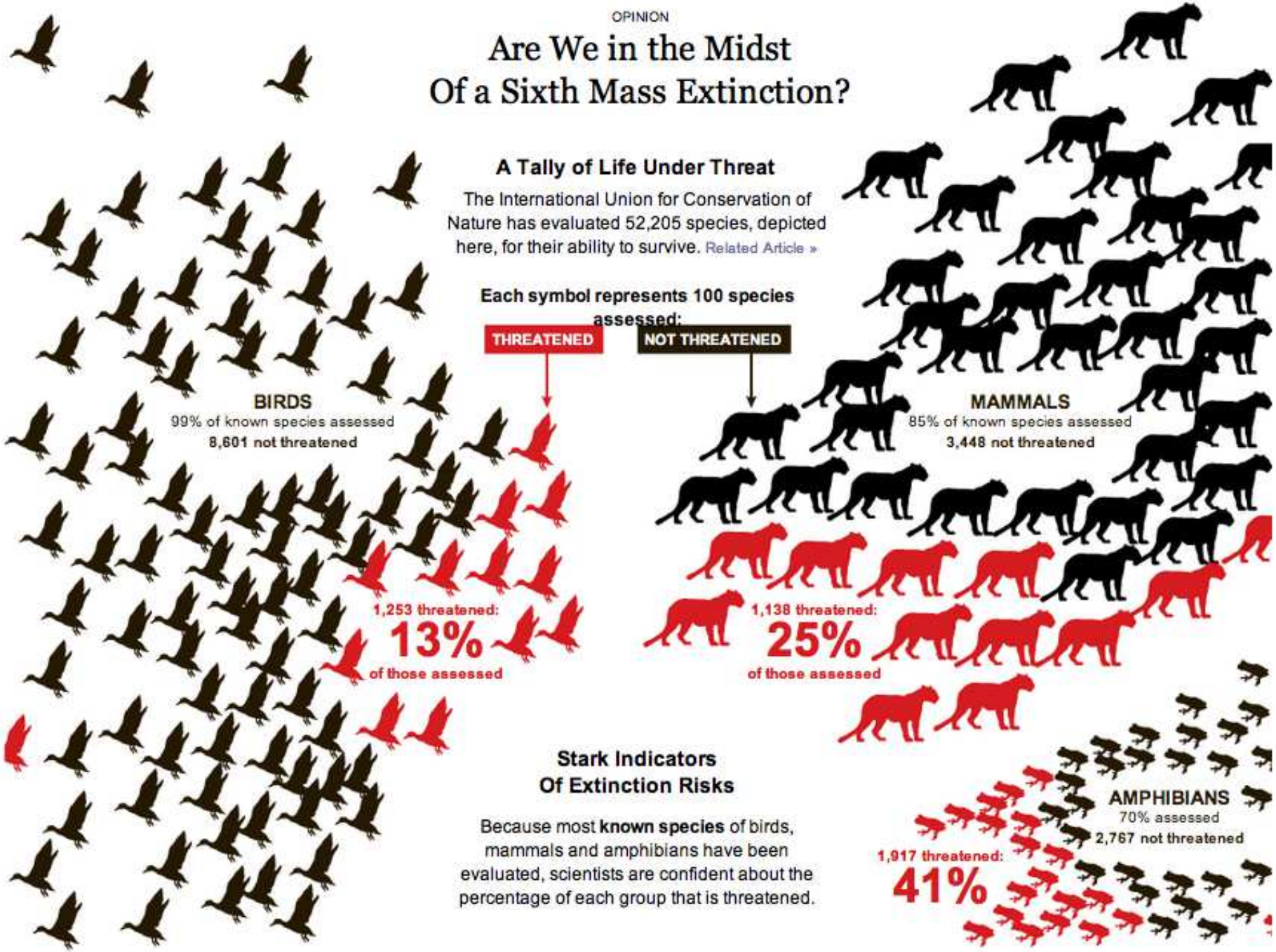
Βιοποικιλότητα, Οικοσυστημικές Λειτουργίες και Υπηρεσίες

Αθανάσιος Καλλιμάνης
Τμήμα Βιολογίας, ΑΠΘ

OPINION

Are We in the Midst Of a Sixth Mass Extinction?



Other Threatened Life: The Tip of a Vast Unknown

Only fractions of **known species** in these nine groups have been evaluated. Because assessments have focused on species likely to be in danger, the proportion of each group that is threatened may be overstated.

