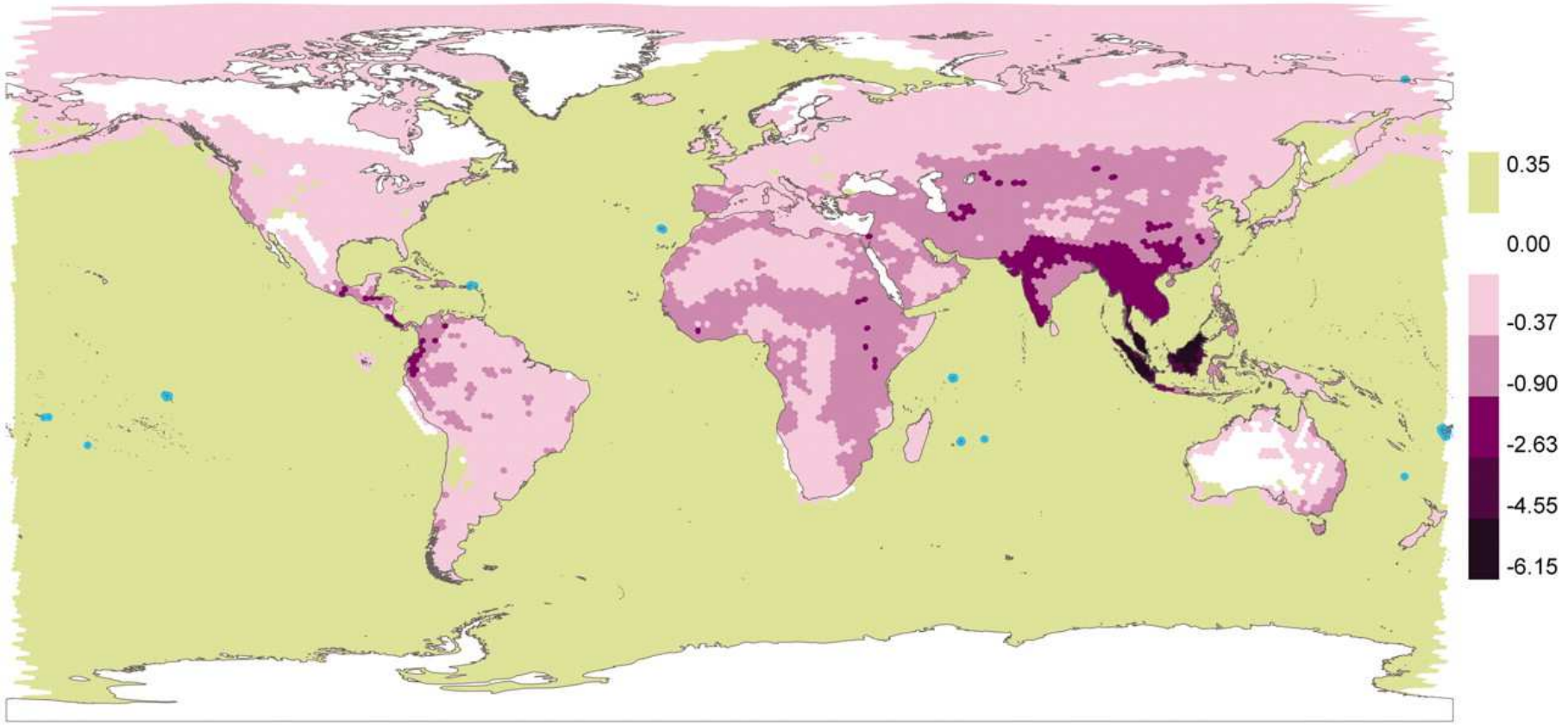




Globální mapa zhoršení situace



Globální mapa zlepšení situace



Globální mapa změny v ohroženosti

ČERSTVÉ ZTRÁTY I.

Tachybaptus rufovalatus, potápka skořicovohrdlá - Madagaskar

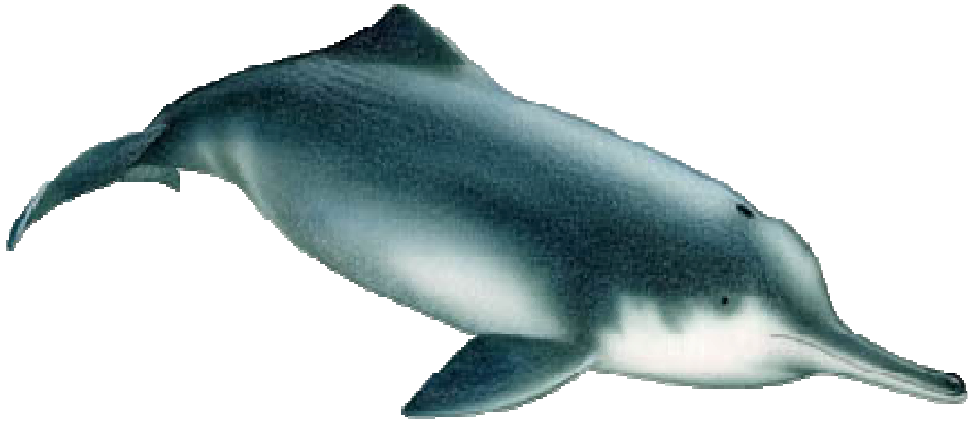
Myadestes myadestinus, lesňák hnědoplášťíkový - Havaj

+ 13 ptáků spp „possibly extinct“

Rheobatrachus silus, R.vitelinus - Austrálie

Bufo periglenes- Kosta Rica

ČERSTVÉ ZTRÁTY II.



Delfínovec čínský – *Liptotes vexillifer*

- První vyhynulý druh megafauny od 50. let

- circa 3rd century BC: population estimated at 5,000 animals
- 1950s: population was estimated at 6,000 animals
- → 1958–1962: The Great Leap Forward denounces the animal's traditional venerated status
- 1970: The Gezhouba Project begins
- 1979: The People's Republic of China declares the Chinese river dolphin endangered
- 1983: National law declares hunting the Chinese river dolphin illegal
- 1984: The plight of the baiji draws headlines in China[16]
- 1986: Population estimated to be 300
- → 1989: Gezhouba Dam complete
- 1990: Population estimated to be 200
- → 1994: Construction of the Three Gorges Dam begins
- 1996: IUCN lists the species as critically endangered
- 1997: Population estimated to be less than 50 (13 found in survey); a dead baiji was found with 103 open wounds[13]
- 1998: 7 found in survey
- 2003: Three Gorges Dam begins filling reservoir
- → 2004: Last confirmed sighting
- 2006: None found in survey, declared "extinct"
- 2007: Results of survey published in the journal Biology Letters.[17]

ČERSTVÉ ZÁSLUHY

- změna statutu u 928, z toho 68 zlepšení, krom 4 vše díky OP
- zejména u savců a ptáků
- slušná situace u ostrovních ptáků (na 1 zhoršení 2 zlepšení)
- moratoria/kontroly lovu (např. **keporkak**, **lama vikuňa**)
- někde zlepšení pomalá (dlouhověcí mořští ptáci, např.)

Žralok pacifický, *Lamna ditropis*

Zlepšení stavu díky regulaci lovu do pelagických sítí.

***Nipponia nippon*, ibis čínský**
– ochrana hnízdišť, chov v zajetí, reintrodukce

***Himantopus novaezelandiae*, pisila černá**
– NZ – ochrana hnízdišť

***Copsychus sechellarum* (šáma seychelská)**
- z 15 ptáků (1960s) na 150, kontrola predátorů a posilování z chovu.

***Anodorhynchus leari,* ara kobaltový**
- z 60 na 1200 ptáků, kontrola pytláctví a územní ochrana

Pokračuje GLOBÁLNÍ KRIZE OBOJŽIVELNÍKŮ

Jediné zlepšení na **208 zhoršení**

***Alytes muletensis* – ropuška baleárská**

- 500 jedinců v horách Mallorky, ale množí se v zajetí, posilování populací

(zlepšení)

Nectophrynoides asperginis

ExW

Popsána až 1996, „spray zone“ vodopádů na ř. Kihansi v Tanzánii, habitat zničen přehradou, dobře se množí v zajetí

GLOBÁLNÍ KRIZE OBOJŽIVELNÍKŮ

PERSPECTIVES

Declining Amphibian Populations

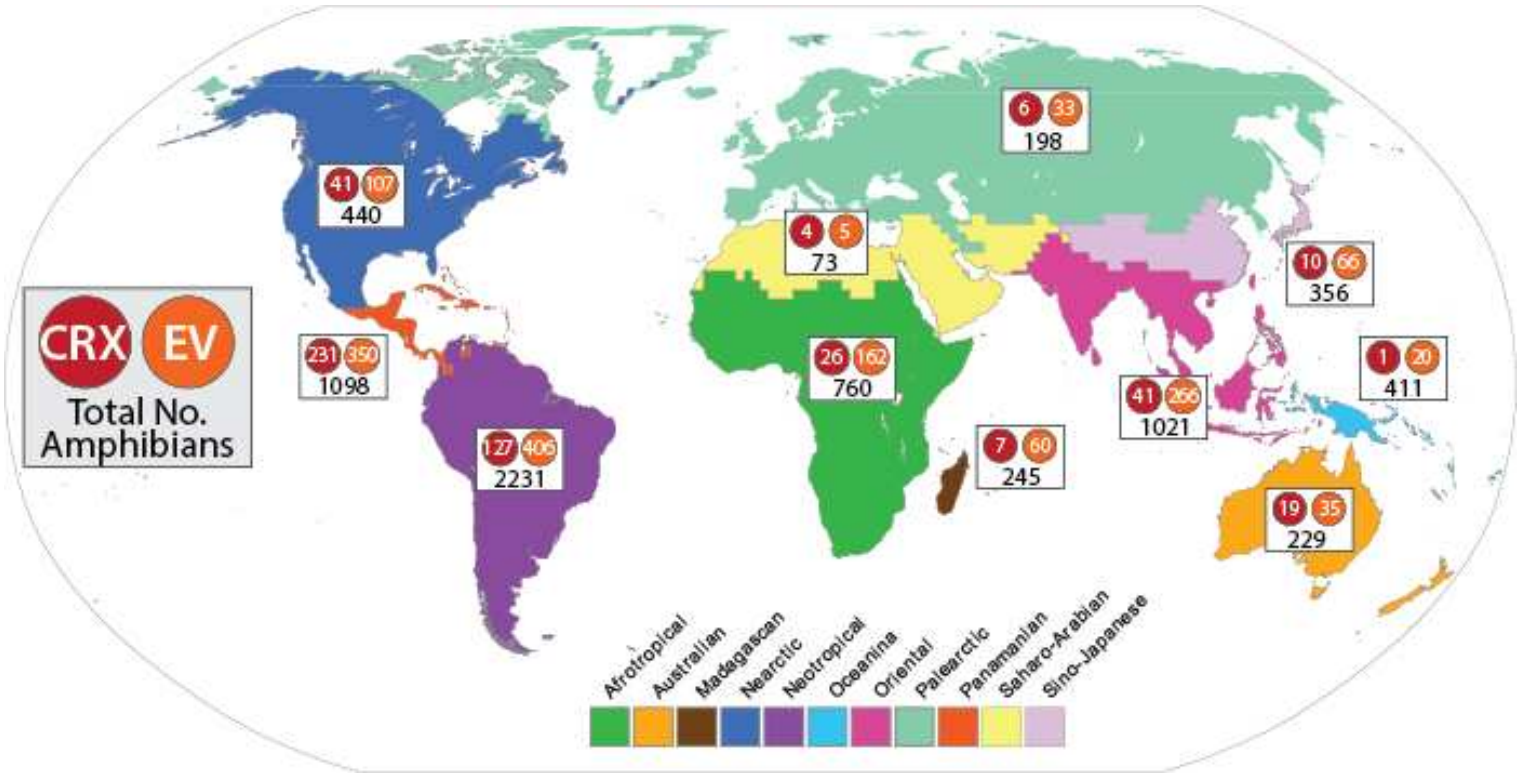
+ See all authors and affiliations

Science 23 Aug 1991:
Vol. 253, Issue 5022, pp. 860
DOI: 10.1126/science.253.5022.860

