

# Index

- active knowledge exchange mechanisms, 134
  - case studies
    - EKLIPSE mechanism, 135
    - management of the Wadden Sea, 135
    - UK Parliamentary Office for Science and Technology and EU Scientific Advice Mechanism, 136
  - costs, 138
  - Advocacy Coalition Framework, 235
  - afforestation, 198–199
  - African Biodiversity Network, 85
  - alternative livelihood projects, 64, 74–75, 78
    - sharkfishers in Tanjung Luar, 76–78
    - Vijana na Mazingira, 71–74
  - Anderson, Gillian, 279
  - Antarctic Science Scan and Roadmap Challenges Exercise, The, 30, 35–36
  - Australasian Joint Agencies Scanning Network, 41
  - Australian Centre of Excellence for Risk Analysis (ACERA), 223, 226
  - Australian Cooperative Research Centres Association programme, 222
  - Australian Environmental Offsets Policy, 165–167
  - Australian Research Council (ARC) linkage funding scheme, 222
- Bat Synopsis, 55–57
- bats, impact of roads on, 48, 50–51
  - evidence synthesis, 55–56
  - road underpasses, 54–57
  - mitigation using bat gantries, 51–54
  - promoting the evidence, 57–58
- BBC Radio 4 charity appeal, 284–285
- bear bile trade, 289
- behavioural change, 72–73, 293, 327, *See also* social marketing
  - asking questions, 64–67
  - campaigning for, 280–282, 286
  - design of economic incentives, 302–304
  - effects of choice architecture, nudging, and effort, 301–302
  - importance of behaviour, over values, attitudes, and beliefs, 296–297
  - importance of context, 295
  - importance of non-conscious processes, 295–296
  - influence of regulation, 294
  - information provision, 294
  - recognition of inner motives, 298–299
  - social marketing and attitudinal campaigns, 294
  - Theory of Change, 64
  - understanding the effect of peer influence, 299–301
  - use of economic levers, 294
- benchmarking, 190–193
- Bengal florican (*Houbaropsis bengalensis*), 65–67
- Big Life Foundation, 289
- biodiversity
  - assessing impacts on, 202–203
  - international policy. *See* Convention on Biological Diversity (CBD); Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES)
- biofuel policy, 5
- biosecurity
  - risk analysis, 223–227
  - use of horizon scanning for intelligence gathering, 38
- Birdlife International, 152
- black rhino, 287
- black-necked grebe (*Podiceps nigricollis*), 185
- Blue Carbon Projects, 171
- Blue Planet II* (BBC), 278
- Bonaire parrot (Save the Lora) campaign, 312–314, 318
- Bonham-Carter, Helena, 279
- boomerang effects, 289
- Borana Conservancy, 284
- Born Free Foundation, 287
- British Ecological Society (BES), 4
- campaigning, 7, 277, 294, 327, *See also* social marketing
  - appropriateness of, 277–279
  - awareness-raising, 281
  - future directions, 290
  - planning, 279–280

