

# Index

- aapa mire 29, 232  
 abandonment 144, 341  
 absorbent material 72  
*Acacia* 35, 259, 260, 285  
*Acacia* plantations 35, 260  
 acidification 39, 80, 82, 91, 155, 176, 200, 220  
 acrotelm 40, 57, 78, 79, 84, 86, 206, 208  
 acrotelm mire 39, 40  
 adaptive management 211, 355, 370, 410  
 aerenchymous plants 67, 74  
 aerial seeding 91  
 aerobic conditions 58, 65, 68, 175  
 aesthetic values 118, 119, 123, 125, 127, 162  
 afforestation 39, 52, 59, 153, 159, 160, 161, 213, 214, 215, 219, 221, 224, 231, 298, 378, 400  
 Africa 48  
 agricultural emissions 306  
 agriculture 31, 33, 50, 52, 68, 85, 86, 88, 147, 154, 157, 174, 180, 187, 260, 262, 304, 329, 341, 385, 389  
 agri-environmental schemes 333, 334, 355, 381  
 agroforestry 283, 284, 336  
 air pollution 71, 82, 162, 220, 262, 263  
 Alaska 29, 38, 146  
 albedo 71, 139  
 alder *Alnus glutinosa* 174, 329  
 Amazon Basin 24, 101, 133, 403  
 anaerobic conditions 65, 98, 174  
 Andes 377  
 anoxia 67, 129, 175, 178, 179  
 aquatic warbler *Acrocephalus paludicola* 56, 188, 349, 354, 377  
 arable farming 50, 122, 175, 177  
 archaeology 95, 97, 98, 101, 107, 109, 111, 123, 180  
 archive value, 95, 101, 104, 105, 109, 110, 113, 123, 340, 406, 416, *see also* palaeo-environmental record  
 Arctic 48, 132  
 Argentina 103  
 art 121, 123  
 assembly rules 193, 194, 203, 210, 212  
 Association of Southeast Asian Nations (ASEAN) 306, 384, 385, 386, 388, 389, 399, 413, 414  
 atmospheric CO<sub>2</sub> 64, 131, 135, 137, 141, 262  
 atmospheric deposition 85, 155, 157, 158, 160, 220  
 atmospheric pollution 153  
 Austria 52  
 bare peat 58, 74, 84, 86, 91, 153, 156, 160, 161, 163, 165, 166, 186, 205, 206  
 base flow 84, 87, 239, 241, 280  
 base saturation 172  
 bedding material 72  
 Belarus 34, 35, 36, 56, 179, 343, 344, 349, 377, 403  
 Belgium 176, 214, 215  
 Berbak National Park, Sumatra, Indonesia 35, 256, 262  
 Biebrza 39, 177, 188, 349  
 bioclimatic envelope 130, 131, 132, 138, 139, 143, 148, 158, 410  
 biodiversity 51, 2, 9, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 57, 58, 59, 60, 61, 62, 77, 122, 124, 144, 160, 164, 172, 173, 175, 179, 180, 188, 191, 201, 202, 213, 215, 216, 226, 233, 236, 241, 242, 247, 258, 285, 286, 321, 333, 334, 335, 340, 349, 352, 353, 361, 362, 367, 369, 371, 372, 376, 382, 383, 384, 390, 403, 404, 406  
 biodiversity loss 50, 176, 218, 336, 340  
 bioenergy 38, 72, 144, 283, 284, 305, 329, 342, 347, 348, 351, 354, 377, 403, 412  
 biogas 347, 355  
 biomass 42, 57, 58, 65, 71, 121, 179, 248, 342, 343, 347, 348, 349, 351, 352, 353, 354, 355  
 biomass carbon stock 70, 291, 301

- Bio-rights approach 286  
 birch *Betula* spp. 195, 200, 225  
 birds 45, 48, 55, 56, 57, 60, 146, 179, 180, 181, 354  
 blanket bog 38, 40, 78, 79, 80, 84, 85, 86, 87, 89, 91, 93, 105, 106, 133, 139, 140, 153, 154, 155, 156, 158, 159, 162, 163, 166, 168, 221, 232, 330, 372, 382, 384, 400, 406  
 bog 40, 56, 59, 60, 77, 78, 79, 80, 103, 106, 132, 139, 197, 201, 203, 205, 208, 214, 222, 224, 232, 344, 352  
 bog bodies 99, 117  
 bog snorkelling 125  
 boreal zone 42, 63, 70, 131, 132, 138, 144, 195, 214, 226, 228, 343, 406  
 Borneo 35, 36, 73, 132, 253, 255, 258, 263, 264, 376  
 Bourtanger Moor 110  
 Brazil 38  
 Bronze Age 100, 109, 117  
 Brunei 35, 254, 255, 258, 287, 389, 399
- Cameroon 38  
 Canada 3, 24, 29, 36, 37, 38, 39, 59, 60, 67, 72, 83, 88, 132, 136, 142, 146, 186, 192, 206, 214, 351, 352, 392, 396, 397, 403, 412  
 capillary flow 87, 88, 89  
 carbon credits 300, 309, 310, 311, 354  
 carbon cycle 6, 68, 136, 141, 142, 149, 150, 405, 406, 410  
 carbon dioxide (CO<sub>2</sub>) 64, 69, 80, 141, 145, 147, 148, 155  
 carbon dioxide (CO<sub>2</sub>) emissions 181, 271, 2, 19, 35, 67, 68, 70, 71, 73, 137, 143, 144, 145, 159, 189, 206, 208, 264, 265, 329, 341, 385, 403, 406  
