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2008 : October 2008 - Author Commentaries : The 20 Most-Cited Papers in Environment & Ecology, 1998-2008

## AUTHOR COMMENTARIES - 2008

October 2008



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### The 20 Most-Cited Papers in Environment & Ecology, 1998-2008

Paper Feature

*This month, ScienceWatch.com presents a listing of the top 20 Highly Cited Papers in the field of Environment & Ecology, as of the third bimonthly update of **Essential Science Indicators**<sup>SM</sup> (January 1, 1998-June 30, 2008). These papers are the top 20 out of a pool of 2,358 papers comprising the top 1% ranked by total citation count in this field.*

*The Environment & Ecology field includes journals that cover natural history and interrelated disciplines on:*

- pure and applied ecology
- ecological modeling and engineering
- ecotoxicology
- evolutionary ecology
- environmental contamination and toxicology
- environmental health
- environmental monitoring and management
- environmental technology
- environmental geology
- soil science and conservation
- water resources research and engineering
- climate change
- biodiversity conservation

The top 20 papers reflect the variety of disciplines taken into consideration for classification in this field, such as population genetics, as well as global concerns making headlines, such as climate change.

The most-cited paper in Environment & Ecology over the past decade is "Biodiversity hotspots for conservation priorities" (Myers N, *et al.*, *Nature* 403 [6772]: 853-8, 24 February 2000), with 1,810 total cites. This joint effort between the University of Oxford's Green College and Conservation International helped to identify 25 areas of specific interest for conservation of a variety of endangered species.

Ranking at #2 is "A simple, fast, and accurate algorithm to estimate large phylogenies by maximum likelihood" (Guindon S, Gascuel O, *Syst. Biol.* 52 [5]: 696-704, October 2003), with 1,295 cites. In February of 2005, this paper

was named a Fast-Breaking Paper in its field, and we interviewed authors [Stephane Guindon and Olivier Gascuel](#) about their PHYML phylogenetic tool.

The third paper, "TCS: A computer program to estimate gene genealogies" (Clement M, Posada D, Crandall KA, *Mol. Ecol.* 9[10]: 1657-9, October 2000), deals with phylogeographics. We have had occasion to speak with author [Keith Crandall](#) about his work in the past.

Coming in at #4 with 1,252 cites is "Toxic equivalency factors (TEFs) for PCBs, PCDDs, PCDFs, for humans and wildlife" (van den Berg M, *et al.*, *Environ. Health Perspect.* 106[12]: 775-92, December 1998). Two years ago, we spoke with lead author [Prof. Dr. Martin van den Berg](#) about this paper and its importance to the field.

The focus turns back to population genetics with the paper ranked at #5, with 1,088 citations: "Statistical confidence for likelihood-based paternity inference in natural populations" (Marshall TC, *et al.*, *Mol. Ecol.* 7[5]: 639-55, May 1998). This study also introduces the world to the CERVUS dagger software program for studying natural populations.

Wastewater contaminants are the concern of the paper ranked at #6, with 1,034 cites: "Pharmaceuticals, hormones, and other organic wastewater contaminants in US streams, 1999-2000: A national reconnaissance" (Kolpin DW, *et al.*, *Environ. Sci. Technol.* 36[6]: 1202-11, 15 March 2002). This paper was a Fast-Breaking Paper in its field in February 2003, at which time we spoke with lead author [Dana Kolpin](#) about his US Geological Survey group's study.

The effects of climate change come in at #7, with the paper "Ecological responses to recent climate change" (Walther GR, *et al.*, *Nature* 416[6879]: 389-95, 28 March 2002). In the December 2006 Special Topics analysis on [global warming](#), this paper was #1 among the 20 most-cited papers on the topic over the 1996-2006 period. We spoke with top-ten-ranked scientist [Eric Post](#) about his involvement in the research.

The review article "Biotic invasions: Causes, epidemiology, global consequences, and control" (Mack RN, *et al.*, *Ecol. Appl.* 10[3]: 689-710, June 2000) comes in at #8, with 855 citations.

The ninth article, with 813 citations, is "Historical overfishing and the recent collapse of coastal ecosystems" (Jackson JBC, *et al.*, *Science* 293[5530]: 629-38, 27 July 2001). One of the coauthors of this paper, [Dr. Robert Warner](#), ranked at #6 in our November 2004 Special Topics analysis of [coral reef](#) ecology.

