

Index

A

ABC analyses 421
admixture 424, 425
alien seaweeds 253, 255, 256, 264, 266, 267, 268, 269, 270, 274
angling. *See* sport-fishing
Approximate Bayesian Computations 420
aquaculture 98, 99, 106
 escapes 88, 92, 97, 98, 100
aquarium release 88, 96, 97, 106
ascidian 418, 421, 423
assignment 420, 421, 422

B

bait
 contaminant 95
 illegal 95
 release 95, 106
ballast tanks 104
ballast water. *See* BW 106
biocontrol 88, 90, 93, 94, 106
 for aquatic vegetation 94
 for fish 94
 for mosquitoes 94
 for snails 94
biosecurity 415
BW 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 462, 463

C

canals 88, 99, 100
 Chicago Shipping 100
 Erie Canal 99
 Rhine-Main-Danube Canal 100
cane toad 423
Codium fragile 33, 35, 137, 254, 255, 256, 258, 271, 272, 273, 274, 275
commercial trade 44, 269, 347
Crassostrea gigas 137, 149, 150, 165, 171, 176, 177, 178, 180, 181, 182, 230, 231, 232, 233, 235, 236, 237, 238, 239, 241, 243, 245, 246, 247, 248, 249, 250, 251, 252, 264, 425, 433
crayfish 92, 93, 95, 96, 98, 99

cryptic introduction 423
cryptic species 417, 426

D

detection 415
dispersal 416, 418
DNA barcoding 415, 426
DNA-based methods 421, 423
DNA metabarcoding 417
donor regions 88

E

e-commerce 88, 96
eDNA. *See* environmental DNA
environmental DNA 417
evolution 423

F

fisheries 90
fisheries management 91, 94
forage 93
fouling 28, 33, 59, 162, 169, 170, 243, 255, 259, 264, 265, 266, 267, 268, 271, 273, 277, 279, 343, 422
founder events 425
Fst 421, 423

G

gene surfing 422
genetic diversity 424
genome 426
genome scan 424
governance 83, 131, 268, 409
Gracilaria vermiculophylla 137, 254, 255, 256, 259, 260, 261, 262, 270, 272, 273, 274, 275, 415, 434
grazers 259, 260
Great Lakes 89, 99, 101, 106
guidelines 105, 106, 107, 267, 268, 282, 298, 319, 329, 332, 407

H

herbarium 422
hitchhikers in recreational activities 104
homogenization 88

I

importation 38, 47, 57, 76, 106, 115, 118, 122, 126, 129, 196, 259, 262, 264, 265, 266, 418
 information campaign 267
 introgression 426
 invasiveness 56, 112, 136, 210, 219, 229, 253, 258, 274, 318, 339, 384, 387, 406, 423, 425, 430
 invasive seaweeds 137, 254, 260, 263, 269

J

jump dispersal 422

K

kelp 418, 422

L

larvae 417
 life-history 416
Lithobates blairi 124
Lithobates catesbeianus 120, 430
Littorina littorea 141, 148, 150, 154, 168, 176, 177, 259, 261, 274
Littorina saxatilis 155, 168, 177
 live food 105, 113, 123
 livestock 59, 123
 live wells 104
 long-distance 27, 28, 32, 57, 61, 63, 68, 69, 87, 246, 368, 378, 421, 422
 long-term studies 438, 449

M

macrophytes 55, 56, 60, 68, 69, 70, 71, 73, 74, 188, 271, 274
 major plant invaders 399
 mammals 25, 38, 52, 62, 63, 118, 119, 120, 122, 125, 126, 127, 131, 132, 133, 328, 340
 man-induced disturbances 396
 manual removal 259
 mapping 282, 283
 marbled crayfish 188, 208
 marine debris 24, 32
 marine invertebrate 34, 136, 144, 145, 164, 174, 176, 180
 Mar Piccolo of Taranto 254, 257, 258, 262, 264, 271
 Martis Creek 443, 444, 451