Science

Vol 253, Issue 5022
23 August 1991

Table of Contents
Print Table of Contents
Back Matter (PDF)
Ed Board (PDF)
Front Matter (PDF)



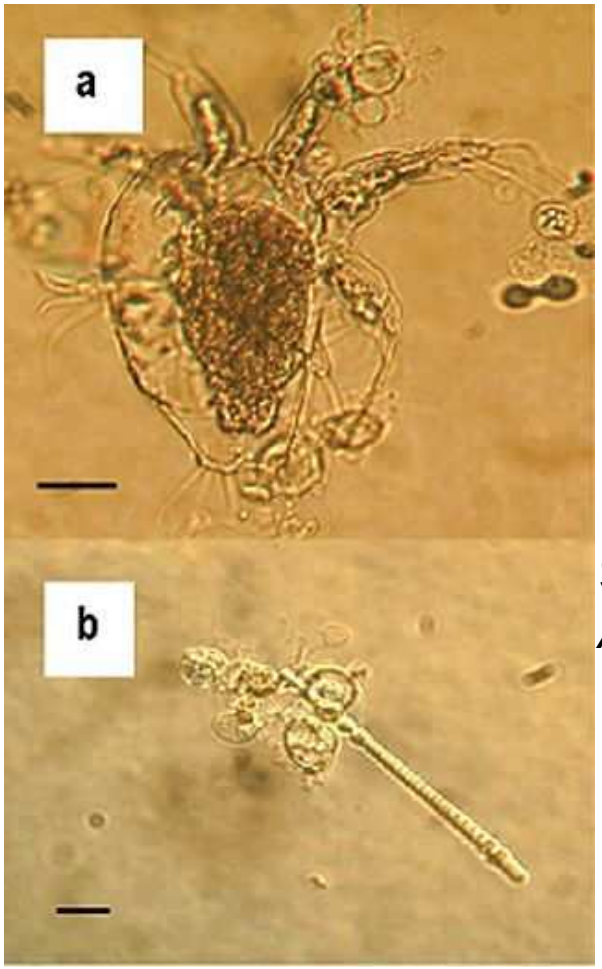
… vymírá cca 70% druhů, na populační úrovni (kde jsou data) to je podobné…

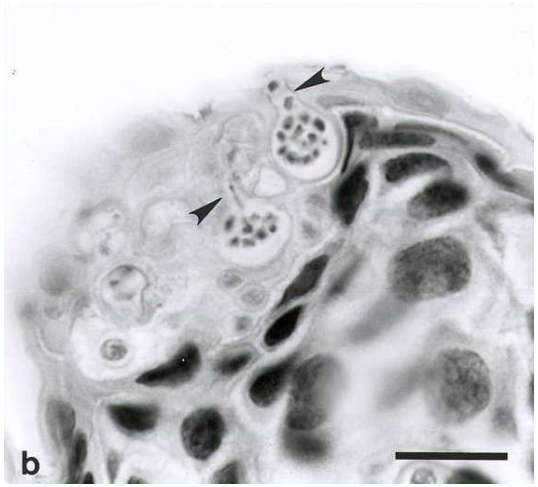
Batrachochytrium dendrobatitis

- patří k **chytridiomycetám –** houbám s pohyblivou bičíkatou fází

Střídá nepohyblivé zoospory a pohyblivá sporangia.

Původem z Afriky, rozšířila se s drápatkou, později se skokanem Lithobates catesbeianus volským (*Lithobates catesbeianus*)



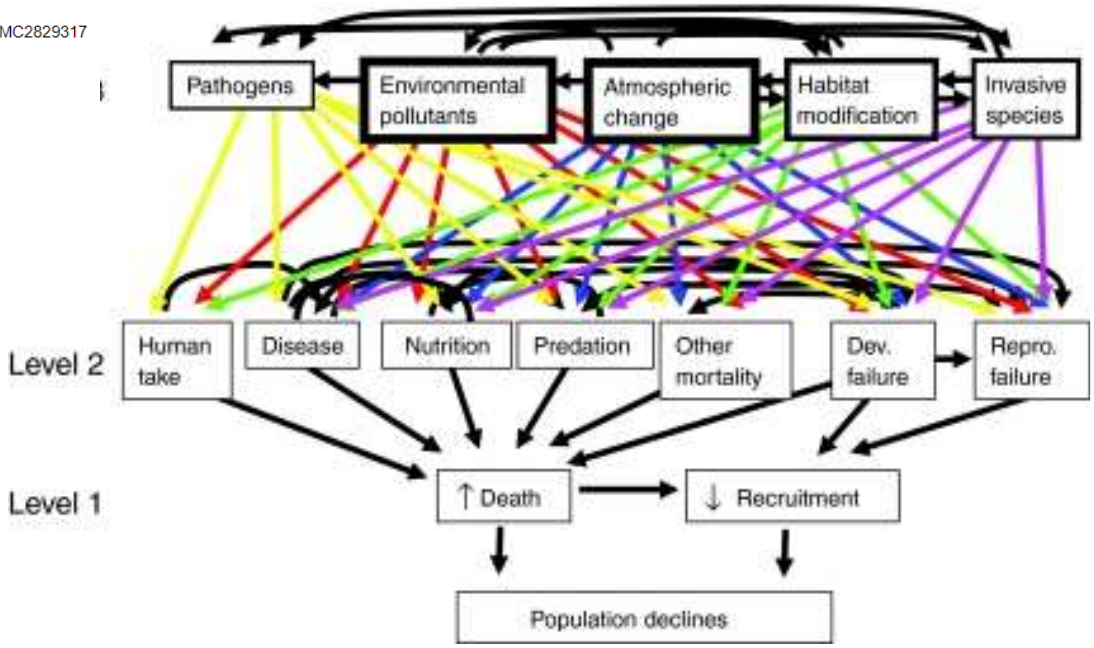


Sporangia na kůži žáby
Atelopus varius

J Exp Biol. 2010 Mar 15; 213(6): 921–933.
Published online 2010 Feb 26. doi: 10.1242/jeb.040865
PMCID: PMC2829317

The cause of global amphibian declines: a developmental endocrinologist's perspective

T. B. Hayes,* P. Falso, S. Gallipeau, and M. Stice



Krom **letálních faktorů** (chytrid.) zde je i **recruitment failure**

změna klimatu

- **polutanty –** vývojové **endokrinní** změny (kanárek v dole?) – feminizace samců, nižší testosteron atd.

  - **atrazin** (běžný pesticid), hormony z ptitné vody, atd. (!!!)

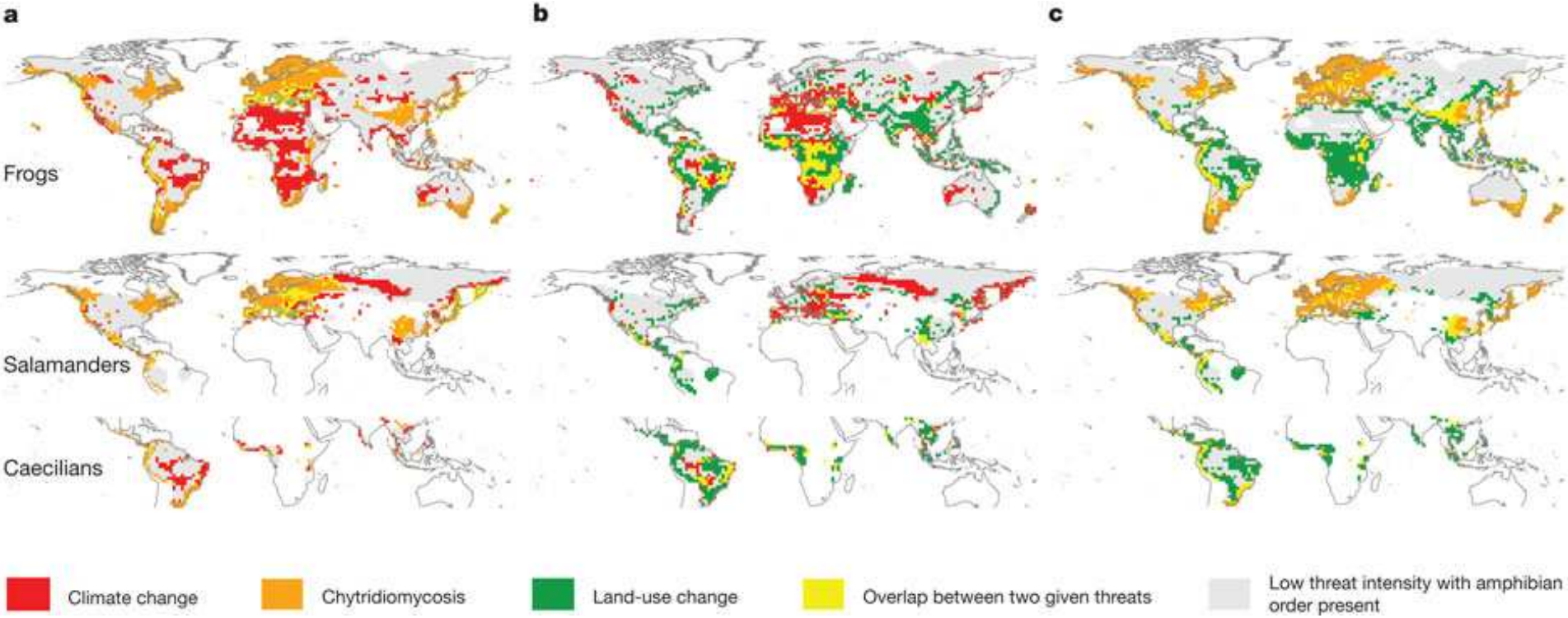
- **mizení habitatů –** častá metapopulační struktura, mizení z krajin zdánlivě „bezdůvodně)