Rounding out the top 10 is the review article, "The genetic legacy of the quaternary ice ages" (Hewitt G, *Nature* 405[6789]: 907-13, 22 June 2000), with 799 cites. This paper discusses the changes in the distributions of living things as a consequence of ice ages.

Coming in at #11 is "A globally coherent fingerprint of climate change impacts across natural systems" (Parmesan C, Yohe G, *Nature* 421[6918]: 37-42, 2 January 2003), with 719 citations. Four years ago, this was a New Hot Paper in the field, and we spoke separately with author [Camille Parmesan](#) and coauthor [Gary Yohe](#) about it.

The paper at #12 with 696 citations, "Predictive habitat distribution models in ecology" ([Guisan A, Zimmermann NE](#), *Ecol. Model.* 135[2-3]: 147-186, 5 December 2000), was a New Hot Paper five years ago.

Other topics covered in the 20 most-cited papers include postglacial colonization routes in Europe (#13), mycorrhizal fungal diversity (#14), global biodiversity predictions (#15), measuring species richness (#20), and DNA-based sexing of birds (#18), as well as estrogenic chemicals (#16), phosphorous and nitrogen (#17), and other pharmaceutical and personal care products in wastewater (#19).



This image of switchgrass is featured in an interview with Arthur Ragauskas from the *ScienceWatch.com* Special Topic of Biofuels.

#### **The top 20 papers in Environment & Ecology are listed in full below:**

1. Citations: 1,810  
Title: BIODIVERSITY HOTSPOTS FOR CONSERVATION PRIORITIES  
Authors: MYERS N; MITTERMEIER RA; MITTERMEIER CG; DA FONSECA GAB; KENT J  
Source: NATURE 403 (6772): 853-858 FEB 24 2000

Addresses: Univ Oxford Green Coll, Upper Meadow, Old Rd, Oxford OX3 8SZ, England.  
Univ Oxford Green Coll, Oxford OX3 8SZ, England.  
Conservat Int, Ctr Appl Biodivers Sci, Washington, DC 20037 USA.

2. Citations: 1,295

Title: A SIMPLE, FAST, AND ACCURATE ALGORITHM TO ESTIMATE LARGE PHYLOGENIES BY MAXIMUM LIKELIHOOD

Authors: GUINDON S; GASCUEL O

Source: SYST BIOL 52 (5): 696-704 OCT 2003

Addresses: CNRS, LIRMM, 161 Rue Ada, F-34392 Montpellier 5, France.

CNRS, LIRMM, F-34392 Montpellier 5, France.

3. Citations: 1,291

Title: TCS: A COMPUTER PROGRAM TO ESTIMATE GENE GENEALOGIES

Authors: CLEMENT M; POSADA D; CRANDALL KA

Source: MOL ECOL 9 (10): 1657-1659 OCT 2000

Addresses: Brigham Young Univ, Dept Zool, 574 Widtsoe Bldg, Provo, UT 84602 USA.

Brigham Young Univ, Dept Zool, Provo, UT 84602 USA.

Brigham Young Univ, Dept Comp Sci, Provo, UT 84602 USA.

4. Citations: 1,252

Title: TOXIC EQUIVALENCY FACTORS (TEFS) FOR PCBS, PCDDS, PCDFS FOR HUMANS AND WILDLIFE

Authors: VAN DEN BERG M; BIRNBAUM L; BOSVELD ATC; BRUNSTROM B; COOK P; FEELEY M; GIESY JP; HANBERG A; HASEGAWA R; KENNEDY SW; KUBIAK T; LARSEN JC; VAN LEEUWEN FXR; LIEM AKD; NOLT C; PETERSON RE; POELLINGER L; SAFE S; SCHRENK D; TILLITT D; TYSKLIND M; YOUNES M; WAERN F; ZACHAREWSKI T

Source: ENVIRON HEALTH PERSPECT 106 (12): 775-792 DEC 1998

Addresses: WHO, European Ctr Environm & Hlth, Bilthoven Div, POB 10, NL-3730 AA De Bilt, Netherlands.

WHO, European Ctr Environm & Hlth, Bilthoven Div, NL-3730 AA De Bilt, Netherlands.

Univ Utrecht, Toxicol Res Inst, NL-3508 TD Utrecht, Netherlands.

US EPA, Expt Toxicol Div, Natl Hlth & Environm Effects Res Lab, Res Triangle Pk, NC 27711 USA.

