

Index

- abiotic, 7, 69, 96, 98, 100, 106, 150, 221–2, 233, 271–2
- Acanthinucella spirata*, 203–4, 206–7, 209
- acanthocephalan, 186
- accidental introductions, 17, 329–30
- acidopore, 229
- acquired defences, 158
- Acridotheres tristis*, 27, 145, 334
- Acrocephalus arundinaceus*, 138
- Acrocephalus scirpaceus*, 136
- active, 13, 16, 72, 90, 98, 101–2, 163, 222, 247, 254, 256, 270, 279, 292–3, 298, 319, 326, 330, 333
- activity, 1, 8, 13, 16, 27, 51, 72, 102–3, 107, 162, 172, 180, 183, 227, 231–2, 293, 299, 330, 333
- adaptation, 15, 57, 63, 76, 134, 140, 150, 152, 160, 191, 204, 212, 245, 247, 252–3, 273–4, 278, 327
- adaptive mismatch, 64, 66, 68, 73, 75
- adult, 2, 37–8, 66, 68, 135, 159, 162, 173, 188, 246, 271, 300, 314
- Aedes*, 246, 249–51, 254–9
- Aedes aegypti*, 246, 249, 251, 257
- Aedes albopictus*, 246, 254, 256–7
- Aedes atropalpus*, 246
- Aedes japonicus*, 246
- Aedes notoscriptus*, 246
- Africa, 143–50, 189, 248, 252–3, 255, 257, 281, 291, 295, 301
- aggregate, 315
- aggression, 12, 14–15, 72, 97, 103–4, 134–5, 182, 223–8, 230, 233, 296–7, 299, 318, 330
- aggressive, 8, 14, 16, 38, 50, 57, 97, 101–4, 108, 182, 224–7, 230, 266, 280–1, 296–8, 333–6
- alarm odour, 182, 295
- alarm response, 39
- alewife, 185
- alien, 29, 31, 266, 292, 299, 301, 325
- alkanes, 226
- Allee effect, 7–8, 12, 15, 74, 84, 86, 99, 102, 275, 278, 329
- allelic diversity, 226
- allopatry, 136, 138, 140–2, 147, 150, 152
- Alosa pseudoharengus*, 185
- Ambloplites rupestris*, 188
- American lobster, 182
- American robin, 38, 56–7, 136–7, 182, 186, 225, 227, 255, 291–2, 295–6, 301, 327–8, 330, 339
- amphibian, 14, 26, 72, 189–90, 294
- amphipod, 16, 185–6
- Amur sleeper, 185
- Anatidae, 327
- anchovy, 184
- androgen, 50
- Aneblepsoides hartii*, 281
- Anguilla anguilla*, 296
- Anopheles darlingi*, 246
- Anopheles gambiae*, 246, 253
- Anopheles quadrimaculatus*, 246
- Anoplolepis gracilipes*, 221, 232
- ant, 2, 14, 16, 57, 72, 74, 87–8, 97, 103, 191, 201, 221–34
- Anthropocene, 1
- anthropogenic habitats, 245, 247, 334, 336
- anthropogenically induced adaptation to invade, 247
- antipredator, 8, 12, 39, 182, 186, 270–3, 276–8
- Aphaenogaster rudis*, 230
- Apis mellifera*, 41
- Aplochiton* spp., 189
- aquaculture, 201, 203, 291, 295
- aquarium, 190, 269, 310–12, 319
- aquatic habitat, 246, 255
- Argentine ant, 221–2, 225, 228, 230
- Asellus aquaticus*, 186
- Ashmeadiella aridula*, 127
- Asia, 143–8, 189, 250, 253, 257, 291, 301
- Asian carp, 193
- Asian clam, 187, 192
- Asian shore crab, 183
- asocial individuals, 16, 101–9, 279
- associative learning, 40, 71
- Atlantic, 3, 14, 143–5, 183–4, 190, 193, 203–4, 295, 309–11, 314, 318
- attack, 180, 183, 187, 191, 226
- Australia, 13, 72–3, 87, 89, 91, 101, 143–6, 175, 189–201, 222, 253, 255, 291, 317, 327, 334
- Australian noisy miner, 31, 35
- Australian raven, 33
- Austropotamobius papillipes*, 181, 292, 294
- avian poxvirus, 162

- avoidance, 14, 29–30, 39, 70, 73, 102, 125, 174, 180, 185, 191–2, 199, 275–6, 279, 295, 317
- Babka gymnotrachelus*, 185
- Baetis rhodani*, 186
- Bahamas, 190, 310, 313–14, 317
- ballast water, 13, 186
- bank vole, 100
- barrier, 91, 279, 282, 313