 carbon loss 65, 67, 70, 71, 72, 73, 85, 138, 139, 143, 144, 149, 158, 159, 200, 206, 218, 219, 231, 254, 265, 328, 348, 407  
 carbon markets 5, 76, 167, 291, 292, 300, 305, 308, 311, 312, 334, 362, 400, 411, 414  
 carbon policies 291  
 carbon sequestration, 40, 64, 65, 66, 71, 73, 129, 133, 135, 137, 140, 146, 149, 155, 158, 159, 161, 162, 166, 167, 173, 175, 179, 206, 210, 214, 218, 219, 228, 229, 264, 265, 286, 298, 328, 333, 353, 362, 398, 406  
 carbon stock 57, 63, 64, 65, 70, 76, 129, 134, 141, 147, 155, 214, 218, 219, 241, 264, 285, 301, 328, 333, 340, 362, 398, 400, 405, 407  
 catchment 2, 24, 84, 86, 92  
 catotelm 65, 70, 78, 79, 83, 208  
 cattail *Typha* spp. 79, 186, 350  
 charcoal 104, 105, 144, 236  
 China 35, 39, 40, 177, 235, 241, 249, 250, 252, 353  
 climate change 6, 42, 47, 49, 54, 56, 62, 65, 76, 85, 104, 106, 107, 129, 135, 137, 138, 139, 141, 145, 148, 158, 168, 173, 180, 232, 375, 404, 405  
 climate change adaption 42, 129, 353, 404  
 climate change effects 62, 131, 230  
 climate change mitigation 4, 149, 213, 214, 291, 312, 328, 335, 348, 354, 356, 405, 415  
 climate regulation 76, 131, 134, 138, 146, 155, 177, 213, 214, 216, 218, 241, 254, 261, 264, 265, 285, 321, 362, 371, 402  
 climate space 132  
 coastal land loss 42, 400, 403  
 coastal peatlands 147, 148, 255, 264, 287, 341  
 commodification 334  
 Common International Standard for Ecosystem Services (CICES) 9, 10, 114  
 common reed *Phragmites australis* 57, 174, 187, 329, 348  
 compaction of peat 50, 87, 178, 188, 237  
 compensation 335, 336  
 Congo Basin 24, 403  
 conservation 43, 47, 48, 95, 105, 110, 149, 156, 283, 286, 307, 320, 337, 355, 361, 362, 365, 367, 404, 414  
 Convention concerning the Protection of the World Cultural and Natural Heritage 107  
 Convention on Biological Diversity (CBD) 4, 44, 307, 376, 381, 382, 384, 392, 397, 403, 404, 413  
 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 376  
 Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 7, 107  
 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 56, 377  
 cooling effect 66  
 cost-benefit analysis 191, 329, 359, 384  
 cottongrass, 159, *see Eriophorum vaginatum*  
 cranberry 229, 344  
 cranberry *Vaccinium oxycoccos* 229, 344  
 cross-compliance 306  
 cultural ecosystem services 7, 9, 42, 44, 96, 114, 115, 116, 120, 121, 122, 123, 124,

## 486 INDEX

- 126, 127, 173, 227, 261, 314, 320, 324, 331, 340, 356, 402  
 cultural heritage 120, 121, 123, 174, 240  
 cultural value 43, 111, 122, 232, 416  
 cutover peatlands 15, 88, 89, 205, 211, 224, 352, 412
- dam building 73, 242, 243, 245, 276, 277, 280, 281  
 dating 137  
 decomposition 31, 58, 64, 65, 66, 68, 77, 103, 129, 133, 138, 141, 147, 158, 175, 178, 200, 220, 280  
 decomposition gradient 130  
 deforestation 144, 164, 236, 254, 259, 280, 301, 399  
 degradation 40, 58, 85, 175, 177, 189, 241, 252, 261, 265, 314, 321, 352, 409  
 degradation of Ruergai peatlands 235, 238, 239  
 degradation stages 40  
 degraded peatland 57, 330, 334, 343, 403  
 denitrification 80, 174  
 Denmark 34, 98, 99  
 desertification 238, 241  
 desiccation 161, 341  
 direct payments 306, 328, 334, 347, 413  
 dispersal 60, 61, 204, 208  
 dissolved organic carbon (DOC) 67, 68, 80, 82, 143, 144, 145, 155, 158, 159, 161, 162, 165, 220, 331, 383  
 disturbance 52, 54, 130  
 drain blocking 56, 57, 88, 91, 94, 143, 163, 165, 209, 210, 228, 229, 274  
 drainage 31, 33, 35, 39, 42, 50, 52, 58, 60, 67, 68, 69, 70, 72, 81, 82, 83, 84, 85, 86, 87, 88, 119, 122, 143, 144, 147, 153, 157, 159, 175, 177, 180, 183, 187, 196, 197, 214, 217, 218, 219, 226, 231, 238, 261, 265, 274, 301, 339, 341, 347, 352, 355, 357, 378  
 drinking water 2, 42, 80, 82, 177, 219, 220, 241, 248, 384  
 drought 46, 144, 149, 158, 180
- ecological restoration 7, 53, 55  
