

# Name index

- Adams, M., 34–6, 172  
 Agassiz, L., 7  
 Ainsworth, C. C., 95  
 Anderson, L., 82  
 Andrew, L. E., 96  
 Árnason, Ú., 84  
 Arnold, M. L., 247, 283  
 Aslin, H. J., 286  
 Atkin, N. B., 150  
 Avise, J. C., 196, 282  
 Ayala, F. J., 34–6, 39, 42–4, 48, 52  
  
 Baccus, R., 197  
 Baker, R. J., 74, 84, 104, 119–20, 124, 175, 195, 206, 215, 219, 225, 235–8, 244, 276, 281  
 Baldwin, L., 247  
 Bar-El, H., 181–2  
 Baranov, V. S., 140–2  
 Barrett, S. C. H., 49–51, 242, 272  
 Barsacchi-Pilone, G., 247  
 Barton, N. H., 15, 59, 63, 65, 67–8, 230, 239, 241, 274, 284  
 Batistoni, R., 247  
 Baverstock, P. R., 34, 48, 74, 84, 148–9, 172, 174, 176–9, 207, 270  
 Bell, G., 242  
 Benado, M., 176  
 Bengtsson, B. O., 88, 200  
 Benirschke, K., 130, 150  
 Berg, R., 93  
 Berland, H. M., 130  
 Bickham, J. W., 74, 215, 219, 225, 235–8, 244  
 Bingham, P. M., 258  
 Blair, W. F., 196–7  
 Bock, W. J., 16, 28, 45, 48, 52, 79, 272  
 Bonaminio, G. A., 133  
 Boscher, J., 129  
 Bosma, A. A., 129  
 Bouvet, A., 132  
 Bradshaw, W. N., 84, 196  
 Bregliano, J. C., 95, 257–8  
 Briscoe, D. A., 161, 174  
 Britten, R. J., 256, 264  
 Britton-Davidian, J., 113, 147, 175, 207, 270  
  
 Brncic, D., 238, 240  
 Brown, D. R., 155  
 Brown, G. G., 177  
 Bruere, A. N., 132  
 Brussard, P. F., 39–40  
 Bryant, E. H., 66  
 Bryant, P. J., 70  
 Bucheton, A., 257  
 Buckland, R. A., 130  
 Bullini, L., 243  
 Bunch, T. D., 132  
 Bush, G. L., 36, 88, 92, 209, 226–8  
 Butlin, R. K., 15  
  
 Cabrero, J., 111  
 Cain, A. J., 9  
 Camacho, J. P. M., 111  
 Capanna, E., 102, 139, 142, 148, 169, 216–17, 234–5, 237, 270  
 Carr, G. D., 69  
 Carson, H. L., 1, 14, 35, 37, 54, 59–63, 65–70, 72, 87, 201, 208, 226, 229, 263, 268, 271  
 Cathcart, C. A., 161, 174  
 Catzefflis, F. M., 183  
 Chandley, A. C., 145–6, 152  
 Chapman, H. M., 132  
 Charlesworth, B., 36, 59, 63, 65, 67–8, 88, 279, 287  
 Chesser, R. K., 104, 119–20, 124  
 Christensen, K., 112, 275  
 Cleland, R. E., 77, 237–8  
 Cleve, H., 183  
 Close, R. L., 159  
 Coates, D. J., 33, 82, 162, 238, 240, 283  
 Collins, M., 95, 99, 260  
 Coluzzi, M., 213  
 Corneo, G., 85  
 Coyne, J. A., 45–6, 48, 52, 79, 272  
 Cracraft, J., 12, 25, 28  
 Craddock, E. M., 68, 70, 201  
 Craig, G. B., 107  
 Cribiu, E. P., 132  
 Crick, F. H. C., 255–6  
 Crovello, T. J., 12, 27  
 Curtsinger, J. W., 105  
  
 da Cunha, A. B., 37–8, 87  
 Darlington, C. D., 81  
 Davidson, E. H., 256, 264  
 Davis, K. M., 128  
 Davis, S. K., 187–9, 278  
 Davisson, M. T., 82  
 de Boer, P., 145  
 DeSalle, R., 35, 68, 70, 201  
 Di Berardino, D., 130  
 Dobzhansky, T., 7, 10–11, 37, 39, 46, 87, 211, 279  
 Dollin, A. E., 154, 168  
 Donoghue, M. J., 25  
 Doolittle, W. F., 255–6, 258–9, 264  
 Dover, G. A., 245, 249–52, 254  
 Dutrillaux, B., 156–7  
  
 Echelle, A. A., 25  
 Ehrlich, P. R., 11  
 Eichenlaub-Ritter, U., 143  
 Elder, F. F. B., 74  
 Eldredge, N., 269, 285  
 Eldridge, M. D. B., 160–1  
 Ellis, P. M., 132  
 Endler, J. A., 19, 229  
 Engels, W. R., 105, 260, 262–3  
 Engstrom, M. D., 74  
 Epling, C., 39  
 Evans, E. P., 127  
 Evans, H. J., 130  
  
 Fan, G., 152  
 Fechheimer, N. S., 133  
 Feder, J. H., 192–3  
 Ferris, S. D., 146–7  
 Finch, R. A., 116  
 Fisher, G., 82  
 Fontdevila, A., 95, 98, 103, 259–60, 274  
 Forejt, J., 141–2, 144–5, 167, 270  
 Foster, G. G., 111  
 Freeman, M., 76  
 Frost, D. R., 12  
 Fry, K., 85  
 Frykman, I., 200, 206  
 Futuyma, D. J., 31, 33, 92, 104, 206–7, 209, 214–16, 230, 276

- Gabriel-Robez, O., 129, 167  
 Galton, G., 63  
 Garagna, S., 144, 200  
 George, M., 151, 154  
 Georgiadis, N. J., 154  
 Ghiselin, M. T., 7, 22  
 Gileva, F. A., 106  
 Gillespie, D., 264  
 Ginzburg, L. R., 258–9  
 Goitein, R., 183  
 Goldschmidt, R., 227  
 Gorman, G. C., 172  
 Gould, S. J., 36, 269, 285–7  
 Gourevitz, P., 179–80  
 Grant, V., 10–11, 36, 65, 67, 208, 224–5, 244  
 Grao, P., 140  
 Green, M. M., 257  
 Greenbaum, I. F., 82, 84, 188, 195–6, 206–7, 276  
 Gregorová, S., 144–5  
 Greilhuber, J., 84  
 Gropp, A., 113, 139–43, 237, 270  
 Gunn, S. J., 195–6  
 Gustavsson, I., 129–31  
  
 Haaf, T., 101  
 Hafner, M. S., 192, 194–5  
 Hägele, K., 95, 98, 103, 260, 268, 274  
 Haldane, J. B. S., 45, 79  
 Hale, D. W., 82  
 Halkka, I., 198, 200  
 Hall, E. R., 196  
 Hall, W. P., 120, 128, 187, 189  
 Halliday, R. B., 230, 284  
 Hamerton, J. L., 93  
 Hammer, M. F., 114  
 Hansen, K. M., 130  
 Hansen-Melander, E., 129  
 Harris, M. J., 112–13  
 Harvey, M. J. A., 130  
 Hatch, F. T., 85  
 Hausser, J., 198  
 Hayashi, J., 177  
 Hayman, D. L., 159  
 Hecht, M. K., 23, 29  
 Hedrick, P. W., 118, 120, 124, 271  
 Hengeveld, R., 13, 21  
 Heth, G., 181  
 Hewitt, G. M., 15, 103, 108, 230, 284  
 Hickey, W. A., 107  
 Hillis, D. M., 12  
 Hoffman, A., 23, 29  
 Holliday, R., 251  
 Hotta, Y., 145–6  
 Hsu, T. C., 74, 84, 196  
 Hubby, J. L., 39  
  
 Iannuzzi, I., 130  
 Imai, H. T., 88  
  
 Jaafar, H., 129, 146–7  
 Johannisson, R., 167  
 John, B., 32, 36, 76, 78, 82, 84–5, 96, 103, 126, 132, 146, 149, 152, 164, 171, 216, 240, 247–51, 254, 257, 262–3, 266, 272, 279–80  
 Johnson, W. E., 68, 70  
 Johnston, F. P., 150  
 Jones, R. N., 108–9  
 Jotterand-Bellomo, M., 95, 135  
  
 Kaneshiro, K. Y., 70  
 Karpechenko, G. D., 241  
 Kayano, H., 108  
 Key, K. H. L., 33, 104, 210, 214, 216, 229, 231  
 Kezer, J., 246  
 Kidwell, M. G., 95, 257–8  
 Kieffer, N., 154  
 Kimura, M., 36  
 King, D., 189, 286  
 King, M., 32, 74, 82, 84–5, 87–8, 93–4, 96–7, 102–3, 185, 189, 219, 232–4, 238, 240, 243–4, 246–7, 266, 274, 280, 286  
 Kirby, G. W. M., 154  
 Kitchin, R. M., 196  
  
 Lamb, T., 282  
 Lande, R., 67, 82, 86, 93–4, 104, 117–18, 120, 124, 239, 271  
 Lansman, R. A., 197  
 Lara-Gongora, G., 189  
 Larson, A., 88–9, 206, 277  
 Lay, D. M., 181  
 Levin, D. A., 39, 118, 271  
 Lewis, H., 103, 208, 222–4  
 Lewontin, R. C., 31, 34, 39–40, 48, 52, 59  
 Lifschytz, E., 80, 145–6  
 Lim, J. K., 260  
 Liming, S., 74, 150, 154  
 Lin, C. C., 101  
 Lindsley, D. L., 52, 80, 145–6, 167  
 Logue, D. N., 130  
 Loh-Chung, Y., 150  
 Lohi, O., 112, 275  
 Long, S. E., 132  
 Loudenslager, E. J., 196–7  
 Løvtrup, S., 7  
 Lowry, P. S., 159  
 Luciani, J. M., 141, 273  
 Lucov, Z., 108  
 Lyon, M. F., 114–15  
 Lyttle, T. W., 105–6, 116, 120  
  
 Macgregor, H. C., 246–7, 249  
 Mahadevaiah, S. K., 99, 135, 142, 145  
 Mäkinen, A., 112, 129, 275  
 Mandahl, N., 84  
 Marchant, A. D., 162, 283  
  
 Martin, P. G., 159  
 Mascarello, J. T., 84  
 Matthews, K. A., 105  
 Mayer, G. C., 31, 33, 92, 104, 206–7, 209, 214–16, 230, 276  
 Maynard-Smith, J., 269, 287  
 Mayr, B., 150  
 Mayr, E., 7–11, 13, 21, 23, 36, 40, 57–60, 63, 65, 67–8, 70, 164, 181, 208, 225, 234, 244, 271  
 McClintock, B., 99, 102–4, 258, 263, 268, 274  
 McKee, B., 105–6, 285  
 Meffert, L. A., 66  
 Melander, Y., 129  
 Miklos, G. L. G., 36, 85, 126, 145–6, 149, 152, 171, 249–51, 254, 257, 262–3, 272, 279–80  
 Mitchell, F. J., 286  
 Mittwoch, U., 139, 145  
 Miyamoto, M. M., 154  
 Mizuno, S., 246, 249  
 Moran, C., 230  
 Moritz, C., 74, 84, 94, 104, 120, 128, 146, 185, 201–2, 207, 234, 276–7, 286  
 Moriwaki, K., 146, 177  
 Moses, M. J., 84  
 Mrongovius, M. J., 110  
 Murray, J. D., 196  
  
 Nadeau, J. H., 197  
 Nadler, C. F., 132, 181  
 Naveira, H., 95, 98, 103, 259–60, 274  
 Nei, M., 34  
 Nelson, K., 197, 207, 274, 281  
 Nevo, E., 34–5, 44, 172, 180–5, 192, 207  
 Newton, M. E., 107–8  
 Novitski, E., 105, 111  
 Nur, U., 82, 108  
  
 Ohta, T., 254  
 Orgel, L. E., 255–6  
 Orr, H. A., 45–6, 48, 52, 79, 272  
  
 Pardue, M. L., 246  
 Parker, J. S., 94–5, 114, 116  
 Paterson, H. E. H., 12–16, 29, 32–3, 270  
 Pathak, S., 150, 154  
 Patterson, J. T., 211  
 Patton, J. L., 32–3, 84, 191–3, 202, 232  
 Peacock, W. J., 159  
 Pedersen, H., 112, 275  
 Peters, G. B., 95, 97, 103  
 Poorman, P. A., 82  
 Popescu, C. P., 129  
 Porter, C. A., 94, 103, 128, 187–8