- bee, 121, 123, 125, 128
- beetle, 295
- behavioural flexibility, 2, 14–15, 27, 272, 282, 329
- behavioural inhibition, 27
- behavioural switching, 123
- behavioural syndrome, 8, 10, 14–15, 18, 89–90, 102, 106–8, 135, 192, 225
- behavioural type, 8, 14–15
- behavioural variation, 7–8, 11–14, 16–17, 248, 279
- Bemisia tabaica*, 15
- Bermuda, 151, 255, 310
- Beroe ovata*, 184
- bet-hedging, 63, 67, 73–5
- biodiversity, 158
- biogeography, 138, 291
- biological control, 87, 90, 184, 201, 326
- biomarker, 48, 54
- biomass, 185, 190, 193, 205–10, 310
- biotic resistance, 182, 192, 201, 317
- Bison bison*, 139
- Black Sea, 184, 187, 203
- blackbird, 142, 148
- blue crab, 187, 192
- blue tits, 71
- bluebird, 16, 88, 103–4
- Boiga irregularis*, 52, 61, 201
- boldness, 8, 13, 16, 50, 76, 89–90, 97, 102–3, 106–10, 270, 276, 280, 298–9, 318, 330
- Bombus terrestris*, 121–2, 127
- brain size, 8, 26, 40–1, 277
- brains, 14, 26, 73
- brambling, 136
- breeding, 1, 50, 56, 65–8, 71, 74–5, 133–6, 141, 149, 292, 294, 299, 329–38
- brood parasitism, 133, 139
- browntrout, 186
- Bubo bubo*, 100
- budding, 222–3, 233
- buffer adaptation, 69
- Bufo bufo*, 294–5
- bumblebee, 120–3
- burrows, 29, 183, 293, 301
- butterfly, 99
- California, 125, 189, 201–2, 222, 226, 229, 293–4, 299
- Callinectes sapidus*, 182–3
- Calliopsis fracta*, 127
- Calopteryx splendens*, 173
- Camarhynchus pallidus*, 171
- Camarhynchus parvulus*, 159–61, 166–8
- Cambaroides japonicus*, 296
- Cameroon, 228, 252
- canaries, 40, 334
- cane toad, 16, 59, 87, 89, 91, 101, 191–2, 201, 317
- cannibal, 88, 271
- captive-bred, 58, 71, 331–9
- Carabus clatratus*, 295
- Carcinus maenas*, 182, 201
- Carduelis carduelis*, 144, 151
- Carduelis chloris*, 144, 149
- carib grackles, 35
- Caribbean, 190, 193, 201, 255, 291, 310, 313
- carnivorous, 187, 191, 229–30
- Carolina, 310
- Carpobrotus* aff. *acinaciformis*, 122
- Carpodacus mexicanus*, 50, 52
- cascading effects, 123, 184, 189
- Caspian Sea, 184
- cat's claw, 161
- Catostomas ardens*, 281
- Cephalopholis fulva*, 312, 318
- Ceratina arizonensis*, 127
- channel catfish, 188
- chela, 296
- chemical defenses, 212
- chemical signatures, 226
- Cherax* spp., 193, 291, 293, 301
- Cherax quadricarinatus*, 193
- Chesapeake Bay, 182, 184, 187, 192
- China, 157, 222, 328
- cichlid, 277
- CITES, 324–5, 328
- cladoceran, 185
- climate change, 1, 64, 233–4, 282, 298, 301
- Coccyzus* spp., 133
- cockroach, 226
- coevolution, 133–42, 150–3
- cognition, 2, 26–28, 40–1, 75
- cognitive ability, 28, 32, 36, 38, 333
- cognitive buffer, 69, 73
- colonization, 16, 54, 100, 102, 104, 110, 247, 251, 257, 282, 309, 311
- Columbia livia*, 162, 335
- Columbidae, 327
- comb jelly, 184
- competition, 2, 75, 84, 86, 88, 98–100, 103, 120, 123–4, 181–2, 188–9, 191, 223, 227, 229–30, 255, 258, 274, 291, 296, 298, 315–18, 334
- competitive advantage, 69, 224
- competitive dominance, 222
- coney, 312, 317
- conservation, 1, 67–8, 96, 110, 120, 127, 158–60, 171–2, 174, 233, 282, 293–4

- conservation practice, 158
 conspecifics, 12, 39, 50, 84, 87–8, 99–106, 133,
 142, 148, 229, 259, 273, 275, 277, 293–5, 299,
 316
 constraints, 221
 contaminants, 188, 193