DLO, Inst Forestry & Nat Res, NL-6700 AA Wageningen, Netherlands.

Uppsala Univ, Dept Environm Toxicol, Uppsala, Sweden.

US EPA, Mid Continent Ecol Div, Duluth, MN 55804 USA.

Hlth Canada, Toxicol Evaluat Sect, Bur Chem Safety, Ottawa, ON K1A 0L2, Canada.

Michigan State Univ, Dept Wildlife & Fisheries, E Lansing, MI 48824 USA.

Karolinska Inst, Inst Environm Med, S-10401 Stockholm, Sweden.

Natl Inst Hlth Sci, Div Toxicol, Tokyo 158, Japan.

Environm Canada, Canadian Wildlife Serv, Natl Wildlife Res Ctr, Hull, PQ, Canada.

US Fish & Wildlife Serv, Div Environm Contaminants, Arlington, VA 22203 USA.

Minist Hlth, Natl Food Agcy Denmark, Inst Toxicol, Soborg, Denmark.

Natl Inst Publ Hlth & Environm Protect, Lab Organ Analyt Chem, NL-3720 BA Bilthoven, Netherlands.

US EPA, Off Sci Policy, Washington, DC 20460 USA.

Univ Wisconsin, Sch Pharm, Madison, WI 53706 USA.

Karolinska Inst, Mol Biol Lab, Dept Cellular & Mol Biol, Stockholm, Sweden.

Texas A&M Univ, College Stn, TX 77843 USA.

Univ Kaiserslautern, Kaiserslautern, Germany.

US Geol Survey, Environm & Contaminants Res Ctr, Biol Resource Div, Columbia, MO 65201 USA.

Umea Univ, Inst Environm Chem, S-90187 Umea, Sweden.

WHO, Programme Promot Chem Safety, CH-1211 Geneva, Switzerland.

Michigan State Univ, Dept Biochem, E Lansing, MI 48824 USA.

5. Citations: 1,088

Title: STATISTICAL CONFIDENCE FOR LIKELIHOOD-BASED PATERNITY INFERENCE IN NATURAL POPULATIONS

Source: MOL ECOL 7 (5): 639-655 MAY 1998

Addresses: Univ Edinburgh, Inst Cell Anim & Populat Biol, Edinburgh EH9 3JT, Midlothian, Scotland.

6. Citations: 1,034

Title: PHARMACEUTICALS, HORMONES, AND OTHER ORGANIC WASTEWATER CONTAMINANTS IN US STREAMS, 1999-2000: A NATIONAL RECONNAISSANCE

Authors: KOLPIN DW; FURLONG ET; MEYER MT; THURMAN EM; ZAUGG SD; BARBER LB; BUXTON HT

Source: ENVIRON SCI TECHNOL 36 (6): 1202-1211 MAR 15 2002

Addresses: US Geol Survey, 400 S Clinton St, Box 1230, Iowa City, IA 52244 USA.

US Geol Survey, Iowa City, IA 52244 USA.

US Geol Survey, Denver, CO 80225 USA.

US Geol Survey, Ocala, FL 34474 USA.

US Geol Survey, Lawrence, KS 66049 USA.

US Geol Survey, Boulder, CO 80303 USA.

US Geol Survey, W Trenton, NJ 08628 USA.

7. Citations: 859

Title: ECOLOGICAL RESPONSES TO RECENT CLIMATE CHANGE

Authors: WALTHER GR; POST E; CONVEY P; MENZEL A; PARMESAN C; BEEBEE TJC; FROMENTIN JM; HOEGH-GULDBERG O; BAIRLEIN F

Source: NATURE 416 (6879): 389-395 MAR 28 2002

Addresses: Univ Hannover, Inst Geobot, Nienburger Str 17, D-30167 Hannover, Germany.

Univ Hannover, Inst Geobot, D-30167 Hannover, Germany.

Penn State Univ, Dept Biol, Mueller Lab 208, University Pk, PA 16802 USA.

British Antarctic Survey, NERC, Cambridge CB3 0ET, England.

Tech Univ Munich, Dept Ecol, D-85354 Freising Weihenstephan, Germany.

Univ Texas, Patterson Labs 141, Austin, TX 78712 USA.

Univ Sussex, Sch Biol Sci, Brighton BN1 9QG, E Sussex, England.

IFREMER, Ctr Halieut Mediterranee & Trop, F-34203 Sete, France.