- campaigning (cont.)  
 potential pitfalls  
 bias, 287–288  
 conflicting views, 288  
 inappropriate use of emotion, 288–289  
 lack of a strong evidence base, 285–286  
 over-stated claims of success, 286  
 risk of unintended consequences, 289–290  
 those involved in, 279  
 to bring about policy change, 282–283  
 to change behaviour, 280–282, 286  
 to raise funds, 283–285
- Cartagena Protocol on Biosafety, 257
- Cecil the Lion case, 287
- Centre of Excellence for Biosecurity Risk Analysis (CEBRA), 7, 223–227
- Centres of Excellence, 222
- Chesapeake Bay, 285
- Chi campaign (TRAFFIC), 282, 315–316
- choice architecture, 301–302
- Christie, Julie, 279
- Cochrane Collaboration, 55, 115, 120
- Cochrane, Archie, 49
- co-existence with large carnivores protect (Costa Rica), 167–168
- Collaboration for Environmental Evidence, 115, 121, 123, 130, 159
- collaborative conservation  
 approaches, 84
- Common Agricultural Policy (CAP), 200  
 evidence use failure, 6
- common pochard (*Aythya ferina*), 185
- common scoter (*Melanitta nigra*), 185
- communication  
 between scientists and citizens, 273–274  
 mediated environmental and, 266–269  
 of environmental sciences, 269–271  
 strategies to improve, 271–273  
 transmission model of, 270
- Community-Based Monitoring and Information Systems, 89
- conflict management, 230–231  
 approaches to, 231–234  
 issues of trust, bias and power, 236–237  
 limitations and challenges to, 234–236  
 worldviews on the state of nature and, 237–238
- Conservation Evidence, 55, 130–131
- Conservation International, 316
- Convention on Biological Diversity (CBD), 17, 85, 241, 244–247, 251  
 13th Conference to the Parties (COP), 255  
 achievements, 257
- Aichi Biodiversity Targets, 246–247, 257  
 incorporation of biodiversity into  
 national accounting (2), 137  
 traditional knowledge (18), 89  
 links with UN Sustainable Development Goals, 253–254  
 role of science and evidence, 254
- Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), 254
- Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES), 278
- Cool Farm Tool, 133
- coot (*Fulica atra*), 185
- co-production model, 20, 22–23
- corporate social responsibility investments, 203
- cost-benefit analysis, 294
- cownose rays (*Rhinoptera bonasus*), 285
- Critically Endangered (CE) species, 188
- Customer Contractor Principle, 222
- Data Deficient (DD) species, 188–189
- DDT, 3
- decision-making, 327  
 day-to-day, 148, 152–153  
 effective engagement with scientists, 162–164  
 acknowledgement of multiple knowledge(s), perspectives and worldviews, 173  
 acknowledgement of power disparities, 173–174  
 developing a code of conduct for marine conservation, 169–171  
 development of the Australian Environmental Offsets Policy, 165–167  
 early engagement and definition of aims, 172  
 ease of participation, 173  
 engaging local communities, 167–168  
 identifying the decision-makers, 164–165, 172  
 importance of good facilitation, 174  
 importance of learning new skills, 174–175  
 importance of mutual trust, 174  
 importance of persistence, 176–177  
 key factors, 170–171  
 making use of existing spaces and opportunities, 175  
 Tai Timu Tai Pari marine spatial planning process, 168–169  
 governmental processes, 9–10  
 importance of scientific advice, 157–158  
 incorporating evidence and, 6–7  
 increasing the use of scientific evidence, 158–160  
 information monitoring, 153–154  
 information used to inform, 154–157  
 made by practitioners, 145–146  
 site-level management planning processes, 146

- Features–Attributes–Factors
  - framework, 152
  - Pressure–State–Response framework, 152
  - procedures, 148–151
  - used by RSPB, 149
  - used by the New Zealand Department of Conservation (DOC), 149–150
- spatial scaling and targeting, 205
- strategic level, 146
- trade-offs and valuations, 199
  - assessing impacts on biodiversity, 202–203
  - challenge across non-commensurate metrics, 200–202
  - challenge of across integrated systems, 199–200
- decision support systems/tools, 133–134
  - costs, 138
- Defra, 11, 57, 58
- Delphi Method, 34
- Dewey, John, 273
- digital communication, 7
- digital media, 272
- Driver–Pressure–State–Impact–Response (DPSIR) framework, 131
- ecological advice, 155–157, 159
- ecological consultants, 59
- ecosystem services, 196, 197–199, *See also* Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (PBES)
  - assessments, 137–139, *See also* National Ecosystem Assessment (NEA)
  - payer–provider payment mechanisms, 203–205
- elephants
  - campaigns to save, 283, 288
  - hunting of, 287
- Endangered (EN) species, 188
- epistemic uncertainty, 185
- ethical investments, 301, 302
- ethics, in social marketing, 313, 317
- EUROBATS agreement, 50–51
- European Union Scientific Advice Mechanism, 136
- evidence generation failure, 5
- evidence in conservation, 48
  - improvement of, 59–60
  - need for, 48–50
  - probabilistic, qualified, 186–187
  - promotion of, 57–58
  - why it is ignored, 58–59
- evidence synthesis, 54–56, 114–115
  - alignment of methods with policy and practice needs, 130–132
  - barriers to the efficacy of, 121
  - computer-assisted approaches, 122
  - cost of alignment mechanisms, 139
  - knowledge platforms, 123–125
  - mainstreaming for decision support, 122–125
  - national and international scientific assessments, 136–139
  - role of informing decisions in conservation policy and practice, 115–118
  - systematic maps, 118, 121, 123, 124–125, 130
  - systematic reviews, 55, 116–117, 118–121, 123, 125, 132, 159, 191
- evidence use failure, 5–6
- exchange programmes, 221
- Fearnley-Whittingstall, Hugh, 279, 283
- Features–Attributes–Factors framework, 152
- flagship species, 316
- flood control, 200
- focus groups, 68–70, 71
- Food and Agriculture Organization (FAO), 251
- fossil fuels, 265
- friction costs, 301
- fundraising campaigns, 283–285
- Fundraising Regulator (UK), 283
- Future Earth, 251
- Global Biodiversity Outlook (Convention on Biological Diversity), 247, 254, 255
- Global Dialogue on Human Rights and Biodiversity Conservation, 104–105
- Global Environment Facility Blue Carbon Project (GEF, 2017), 171
- Global March for Elephants and Rhinos (GMFER), 288
- Global Ocean Legacy project (Pew Environment Group), 279
- Gove, Michael, 278
- government
  - decision-making, 9–10
  - research sponsorship, 12–13
  - role and typology of conservation research and, 11–12
  - science and policy interaction models, 18–24
  - specialists in, 18
- Great Barrier Reef, 265, 267, 272, 273–274
- Great British Oceans Coalition, 279
- greenhouse gases, 6, 137, 197, 200
  - biofuel crops and, 5
  - emission trends, 206
  - emissions calculators, 133–134
- Greenpeace, palm oil campaign, 280
- Group On Earth Observations Biodiversity Observation Network (GEO BON), 251
- Häagen-Dazs, 205
- Hague Centre for Strategic Studies, 43
- Haldane Principle, 222
- Hauraki Gulf Marine Park (HGMP), 168
- honey-gathering, 68–69
- horizon scanning, 5, 29–30
  - analysing and prioritising issues, 37–39
  - approaches to, 31–32