Meanwhile, the number of **unknown species** may be in the millions, or tens of millions — many times that of what has been discovered.

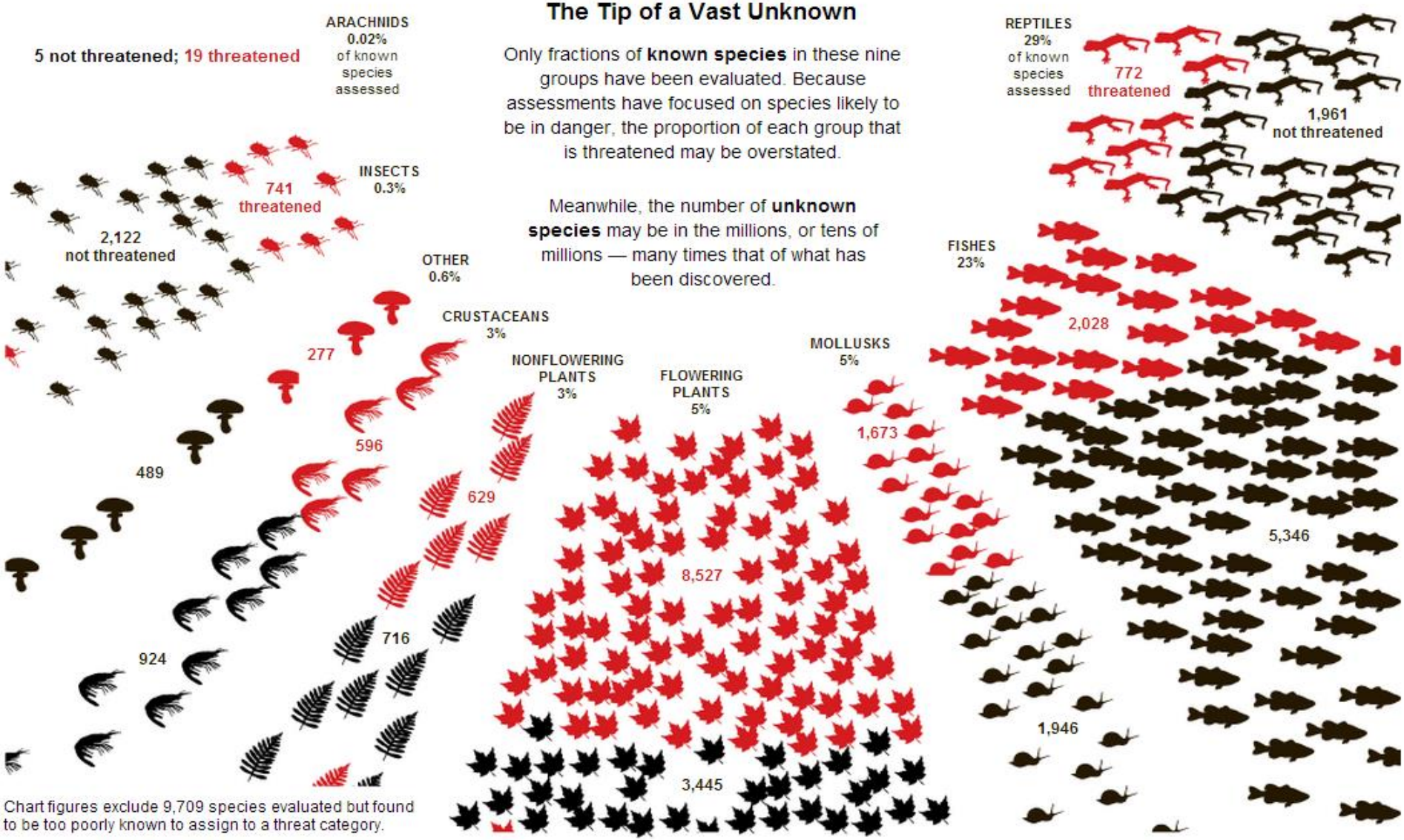


Chart figures exclude 9,709 species evaluated but found to be too poorly known to assign to a threat category.