Univ Queensland, Ctr Marine Studies, St Lucia, Qld 4072, Australia.

Inst Vogelforsch Vogelwarte Helgoland, D-26386 Wilhelmshaven, Germany.

8. Citations: 855

Title: BIOTIC INVASIONS: CAUSES, EPIDEMIOLOGY, GLOBAL CONSEQUENCES, AND CONTROL

Authors: MACK RN; SIMBERLOFF D; LONSDALE WM; EVANS H; CLOUT M; BAZZAZ FA

Source: ECOL APPL 10 (3): 689-710 JUN 2000

Addresses: Washington State Univ, Sch Biol Sci, Pullman, WA 99164 USA.

Univ Tennessee, Dept Ecol & Evolut Biol, Knoxville, TN 37996 USA.

CSIRO Entomol, Canberra, ACT 2601, Australia.

CRC Weed Management Syst, Canberra, ACT 2601, Australia.

UK Ctr Ascot, CABI BIOSCI, Ascot SL5 7TA, Berks, England.

Univ Auckland, Sch Biol Sci, Auckland 1, New Zealand.

Harvard Univ, Biol Labs, Cambridge, MA 02138 USA.

9. Citations: 813

Title: HISTORICAL OVERFISHING AND THE RECENT COLLAPSE OF COASTAL ECOSYSTEMS

Authors: JACKSON JBC; KIRBY MX; BERGER WH; BJORN DAL KA; BOTSFORD LW; BOURQUE BJ; BRADBURY RH; COOKE R; ERLANDSON J; ESTES JA; HUGHES TP; KIDWELL S; LANGE CB; LENIHAN HS; PANDOLFI JM; PETERSON CH; STENECK RS; TEGNER MJ; WARNER RR

Source: SCIENCE 293 (5530): 629-638 JUL 27 2001

Addresses: Univ Calif San Diego, Scripps Inst Oceanog, La Jolla, CA 92093 USA.

Smithsonian Trop Res Inst, Ctr Trop Paleocol & Archeol, Balboa, Panama.

Natl Ctr Ecol Anal & Synth, Santa Barbara, CA 93101 USA.

Univ Florida, Archie Carr Ctr Sea Turtle Res, Gainesville, FL 32611 USA.

Univ Florida, Dept Zool, Gainesville, FL 32611 USA.

Univ Calif Davis, Dept Wildlife Fish & Conservat Biol, Davis, CA 95616 USA.

Bates Coll, Dept Anthropol, Lewiston, ME 04240 USA.

Australian Natl Univ, Ctr Resource & Environm Studies, Canberra, ACT 0200, Australia.

Univ Oregon, Dept Anthropol, Eugene, OR 97403 USA.

Univ Calif Santa Cruz, US Geol Survey, Santa Cruz, CA 95064 USA.

James Cook Univ N Queensland, Dept Marine Biol, Ctr Coral Reef Biodivers, Townsville, Qld 4811, Australia.

Univ Chicago, Dept Geophys Sci, Chicago, IL 60637 USA.  
Univ N Carolina, Inst Marine Sci, Morehead City, NC 28557 USA.  
Smithsonian Inst, Natl Museum Nat Hist, Dept Paleobiol, Washington, DC 20560 USA.  
Univ Maine, Darling Marine Ctr, Sch Marine Sci, Walpole, ME 04573 USA.  
Univ Calif Santa Barbara, Dept Ecol Evolut & Marine Biol, Santa Barbara, CA 93106 USA.

10. Citations: 799

Title: THE GENETIC LEGACY OF THE QUATERNARY ICE AGES

Authors: HEWITT G

Source: NATURE 405 (6789): 907-913 JUN 22 2000

Addresses: Univ E Anglia, Sch Biol Sci, Norwich NR4 7TJ, Norfolk, England.

11. Citations: 719

Title: A GLOBALLY COHERENT FINGERPRINT OF CLIMATE CHANGE IMPACTS ACROSS NATURAL SYSTEMS

Authors: PARMESAN C; YOHE G

Source: NATURE 421 (6918): 37-42 JAN 2 2003

Addresses: Univ Texas, Patterson Labs 141, Austin, TX 78712 USA.

Wesleyan Univ, Publ Affairs Ctr 238, Middletown, CT 06459 USA.