maximum likelihood 420
 mechanistic models 390, 408
 medicine 16, 23, 121, 123, 128
 Mediterranean climate 443, 449, 456
 Mediterranean forests and shrublands 323
Megabalanus tintinnabulum 27
Melogale moschata 122
 merit release 120, 130
 metabarcoding 414, 416, 417, 426, 427, 428,
 Mexico 38, 45, 50, 51, 92, 98, 108, 118, 129, 145, 149, 151, 152, 155, 156, 157, 158, 168, 249, 265, 270, 302, 353, 354, 356
 microsatellites 418, 422
 Mid-Atlantic 439
 mink 124
 Mississippi basin 450
 mitigation 49, 70, 82, 134, 282, 296, 400, 406, 409
 mitochondrial 53, 84, 86, 150, 161, 162, 163, 178, 182, 208, 210, 418
 molecular genetics 140, 177
 molecular marker 162
 mollusks 30, 96, 97, 106, 177, 298
 monitoring 115, 210, 267, 282, 427
 monk parakeets 54
Monochoria vaginalis 58, 71
 multilocus genetic data 420
 Multi-Model Inference 392
 multiple introductions 84, 139, 141, 162, 167, 170, 176, 178, 261, 421
 multiple lines of evidence 139
 museum 422
 mussels 28, 92, 96, 99, 105, 112, 115, 178, 182, 239, 241, 243, 244, 246, 247, 249, 250, 271, 411
 mycorrhizal fungi 328
Myiopsitta monachus 118
Myocastor coypu 124
Myriophyllum 56, 64, 68, 71, 72, 73
Myriophyllum aquaticum 56, 64
Myriophyllum spicatum 64, 71
Mytilus edulis 28, 239, 247, 250, 251

N

narrow-clawed crayfish 185, 196, 210
 National Ballast Information Clearinghouse (NBIC) 344, 363
 native species richness 439, 441, 443
 natural dispersal 22, 66, 68, 75, 76, 139, 418, 422

natural flow regime 445, 446, 455
 naturalization-invasion continuum 369, 370, 383
 Nearctic 41
Nelumbo nucifera 56
 Neotropical 41, 51, 107, 112
Neovison vison 124
Newmanella radiata 27
 next-generation sequencing techniques 417
 NGS 417
 niche model 245
 NIS 13, 14, 18, 19, 138, 139, 140, 142, 143, 161, 163, 164, 169, 170, 174, 175, 176, 298, 343, 345, 348, 356, 358, 359, 360, 361, 411, 412, 414, 415, 417, 418, 419, 421, 427, 428
 noble crayfish 191, 192, 193, 196, 202, 204, 206, 207, 208, 209, 211
 non-indigenous 62, 205, 279, 299
 non-intervention 297
 non-invasive 212, 213, 215, 217, 219, 221, 223, 225, 227, 229
 non-native species richness 439, 441
 northwards invasion 223
Nothofagus 247, 325, 328, 338, 341, 342
 novel assemblages 436, 437
 novel ecosystems 436, 452, 453
 noxious weed 58, 385
 Nuevo Gulf 257, 263, 271, 275
 Nutria 124
Nymphaea 58, 69, 70, 71, 73
Nymphoides peltata 63, 70

O

off-host environment 221
 off-host survival 219, 220, 222, 223, 225
 Ohio River 113, 450
Ondatra zibethicus 124
 Opossum shrimp 93
Orconectes 93, 96, 185, 189, 190, 204, 205, 206, 208, 209, 210, 211
Orconectes immunis 205, 210
Orconectes juvenilis 205
Orconectes limosus 189, 204, 206, 208, 209, 210, 211
Orconectes virilis 93, 96
 Or-genotype 189, 196
 oriental 80
 ornamental fish 58, 88, 106, 107
 ornamental introductions 96
Oryzoborus angolensis 119
Oryzoborus crassirostris 119
Ostrea edulis 240, 247
 outbreak 47, 123, 198, 218, 224
 outlier 424, 425
 overbite clam 446
 oyster 33, 165, 230, 231, 232, 233, 235, 237, 239, 240, 241, 243, 245, 247, 248, 249, 251
 oyster reefs 239, 240, 243, 248, 249, 251
 oyster thief 255