## NAME INDEX

321

- Prakash, S., 39  
Preston, C. R., 105, 260, 262–3
- Ratomponirina, C., 156–7  
Ratner, J. B., 101  
Redi, C. A., 101–2, 136, 139, 142, 169  
Reed, M. J., 82, 196  
Rees, H., 254  
Reig, O. A., 176  
Remes, E., 129  
Richardson, B. J., 34–5  
Robbins, L. W., 84, 195  
Roberts, M. R., 224  
Rofe, R., 159, 189, 286  
Rogers, D. S., 195  
Roldan, E. R. S., 130  
Rose, M. R., 255, 258–9, 264  
Rosen, D. E., 25  
Rosenmann, A., 141, 273  
Rouhani, S., 67, 239  
Rubin, G. M., 95, 99, 260  
Rumpler, Y., 156–7  
Ryder, O. A., 151–4
- Säid, K., 148  
Salser, W., 85  
Sandler, L. R. G., 105  
Sannomiya, M., 103  
Sapienza, C., 255–6  
Saura, A., 39  
Schmidtke, J., 150  
Schroeder, G. L., 82  
Searle, J. B., 111, 198–200, 206  
Seidel, B., 150  
Selander, R. K., 187, 189  
Sene, F. M., 68, 70  
Setterfield, L. A., 139, 145  
Sharman, G. B., 159, 161  
Shaw, C. R., 183  
Shaw, D. D., 33, 82, 86–7, 95, 98, 103, 161–3, 230, 238–40, 247, 260–1, 274, 283
- Sheldon, P. R., 287  
Sherwood, S. W., 84, 191–2, 246  
Short, R. V., 151  
Simpson, G. G., 11, 19–21, 23, 27  
Simpson, M. V., 177  
Sites, J. W., 84, 94, 103–4, 120, 124, 128, 146, 187–9, 201–2, 206–7, 276–8  
Slobodchikoff, C. N., 7  
Smith, M. F., 32–3, 192–3  
Smith, M. J., 159  
Sokal, R. R., 12, 27  
Soma, H., 150  
Speed, R. M., 146  
Spencer, H. G., 14–15  
Speta, F., 84  
Stack, S., 82  
Stangl, F. B., 281  
Stewart-Scott, I. A., 132  
Stone, W. S., 211  
Storr, G. M., 190  
Sved, J. A., 257  
Switonski, M., 112  
Szostak, J. W., 250
- Tease, C., 82  
Temin, R. G., 109–10  
Templeton, A. R., 13, 16–18, 29, 36, 54, 59–61, 63–9, 71, 104, 201, 231–2, 240–1, 271, 274  
Thaeler, C. S., 191  
Thompson, J. A., 36  
Thompson, P., 188, 206  
Thorpe, J. P., 34, 172, 270  
Tikhonov, V. N., 129  
Tokuyasu, K. T., 52, 80, 167  
Troshina, A. I., 129  
Turner, B. J., 84
- Valdez, R., 132  
Van Valen, L., 23–4, 28
- Vetukhiv, M. A., 240  
Vigneault, G., 46  
Vosa, C. G., 84
- Wahrman, J., 179–81, 183, 232  
Wallace, B., 87, 208, 211–13, 244  
Wallace, C., 130  
Walsh, J. B., 104, 121, 124, 271  
Warner, J. W., 82  
Watts, C. H. S., 286  
Webb, G. C., 84  
Wendel, J. F., 116  
White, M. J. D., 11, 35, 40, 42, 44, 60, 72–5, 77, 82–4, 86–7, 93–4, 96, 102–4, 110, 117, 120, 123, 164, 171, 208, 211, 213–16, 218, 220–1, 225, 228–9, 242–3, 274–5  
Whitten, M. J., 111  
Wilby, A. S., 94, 114  
Wiley, E. O., 12, 21–2, 24, 27–8  
Wilson, A. C., 36, 88–9, 280  
Winking, H., 113, 135, 137, 139, 140–1, 143, 237  
Wisotzkey, R. G., 66  
Wójcik, J. M., 198  
Wood, R. J., 107–8  
Wright, S., 54–6, 63, 65–7, 74, 117–18  
Wu, R., 250  
Wurster, D. H., 130, 150  
Wurster-Hill, D. H., 150  
Wyles, J. S., 17
- Yamaguchi, O., 93–4  
Yang, S. Y., 84, 192–3, 202  
Yasmineh, W. G., 85  
Yonekawa, H., 113, 169  
Yosida, T. H., 177, 179  
Yunis, G., 85
- Zong, E., 152  
Zouros, E., 46–8, 82

# Subject index

- acentric fragments, 82  
*Acomys*: *A. cahirinus*, 183, 184, 185;  
*A. cahirinus complex*, 183; *A. russatus*, 183, 184, 185  
acrocentric chromosomes, 76, 97, 99  
111, 112, 113, 140, 147, 152, 237,  
281, 283 (*see also* chromosome)  
acrocentric karyomorph, 74, 75, 87  
(*see also* karyomorph)  
adaptation, 13, 14, 18, 24, 28, 36,  
37, 38, 39, 40, 42, 54, 63, 66, 87,  
96, 112, 118, 202, 206, 211, 212,  
215, 225, 233, 234, 242, 256,  
283, 287, 288  
adaptive chromosomal  
rearrangements, 84, 134, 188,  
205, 217, 219, 220, 227 (*see also*  
chromosome, rearrangements)  
adaptive divergence, 197, 287  
adaptive gene combinations, 222,  
223, 225 (*see also* gene)  
adaptive genetic systems, 60, 224  
(*see also* genetic systems)  
adaptive homozygotes, 118, 214,  
233, 274 (*see also* homozygosity)  
adaptive peak, 55, 59, 62, 63, 118  
adaptive shift, 64  
addition of chromatin, 86, 89, 252  
(*see also* chromosome)  
additive fertility effect, 90, 132, 133,  
141, 165, 207 (*see also* fertility)  
additive substitutions, 46  
additive variance, 66  
*Aedes aegypti*, 106, 107  
Africa, 107, 129, 135, 147, 153,  
177, 180  
Ag-banding, 2 (*see also* chromosome  
banding)  
age-dependent mortality, 119  
aggressive interactions, 181  
Alabama, 282  
albumin, 179  
albumin immunological distance,  
172, 174, 177 (*see also*  
microcomplement fixation)  
alleles, 5, 17, 34, 35, 39, 40, 41, 43,  
44, 46, 54, 55, 59, 60, 64, 65, 66,  
105, 109, 148, 200, 201, 202,  
205, 281  
alleles per locus, 188 (*see also* loci)  
allelic heterozygosity, 193 (*see also*  
heterozygosity)  
allelic polymorphism (*P*), 193, 194,  
201, 202, 205 (*see also*  
electrophoresis, polymorphic)  
allochronic species, 28 (*see also*  
species)  
alloparapatric speciation, 229, 230,  
231, 275 (*see also* speciation)  
allopatric, 3, 4, 5, 16, 28, 29, 30,  
31, 33, 35, 40, 41, 42, 43, 45, 48,  
49, 52, 54, 62, 169, 176, 177,  
185, 188, 189, 209, 210, 217,  
220, 230, 234, 272, 282  
allopatric riciation, 229  
allopatric speciation, 12, 31, 40, 49,  
51, 52, 57, 65, 92, 202, 203, 208,  
209, 215, 222, 228, 232, 272,  
278, 286 (*see also* speciation)  
*Allophyllum*, 222  
allopolyploid, 15, 242, 243  
allozyme electrophoresis, 34, 40,  
116, 154, 162, 180, 188, 193,  
196, 197, 217, 230, 282, 283,  
284 (*see also* electrophoresis)  
*Alopec lagopus*, 112, 134  
America, 107  
American oak trees, 23  
amino acids, 177  
amphibians, 34, 84, 88, 97, 243,  
246, 266  
amplification, 93, 247, 252, 254,  
264, 265  
anagenesis, 270, 285  
anaphase, 77, 108, 111, 139, 144  
anatomical selection, 234 (*see also*  
selection)  
anatomy, 21  
ancestor/descendent lineages, 5, 19,  
21, 22, 27, 172, 181, 185, 187,  
205, 224, 232, 275 (*see also*  
lineages)  
ancestors, 24, 25, 33, 40, 60, 63,  
207, 219, 225, 232, 234, 237,  
279  
ancestral karyomorph, 180, 194,  
195, 232, 234, 235 (*see also*  
karyomorph)  
aneuploidy, 57, 67, 74, 76, 77, 86,  
106, 127, 130, 132, 133, 134,  
139, 144, 168, 211, 237  
angiosperms, 242  
animals, 11, 12, 13, 15, 27, 28, 34,  
43, 44, 49, 84, 88, 91, 92, 93, 94,  
109, 118, 122, 123, 124, 190,  
225, 229, 274, 288  
*Anopheles gambiae*, 213  
antibody interactions, 14  
anuran species, 97  
apomictic thelytoky, 243 (*see also*  
parthenogenesis)  
Appalachians, 196  
applied science, 289  
area effect, 217, 219  
Arizona, 192  
arm ratios, 249 (*see also*  
chromosome arms)  
*Arnei Svecici*: Clerck, 8  
artificial hybridization, 135, 241 (*see  
also* hybridization)  
asexual species, 11, 13, 22, 28 (*see  
also* species)  
ass, 151 (*see also* *Equus*)  
associations, 139, 140 (*see also*  
chromosome, sex, X-autosome)  
asynapsis, 154 (*see also*  
chromosome, pairing)  
AT-rich fluorescence, 246 (*see also*  
fluorescence banding)  
AT-rich sequences, 101 (*see also*  
sequence, DNA)  
*Atractomorpha*: *A. bedeli*, 103; *A.  
similis*, 84, 95, 96, 98, 103,  
247  
Australia, 34, 51, 107, 161, 176,  
177, 189, 247, 286  
Australian bush rats, 48 (*see also*  
Rattus)  
Australian gekkonids, 287 (*see also*  
gekkonid lizards)  
Australian marsupials, 159 (*see also*  
marsupials)  
Australian sheep industry, 111 (*see  
also* sheep)  
Austria, 198  
automictic thelytoky, 243 (*see also*  
parthenogenesis)

## SUBJECT INDEX

323

- autopolyploids, 15, 242 (*see also* polyploidy)  
 autosomal inactivation, 146  
 autosomes, 46, 79, 94, 109, 141, 144, 145, 146, 273  
 avoidance mechanisms, 129, 273  
  
 B-chromosomes, 105, 108  
 baboon, 265  
 back patterns, 286, 288  
 backcrosses, 12, 32, 33, 49, 95, 98, 114, 116, 127, 148, 149, 151, 152, 154, 162, 167, 189, 207, 238, 239, 241, 281, 282  
 bacteria, 36  
 balanced complement, 133, 134, 167 (*see also* chromosome)  
 balanced lethals, 238  
 balanced polymorphism, 4, 7, 74, 75, 82, 84, 90, 127, 128, 129, 132, 133, 134, 164, 219, 225, 226, 235, 237, 240 (*see also* polymorphic, chromosome, allelic)  
 Balkans, 243  
 banding patterns, 263 (*see also* chromosome, fluorescence, C- and, G-banding)  
 barriers, gene flow, 32, 45, 206, 223, 235, 236, 244, 281, 284 (*see also* gene flow)  
 base-pair mismatch, 183  
 bats, 227, 229 (*see also* *Eptesicus*, *Rhogeessa*)  
 beetles, 215 (*see also* *Chilocerus*)  
 behaviour, 22, 25, 35, 48, 49, 51, 62, 64, 70, 79  
 Belize, 175  
 Bergamo chromosome races, 148  
 biarmed complements, 192 (*see also* chromosome)  
 biased sex ratio, 284 (*see also* sex ratios)  
 Binasco chromosome races, 148  
 binomial nomenclature, 8, 10 (*see also* nomenclature)  
 biochemical characters, 3, 22, 25, 26, 34, 149, 270, 277, 278  
 biochemical techniques, 2, 7, 27, 289  
 biogeographers, 277  
 biological, 1, 9, 13, 33, 289  
 biological species, 9, 10, 11, 13, 14, 15, 18, 19, 20, 23, 25, 30, 44, 175, 194 (*see also* species)  
 biological species concept (BSC), 3, 8, 10, 11, 12, 13, 16, 17, 18, 19, 21, 25, 27, 28, 29, 30, 271, 270 (*see also* species concepts)  
 biologists, 9, 13, 28  
 biparental organisms, 14, 20  
 birds, 34, 96, 277  
  
 Bison bison, 154  
 bivalents, 157, 242  
 bivoltinism, 87  
 black muntjac, 149 (*see also* *Muntiacus*)  
 black rat, 177 (*see also* *Rattus*)  
 blending inheritance, 63  
 blood, 3  
 blot hybridization, 150  
 blue fox, 112, 274 (*see also* fox, *Alopex*)  
 Boronieae, 222  
 Bos, 154, 157, 166, 168, 174 (*see also* cattle); *B. grunniensis*, 154; *B. indicus*, 154; *B. javanicus*, 154; *B. taurus*, 130, 154  
 botany, 289  
 Bovidae, 153, 154  
 Bovoidea, 130  
 brachial homologies, 74, 135, 174, 175, 205 (*see also* homologies)  
 breakage–fusion–bridge cycle, 99, 258, 260, 263  
 breeding systems, 39, 113, 242  
 breeding trials, 114, 143, 153  
 British Isles, 111, 198  
 Buddhism, 2  
 bulls, 130, 132 (*see also* Bos)  
 Burrmyidae, 159  
 burrowing rodents, 229 (*see also* rodents)  
 bush pig, 129 (*see also* pigs, *Potamochoerus*)  
  
