



## Research output

### **Research priorities for managing the impacts and dependencies of business upon food, energy, water and the environment**

Green, J. M. H., Cranston, G. R., Sutherland, W. J., Tranter, H. R., Bell, S. J., Benton, T. G., Blixt, E., Bowe, C., Broadley, S., Brown, A., Brown, C., Neil, B., Butler, D., Collins, H., Crowley, H., DeKoszmovszky, J., Firkbank, L. G., Fulford, B., Gardner, T. A. & Hails, R. S. & 20 others, Halvorson, S., Jack, M., Kerrison, B., Koh, L. S. C., Lang, S. C., McKenzie, E. J., Monsivais, P., O'Riordan, T., Osborn, J., Oswald, S., Price Thomas, E., Raffaelli, D. G., Reyers, B., Srai, J. S., Strassburg, B. B. N., Webster, D., Welters, R., Whiteman, G., Wilsdon, J. & Vira, B., 7 Oct 2016, (E-pub ahead of print) In: Sustainability Science. p. 1-13 13 p.

### **The textural discontinuity hypothesis: An exploration at a regional level. Shortened version: Exploring Holling's TDH**

Raffaelli, D. G., Hardiman, A., Smart, J., Yamanaka, T. & White, P. C. L., 3 Sept 2015, (E-pub ahead of print) In: Oikos. 125, 6, p. 797-803

### **Stakeholder perceptions of the effectiveness and efficiency of agri-environment schemes in enhancing pollinators on farmland**

Austin, Z., Penic, M., Raffaelli, D. G. & White, P. C. L., Sept 2015, In: Land Use Policy. 47, p. 156-162 7 p.

### **Evaluating the outcomes of payments for ecosystem services programmes using a capital asset framework**

Hejnowicz, A. P., Raffaelli, D. G., Rudd, M. A. & White, P. C. L., 1 Sept 2014, In: Ecosystem Services. 9, p. 83-97 15 p.

### **Big Data and Ecosystem Research Programmes**

Raffaelli, D. G., Bullock, J. M., Cinderby, S., Durance, I., Emmett, B., Harris, J., Hicks, K., Oliver, T. H., Paterson, D. & White, P. C. L., 2014, In: Advances in Ecological Research. 51, p. 41-77 37 p.

### **Non-Linear Interactions Determine the Impact of Sea-Level Rise on Estuarine Benthic Biodiversity and Ecosystem Processes**

Yamanaka, T., Raffaelli, D. & White, P. C. L., 8 Jul 2013, In: PLoS ONE. 8, 7, e68160.

### **Interactions between ecological and social drivers in determining and managing biodiversity impacts of deer**

Austin, Z., Raffaelli, D. G. & White, P. C. L., 1 Feb 2013, In: Biological Conservation. 158, p. 214-222 9 p.

### **Measuring the impacts on global biodiversity of goods and services imported into the UK: Methodology report**

Croft, S., West, C. D., Dawkins, E., Brugere, C., Sheate, W. & Raffaelli, D. G., Feb 2013, Defra. 21 p.

### **Biological and operational determinants of the effectiveness and efficiency of biodiversity conservation programs**

Laycock, H. F., Raffaelli, D. G., White, P. C. L. & Moran, D., 1 Jan 2013, In: Wildlife research. 40, 2, p. 142-152

### **Ecosystems and their services in a changing world: an ecological perspective**

Raffaelli, D. G. & White, P. C. L., 2013, (Accepted/In press) In: Advances in Ecological Research. 48, p. 1-70 70 p.

### **Measuring the impacts on global biodiversity of goods and services imported into the UK**

West, C. D., Dawkins, E., Croft, S., Raffaelli, D. G., Brugere, C. & Sheate, W., 2013, Defra. 54 p.

**Plant diversity and generation of ecosystem services at the landscape scale: expert knowledge assessment**

Quijas, S., Jackson, L., Maass, M., Schmid, B., Raffaelli, D. G. & Balvanera, P., Aug 2012, In: Journal of Applied Ecology. 49, 4, p. 929-940 12 p.

**Uptake and depuration of pharmaceuticals in aquatic invertebrates**

Meredith-Williams, M., Carter, L. J., Fussell, R., Raffaelli, D., Ashauer, R. & Boxall, A. B. A., Jun 2012, In: Environmental Pollution. 165, p. 250-258 9 p.