P

Pacifastacus 96, 183, 187, 204, 205, 206, 208, 209, 210, 211
Pacifastacus leniusculus 96, 183, 187, 204, 205, 206, 208, 209, 210, 211
 Pacific oyster. *See Crassostrea gigas*
 packing material 266
Paguma larvata 122
 Palearctic 41
Paracentrotus lividus 285, 299
 parameters 300
 parasite escape 136, 141, 143, 144, 161, 162, 163, 166, 167, 168, 169, 170, 171, 172, 174, 176, 177
 parasite richness 136, 174, 176
 path analysis 442, 443, 452
 pathway 22, 25, 44, 52, 69, 74, 78, 79, 88, 92, 114, 116, 119, 124, 125, 127, 128, 141, 169, 174, 176, 277, 364, 387, 411
 Pc-genotype 195, 196
 Pennsylvania 95, 112, 439, 442, 447, 448, 449, 450, 451, 454
 pets 2, 22, 37, 38, 45, 46, 50, 51, 88, 111, 117, 118, 119, 120, 122, 128, 129, 133
 pet trade 38, 54, 119, 125, 133
Phalaris arundinacea 59
Phragmites australis 138, 181, 423, 434
 phylogeography 129, 179, 180, 411, 417, 418, 419
Physignathus cocincinus 118
Pinus contorta 321, 326, 327, 328, 330, 331, 335, 338, 340, 341, 342
Pinus elliotii 320, 321, 323, 338, 342
Pinus pinaster 321
Pinus ponderosa 321, 326, 327
Pinus radiata 320, 321, 324, 325, 327, 328, 330, 338, 339
Pinus taeda 320, 321, 323, 334, 339
Pistia stratiotes 59, 64, 68

Pittosporum undulatum 393
 planning 2, 212, 246, 253, 281, 333, 340, 380, 399, 400
 planted/escaped 65
 plant trade 57, 129
 policy development 400
 polyvectoric 29, 31, 32
 Ponto-Caspian region 89, 100, 101, 104, 106
 population genetics 23, 79, 82, 83, 84, 161, 177, 411, 418, 421, 428
 Portugal 146, 147, 149, 151, 155, 158, 160, 256, 261, 270, 271, 279, 392, 400, 409
Potamocorbula amurensis 446
Potamogeton 56, 58, 64, 69, 71
Potamogeton crispus 58, 64
 prayer 105, 114, 133
 prayer releases 105
 predictive power 397
Procambarus 92, 93, 98, 185, 187, 188, 204, 205, 208
Procambarus alleni 188
Procambarus clarkii 92, 93, 98, 187, 204, 205
Procambarus fallax 188, 205
 propagule pressure 19, 22, 24, 25, 29, 31, 33, 35, 36, 52, 57, 59, 84, 109, 139, 141, 142, 143, 167, 169, 170, 171, 172, 174, 181, 214, 228, 332, 333, 334, 343, 345, 347, 358, 359, 361, 362, 363, 382, 419, 422, 428, 438, 455, 456
Pseudotsuga menziesii 321, 327, 328, 338, 341
 pseudovivipary 56
 Psl-genotype 187, 192, 196, 197, 198, 201, 202, 204, 207
 PslI-genotype 187, 196
Pterois volitans 15, 138, 176
 public awareness 291, 337
 Putah Creek 444, 445, 449, 451
Python regius 118

Q

Qst 424
 quarantine 77, 98, 119, 266, 267, 268, 307, 371, 416
 quarantine procedures 416, 417
 quoll 312

R

rainbow trout 444, 450
Rana draytonii 124

range expansion 79, 136, 178, 182, 214, 215, 217, 218, 221, 223, 225, 226, 235, 275, 342, 366, 384
 rapid evolution 13, 314
 raster 236, 401, 404
 rate of invasion 303
 recipient system 263
 reciprocal similarity 402
 reconciliation ecology 367, 437, 453
 recreational hunting 216
 recreational vessels 265, 266, 273
 redclaw 190, 207
 red deer 127, 216
 redeye bass 443, 446
 red swamp crayfish 187, 188, 196
 reduce impacts 332
 Regional Government of the Azores 298
 regional scale 120, 273, 449, 453
 regulations 45, 47, 106, 117, 188, 244, 245, 329, 330, 331, 332, 333, 335, 336, 337, 344, 345, 356, 361, 362
 regulatory frameworks 25, 336
 reindeer 216, 218, 222, 223, 227, 228
 reproduction 30, 55, 56, 70, 97, 177, 179, 188, 200, 204, 212, 216, 219, 222, 230, 241, 251, 258, 264, 274, 294, 311, 369, 375, 397, 425
 reservoir 61, 98, 183, 198, 288, 289, 441, 444
 resilience 2, 371, 378, 379, 383, 405, 445
 resistance 60, 138, 184, 188, 197, 199, 201, 202, 204, 206, 208, 209, 219, 222, 247, 283, 294, 303, 319, 326, 339, 382, 405, 440, 455
 resprouting 387
 restoration 24, 247, 251, 277, 323, 325, 332, 335, 336, 337, 384, 407, 454, 456
 restoring native communities 331
Rhinella marina 127, 302, 315, 317
 Rhine-Main-Danube Canal 89, 100
Rhithropanopeus harrisi 168
 rhizomes 66, 255
 richness 37, 43, 46, 53, 136, 144, 148, 150, 153, 154, 155, 160, 161, 162, 163, 174, 176, 192, 239, 240, 257, 272, 324, 325, 327, 328, 400, 407, 409, 427, 437, 438, 439, 440, 441, 442, 443, 448, 451, 454
 risk analysis 84, 330, 332, 334
 risk assessment 23, 25, 53, 71, 76, 81, 84, 89, 107, 108, 111, 113, 179, 238, 247, 263, 267, 268, 334, 340, 341, 364, 371, 379, 383, 385, 386

