



Biodiversidad, servicios ecosistémicos y bienestar humano : Evolución de paradigmas y de acercamientos

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1

2001

2

2006

3

2014

4

2017

EDITORIAL

Conserving Biodiversity and Ecosystem Services

Human impacts on the environment are intensifying, raising vexing questions of how best to allocate the limited resources available for biodiversity conservation. Which creatures and places most deserve attention? Which should we ignore, potentially accepting their extinction? The answer to this dilemma depends on one's objectives. To motivate action, conservationists often mix diverse ethical and practical objectives, hoping they will reinforce each other. But attention given to one goal may instead diminish the prospects for achieving others. To examine whether different objectives for conservation conflict with or reinforce each other, consider the two principal approaches that seem to differ most fundamentally in objective. Caricaturing slightly, the first is focused on biodiversity conservation for its own sake, independent of human needs or desires. The second is focused on safeguarding ecosystem services for humanity's sake: for the provision of goods, basic life-support services, and human enjoyment of nature. We worry about the imbalance in attention devoted to these approaches: Most conservation research and funding are oriented toward biodiversity with, until recently, little tangible effort being di-

Forum

Linking Biodiversity and Ecosystem Services: Current Uncertainties and the Necessary Next Steps

PATRICIA BALVANERA, ILYAS SIDDIQUE, LAURA DEE, ALAIN PAQUETTE, FOREST ISBELL, ANDREW GONZALEZ, JARRETT BYRNES, MARY I. O'CONNOR, BRUCE A. HUNGATE, AND JOHN N. GRIFFIN

Ecology Letters, (2006) 9: 1146-1156 doi: 10.1111/j.1461-0248.2006.00963.x

REVIEW AND SYNTHESIS

Quantifying the evidence for biodiversity effects on ecosystem functioning and services

Patricia Balvanera,^{1*} Andrea B. Pfisterer,² Nina Buchmann,³ Jing-Shen He,⁴ Tohru Nakashizuka,⁵ David Raffaelli⁶ and Bernhard Schmid²

¹Centro de Investigaciones en

Abstract
Concern is growing about the consequences of biodiversity loss for ecosystem functioning, for the provision of ecosystem services, and for human well being. Experimental evidence for a relationship between biodiversity and ecosystem process rates is compelling, but the issue remains contentious. Here, we present the first rigorous quantitative assessment of this relationship through meta-analysis of experimental work

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Valuing nature's contributions to people: the IPBES approach

Unai Pascual^{1,2,3}, Patricia Balvanera⁴, Sandra Díaz^{5,6}, György Pataki⁷, Eva Roth⁸, Marie Stenseke⁹, Robert T Watson¹⁰, Esra Başak Dessane¹¹, Mine Islar¹², Eszter Kelemen^{13,14}, Virginie Maris¹⁵, Martin Quaas¹⁶, Suneetha M Subramanian¹⁷, Heidi Wittmer¹⁸, Asia Adlan Mohamed¹⁹, SoEun Ahn²⁰, Yousef S Al-Hafedh²¹, Edward Ameyah²², Stanley T. Aseh²³, Ram Bera²⁴

- ¿Qué?
- ¿Porqué?
- ¿Con quién?
- ¿Cómo?
- ¿Qué resultó?
- ¿Y eso qué?

1

2001

EDITORIAL

Conserving Biodiversity and Ecosystem Services

Human impacts on the environment are intensifying, raising vexing questions of how best to allocate the limited resources available for biodiversity conservation. Which creatures and places most deserve attention? Which should we ignore, potentially accepting their extinction? The answer to this dilemma depends on one's objectives. To motivate action, conservationists often mix diverse ethical and practical objectives, hoping they will reinforce each other. But attention given to one goal may instead diminish the prospects for achieving others.

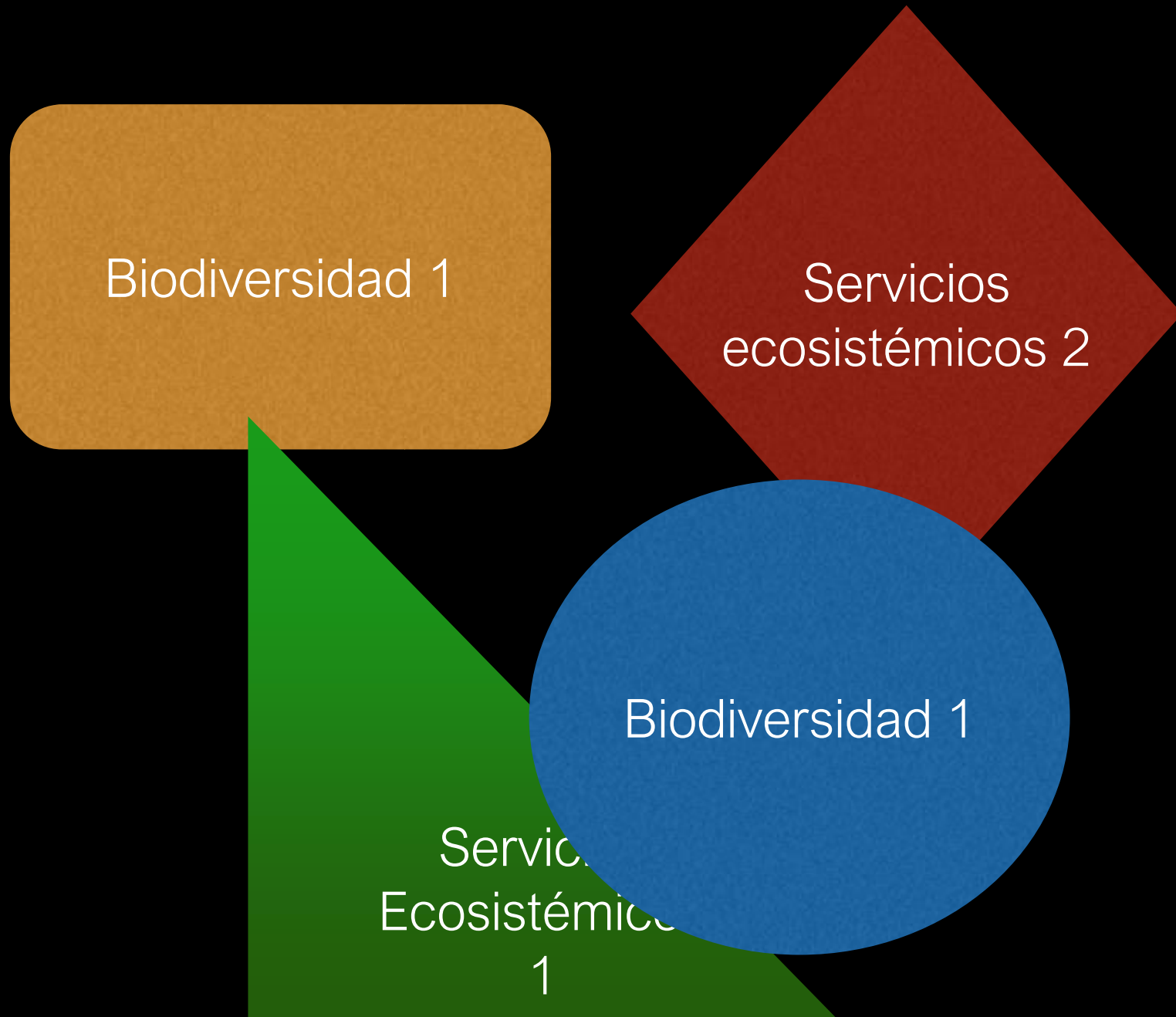
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We worry about the imbalance in attention devoted to these approaches: Most conservation research and funding are oriented toward biodiversity with, until recently, little tangible effort being di-