- **invazní druhy**

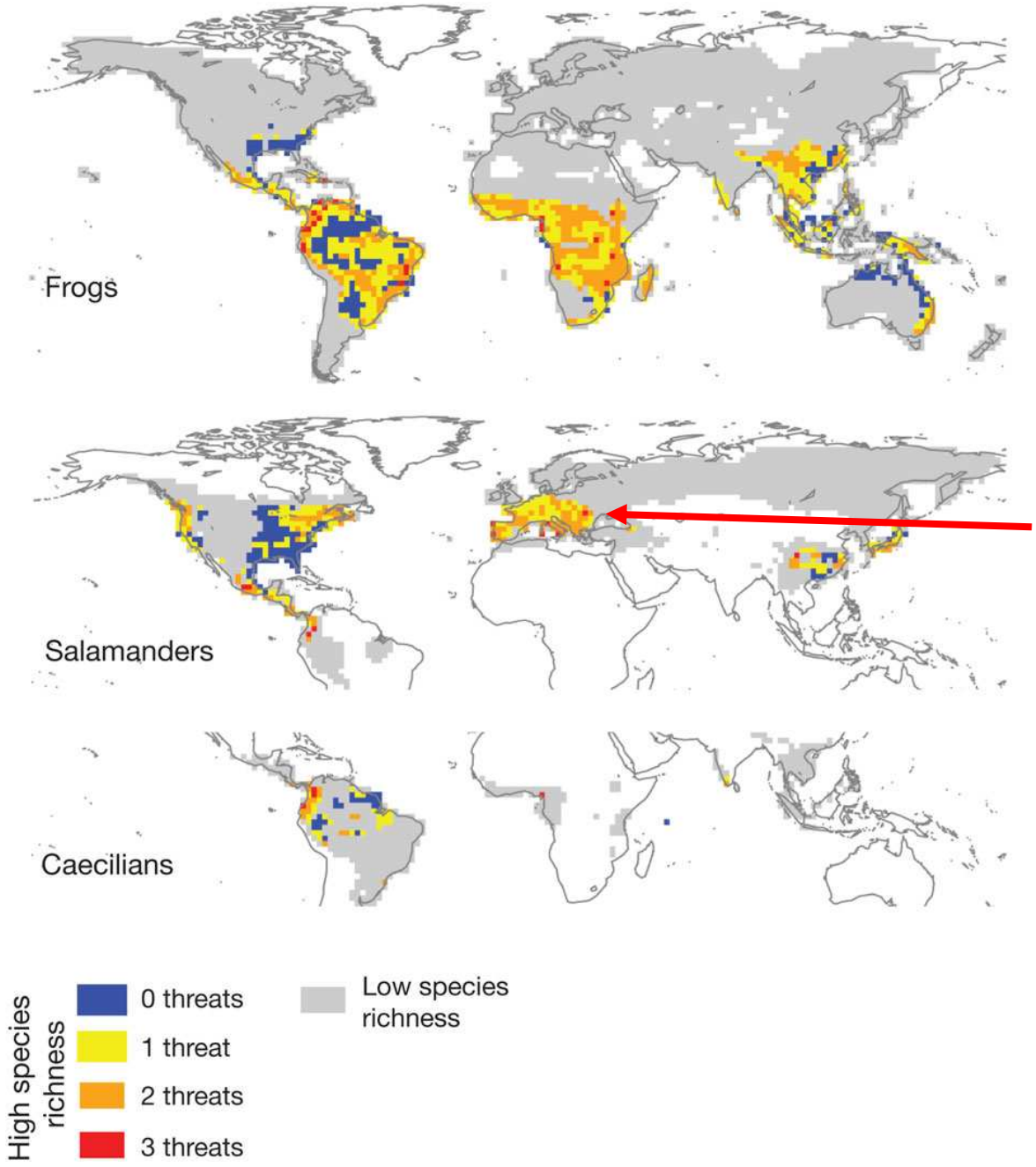
Klima a chytridiomykoza

Klima a změny krajiny

Chytridiomykoza a knič.kraj.



Překryv druhově bohatých oblastí a hlavních hrozeb, model pro rok 2080.



A CO PLAZI?

Biological Conservation
Volume 157, January 2013, Pages 372-385

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.

- uděláno málo

- použili náhodný výběr 1500 spp (16% popsaných druhů), pro ně si dohledali data

- ca 1/5 ohrožená, naopak pro ca 1/5 chybí data

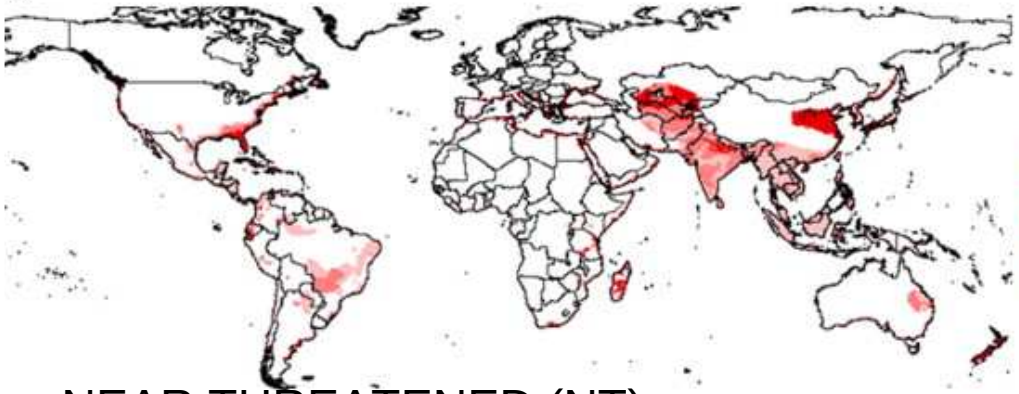
Table 1
Extinction risk in a subsample of 1500 reptiles by order, biogeographic realm and habitat system. The number of species falling into each IUCN Category are listed, from which % threatened has been calculated as described in Section 2.3.

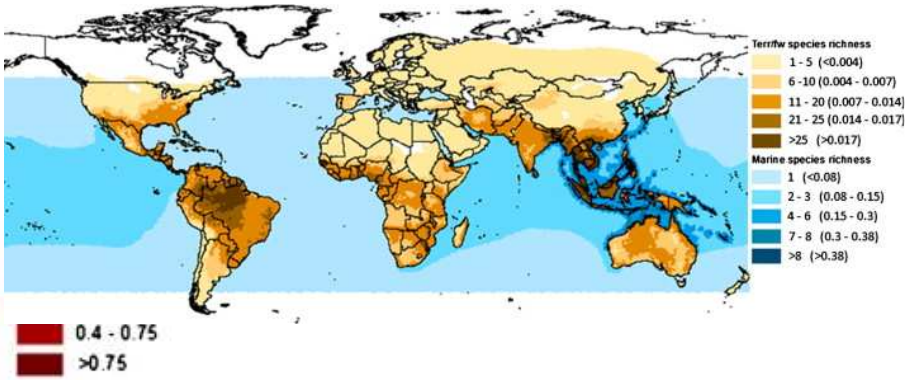
Taxon	DD	LC	NT	VU	EN	CR	N	No. of species		% Threatened		
								Described	% Sampled	Threatened %	Lower	Upper
Reptiles	318	881	78	105	92	26	1500	9413	15.9	18.9	14.9	36.1
Amphisbaenia	14	11	2	0	1	0	28	181	15.5	7.1	3.6	53.6
Crocodylia	0	1	0	2	0	1	4	24	16.7	75	75	75
Sauria	164	506	48	72	63	14	867	5537	15.7	21.2	17.2	36.1
Serpentes	135	352	19	24	20	5	555	3346	16.6	11.7	8.8	33.2
Testudines	5	11	9	7	8	6	46	323	14.2	51.2	45.7	56.5
Realm												
Afrotropical	53	161	15	33	22	5	289			25.4	20.8	39.1
Australasian	32	149	9	10	14	5	219			15.5	13.2	27.9
Indomalayan	105	167	13	15	10	5	315			14.3	9.5	42.9
Nearctic	2	72	7	7	3	3	94			14.1	13.8	16.0
Neotropical	107	309	27	38	35	11	527			20.0	15.9	36.2
Oceanian	0	4	0	0	2	1	7			42.9	42.9	42.9
Palaearctic	25	105	8	6	8	2	154			12.4	10.4	26.6
Habitat system												
Terrestrial	313	861	78	105	91	25	1473			19.1	15.0	36.3
Freshwater and marine	16	44	11	9	8	6	94			29.5	24.5	41.5
Subsurface	50	46	5	1	5	0	107			10.5	5.6	57.0

DD – Data Deficient; LC – Least Concern; NT – Near Threatened; VU – Vulnerable; EN – Endangered; CR – Critically Endangered. Percentage threatened: assumes DD species are threatened in the same proportion as non-DD species; Lower margin: no DD species threatened; Upper margin: all DD species threatened. Number of described species is based on Uetz (2010). Rhynchocephalia (Tuatara) was not represented in our random sample. Subsurface includes completely or primarily fossorial families: Amphisbaenidae, Anomalepidae, Dibamidae, Leptotyphlopidae, Trogonophidae, Typhlopidae, Uropeltidae, Xenopeltidae.