Already Gone

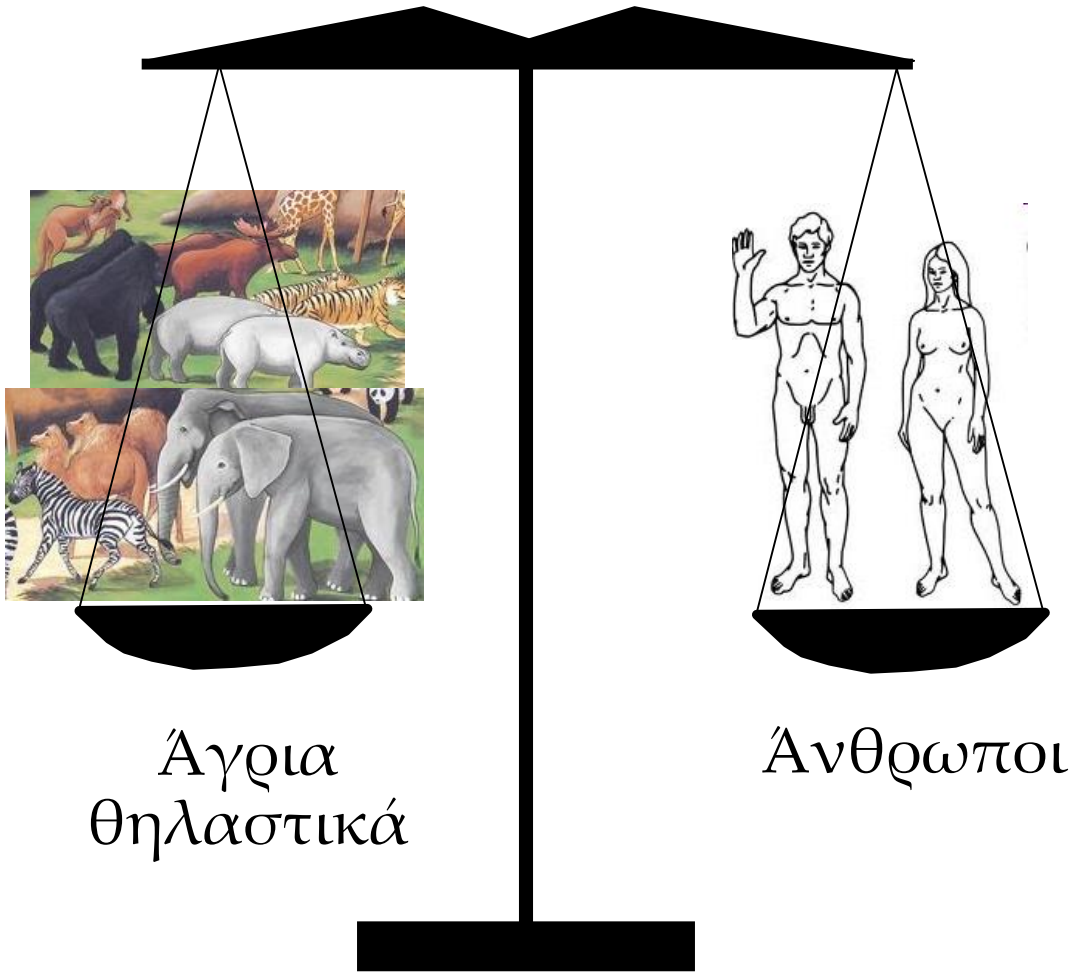
Species known to be extinct, or extinct in the wild, since 1500:

Mollusks	Birds	Flowering plants	Mammals	Fishes	Insects	Amphibians	Reptiles	Crustaceans	Nonflowering plants	Others
327	136	110	79	68	60	39	22	12	10	2

No known arachnid extinctions.