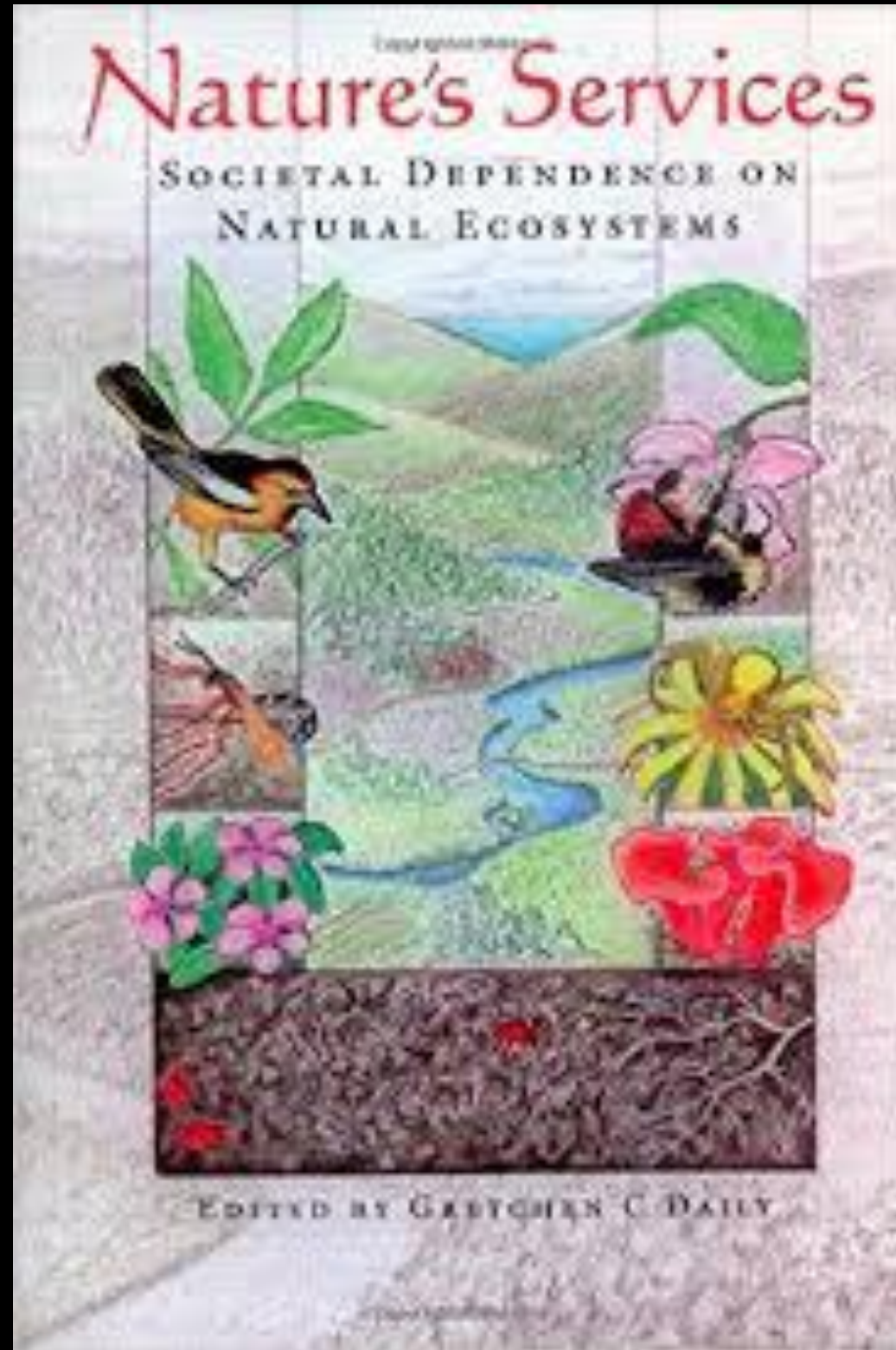
Conservando biodiversidad y servicios ecosistémicos

Balvanera, P., et al. 2001. *Science* 291: 2047. (Editorial).

¿Qué?



¿Porqué?



¿Con quién?

- Gretchen Daily
- Paul Ehrlich
- Taylor H. Ricketts
- Sallie-Anne Bailey
- Salit Kark
- Claire Kremen
- Henrique Pereira

¿Cómo?