 cooperative hunting, 316
 copepod, 185
 coral reef, 190, 313–14
 cordgrass, 183
Corethrella appendiculata, 255
 corticosterone, 50, 52, 54–5, 57, 333
Corvus brachyrhynchos, 38
Corvus coronoides, 33
Coryphopterus glaucofraenum, 312
Cottus bairdi, 188
Cottus cognatus, 188
Coturnix coturnix, 337
Coturnix japonica, 337
 courtship, 15, 258, 274–7, 299
 cowbird, 133–41, 148, 154–5
 crab, 2, 181–3, 187, 192–3, 201, 211–12, 297
Crangonyx pseudogracilis, 186
 crappie, 188
Crassostrea gigas, 203–4
Crassostrea virginica, 203–4
 crayfish, 2, 97, 181–2, 192–3, 291–301
Crenicichla frenata, 277
 cricket, 88
Crocodylus johnstoni, 31
Crotophaga ani, 162
 crow, 37–8
 crustacean, 17, 87, 181, 184–5, 291
 cuckoo, 133, 135, 137–8, 141, 148–50, 156–7
Cuculus, 133, 135, 146, 156
Culex pipiens, 246
Culex quinquefasciatus, 246
 cutthroat trout, 189
Cyanistes caeruleus, 71
Cynaocorax yncas, 71
 Czech Republic, 138, 292
- damsel flies, 173
 daphniids, 185
 Darwin's finch, 2, 158–63, 166, 168, 171–4
Dasyurus hallucatus, 191
 deliberate introductions, 12, 17, 266, 326,
 329–30
 demoiselle, 173
Dendrochirus zebra, 314
Dendrocopos syriacus, 336
 developmental behavioural plasticity, 70
Dialictus incompletum, 127
Dialictus tegulariforme, 127
 diet, 7, 41, 121–4, 158, 186–90, 202, 212, 226, 272,
 274, 294, 317, 319
Dikerogammarus villosus, 16, 185
- disease, 2, 58, 89–90, 158, 245, 259, 311
 dispersal, 2, 8–9, 13, 15–16, 51, 74, 83–91, 96–110,
 140, 142, 152, 158, 222–3, 270, 279–82, 292,
 298, 311–15
 dispersal rates, 2, 84–8, 99
 dispersal syndrome, 100
 dispersal tendency, 8, 74, 88, 97, 102–3, 107, 109,
 279
 diversity, 1, 15, 26, 32–3, 37, 40–1, 55, 65, 85, 106,
 121, 124, 133, 137, 150, 180, 221, 226, 291, 310,
 316, 330, 333, 335
 DNA methylation, 56
 Dolly Varden char, 189
 domestic, 39, 139, 247–53, 328, 339
Dreissena polymorpha, 185–6
Dreissena rostriformis, 187
 drift, 85, 150, 152, 189
 duck, 337
- eagle owl, 100
Echinorhynchus truttae, 186
 ecosystem engineer, 291
 ecosystems, 2, 128, 183, 190, 192, 201, 224, 232,
 234, 291–2, 301
 Ecuador, 162
 eel, 296
 eggs, 3, 70, 87–8, 133–6, 139–40, 147–9, 152, 156,
 159–62, 174, 184, 188, 191, 251, 281, 292, 295,
 299–300, 313–14
 elephant, 67–70
 Emberizidae, 143, 159, 328
 endangered, 128, 160–1, 171–2, 188, 191, 280, 295,
 299, 318, 337
 endocrinology, 47–50, 53–6, 61
 enemies, 50, 63, 65, 67–9, 141, 199, 224, 254
 enemy release, 2, 105, 142, 228, 259
 Enemy Release Hypothesis, 199
 energetics, 202, 205, 209
 England, 183, 193, 293, 296
Engraulis encrasicolus, 184
 enhanced spatial selection, 85
 entomophilous, 123
 epigenetic, 47, 53, 56
Erigoneatra spp., 99
 escape, 2, 12, 14, 99, 109, 180, 183, 192–3, 222,
 227–8, 310, 330, 333
 establishment, 2, 7, 11–13, 15, 17, 26–7, 30, 39–40,
 49–50, 57, 65–6, 72, 74, 82, 96, 102–6, 139, 141,
 146, 221, 223, 230–3, 254, 259, 267, 272–3, 276,
 278, 282, 309–10, 324–7, 329–30, 333
Estrilda melpoda, 143, 149
Euphorbia esula, 121
Euplectes afer, 16, 145
 European flycatchers, 71
 evolutionary history, 103, 105, 199, 204, 209–12,
 271, 281, 316
Evylaeus spp., 127

- exploration, 8, 13, 15–16, 50, 52, 66, 73, 76, 90, 98, 101–2, 106–10, 232–3, 275, 279, 330