 C-banding, 2, 74, 94, 101, 151, 162, 175, 177, 191, 194, 196, 246, 247, 249, 266, 267, 283 (*see also* chromosome banding)  
 cabbage, 241  
*Caledia captiva*, 82, 87, 95, 98, 103, 161, 165, 230, 239, 240, 268, 281, 283, 285  
 California, 11, 211  
 Canada, 196  
 canalization model, 220  
 canopic structure, 101  
*Capra*, 132  
 Caprini, 132 (*see also* goats)  
 cascading model of chromosomal speciation, 120 (*see also* speciation, chromosome)  
 cascading fitness effect, 64 (*see also* fitness)  
 catostrophic selection, 223 (*see also* selection)  
 cattle, 164, 169, 174 (*see also* Bos, domestic)  
 cave-dwelling mammals, 227  
 cell-cycle timing, 166  
 cell division, 30, 90, 96  
 cell size, 242  
 cellular dynamics, 134  
  
 Central America, 37, 194  
 centric fission, 74, 116, 185 (*see also* chromosome, fission)  
 centric fusion, 74, 76, 75, 237 (*see also* chromosome, fusion, Robertsonian)  
 centric shifts, 95, 94, 114  
 centromere, 74, 76, 82, 87, 94, 99, 101, 111, 140, 162, 246, 249, 263, 266  
 Cervidae, 150  
 chain multivalents, 77, 90, 130, 135, 143, 144, 148, 157, 165, 166, 235, 237 (*see also* multivalents)  
 chain processes model, 120, 216, 219, 220, 275  
 Chamaelaucoideae, 222  
 chiasmata, 38, 82, 86, 96, 130, 134, 143, 162, 211, 225, 238  
*Chilocerus*, 215  
 Chinese muntjac, 150 (*see also* *Muntiacus*)  
 Chironomidae, 84, 260  
*Chironomus*, 268; *C. thummi*, 103; *C. thummi piger*, 95, 98; *C. thummi thummi*, 95, 98  
*Chorthippus vagans*, 110  
 Christian creationist views, 2  
 chromatids, 250  
 chromatin, 110, 245, 254  
 chromosomes, 38, 46, 77, 90, 92, 94, 96, 97, 99, 103, 105, 108, 109, 110, 111, 112, 126, 128, 129, 130, 133, 134, 144, 145, 152, 172, 192, 193, 194, 207, 208, 222, 223, 233, 249, 254, 257, 265, 266, 267, 275, 278, 280  
 chromosome addition, 88, 89, 93, 96, 208, 216 (*see also* addition, heterochromatin)  
 chromosome arms, 80, 88, 89, 135, 142, 191, 235, 246, 267  
 chromosome banding, 94, 127 (*see also* Ag-, C-, G- and, fluorescence banding; banding pattern)  
 chromosome breaks, 93, 96, 98, 101, 103, 105, 123, 144, 223, 241, 257, 262, 273, 274 (*see also* breakage–)  
 chromosome change, 2, 5, 6, 29, 35, 39, 48, 52, 59, 71, 87, 89, 91, 92, 96, 97, 99, 122, 123, 124, 126, 127, 129, 132, 135, 151, 152, 153, 155, 156, 159, 165, 168, 171, 172, 174, 175, 176, 177, 179, 180, 181, 191, 192, 198, 207, 208, 215, 216, 217, 220, 225, 226, 231, 232, 233, 255, 257, 260, 263, 268, 269, 270, 279, 280, 282, 286, 288

- chromosome cline, 162  
 chromosome fission, 153, 159, 169, 174, 175, 177, 185, 187, 189, 191, 204, 205, 206, 211, 216, 219, 233, 267 (*see also* fission)  
 chromosome fusion, 75, 76, 77, 94, 95, 96, 98, 111, 112, 130, 134, 146, 148, 149, 153, 159, 161, 166, 185, 198, 213, 232, 236, 237, 273 (*see also* fusion, centric, Robertsonian)  
 chromosome hybrid zone, 127, 276, 284 (*see also* hybrid)  
 chromosome introgression, 176, 187, 190, 199, 206, 209, 216, 232, 233, 237, 259, 280, 283 (*see also* introgression)  
 chromosome inversion, 37, 39, 40 (*see also* inversion, pericentric, paracentric)  
 chromosome isolating mechanisms, 148, 233, 282 (*see also* post-mating, reproductive)  
 chromosome lagging, 133, 144  
 chromosome malorientation, 144  
 chromosome mechanics, 168, 226, 256 (*see also* mechanical processes)  
 chromosome mutation, 66, 88, 92, 93, 95, 99, 119, 134, 180, 233, 260 (*see also* mutation)  
 chromosome mutation rate, 88, 93, 94, 95, 98, 122, 123 (*see also* mutation, rate)  
 chromosome number, 88, 89, 132, 144, 150, 159, 176, 191, 192, 198, 225  
 chromosome pairing, 145, 254 (*see also* pairing, pachytene)  
 chromosome polymorphism, 37, 70, 74, 87, 88, 89, 90, 91, 94, 128, 129, 132, 188, 192, 193, 194, 196, 198, 202, 208, 215, 226, 237, 272, 280 (*see also* polymorphic)  
 chromosome polytypism, 111, 193, 196, 202 (*see also* polytypic)  
 chromosome preparations, 177  
 chromosome races, 2, 5, 26, 75, 80, 99, 110, 135, 146, 147, 148, 159, 166, 168, 169, 171, 172, 173, 175, 177, 179, 180, 181, 182, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 198, 200, 201, 202, 203, 204, 205, 206, 207, 216, 219, 227, 220, 230, 232, 233, 234, 237, 268, 270, 271, 273, 276, 277, 278, 279, 281, 282, 283, 284, 286, 287  
 chromosome rearrangement, 4, 39, 44, 57, 67, 72, 73, 74, 76, 85, 87, 88, 90, 92, 93, 95, 96, 95, 97, 98, 99, 104, 116, 119, 120, 122, 123, 124, 126, 128, 133, 146, 152, 156, 169, 171, 176, 188, 193, 203, 208, 211, 213, 215, 219, 225, 227, 228, 230, 241, 244, 245, 259, 260, 262, 267, 272, 275, 280 (*see also* rearrangement, structural)  
 chromosome reinforcement, 209 (*see also* reinforcement)  
 chromosome speciation, 3, 4, 5, 6, 30, 57, 67, 74, 88, 89, 91, 93, 104, 117, 120, 121, 122, 127, 128, 134, 164, 170, 171, 174, 176, 188, 193, 198, 200, 201, 202, 203, 208, 210, 211, 214, 216, 220, 223, 225, 235, 240, 241, 243, 244, 269, 271, 273, 274, 275, 276, 277, 278, 279, 280, 286, 287, 288, 290 (*see also* speciation)  
 chromosome transience, 231, 232, 281, 283  
 cladistics, 3, 12, 23, 27, 28, 289  
 cladogenesis, 5, 7, 12, 18, 23, 41, 42, 65, 71, 73, 151, 208, 209, 265, 270, 285, 286, 287, 288 (*see also* speciation)  
*Clarkia*, 222, 223, 225, 228; *C. biloba*, *lingulata*, *speciosa*, and *williamsi*, 222  
 class 1 complexes, 172, 270, 287  
 class 2 complexes, 172, 174, 176, 270, 287  
 class 3 complexes, 172, 174, 175, 176, 177, 179, 183, 185, 187, 189, 270, 286  
 class 4 complexes, 172, 174, 180, 270, 286  
 classification, 8, 21, 44, 172, 174  
 cleavage patterns, 113  
 climatic change, 198, 283  
 clines, 39, 200  
 clonal differentiation, 197, 282  
 clones, 247  
 closed system, 7, 60, 61, 62, 63, 66, 71  
 co-adapted gene complexes, 19, 42, 60, 62, 63, 64, 162, 181, 211, 213, 217, 238, 273 (*see also* gene)  
 co-adapted system breakdown, 212  
 coding genes, 36, 246 (*see also* gene)  
 coefficients of genetic similarity, 192 (*see also* genetic)  
 cohesion mechanisms, 17, 18  
 cohesion species concept, 16, 18, 19, 29 (*see also* species)  
 colonization, 51, 54, 55, 65, 72, 117, 118, 119, 121, 124, 125, 172, 173, 174, 176, 179, 181, 185, 186, 190, 198, 205, 211, 213, 216, 222, 225, 226, 227, 229, 232, 233, 234, 244, 275, 278, 285, 288  
 colonizing chromosomal speciation, 181, 185, 205, 278 (*see also* chromosome, speciation)  
 Colorado, 197  
 coloration, 286, 288  
 commensalism, 217, 234  
 common shrew, 111 (*see also* *Sorex*)  
 competition, 55, 226  
 complementary DNA (cDNA), 252 (*see also* DNA)  
 Compositae, 222  
 computer modelling, 67, 90, 119, 120, 121, 122, 124, 280  
 concerted evolution, 5, 104, 239, 246, 247, 249, 254, 265, 266, 267 (*see also* evolution, molecular)  
 confamilial genera, 34, 35  
 congeneric species, 34, 287 (*see also* species)  
 conspecific, 9, 15, 16, 26, 32, 34, 45  
 constitutive heterochromatin, 85, 88, 247 (*see also* heterochromatin)  
 contact, zone of, 16, 32, 33, 214, 217, 237, 239, 240 (*see also* hybrid zone, parapatric)  
 contact hybridization, 238 (*see also* hybridization)  
 control regions, 109  
 controlling genes, 36, 260, 274 (*see also* gene)  
 co-orientation, 134  
*Copia*, 257  
 copy number, 110, 251, 252  
 cotton rat, 74 (*see also* *Sigmodon*)  
 courtship, 70  
 covariance matrices, 66  
 creation of species, 1, 2, 7, 8 (*see also* species)  
 Cricetine rodents, 74 (*see also* rodents)  
 cross-fertilizing plants, 213 (*see also* plants)  
 crosses, 45, 98 (*see also* hybrids)  
 crossing over, 37, 60, 66, 111, 211, 213, 225, 250 (*see also* chiasmata, recombination)  
 cryptic species, 10, 21, 23, 28, 29, 35, 36, 190 (*see also* species)  
*Ctenomys*, 216  
*Culex quinquefasciatus*, 106  
 cytogenetic analysis, 3, 87, 99, 106  
 cytogeneticists, 86, 208, 289  
 cytological, 86  
 cytophotometric analysis, 101  
 cytoplasm, 96  
 cytoplasmic inheritance, 257  
 cytotypes, 84, 85, 86, 95, 98, 110, 127, 128, 135, 148, 153, 161,