 economic benefits 191, 230, 321, 329  
 economic value 126, 143, 213, 241, 263, 315, 321, 328, 359, 384, 385, 408  
 ecosystem function 51, 55, 58, 61, 94, 130, 168, 175, 194, 210, 239, 264, 367, 406, 407  
 ecosystem service approach 359, 370, 372  
 ecosystem services 182, 2, 8, 9, 13, 39, 40, 43, 44, 51, 57, 61, 62, 76, 94, 112, 115, 127, 129, 130, 131, 135, 143, 148, 159, 173, 180, 197, 254, 286, 310, 315, 320, 343, 352, 356, 362, 363, 365, 372, 376, 377, 384, 400, 402, 406, 407, 408, 410, 411, 412, 415  
 ecotourism 126  
 education 123, 124, 230, 231  
 El Niño 144, 254, 255, 259, 262, 263, 287  
 emission factors 69, 74  
 emission reduction 75, 291, 306, 309, 311, 348  
 emission trading, 312, 333, *see also* carbon markets  
 energy crops, 347, 348, *see also* bioenergy  
 England 59, 72, 97, 99, 100, 105, 106, 107, 109, 110, 119, 121, 124, 126, 157, 158, 160, 161, 163, 164, 165, 167, 183, 380  
 environmentally harmful subsidies 328, 329, 334  
 ericaceous shrubs 208  
*Eriophorum vaginatum* 159, 160, 166, 209, 222, 225  
 Estonia 101  
 ethical considerations 337  
 EU Biodiversity Strategy to 2020 305, 328, 404  
 EU Common Agricultural Policy (CAP) 4, 306, 378, 413  
 EU Directive on Bioenergy 305  
 EU Emissions Trading Scheme 382  
 EU Habitats Directive 7, 37, 107, 156, 305, 362, 380, 381, 400  
 EU LIFE programme 5, 56, 215, 305–306, 333, 372  
 EU LULUCF Accounting Decision 292, 301, 304, 312  
 EU Water Framework Directive (WFD) 4, 157, 383, 384  
 European Union 177, 305, 347, 378, 397  
 eutrophication 80, 91, 155, 176, 179, 183, 187, 350  
 evaporation 58, 88, 92  
 evapotranspiration 77, 79, 87, 88, 132, 146, 188, 220
- feedback loop 149, 370  
 fen 32, 46, 77, 78, 79, 80, 83, 84, 132, 170, 171, 173, 175, 183, 188, 189, 191, 197, 203, 204, 222, 229, 340, 348, 349, 350  
 fen degradation 174, 175, 176  
 fen meadow 55, 171, 173, 180, 183, 340  
 fen restoration 170, 177, 189, 203  
 fencing 247  
 fertilisation 59, 70, 176, 178, 204, 210, 220, 277  
 filling-in of drainage ditches 187

- Finland 33, 34, 35, 36, 214, 215, 218, 221, 222, 226, 230, 403, 414
- fire 67, 72, 85, 104, 124, 131, 138, 143, 144, 149, 160, 259, 262, 263, 279, 280, 285, 287, 334, 341, 385, 388, 390, 400, 403
- fish ponds 277
- fishing 124
- floating fen 173
- flood control 2, 92, 131, 156, 164, 165, 167, 173, 174, 180, 229, 340, 341, 400
- flooding 49, 50, 66, 85, 143, 239, 256, 400, 403
- floodplain peatland 48, 60, 177, 181
- Flow Country 34
- food 343
- Food and Agricultural Organization of the United Nations (FAO) 4, 415
- forested peatland 70, 230, 261, 304, 390
- forestry 33, 68, 70, 85, 86, 149, 159, 174, 217, 224, 254, 261, 406
- forestry-drained peatlands 214, 221
- France 214, 215
- frost heave 89, 200, 209
- fuel 35, 159, 173, 175, 412
- fuel briquettes/pellets 349
- funding 54, 231, 286, 363, 371, 384, 407, 411
- future climate change 113, 129
- Georgia 38
- Germany 33, 97, 98, 110, 214, 215, 299, 310, 328, 329, 341, 347, 348, 349, 352, 353, 354, 403, 405, 412
- global peatland area 67
- global peatland models 142
- global warming potential 66, 74, 265, 329, 408
- Gothenburg Protocol 380
- grassland 69, 177, 340, 347
- grazing 33, 40, 55, 58, 60, 70, 105, 106, 122, 123, 147, 149, 154, 157, 159, 164, 238, 247, 248, 249, 354, 400
- Greenhouse gas Emission Site Types (GEST) approach 329
- greenhouse gas emissions 302, 31, 42, 66, 67, 68, 69, 71, 73, 74, 76, 80, 135, 138, 143, 149, 158, 173, 177, 179, 183, 215, 220, 228, 254, 287, 291, 292, 298, 301, 304, 306, 311, 329, 343, 347, 348, 351, 377, 385, 389, 402, 403, 405, 410, 412
- groundwater 77, 79, 178, 179
- groundwater abstraction 175
- groundwater discharge 60, 66, 145, 178
- groundwater flow 177
- groundwater level 177
- grouse 71 *see* red grouse
- gully blocking 89, 163, 166, 383