12. Citations: 696

Title: PREDICTIVE HABITAT DISTRIBUTION MODELS IN ECOLOGY

Authors: GUIBAN A; ZIMMERMANN NE

Source: ECOL MODEL 135 (2-3): 147-186 DEC 5 2000

Addresses: Swiss Ctr Faunal Cartog, Terreaux 14, CH-2000 Neuchatel, Switzerland.

Swiss Ctr Faunal Cartog, CH-2000 Neuchatel, Switzerland.

Swiss Fed Res Inst WSL, CH-8903 Birmensdorf, Switzerland.

13. Citations: 671

Title: COMPARATIVE PHYLOGEOGRAPHY AND POSTGLACIAL COLONIZATION ROUTES IN EUROPE

Authors: TABERLET P; FUMAGALLI L; WUST-SAUCY AG; COSSON JF

Source: MOL ECOL 7 (4): 453-464 APR 1998

Addresses: Univ Grenoble 1, Lab Biol Populat Altitude, CNRS UMR 5553, BP 53, F-38041 Grenoble 9, France.

Univ Grenoble 1, Lab Biol Populat Altitude, CNRS UMR 5553, F-38041 Grenoble 9, France.

Univ Queensland, Dept Zool, Brisbane, Qld 4072, Australia.

Univ Lausanne, Inst Zool & Ecol Anim, CH-1015 Lausanne, Switzerland.

Univ Montpellier 2, Lab Genome & Populat, CNRS UPR 9060, F-34095 Montpellier 5, France.

14. Citations: 641

Title: MYCORRHIZAL FUNGAL DIVERSITY DETERMINES PLANT BIODIVERSITY, ECOSYSTEM VARIABILITY AND PRODUCTIVITY

Authors: VAN DER HEIJDEN MGA; KLIRONOMOS JN; URSIC M; MOUTOGLIS P; STREITWOLF-ENGEL R; BOLLER T; WIEMKEN A; SANDERS IR

Source: NATURE 396 (6706): 69-72 NOV 5 1998

Addresses: Univ Basel, Inst Bot, Hebelstr 1, CH-4056 Basel, Switzerland.

Univ Basel, Inst Bot, CH-4056 Basel, Switzerland.

Univ Guelph, Dept Bot, Guelph, ON N1G 2W1, Canada.

Premier Tech Riviere du Loup, Quebec City, PQ G5R 4C9, Canada.

15. Citations: 636

Title: BIODIVERSITY - GLOBAL BIODIVERSITY SCENARIOS FOR THE YEAR 2100

Authors: SALA OE; CHAPIN FS; ARMESTO JJ; BERLOW E; BLOOMFIELD J; DIRZO R; HUBER-SANWALD E; HUENNEKE LF; JACKSON RB; KINZIG A; LEEMANS R; LODGE DM; MOONEY HA; OESTERHELD M; POFF NL; SYKES MT; WALKER BH; WALKER M; WALL DH

Source: SCIENCE 287 (5459): 1770-1774 MAR 10 2000

Addresses: Univ Buenos Aires, Dept Ecol, Ave San Martin 4453, RA-1417 Buenos Aires, DF, Argentina.

Univ Buenos Aires, Dept Ecol, RA-1417 Buenos Aires, DF, Argentina.

Univ Buenos Aires, Inst Invest Fisiol & Ecol Vinculadas Agr, Fac Agron, RA-1417 Buenos Aires, DF,

Argentina.

Univ Alaska, Inst Arctic Biol, Fairbanks, AK 99775 USA.

Univ Alaska, Inst No Forest Cooperat Res, Fairbanks, AK 99775 USA.

Univ Chile, Fac Ciencias, Santiago, Chile.

Univ Calif Berkeley, Dept Integrat Biol, Berkeley, CA 94720 USA.

Environm Def Fund, New York, NY 10010 USA.

Univ Nacl Autonoma Mexico, Inst Ecol, Mexico City 04510, DF, Mexico.

Tech Univ Munich, Lehrstuhl Grunlandlehre, D-85350 Munich, Germany.

New Mexico State Univ, Dept Biol, Las Cruces, NM 88003 USA.

Duke Univ, Dept Bot, Durham, NC 27708 USA.

Arizona State Univ, Dept Biol, Tempe, AZ 85287 USA.

Natl Inst Publ Hlth & Environm, NL-3720 BA Bilthoven, Netherlands.

Univ Notre Dame, Dept Biol, Notre Dame, IN 46556 USA.

Stanford Univ, Dept Biol Sci, Stanford, CA 94305 USA.