**Evaluating the effectiveness and efficiency of biodiversity conservation spending**

Laycock, H. F., Moran, D., Smart, J. C. R., Raffaelli, D. G. & White, P. C. L., 15 Aug 2011, In: Ecological Economics. 70, 10, p. 1789-1796 8 p.

**Long-term changes in the production by estuarine macrobenthos affected by multiple stressors**

Dolbeth, M., Cardoso, P. G., Grilo, T. F., Bordalo, M. D., Raffaelli, D. & Pardal, M. A., 20 Mar 2011, In: Estuarine coastal and shelf science. 92, 1, p. 10-18 9 p.

**Impact of biodiversity-climate futures on primary production and metabolism in a model benthic estuarine system**

Hicks, N., Paterson, D. M., Bulling, M. T., Solan, M., Raffaelli, D. & White, P. C. L., 14 Feb 2011, In: BMC Ecology. 11

**Climate change, biotic interactions and ecosystem services**

Montoya, J. M. & Raffaelli, D., 12 Jul 2010, In: Philosophical Transactions Of The Royal Society Of London Series B - Biological Sciences. 365, 1549, p. 2013-2018 6 p.

**Marine biodiversity-ecosystem functions under uncertain environmental futures**

Bulling, M. T., Hicks, N., Murray, L., Raffaelli, D., White, P. C. L. & Solan, M., 12 Jul 2010, In: Philosophical Transactions Of The Royal Society Of London Series B - Biological Sciences. 365, 1549, p. 2107-2116 10 p.

**The effects of climate change on biotic interactions and ecosystem services**

Montoya, J. M. & Raffaelli, D., 12 Jul 2010, In: Philosophical Transactions Of The Royal Society Of London Series B - Biological Sciences. 365, 1549, p. 2011-2011 1 p.

**Assessment of temporal trends in ecosystem health using an holistic indicator**

Wiegand, J., Raffaelli, D., Smart, J. C. R. & White, P. C. L., Jul 2010, In: Journal of Environmental Management. 91, 7, p. 1446-1455 10 p.

**Physical determinants of intertidal communities on dissipative beaches: Implications of sea-level rise**

Yamanaka, T., Raffaelli, D. & White, P. C. L., 20 Jun 2010, In: Estuarine coastal and shelf science. 88, 2, p. 267-278 12 p.

**Implications of nutrient decline in the seagrass ecosystem success**

Cardoso, P. G., Leston, S., Grilo, T. F., Bordalo, M. D., Crespo, D., Raffaelli, D. & Pardal, M. A., Apr 2010, In: Marine pollution bulletin. 60, 4, p. 601-608 8 p.

**Food webs are more than the sum of their tritrophic parts**

Cohen, J. E., Schittler, D. N., Raffaelli, D. G. & Reuman, D. C., 29 Dec 2009, In: Proceedings of the National Academy of Sciences of the United States of America. 106, 52, p. 22335-22340 6 p.

**Enhancing the effectiveness of policy-relevant integrative research in rural areas**

White, P. C. L., Cinderby, S., Raffaelli, D., de Bruin, A., Holt, A. & Huby, M., Dec 2009, In: Area. 41, 4, p. 414-424 11 p.

**Evaluating the cost-effectiveness of conservation: The UK Biodiversity Action Plan**

Laycock, H., Moran, D., Smart, J., Raffaelli, D. & White, P., Dec 2009, In: Biological Conservation. 142, 12, p. 3120-3127 8 p.

**An ecological-economic model for catchment management: The case of Tonameca, Oaxaca, Mexico**  
Avila-Foucat, V. S., Perrings, C. & Raffaelli, D., 15 Jun 2009, In: Ecological Economics. 68, 8-9, p. 2224-2231 8 p.

**Trophodynamics in a Shallow Lagoon off Northwestern Europe (Culbin Sands, Moray Firth): Spatial and Temporal Variability of Epibenthic Communities, Their Diets, and Consumption Efficiency**  
Mendonca, V. M., Raffaelli, D. G., Boyle, P. R. & Emes, C., Mar 2009, In: Zoological studies. 48, 2, p. 196-214 19 p.