- extinction, 1, 7, 63–7, 74, 158, 160, 255, 257, 271, 296, 301
- Fannia canicularis*, 173
- fecundity, 3, 63–4, 68, 76, 88, 100–1, 107, 125, 275, 299, 313, 319, 333
- Ficedula*, 71
- fieldfare, 137
- finch, 159–63, 166–8, 171–2
- Finland, 296, 300
- fire ant, 230
- fitness, 8, 59, 66–7, 70–1, 84–6, 99, 103–5, 125, 134, 138, 160, 162, 173, 225, 258, 273, 276, 329, 333–4
- flexibility, 2, 10, 14–15, 27, 61, 98, 122–3, 128, 232, 270–4, 277–82, 295, 329
- Floreana*, 159–63, 167–74
- Florida, 140, 190, 309, 313–14
- food sources, 36, 67, 184, 201, 229, 232, 272, 275, 277, 330
- food webs, 185, 188–9, 192
- foraging, 8, 14–15, 33–41, 71–2, 89, 102–3, 106–7, 119–23, 128, 174, 180, 200–1, 222–3, 227, 230–2, 255–6, 270–3, 275–81, 316, 333, 336
- founder effects, 16, 82, 85–6, 150
- Fringilla coelebs*, 144, 148
- Fringilla montifringilla*, 136
- Fringillidae, 144, 328
- frog, 189, 294
- Galápagos, 158–62, 165, 171, 174
- Galaxias platei*, 189
- Gallus gallus*, 39
- Gambusia*, 96, 106–7, 201, 266, 279, 281
- Gambusia affinis*, 107, 201, 266, 279
- Gambusia holbrooki*, 107, 266, 281
- Gammarus duebeni*, 185–6
- Gammarus fossarum*, 185
- Gammarus pulex*, 186
- Gammarus roeseli*, 186
- Gammarus tigrinus*, 185
- Gemma gemma*, 183
- gene flow, 91, 136, 140, 142, 150–3, 159, 223–5, 270, 279
- generalist, 7, 70, 121, 128, 139, 148, 150, 201–3, 212, 255, 272, 274, 281, 310
- genotype, 14, 75, 279, 330
- Geospiza fuliginosa*, 160–1, 166–8
- global change, 1, 119, 128, 326
- glucocorticoids, 49, 53, 333
- Gnatholepis thompsoni*, 312
- goby, 97, 185–8, 192, 312
- gonadotropin-releasing hormone, 54
- goodeid, 280
- grackle, 326
- gravid, 172, 174
- Great Lakes, 103, 184, 186, 188, 193, 269, 291, 295
- great tits, 71
- green crab, 182–3, 192
- greenfinch, 149
- Greenland, 151
- grey squirrel, 17
- grouper, 317
- Guadeloupe, 151
- Gulf of Mexico, 190, 310
- guppies, 41, 266–82
- habitat choice, 70, 247, 253
- habitat degradation, 234
- habitat fragmentation, 1, 139, 233–4
- habitat patch, 98–100, 102
- habituation, 28, 30
- Haliastur sphenurus*, 191
- Halictus ligatus*, 127
- Halictus tripartitus*, 127
- handling time, 186, 205–10
- Hawaii, 87, 142, 148, 151, 189, 201, 327
- Hawaiian Islands, 13, 151
- Hedysarum coronarium*, 123
- Hemichromis letourneuxi*, 16
- Hemigrapsus oregonensis*, 183
- Hemigrapsus sanguineus*, 183
- herbivorous, 183, 229
- Herpestes javanicus*, 201
- herring gulls, 71
- heterospecific, 39, 100, 133, 173, 226–7, 270, 278, 295
- Hispaniola, 147–8, 150
- Homarus americanus*, 182
- homeostasis, 47, 55
- honeybee, 41, 123
- hormone, 3, 47–57, 60, 333
- host, 2, 86, 90, 119, 122, 133–42, 146–56, 159–67, 171–4, 212, 252–3, 259, 295
- host–parasite, 2, 134–8, 142, 153, 159, 171–2
- house finch, 50
- house flies, 173
- human-altered environments, 75, 254
- hybridization, 160, 172–3, 189, 203, 248, 253, 259, 296, 301, 334, 337–8
- Hypophthalmichthys nobilis*, 193
- Iceland, 151
- Ictalurus punctatus*, 188
- immune system, 53
- India, 254
- indirect effects, 120, 123, 125, 189
- Indonesia, 254, 328
- information processing, 27
- inhibitory control, 27, 36–7, 41

- insects, 122, 190, 229–30, 274