Colorado State Univ, Dept Biol, Ft Collins, CO 80523 USA.

Colorado State Univ, Nat Resource Ecol Lab, Ft Collins, CO 80523 USA.

Univ Lund, Ekologihuset, S-22362 Lund, Sweden.

Commonwealth Sci & Ind Res Org, Div Wildlife & Ecol, Canberra, ACT, Australia.

16. Citations: 635

Title: IDENTIFICATION OF ESTROGENIC CHEMICALS IN STW EFFLUENT. 1. CHEMICAL FRACTIONATION AND IN VITRO BIOLOGICAL SCREENING

Authors: DESBROW C; ROUTLEDGE EJ; BRIGHTY GC; SUMPTER JP; WALDOCK M

Source: ENVIRON SCI TECHNOL 32 (11): 1549-1558 JUN 1 1998

Addresses: Brunel Univ, Dept Biol & Biochem, Uxbridge UB8 3PH, Middx, England.

Ctr Environm Fisheries & Aquaculture Sci, Burnham Lab, Burnham On Crouch CM0 8HA, Essex, England.

Natl Ctr Ecotoxicol & Hazardous Subst, Environm Agcy, Wallingford OX10 8BD, Oxon, England.

17. Citations: 620

Title: NONPOINT POLLUTION OF SURFACE WATERS WITH PHOSPHORUS AND NITROGEN

Authors: CARPENTER SR; CARACO NF; CORRELL DL; HOWARTH RW; SHARPLEY AN; SMITH VH

Source: ECOL APPL 8 (3): 559-568 AUG 1998

Addresses: Univ Wisconsin, Ctr Limnol, 680 N Pk St, Madison, WI 53706 USA.

Univ Wisconsin, Ctr Limnol, Madison, WI 53706 USA.

Inst Ecosyst Studies, Millbrook, NY 12545 USA.

Smithsonian Environm Res Ctr, Edgewater, MD 21037 USA.

Cornell Univ, Ecol & Systemat Sect, Ithaca, NY 14853 USA.

ARS, USDA, Pasture Syst & Watershed Management Res Lab, University Pk, PA 16802 USA.

Univ Kansas, Dept Systemat & Ecol, Lawrence, KS 66045 USA.

18. Citations: 618

Title: A DNA TEST TO SEX MOST BIRDS

Authors: GRIFFITHS R; DOUBLE MC; ORR K; DAWSON RJG

Source: MOL ECOL 7 (8): 1071-1075 AUG 1998

Addresses: Univ Glasgow, Mol Lab, DEEB, Graham Kerr Bldg, Glasgow G12 8QQ, Lanark, Scotland.

Univ Glasgow, Mol Lab, DEEB, Glasgow G12 8QQ, Lanark, Scotland.

Australian Natl Univ, Div Bot & Zool, Canberra, ACT 0200, Australia.

19. Citations: 613

Title: PHARMACEUTICALS AND PERSONAL CARE PRODUCTS IN THE ENVIRONMENT: AGENTS OF SUBTLE CHANGE?

Authors: DAUGHTON CG; TERNES TA

Source: ENVIRON HEALTH PERSPECT 107: 907-938 Suppl. 6 DEC 1999

Addresses: US EPA, Environm Chem Branch, Div Environm Sci, ORD NERL, 944 E Harmon Ave, Las Vegas, NV 89119 USA.

US EPA, Environm Chem Branch, Div Environm Sci, ORD NERL, Las Vegas, NV 89119 USA.

ESWE Inst Water Res & Water Technol, Wiesbaden, Germany.

20. Citations: 607

Title: QUANTIFYING BIODIVERSITY: PROCEDURES AND PITFALLS IN THE MEASUREMENT AND COMPARISON OF SPECIES RICHNESS

Authors: GOTELLI NJ; COLWELL RK

Source: ECOL LETT 4 (4): 379-391 JUL 2001

Addresses: Univ Vermont, Dept Biol, Burlington, VT 05405 USA.


Univ Connecticut, Dept Ecol & Evolutionary Biol, Storrs, CT 06269 USA.

Full citation details of all of these papers can be seen in *Essential Science Indicators*.

Keywords: pure and applied ecology, ecological modeling and engineering, ecotoxicology, evolutionary ecology, environmental contamination and toxicology, environmental health, environmental monitoring and management, environmental technology, environmental geology, soil science and conservation, water resources research and engineering, climate change, biodiversity conservation.



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