- gully erosion 58, 86, 89, 153, 160, 161, 166, 241, 242
- gully re-profiling 163
- habitat 221
- habitat conditions 45, 46, 47, 57, 61, 62, 214, 334, 362, 402
- habitat loss 162, 216, 258, 340, 403
- habitat restoration 55, 221
- handicrafts 121, 123
- hay transfer 122, 181, 182, 184, 186, 204
- haze 143, 254, 262, 263, 385
- health conditions 42, 143, 149, 180, 181, 230, 263, 334, 335, 385
- heather *Calluna vulgaris* 158, 160, 165, 166, 378
- heavy metals, 155, 158, *see also* lead
- heritage 110, 123, 125, 416
- heritage crafts 121, 123
- high-altitude mires 39, 235, 238, 242, 252
- Holocene 64, 104, 105, 106, 113, 136, 137, 235, 264
- horticultural peat 35, 37, 72, 175, 192, 196, 198, 205, 352, 382, 412
- Hudson Bay Lowlands 24, 149, 374
- human activities 49, 50, 52, 54, 61, 98, 104, 138
- human impact 67, 85, 95, 102, 123, 124, 135, 189, 252, 274, 403
- hunting 71, 122, 124, 125, 174, 232, 343
- hydraulic conductivity 78, 79, 83, 84, 86, 87, 145, 178
- hydraulic properties 66, 88, 252
- hydro-energy 38, 85, 403
- hydrologic conditions 40, 49, 50, 58, 60, 62, 67, 77, 86, 94, 105, 129, 131, 142, 172, 177, 189, 204, 209, 256, 276, 280, 371, 381, 390, 405
- hydrological restoration 88, 187, 277, 281, 369, 373
- hydrophobic peat 88, 178, 341
- Iceland 38, 403
- identity 120, 125, 240
- incentives 382, 400, 413
- indigenous people 120, 146, 258, 281, 282
- Indonesia 1, 3, 33, 35, 73, 117, 143, 144, 145, 147, 255, 258, 261, 262, 264, 277, 280, 284, 286, 287, 301, 341, 384, 389, 390, 399, 400, 403, 413
- industrial heritage 120
- industrial peatlands 195
- Industrial Revolution 85, 157
- infrastructure development 38, 73, 98, 242
- insects 49, 57, 107
- inspiration 121, 156
- intellectual benefits 123

- Intergovernmental Panel on Climate Change (IPCC) 74, 138, 299  
 Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) 9, 315, 415  
 international policies 379, 378  
 intrinsic value 13, 126, 323  
 inundation 73, 85, 147  
 investment 377, 401, 415  
 Iraq 353  
 Ireland 34, 35, 38, 52, 97, 98, 99, 100, 105, 120, 121, 153, 214, 215, 224, 403, 412  
 Iron Age 97, 99, 117
- Japan 300
- Kalimantan 3, 143, 147, 254, 255, 258, 261, 262, 263, 277, 280, 284, 334  
 knowledge exchange 364, 365, 372, 374, 401, 409, 415  
 Kyoto Protocol 3, 4, 76, 292, 293, 294, 298, 299, 300, 310, 348, 377, 382, 392, 397, 413
- lagg 84, 201  
 land acquisition 187  
 land loss, 42, *see also* coastal land loss  
 land use 68, 81, 109, 138, 176, 196, 254, 261, 298, 299, 375, 403  
 land-use change 72, 104, 105, 194, 254, 375, 377, 378  
 land-use planning 381, 390  
 land use policy 157, 375, 382  
 Land Use, Land-Use Change and Forestry (LULUCF) 4, 292, 300, 377, 397  
 landscape connectivity 48, 49  
 Latvia 34  
 lead 104, 158  
 legislation. 107, 378, 380, 413  
 Liechtenstein 34  
 livelihood 119, 248, 249, 277, 282, 286, 355, 389, 403  
 logging 261, 262, 286, 385, 390, 400  
 long-term monitoring 149, 195, 205, 209, 232, 350, 407
- macrofossil analysis 105  
 macrofossils 103, 105  
 macropores 83, 86, 160  
 Malaysia 33, 35, 38, 120, 121, 253, 254, 255, 260, 263, 264, 277, 287, 341, 343, 384, 389, 412  
 management 55, 56, 62, 82, 104, 117, 119, 123, 127, 130, 144, 176, 192, 231, 252, 335, 356, 358, 360, 374, 388, 405  
 mangroves 255  
 market failure 321, 399, 413  
 market-based instruments, 292, 333, 408, 414, *see also* carbon markets  
 mass failure 161  
 medicinal plants 283, 343  
 medicine 72, 241  
 Mega Rice Project 259  
 mesoclimate regulation 173  
 Mesolithic 100, 109  
 meso-trophic fens 176  
 methane (CH<sub>4</sub>) 64, 66, 67, 135, 142, 143, 145, 161  
 methane (CH<sub>4</sub>) emission 181, 65, 66, 67, 68, 69, 70, 71, 73, 74, 135, 136, 141, 142, 145, 147, 159, 173, 179, 181, 184, 229, 262, 264, 406  
 methanogenesis 67, 74  
 microclimate 45, 58, 199  
 microtopography 55, 58, 59, 101  