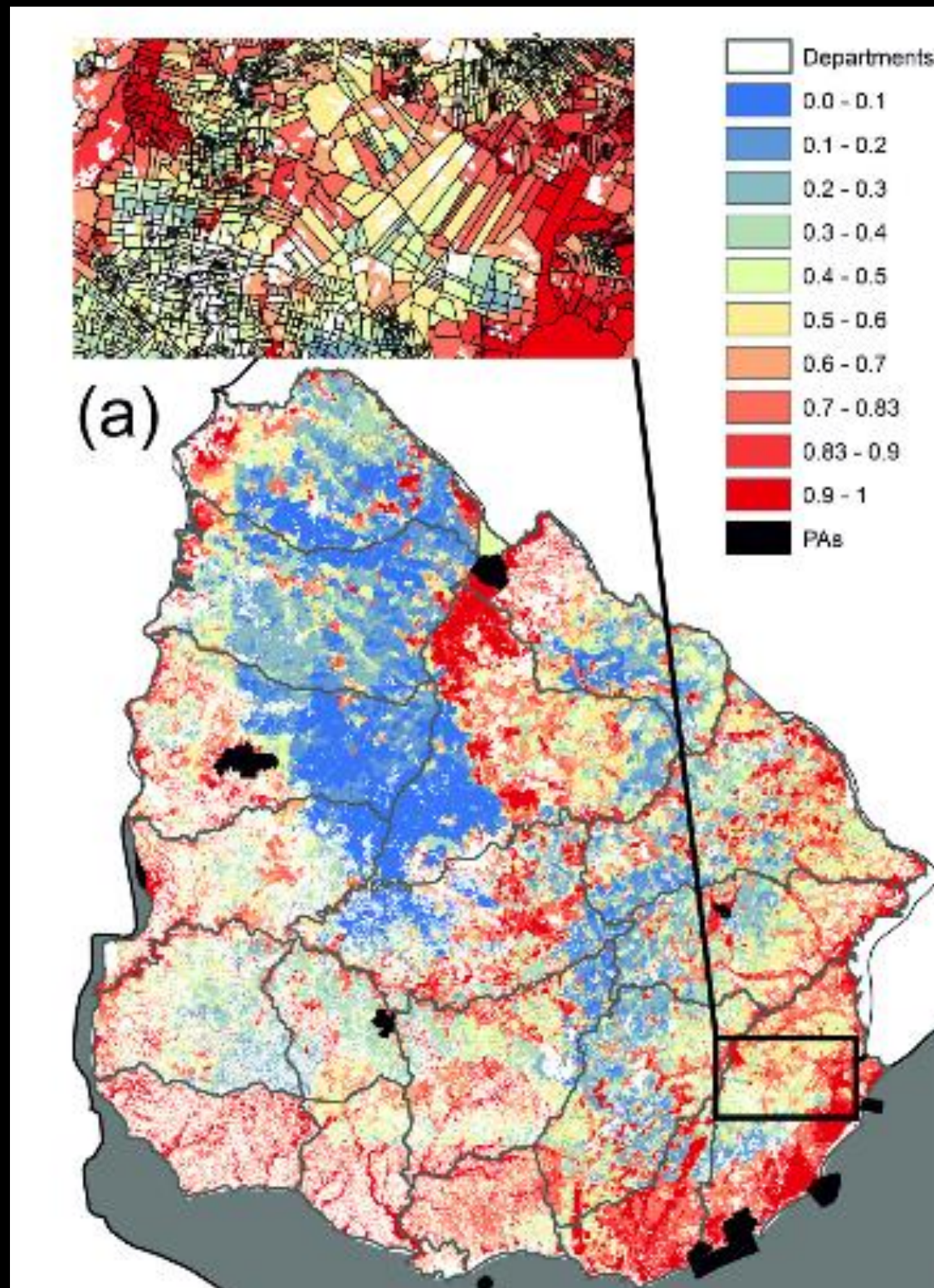
- Rápido
- Reuniones semanales
- Revisión de literatura de todo tipo

¿Qué resultó?

Lineamientos para mapeo de servicios ecosistémicos

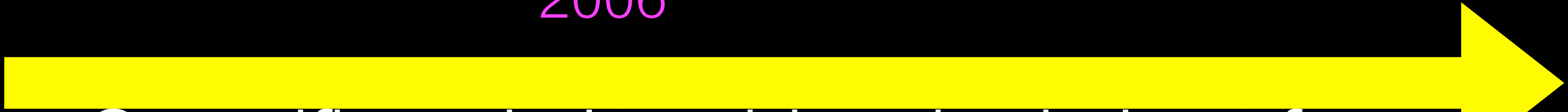
- Patrones espaciales de magnitud de services
- Efectos del manejo
- Patrones espaciales de convergencia
- Predicción de cambios en oferta y demanda

¿Y eso qué?

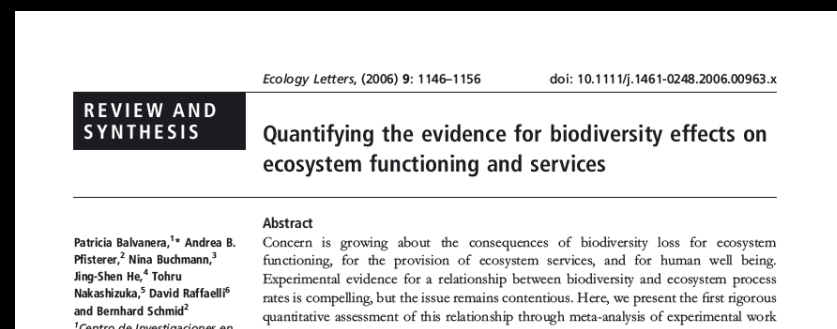


Areas
prioritarias
Para la
conservación
de la
biodiversidad
y los
servicios
ecosistémicos
En Uruguay

2
2006



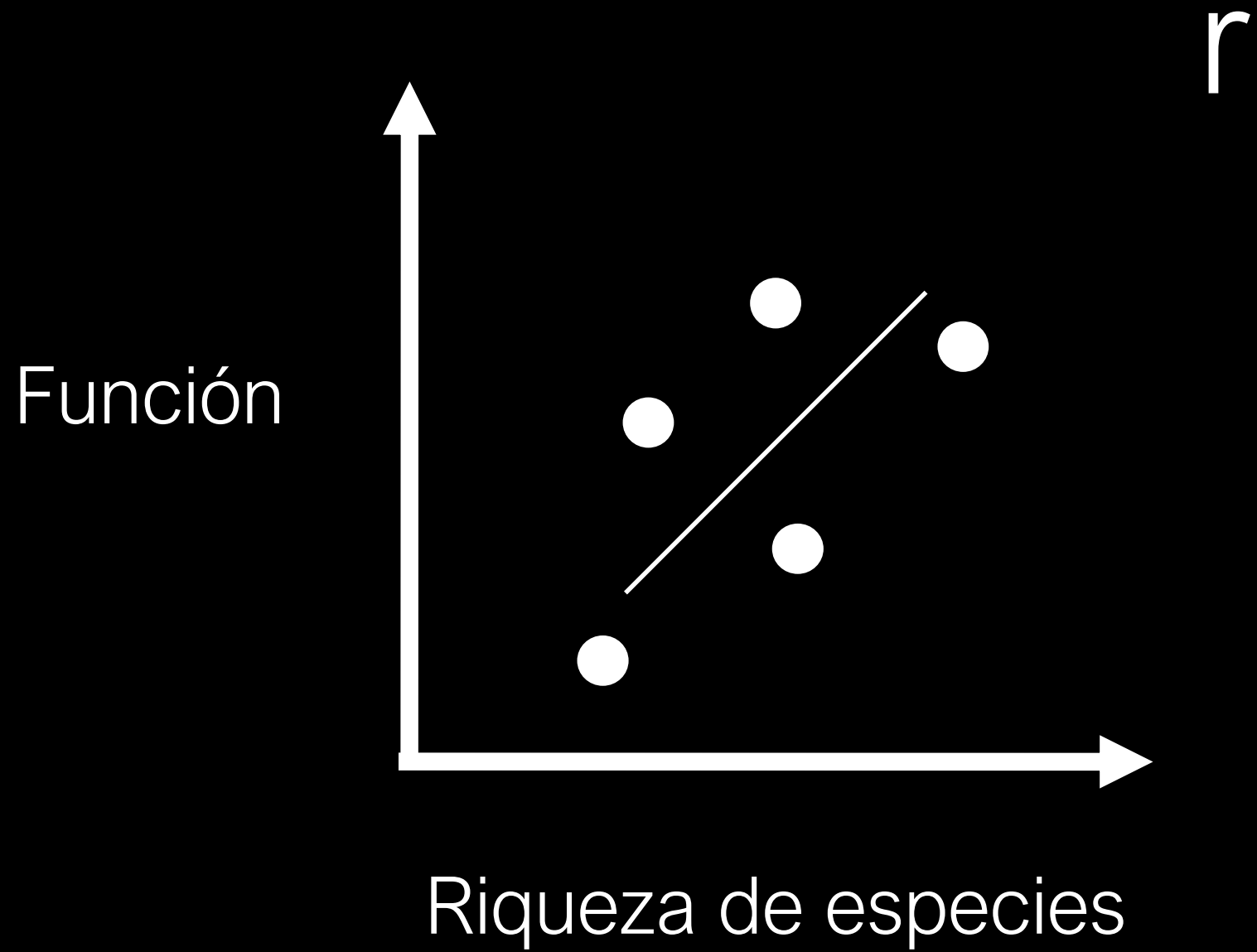
Cuantificando la evidencia de los efectos de la biodiversidad sobre el funcionamiento de los ecosistemas y sus servicios



