

Index

a

aberration 96
Acinonyx jubatus 105
 adaptive polymorphism 118, 119
 age of a species 13, 14, 211
 albino 103
 allelic distribution 108, 109, 110, 123
 – diversity 68, 69, 104, 106, 206
 – frequencies 109, 110, 116
 allelic polymorphism 3, 107, 108, 179, 205, 206
 allodiploid 176
 allopatrically separated species 171
 allopatric speciation 90, 156, 157, 158
 allopatry 140, 155, 165, 166
 allopolyploidy 175
 allotetraploidy 176
Amauris niavius 124
 American Ruddy Duck 170, 171
 anagenesis 15, 16, 35, 189, 195, 208–211, 218
 anagenesis-cladogenesis conflict 209
 anagenetic speciation 209
Anas acuta 79
Anas platyrhynchos 79
Anser caerulescens 96
 apomorphies 37, 75, 192–196
Apus apus 111
Araschnia levana 96, 102
 archaeobacteria 134
Ardea herodias 96
Argynnis paphia 96
 artificial
 – classes 33, 54, 55, 56
 – groups 18
 – species 44
 assortative mating 109, 151, 156, 171
Astrartes fulgerator 86

atomic number 56
 Atran, Scott 7, 25, 29
 Australian Magpie 142
 autapomorphies 37, 192–195
 autopolyploidy 175

b

Bachmann, Konrad 20, 29
 bacteria 134, 135, 161
 Balearic Shearwater 5
 barcoding 2, 35, 71, 73, 86–91, 153, 183
 Bates, Henry Walter 123
 Batesian mimicry 67, 123
 Bdelloidea 137
 bdelloid rotifers 137
 beehive 137
 Berthold, Peter 112
 biodiversity, preservation of 31
 biological diversity 108
 biparental organisms 76, 77, 128, 136
 – reproduction 189, 190
 – sexuality 137
 – species 89, 207
 birds 198, 200, 201, 215
 bivalentism 102, 149
 Black-bellied Seedcracker 118, 119
 Blackcap 112, 114, 146, 147
 Black-eared Wheatear 5
 Black Panther 103, 104
 blood groups 76, 108, 109
 – alleles 109
 – taxonomy 17
 Blue Chaffinch 207, 208
 Blue Tit 144
 bottleneck 88
 Boyd, Richard 58, 59
 breeding times, in birds 143
 brood parasitism 125, 126