THREATENED (VU – CR)

A

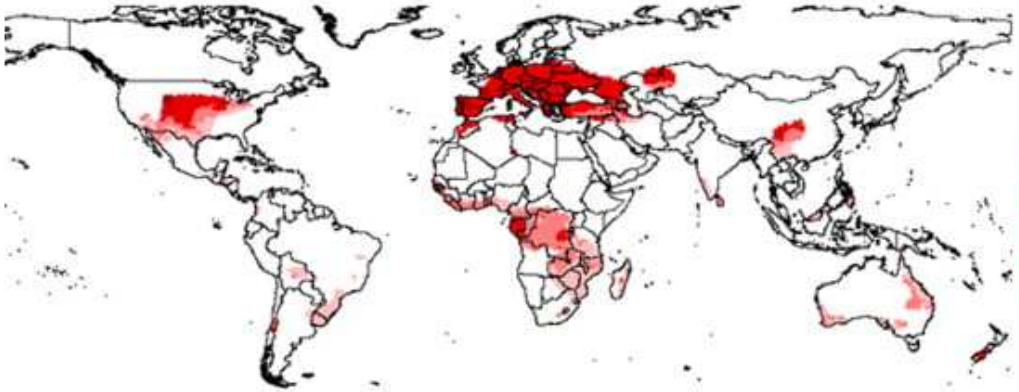




0.4 - 0.75
>0.75

NEAR THREATENED (NT)

B



prop. NT / cell
<0.1
0.1 - 0.2
0.2 - 0.4
0.4 - 0.75
>0.75

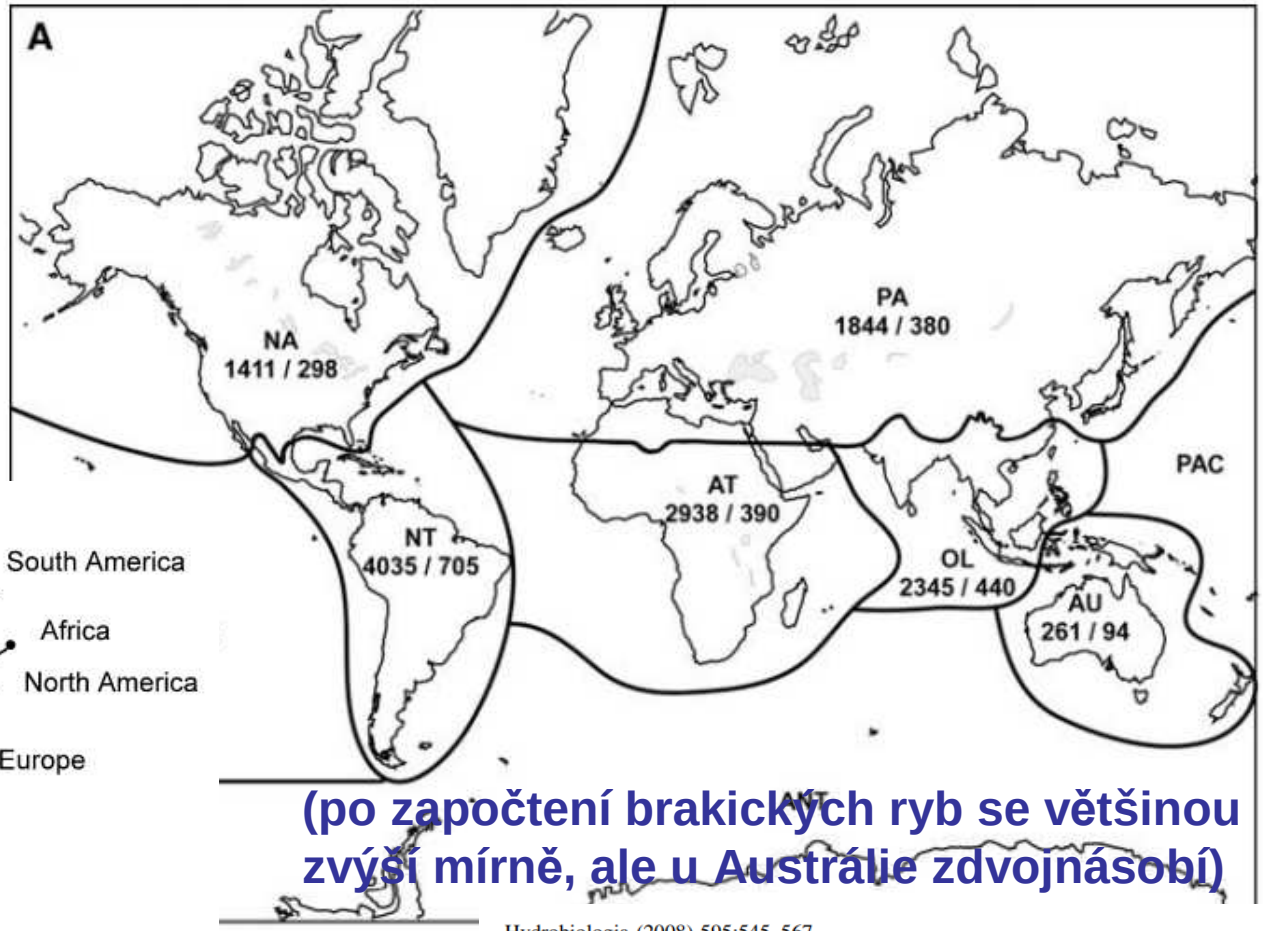
DATA DEFFICIENT (VU – CR)

C

prop. DD / cell
<0.1
0.1 - 0.15
0.15 - 0.2
0.2 - 0.4
>0.4

A CO RYBY?

Fig. 2 Freshwater fish diversity: current number of species and genera (Sp/Gn) per zoogeographic region for strictly freshwater fishes (**A**) and for fresh and brackishwater fishes (**B**) (data from Fishbase, September 2005). PA—Palaearctic; NA—Nearctic; NT—Neotropical; AT—Afrotropical; OL—Oriental; AU—Australasian; PAC—



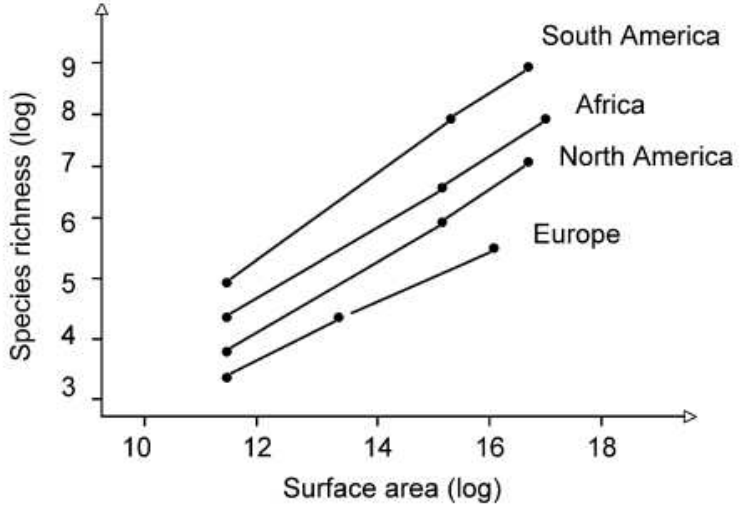


Fig. 3 Intercontinental comparison of species–area relationships. Each line links, respectively, the estimated species richness in a 10,000 km^2 drainage basin, the species richness of the largest continental river (i.e. Danube river for Europe, Mississippi river for North America, Congo river for Africa, and Amazone river for South America), and the continental species richness. Modified after Hugueny (2003) using data from Oberdorff et al. (1995)

(po započtení brakických ryb se většinou zvýší mírně, ale u Austrálie zdvojnásobí)

Hydrobiologia (2008) 595:545–567
DOI 10.1007/s10750-007-9034-0

FRESHWATER ANIMAL DIVERSITY ASSESSMENT

Global diversity of fish (Pisces) in freshwater

C. Lévêque · T. Oberdorff · D. Paugy ·
M. L. J. Stiassny · P. A. Tedesco

... celkem 11 000 druhů ...

Conservation Biology

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Contributed Paper

Trait-based prediction of extinction risk of small-bodied freshwater fishes

R. Keller Kopf ✉, Casey Shaw, Paul Humphries

First published: 30 January 2017 Full publication history

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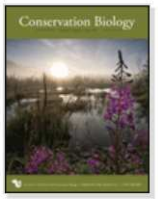
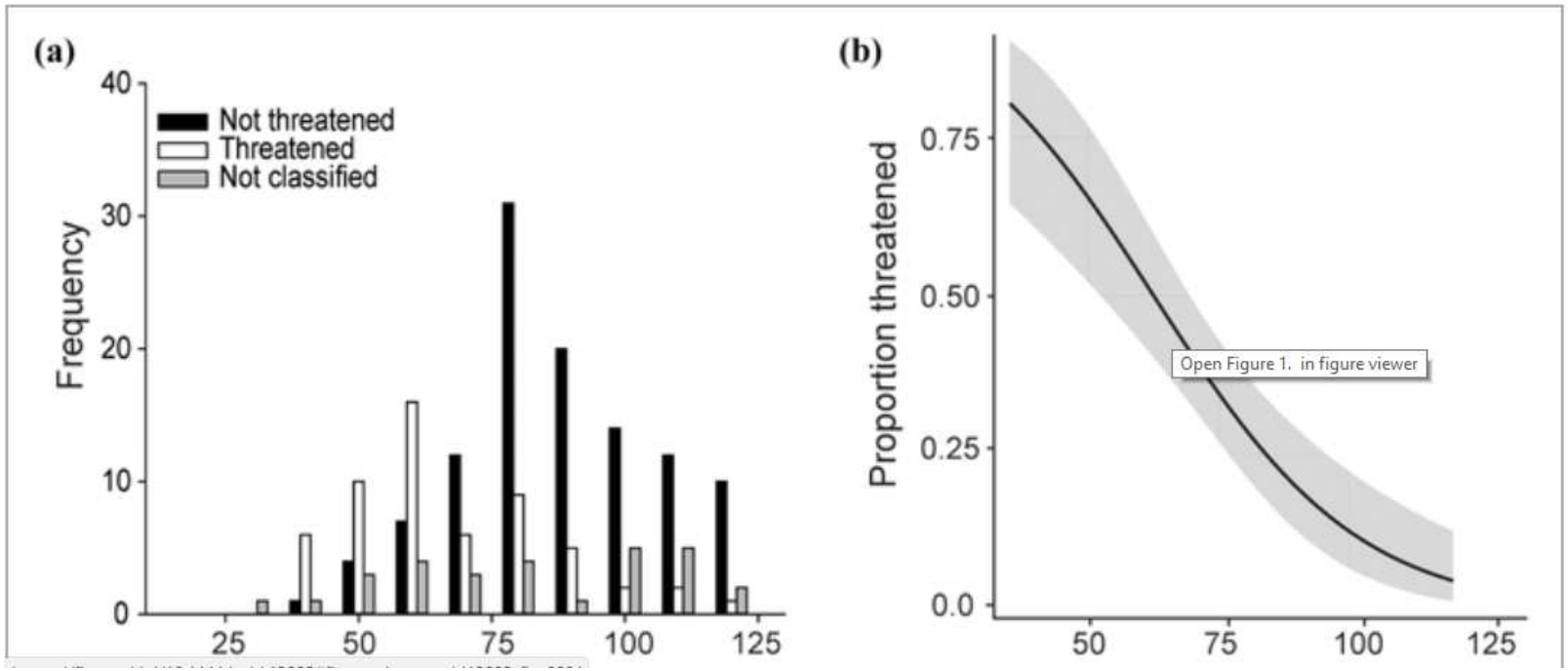