Balvanera, P., A. et al. 2006.. *Ecology Letters* 9: 1146-1156

¿Qué?

103 estudios, 400+ "efectos de la diversidad"





¿Porqué?



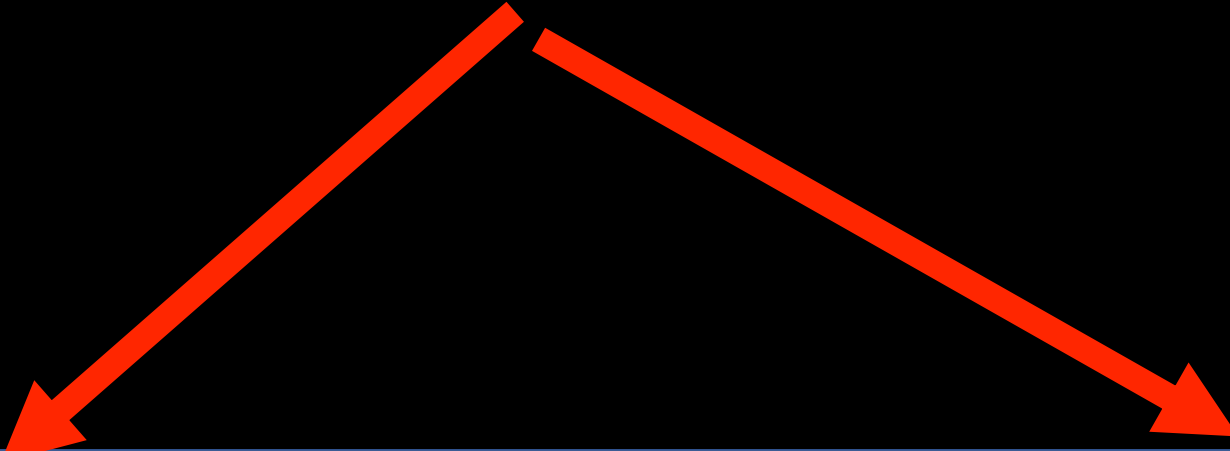
¿Con quién?

- Bernhard Schmid
- Andrea Pfisterer
- Nina Buchmann
- Tohru Nakashizuka
- David Rfaelli

¿Cómo?

ST1. Database used in the meta-analysis . D ID= Data ID, R ID = Reference ID, Author/Date = Reference, T exp syst = Type of experimental system, T div meas = Type of diversity measure, M caus = Main cause, D Des = Design for direct diversity manipulations, I grad = Design for indirect diversity manipulations, M Spno = Species number in the most diverse treatment, TL manip = Trophic level manipulated, TL measur = Trophic level measured, N lk = Number of links between trophic level manipulated and trophic level measured, EP variable measured = Ecosystem property measured, EP Group = Ecosystem property group, EP for Ecosystem Services = EP group used in Fig. 4 for relation to ecosystem services, R vs I = EP measured on resident vs. invader, M vs V = Mean vs. variance of EP measured, C P E = Organization level of EP measured (community vs. ecosystem vs. population), E cycle = Cycle to which EP measured can be assigned to (carbon, nutrient, water, biotic), R S = rate vs. stock EP measured, r = correlation coefficient between biodiversity and EP measured, T r = type of r (simple vs. multiple), N = sample size in original experiment, Zr = effect size metric (Z-transformed r), var(Zr)

D ID	R ID	Author/Date	S ID	Location	T exp syst	Ecosystem type	T div meas	D ID	M caus	D Des
1	1	Stachowicz et al. 1999	S10	Long Island Sound	field	aquatic marine	spc. richness	1	direct	substitutive
2	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	2	direct	substitutive
3	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	3	direct	substitutive
4	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	4	direct	substitutive
5	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	5	direct	substitutive
6	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	6	direct	substitutive
7	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	7	direct	substitutive
8	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	8	direct	substitutive
9	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	9	direct	substitutive
10	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	10	direct	substitutive
11	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	11	direct	substitutive
12	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	12	direct	substitutive
13	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	13	direct	substitutive
14	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	14	direct	substitutive
15	2	Baxter & Dighton 2001	S20	lab	greenhouse	forest	spc. richness	15	direct	substitutive



TL manip	TL measur	N lk	EP variable measured	D ID	EP Group	EP for Ecosystem services
1°Consumer	1°Consumer	1	cover	1	1°+consumer abundance	1°Consumer abundance
Mycorrhiza	1°Producer	2	biomass aboveground	2	1°producer abundance	1°producer abundance
Mycorrhiza	1°Producer	2	total mass [mg]	3	1°producer abundance	1°producer abundance
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [total]	4	Mycorrhiza abundance	Mycorrhiza abundance
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>A. flavorubescens</i>]	5	Mycorrhiza abundance	NA
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>A. longipes</i>]	6	Mycorrhiza abundance	NA
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>C. geophilum</i>]	7	Mycorrhiza abundance	NA
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>L. laccata</i>]	8	Mycorrhiza abundance	NA
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>P. bicolor</i>]	9	Mycorrhiza abundance	NA
Mycorrhiza	Mycorrhiza	1	fungal root tips/m root length [ectomycorrhiza: <i>P. tinctorius</i>]	10	Mycorrhiza abundance	NA
Mycorrhiza	1°Producer	2	minus root:shoot ratio	11	mechanism	NA
Mycorrhiza	1°Producer	2	root N conc. [mg/g]	12	nutrient concentration plants	Plant nutrient concentration
Mycorrhiza	1°Producer	2	shoot N conc. [mg/g]	13	nutrient concentration plants	Plant nutrient concentration
Mycorrhiza	1°Producer	2	shoot P conc. [mgP/g]	14	nutrient concentration plants	Plant nutrient concentration
Mycorrhiza	1°Producer	2	total P conc. [mgP/g]	15	nutrient concentration plants	Plant nutrient concentration
Mycorrhiza	1°Producer	2	root length	16	1°producer abundance	Plant root biomass
Mycorrhiza	1°Producer	2	root length/mass	17	1°producer abundance	Plant root biomass

¿Qué resultó?