- Brown Bears 162, 163
 Brown-lipped Snail 116, 117
 Burnet Moth 114, 115
- c**
- C. latrans* 162
Canis lupus 162, 163
Canis rufus 31
Carabus auronitens 144
 Carrion Crow 99, 173
 Cavalli-Sforza, Luigi 32, 105
Cepaea nemoralis 116
 Cheetah 105
 chemical elements 46, 50, 56, 63, 64
 Christoffersen, Martin L. 6
 chromosomal linkage 133
 Cichlides 88, 89, 100, 157, 160, 161
 Ciliates 129
 clade 36, 189, 194, 199, 212–214
 cladistics 36, 37, 187, 188, 191–193, 196, 201, 211
 cladistic bifurcation 37, 192, 194, 196, 210
 – branching 193, 195, 211
 – classification 202
 – concept 13, 35, 125, 194
 cladistic species 36, 37, 193, 194, 196, 210
 – split 193, 194, 196
 – system 201
 – taxonomy 192, 207
 – tree 128, 190, 193
 cladogenesis 15, 16, 35, 189, 195, 209, 210
 class 10, 21, 22, 45, 47, 49–56, 60–64, 97, 188, 212, 218
 – formation 28, 47–49, 52, 54, 55, 60, 188
 classification 7, 9, 57
 clinal transitions 98, 145
 – transitory region 147
Coenonympha tullia 140
 cohesion of organisms 187
 cohesive connections 43
 cohesive groups 52
Coleoptera 157
 Collared Flycatcher 78, 184
Columba palumbus 122
 common blue Butterfly 149
 common Cactus Finch 179
 common Chaffinch 207, 208
 conjugation 129, 135
 Consortium for the Barcode of Life 91
 convergent 35, 50, 83, 85
 – evolution 59
Corvus corone 99, 173
 Cougar 105
 Coyote 162, 163, 177
Cracticus tibicen 142
 cryptic species 40, 67, 115
 Francis Crick 23
 Cuckoo 125, 126
Cuculus canorus 125, 126
 cytochrome c oxidase I gene 87
- d**
- Danaus chrysippus* 124
 Darwin, Charles 1, 2, 3, 5, 10, 12, 19, 20, 22, 23, 46, 62, 82, 94, 123, 189, 218
 Darwin Finch 107, 119, 120, 178, 179
 defining
 – properties 53
 definition 21, 90, 94, 127, 195, 196
 delimitation 43
 De Queiroz, Kevin 75, 191, 194, 196, 207, 212
 descent
 – cohesion 65, 191, 194, 196
 – community 50, 80, 81, 133
 – connection 134
 – relation 50
 diagnosis 2, 6, 28, 29, 41, 90, 196, 218
 – of species 40, 68
 – trait 110
 different species concepts 19
 dimorphism 101, 118
 dinosaurs 200
 discovery of new species 91
 Dobzhansky, Theodosius 2, 19, 77, 89, 127, 138
 Donkey 187, 188
Drosophila pseudoobscura 182
Drosophila heteroneura 182
Drosophila silvestris 182
- e**
- Eastern Reef Egret 96
 Eastern Rock Nuthatch 78
Egretta caerulea 96
Egretta garzetta 96
Egretta gularis 96
Egretta rufescens 96
Egretta sacra 96
 Ehrlich, Paul 141
 Einstein, Albert 4, 15, 25
 Eleonora's Falcon 96, 143
 Endangered Species Act 31
 enhancer 72, 74, 111, 120
Equus asinus 187
Equus caballus 187
 Ereshefsky, Marc 197

essence 45, 46, 56, 58, 64, 65
 essential traits 22, 59, 60, 62, 218
 eubacteria 134
 Eurasian Blackbird 113
 European Swift 111
 evo-devo 75, 83
 evolutionary divergence 150
 evolutionary epistemology 29

f

Falco eleonora 96, 143
 family resemblance 60
 family's tree 190
 female choice 77, 100, 158
 Ferguson, Willem H. 86
 fertilization 129
Ficedula albicollis 78, 184
Ficedula hypoleuca 78, 184
 field guides 2, 5, 6, 34
 Fire Salamander 160
 Flycatcher, Pied 78, 184
 folk biology 26, 29, 44
 folk science 30
 form 96
Fringilla coelebs 207, 208
Fringilla teydea 207, 208

g

Garter Snake 101, 121
Gasterosteus aculeatus 73
 gastrulation 84
 genealogical cohesion 194, 217
 – connections 130, 131, 134, 187, 188
 – gene flow 129, 130
 – tree 204
 gene flow 89, 98, 100, 101, 132, 133, 160–162, 179, 188, 194, 196, 208, 209, 211, 217
 – cohesion 39, 52, 207
 – community 3, 13, 38, 42, 59, 63, 65, 80, 81, 88, 89, 118, 127, 130–133, 135, 136, 152, 161, 162, 166, 181, 183–185, 194, 196, 198, 207
 – connection 131, 185
 – relation 50, 65
 gene pool 181
 gene theft 178, 179, 180
 genetic compatibility 132
 – drift 87, 105, 106, 109, 131
 – incompatibility 150
 – preadaptation 121
 gene tree 204, 205, 206