## SUBJECT INDEX

325

- 169, 175, 188, 189, 205, 247, 278, 281, 282
- Czechoslovakia, 198, 278
- Darwinian selection, 256 (*see also* selection)
- dasyurid marsupials, 172 (*see also* marsupials)
- daughter population, 12, 14, 72, 122, 171, 209, 215, 222, 223, 225, 226, 227, 228, 235, 239 (*see also* population, derived)
- daughter race, 205, 277 (*see also* chromosome races)
- daughter species, 15, 30, 41, 209, 214, 215, 224, 234, 272, 278, 288 (*see also* species, derived)
- deciduous forests, 281
- deer mice, 194 (*see also* *Peromyscus*)
- deficiencies, 74, 133, 211, 263
- deleterious rearrangements, 71, 73, 114, 118, 120, 206, 271 (*see also* negatively heterotic, chromosome, rearrangements)
- deletion of chromatin, 86, 89, 94, 111, 260, 266, 267, 273 (*see also* chromatin)
- demes, 26, 55, 57, 88, 117, 122, 124, 196, 217, 233, 271
- demographic exchangeability, 17, 18
- demographic non-exchangeability, 17, 18
- Denmark, 198
- derived population, 119, 215, 233, 235, 238 (*see also* population, daughter)
- derived taxa, 48, 71, 214, 217, 234 (*see also* taxa, species, chromosome races)
- desert habitat, 183 (*see also* habitat)
- destabilized genomes, 260, 263, 273 (*see also* genome)
- deterministic mechanisms, 122, 171
- development, 18, 36, 60, 62, 63, 64, 225, 227, 254, 255, 264
- diakinesis, 139, 141, 144
- dicentric fragments, 82
- dicentric metacentric, 76 (*see also* metacentric, chromosome)
- Dicostonyx torquatus*, 106
- Didelphidae, 159
- Didymuria*, 215
- dik-diks, 153, 165, 166, 167, 168 (*see also* *Madoqua*)
- dioecious angiosperms, 94
- diploid, 15, 243
- diploid reconstitution, 241, 243
- diplotene, 144
- Diptera, 84, 86
- directional selection, 286 (*see also* selection)
- disruptive selection, 214 (*see also* selection)
- dissociations, 88 (*see also* fission, chromosome)
- distorter genes, 107 (*see also* gene)
- distribution, 5, 15, 187, 214 (*see also* geographic, parental, daughter)
- distyly supergene, 49
- diurnal, 183
- DNA, 99, 101, 103, 110, 162
- DNA content, 150, 249, 254, 255
- DNA copy, 251
- DNA discontinuous synthesis, 101
- DNA–DNA hybridization, 183
- DNA helix slip, 252
- DNA heteroduplex, 251
- DNA insertions, 93
- DNA miss-pair, 252
- DNA satellite (Sat G), 247 (*see also* sequence)
- DNA sequencing, 26, 51, 105, 150, 159, 246, 256, 258, 266 (*see also* sequence)
- DNA transposition, 249 (*see also* transposable, mobile)
- Dolomites, 219
- domestic animals, 5, 128, 129, 130, 132, 133, 134, 164 (*see also* animals)
- dominance relationship, 46, 161, 227
- dominant Y system, 80 (*see also* Y chromosome)
- donkey, 16, 152 (*see also* Equus)
- double helix, 101, 252
- Down's syndrome, 93, 98
- Drosophila*, 4, 16, 34, 39, 40, 42, 43, 44, 45, 47, 51, 52, 68, 79, 86, 93, 95, 99, 105, 167, 201, 208, 211, 213, 226, 230, 257, 264, 267, 268, 272, 273, 279, 285; *D. ananassae*, 93; *D. arizonensis*, 46, 48; *D. buzzatii*, 95, 103; *D. buzzatii* hybrids, 259; *D. cyrtoloma*, 68; *D. differens*, 68; *D. hemipeza*, 68; *D. heteroneura*, 35, 70; *D. melanocephala*, 68; *D. melanogaster*, 93, 94, 95, 105, 106, 109, 254, 256, 257, 258, 259, 260; *D. melanogaster* hybrids, 259; *D. mojavensis*, 46, 48; *D. neoperkinsi*, 68; *D. obscura*, 105; *D. paulistorum*, 43; *D. persimilis*, 39, 211; *D. planitibia*, 68; *D. pseudoobscura*, 39, 43, 46, 221, 240; *D. pseudoobscura bogotana*, 46; *D. robusta*, 37, 39; *D. serido*, 95, 98, 103; *D. serido* hybrids, 259; *D. silvestris*, 36, 66, 68, 70; *D. simulans*, 105; *D. simulans* hybrids, 259; *D. subobscura*, 39; *D. willistoni*, 37, 39, 43, 44
- Drosophilidae*, 45
- dual-level fertility effect, 144 (*see also* fertility)
- dual-level model for speciation by pericentric inversion, 238, 239, 275 (*see also* speciation, chromosome, inversion, pericentric)
- duplication, 74, 98, 99, 133, 211, 260, 263, 266
- duplicative transposition, 250, 252 (*see also* transposable, mobile)
- dysgenic effects, 257
- ecological species concept, 23, 28 (*see also* species)
- ecology, 13, 21, 22, 24, 27, 41, 48, 51, 58
- ecotone, 281
- effective population number ( $N_m$ ), 206 (*see also* population)
- effective population size ( $N_e$ ), 118 (*see also* population)
- eggs, 114, 127, 279
- egg mother cell, 108
- egg nucleus, 86, 104, 105, 111, 112, 243 (*see also* nuclei)
- Egypt, 181
- Eichhornia*, 49, 51
- electron microscopy, 154
- electrophoresis, 3, 26, 35, 36, 40, 42, 43, 51, 68, 70, 71, 116, 120, 147, 148, 149, 161, 162, 166, 168, 172, 174, 175, 176, 177, 179, 183, 184, 185, 188, 189, 190, 192, 193, 194, 196, 198, 200, 201, 202, 206, 207, 234, 270, 274, 281, 282, 286 (*see also* allozyme, isozyme, protein)
- Eleutherodactylus*, 97
- embryos, 45, 98, 110, 111, 130, 132, 133, 142, 230, 242, 259, 284
- emigrants, 118
- endonuclease, 197
- endoreduplication, 243
- environment, 11, 14, 21, 24, 37, 39, 42, 62, 63, 87, 96, 104, 116, 197, 222, 223, 233, 244, 278, 282
- enzymes, 34, 70, 154, 283
- epistatic interactions, 39, 64, 66
- Eptesicus*, 35
- Equidae, 126, 151 (*see also* donkey, horses, zebra)
- Equus*, 151, 152, 154, 165, 174; *E. asinus*, 151, 152; *E. burchelli*, 151; *E. caballus*, 151, 152; *E. grevyi*, 151; *E. hemionus*, 151; *E. hemionus onager*, 151; *E. hemionus ulan*, 151; *E. przewalskii*, 151; *E. zebra hartmannae*, 151
- erosion, 194

- ethological differentiation, 48, 70, 183, 234  
 euchromatin, 74, 94, 108, 109, 247 (see also chromosome)  
 euchromatin transformation, 97  
 eukaryotes, 36, 46, 52, 249, 255, 256  
 eumastacid grasshoppers, 110 (see also grasshoppers, *Vandiemenna*)  
 Europe, 111, 113, 147, 177, 198, 220  
 European alpine grasshopper, 284 (see also grasshoppers, *Podisma*)  
 European edible frog, 243 (see also frogs, amphibians, anurans, *Rana*)  
 European wild boar, 129 (see also pigs, *Sus scrofa*)  
 evening primrose, 77, 237 (see also *Oenothera*)  
 evolution, 2, 4, 5, 8, 10, 12, 14, 17, 21, 22, 23, 27, 32, 36, 40, 46, 52, 54, 65, 116, 123, 151, 166, 185, 203, 219, 229, 240, 242, 249, 255, 265, 269, 270, 274, 275, 277, 278, 281, 285, 286, 287, 288, 289, 290  
 evolutionary rate, 79 (see also rate)  
 evolutionary species, 19, 20, 21, 22, 23 (see also species)  
 evolutionary species concept, 4, 8, 19, 21, 22, 28, 27 (see also species)  
 evolutionary stasis, 285 (see also stasis)  
 evolutionary taxonomic units, 25 (see also taxonomy)  
 experimentation, 39, 95, 112, 206, 241, 254 (see also laboratory)  
 external allopatry, 210 (see also allopatric)  
 external modes of speciation, 220, 222, 226, 244, 278 (see also speciation)  
 extinction, 23, 24, 55, 59, 67, 86, 106, 117, 118, 119, 121, 217, 219, 232, 270  
 extinction rate, 118, 119, 120  
  
 F-statistics, 120  
 F1 hybrids, 15, 16, 32, 33, 45, 49, 52, 53, 79, 127, 135, 149, 150, 151, 152, 153, 154, 159, 162, 165, 166, 167, 179, 189, 192, 230, 231, 238, 239, 240, 258, 281, 282 (see also hybrids)  
 F2 hybrids, 32, 82, 116, 127, 162, 165, 207, 230, 238, 239, 240, 258, 281, 283 (see also hybrids)  
 F3 hybrids, 84 (see also hybrids)  
 family, 8  
 family turnover, 249 (see also sequence, turnover)  
  
 fauna, 9  
 FB DNA, 260 (see also foldback)  
 Fea's muntjac, 149 (see also *Muntiacus*)  
 fecundity, 103, 119, 127, 214  
 female fertility effects, 80, 142, 144, 146, 153, 161, 165 (see also fertility)  
 female sterility/inviability alleles 79, 106 (see also sterility, gene, inviability, alleles)  
 fertility, 2, 5, 11, 33, 45, 47, 48, 49, 52, 53, 72, 73, 74, 77, 85, 86, 90, 106, 108, 112, 117, 119, 122, 126, 127, 128, 129, 130, 132, 133, 134, 135, 139, 141, 142, 146, 148, 149, 152, 154, 157, 159, 164, 165, 167, 168, 170, 175, 176, 199, 200, 205, 206, 207, 217, 219, 220, 222, 223, 225, 226, 230, 231, 233, 235, 237, 238, 239, 240, 254, 255, 259, 265, 266, 269, 272, 274, 279  
 fertilization, 4, 16, 18, 132, 243  
*Festuca*, 254  
 Feulgen stain, 94  
 Finland, 198  
 fish, 34, 42, 243  
 fission, 86, 88, 90, 97, 103, 128, 227 (see also chromosome)  
 fitness, 5, 15, 42, 59, 64, 118, 200, 214, 215, 229, 231, 232  
 fixation, 5, 35, 36, 48, 56, 57, 60, 67, 71, 72, 73, 82, 86, 92, 93, 96, 97, 104, 105, 106, 117, 118, 120, 121, 122, 123, 124, 125, 171, 174, 179, 185, 186, 187, 188, 189, 190, 198, 202, 206, 209, 215, 216, 220, 225, 227, 229, 233, 234, 238, 239, 240, 241, 245, 254, 267, 271, 274, 275, 276, 288  
 fixation chromosomal rearrangements, 4, 5, 30, 84, 87, 97, 119, 127, 135, 149, 171, 179, 191, 196, 200, 203, 205, 228, 229, 232, 234, 237, 239 (see also chromosome, rearrangements)  
 fixation rate, 119, 120 (see also rate)  
 fixed genetic differences, 41, 62, 70, 147, 148, 159, 171, 172, 185, 194, 200, 202, 203, 205, 207, 276, 281, 229 (see also gene)  
 flanking DNA, 262 (see also DNA)  
 flora, 9  
 floral tracts, 49  
 flowering plants, 4, 14, 15, 39, 49, 84, 114, 272, 288 (see also plants)  
 fluorescence banding, 2 (see also banding, chromosome)  
 fluorochromes, base-pair-specific, 101, 246  
 flush-crash-founder cycle, 60, 61, 62, 66, 271  
  
 foetus, 111  
 foldback transposable elements, (FB) 99, 257, 260, 262 (see also mobile, transposable)  
 forest, 176, 283  
 forest-dwelling, 176  
 fossil, 19, 286  
 fossil record, 23, 285, 287, 288  
 fossil sequences, 285  
 fossorial species, 180  
 founder, 4, 29, 30, 51, 54, 55, 57, 58, 60, 61, 62, 63, 64, 66, 68, 69, 71, 92, 103, 119, 120, 146, 179, 188, 200, 201, 208, 209, 223, 225, 226, 227, 241, 263, 268, 271, 275, 274, 285  
 founder effect, 4, 54, 57, 59, 62, 65, 66, 67, 68, 69, 70, 71, 119, 194, 216, 225, 227, 229, 233, 271, 287  
 founder-flush model, 61, 62, 65, 66, 68, 69, 271  
 founder model, type IB, 226, 227  
 fox, 227 (see also *Alopex*)  
 frogs, 172, 266, 281 (see also amphibians, anurans)  
 fusion, 48, 86, 88, 90, 101, 112, 130, 135, 139, 140, 142, 143, 145, 177, 199, 200, 214, 219, 227, 235, 237 (see also chromosome, centric, Robertsonian)  
  
 G-banding, 2, 74, 94, 114, 150, 151, 154, 159, 166, 175, 177, 185, 194, 196 (see also chromosome, banding)  
 G3 pdh-B locus, 189  
 Galilee mountains, 181  
*Gallus domesticus*, 133, 134  
 gametes, 16, 32, 62, 64, 66, 77, 93, 105, 116, 162, 243, 270  
 gametogenesis, 90, 126, 139, 140, 142, 143, 144, 145, 150, 151, 156, 161, 166, 168  
 gametophyte, male, 108  
 GC-rich satellite, 246 (see DNA)  
*Gehyra*, 232; *G. australis* complex, 286; *G. australis*, 74, 94; *G. minuta*, 185; *G. nana*, 234; *G. pilbara*, 94, 185; *G. punctata*, 94; *G. purpurascens*, 74, 94; *G. variegata*, 94, 185; *G. variegata-punctata* complex, 185, 286  
 gekkonid lizards, 94, 185, 189, 232, 286, 288 (see also *Gehyra*, *Heteronotia*, *Phyllodactylus*)  
 gene(s), 5, 10, 11, 13, 14, 15, 23, 24, 36, 37, 41, 43, 47, 48, 54, 55, 58, 59, 62, 63, 66, 71, 106, 107, 120, 127, 146, 166, 167, 168, 169, 206, 211, 221, 225, 255, 283  
 gene, responder *Rsp*, 109