rodents 86, 122, 123, 301, 307, 328
 roe deer 216, 218, 219, 221, 222, 223, 225, 226, 229

Rorippa nasturtium-aquaticum 58

route 25, 26, 27, 28, 184, 201, 361, 422

S

Sabella spаланzani 279

Sacred Ibis 121

safety 288, 289

salamanders 96, 124

Salvinia 58, 59, 62, 63, 64, 70, 72

Salvinia molesta 58, 62, 72

sampling 25, 30, 163, 166, 232, 233, 360, 397, 419, 423, 428, 445, 446, 448

savannas and shrublands 322, 323

scenario 49, 136, 176, 198, 199, 200, 201, 202, 236, 281, 313, 397, 443

Schoenoplectus californicus 59, 70

SDMs 396, 397, 399, 400, 402, 404, 406

sediment 30, 32, 56, 74, 239, 240, 245, 246, 266, 290, 344, 417, 427, 441

seed 56, 61, 63, 72, 73, 74, 328, 331, 333, 335, 340, 368, 369, 371, 373, 375, 376, 377, 380, 382, 384, 385, 386, 388, 390, 408

seed banks 74, 340, 375, 376, 382

selection 1, 54, 80, 118, 132, 138, 197, 300, 310, 314, 315, 316, 317, 384, 392, 404, 414, 421, 423, 424, 425, 426

Serinus canaria 119

sexual reproduction 56

shipping 88, 99, 100, 104

ship types 345, 346, 347, 348, 349, 350, 351, 353, 354, 356, 358, 359, 360, 361

shrimp 93, 98, 145

shrublands 319, 323, 325

Sicalis flaveola 120

signal crayfish 183, 185, 187, 189, 191, 192, 193, 194, 196, 197, 199, 201, 202, 204, 205, 206, 207, 208, 209, 210

signature 141, 143, 174

silvicultural practices 332

singing competitions 119

Skagerrak 232, 237

small mammals 118

Smithsonian Environmental Research Center (SERC) 344

smother 290, 292

snails 92, 93, 94, 96, 97, 98, 99, 107, 108, 110, 112, 113, 129, 141, 153, 177, 179, 182

solution 134, 194, 249, 269, 270, 285, 286, 290, 311, 361, 402

source 419

source effect 143, 168, 169

South Africa 45, 50, 56, 70, 146, 156, 319, 335, 375, 399

South America 27, 37, 44, 45, 50, 54, 98, 110, 119, 122, 124, 125, 138, 164, 165, 166, 247, 277, 302, 306, 307, 316, 318, 319, 320, 321, 322, 323, 325, 327, 328, 329, 331, 332, 333, 334, 335, 336, 337, 339, 341, 342, 353, 354, 360