invasion front, 15, 42, 82–91, 97, 101–4, 109, 191, 222, 230
invasional meltdown, 183
invasive syndrome, 17
Ischnura elegans, 173
Israel, 143, 336
- Jamaica, 193
Japan, 189, 295
jays, 71
jewelfish, 16, 97
Junco hyemalis, 52, 54
- Kenya, 53–4, 70, 248–53, 294, 297
killifish, 102
kin competition, 99–100
Korea, 254
- Lacerta lacerta*, 51
lag times, 224
Lagopus leucurus, 39
lake trout, 188
Lake Victoria, 201
Lampropholis delicata, 13
land use, 234, 246
largemouth bass, 181, 188, 296
Larus argentatus, 71
larvae, 3, 124, 139, 159–62, 171, 184, 189, 191, 246, 254–7, 274, 294, 313–14
Lasius neglectus, 222, 234
latency, 29, 31–7, 107, 135
Lates niloticus, 201
learning, 2, 27–41, 66, 68, 71–5, 122, 133–4, 148, 182, 191–2, 204, 211–13, 272–8, 295
Leiothrix lutea, 146, 148
Lepomis gibbosus, 187
Libellula angelina, 295
life history, 3, 7–8, 17–18, 26, 50, 57, 63–9, 72–6, 90, 100, 106–8, 121, 150, 157–8, 267, 277, 280–2, 297, 313, 326, 329
Limnodynastes convexiusculus, 191
Linepithema humile, 74, 221
lionfish, 3, 14, 190, 192–3, 201, 309–19
Lithobates catesbeianus, 201
Littorina obtusata, 212
longevity, 65, 313
Loxodonta africana, 67
Lupinus polyphyllus, 121, 123
Luxilus coccogenis, 189
- macaws, 328
Macoma balthica, 187
Macrobrachium spp., 193, 277
macroinvertebrate, 187
Malaysia, 328
- mammals, 14, 33, 36, 41, 72, 259, 334
management, 3, 67–8, 86, 90–1, 158–60, 171–4, 189, 193, 213, 235, 266, 282, 291, 299–301, 319, 324, 338
mangrove, 190
Manorina melanocephala, 31, 33
Mariana Islands, 151
marsh crab, 183
marsh die-back, 183
Martinique, 151
mate choice, 12, 15, 74, 273, 275
mating, 10, 50, 84, 86, 89–90, 158, 172, 223–5, 245, 254, 257–9, 270–6, 280, 292, 299–301, 333, 337
Mauritius, 148, 150
mayflies, 70
Mediterranean, 203, 248
meerkat, 36
Megachile apicalis, 127
memory, 27–30, 33–4, 38, 53
metareplication, 152–3
Mexico, 228, 270, 280–1, 328, 339
Micropterus dolomieu, 188
Micropterus salmoides, 181, 188, 296
Milvus migrans, 191
Missouri River, 193
Mnemiopsis leidyi, 184
modelling, 71, 158
Molothrus, 133, 135, 139, 146
monk parakeet, 70, 330, 339
Morone saxatilis, 201
mortality, 2, 52, 66, 68, 73, 98, 159–60, 163–4, 167, 171–2, 181, 188, 190, 266, 270, 275, 297, 330, 333, 337
mosquito, 16, 106, 245–7, 254–5, 259, 266–7, 269, 272
mosquitofish, 2, 16, 96–8, 103–10, 201, 266
motor action, 28, 32–5
multicolonial, 225, 231
Muscidae, 159
Musculista senhousia, 203–4
mussel, 139, 182, 185–8, 193, 202–10, 313
mutualisms, 2, 120, 230
Myiopsitta monachus, 70, 330
myna, 27, 31–41, 72–3, 334, 336
Myodes glareolus, 100
Myrmica rubra, 222, 225, 234
Mysis relicta, 185
Mytilus edulis, 203–4
Mytilus trossulus, 203–4
- naïveté, 200, 202, 209–11
Nassau grouper, 318
natal habitat preference induction, 70–1, 99–100
Neogobius melanostomus, 103, 187–8
neophilia, 29–31, 73
neophobia, 29–32, 52, 73, 98

- nest, 16, 57, 70–1, 74, 99, 134–6, 159–62, 167–8, 172, 174, 224–8, 231–2, 334–7
- nesting height, 160–8, 171–4
- New Caledonia, 228
- New Zealand, 13, 142, 144–51, 189, 222, 327
- nidopallium, 36
- Nile perch, 201
- noctule, 336
- North America, 60, 70, 72, 139–46, 183, 189, 203–4, 210, 254–6, 282, 291, 293, 296, 301
- North Carolina, 164, 190, 310, 314