## SUBJECT INDEX

327

- gene, segregation distorter (*Sd*), 109 (*see also* meiotic drive, segregation)
- gene conversion, 249, 250, 251
- gene copies, 251
- gene duplication, 242
- gene expression, 256
- gene families, 246, 254
- gene flow, 15, 16, 17, 18, 19, 32, 33, 40, 41, 45, 72, 122, 148, 171, 175, 188, 193, 194, 200, 203, 206, 207, 210, 211, 217, 220, 222, 223, 227, 229, 233, 236, 239, 240, 244, 259, 275, 276, 277, 281, 284, 288
- gene modifiers, 56
- gene mutation, 41, 230, 231, 234 (*see also* mutation)
- generations, 25
- generative nucleus, 108 (*see also* nuclei)
- genetic differentiation, 3, 4, 5, 6, 17, 18, 19, 21, 24, 28, 29, 31, 34, 35, 36, 37, 39, 40, 44, 41, 42, 43, 44, 45, 46, 48, 49, 51, 52, 53, 54, 58, 59, 62, 63, 64, 65, 66, 67, 68, 69, 72, 87, 147, 148, 149, 151, 154, 162, 166, 169, 171, 172, 173, 176, 177, 179, 180, 185, 186, 188, 189, 190, 191, 193, 194, 197, 198, 201, 203, 205, 206, 207, 209, 212, 217, 219, 220, 222, 228, 230, 233, 234, 237, 241, 244, 258, 266, 267, 268, 269, 270, 272, 276, 277, 279, 284 (*see also* genetic)
- genetic distance (*D*), 18, 34, 45, 46, 48, 52, 68, 149, 147, 172, 176, 179, 180, 183, 184, 186, 188, 190, 193, 194, 196, 198, 205, 272, 284, 287
- genetic drift, 17, 42, 52, 57, 60, 62, 64, 66, 79, 117, 118, 120, 124, 214, 225, 232, 245, 249, 250
- genetic exchangeability, 17, 18
- genetic gradualism, 270, 271, 279 (*see also* gradualism)
- genetic homeostasis, 59 (*see also* homeostasis)
- genetic interactions, 126, 152, 164, 169
- genetic isolation, 4, 32, 121, 153, 196, 200, 213, 241, 267, 275 (*see also* isolation)
- genetic revolution, 31, 41, 54, 57, 58, 59, 63, 64, 65, 66, 71, 226, 271, 276
- genetic sinks, 231
- genetic systems, 11, 30, 39, 46, 49, 60, 65, 164, 201, 206, 212, 238
- genetic transience, 63, 64, 65, 68, 69
- genetic uniformity, 174, 177, 192, 245, 279
- genetical research, 3, 4, 27, 111, 174, 289
- genic, 16 (*see also* gene, genetic)
- genic allopatry, 40, 57 (*see also* allopatric)
- genic balance system, 80
- genome, 39, 40, 41, 46, 48, 59, 60, 62, 63, 66, 71, 84, 85, 92, 94, 96, 99, 101, 102, 113, 123, 135, 162, 183, 201, 211, 239, 240, 243, 245, 246, 247, 249, 250, 252, 258, 259, 262, 265, 266, 267
- genome amplification, 97 (*see also* amplification)
- genome cohesion, 17, 254
- genome destabilization, 95, 260, 263
- genome duplication, 15, 241, 242
- genome resetting, 264
- genome turnover mechanisms, 6, 250, 255, 256, 265, 266, 267, 274 (*see also* turnover)
- genomic disease model of speciation, 258 (*see also* speciation)
- genomic stress, 99, 103, 255, 258, 267, 268, 274
- genotypic selection, 5 (*see also* selection)
- genus, 8
- geographic barriers, 48 (*see also* barriers)
- geographic cline, 87
- geographic distribution, 24, 37, 39, 45, 51, 68, 70, 118, 147, 159, 181, 185, 186, 187, 189, 193, 196, 198, 205, 208, 209, 211, 213, 224, 232, 233, 234, 237, 275, 277, 281, 288 (*see also* distribution)
- geographic isolation, 40, 41, 42, 54, 153, 188, 192, 194, 203, 220, 259, 275 (*see also* isolation)
- geographic lineage of descent, 187 (*see also* lineages, ancestor/descendent)
- Gerbillus*: *G. allenbyi*, 180; *G. pyramidum*, 180; *G. pyramidum* complex, 179
- germ cell, 130, 134, 144, 157
- germ line, 94, 259, 264
- Germany, 198
- giant forest hog, 129 (*see also* pigs, *Hylochoerus*)
- globins, 254
- goats, 132 (*see also* *Capra*)
- God, 8
- Golan heights, 181
- golden spiny mouse, 183 (*see also* *Acomys*)
- gonadal dysgenesis, 257
- Gorilla, 84
- gradualism, 63, 269 (*see also* genetic, phyletic)
- grass, 108, 281, 283
- grasshoppers, 10, 87, 93, 95, 103, 108, 111, 161, 213, 260, 283, 281, 289
- great sand gerbil, 179 (*see also* *Gerbillus*)
- Grisons, 219
- group selection, 217 (*see also* selection)
- Gryllotalpa*, 216
- guenon, 265 (*see also* primates)
- H<sup>3</sup> Uridine, 146
- habitat, 14, 54, 222, 225, 226, 227, 228, 229, 283, 288
- Haldane (1922) effect, 45, 46, 79, 80, 159, 167, 272, 273, 285
- haploid genome, 242 (*see also* genome)
- haplotypes, 107
- Hardy–Weinberg equilibria, 86, 128
- harems, 227
- Hartmann's mountain zebra, 151 (*see also* *Equus*, horses)
- Hawaii, 68, 70, 201, 208, 226
- heat denaturation, 35
- hedgehogs, 84
- Hellenism, 2
- Hemitragus jemlahicus*, 132
- herbaceous flowering plants, 49 (*see also* plants)
- herds, 227
- heterochromatin, 74, 84, 85, 86, 89, 90, 94, 96, 97, 101, 105, 109, 110, 145, 161, 168, 191, 192, 193, 195, 197, 206, 216, 246, 247, 255, 265, 266, 267, 272, 274, 281
- heterochromatin addition, 84, 86, 89, 90, 96, 97, 197, 206, 216, 272 (*see also* addition, chromosome)
- heterochromatin association, 145, 161 (*see also* associations, chromosome)
- heterogametic sex, 79 (*see also* sex, chromosome)
- heterokaryotype, 121
- heteromorphic sex chromosomes, 80 (*see also* sex, chromosome)
- Heteronotia binoei*, 277
- heterostylous plants, 49, 51
- heterosynaptic pairing, 130, 140, 157, 166, 196 (*see also* pachytene, pairing, chromosome)
- heterotic buffering, 38
- heterozygosity (*H*), 30, 34, 37, 39, 40, 57, 58, 59, 64, 68, 71, 77, 82, 84, 104, 105, 147, 148, 180, 183, 185, 188, 192, 194, 196, 197, 200, 201, 202, 205, 207, 238, 239

- heterozygote, 57, 59, 67, 73, 74, 77, 79, 80, 86, 103, 104, 109, 111, 112, 118, 119, 122, 128, 130, 133, 141, 143, 144, 196, 199, 200, 211, 214, 215, 216, 219, 230, 225, 235
- hexaploid, genome, 242 (*see also* genome, polyploidy)
- higher plants, 36 (*see also* plants)
- higher vertebrates, 288 (*see also* vertebrates)
- highly repeated DNA sequence, 247 (*see also* DNA, sequence)
- hinny, 16 152 (*see also* donkey, *Equus*, horses)
- histones, 254
- historical occupation, 278
- hold-up-mings* locus, 263
- Holocarpha*, 222
- holotype, 8
- homeostasis, 57, 65, 66
- homing behaviour, 227 (*see also* behaviour)
- Homo*, 84
- homogametic sex, 79 (*see also* sex)
- homogamy, 230, 284, 285
- homokaryotype, 88, 121, 217
- homologies, 74, 251
- homosequential species, 208, 226 (*see also* species)
- homostyles, 51
- homozygosity, 30, 39, 57, 58, 59, 64, 65, 67, 71, 104, 113, 117, 121, 124, 134, 215, 217, 225, 227
- horses, 16, 151, 152, 166, 167, 168, 169, 174, 229 (*see also* *Equus*)
- human racial groups, 151
- Hungary, 198
- hybrids, 5, 11, 12, 15, 16, 30, 42, 45, 46, 72, 73, 79, 95, 98, 110, 113, 121, 126, 148, 150, 151, 154, 156, 161, 162, 170, 174, 181, 192, 206, 219, 222, 227, 237, 240, 241, 242, 243, 257, 264, 268, 274, 282
- hybrid dysgenesis, 66, 95, 241, 256, 257, 258, 259, 263, 264, 267, 268
- hybrid fertility, 29, 41, 51, 52, 84, 90, 127, 149, 151, 156, 164, 165, 168, 169, 176, 179, 181, 205, 235, 267, 269, 272, 273, 279, 284, 285 (*see also* fertility)
- hybrid viability, 45, 46, 48, 51, 52, 153, 165, 258, 269, 272, 273, 281, 285 (*see also* viability)
- hybrid zone, 5, 6, 15, 33, 95, 98, 127, 139, 159, 162, 169, 179, 181, 183, 187, 189, 191, 198, 199, 200, 205, 206, 207, 209, 215, 216, 217, 219, 222, 230, 233, 241, 243, 244, 273, 274, 276, 277, 280, 281, 282, 283, 285
- hybridization, 15, 16, 25, 29, 32, 42, 45, 46, 48, 49, 51, 57, 63, 66, 72, 84, 95, 99, 104, 127, 132, 135, 139, 150, 153, 166, 169, 179, 189, 192, 207, 209, 214, 217, 222, 223, 224, 238, 237, 239, 241, 243, 258, 268, 269, 272, 273, 278, 280, 282, 283, 284, 285, 290
- hybridization parapatry, 229, 282 (*see also* parapatric)
- hybridogenetic speciation, 241, 242, 243 (*see also* speciation)
- Hyla cinerea* and *H. gratiosa*, 281, 282, 283
- Hylochoerus meinertzhageni*, 129
- Hypochoeris radicata*, 116
- I* factor, 95, 257, 258 (*see also* transposable, mobile)
- I-R* elements, 259 (*see also* transposable, mobile)
- iguana lizard, 94, 120 (*see also* *Sceloporus*)
- Ilyodon furcoides*, 84
- immigrants, 225
- immunocytogenetic analysis, 101
- immunofluorescence, 143
- immunogenetic techniques, 3, 51, 168, 286
- immunoglobins, 254
- implantation, 129, 134
- in situ hybridization, 150, 246, 247
- inbreeding, 7, 10, 11, 12, 19, 21, 25, 32, 54, 57, 58, 59, 60, 64, 65, 92, 103, 116, 117, 119, 121, 124, 125, 191, 193, 212, 223, 225, 226, 227, 229, 232, 233, 237, 239, 240, 241, 271
- inbreeding depression, 58, 121, 242
- incipient speciation, 67, 74 (*see also* speciation)
- India, 177
- Indian muntjac, 149, 150 (*see also* *Muntiacus*)
- inducer-reactor systems (*I-R*), 257, 259 (*see also* mobile, transposable)
- infertility, 16, 37, 73, 74, 140, 152, 157, 161, 167, 168, 174, 284
- inhibitors, 36
- insects, 85, 213, 231, 277
- interacting inversions, 105 (*see also* inversion, chromosome, triad)
- interaction systems, 54, 55, 71
- interactive divergence, 41
- interchange, 94, 116 (*see also* translocation, chromosome)
- interchange triads, 213 (*see also* triad)
- interdeme migration, 118 (*see also* migration)
- interdeme migration rates, 120 (*see also* migration, rate)
- interdemic selection, 118, 119 (*see also* selection)
- internal allopatry, 210, 211, 215, 228, 275 (*see also* allopatric)
- internal models of chromosomal speciation, 209, 210, 220, 226, 244, 275, 278 (*see also* speciation, chromosome)
- International Commission of Zoological Nomenclature, 8 (*see also* nomenclature)
- interphase nucleus, 96 (*see also* nuclei)
- interpopulation hybrids, 42, 98, 235 (*see also* hybrids)
- interracial hybrid 2, 73, 161, 260, 265, 268 (*see also* hybrids)
- interspecific competition, 24
- interspecific hybrids, 2, 45, 49, 52, 103, 114, 152, 153, 159, 161, 164, 241, 260, 265, 266, 268, 282 (*see also* hybrids)
- interstitial heterochromatin, 108, 192, 247 (*see also* heterochromatin)
- introgression, 189, 206, 207, 217, 219, 228, 231, 277, 278, 280, 282, 283 (*see also* chromosome, genic, morphology)
- introgressive hybridization, 283 (*see also* hybrids)
- introns, 255
- invasive speciation model, 226, 244 (*see also* speciation)
- inversion, 38, 39, 60, 82, 86, 87, 98, 99, 114, 164, 170, 211, 213, 225, 262, 267, 263 (*see also* pericentric, paracentric, chromosome)
- inversion-fusion cycle, 97
- inversion triad, 213 (*see also* triad)
- invertebrates, 34, 42, 44, 104, 109, 243
- inviability, 46, 79, 127, 161, 162, 168, 272 (*see also* hybrids)
- inviability genes, 79, 230, 285 (*see also* gene, loci)
- island, 57, 58, 68
- isolating mechanisms, 12, 13, 17, 18, 32, 58, 73, 90 (*see also* pre-mating, post-mating, reproductive)
- isolation, 4, 5, 7, 12, 13, 14, 16, 18, 19, 40, 43, 48, 63, 91, 104, 117, 118, 119, 125, 153, 190, 201, 203, 205, 208, 220, 222, 232, 264
- isozymes, 34, 60, 68, 70, 71 (*see also* electrophoresis)