southern white river crayfish 188

spatial predictions 397

spatio-temporal 212, 223, 228, 238, 393, 403

spatio-temporal methodologies 403

Special Protection Area 393, 394, 395

species distribution 236, 252, 366, 375, 393, 397, 406, 408

species distribution modelling 252, 366, 375

Species Distribution Models 389, 396, 399, 403, 407

species interactions 426

species pools 180, 417, 438

Sphaerechinus granularis 285

spiny-cheek crayfish 189, 196, 204, 206, 208, 209, 210

Spirodela 63

spore 200, 210

sport-fishing 90, 95

sporulation 188, 199, 200, 201, 202, 203

spreading 188, 189, 191, 192, 198, 202, 222, 258, 267, 279, 283, 299, 310, 422

stakeholders 243, 245, 246, 267, 268, 270, 283, 298, 331, 336, 337

standing genetic variation 414, 424, 426

StDM 392, 393, 394, 395, 396, 403, 404, 405, 406, 409

stems 55, 66, 75, 327

stenohaline 446

steppes 325, 326, 327

stochastic complexity 396

stock contamination 88, 90, 92

stocking 90, 106

for forage 92, 93

for sport and food 90

illegal 90, 91, 106

stock misidentification 90

stowaway 317
 Striped bass 447
 structural-dynamic model 392
 submodels 401
 Suisun Marsh 446, 447, 451, 456
 sulfide plumes 286
 Susquehanna River 447, 457
Sus scrofa 127
Synidotea laticauda 140

T

Tamarix aphylla 371
 taste aversion 304, 312, 316
 technology 59, 106, 285, 345, 361, 389, 400
 temperate and sub-Antarctic forests 323, 328
 temperate grasslands and savannas 325
 temperature 30, 69, 107, 195, 198, 207, 214, 220, 227, 235, 238, 246, 247, 249, 251, 261, 264, 273, 281, 285, 302, 334, 366, 368, 371, 375, 376, 377, 378, 380, 382, 383, 385, 387, 445, 446
 temporal changes 111, 406
 terrestrial ectoparasites 212, 213, 224
 thallus fragmentation 261
 thermal stress 285
Threskiornis aethiopicus 121
 time since introduction 143, 163, 173
 toad 15, 127, 277, 301, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 423
 Tokay geckos 123
 Tolerance designation 450
 top-down 315, 402, 404
 tourism 121
 tourist attractions 23, 121, 128, 132
 toxic 93, 266, 277, 289, 304, 314, 316, 317, 391
Trachemys scripta 120
 trade 37, 44, 47, 50, 51, 52, 112, 116, 118, 121, 125, 129, 132, 362, 363
 trade patterns 345
 trailers 60
 transmission 94, 120, 123, 124, 171, 180, 181, 185, 210, 211, 214, 224, 246, 307
 transportation phase 214
Trapa natans 58, 71, 72
 treeless vegetation 326
 trematode 153, 178, 179, 180, 181
 trophic designation 450
 trophic levels 188, 241, 244, 271

tropical 25, 28, 33, 34, 44, 46, 79, 84, 94, 130, 132, 207, 249, 303, 313, 314, 315, 316, 317, 319, 322, 323, 324, 373, 385
 tropical and subtropical forests 322
 tropical and subtropical grasslands 322
 tropicalization 279, 299
 tunicate 145, 151, 415, 422, 426
 turtles 63, 118, 122, 123, 124, 128, 130, 133
Typha 62, 65

U

unattached 260, 261, 262
Undaria pinnatifida 137, 254, 255, 256, 257, 262, 263, 264, 267, 270, 271, 272, 273, 274, 275, 418, 422
 United States Coast Guard (USCG) 363
 unsampled 397
 urbanization 388, 448

V

vector frequency 88
 vector management 23, 25, 33, 68, 89, 343, 358, 359
 vector size 29, 88
 vector strength 31
 vegetative reproduction 55
Venerupis philippinarum 262
 Venice Lagoon 259, 263, 264, 265
Veronica beccabunga 59
 Virile Crayfish 93, 96
 virulence 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211
 virulence evolution 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211
 viviparity 220
 voluntary 298

W

waterbirds 63, 69, 70, 74, 188
 waterfowl 40, 55, 62, 63, 68
 water gardening 57
 weed management 73, 381
 Weed Risk Assessment 340, 371, 379, 385, 386
 western corn rootworm 420, 422
 white catfish 447
 white river crayfish 188
 white-tailed deer 216
 wild meat 122, 134

winter mortality 214, 242
Wolffia 63
workflow 236, 397, 398

X

Xenopus laevis 125, 132

Y

yabbie 190
Yellowfin goby 447

Z

Zizania latifolia 59
zoogeographic regions 88
zoos 121