 milled peat 59, 89  
 Millennium Ecosystem Assessment 8, 9, 315  
 mineral oil 35, 38  
 minerotrophic 60, 77, 132, 170, 203  
 mining, 49, 85, 149, *see also* peat extraction  
 mire 19, 45, 48, 52  
 mire breathing, 83, *see also* oscillation  
 mire characteristics 45  
 mire classification 61, 78  
 mire margin 52  
 mire massif 46, 50, 52, 54, 55, 57, 58, 60, 61  
 mire patterns 342, 29, 46  
 mire species 45, 46, 50, 221, 355, 384  
 mire typology 28, 30, 24, 26, 130, 132, 139, 214, 237, 364  
 mitigation costs 328, 329  
 monetisation of ecosystem services 126, 320, 323, 337, 408  
 monitoring 94, 123, 184, 187, 209, 229, 258, 298, 370, 371, 372, 382, 401, 406, 407  
 monitoring programme 54, 82, 210, 374  
 MoorFutures® 310, 312  
 moss establishment 201, 205, 210  
 mowing 39, 55, 58, 74, 184, 188, 349, 350, 355  
 mulching 186, 209
- Natura 2000, 48, 187, 226, 229, 380, *see also* EU Habitats Directive  
 natural capital 2, 9, 15, 403, 414  
 natural peatlands 45, 46, 65, 73, 172, 175, 177, 189, 202, 402, 403  
 naturally forested peatlands 214, 215, 226, 255, 384  
 nature conservation 340, 348, 355, 356  
 Neolithic 97, 98, 100  
 net primary production 131,  
 New Zealand 133, 300

- Nigeria 38  
 nitrogen (N) 79, 85, 105, 155, 158  
 nitrogen availability 175  
 nitrogen deposition 71, 176  
 nitrogen losses 82, 160, 179  
 nitrogen oxides 73  
 nitrogen retention 82, 230  
 nitrous oxide (N<sub>2</sub>O) 69, 71, 135, 143, 145  
 nitrous oxide (N<sub>2</sub>O) emissions 65, 68, 69, 70, 71, 73, 230, 264  
 non-material benefits, 114, *see also* cultural ecosystem services  
 non-use values 331  
 North America 34, 64, 78, 80, 83, 104, 119, 206, 209, 343, 406  
 Northern Ireland 98, 100, 106, 380  
 Northern peatlands 136, 137, 141, 149  
 Norway 34, 99, 214, 389  
 novel ecosystems 411  
 nurse crop 92, 163, 199, 209, 210  
 nutrient availability 58, 80, 176, 178, 179, 182, 232  
 nutrient limitation 175  
 nutrient retention 82, 183, 198  
 nutrient-rich peatlands 32, 135, 214  
 nutrients 79, 80, 174, 355
- oceanic mires 139  
 Oil palm *Elaeis guineensis* 3, 35, 144, 254, 258, 259, 260, 264, 287, 347, 390, 400, 403  
 oil sands 39, 49, 398  
 oligo- to mesotrophic fens 176  
 ombrotrophic peatlands 103, 132, 139, 203, 264  
 orang-utan *Pongo* spp. 254, 257, 258, 376  
 organic material 64, 65, 98  
 organic remains 95  
 oscillation 87, 237, 240  
 overgrazing 33, 40, 50, 70, 81, 85, 237, 242, 252  
 overland flow 85, 87, 159
- palaeoclimate 103, 104, 105, 113, 124  
 palaeo-environmental record 2, 42, 54, 95, 96, 98, 99, 100, 101, 103, 104, 105, 106, 107, 109, 110, 113, 123, 130, 135, 137, 176, 352, 366, 405, 406  
 palm oil 35, 347, 377, 389, 390  
 palsa mire 29, 46, 132, 146  
 paludiculture 57, 76, 149, 282, 284, 285, 304, 306, 328, 334, 340, 342, 343, 345, 348, 353, 354, 355, 356, 390, 411  
 paludification 26  
 particulate organic carbon (POC) 82, 160, 161, 162, 165  
 pastoralism 235, 237, 248, 347  
 Patagonia 133
- payments for ecosystem services 333, 334, 335, 337, 363, 378, 400  
 peak flow 156, 167, 219, 239, 241  
 peat 20  
 peat accumulation 21, 46, 65, 72, 77, 79, 106, 129, 137, 141, 143, 146, 178, 204, 206, 210, 241, 264, 342, 405  
 peat alternatives 38  
 peat bunds 88  
 peat composition 21  
 peat decomposition 265  
 peat degradation 168, 187  
 peat dome 52, 224, 255, 256, 258, 273, 274, 279, 280, 285, 385, 389  
 peat erosion 40, 58, 68, 70, 72, 82, 91, 94, 106, 130, 138, 139, 143, 158, 159, 160, 161, 166, 178, 241, 243, 247, 334, 371  
 peat extraction 35, 36, 37, 40, 50, 52, 59, 60, 67, 68, 72, 85, 86, 89, 98, 106, 120, 121, 122, 144, 159, 175, 180, 183, 192, 197, 198, 199, 201, 205, 206, 208, 224, 241, 352, 378, 403  
 peat fire 1, 2, 67, 254, 263 *see also* fire and wildfires  
 peat formation 19, 40, 45, 65, 85, 135, 174, 175, 177, 227, 282, 284  