**Mapping wildlife: integrating stakeholder knowledge with modelled patterns of deer abundance by using participatory GIS**  
Austin, Z., Cinderby, S., Smart, J. C. R., Raffaelli, D. & White, P. C. L., 1 Jan 2009, In: Wildlife research. 36, 7, p. 553-564 12 p.

**Allometry of Body Size and Abundance in 166 Food Webs**  
Reuman, D. C., Mulder, C., Banasek-Richter, C., Blandenier, M.-F. C., Breure, A. M., Den Hollander, H., Kneitel, J. M., Raffaelli, D., Woodward, G. & Cohen, J. E., 2009, *ADVANCES IN ECOLOGICAL RESEARCH, VOL 41*. SAN DIEGO: Elsevier, p. 144 44 p.

**Species effects on ecosystem processes are modified by faunal responses to habitat composition**  
Bulling, M. T., Solan, M., Dyson, K. E., Hernandez-Milian, G., Luque, P., Pierce, G. J., Raffaelli, D., Paterson, D. M. & White, P. C. L., Dec 2008, In: Oecologia. 158, 3, p. 511-520 10 p.

**Sea-level rise, expected environmental changes, and responses of intertidal benthic macrofauna in the Humber estuary, UK**  
Fujii, T. & Raffaelli, D., 19 Nov 2008, In: Marine Ecology Progress Series. 371, p. 23-35 13 p.

**Three allometric relations of population density to body mass: theoretical integration and empirical tests in 149 food webs**  
Reuman, D. C., Mulder, C., Raffaelli, D. & Cohen, J. E., Nov 2008, In: Ecology Letters. 11, 11, p. 1216-1228 13 p.

**Conversations in conservation: revealing and dealing with language differences in environmental conflicts**  
Webb, T. J. & Raffaelli, D., Aug 2008, In: Journal of Applied Ecology. 45, 4, p. 1198-1204 7 p.

**Spatial and temporal characteristics of benthic invertebrate communities at Culbin Sands lagoon, Moray Firth, NE Scotland, and impacts of the disturbance of cockle harvesting**  
Mariyam Mendonca, V., Raffaelli, D. G., Boyle, P. & Hoskins, S., Jun 2008, In: Scientia marina. 72, 2, p. 265-278 14 p.

**The functional role of wild mammals in agricultural ecosystems**  
Gorman, M. L. & Raffaelli, D., Apr 2008, In: Mammal Review. 38, 2-3, p. 220-230 11 p.

**The impact of extreme weather events on the seagrass *Zostera noltii* and related *Hydrobia ulvae* population**  
Cardoso, P. G., Raffaelli, D. & Pardal, M. A., Mar 2008, In: Marine pollution bulletin. 56, 3, p. 483-492 10 p.

**The impact of extreme flooding events and anthropogenic stressors on the macrobenthic communities' dynamics**  
Cardoso, P. G., Raffaelli, D., Lillebo, A. I., Verdelhos, T. & Pardal, M. A., 10 Feb 2008, In: Estuarine coastal and shelf science. 76, 3, p. 553-565 13 p.

**The ecological role of overwintering fish in the food web of the Culbin Sands lagoon ecosystem, NE Scotland: Identifying major trophic links and testing effects of the fish *Pomatoschistus microps* (Pallas) on benthic invertebrates**  
Mendonca, V. M., Raffaelli, D., Boyle, P. & Emes, C., Dec 2007, In: Scientia marina. 71, 4, p. 649-660 12 p.

**Influence of macrofaunal assemblages and environmental heterogeneity on microphytobenthic production in experimental systems**  
Dyson, K. E., Bulling, M. T., Solan, M., Hernandez-Milian, G., Raffaelli, D. G., White, P. C. L. & Paterson, D. M., 22 Oct 2007, In: PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES. 274, 1625, p. 2547-2554 8 p.

**Interactions between shorebirds and benthic invertebrates at Culbin Sands lagoon, NE Scotland: Effects of avian predation on their prey community density and structure**

Mendonca, V. M., Raffaelli, D. G. & Boyle, P. R., Sept 2007, In: *Scientia marina*. 71, 3, p. 579-591 13 p.