## SUBJECT INDEX

329

- Israel, 181, 183, 185  
 Italian Alps, 219  
 Italy, 139, 147, 175, 216, 217, 243
- Jaera albifrons, 215  
 Jordan Valley, 181  
 Judea, 181
- karyology, 265  
 karyomorph, 148, 159, 175, 192, 194, 249  
 karyotype, 72, 88, 93, 152, 159, 176, 177, 180, 181, 198, 213, 216, 232, 240, 241, 274, 284 (*see also* chromosome, complement)  
 karyotypic orthoselection, 96, 98, 123, 219 (*see also* orthoselective processes)  
*Keyacris scurra*, 96  
 killer whales, 84  
 kin-founding, 121, 118, 124 (*see also* founder)  
 kinetochore, 101 (*see also* centromere)  
 kinetochore deactivation, 101  
 knob attachments, 99, 263
- L* factors, 260 (*see also* mobile, transposable)  
 La Trilla, 176  
 laboratory experimentation, 27, 33, 45, 49, 94, 99, 106, 110, 112, 127, 144, 284, 285 (*see also* experimentation)  
 laboratory hybridization, 5, 94, 98, 111, 127, 135, 148, 179, 200, 242, 257, 272 (*see also* hybridization)  
 laboratory mouse strains, 113, 135, 139, 140, 142, 144, 169 (*see also* mouse)  
 Lanai, 68  
 larvae, 45  
*Lasthenia*, 222  
 laws of generation, 8  
*Lemur*, 135, 156, 157, 165, 166, 167, 168, 169; *L. coronatus*, *fufvus*, *fufvus albocollaris*, *collaris* and *macaco*, 156  
 lethal gametes, 77 (*see also* gametes)  
 lethality, 76, 114  
 life span, 226  
 lifestyle characteristics, 17, 55, 89, 161, 191, 213, 229, 244  
 Liliaceae, 84, 93 (*see also* *Lilium*)  
*Lilium callosum*, 108  
 lineages, 2, 19, 20, 24, 27, 28, 36, 68, 74, 95, 96, 164, 172, 173, 174, 176, 189, 192, 205, 208, 234, 278, 286  
 linkage, 39, 117, 225  
 linkage disequilibrium, 39
- Linnaean binomial, 10, 27  
 Linnaean species, 8  
 Linnaeus, 2  
 litter size, 112, 119, 127, 129, 133, 134, 148, 149, 179, 181, 274  
 liver, 3  
 lizards, 42, 103, 172, 228 (*see also* gekkonid, iguanid)  
 loci, 35, 36, 41, 42, 43, 46, 48, 49, 51, 52, 55, 63, 64, 69, 105, 116, 176, 177, 180, 183, 184, 196, 257, 272  
 Lolium, 254  
 lower vertebrates, 243 (*see also* vertebrates)  
*Lucilia caprina*, 111  
 lymphocyte cultures, 3
- macaques, 265 (*see also* primates)  
 Macdonnell ranges, 186  
 macrochromosomes, 96  
 macroevolution, 6, 279  
 macromutation, 227, 288  
 macropod hybrids, 159 (*see also* marsupials)  
 Macropodidae, 159  
*Madoqua guentheri* and *M. kirki*, 153  
 maize, 260, 263, 267, 279 (*see also* *Zea mays*)  
 major genes, 66, 71, 72, 64, 109 (*see also* gene)  
 major modifier, 64, 71 (*see also* gene)  
 male fertility, 45, 46, 47, 52, 80, 105, 114, 139, 142, 143, 144, 146, 150, 153, 161, 165, 273, 285 (*see also* fertility)  
 male-specific meiotic drive, 105 (*see also* meiotic drive)  
 male-sterile chromosome mutants, 143, 145 (*see also* sterility, chromosome, mutation)  
 male sterility/inviability alleles, 79 (*see also* alleles, inviability, sterility)  
 malformation, 129  
 malorientation, 77  
 malsegregation, 77, 90, 142, 144, 149, 161, 164, 165, 166, 168, 170, 237, 273  
 malsegregation rate, 139 (*see also* rate)  
 mammals, 34, 42, 85, 88, 126, 172, 198, 227, 236  
 man, 93, 94, 141, 168, 234, 273, 282, 283 (*see also* *Homo*)  
 mangabeys, 265 (*see also* primates)  
 marginal habitats, 39, 51 (*see also* habitat)  
 marginal populations, 31, 37, 39, 40 (*see also* population)  
 marine isopod, 215
- marsupials, 34, 159  
 mate recognition, 11, 15  
 maternal phylogeny, 197 (*see also* phylogeny)  
 mathematical modelling, 120  
 mating, 14, 15, 41, 44, 45, 49, 118, 130, 213, 230, 264, 284  
 maturation crest, 139  
 Maui, 68  
 Mauritius, 177, 179  
 MD haplotype, 107 (*see also* haplotypes)  
 mean number of alleles per locus (*A*), 201 (*see also* alleles, loci)  
 mechanical processes, 104, 106, 111, 117, 120, 122, 154  
 meiosis, 7, 15, 74, 76, 77, 82, 85, 86, 87, 89, 90, 91, 104, 105, 108, 111, 112, 114, 119, 126, 127, 129, 130, 132, 133, 139, 141, 142, 143, 144, 148, 151, 152, 153, 156, 157, 161, 164, 166, 167, 170, 175, 188, 211, 214, 227, 235, 237, 238, 241, 242, 243, 254, 263, 273  
 meiospore breaks, 116  
 meiotic blockade, 126, 154  
 meiotic drag, 114  
 meiotic drive, 5, 30, 72, 73, 104, 105, 106, 107, 108, 109, 111, 112, 113, 114, 116, 117, 120, 121, 122, 124, 125, 134, 164, 174, 214, 215, 229, 230, 271, 285  
 meiotic segregation, 74, 76, 127, 135, 146, 188, 236, 242 (*see also* chromosome, segregation, malsegregation)  
*Melanoplus femur rubrum*, 108  
 Mendelian inheritance, 114  
 metacentric chromosomes, 76, 87, 96, 97, 111, 113, 141, 152, 235, 238, 283 (*see also* chromosome)  
 metaphase I, 77, 108, 133, 135, 141, 148  
 metaphase II, 132, 139, 144  
 metaphase plate, 108  
 Mexican plateau, 192  
 mice, 126, 135, 141, 142, 146, 167, 217, 234 (*see also* *Mus*)  
 microchromosomes, 96, 133  
 microcomplement fixation analysis, 3, 34, 149, 172, 177, 179  
 microdemes, 234  
 microevolutionary, 17  
 micropylar pole, 108  
 micropyle, 108  
 microscopy, 108  
 Middle East, 177, 220  
 middle repeated sequence DNA, 150, 249, 255, 256, 260, 266 (*see also* DNA, sequence)

- migration, 23, 40, 62, 117, 118, 124, 212, 222, 223, 276
- migration rate, 206, 277 (*see also* rate)
- mismatch repair, 251
- mitochondrial DNA (mtDNA), 3, 26, 35, 51, 68, 69, 70, 71, 113, 146, 148, 151, 154, 155, 161, 166, 168, 169, 174, 177, 188, 189, 197, 201, 206, 281, 282, 283 (*see also* DNA)
- mitosis, 243
- mitotic recombination, 257 (*see also* recombination)
- mobile elements, 99, 251, 255, 259, 263, 265, 268, 274 (*see also* transposable)
- mobile species, 229, 277 (*see also* species)
- modern synthesis, 79
- modes of speciation, 5, 201, 208, 245 (*see also* speciation)
- modifier loci, 36, 56 (*see also* loci, gene)
- mole crickets, 216, 228 (*see also* *Gryllotalpa*)
- mole rats, 180, 181 (*see also* *Spalax*)
- molecular analysis, 2, 3, 5, 7, 27, 51, 97, 103, 104, 106, 110, 123, 151, 174, 189, 197, 245, 249, 254, 259, 264, 265, 267, 274, 277, 280, 285, 289, 290
- molecular drive, 6, 104, 105, 245, 249, 250, 251, 254, 255, 265, 273, 274
- molecular turnover mechanisms, 5, 245, 265 (*see also* turnover, genome)
- molecules, 23
- Molokai, 68
- monobrachial homologies, 77, 90, 135, 142, 146, 147, 165, 166, 167, 174, 175, 200, 207, 234, 235, 236, 237, 273
- monoclonal antibodies, 35
- monomorphism, 37, 86, 87, 195
- monotypic, 25
- Moraba scurra*, 103
- morabine grasshoppers, 228, 229 (*see also* grasshoppers)
- morphological characters, 26, 40, 150, 176, 181, 183, 185, 188, 190, 193, 197, 254, 264, 280, 287
- morphological differences, 9, 16, 20, 22, 25, 35, 40, 49, 51, 58, 59, 70, 72, 79, 129, 151, 175, 186, 188, 189, 196, 203, 207, 209, 232, 233, 234, 237, 244, 254, 269, 270, 272, 280, 287, 288
- morphological species, 7, 8, 9, 10, 26, 27, 28, 185 (*see also* species)
- morphological species concept, 9 (*see also* species)
- morphology, 3, 8, 9, 22, 26, 28, 35, 40, 43, 51, 127, 150, 161, 176, 181, 183, 185, 188, 190, 193, 197, 254, 264, 284, 285, 286, 287
- mosquitoes, 14, 106, 107, 108 (*see also* *Aedes*, *Culex*)
- mouse strains, 140
- Mpi* locus, 200
- MR (male recombinant) element, 257, 258 (*see also* mobile, transposable)
- mtDNA (*see* mitochondrial DNA)
- mule, 16, 152 (*see also* *Equus*)
- multidimensional space, 55
- multidimensional species, 21, 23 (*see also* species)
- multigene complexes, 62, 64, 116, 272
- multigene families, 46, 52, 242, 246, 250, 254, 255 (*see also* family)
- multiple chromosomal rearrangements, 73, 74, 76, 82, 90, 95, 98, 99, 132, 133, 135, 141, 142, 143, 148, 152, 153, 165, 166, 167, 168, 170, 200, 203, 204, 207, 223, 234, 231, 234, 235, 237, 238, 240, 247, 249, 260, 263, 273 (*see also* chromosome, rearrangement, structural)
- multiple simultaneous mutations, 95 (*see also* simultaneous, mutations)
- multiple simultaneous rearrangements, 103, 223 (*see also* simultaneous, chromosome, rearrangements)
- multiple succeeding mutations, 216, 234 (*see also* mutations, sequential)
- multivalents, 77, 90, 139, 156, 157, 165, 192, 242
- multivalent/X-chromosome association, 141
- Muntiacinae, 149
- Muntiacus*: *M. crinifrons*, 149, 150; *M. feae*, 149, 150; *M. muntjak muntjak*, 149, 150; *M. muntjak vaginalis*, 74, 150; *M. reevesi*, 149, 150; *M. rooseveltorum*, 149, 150
- muntjac deer, 74, 126, 149, 165, 166, 167 (*see also* *Muntiacus*)
- Mus*, 95, 99, 135, 139, 147, 151, 157, 165, 168; *M. abboti*, 114; *M. brevirostris*, 113; *M. domesticus*, 99, 101, 112, 113, 114, 135, 139, 144, 146, 147, 148, 166, 169, 174, 175, 198, 207, 215, 216, 234, 238; *M. molossinus*, 113; *M. musculus*, 43, 99, 101, 113; *M. poschiavinus*, 113
- Mus*, laboratory strains, 169, 217, 219, 220, 235, 237 (*see also* laboratory)
- Musca domestica*, 66
- mutagens, 104
- mutant copy, 250
- mutations, 29, 36, 43, 46, 49, 52, 53, 55, 56, 64, 65, 66, 69, 71, 82, 92, 95, 96, 97, 102, 106, 118, 119, 123, 124, 134, 230, 245, 249, 254, 257, 258, 259, 263, 268, 272, 275, 276
- mutation rate, 5, 93, 94, 95, 103, 121, 260, 268, 273 (*see also* rate)
- mutator activity, 95, 98, 104, 241, 258, 259, 260, 268, 273, 274
- Myrmeleotettix maculatus*, 108
- namarrgon*: lightning man, 1
- names, 8
- natural selection, 17, 18, 35, 41, 42, 57, 63, 79, 245, 249, 250 (*see also* selection)
- nearctic butterflies, 11
- negatively heterotic chromosomal rearrangements, 4, 5, 29, 30, 57, 59, 67, 71, 72, 73, 74, 77, 82, 86, 90, 91, 92, 104, 116, 117, 118, 121, 122, 123, 124, 125, 128, 134, 170, 173, 188, 191, 192, 193, 196, 197, 202, 203, 205, 206, 207, 208, 209, 214, 216, 222, 226, 229, 232, 233, 235, 237, 241, 244, 267, 271, 274, 275, 280, 288 (*see also* chromosome, rearrangements)
- Negev, 179, 181
- Nei distance, 172
- neo XY sex chromosome system, 284 (*see also* sex, chromosome)
- Neotoma*, 84; *N. micropus*, 82
- neutral characters, 19, 36, 40, 67, 77, 86, 171, 193, 199 (*see also* fixation)
- neutral rearrangements, 81, 82, 84, 86, 188, 191, 205, 208, 209, 231, 237, 278, 280 (*see also* rearrangements, chromosome)
- neutralist, 36
- new species, 275
- Nicaragua, 175
- niche, 13, 17, 21, 23, 24, 39, 41, 55, 59, 222, 234, 288
- nocturnal, 183
- nomenclature, 8, 21, 23
- non-allopatric speciation, 92, 209, 216 (*see also* speciation)
- non-coding DNA sequences, 250, 255, 264 (*see also* sequence, DNA)