View issue TOC
Volume 31, Issue 3
June 2017
Pages 581–591

- **úchylka z makroochranářských pravidel**

Dělali na samplu 4 povodí Murray-Darling; Dunaj; Mississippi-Missouri, Rio Grande

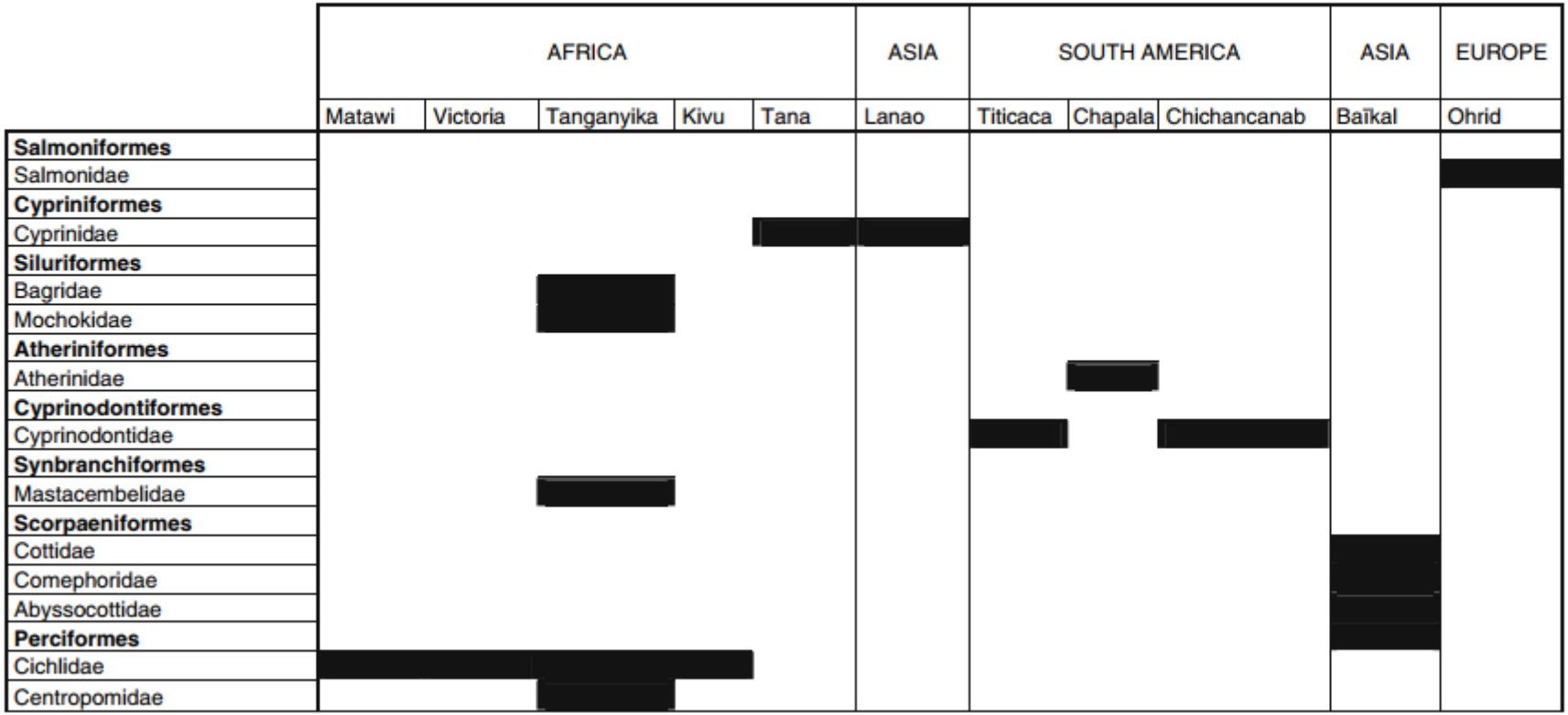


- ze všech možných traitů jsou ***malé ryby ohroženější, než velké***

- **smaller home ranges, lower dispersal capabilities, and heightened ecological specialization relative to larger vertebrates**

STARÁ (= RELIKTNÍ) JEZERA

Table 5 Current fish species flocks in selected ancient lakes



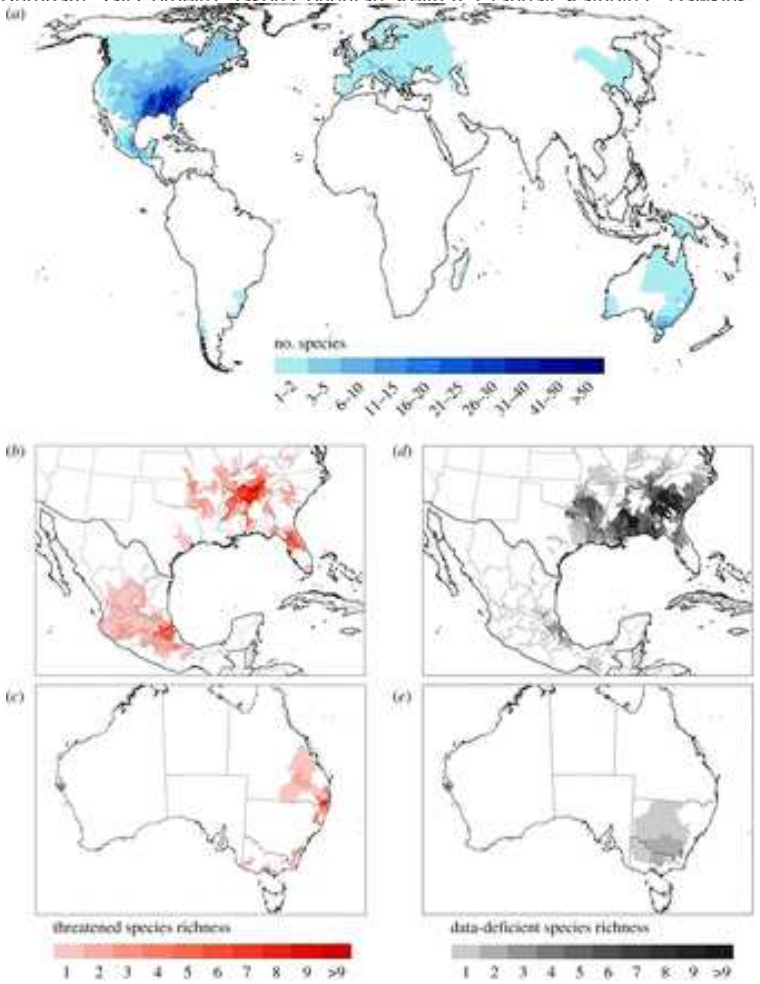
NĚJACÍ BEZOBRATLOVCI BY NEBYLI?

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B
BIOLOGICAL SCIENCES

2015

Multiple drivers of decline in the global status of freshwater crayfish (Decapoda: Astacidea)

Nadia I. Richman, Monika Böhm, Susan B. Adams, Fernando Alvarez, Elizabeth A. Bergey, John J. S. Bunn, Quinton Burnham, Jay Cordeiro, Jason Coughran, Keith A. Crandall, Kathryn L. Dawkins, Robert J. DiStefano



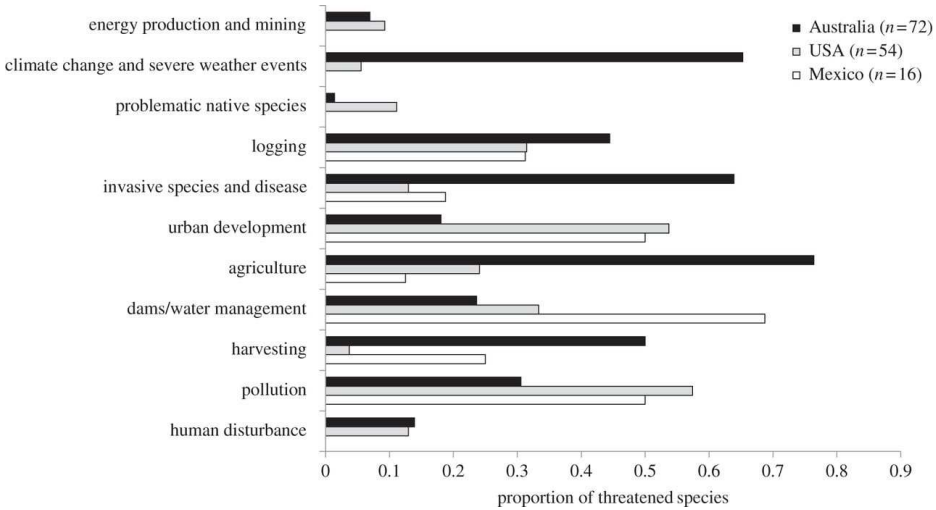
Čeledi

Parastacidae

Astacidae

Cambaridae

- 590 druhů
- 4 EX, 32% ohroženo, 21% data defficient



<<< VÝSKYT OHROŽENÝCH DRUHŮ

O jiných skupinách nevíme skoro nic …

14

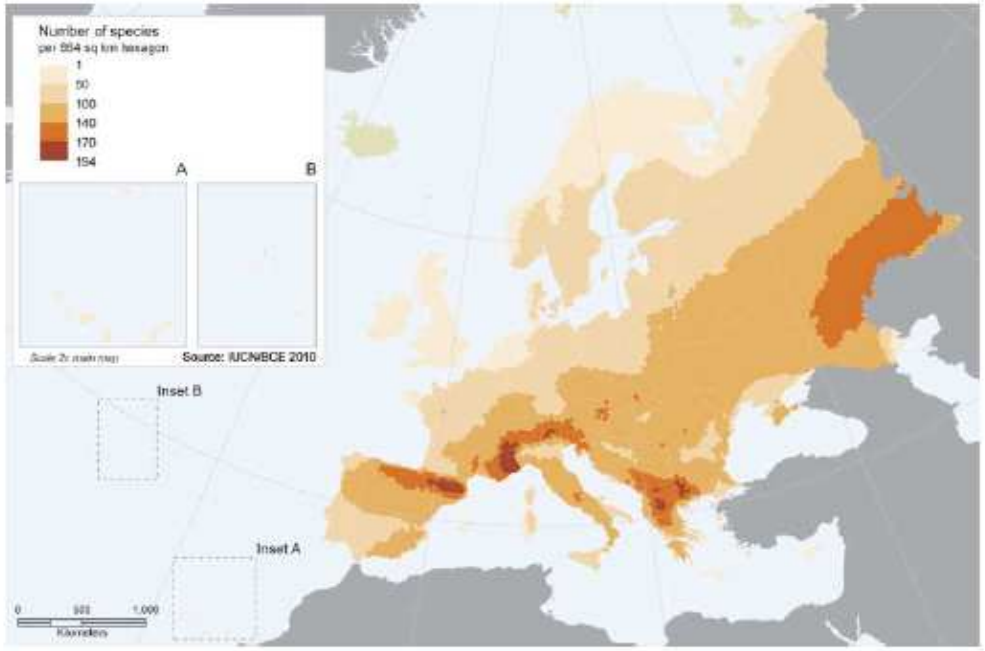
A global perspective on conserving butterflies and moths and their habitats