- horizon scanning (cont.)  
 automated input gathering, 36–37  
 intelligence-gathering for biosecurity, 38  
 evaluating the success of, 40–41  
 future directions, 29–30  
 influence and effectiveness of, 41–43  
 issues relating to, 31  
 manually gathered input methods, 33–34  
 Antarctic Science Scan and Roadmap Challenges Exercise, The, 35–36  
 Delphi-style, 34–35  
 scoping, 32–33  
 sorting, cataloguing and clustering, 37  
 using the output, 40  
 household surveys, 68–69, 70–71  
 Human Animal Infections and Risk Surveillance group, 41  
 Humane Society International, 286
- identifiable victim effect, 298  
 IFAW, 287  
 illegal behaviours, 64–67  
 alternatives to, 74–78  
 campaigns to stop, 286, 290  
 challenging through mixed-methods approaches, 68–71  
 illegal wildlife trade, 280–282, 286, 290, 314–316  
 IMSA Amsterdam, 135  
 Indian Ocean Tuna Commission, 77  
 indigenous and local knowledge systems. *See* Multiple Evidence Base (MEB) approach  
 informal working groups, 221–222  
 Intergovernmental Panel on Climate Change (IPCC), 134, 136–139, 248  
 Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES), 107, 136, 241, 247–251, 256–257  
 Assessment for Europe and Central Asia, 247  
 provision of knowledge and evidence to SDGs, 256–257  
 role in provision of science and evidence, 254–256  
 International Biosecurity Intelligence System (IBIS), 38, 225  
 international conservation policy  
 development, 242–244  
 International Convention for the Regulation of Whaling, 269  
 International Indigenous Forum on Biodiversity, 85  
 International Union for Conservation of Nature (IUCN), 55, 169, 188, 251  
 Briefing Paper for European decision-makers, 287  
 International Whaling Commission (IWC), 269  
 intrinsic uncertainty, 185  
 ivory trade, campaign against, 283  
 jaguars, 167–168  
 job-shadowing, 221  
 Kathita River (Kenya), 101–102, 105–106  
 Kimberley Indigenous Saltwater Science Project (KISSP), 102–103, 106  
 knowledge brokers, 221  
 knowledge uncertainty, 185, 186
- Leadsom, Andrea, 283  
 Least Concern (LC) species, 188  
 Lewa Wildlife Conservancy, 284  
 linguistic uncertainty, 185  
 Lion Aid, 287  
 lions, hunting of, 287  
 local knowledge systems. *See* Multiple Evidence Base (MEB) approach  
 local norms, 303  
 logging  
 bat conservation and, 55–56  
 illegal, 68–69, 152, 267  
 lotteries, 304
- macaws, 49  
 marine conservation  
 alternative livelihood projects, 75–76  
 development of a code of conduct, 169–171  
 marketing, 310–311. *See also* social marketing  
 Masyarakat dan Perikanan Indonesia, 76  
 media and communication, 7, 266–269  
 fundraising campaigns, 284–285  
 media ecology, 266  
 MEPs for Wildlife, 287  
 microplastics, 29  
 pollution identified by horizon scanning, 40  
 Microsoft, 204  
 Millennium Ecosystem Assessment, 136, 137, 205, 241, 248  
 mobile communication, 7, 272  
 mobile sensing technology, 40  
 Montreal protocol, 6  
 Moray Firth Seal Management Plan, 233  
 Multidisciplinary Expert Panel (MEP), 248  
 Multiple Evidence Base (MEB) approach, 83–84, 107–109  
 case studies  
 Global Dialogue on Human Rights and Biodiversity Conservation, 104–105, 106  
 Kathita River, Tharaka, 101–102, 105–106  
 Kimberley Saltwater Country, 102–103, 106  
 lessons learned, 105–107  
 connecting knowledge systems for the benefit of conservation and human well-being, 85–88  
 impact in conservation and sustainability, 88–90  
 Multi-systems approach, 235  
 Murdoch, Rupert, 268