A mayor número de especies mayor magnitud los servicios

2
2006



¿Y eso qué?

- Si perdemos especies perdemos los beneficios que nos da la naturaleza

3

2014



Forum

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Vinculando la biodiversidad y los servicios ecosistémicos: incertidumbres y pasos a seguir

¿Qué?

- Pérdida de biodiversidad y servicios ecosistémicos en el contexto de sociedad y ambiente

¿Porqué?



NCEAS

National Center for Ecological Analysis and Synthesis

¿Con quién?

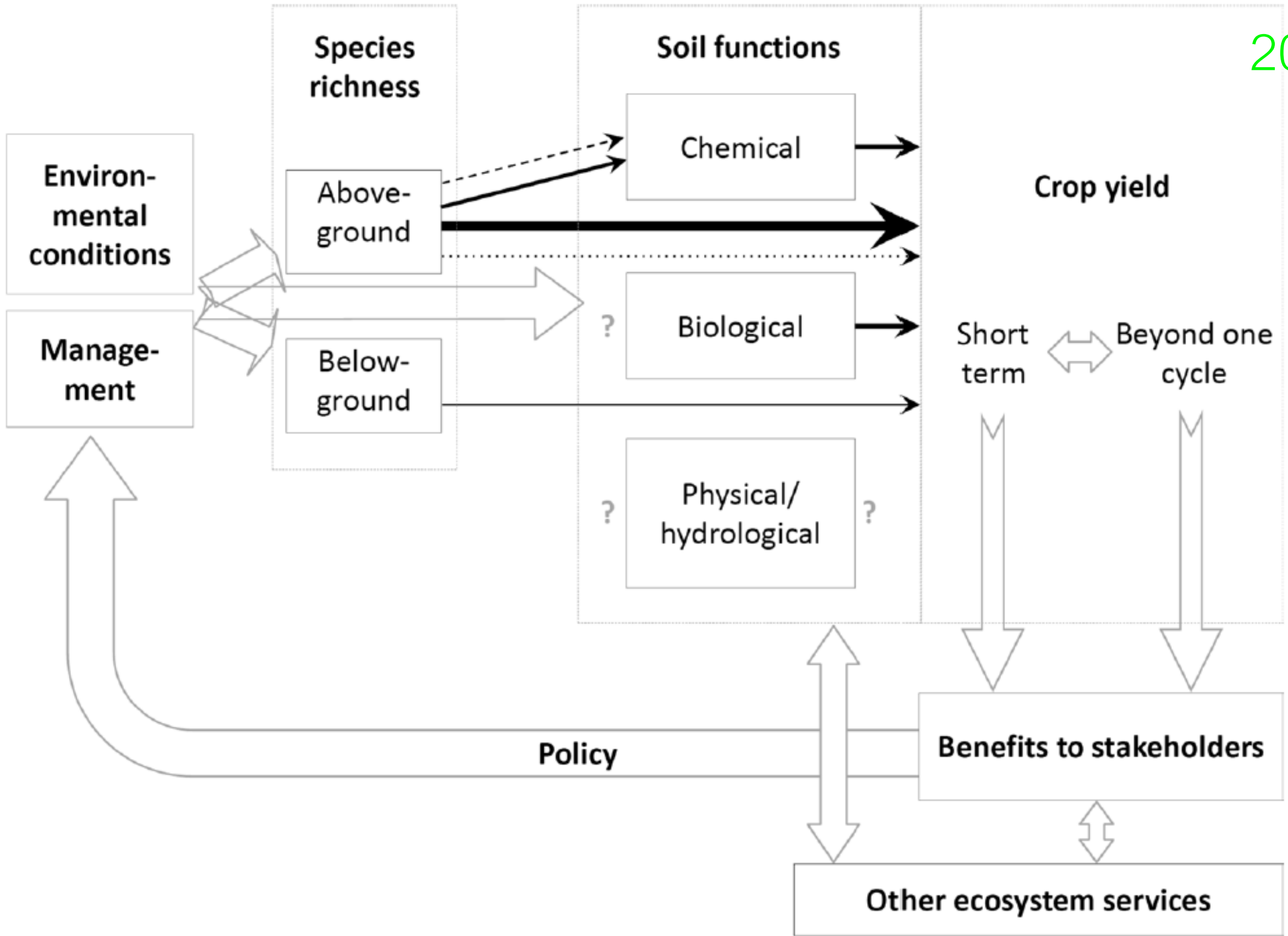
- Ilyas Siddique
- Laura Dee
- Alain Paquette
- Forest Isbell
- Andrew Gonzalez
- Jarrett Byrnes
- Mary O'Connor
- Bruce Hungate
- John Griffin

¿Cómo?

- Casos de estudio

- Casos de estudio
 - Forraje
 - Madera
 - Pesquería
 - Regulación de plagas agrícolas
 - Calidad del agua
 - Producción agrícola

¿Qué resultó?



¿Y eso qué?

- Necesidad de explorar estas relaciones en experimentos participativos interdisciplinarios

Valorando las contribuciones de la naturaleza para las personas: la perspectiva del IPBES