**Anthropogenic and natural disturbance effects on a macrobenthic estuarine community over a 10-year period**

Dolbeth, M., Cardoso, P. G., Ferreira, S. M., Verdelhos, T., Raffaelli, D. & Pardal, M. A., May 2007, In: *Marine pollution bulletin*. 54, 5, p. 576-585 10 p.

**Polychaete assemblages as indicators of habitat recovery in a temperate estuary under eutrophication**

Cardoso, P. G., Bankovic, M., Raffaelli, D. & Pardal, M. A., Jan 2007, In: *Estuarine coastal and shelf science*. 71, 1-2, p. 301-308 8 p.

**Seagrass beds and intertidal invertebrates: an experimental test of the role of habitat structure**

Cardoso, P. G., Raffaelli, D. & Pardal, M. A., Jan 2007, In: *HYDROBIOLOGIA*. 575, p. 221-230 10 p.

**Quantifying the evidence for biodiversity effects on ecosystem functioning and services**

Balvanera, P., Pfisterer, A. B., Buchmann, N., He, J.-S., Nakashizuka, T., Raffaelli, D. & Schmid, B., Oct 2006, In: *Ecology Letters*. 9, 10, p. 1146-1156 11 p.

**Biodiversity and ecosystem functioning: issues of scale and trophic complexity**

Raffaelli, D. G., 2006, In: *Marine Ecology Progress Series*. 311, p. 285-294 10 p.

**Using model systems to address the biodiversity-ecosystem functioning process**

Bulling, M. T., White, P. C. L., Raffaelli, D. G. & Pierce, G. J., 2006, In: *Marine Ecology Progress Series*. 311, p. 295-309 15 p.

**Reinventing the wheel in ecology research? Response**

Raffaelli, D., Cardinale, B. J., Downing, A. L., Engelhardt, K. A. M., Ruesink, J. L., Solan, M. & Srivastava, D. S., 25 Mar 2005, In: *Science*. 307, 5717, p. 1875-1876 2 p.

**Do marine and terrestrial ecologists do it differently?**

Raffaelli, D., Solan, M. & Webb, T. J., 2005, In: *Marine Ecology Progress Series*. 304, p. 283-289 7 p.

**How extinction patterns affect ecosystems**

Raffaelli, D., 12 Nov 2004, In: *Science*. 306, 5699, p. 1141-1142 2 p.

**Dynamic changes in seagrass assemblages under eutrophication and implications for recovery**

Cardoso, P. G., Pardal, M. A., Lillebo, A. I., Ferreira, S. M., Raffaelli, D. & Marques, J. C., 12 May 2004, In: *Journal of Experimental Marine Biology and Ecology*. 302, 2, p. 233-248 16 p.

**Predator-prey body size, interaction strength and the stability of a real food web**

Emmerson, M. C. & Raffaelli, D., May 2004, In: *Journal of Animal Ecology*. 73, 3, p. 399-409 11 p.

**Assessing environmental quality: a novel approach**

Pardal, M. A., Cardoso, P. G., Sousa, J. P., Marques, J. C. & Raffaelli, D., 2004, In: *Marine Ecology Progress Series*. 267, p. 18 8 p.

**Biodiversity and ecosystem processes in shallow coastal waters: an experimental approach**

Raffaelli, D., Emmerson, M., Solan, M., Biles, C. & Paterson, D., Mar 2003, In: *Journal of sea research*. 49, 2, p. 133-141 9 p.

**Flow modifies the effect of biodiversity on ecosystem functioning: an in situ study of estuarine sediments**

Biles, C. L., Solan, M., Isaksson, I., Paterson, D. M., Emes, C. & Raffaelli, D. G., 12 Feb 2003, In: *Journal of Experimental Marine Biology and Ecology*. 285, p. 165-177 13 p.

**Special issue - Benthic dynamics: In situ surveillance of the sediment-water interface - Introduction**

Solan, M., Germano, J. D., Raffaelli, D. G. & Warwick, R. M., 12 Feb 2003, In: Journal of Experimental Marine Biology and Ecology. 285, p. 13-31 13 p.