Βιομάζα

1970

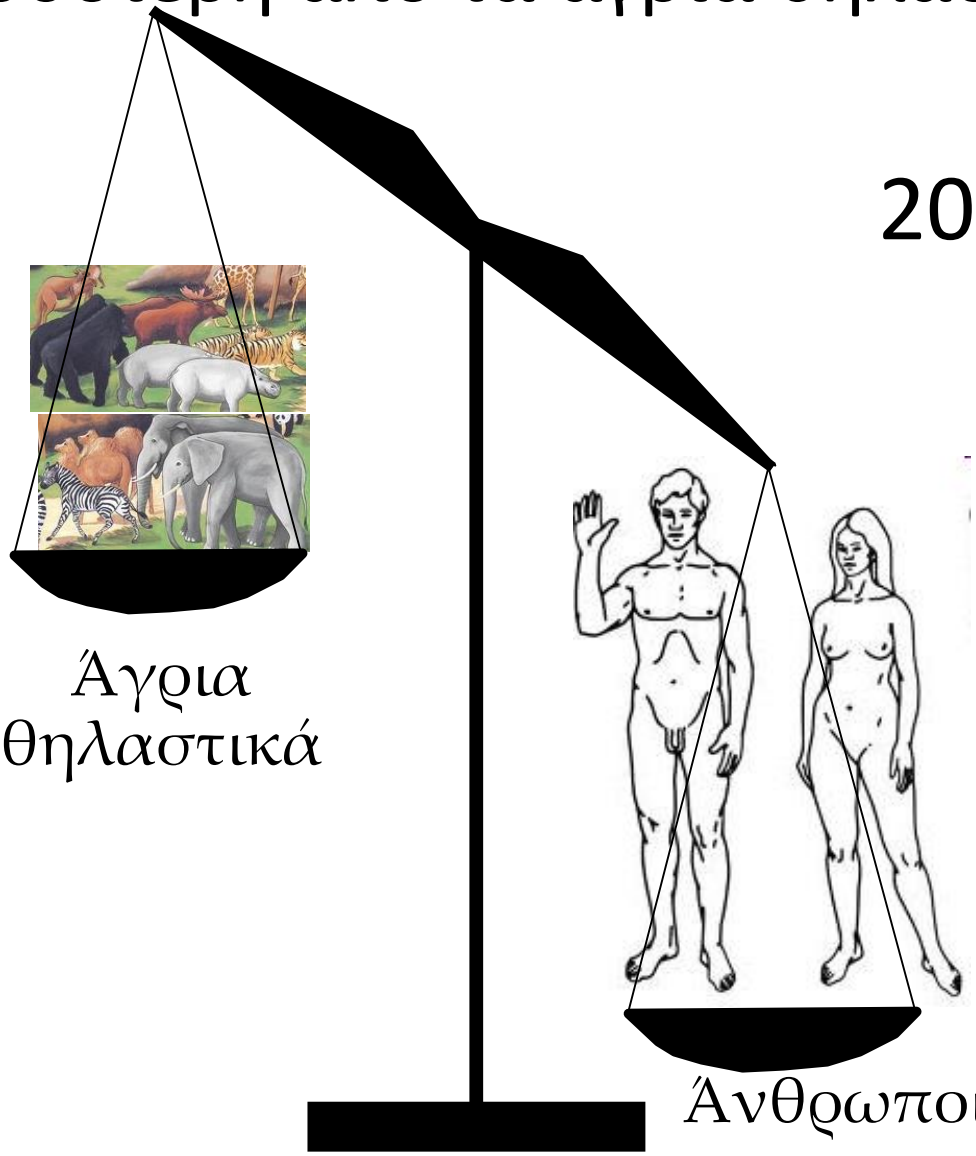


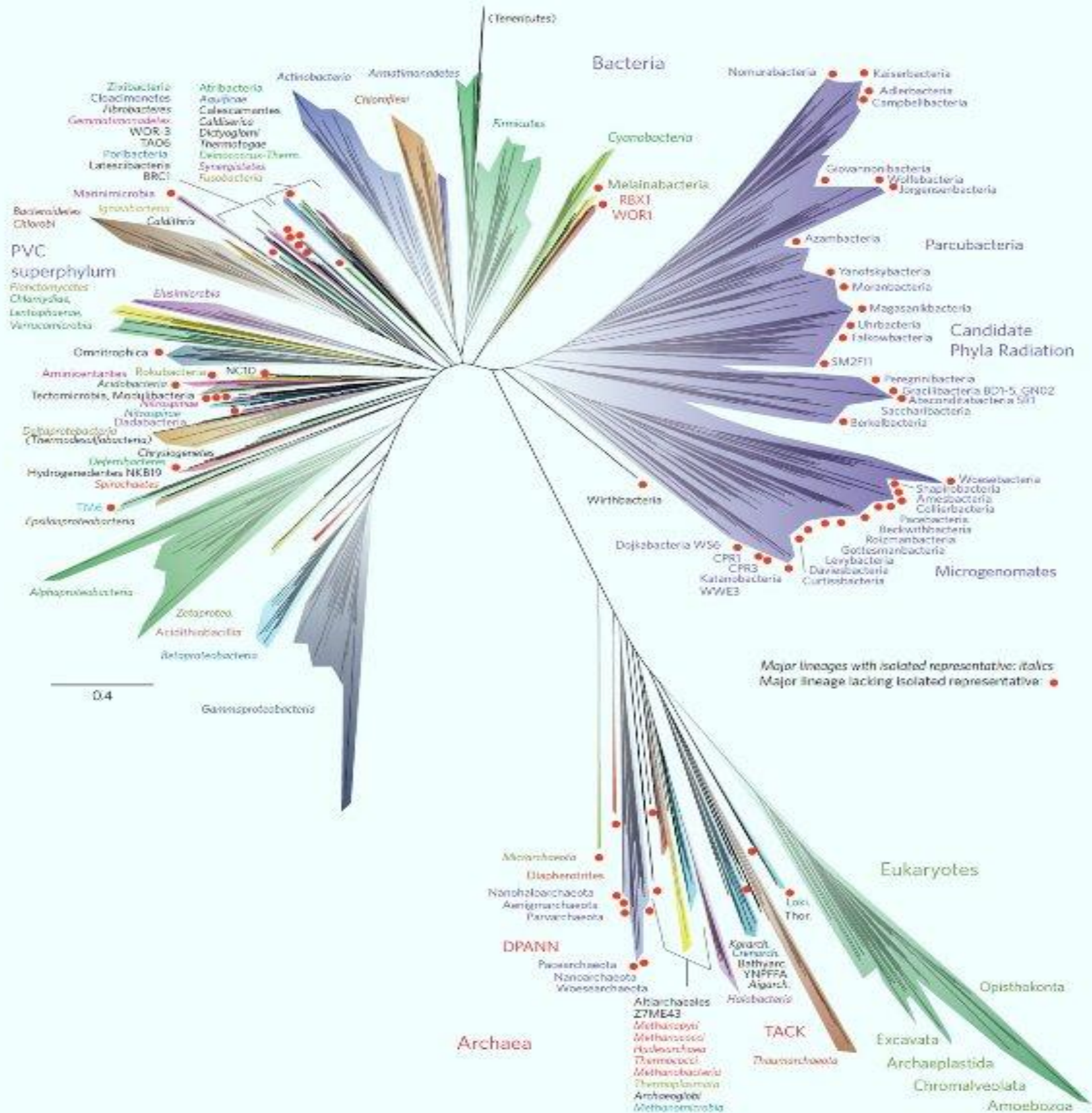
Άγρια θηλαστικά

Άνθρωποι

Η βιομάζα των ανθρώπων **τρεις** φορές περισσότερη από τα άγρια θηλαστικά

2010





(Tenericutes)
Bacteria
Actinobacteria
Armatimonadetes
Chloroflexi
Firmicutes
Cyanobacteria
Melainabacteria
RBX1
WOR1
Zixibacteria
Cloacimonetes
Fibrobacteres
Gemmatimonadetes
WOR-3
TA06
Poribacteria
Latescibacteria
BRC1
Atribacteria
Aquificae
Calescamantes
Caldiserica
Dictyoglomi/
Thermotogae
Deinococcus-Therm.
Synergistetes
Fusobacteria
Marinimicrobia
Ignavibacteria
Caldithrix
Bacteroidetes
Chlorobi
PVC superphylum
Planctomycetes
Chlamydiae,
Lentisphaerae,
Verrucomicrobia
Elusimicrobia
Omnitrophica
Aminicenantes
Rokubacteria
NC10
Acidobacteria
Tectomicrobia, Modulibacteria
Nitrospinae
Nitrospirae
Dadabacteria
Deltaproteobacteria
(Thermodesulfobacteria)
Chrysiogenetes
Deferribacteres
Hydrogenedentes NKB19
Spirochaetes
TM6
Epsilonproteobacteria
Alphaproteobacteria
Zetaproteo.
Acidithiobacillia
Betaproteobacteria
Gammaproteobacteria
0.4
Nomurabacteria
Kaiserbacteria