Geospiza fortis 119, 120, 178
Geospiza scandens 179
 Gessner, Konrad 70
 Ghiselin, Michael 44, 50, 127, 188, 209, 210
 Great Blue Heron 96
 Great Tit 142
 Greek naturalist Heraclitus 209
 Greek paradoxes 13
 Greenish Warbler 165
 Grey Wolf 162, 163
 group formation 27, 48
 group selection 106, 107, 120
 Guppy 100

h

Haeckel, Ernst 189
 Haldane, John Burdome 153
 Haldane's Rule 152, 153, 154
 Hardy-Weinberg Law 109
 Hebert, Paul 87
 Heine, Heinrich 1
 Hennig, Willi 74, 75, 194, 195, 196, 198, 201, 202, 206, 207, 210
 hermaphrodite 136
 Herring Gull 164, 172
 hierarchical levels 189, 191, 198, 202–204, 206, 213
 homeostatic property cluster 58, 59
 homologous 75, 84, 85
 – genes 85
 – traits 82
 homology 82, 83, 85
 – problem 84
 Hooded Crow 99, 173, 177
 horizontal gene transfer 134
 Horse 187, 188
 House Sparrow 69, 98, 99, 176–178
Hox mutation 10
 Hull, David 23, 43, 202, 207
 human populations 108
 – races 32, 97, 98, 109, 142
 hybrid 31, 161, 163, 167–169, 174–176, 180, 184
 – incompatibility 151, 152
 – species 69, 177, 178
 – sterility 155
 hybridogenic speciation 173, 175, 181
Hypolimnas misippus 124

i

identification
 – guide 69
 – of species 91

- traits 90
 - individual 10, 45, 50–54, 56, 167, 188, 209, 218
 - interspecific differences 81
 - intraspecific
 - differences 81
 - diversity 108, 116
 - polymorphisms 2, 94, 95, 104, 116, 195
 - intrinsic traits 10, 46, 48, 65
 - introgression 174
 - isolation by distance 132, 140, 141, 163–165, 167, 177
 - Italian Sparrow 69, 176–178
- k**
- kinship 80, 81, 85, 87, 161, 196–201, 205, 207, 210, 213
 - kleptospecies 181
 - Kripke, Saul 45, 58
- l**
- Large Heath 140
 - Larus argentatus* 164, 172
 - Larus fuscus* 172
 - larvae 101
 - lateral gene
 - exchange 3
 - flow 45, 127, 130, 141, 217
 - transfer 135
 - Lesser Black-backed Gull 172
 - lineages 36, 87, 187, 189, 194, 195
 - Linnaean names 44
 - nomenclature 43, 212, 213
 - system 212, 213, 214, 215
 - Linnaeus 2, 3, 22, 45, 61–63, 65, 70, 103, 212, 213, 218
 - Little Blue Heron 96
 - Little Egret 96
 - local adaptations 138
- m**
- main branch 13, 211
 - major histocompatibility complex (MHC) 107, 206
 - Mallard 79, 170
 - Map Butterfly 96, 102
 - Marsh Frog 180, 181
 - Marsh Tit 185
 - Mayr, Ernst 2, 19, 20, 23, 29, 39, 44, 70, 89, 123, 124, 127, 138, 141, 158, 159, 164, 166, 201, 202, 210
 - Medium Ground Finch 119, 178, 179
 - meiosis 129
 - Meise, Wilhelm 69, 177
 - melanism 103
 - Mendeleev, Dmitri Ivanovich 56, 63
 - Mendelian rule 115
 - Meyer, Julius Lothar 56, 63
 - MHC alleles 107, 108
 - migratory and sedentary birds 110, 114, 144
 - migratory birds 111–113, 145
 - mimicry 67, 116, 123
 - morph 123
 - polymorphism 102, 124, 126
 - Mimulus cardinalis* 182
 - Mimulus lewisii* 182
 - Mishler, Brent 20, 187, 191, 196, 207, 212
 - mixed classification 208, 209, 210
 - mixed mating 163, 184
 - molecular clock 87, 90
 - monistic species concept 18
 - monkey flower 182
 - monophyletic taxonomy 43
 - monophylum 43, 162, 197–199, 206, 207, 210
 - monophyly 13, 14, 36, 196, 201, 202, 206–208, 210, 211, 213
 - monophyly-paraphyly conflict 209, 210
 - monothetic class 60
 - monozygotic twins 41, 69
 - morph 95, 96, 97, 100–104, 113–118, 121, 149, 158
 - morphotype 103
 - Muller, Hermann Joseph 153
 - Müllerian mimicry 67
 - multiple alleles 115
 - allelism 68, 106
 - multivoltinism 102
 - mutant 97, 103
- n**
- natural group 18
 - natural kind 10, 22, 54–56, 58, 60–62, 64, 218
 - neutral allele 105
 - New World Ruddy Duck 150
 - New World Vultures 83
 - Nine-spotted Moth 116
 - nominalistic and realistic classes 55
 - Northern Lapwing 142
- o**
- objects
 - of biology 10
 - of chemistry 10
 - Oenanthe melanoleuca* 5
 - Oenanthe hispanica* 5
 - Okasha Samir, 64