## SUBJECT INDEX

331

- non-disjunction, 11, 105, 106, 108, 112, 130, 134, 139, 142, 144, 165, 199, 200, 237, 238
- non-disjunction rates, 139, 141 (*see also* rate)
- non-genic sequence families, 254 (*see also* sequence, family)
- non-homologous associations, 7, 167 (*see also* associations)
- non-homologous pairing, 77, 82, 86, 130, 134, 161, 238 (*see also* pairing, chromosome)
- non-Mendelian inheritance, 250
- non-phenotypic selection, 256 (*see also* selection)
- non-random, 95, 99, 105, 116, 123, 225, 250, 251
- non-reciprocal sequence transfer, 251 (*see also* sequence)
- non-transcribed, 255
- North Africa, 181
- North America, 3, 37, 177, 194, 196, 197, 281, 282, 289
- North American zoos, 153
- Notoryctidae, 159 (*see also* marsupials)
- nuclear division, 108
- nuclear DNA, 69 (*see also* DNA)
- nuclear genome, 26, 147, 197, 206, 249 (*see also* genome)
- nuclear RNA, 264 (*see also* RNA)
- nuclei, 95, 103, 141
- nucleolus organizing regions (NOR), 106, 246, 266, 267
- nucleotide pairs, 263
- nucleotide substitutions, 35, 154
- numerical taxonomy, 11 (*see also* taxonomy)
- Oceanian black rat, 177 (*see also* *Rattus*)
- octaploid genome, 242
- Oenothera, 77, 213, 237, 238
- Old World primates, 265
- olfaction, 181
- Onychomys, 84
- oocytes, 108, 113, 143, 144, 145, 165, 166
- oogenesis, 144, 145, 165
- open systems, 7, 60
- open-ended systems, 23
- oppositional gene systems, 36 (*see also* gene)
- order of descent, 189, 205
- organizational theory of speciation, 62, 65, 66 (*see also* speciation)
- Orthoptera, 82, 84
- orthoselective process, 96 (*see also* karyotypic)
- Oryzomys*, 237
- osteological mutations, 288 (*see also* mutations)
- osteological structures, 286
- outbreeding, 49, 51, 57, 60, 63, 65, 242
- Ovada chromosome races, 148
- overlapping distributions, 153 (*see also* distribution)
- overlapping generations, 119
- overlapping inversions, 213 (*see also* inversion)
- overriding mechanisms, 82, 238, 239, 240
- Ovis*, 132, 134
- ovules, 279
- P*-element, 95, 257, 258, 260, 262, 263 (*see also* mobile, transposable)
- P*-element transformation, 106 (*see also* mobile)
- P-M* elements, 257, 259
- P169 *virgo* complex, 242 (*see also* grasshoppers, parthenogenesis)
- pachytene, 82, 101, 129, 130, 134, 144, 145, 150, 151, 152, 154, 161, 166, 167, 168
- pachytene association, 145 (*see also* associations)
- pair-bonding, 227
- pairing, 77, 79, 85, 90, 126, 139, 142, 143, 145, 146, 150, 152, 154, 156, 157, 161, 165, 166, 167, 168, 169, 170, 254, 266
- palaeontological sequences, 19
- palaeontologists, 27, 286
- palaeontology, 19, 269, 285, 286
- Pan*, 84
- panmictic, 58, 63, 65, 188, 202, 207
- paracentric inversion, 37, 74, 80, 84, 86, 88, 89, 198, 211, 273
- paracentromeric, 76, 77, 97, 150
- paracentromeric heterochromatin, 98, 101, 108, 109, 130, 177, 194, 266, 247 (*see also* heterochromatin)
- parapatric, 15, 16, 32, 33, 147, 159, 175, 183, 191, 205, 227, 228, 229, 230, 231, 278, 280, 281
- parapatric speciation, 226, 227, 228, 229 (*see also* speciation)
- parasitism, 24
- parental chromosome race, 227, 275, 276, 277, 281 (*see also* chromosome, chromosome races)
- parental genome, 62, 127, 233, 241, 242, 284 (*see also* genome)
- parental population, 12, 14, 29, 63, 72, 122, 171, 209, 220, 224, 226, 227, 228, 229, 230, 235, 238, 239 (*see also* population)
- parental species, 5, 30, 41, 48, 149, 159, 166, 167, 205, 209, 213, 214, 215, 219, 223, 226, 233, 234, 235, 241, 242, 243, 244, 272, 278, 288 (*see also* species)
- parthenogenesis, 241, 242, 243 (*see also* apomictic, automictic)
- paternal-maternal system (*P-M*), 257 (*see also* mobile, transposable elements)
- pattern effect, 225
- peak shift, 57, 59, 62, 64, 65, 66, 67
- peas, 279
- pellage differences, 149, 174, 286
- pentaploid genome, 242 (*see also* genome)
- pentavalent chains, 143 (*see also* multivalents, chain)
- peptide mapping, 35
- pericentric inversion, 48, 74, 80, 82, 84, 86, 88, 89, 90, 94, 95, 97, 111, 130, 151, 161, 162, 176, 191, 195, 198, 214, 223, 227, 238, 239, 240, 281, 283 (*see also* inversion, chromosome)
- pericentric inversion polymorphism, 128, 195, 196, 197, 211 (*see also* inversion, chromosome, polymorphic)
- peripatric speciation, 57, 59, 65, 68, 181, 235, 244 (*see also* speciation)
- peripheral distribution, 37, 39, 54, 57, 58, 59, 63, 209, 214, 217, 224, 225, 234, 241, 275, 286 (*see also* distribution)
- Perognathus*, 216; *P. goldmani*, 232
- Peromyscus*, 82, 84, 191, 195, 228; *P. lepturus*, 195; *P. leucopus*, 197, 281, 282; *P. maniculatus*, 26, 196, 197, 198, 201, 205; *P. m. austerus*, 196; *P. m. blandus*, 197; *P. m. complex*, 194; *P. m. gambelii*, 196, 197; *P. m. nebrascensis*, 196; *P. m. nubiterrae*, 197; *P. m. rafinus*, 197
- Peruvian, 112
- Petauridae, 159 (*see also* marsupials)
- Petrogale*, 159, 165, 166; *P. assimilis*, 167, 174, 275; *P. assimilis* complex, 161
- Phacochoerus aethiopicus*, 129
- phenetic, 12, 22, 23, 193
- phenodeviants, 71
- phenotype, 10, 12, 19, 25, 31, 39, 46, 96, 225, 254, 255
- phenotypic cohesion, 17 (*see also* cohesion)
- phenotypic revertant, 260
- phenotypic selection, 256 (*see also* selection)
- phyletic evolution, 20, 27, 41, 42, 43, 255, 265, 288 (*see also* evolution)
- phyletic gradualism, 285, 286, 287 (*see also* gradualism, genetic)



- Phyllodactylus*, 232; *P. marmoratus* complex, 189, 286; *P. m. alexanderi*, 190; *P. m. marmoratus*, 190  
 phylogenetic classifications, 23, 197, 234, 278, 289 (see also classification)  
 phylogenetic reconstruction, 96  
 phylogenetic species concept, 3, 25, 27, 28 (see also species)  
 phylogeny, 3, 20, 23, 70, 84, 110, 183, 185, 189  
 physiological characteristics, 25, 41, 60, 62, 63, 64, 154, 225, 264  
 physiological selection, 234 (see also selection)  
 picograms per nucleus, 249 (see also DNA, nuclei)  
 pigs, 129, 130, 164 (see also *Sus*)  
 plant speciation, 2, 242 (see also speciation)  
 plants, 12, 15, 27, 28, 34, 42, 43, 44, 51, 84, 91, 92, 93, 94, 95, 109, 116, 118, 122, 123, 222, 225, 238, 243, 274, 288, 289  
 pleiotropy, 54, 79  
 Pleistocene, 183, 185, 190  
*Plethodon*: *P. cinereus*, 246; *P. elongatus*, 246; *P. glutinosus*, 246; *P. nettingi shenandoah*, 249; *P. vandykei*, 246, 249  
 plethodontid salamanders, 206, 246, 249, 277 (see also salamanders)  
 pocket-gophers, 84, 191, 228 (see also *Thomomys*)  
*Podisma pedestris*, 230, 281, 284, 285  
*Poecilopsis*, 243  
 Poland, 198  
 polar bodies, 86, 108, 111, 113  
 polar body nuclei, 104 (see also nuclei)  
 pollen, 114, 116, 279  
 pollen grain mitosis, 108 (see also mitosis)  
 pollinators, 14  
 polygenic balance, 62, 63, 66  
 polygenic complexes, 46, 47  
 polygenic controls, 49  
 polymorphic, 9, 34, 35, 38, 60, 63, 64, 68, 84, 87, 93, 107, 111, 116, 147, 192, 197, 199, 213, 215, 216, 278 (see also allelic, genetic, electrophoresis, chromosome)  
 polymorphic chromosome changes, 70, 84, 191, 195, 209 (see also chromosome)  
 polymorphic electrophoretic loci, 64, 72, 180, 183, 185, 188, 207, 276 (see also electrophoresis, loci)  
 polyploidy, 15, 49, 97, 241, 242, 243, 272, 288  
 polytene chromosomes, 37, 70, 98, 95, 110, 211, 262 (see also chromosome)  
 polytypic, 21, 23, 95, 191  
 Pongo, 84  
 populations, 5, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 24, 26, 31, 34, 35, 37, 38, 39, 40, 42, 51, 55, 57, 59, 61, 62, 65, 70, 72, 92, 93, 99, 102, 103, 105, 107, 111, 112, 113, 114, 122, 127, 139, 144, 147, 169, 188, 193, 202, 209, 212, 214, 215, 217, 219, 223, 226, 227, 235, 236, 254, 258, 274  
 population bottleneck, 51, 57, 66, 71, 119, 120, 124, 194, 229, 263, 268, 271 (see also genetic)  
 population boundaries, 17, 18, 42, 72, 211, 217, 220, 228  
 population cytogenetics, 76, 103, 220 (see also cytogenetic)  
 population extinction, 216, 244 (see also extinction)  
 population genetics, 3, 117, 232 (see also genetic)  
 population isolate, 30, 31, 40, 57, 59, 65, 66, 71, 73, 82, 92, 116, 117, 118, 121, 124, 179, 180, 183, 184, 185, 186, 188, 193, 194, 200, 205, 206, 207, 209, 210, 211, 212, 215, 217, 227, 229, 232, 233, 234, 238, 239, 243, 259, 263, 267, 268, 271, 277, 281 (see also isolation)  
 population size, 27, 39, 62, 71, 89, 120, 121, 122, 124, 125, 226, 229, 271  
 population structure, 4, 30, 55, 57, 67, 117, 122, 188, 190, 193, 234, 271, 276  
 position effect, 117, 225  
 positive assortative mating, 181 (see also mating)  
 positively heterotic chromosome changes, 77, 84, 86, 118, 188, 193, 199, 231, 280 (see also chromosome, rearrangements)  
 post-implantation loss, 140, 142, 143 (see also embryos)  
 post-mating isolating mechanisms, 5, 15, 29, 30, 72, 74, 82, 90, 91, 122, 125, 139, 167, 169, 171, 174, 176, 181, 200, 215, 227, 228, 238, 239, 240, 241, 245, 258, 259, 260, 263, 265, 266, 267 (see also reproduction, isolation)  
 post-pachytene degeneration, 157 (see also pachytene)  
 post-zygotic isolating mechanisms, 45, 46, 49, 142, 264 (see also zygotes, isolation, reproduction)  
*Potamochoerus porcus*, 129  
 Potoroidae, 159 (see also marsupials)  
 preanal pores, 286  
 predation, 24  
 preferential fertilization, 108 (see also fertility)  
 preferential segregation, 105, 111, 112, 113, 116 (see also segregation)  
 pre-implantation loss, 143  
 pre-mating isolating mechanisms, 16, 45, 48, 49, 51, 148, 181, 228, 231, 234, 241, 272 (see also reproduction, isolation)  
 pre-meiotic doubling, 243 (see also parthenogenesis)  
 pre-meiotic drive, 108 (see also meiotic drive)  
 presumptive genetic loci, 3, 148, 185, 188, 190, 198, 200, 281, 284 (see also electrophoresis, genetic, loci)  
 pre-zygotic isolating mechanisms, 45, 142, 264  
 pre-zygotic transmission, 116  
 primacy of chromosome change, 5, 9, 25, 30, 72, 183, 187, 192, 203, 204, 207, 244, 270, 276 (see also chromosome)  
 primary chromosomal allopatry, 232, 233, 244, 275 (see also chromosome, speciation)  
 primary colonization, 190 (see also colonization)  
 primary isolating mechanisms, 175, 181, 200, 209, 219, 222, 266, 270, 288 (see also isolation)  
 primary spermatocytes, 146, 152 (see also spermatocytes)  
 primates, 227  
 primate DNA, 264 (see also DNA)  
 primitive characters, 12  
 primitive karyotype, 96, 237 (see also karyotype)  
 primordial species distribution, 194 (see also species, ancestral, distribution)  
 proboscis, 153  
 procentric heterochromatin, 247 (see also heterochromatin)  
*Proechimys guairae* complex 176  
 progenitors, 51  
 progeny, 33, 105, 118, 153, 222, 226  
 prophase, 150  
 protein electrophoresis, 5, 34, 35, 68, 206 (see also electrophoresis)  
 proteins, 147, 255  
 punctuated equilibrium, 279, 285, 287, 286, 288  
 pyrgomorphine grasshoppers, 247 (see also grasshoppers)