Adlerbacteria
Campbellbacteria
Giovannonibacteria
Wolfebacteria
Jorgensenbacteria
Azambacteria
Parcubacteria
Yanofskybacteria
Moranbacteria
Magasanikbacteria
Uhrbacteria
Falkowbacteria
Candidate Phyla Radiation
SM2F11
Peregrinibacteria
Gracilibacteria BD1-5, GN02
Absconditabacteria SR1
Saccharibacteria
Berkelbacteria
Wirthbacteria
Woesebacteria
Shapirobacteria
Amesbacteria
Collierbacteria
Pacebacteria
Beckwithbacteria
Roizmanbacteria
Gottesmanbacteria
Levybacteria
Daviesbacteria
Curtissbacteria
Dojkabacteria WS6
CPR1
CPR3
Katanobacteria
WWE3
Microgenomates
Major lineages with isolated representative: italics
Major lineage lacking isolated representative: ●
Eukaryotes
Opisthokonta
Excavata
Archaeplastida
Chromalveolata
Amoebozoa
Loki.
Thor.
Korarch.
Crenarch.
Bathyarc.
YNPFFA
Aigarch.
Halobacteria
TACK
Thaumarchaeota
Micrarchaeota
Diapherotrites
Nanohaloarchaeota
Aenigmarchaeota
Parvarchaeota
DPANN
Pacearchaeota
Nanoarchaeota
Woesearchaeota
Altiarchaeales
Z7ME43
Methanopyri
Methanococci
Hadesarchaea
Thermococci
Methanobacteria
Thermoplasmata
Archaeoglobi
Methanomicrobia
Archaea