- novel challenges, 48, 70, 73
- novel environments, 3, 8, 29–30, 36, 39–40, 63–4, 68–9, 72, 75–6, 128, 153, 281, 329
- novel predator, 2, 38, 39, 106, 109, 200, 202, 209–13, 271, 273, 277, 316–17
- novel resource, 32, 34, 119, 122, 124
- nuptial flights, 222–3
- Nutricula* spp., 183
- nutrition, 191
- Nyctalus lasiopterus*, 336
- Nylanderia fulva*, 222, 229
- Ocenebra inornata*, 203–7
- odorant, 252
- odour, 182, 295
- ODT, 202, 209–12
- omnivorous, 229
- Oncorhynchus* spp., 188–9
- Oncorhynchus clarki lewisi*, 189
- Ontario, 185
- operant learning, 34–5
- opossum shrimp, 185
- opportunistic, 50, 222, 294, 336
- Optimal Diet Theory, 209
- orang-utans, 30
- Orconectes* spp., 16, 181, 187, 291–3, 295, 297–301
- Orconectes rusticus*, 16, 181, 291
- Oregon, 298–9
- Osmia lignaria*, 121
- Osmia nemoris*, 127
- Ostrea lurida*, 203–4
- oviposition, 10, 159, 173–4, 247–53, 257
- Oxyura jamaicensis*, 337
- Oxyura leucocephala*, 337
- oyster, 202–10
- oyster drill, 203
- Pachycondyla* spp., 229, 234
- Pacifastacus* spp., 16, 103, 291–6, 298
- Pacifastacus leniusculus*, 16, 103, 293
- Pacific Islands, 253
- parakeet, 335–6
- parasite, 2, 9, 14, 50, 53, 86, 89, 99, 133–43, 146–55, 158–67, 171–4, 186, 192, 199, 211, 310, 317
- parasitism, 86, 133–9, 142, 146–55, 186
- Paratrechina longicornis*, 232
- parental care, 12, 15, 52, 103, 133, 271, 300
- parrot, 31, 52, 326–9, 332–3, 337, 339
- parthenogenesis, 299–300
- Parus major*, 71
- Passer domesticus*, 16, 52–3, 71, 103, 144
- Passer montanus*, 52, 60, 145
- Passeridae, 144, 327
- passerine, 57, 141, 143, 336
- Patagonia, 189
- patch, 74, 96, 99–104, 160, 314
- pathway, 2, 3, 12, 325, 329–30, 333
- Pavlovian learning, 35, 38–41
- Perca flavescens*, 188
- Perca fluviatilis*, 296
- Perccottus glenii*, 185
- perch, 89, 296
- personality, 2, 58, 90, 96, 101–10, 134, 192, 279, 298, 301, 329–30
- pests, 56, 101, 232, 334
- pet, 12, 49, 193, 267, 269, 271, 282, 311, 324, 327–33, 337
- pet trade, 325, 328
- Phalloceros* spp., 266, 281
- Phasianidae, 327
- Pheidole, 221, 228, 232, 234
- Pheidole megacephala*, 221, 228, 232, 234
- phenotype, 3, 14, 47–8, 56, 70, 84–5, 91, 100, 107, 140–1, 147–8, 222, 330, 334
- pheromones, 232, 278, 299, 301
- Philornis downsi*, 158–70, 174
- Phylogeny, 221
- physiological, 3, 47–8, 53, 56, 58, 89, 100, 211, 271, 282, 309, 318, 333
- phytoplankton, 184, 187
- Pieris brassicae*, 99
- pigeon, 335
- Pinus contorta*, 280
- pioneers, 27
- planigale, 191
- Planigale maculata*, 191
- plastic, 14, 30, 40, 47–8, 54, 66, 69, 71, 74, 82, 140, 163, 226, 274, 300
- plasticity, 3, 14, 40, 47–8, 52–6, 66, 69–75, 102, 134, 138–41, 147–9, 180, 211–13, 221, 226–7, 272–5, 278, 292, 297, 309
- pleiotropic effects, 48, 51
- Pleistocene, 136, 139
- Ploceus cucullatus*, 145, 147
- Ploceus melanocephalus*, 336
- Poecilia* spp., 41, 266–8, 281
- Poecilia reticulata*, 41, 266
- Poeciliidae, 106, 271, 280, 282
- pollinator, 119–28
- polydomous, 228, 231–2

- Pomacea insularum*, 325
- Pomoxis* spp., 188
- Pongo pygmaeus*, 30
- Pontogammarus robustoides*, 185
- population dynamics, 8, 17, 74–5, 121, 174, 184, 246
- population growth, 3, 16, 63–7, 75, 83–9, 103–4, 110, 124, 185, 213, 221, 266, 271, 313, 315