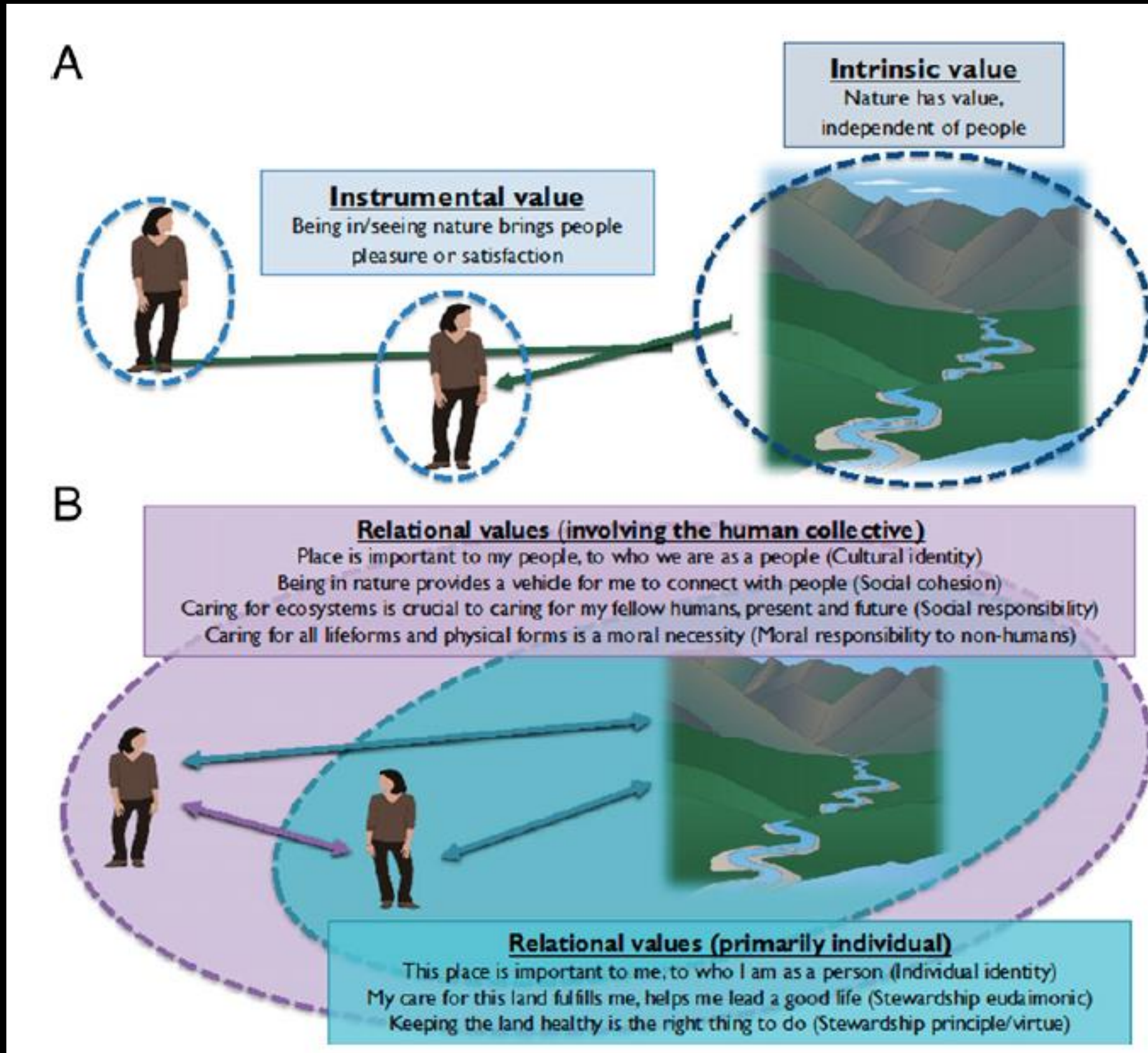
4

2017



Pascual, U.; et al. 2017 *Current Opinion in Environmental Sustainability*.

¿Qué?



¿Porqué?



Science and Policy
for People and Nature



4

2017



IPBES: la plataforma Intergubernamental de Biodiversidad y Servicios Ecosistémicos



La governanza del IPBES

4

2017

Plenary: Decision-making body

Responsible for the overall work programme, working through Bureau and MEP



Bureau

Multidisciplinary Expert Panel (MEP)

Responsible for carrying out the scientific and technical functions of the work programme,



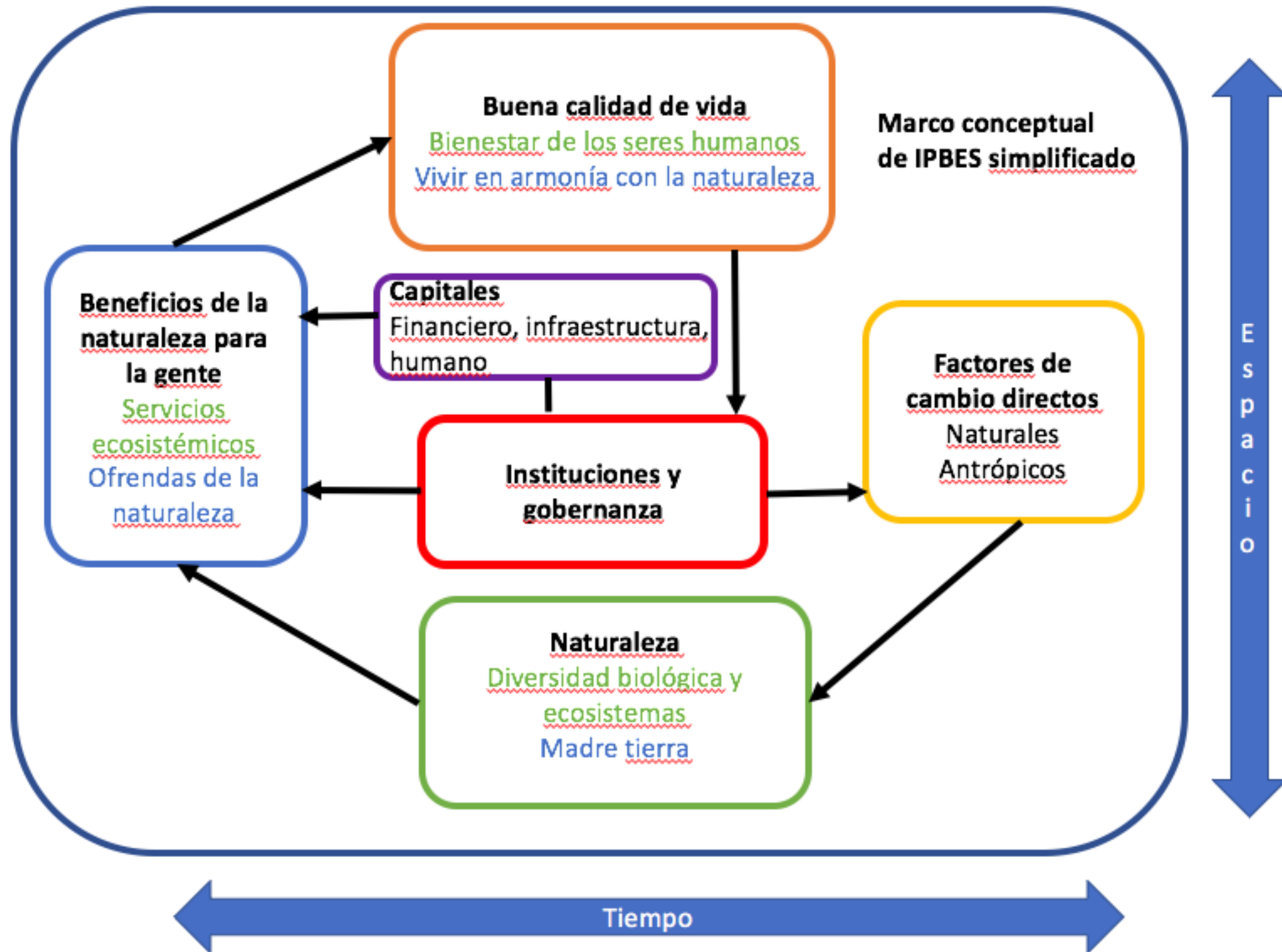
Expert groups for assessments, policy support tools and other studies

Task forces on capacity-building, knowledge and data, and indigenous and local knowledge



Secretariat (including Technical Support Units)





¿Con quién?