The value of the world's ecosystem services and natural capital

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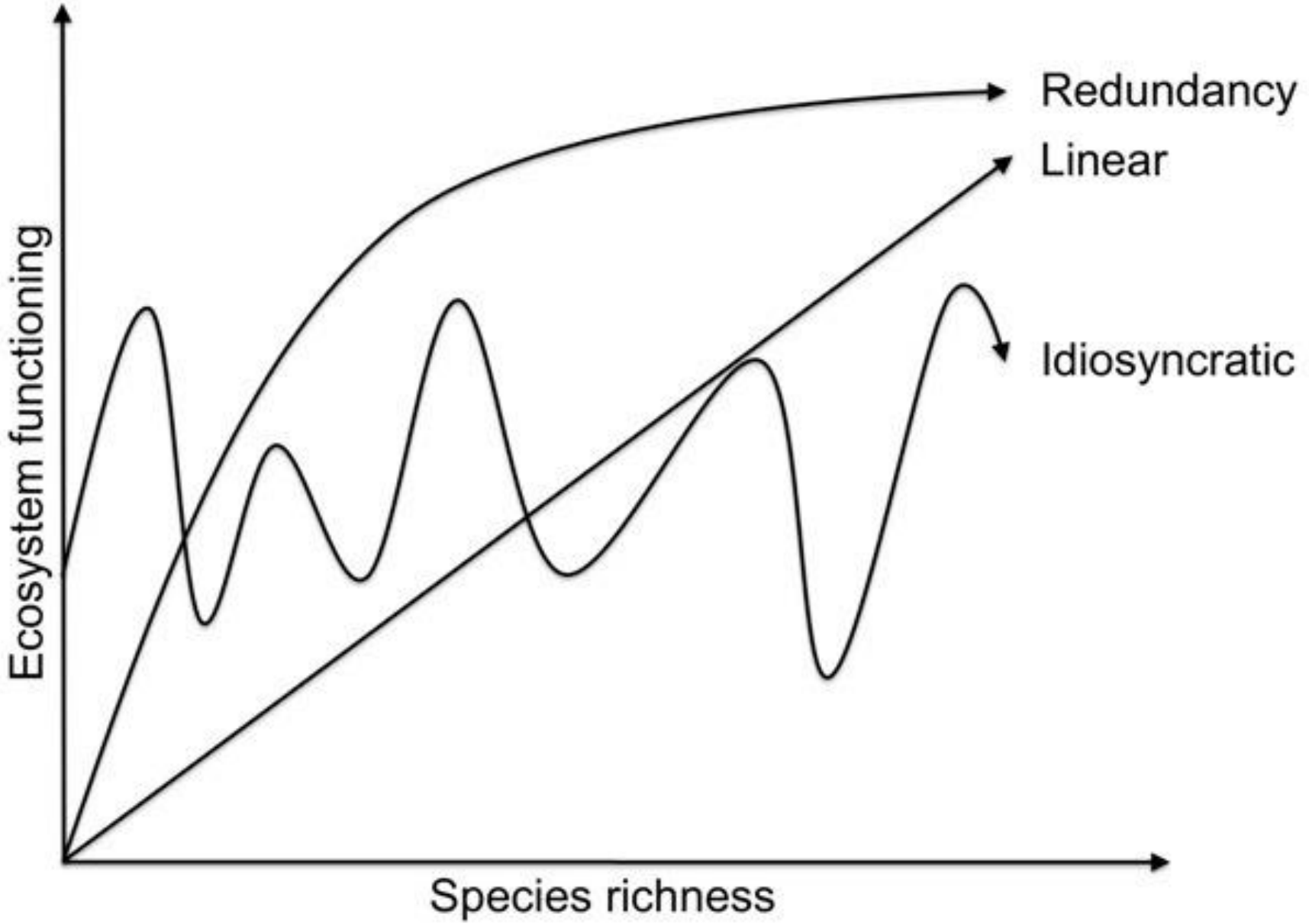
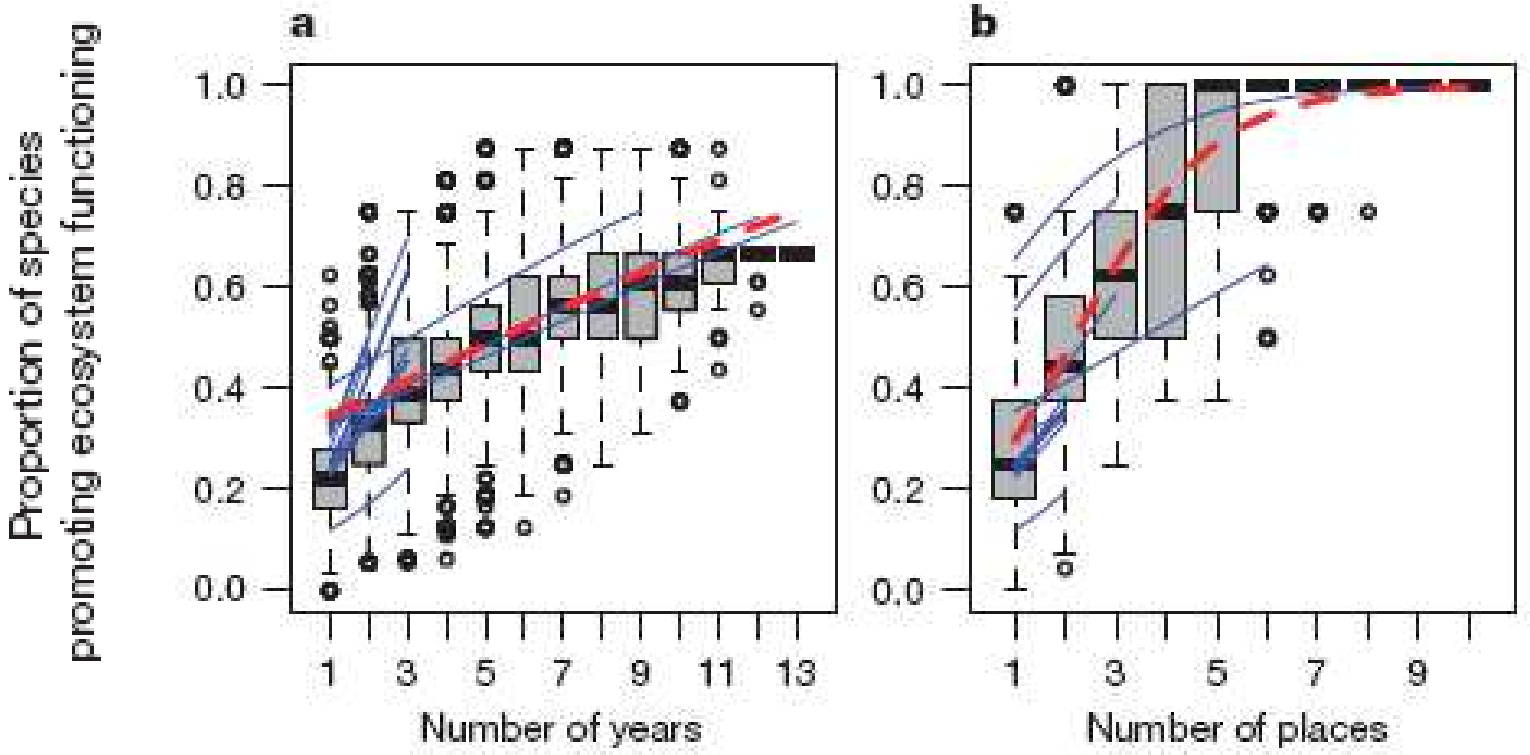
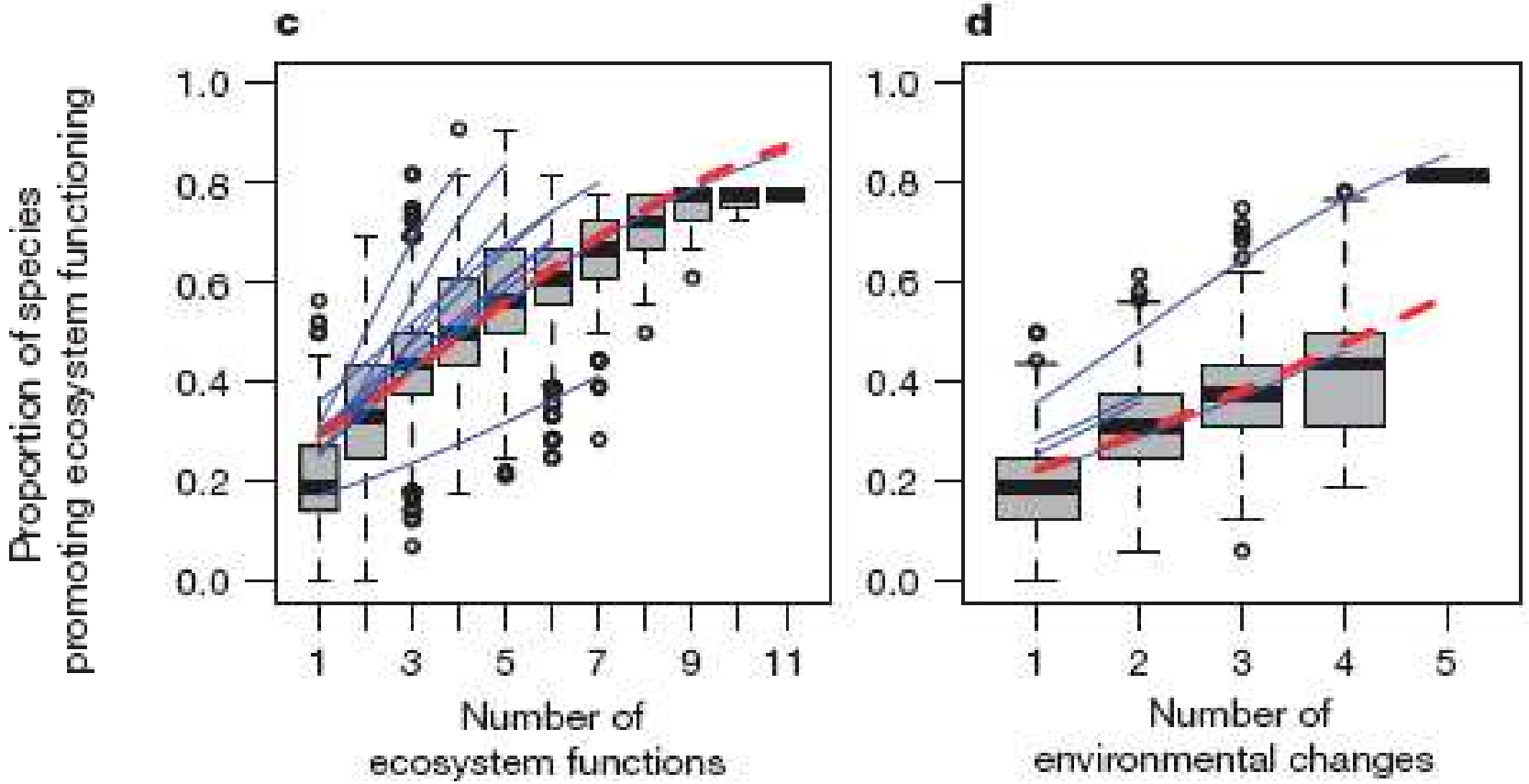
¶¶ *Ecological Economics Research and Applications Inc., PO Box 1589, Solomons, Maryland 20688, USA*

The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$16–54 trillion ($10^{12}$) per year, with an average of US$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US$18 trillion per year.


Redundancy
Linear
Idiosyncratic
Ecosystem functioning
Species richness



Isbell & al. 2011. Nature



Isbell & al. 2011. Nature

- 70% των νέων φαρμάκων (την τελευταία 25/ετία) προέρχονται από φυτά
- <1% από τα είδη τροπικών φυτών έχουν εξεταστεί για φαρμακευτικές χρήσεις (ως το 2000)