- Old World Ruddy Duck 150
 Old World Vultures 83
 one-gene speciation 183
 ontology 41
 operational definition 40, 80
 orchid 168
 Orr, Allen 183
Oxyura jamaicensis 150, 170
Oxyura leucocephala 150, 170
- P**
- Pacific Black Duck 170
Papilio dardanus 123, 124, 158
Papilio machaon 148
 paraphyletic classification 199
 – systematics 210
 – taxonomy 200
 paraphylum 197, 198, 199, 203, 204, 206, 207
 paraphyly 196, 199–202, 206–208, 210
 parthenogenesis 136, 190
 partially migratory birds 113, 146
Parus caeruleus 144
Parus major 142
Parus montanus 131, 139, 184
Parus palustris 185
Passer domesticus 69, 176
Passer hispaniolensis 69, 176
Passer italiae 69, 176
Pelophylax esculenta 180
Pelophylax lessonae 180
Pelophylax ridibunda 180
 periodic table of chemical elements 56, 63
 phase 96
 phenetic classification 71
 phenetics 70, 71
 phenetic species concept 34, 61, 71, 95, 102, 108
 phenetic taxonomy 37
 phenon 96
Phylloscopus trochiloides 165
 phylocode 43, 44, 212–216
 – system 215
 phylogenetic bifurcation 36
 – distance 88, 153, 161
 – lineage 16
 – species 161
 – tree 87, 187, 189–191, 193, 198, 202–204, 213, 214, 216
 Pintail 79
 Plato 21, 22
 pleiotropy 72
 plesiomorphy 75
 Polar Bear 162, 163
 polygeny 68, 71
 polymorphic population 125
 – species 104
 – stages 102
 polymorphism 101, 102, 106, 108, 117
Polyommatus icarus 149
 polyploidy 175
 polythetic class 60, 61, 64
 polytype 101
 polytypic species 67
 polytypy 40, 101
 Pool Frog 180, 181
 Popper, Karl 15, 44
 postzygotic 168
 – barrier 151, 176
 – incompatibilities 152, 154
 – mating barrier 149, 171
 – reproductive barrier 175
 – speciation genes 151
 potential ability to crossbreed 166, 167
 – cross-fertility 167
 – reproductive community 132
 Poulton, Edward Bagnall 2, 123, 124, 127
 pragmatism 6, 44
 preadaptation 106
 pre- and postzygotic barriers 149
 premating barrier 151
 prezygotic 168
 – barrier 151, 166
 – mating barrier 147, 171
 – speciation genes 150
 principle of cladistics 14
 prokaryotes 134
 prokaryotic lateral gene transfer 128
Puffinus mauretanicus 5
Puffinus yelkouan 5
Puma concolor 105
 Putnam, Hilary 45, 58
Pyrenestes ostrinus 118
- r**
- race 33, 39, 97, 98, 101, 103, 113, 141, 142, 158, 181
 Rassenkreis 164
 Raven, Peter 141
 Reddish Egret 96
 Red Lists 30
 Red Wolf 31, 163
 reinforcement 171, 172
 relational cohesion 192, 193
 – connections 10, 26, 27, 50, 65, 188
 – group 47, 48, 57, 193