**The ups and downs of benthic ecology: considerations of scale, heterogeneity and surveillance for benthic-pelagic coupling**

Raffaelli, D., Bell, E., Weithoff, G., Matsumoto, A., Cruz-Motta, J. J., Kershaw, P., Parker, R., Parry, D. & Jones, M., 12 Feb 2003, In: Journal of Experimental Marine Biology and Ecology. 285, p. 191-203 13 p.

**Why do shallow-water predators migrate? Strategic models and empirical evidence from an estuarine mysid**

Speirs, D., Lawrie, S., Raffaelli, D., Gurney, W. & Emes, C., 20 Nov 2002, In: Journal of Experimental Marine Biology and Ecology. 280, 1-2, p. 13-31 19 p.

**Ecology - From Elton to mathematics and back again**

Raffaelli, D., 10 May 2002, In: Science. 296, 5570, p. 1035-+ 2 p.

**Ecology - Biodiversity and ecosystem functioning: Current knowledge and future challenges**

Loreau, M., Naeem, S., Inchausti, P., Bengtsson, J., Grime, J. P., Hector, A., Hooper, D. U., Huston, M. A., Raffaelli, D., Schmid, B., Tilman, D. & Wardle, D. A., 26 Oct 2001, In: Science. 294, 5543, p. 804-808 5 p.

**Biodiversity and ecosystem functioning: current knowledge and future challenges**

Loreau, M., Naeem, S., Inchausti, P., Bengtsson, J., Hector, A., Hooper, D. U., Huston, M. A., Raffaelli, D., Tilman, D., Wardle, D. A., Grime, J. P. & Schmid, B., Oct 2001, In: Science. 294, 5543, p. 804-808 4 p.

**Consistent patterns and the idiosyncratic effects of biodiversity in marine ecosystems**

Solan, M., Emes, C., Paterson, D. M., Raffaelli, D. & Emmerson, M. C., May 2001, In: Nature. 411, 6833, p. 73-77 4 p.

**Small-scale patterns in the distribution of the amphipod *Corophium volutator* on the Ythan estuary, Aberdeenshire, Scotland**

Lawrie, S. M., Raffaelli, D. G. & Emes, C. H., 15 Nov 2000, In: Sarsia. 85, 4, p. 321-327 7 p.

## Projects

**BESS directorate grant extension**

WHITE, P. C. L. (Principal investigator) & RAFFAELLI, D. G. (Co-investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/02/15 → 30/04/18

**DIVERSITAS International Project Office**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
19/05/03 → 18/05/08

**ECOLIVA, MC IEF Cecile Brugere: Sustainable ecosystem services and livelihoods through aquaculture development**

RAFFAELLI, D. G. (Principal investigator)  
EUROPEAN COMMISSION  
1/01/10 → 31/12/11

**Ecosystems Interaction**

White, P. C. L. (Principal investigator), RAFFAELLI, D. G. (Co-investigator), TIMMIS, J. (Co-investigator), TOPI, C. (Co-investigator) & BELL, S. J. (Co-investigator)  
10/01/12 → 9/07/14

**ESRC/Natural England Placement**

RAFFAELLI, D. G. (Principal investigator)  
ECONOMIC AND SOCIAL RESEARCH COUNCIL (ESRC)  
1/10/08 → 30/09/09

**Interdisciplinary Network for Valuing Biodiversity, Ecosystem Services and Natural Resource Use**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/02/11 → 31/10/15

**Marine biodiversity - ecosystem processes under**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/04/07 → 31/03/10

**Measuring the impacts on global biodiversity of goods and services imported into the UK**

RAFFAELLI, D. G. (Principal investigator), CHADWICK, M. T. (Co-investigator), DAWKINS, E. (Co-investigator) & WEST, C. (Co-investigator)  
30/09/11 → 31/03/13

**RELU: International Context**

Raffaelli, D. G. (Principal investigator)  
ECONOMIC AND SOCIAL RESEARCH COUNCIL (ESRC)  
15/11/04 → 14/04/05

**UKPopNet**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/04/04 → 30/09/08

**UKPopNet Extension**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/04/07 → 30/09/10

**Whole Decision Network Analysis for Coastal Ecosystems**

RAFFAELLI, D. G. (Principal investigator)  
NATURAL ENVIRONMENT RESEARCH COUNCIL  
1/10/10 → 12/11/12