- Portugal, 292–3, 336
- Potamocorbula amurensis*, 187
- Potamon fluviatile*, 297
- Potamonautes loveni*, 297
- predation, 2, 30, 39, 74–5, 98, 105, 108–9, 181–92, 200, 203–6, 210–11, 230–1, 254–7, 267, 271–8, 281, 294–7, 301, 310, 314–19, 333–4, 337
- predator evasion, 257, 271, 276–7
- predatorodors, 180
- predator–prey, 2, 200–5, 211–12
- predators, 2, 14, 26, 29, 37, 39, 50, 70–3, 98–103, 105–9, 119, 151, 180–92, 199–203, 206–13, 229, 245, 254–7, 260, 270–4, 277–9, 293–6, 301, 310–11, 314–18, 336
- preference, 66, 70–1, 99–100, 125–7, 156, 201, 209–10, 247, 251–3, 275, 292, 296, 328
- prefrontal cortex, 36
- pregnancy, 107
- Prenolepis imparis*, 228
- prey choice, 201–6, 209–13
- problem solving, 33–4, 73, 275
- Procambarus* spp., 181–2, 291–300
- Procambarus clarkii*, 181–2, 291–7, 299–300
- propagule, 3, 7, 11, 66, 74–5, 100, 110, 150, 221–2, 225, 227–30, 232, 272, 313–14, 319, 326, 329, 332, 337
- Psittacidae, 327
- ptarmigan, 39
- Pterois* spp., 3, 14, 190, 201
- Pteromys volans*, 99
- Puerto Rico, 87, 139, 143–5, 149, 151
- pumpkinseed sunfish, 187
- quagga mussels, 187
- quail, 337–8
- Queensland, 191
- Quiscalus lugubris*, 35
- Quiscalus mexicanus*, 326
- quoll, 191
- Rana* (= *Lithobates*) *cascadae*, 189
- range dynamics, 138
- range expansion, 16, 48–54, 57, 60–1, 85, 100–1, 136, 138–9, 309, 314
- Rapa venosa*, 187
- recognition, 2, 10, 57, 180, 182, 199–202, 224–8, 276, 299, 324
- recruitment, 183, 190–1, 222, 227–8, 231–2, 300
- red-billed leiothrix, 148, 151
- red-footed boobies, 68
- reed warbler, 136
- reproduction, 17, 27, 29, 63, 65, 68, 74–5, 84, 88–9, 96, 102–3, 121, 173–4, 233, 245, 266–7, 271–4, 293, 296, 299, 313, 315, 333, 337
- reproductive activities, 12, 68
- resource augmentation, 121
- resources, 1, 17, 26, 29, 31, 33, 37–8, 50, 63, 65, 71, 103, 119–24, 127–8, 174, 180, 190, 193, 224, 227, 231–2, 255, 275, 296, 310, 316, 334, 336
- reward, 28–9, 34–5, 124
- Rhinella marina*, 16, 52, 59, 87, 201
- rivulus, 281
- Rivulus hartii*, 102
- rock bass, 188
- rock pigeon, 162
- rodents, 41, 57, 252
- round gobies, 187–8
- r*-selection, 84–5
- ruddy duck, 337
- rusty crayfish, 16, 181–2, 187, 191, 291
- Salmo trutta*, 186, 188–9
- salmonids, 188–9
- Salvelinus malma*, 189
- Salvelinus namaycush*, 188
- San Francisco Bay, 187, 204, 213
- Sander vitreus*, 188
- Santa Cruz Island, 159, 165, 171–2, 174
- satyrization, 258, 260
- Scalesia pedunculata*, 161
- schooling, 276–7
- Sciurus carolinensis*, 17
- sculpins, 188
- selection, 12, 16, 30, 39–40, 47, 50, 53, 66, 69, 72, 75–6, 82–5, 91, 104, 110, 135–6, 138, 140, 142, 147, 149–51, 160, 172–3, 181, 200, 222, 253–6, 258, 270, 277–8, 327, 330, 333
- Senegal, 251, 331
- Serinus canarius*, 334
- Sesarma reticulatum*, 183
- shell thickness, 205, 208
- shelter, 9, 107, 182, 293, 296–300, 318
- shoaling, 107–8, 270–1, 277–8
- shrimp, 185–6, 190–3
- shy, 13, 90, 299, 330
- Sialia* spp., 16
- Sialia mexicana*, 103
- Sialia mexicana*, 52
- side-blotched lizard, 51
- signal crayfish, 16, 103, 291–2
- Simulium* spp., 186
- Skiffia* spp., 280

- skink, 13
- smallmouth bass, 188
- smooth-billed ani, 162