- Rensch, Bernhard 19, 112, 142, 148, 164
 reproductive community 3, 38, 63, 81, 124, 132, 152, 171, 181
 – connection 133
 – incompatibility 88, 149, 150, 153, 161
 reptiles 198–201, 203, 215
 reticular network 190, 191
Rhagoletis 159
 ring species 132, 141, 163–165, 177
 Ruddy Duck 163
- S**
- Salamandra salamandra* 160
 Sauropsida 215
Saxicola torquata 114, 146
 sedentary birds 111–113, 145, 146
 selection pressure 139
 self-fertilization 136, 174, 176
 self-fertilizing organisms 174
 sexual
 – cohesion 217
 – compatibility 161
 – connections 131
 – dimorphism 96, 101, 102, 107, 114, 118
 – gene flow 129, 130
 side branch 13, 203, 210, 211
 Silver-washed Fritillary 96
 Simpson, George Gaylord 7, 19, 41, 187
Sitta neumayer 78
Sitta tephronota 78
 Snow Goose 96, 103
 Spanish Sparrow 69, 176, 177, 178
 speciation 72, 74, 100, 128, 155, 165, 176, 181, 217, 218
 – genes 93, 149, 150, 155, 163, 217
 – rates 9
 – traits 95
 species 98
 – borders 187, 192
 – boundaries 163, 191
 – concept 5, 34, 95, 161
 – conservation 108
 – definition 95, 192, 196
 – diagnosis 195
 – differences 93, 110
 – essences 45, 62
 – formation 172
 – hybrid 169, 178, 184
 – hybridization 178
 – identification 6, 218
 – as individuals 167
 – membership 81
 – numbers 18
 – pluralism 33
 – problem 27, 28, 41, 42
 – tree 204–206
 species-less 137
 – organisms 13, 21, 136
 species-specific
 – traits 108
 specifier 75, 196
 sperm-egg fusion 128, 135
 split 36
 squid eye 85
 stable allelic polymorphisms 120, 206
 stable polymorphisms 95, 106–108, 118–120
 stem group 37
 stem species 13, 14, 74, 194, 205, 207–211
 Stickleback 73, 74
 stonechat 114, 146
 structural genes 71–74, 104, 111, 121
 Sturtevant, Alfred Henry 70
 subspecies 97, 98
 Swallowtail 148
Sylvia atricapilla 112, 114, 146
 sympatric and allopatric speciation 155
 sympatric speciation 90, 117, 119, 155–160, 182
 synthetic theory of evolution 19
Syntomis phegea 116
- T**
- taxon as a class 22
 taxonomic classifications 115
 tetraploid 175
Thamnophis ordinoides 101, 121
 theory in taxonomy 1
Tilapia 160
 trait
 – essentialism 56
 – resemblance 18
 transcription factor 72, 104, 111, 120
 transduction 135
 transposable elements 9
Turdus merula 113
 typological species concept 23
 typology 123, 192, 196, 201
- U**
- uniparental organisms 127, 136
 uniparental reproduction 131, 136, 189, 190
 universal 21, 45, 46, 49, 50, 52, 54, 56
 univoltine and bivoltine butterflies 148
 univoltinism 149
 urbanization of birds 122
Ursus arctos 162
Ursus maritimus 162

v

vague boundaries 21, 184
vagueness of species delimitation 11
variation 96
vegetative reproduction 136
vertebrate eye 85
vertical gene flow 127, 129
vertical gene transfer 136

w

Wallace, Alfred Russel 5, 94, 123
Water Frog 180, 181
Western Reef Heron 96
Western Rock Nuthatch 78
White-headed Ruddy Duck 170, 171

Willow Tit 131, 139, 184, 185
Woese, Carl 134, 201
Wolf 177
Woodpigeon 122
worker bees 137
Wright, Sewell 21

y

Yelkouan Shearwater 5

z

Zygaena ephialtes 114, 158
Zygaena-transalpina group 79, 115