- Nagoya Protocol on Access and Benefit Sharing, 257
- narrative fidelity, 298
- National Biodiversity and Action Plans, 257
- National Ecosystem Assessment (NEA), 11, 205–206
- analysing trade-offs across alternative land-use scenarios, 208–210
  - identification of the beneficiaries, 207–208
  - land-use-derived ecosystem services and their economic valuation, 207
  - policy implications, 210
- National Environmental Research Program (Australia, 2010–2015), 221
- national funding schemes, 222
- National Geographic, 279
- National Parks and Access to the Countryside Act (1949), 242
- National Pollinatory Strategy for England (Department of Environment, Food and Rural Affairs), 130
- National Science Foundation (US), 222
- natural capital, 196
- analysis for decision-making. *See* National Ecosystem Assessment (NEA)
  - ecosystem services, goods and values, 197–199
  - mainstreaming, 197
  - payment mechanisms for funding change, 203–205
  - trade-offs and valuations
    - challenge of decision-making across non-commensurate metrics, 200–202
    - challenge of decision-making across integrated systems, 199–200
- Natural Capital Committee (NCC), 210
- Natural Environment Research Council, 42
- Natural Museums of Kenya, 106
- Nature Conservancy, 4
- Nature@Work scenario, 208–210
- Nechisar nightjar (*Camprimulgus solala*), 188
- Nestlé, 280
- Netherlands Commission for Environmental Assessment, 135
- New Zealand Biodiversity Strategy and Action Plan, 149
- New Zealand Department of Conservation (DOC), 149–150
- northern white rhino, 278
- nudging, 301
- Office of Productivity, Technology & Innovation (US Department of Commerce), 222
- Ogiek people, 104–105
- Ol Jogi Conservancy, 284
- Ol Pejeta Conservancy, 284
- orchids, trade of, 290
- overfishing, 286
- campaigns against, 280
  - provision of alternatives eliminate, 76–78
- palm oil, 280
- pangolin scales trade, 290
- Parliamentary Office for Science and Technology, 136
- Peak District National Park, 242
- pesticides, 3, 29
- photography, used in campaigning, 288–289
- Pitcairn Island Marine Reserve campaign, 279
- plastic bag charge, 303
- poaching, 68, 69, 72–74
- policy briefs, 123, 219
- political rational model, 19, 22
- pollination assessment (IPBES), 255–256
- power
  - conflict and, 236–237
  - in decision-making, 173–174
  - within media and communications, 268
- Pressure-State-Response framework, 152
- pro-environmental values, 296–297
- Project Seahorse, 278–279
- Prospect Theory, 303
- Public attitudes and behaviours towards the environment survey* (National Statistics, 2009), 202
- pumas, 167–168
- radical incrementalism, 302
- Randomised Response Technique, 67
- Rare, 312, 313
- Rational Choice Theory, 294, 295, 299, 304
- reintroduction programmes, 49
- research
  - challenges of bias and rigour, 15–17
  - governmental sponsorship, 12–13
  - improving the policy impact of, 13–15
- Research and Development Limited Partnerships, 222
- Research Excellence Framework (UK), 222
- rewilding, 4
- Rhino Dog Squad, 283–285
- rhino horn trade
  - campaigns against, 282, 286, 288, 315–316
  - communication of value, 290
- rhinos
  - as ‘ambassador’ animals, 278
  - fundraising campaigns, 283–285
  - trophy hunting, 287–288
- Risk Assessment and Horizon Scanning programme (Singapore), 44
- roads, environmental effects of. *See* bats, impact of roads on
- Royal Society for the Protection of Birds (RSPB), 154
- decision-making using ecological advice, 155–157
  - management plan, 149
- rusty ducks (*Oxyura jamaicensis*), 185
- Save the Bay, Eat a Ray campaign, 285
- Save the Rhino International (SRI), 283–285