- snail, 212, 325
- sneaky mating, 273, 276
- sociability, 16, 98, 100–3, 107–9, 279
- social, 8, 12, 28, 39, 51, 57, 68, 71, 75, 98–109, 120–4, 127, 226, 231, 273–8, 300, 315, 329
- social dominance, 28
- social group formation, 12
- social learning, 71
- Solenopsis invicta*, 57, 221, 223
- song thrush, 142, 148
- songbird, 60, 328
- South America, 139, 143–5, 189, 222, 229, 253, 255, 267, 281, 315
- Spain, 292–3, 325, 332, 336–8
- sparrow, 16, 51–6, 60–1, 71–4, 98, 103
- spatial replicates, 152
- spatial sorting, 84–5
- spawning, 188, 313–15
- species recognition, 12, 173
- sperm storage, 270–2
- spider, 99
- spiny water flea, 184, 192
- Spizella breweri*, 74
- spread, 1, 2, 7, 11–12, 15–17, 47, 63, 74–5, 82–3, 86–7, 91, 96–110, 136–9, 187–193, 200–1, 213, 221–3, 228–34, 246, 253–4, 267, 272–3, 279–80, 282, 292–3, 309–18, 327, 329, 334, 336
- squirrel, 99
- starling, 33, 336
- stickleback, 295
- stochastic, 1, 64, 66, 82, 86, 91
- stochasticity, 7, 12, 63–7, 74–5, 82, 86, 271
- storage effect, 63, 67–8, 73–4
- striped bass, 201
- Sturnus burmannicus*, 336
- Sturnus tristis*, 27, 72
- Sturnus vulgaris*, 33, 146
- Sula sula*, 68
- Supella longipalpa*, 226
- supercolony, 224, 231
- survival, 3, 17, 27, 29, 63–9, 73, 96, 100, 103, 108, 174, 180, 185, 191, 257, 270–81, 297, 300, 313, 333, 337
- Synhalonia actiosa*, 127
- Synhalonia frater*, 127
- tadpole, 88
- Taiwan, 222, 328
- Tapinoma* spp., 222, 228, 231, 234
- Tapinoma sessile*, 222, 231, 234
- Taricha torosa*, 294
- testosterone, 52, 54
- Tetramorium tsushimae*, 234
- thermoregulation, 48
- toad, 87–8, 190–2, 294, 317
- tolerance, 3, 9, 57, 270–2, 282, 311–15
- Tomales Bay, 203–4, 209
- top-down effects, 180
- trade, 12, 49, 65, 73–5, 151–2, 158, 222–4, 248, 253–5, 271, 282, 310–12, 319, 324–33, 338
- transport, 1, 7, 11–14, 49–50, 57, 82, 96, 151, 193, 221–3, 247, 259, 311, 314, 324–30, 337
- transported, 7, 13, 48, 82, 225, 227, 233, 245, 251, 253, 269, 324–30
- traps, 15, 70, 160, 163–73, 318, 338
- Trinidad, 102, 267, 270, 276–81
- Trinidad and Tobago, 267
- trout, 186–9, 192, 295
- Turdidae, 328
- Turdus merula*, 142, 146
- Turdus migratorius*, 136
- Turdus philomelos*, 146, 148
- Turdus pilaris*, 151
- unicoloniality, 222, 225, 227, 233–4
- unintentional events, 12
- urban, 31, 52, 57, 72, 75, 141, 147, 224, 247, 251, 254–5, 329, 335–6
- urbanization, 53, 141, 233–4
- Urosalpinx cinerea*, 203–7
- Uta stansburiana*, 51
- Utah sucker, 281
- vertical migration, 185
- Vespa velutina*, 16
- Vespula vulgaris*, 14
- Vidua macroura*, 146, 149
- Vidua paradisaea*, 146
- Viduidae, 149
- Vietnam, 328
- village weaver, 137, 147
- walleye, 188
- warbler, 135, 138
- warpaint shiner, 189
- Wasmannia auropunctata*, 221
- wasp, 14, 16
- waxbill, 149, 151
- weapons, 2, 199–200, 227
- weaver, 147–8, 336
- West Indies, 139, 143–7
- whelks, 2, 187, 193, 202–4, 209, 211
- whitefly, 15
- whydah, 137, 149, 151
- wild-caught, 31, 52, 58, 258, 278, 325, 330–4, 338–9
- woodpecker, 336
- worm, 313

<i>Xiphophorus</i> spp., 266, 281	<i>Zanthoxylum fagara</i> , 161
yellow perch, 188	zebra mussel, 185–8
yellow-crowned bishop, 16	<i>Zonotrichia leucophrys</i> , 52
	zooplankton, 184–8