Thomas Merckx[1], Blanca Huertas[2], Yves Basset[3] and Jeremy Thomas[4]

[1]Wildlife Conservation Research Unit, Department of Zoology, Recanati-Kaplan Centre, University of Oxford, Oxford, UK
[2]Life Sciences Department, The Natural History Museum, Cromwell Road, London, UK
[3]Smithsonian Tropical Research Institute, Apartado, 0843-03092, Balboa, Ancon, Peru
[4]Department of Zoology, University of Oxford, Oxford, UK

Just living is not enough, said the butterfly, one must have sunshine, freedom and a little flower.
— Hans Christian Andersen

Figure 5. Species richness of European butterflies



BEZOBRATLÍ

Známe spíš regionální situaci

… výjimky Evropa, méně USA, JAR, Japonsko

Zde **MOTÝLI**

Figure 6. Distribution of threatened butterflies in Europe

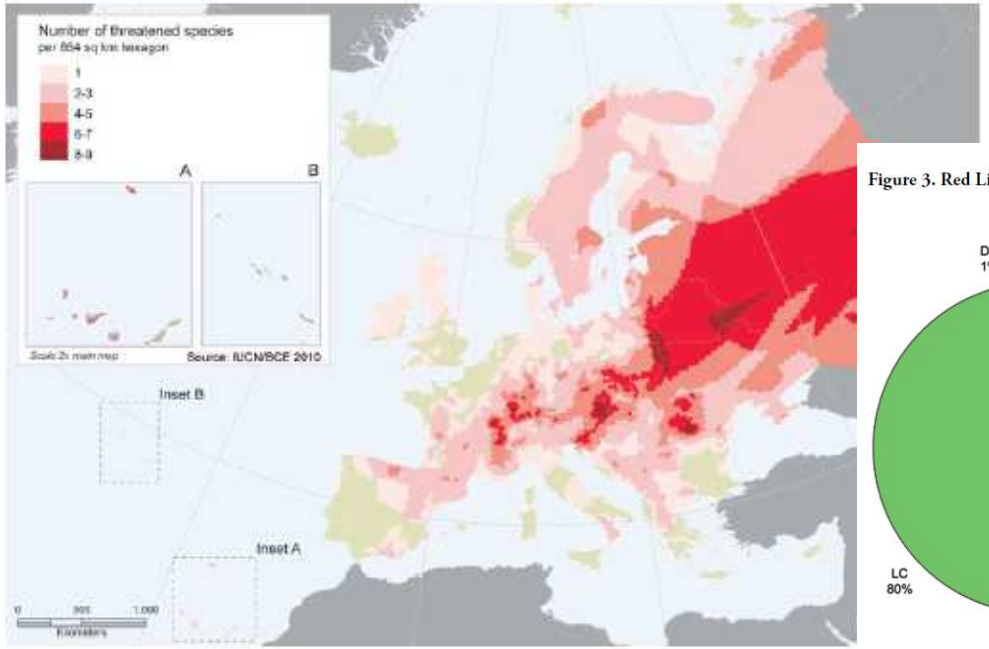


Figure 3. Red List status of butterflies in Europe

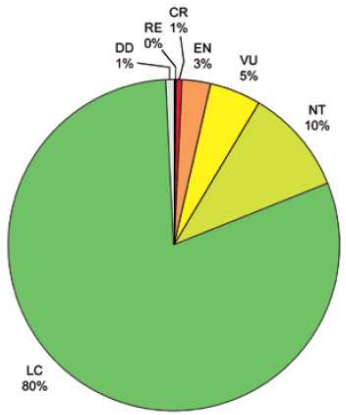
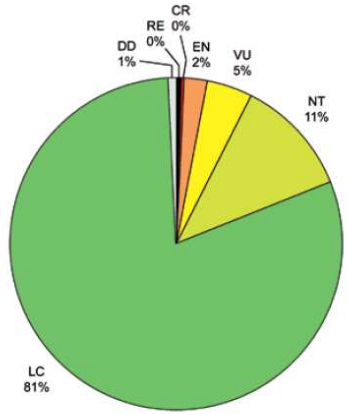
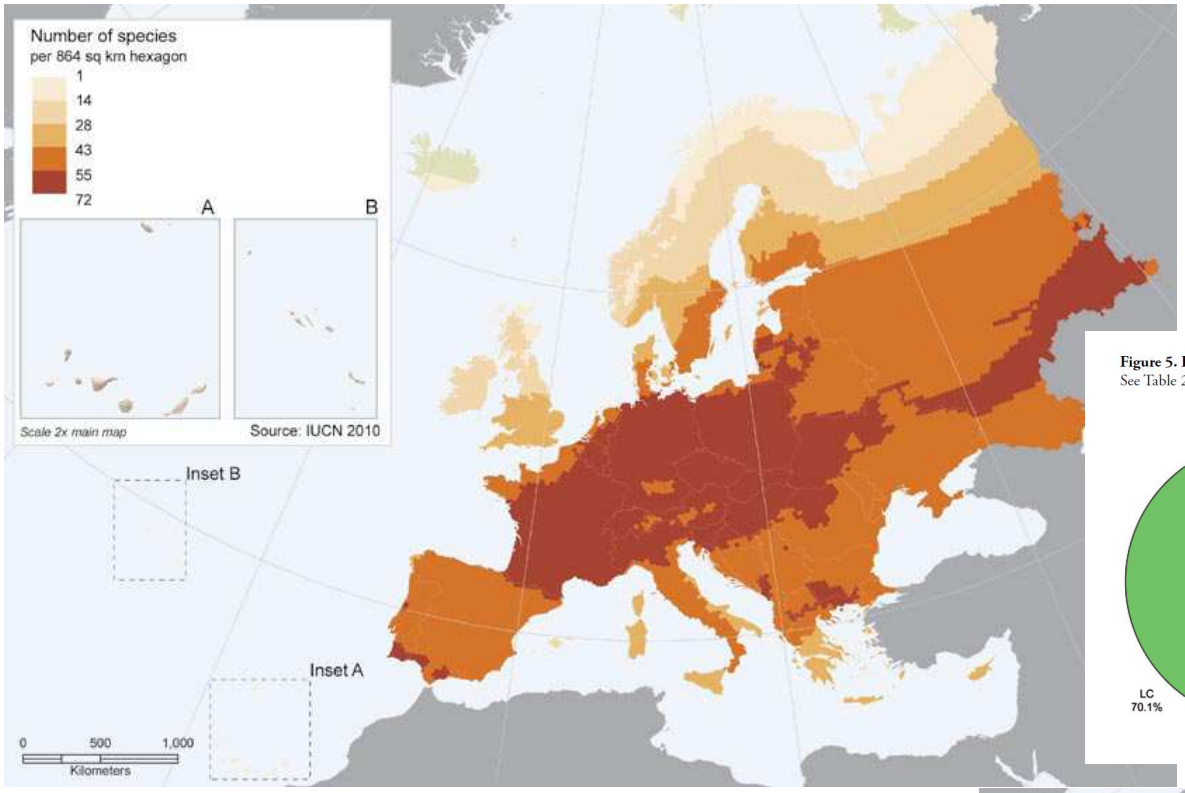


Figure 4. Red List status of butterflies in the EU27





VÁŽKY

(CELKEM 138 spp)

Figure 5. Red List status of dragonflies in Europe.
See Table 2 for abbreviations.