 peat fuel 35, 37, 85, 263  
 peat litter 159  
 peat mineralisation 68, 70, 172, 175, 179  
 peat oxidation 40, 67, 70, 72, 87, 88, 145, 161, 175, 200, 254, 280, 305, 329, 341, 405, 412  
 peat plateau mires 29, 132  
 peat properties 198  
 peat swamp forest 33, 35, 121, 126, 253, 255, 256, 257, 258, 260, 261, 263, 265, 273, 274, 276, 277, 282, 283, 285, 288, 334, 376, 384  
 peat swamp forest degradation 253, 254, 257, 260, 261, 262, 282, 286, 377, 385, 399, 412  
 peat swamp forest restoration 279, 280, 284, 313  
 peatland archive, 42, 95, 405, 406, *see also* palaeo-environmental record  
 peatland classification, 133, 77, 78 *see also* mire typology  
 peatland conservation 104, 306, 329, 358, 366, 378, 389, 400, 404  
 peatland degradation 81, 3, 39, 43, 76, 80, 196, 242, 254, 327, 404, 411, 413  
 peatland distribution 24, 136, 7, 19, 23, 129, 130, 131, 136  
 peatland fires, 145, 388, *see also* fire, peat fire and wildfires  
 peatland forestry 214, 341

- peatland functions 46, 62, 204, 206, 405  
 peatland loss 339, 398, 403, 412  
 peatland regeneration 54, 106  
 peatland restoration 4, 5, 6, 7, 39, 57, 60, 62, 76, 91, 123, 162, 167, 168, 193, 195, 201, 209, 215, 248, 274, 305, 334, 337, 349, 359, 363, 377, 382, 384, 400, 405, 406, 407, 410, 412, 415  
 peatland rewetting 299, 304, 307, 308, 309, 311, 312, 404  
 peatmoss 37 *see Sphagnum*  
 Pennines 92, 166, 83, 84, 106  
 percolation mire 32, 39, 40, 83, 132, 173, 187, 235, 239, 240, 241, 244, 252  
 permafrost 42, 46, 49, 131, 132, 138, 142, 145, 146, 148  
 permafrost degradation 146  
 pH 70, 166, 172, 175  
 phosphate 175, 179, 220, 228, 350  
 phosphate fertilisation 209  
 phosphate limitation 176  
 phosphate mobilisation 179  
 phosphate removal 230, 351  
 physical properties 46, 50, 88, 94, 175, 195, 196  
 pioneer species 184, 199, 225  
 plant productivity 141, 147, 175  
 plantations 3, 254, 258, 259, 260, 264, 265, 280, 283, 284, 287  
 poetry 122  
 Poland 34, 39, 56, 98, 101, 177, 188, 349, 354  
 policy 3, 4, 157, 162, 189, 291, 337, 365, 375, 376, 381, 382, 389, 392, 400, 413, 414, 415  
 policy drivers 360, 361, 376  
 policy goals 404, 382  
 policy instruments 381, 382, 400, 413  
 pollen 100, 101, 104, 105, 107  
 pollution 80, 85, 104, 105, 157, 189, 194, 220, 371, 375, 378  
 polygon mires 29, 46  
*Polytrichum strictum* 200, 209, 210  
 pools 59, 201, 202  
 potassium (K) 175, 176, 178, 179, 220  
 precipitation 58, 66, 132, 138, 145, 219, 235, 255, 256  
 primary production 129, 206, 219  
 pristine peatland 65, 69, 70, 71, 76, 173, 214, 220, 223, 227, 255, 261, 265, 273, 403, 406  
 productivity 129, 133, 149, 171, 172, 179, 204, 240, 241, 344  
 propagules 59, 60  
 provisioning services 345, 7, 9, 42, 43, 44, 120, 124, 146, 173, 174, 177, 189, 230, 240, 241, 258, 261, 263, 265, 282, 314, 320, 324, 331, 340, 343, 344, 355, 375, 403  
 public goods 115, 320, 333  
 pulp wood 3, 33, 35, 259, 260, 264, 390, 403  
 purple moorgrass *Molinia caerulea* 105, 122, 159, 195, 223  
 radiative forcing 66, 69, 76, 142  
 radiocarbon dating 100, 102, 105  
 raised bog 34, 37, 39, 40, 46, 52, 83, 84, 224, 344  
 Ramsar Convention 4, 7, 44, 107, 242, 307, 361, 376, 392, 397, 403, 413  
 rare species 39, 126  
 reclamation 119  
 recolonisation 55, 59, 198, 199, 200  
 recreation 2, 72, 123, 173, 180, 221, 231  
 recreational shooting 400  
 red grouse *Lagopus lagopus* 71, 125, 156, 160, 161, 165, 169, 378  
 Reducing Emissions from Deforestation and forest Degradation (REDD+) 76, 287, 291, 301, 312, 333, 377, 400, 413  
 reed canary grass *Phalaris arundinacea* 348  
 reference site 174, 195  
 reforestation 274, 278, 276, 277, 279, 282, 283, 285, 298, 336  
 regeneration of peat swamp forests 284, 287  
 regional carbon standards, 311, *see also* carbon markets  