- science-policy relationships, 216–217, 326–327  
   biosecurity risk analysis example, 223–227  
   working strategies, 219  
     forums, 221  
     informal working groups, 222  
     job-shadowing, 221  
     knowledge brokers, 221  
     national funding schemes, 222  
     policy briefs, 219  
     shared governance, 222–223  
 Sea Change – Tai Timu Tai Pari, 168–169  
 Sea Shepherd Conservation Society, 268  
 seahorse trade, 278–279  
 self-enhancement, 298  
 Sengwer people, 104–105  
 shark fishing, 76–78  
 slipper orchids, 290  
 social identity, 298  
 social marketing, 294, 310–311  
   acknowledging ethical issues, 317  
   acknowledging the difficulties in changing behaviour, 317–318  
   application in conservation  
     community-based natural resource management, 314  
     conservation flagships, 316  
     demand reduction, 314–316  
   audience segmentation, 313, 318  
   Bonair parrot campaign, 312–314  
   citizen orientation and focus, 312  
   competition/barrier and asset analysis, 313  
   critical thinking, reflexivity and being ethical, 313  
   highlighting target audience benefits via a mix of marketing interventions, 313  
   importance of evaluation, 317  
   measures of value, 318–319  
   setting of explicit social goals, 312  
 social norms, 67, 216, 309  
   adherence to, 299–301  
   influencing through social marketing, 313–314  
   used to reinforce desired behaviour, 282, 297  
 southern white rhino, 287  
 stepwise approach, 233–234  
 Stockholm Resilience Centre, 253  
 Stop Aquatic Hitchhikers campaign, 314, 318  
 Strategic Plan for Biodiversity, 253  
 sudden infant death syndrome (SIDS), 55  
 Sustainable Development Goals (SDGs). *See* United Nations Sustainable Development Goals (SDGs)  
 synthetic meats, 40  
  
 tamarins, 49  
 Tanjung Luar, 76–78  
 Tansley, Arthur, 4  
 technical rational model, 19, 21–22  
 Theory of Change, 64, 71–74, 78  
  
 Theory of Planned Behaviour, 72–73, 78  
 threat to species classification, 188–189  
 Threatened Species Strategy (DOC, New Zealand), 150  
 TRAFFIC, 282, 290  
 training and development, 221, 272, 328  
   courses, 221  
   exchange programmes, 221  
   job-shadowing, 221  
 trophy hunting, 287–288  
 Two Million Tusks, 283  
  
 Ugalla Game Reserve, 68–70  
 uncertainty, 183–184  
   addressing through benchmarking, 190–193  
   addressing through provision of more data/evidence, 189–190  
   general versus situational outcomes, 187  
   issues of ignoring, 187–189  
   probabilistic, qualified evidence, 186–187  
   types of, 185  
 United Nations Decade on Biodiversity, 257  
 United Nations Development Programme (UNDP), 251  
 United Nations Educational, Scientific and Cultural Organization (UNESCO), 251  
 United Nations Environment Programme (UNEP), 251  
 United Nations Food and Agriculture Organization (FAO), 251  
 United Nations Framework Convention on Climate Change – Reducing Emissions from Deforestation and Degradation (REDD+), 89  
 United Nations High-Level Political Forum, 256  
 United Nations Ocean Conference (2017), 171  
 United Nations Statistics Commission, 256  
 United Nations Sustainable Development Goals (SDGs), 242, 251–253  
   achievements, 257  
   joint working with Convention on Biological Diversity (CBD), 253–254  
   need for increased implementation, 257  
   role of science and evidence, 256–257  
 Unmatched Count Technique, 65–67, 68–69, 71, 73, 79  
 US Fish and Wildlife Service, 314  
  
 Value of Information (VoI) measure, 190  
 value-action gap, 296–297  
 Vijana na Mazingira (VIMA) Theory of Change project, 71–74  
 Vulnerable (VU) species, 188  
  
 Wadden Academy, 135  
 Wadden Sea, 135  
 well-being, measures of, 200–201  
 West Nile Virus, 42  
 Whakatane mechanism, 104

- whaling (Japanese), 268, 269
- White Paper on Modernising Government (UK, 1999), 216
- white-tailed eagle (*Haliaeetus albicilla*), 3–4
- Wildlife Conservation Society (WCS), 290
  - Indonesia Programme, 76, 78
- wolves, 233
- yellowfin tuna, 77
- yellow-shouldered amazon parrot (*Amazona barbadensis*), 312–314
- Yellowstone National Park Act (1872), 242
- Zoological Society of London, 279
- Zuckerberg, Mark, 268