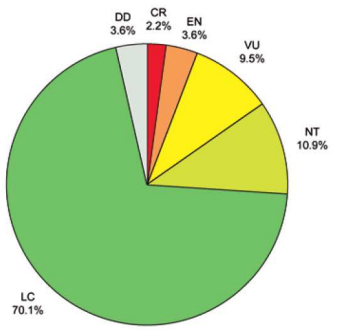
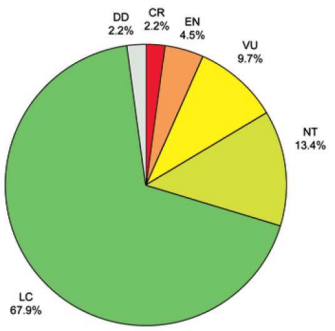
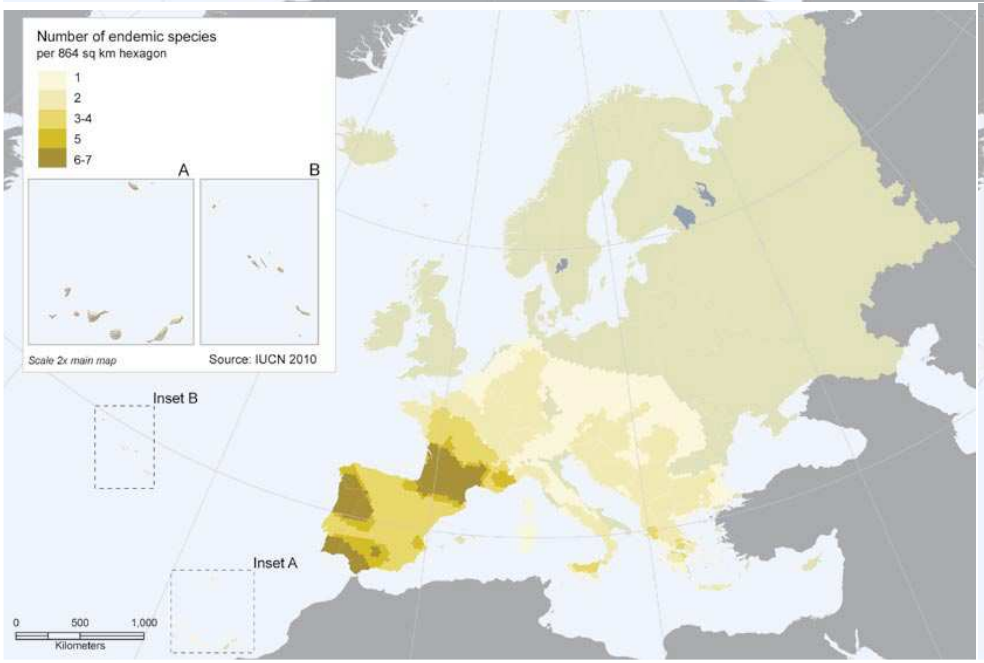
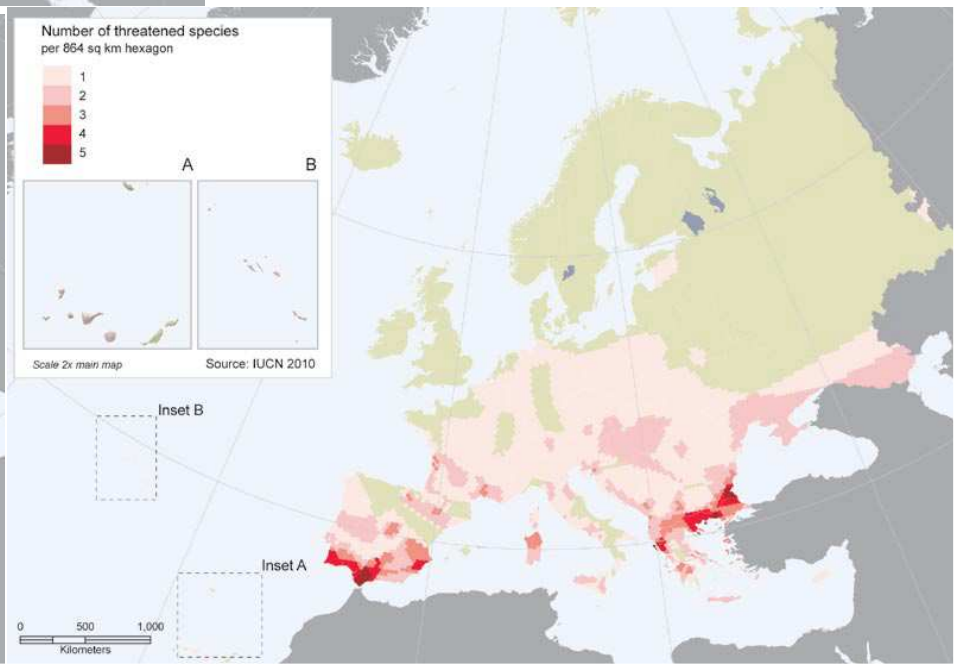
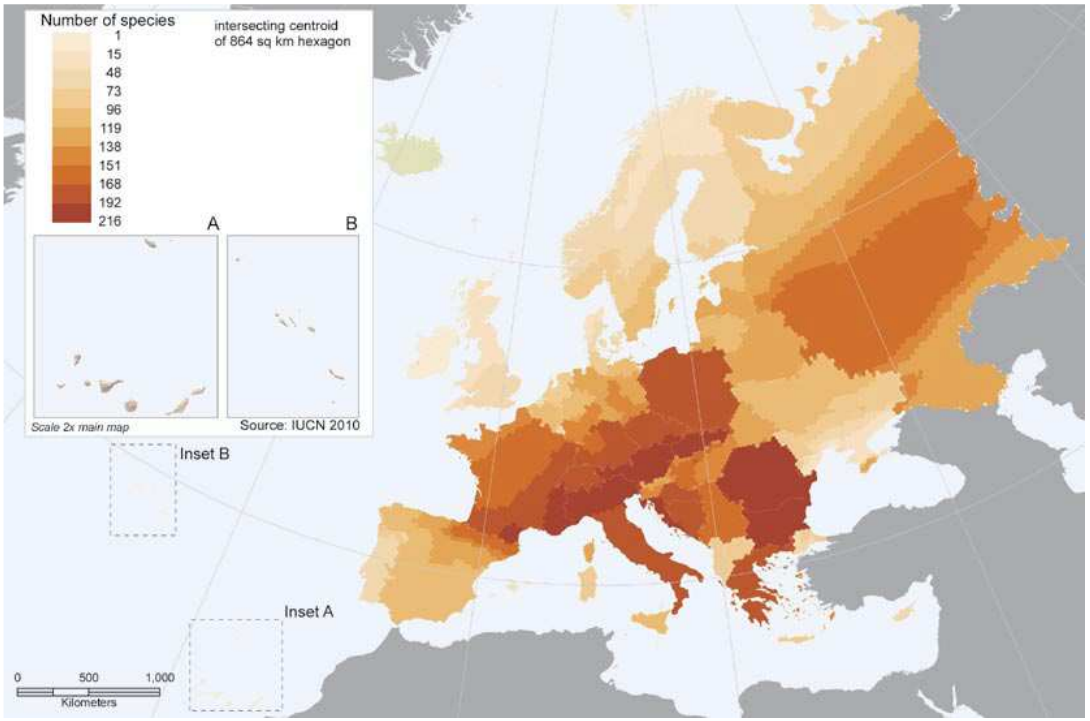


Figure 6. Red List status of dragonflies in the EU 27.
See Table 2 for abbreviations.



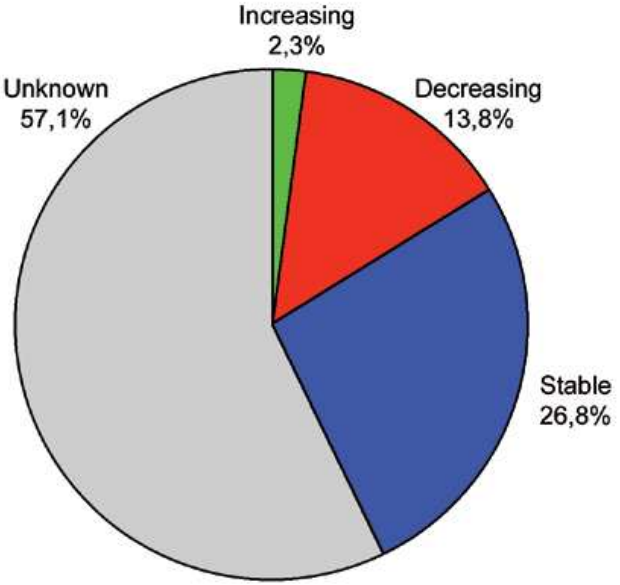


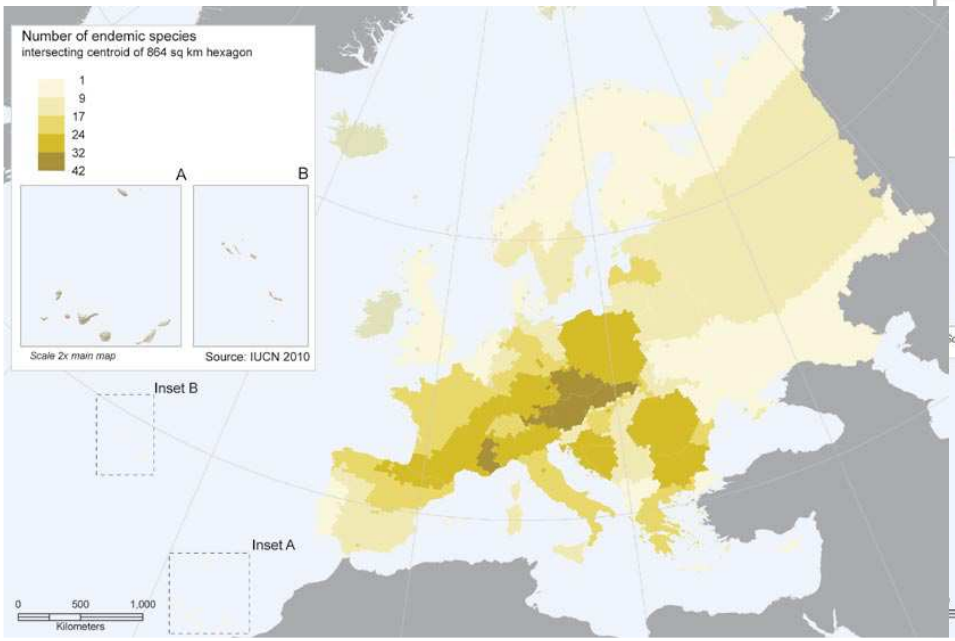


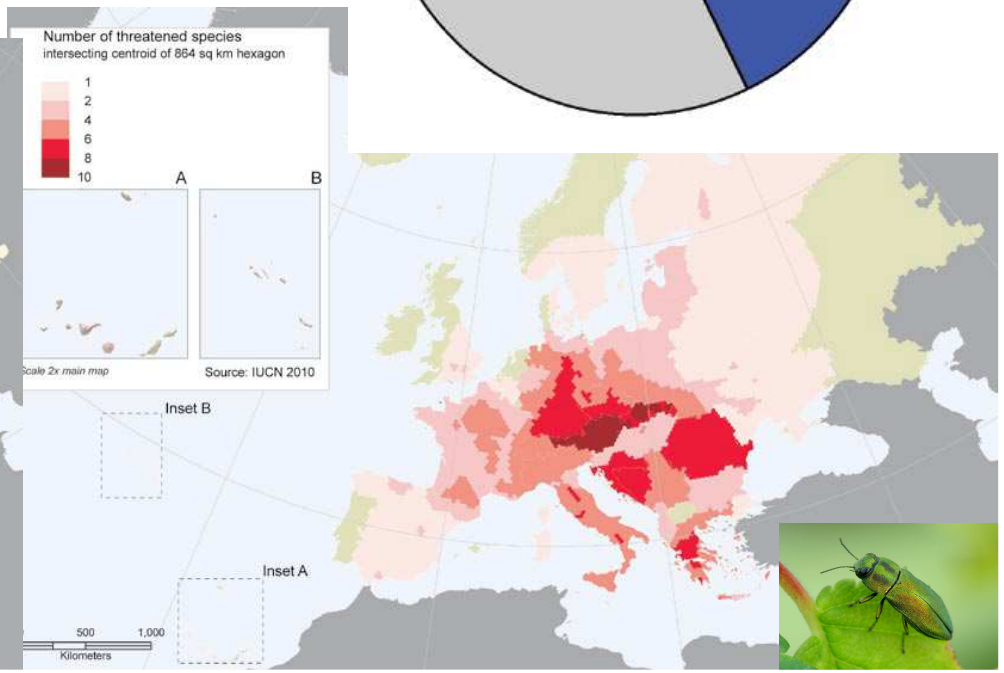


SAPROXYLIČTÍ BROUCI

(CELKEM 436 spp, ***apriorní výběr***)







SLADKOVODNÍ MĚKKÝŠI

(CELKEM 854 spp.)