1. Members of the IPBES Multidisciplinary Expert Panel and of the Bureau

Sandra Díaz (Argentina) - Member of the Multidisciplinary Expert Panel and expert group co-chair
Unai Pascual (Spain) - Member of the Multidisciplinary Expert Panel and expert group co-chair
György Pataki (Hungary) – Member of the Multidisciplinary Expert Panel and expert group co-chair
Robert T. Watson (United Kingdom) – Bureau member and expert group co-chair
Marie Stenseke (Sweden) – Member of the Multidisciplinary Expert Panel

2. Selected Experts

SoEun Ahn (Republic of Korea), Edward Amankwah (Ghana), Stanley Tanyi Asah (Cameroon/USA), Patricia Balvanera (Mexico), Sara Breslow (United States), Craig Bullock (Ireland), Daniel M. Caceres (Argentina), Veronika Chobotová (Slovakia), Hamed Daly-Hasen (Tunisia), Esra Başak Dessane (Turkey), Eugenio Figueroa (Chile), Christopher D. Golden (Madagascar/USA), Erik Gómez-Baggethun (Norway/Spain), Mine Islar (Turkey), Eszter Kelemen (Hungary), Ritesh Kumar (India), Keping Ma (China), Virginie Maris (France), Michel Masozera (Rwanda), Peter Herman May (Brazil), Aroha Mead (New Zealand), Asia Mohamed (Sudan), Dominic Moran (United Kingdom), Patrick O'Farrell (South Africa), Diego Pacheco (Bolivia), Ram Pandit (Nepal), Walter Alberto Pengue (Argentina), Ramón Pichs (Cuba), Florin Popa (Belgium), Radoslav Považan (Slovakia), Martin Quaas (Germany), Tovondriaka Rakotobe (Madagascar), Heli Saarikoski (Finland), Bernardo Strassburg (Brazil), Suneetha M. Subramanian (India), Marjan Van den Belt (New Zealand), Madhu Verma (India), Xin Wang (China), Fern Wickson (Norway), Heidi Wittmer (Germany), Nobuyuki Yagi (Japan)

3. Expert reviewers

Edward B. Barbier (University of Wyoming), Michael Burton (University of Western Australia), Joël Houdet (ACTS, Integrated Sustainability Services, Synergiz), Hans Keune (Belgian Biodiversity Platform & Research Institute for Nature and Forest), Shuang Liu (CSIRO Land and Water Flagship), Simone Maynard (Simone Maynard Consulting), Rosimeiry Portela (Conservation International), Marja Spierenburg (VU University Amsterdam)

4. Resource Persons and Contributing Authors

Susan Preston (Canada), Hans Keune (Belgium), Joël Houdet (South Africa), Pam Berry (United Kingdom), Claudia Ituarte Lima (Mexico), Irene Ring (Germany), Mary George (Malaysia), Emmanuel Munyeneh (Liberia), Paul Ongugo (Kenya), Anime Tezer (Turkey)

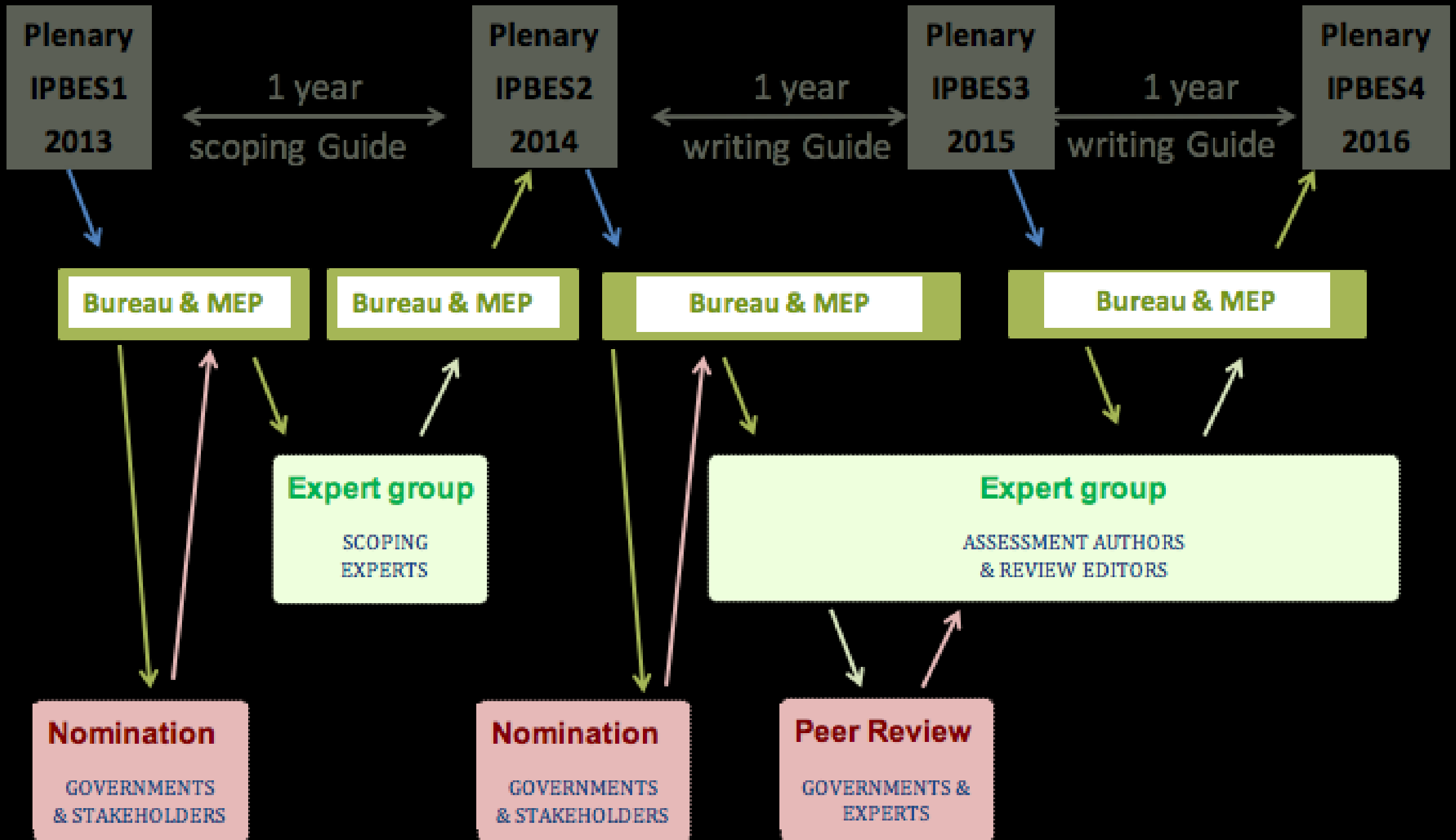
5. Coordination, Technical Support, and Editing