 regional standards 310  
 regulating ecosystem services 9, 42, 82, 124, 173, 177, 189, 230, 241, 248, 314, 320, 324, 340, 356  
 rehabilitation 57, 171  
 reintroduction 59, 62, 163, 186, 187, 197, 201, 204, 205, 209  
 relaxation 125  
 relict plant species 47  
 religious and spiritual values 115, 117, 120  
 remote sensing 101, 371, 372  
 remoteness 117  
 renewable energy, 377, 378, 400, *see also* bioenergy  
 reservoirs 49  
 resettlement 252,  
 resilience 54, 57, 106, 135, 139, 143, 148, 158, 172, 176, 178, 189, 191, 320, 405, 406, 407  
 restoration goals 204, 229, 372, 373, 404, 406  
 restoration measures 55, 110, 187, 204, 208, 222, 265, 359

- restoration of hydrology 89, 187, 265, 274, 276, 285  
 restoration of peatland vegetation 57, 58  
 restoration programme 157, 405  
 restoration techniques 163  
 re-vegetation 59, 60, 73, 88, 89, 92, 162, 163, 164, 165, 166, 167, 183, 186, 204, 205, 223, 231, 330, 350, 352, 383  
 rewetting 246, 247, 297, 73, 76, 88, 162, 164, 165, 178, 189, 209, 210, 225, 228, 229, 232, 242, 243, 244, 245, 280, 299, 328, 333, 340, 342, 347, 348, 353, 354, 355, 356, 405, 410  
 rice cultivation 259  
 rich fen 176, 185, 186, 187  
 ritual practices 99, 117  
 ritual significance 117  
 roof thatching 122, 174  
 rotational burning 71, 105, 160, 169  
 runoff 52, 58, 79, 83, 84, 86, 87, 88, 92, 156, 160, 161, 167, 219, 229, 235, 256, 258, 274, 277  
 Ruoergai Plateau 236, 39, 235, 242  
 Russia 1, 5, 33, 34, 35, 36, 46, 48, 59, 67, 73, 143, 144, 214, 300, 333, 334, 343, 360
- salt water intrusion 147, 341  
 Sarawak 253  
 Scandinavia 38, 52, 122, 214, 403  
 scientific challenges 401, 405, 409  
 scientific value 230  
 Scotland 34, 38, 48, 52, 55, 84, 99, 118, 119, 120, 154, 159, 160, 161, 225, 378, 380, 403  
 sea level rise 42, 124, 131, 147, 148, 403  
 Seamus Heaney 121  
 Sebangau National Park, Kalimantan, Indonesia 35, 256, 262, 277, 279  
 sediment retention 80, 89  
 seed and propagule sources 60  
 seed bank 60, 89, 182, 184  
 seed dispersal 60, 186  
 self-organization 29  
 self-perpetuation 46  
 semi-natural 173  
 sense of place 116, 416  
 sheep 57, 70, 154, 159  
*Shorea albida* 257, 261  
 shoreline erosion 147  
 shrinkage of peat 50, 87  
 shrub encroachment 173, 188, 340  
 Siberia 24, 29, 38, 137, 149, 360  
 site designation 380  
 Sites of Special Scientific Interest (SSSI) 231, 361, 380  
 sloping mire 153
- smog, 2, 143, 263, *see also* haze  
 snow cover 146  
 social capital 121  
 socio-cultural value 315  
 soil improver 159  
 soil respiration 206, 229  
 soil water storage 280  
 solitude 156  
 South East Asia 3, 24, 33, 34, 35, 43, 67, 73, 101, 133, 145, 254, 255, 262, 265, 278, 280, 282, 283, 285, 287, 347, 397, 399, 414  
 Spain 38  
 spatial planning 384, 389  
 Special Areas for Conservation (SAC) 156, 380, 381  
 Special Protection Areas (SPAs under the Birds Directive) 380  
 specific yield 78, 88  
*Sphagnum* 37, 55, 81, 89, 107, 148, 156, 158, 159, 161, 176, 198, 199, 200, 204, 205, 206, 208, 210, 225, 229, 231, 352  
*Sphagnum austinii* 105, 156  
*Sphagnum* farming 57, 208, 352, 354  
*Sphagnum* layer transfer method 205  
 spiritual values, 126, *see also* religious and spiritual values  
 sports 125  
 spring fen 178, 187  
 steppe 48  
 storage coefficient 145 *see also* specific yield  
 stormflow 84, 86, 87, 156, 160, 167  
 sub-fossil remains 101, 107  
 subarctic peatlands 146  
 subsidence 31, 52, 86, 87, 94, 143, 144, 145, 147, 149, 175, 280, 281, 287, 341, 400, 403  
 subsidies 181, 378, 400, 413  
 success criteria 370, 373, 406  
 succession 123, 139, 172, 217, 223, 229, 232  
 sulfate 80, 82, 85, 147, 155, 157, 221, 380  
 Sumatra 3, 73, 147, 254, 257, 258, 260, 262, 263, 376  
 Sundaland 255, 257, 263, 264  
 supporting services 9, 173, 189, 226, 227, 232, 264  