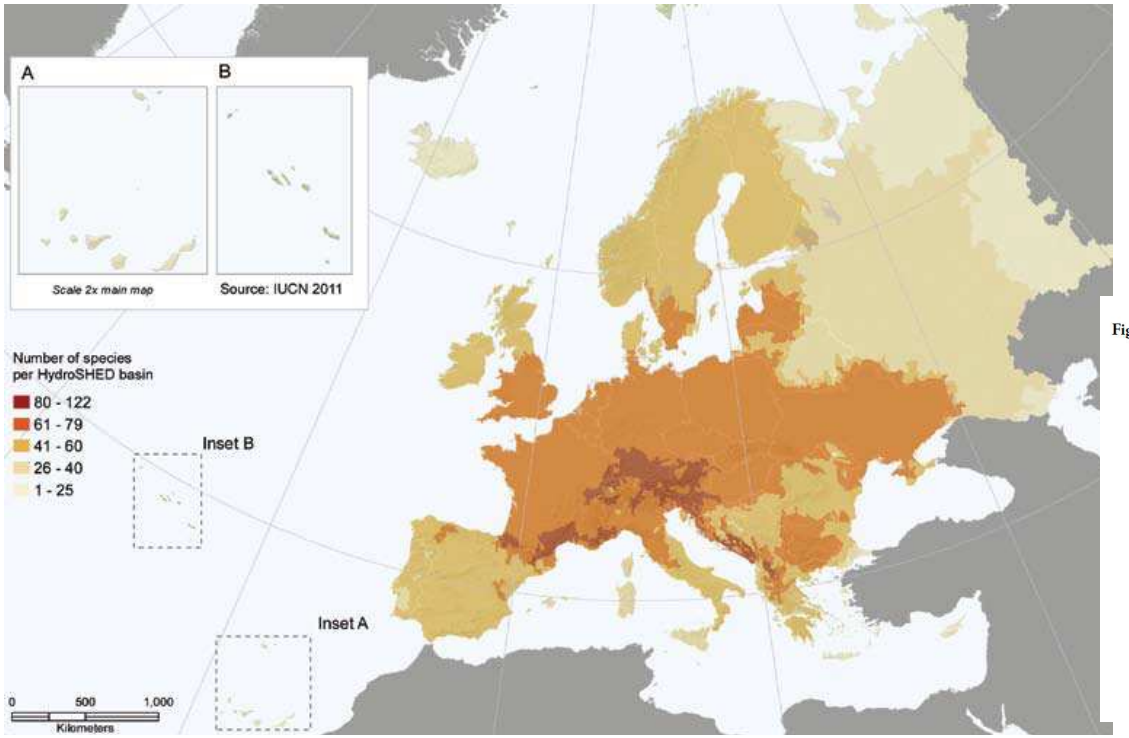


Figure 4. Red List status of freshwater molluscs in Europe

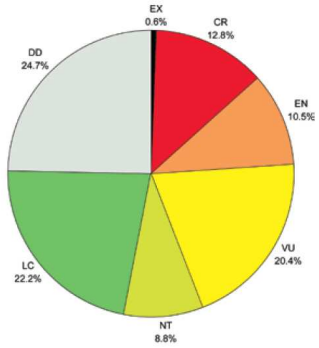
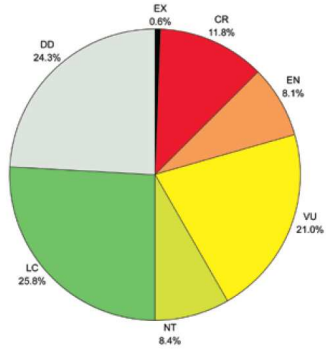
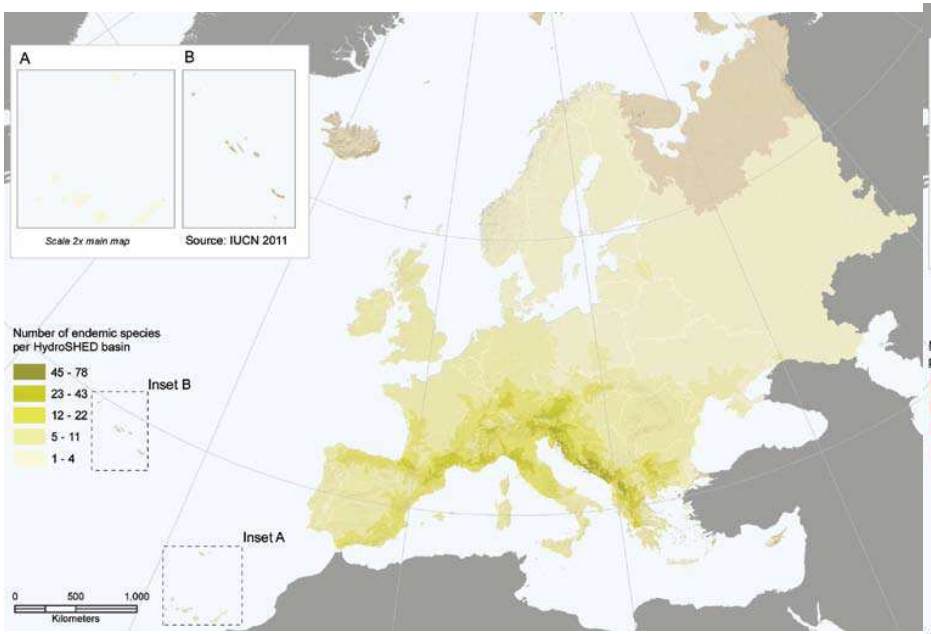
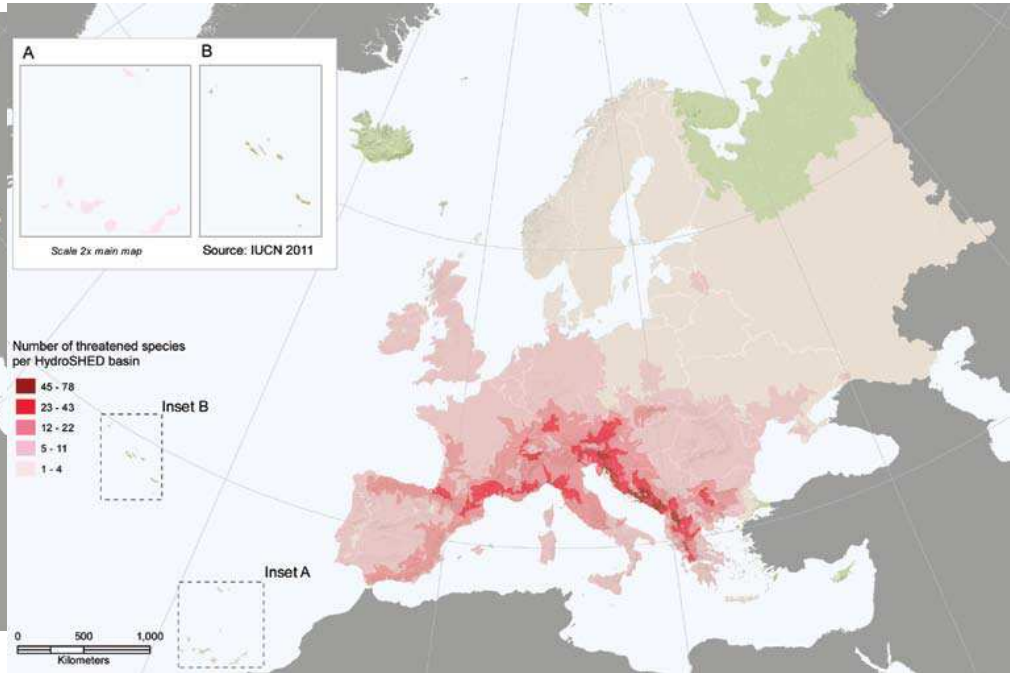
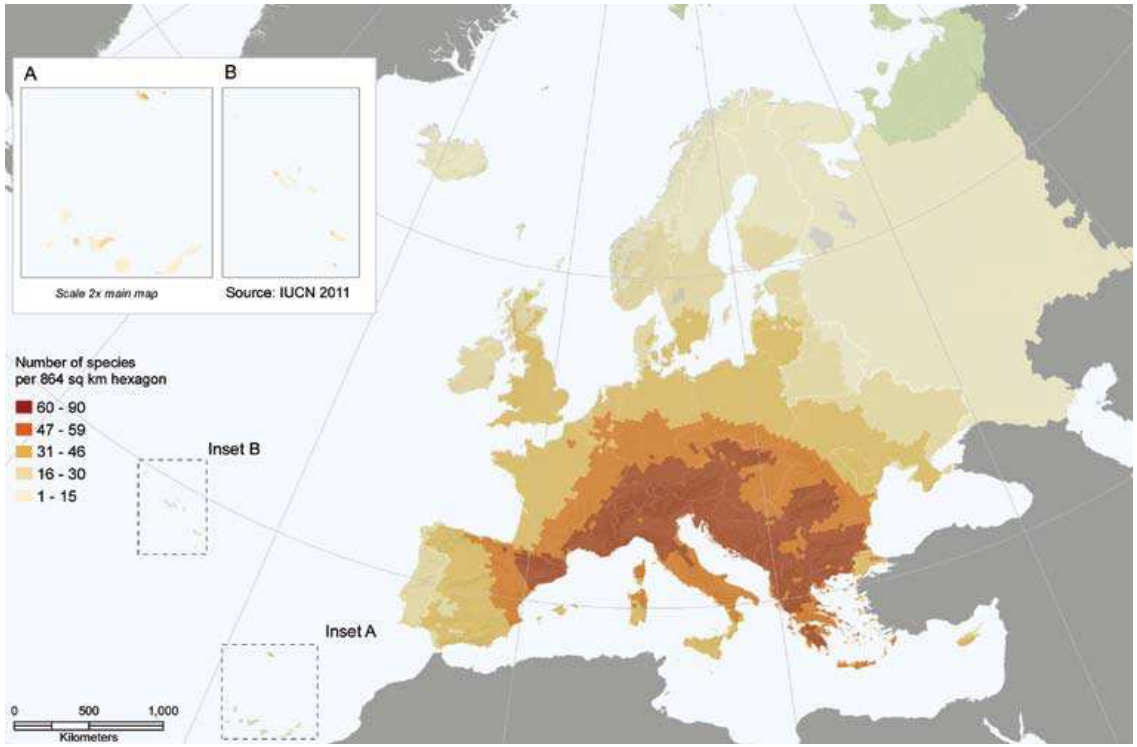


Figure 5. Red List status of freshwater molluscs in the EU 27









SUCHOZEMŠTÍ MĚKKÝŠI

(CELKEM 1233 spp., vybrané nadčeledi z celkem 2700 spp)

Figure 13. Red List status of selected terrestrial molluscs in Europe

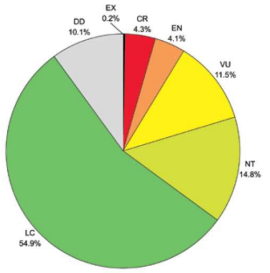


Figure 14. Red List status of selected terrestrial molluscs in the EU 27