Aaron Vuola (UNEP), Nalini Sharma (UNEP)

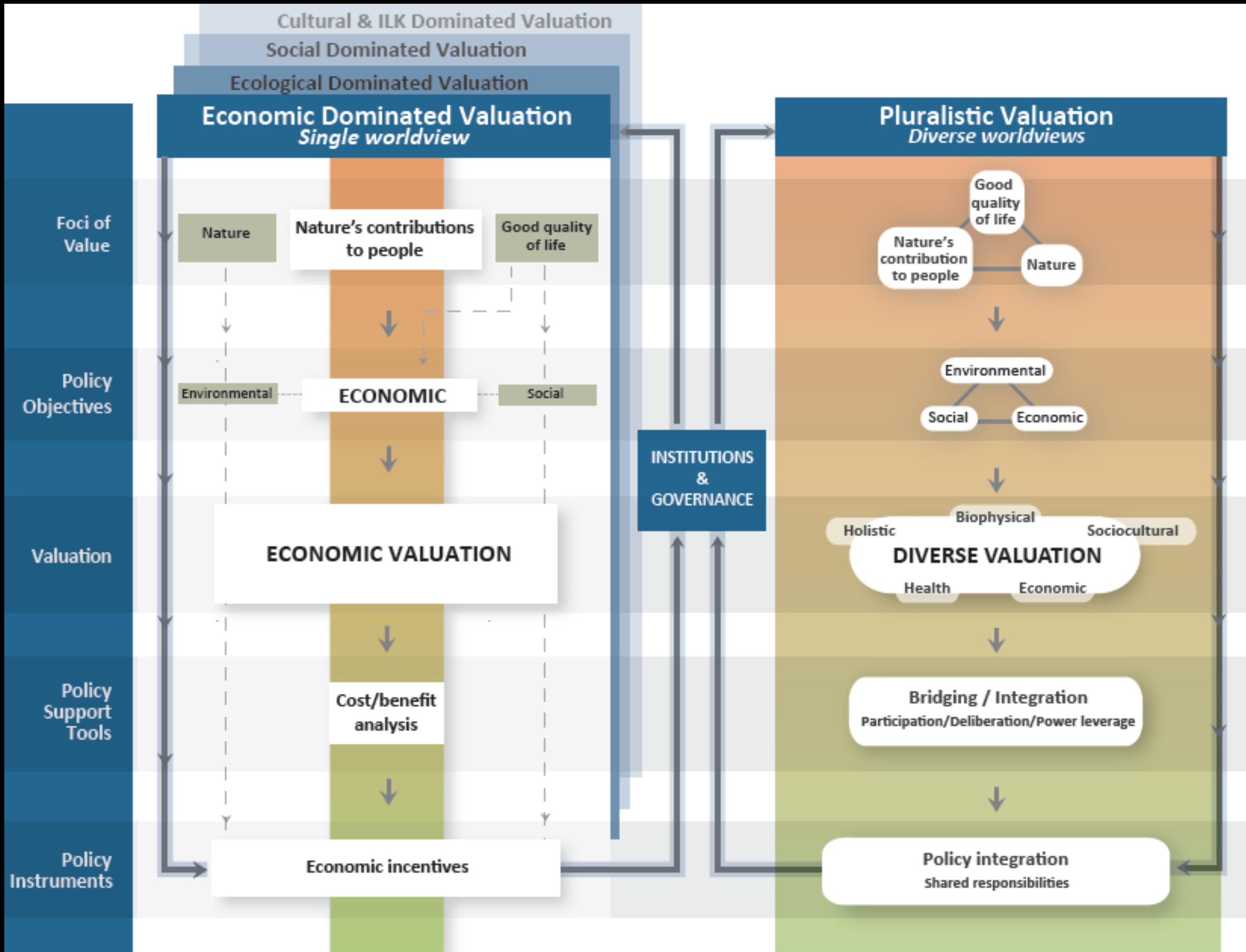
6. Values Technical Support Unit

David Gonzalez (Mexico)

¿Cómo?



¿Qué resultó?



¿Y eso qué?

Evaluación sobre valores múltiples de la naturaleza 2018-2021



Lessons learned

1

2001

2

2006

3

2014

4

2017

EDITORIAL

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Current Contents in
Environmental
Sustainability

Valuing nature's contributions to people: the IPBES approach

Unai Pascual^{1,2,3}, Patricia Balvanera⁴, Sandra Díaz^{5,6}, György Pataki⁷, Eva Roth⁸, Marie Stenseke⁹, Robert T Watson¹⁰, Esra Başak Dessane¹¹, Mine Islar¹², Eszter Kelemen^{13,14}, Virginie Maris¹⁵, Martin Quaas¹⁶, Suneetha M Subramanian¹⁷, Heidi Wittmer¹⁸, Asia Adlan Mohamed¹⁹, SoEun Ahn²⁰, Yousef S Al-Hafedh²¹, Edward Amankwah²², Stanley T Asah²³, Pam Berry²⁴, Adem Bilgin²⁵, Sara J Breslow²⁶, Craig Bullock²⁷, Daniel Cáceres^{28,29}, Hamed Daly-Hassen³⁰, Eugenio Figueroa³¹, Christopher D Golden³², Erik Gómez-Baggethun^{24,33,34}, David González-Jiménez^{4,35}, Joël Houdet³⁶, Hans Keune³⁷, Ritesh Kumar³⁸, Keping Ma³⁹, Peter H May⁴⁰, Aroha Mead⁴¹, Patrick O'Farrell⁴², Ram Pandit⁴³, Walter Pengue⁴⁴, Ramón Pichis-Madruga⁴⁵, Florin Popa⁴⁶, Susan Preston⁴⁷, Diego Pacheco-Balanza⁴⁸, Heli Saarikoski⁴⁹, Bernardo B Strassburg^{50,51,52}, Marjan van den Belt⁵³, Madhu Verma⁵⁴, Fern Wickson⁵⁵ and Nobuyuki Yagi⁵⁶

¿Qué?

- La forma en la que conceptualizamos los vínculos entre la biodiversidad, funciones y servicios del ecosistema ha cambiado

¿Porqué?

- Ruta compleja

¿Con quién?

- Grupos cada vez más diversos
- Colegas comprometidos y entusiastas

¿Cómo?

- Con apertura
- Abierta al cambio
- Aprendiendo
- Con compromiso
- Disfrutando

¿Qué resultó?

- Conceptos y fronteras de la investigación
- Documentos relevantes para la toma de decisiones

¿Y entonces?

- Fortalecimiento de la interfase ciencia-políticas públicas



Gracias