 surface flow 77  
 surface flow mire 40, 237, 239, 240, 252  
 surface water 79  
 surface water storage 84, 276  
 sustainable peatland management, 50, 121, 128, 282, 364, 376, 388, *see also* paludiculture  
 swamp 78  
 Sweden 33, 34, 35, 36, 214, 219  
 Switzerland 354, 414



## 492 INDEX

- synergies 180
- target species 55, 183, 195, 209, 210
- temperate zone 42, 43, 137, 214, 340, 342, 357, 403, 406
- tephra 103
- terrestrialisation 26, 146, 185
- testate amoebae 101, 103
- Thailand 255, 399
- The Economics of Ecosystems and Biodiversity (TEEB) 315
- The Netherlands 34, 60, 97, 98, 110, 147, 176, 185, 341, 405, 413
- Tibet 153, 403
- timber 33, 57, 157, 216, 221, 261, 285, 384, 389, 390
- Tollund Man 99,
- topography 84, 131, 132, 141, 220, 255
- topsoil removal 183, 184, 58, 89, 182, 183, 186, 189
- tourism 119, 126, 221, 242, 400
- trackway 97, 98, 110, 180
- tramping 159
- transfer of plant material, 186, *see also* hay transfer
- tree removal 223, 164, 187, 225, 229, 231
- tropical peatlands 133, 137, 144, 255, 264, 285, 334, 342, 384, 385, 403, 406
- tufa deposition 171
- turbary 120 *see* peat extraction
- Turkey 353
- Typha* spp. 79, 186, 350
- UK Habitat Action Plans 382
- UK Peatland Carbon Code 310
- UK peatland strategy 169
- UK policy 378
- Ukraine 34, 333
- undisturbed peatland, 195, *see also* pristine peatland
- United Kingdom (UK) 33, 56, 57, 71, 80, 82, 83, 85, 91, 98, 106, 126, 145, 153, 154, 155, 157, 159, 214, 215, 219, 310, 354, 360, 365, 372, 378, 381, 384, 400, 405, 412, 414
- United Nations Framework Convention on Climate Change (UNFCCC) 4, 44, 76, 291, 292, 293, 294, 299, 302, 377, 413
- United States of America (USA) 334, 149, 179, 215, 214
- urban development 85
- Valletta Treaty 110
- valley mires 132, 237
- valuation 315, 320, 324, 333, 335, 337, 408
- vegetation 39, 49, 50, 52, 67, 87, 129, 140, 201, 248
- vegetation change 52, 82, 85, 102, 104, 105, 148, 158, 159, 175, 222, 228
- vegetation die-off 147
- vegetation loss 143
- vegetation management 59, 172, 349
- vegetation recovery 89, 164
- vegetation removal 72, 187, 197
- vegetation restoration 89, 231
- Verified Carbon Standard (VCS) 309, 310
- volunteering 125
- Wales 72, 105, 106, 158
- water balance 273, 45, 52, 87, 88, 129, 149, 405
- water buffalo *Bubalus bubalis* 347, 354, 355
- water chemistry 66
- water colour, 82, 160, 220, 331, *see also* dissolved organic carbon (DOC)
- water deficit 85, 280
- water deterioration 164
- water erosion, 67, 69, 247, *see also* peat erosion
- water flow regulation 353
- water level 45, *see also* water table
- water management 89, 264
- water movement 46, 66
- water pollution 71
- water purification 215, 230, 340
- water quality 50, 52, 58, 60, 79, 80, 81, 82, 94, 109, 143, 155, 157, 160, 164, 165, 167, 215, 331, 333, 348, 351, 353, 400
- water quantity 94, 160, 215
- water regime 39, 40, 52, 58, 66, 78
- water regulation 129, 138, 173, 177, 209, 219, 228, 237, 239, 241, 254, 261, 352, 402
- water retention 78, 87, 88, 198, 328
- water storage 83, 84, 87, 88, 177, 180, 256, 274, 280
- water table 224, 226, 21, 45, 50, 56, 58, 66, 83, 109, 137, 145, 181, 189, 200, 201, 210, 226, 229, 280, 352, 356
- water table drawdown 70, 83, 84, 86, 145, 217, 220
- water table fluctuations 39, 66, 83, 155, 178, 341
- water treatment 145, 155
- water yield 220
- waterlogging 64, 98, 101, 109
- watershed management 333
- weirs 187, 244
- Western Pomerania 66
- wet agriculture 149 *see* paludiculture
- wetland 20, 61, 204

- Wetland Drainage and Rewetting 304
- Wetlands Restoration and Conservation (WRC) 309
- whisky 120
- white peat 37, 352
- wilderness 117, 118, 119, 156, 242, 416
- wildfires 73, 85, 143, 144, 158, 160, 334
- wildlife appreciation 126
- willingness to pay (WTP) 335, 344
- wind erosion 67, 69
- wind farms 38, 85, 119, 161, 403, 412