## SUBJECT INDEX

333

- quadrivalents, 130, 142, 143, 161, 200 (*see also* chromosome, multivalents)  
 quantitative characters, 66  
 quantum speciation, 65, 208, 224, 226, 244 (*see also* speciation)  
 quasi-haploid sperm, 152 (*see also* spermatozoa)  
 Queensland, 161, 234  
*Quercus*: American oaks, 23  
 quinacrine fluorescence, 246 (*see also* fluorescence banding)
- R* cytoplasm, 257  
*R-M* constitution, 258  
*R*-selection, 226, 227  
 race distribution, 190, 194 (*see also* distribution)  
 radiation, 151, 172, 190, 220  
 radish, 241  
 rainbow serpent, 1, 2  
 rams, 132 (*see also* *Ovis*)  
*Rana esculenta*, *R. lessonae*, and *R. ridibunda*, 243  
 random mating, 32 (*see also* mating)  
 random mutation, 96, 99 (*see also* mutation)  
 random processes, 119  
 range, 24, 28, 40, 116, 214, 278  
*Raphanobrassica*, 241  
 rare mutants, 71, 94, 103, 116, 127 (*see also* mutation)  
 rate of chromosomal evolution, 89, 88, 93, 280 (*see also* chromosome, evolution)  
 rate of evolution, 68, 71, 121, 280 (*see also* evolution)  
 rate of migration, 206 (*see also* migration)  
 rate of speciation, 88, 280 (*see also* speciation)  
 rats, 135 (*see also* *Rattus*)  
*Rattus*, 48, 51, 168, 176; *R. colletti*, 148, 149, 177, 174; *R. fuscipes*, 48, 176; *R. lutreolus*, 48, 49, 176; *R. rattus*, 177; *R. sordidus*, 148, 149, 165, 174, 207; *R. sordidus* complex, 286; *R. tunneyi*, 48, 49, 176; *R. villosissimus*, 148, 149, 174, 177  
 rDNA (*see* ribosomal DNA)  
 rDNA transcription, 254  
 rearrangements, 103, 105 (*see also* chromosome)  
 recessive genes, 79, 260 (*see also* gene)  
 reciprocal crosses, 95, 152, 284 (*see also* hybrids, crosses)  
 reciprocal translocation, 74, 75, 77, 86, 88, 90, 93, 99, 114, 129, 130, 133, 134, 144, 145, 146, 164, 165, 167, 192, 194, 198, 223, 263, 273 (*see also* chromosome, translocation)  
 recognition species concept, 14, 15, 16, 17, 29 (*see also* species)  
 recognition systems, 15  
 recombination, 16, 32, 38, 39, 49, 60, 62, 86, 90, 99, 114, 138, 139, 162, 164, 170, 211, 213, 223, 240, 241, 254, 257, 259, 260, 262, 272, 273, 274 (*see also* genetic, chromosome)  
 recruitment, 161  
 red muntjac, 150 (*see also* *Muntiacus*)  
 refugia, 198  
 regional discontinuities, 207  
 regulatory DNA regions, 109, 264 (*see also* DNA)  
 regulatory genes, 36, 37, 44, 59, 60, 64, 65, 71, 227, 256, 280, 286 (*see also* gene)  
 regulatory mechanism, 227, 256, 265  
 reinforcement, 41, 45, 219, 232, 235  
 relic populations, 159, 208, 278 (*see also* population)  
 repeated sequence DNA, 98, 246, 247, 252, 254, 255, 264, 265, 266, 274 (*see also* DNA, sequence)  
 replication slippage, 249, 252  
 reproduction, 11, 12, 13, 16, 17, 24, 25, 26, 29, 36, 49, 51, 72, 144, 153, 156, 157, 226, 229, 238, 282  
 reproductive cohesion, 25, 29 (*see also* cohesion)  
 reproductive isolation, 4, 9, 10, 11, 12, 13, 15, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 40, 41, 42, 43, 44, 45, 46, 48, 49, 51, 52, 54, 57, 59, 64, 67, 71, 73, 79, 80, 85, 90, 121, 123, 124, 126, 148, 149, 152, 153, 157, 159, 161, 162, 164, 170, 171, 174, 175, 176, 177, 180, 181, 183, 192, 193, 202, 203, 205, 206, 216, 220, 222, 227, 230, 231, 232, 234, 237, 240, 241, 254, 255, 259, 264, 271, 272, 273, 274, 278, 279, 280, 281, 283, 284, 287, 290 (*see also* isolation)  
 reproductive mutations, 45, 48, 52 (*see also* mutation)  
 reproductive physiology, 51, 134  
 reptiles, 34, 88, 96, 243  
 responder genes, 107, 114, 274 (*see also* gene, meiotic drive)  
 response interactions, 14  
 restriction endonuclease, 3, 26, 101, 150, 169, 177, 197, 281 (*see also* endonuclease, enzymes)  
 restriction-endonuclease cleavage maps, 151, 197  
 restriction fragment, 247, 283  
 restriction sites, 70, 101, 189  
 reverse chromosome pairing, 82 (*see also* chromosome, pairing)  
 reverse transcriptase, 252  
*Rhogeessa parvula*, *R. tumida*, and *R. tumida-parvula* complex, 175  
*Rhynchotragus*, 153  
 ribosomal DNA (rDNA), 3, 96, 188, 189, 246, 255, 274, 283 (*see also* DNA, nucleolus organizing regions)  
 ring multivalents, 77, 90, 135, 143, 144 (*see also* multivalents, chromosome)  
 RNA copies, 264  
 RNA-mediated transfer of DNA, 252  
 RNA-RNA duplexes, 264  
 RNA synthesis, 146  
 Robertsonian fusion, 74, 75, 76, 88, 89, 90, 112, 113, 129, 132, 135, 139, 140, 141, 142, 144, 145, 147, 148, 150, 151, 157, 164, 165, 167, 168, 176, 198, 273, 274 (*see also* chromosome, fusion, centric)  
 rock wallabies, 159, 161, 275 (*see also* *Petrogale*)  
 rodents, 34, 82, 84, 172, 176, 183, 215, 228, 230, 232, 281, 289  
 Rodentia, 88  
 Rogers similarity index, 281  
 Roosevelt's muntjac, 149 (*see also* *Muntiacus*)  
 rRNA genes, 106 (*see also* gene)  
*Rumex acetosa*, 94  
 ruptured chromosome ends, 260, 268 (*see also* chromosome)
- salamanders, 42, 114, 116, 172, 247 (*see also* *Triturus*, *Plethodon*)  
 salivary glands, 95  
 saltational speciation, 44, 208, 222, 224, 232, 231 (*see also* speciation)  
 Samaria, 181  
 San Esteban, 176  
 satellite DNA, 85, 96, 101, 150, 246, 247, 265 (*see also* DNA, repeated, sequence)  
 scale morphology, 286 (*see also* morphology)  
 Scandinavia, 111  
*Sceloporus*, 228; *S. anahuacus*, 189; *S. grammicus*, 94, 103, 120, 188, 202, 278; *S. grammicus* complex, 187  
 scientific community, 7, 27, 57  
 scientific training, 27, 289  
*Scilla*, 84; *S. autumnalis*, 95, 116

- second meiotic division, 243 (*see also* meiosis)
- second pollen mitosis, 108 (*see also* mitosis)
- second-level fertility effects, 166, 170, 238, 239, 240 (*see also* fertility, female fertility effects, male fertility)
- secondary contact, 42, 48, 217, 222, 233, 240, 275, 278, 282 (*see also* contact, population, species)
- secondary spermatocytes, 133 (*see also* spermatocytes)
- segment polymorphism, 92, 194, 238 (*see also* heterochromatin, polymorphic, chromosome)
- segregation, 74, 77, 86, 89, 90, 91, 126, 127, 128, 130, 139, 143, 149, 151, 188, 200, 213, 225, 226, 236, 238, 242
- segregation distortion, 92, 104, 106, 109, 110, 112, 113, 114, 116, 134 (*see also* meiotic drive)
- selection, 13, 30, 36, 39, 41, 42, 55, 57, 58, 60, 62, 63, 64, 65, 66, 72, 86, 96, 97, 99, 103, 106, 116, 117, 119, 120, 121, 124, 128, 134, 139, 200, 211, 213, 214, 217, 223, 224, 226, 227, 232, 239, 240, 263, 264, 268, 274, 278, 282, 286
- selective diffusion, 118, 119
- selective gradient, 62, 87, 92, 124, 125, 233, 271
- selective peaks, 5 (*see also* peak shift)
- selective saddles, 55
- self-fertilization, 49, 51, 224, 238, 242 (*see also* fertilization)
- self-synapsed, 145 (*see also* pairing, chromosome, synapsis)
- selfish DNA, 255, 256 (*see also* DNA)
- semen profile, 129, 130
- semiferous tubules, defective, 200
- semi-species, 44 (*see also* species)
- semi-sterility, 15 (*see also* sterility)
- sequence amplification, 246, 267 (*see also* amplification)
- sequence deletion, 99 (*see also* DNA)
- sequence divergence, 37, 151, 154, 155, 255, 256, 267 (*see also* DNA)
- sequence duplication, 251 (*see also* DNA)
- sequence families, 249 (*see also* family)
- sequence homology, 101, 267 (*see also* homology)
- sequence set, 105
- sequence transposition, 251, 252, 262 (*see also* mobile, transposable)
- sequential chromosomal rearrangements, 102, 123, 238, 239, 273, 288 (*see also* chromosome, rearrangements)
- sequential colonizing radiations, 181 (*see also* colonization, radiation)
- sequential electrophoresis, 35 (*see also* electrophoresis)
- sequential fixation, 73, 122, 159, 223 (*see also* fixation)
- sequential mating, 284 (*see also* mating)
- sequential species, 11 (*see also* species)
- serum albumin, 3, 149 (*see also* albumin)
- sex, 9, 14, 46
- sex chromosome, 46, 73, 105, 106, 141, 168, 189, 243, 273 (*see also* chromosome)
- sex chromosome association, 79, 80, 90, 132, 139, 144, 157, 165, 167, 273 (*see also* chromosome, associations)
- sex chromosome drive, 105 (*see also* chromosome, meiotic drive)
- sex-determining locus, 107 (*see also* loci)
- sex-determining mechanisms, 80, 230, 243
- sex-limited sterility, 168 (*see also* sterility)
- sex-linked genes, 108
- sex ratios, 106, 107, 119, 230, 285
- sex vesicle, 141, 146
- sexual reproduction, 9, 11, 14, 42, 63, 212, 226, 250, 254 (*see also* reproduction)
- sheep, 132, 164 (*see also* *Ovis*)
- sheep blowfly, 111 (*see also* *Lucilia*)
- shifting balance theory, 54, 55, 56, 57, 63, 67, 118
- short-horned grasshopper, 247 (*see also* grasshoppers)
- shrews, 198, 228 (*see also* *Sorex*)
- Siberia, 198
- sibling species, 9, 10, 21, 23, 28, 41, 43, 171, 174 (*see also* species)
- sibmating, 271
- Sierra Madre Occidental, 192
- Sigmodon arizonae*, *S. hispidus* and *S. mascotensis*, 74
- simuliidae, 84
- simultaneous fixation, 73, 122, 223 (*see also* fixation)
- simultaneous multiple chromosome rearrangements, 92, 102, 123, 133, 239, 263, 273 (*see also* multiple, chromosome, rearrangements)
- simultaneous multiple mutations, 103, 104 (*see also* multiple, mutations)
- Sinai peninsula, 179, 183
- single copy genes, 46, 52, 245, 249, 255 (*see also* gene)
- sister taxa, 25 (*see also* taxa)
- skeletal structure, 286 (*see also* morphology, structure)
- snails, 229
- social behaviour, 88, 89, 118, 124, 227
- soluble proteins, 26, 34, 36, 70 (*see also* proteins)
- somatic cell function, 264
- Sorex*: *S. araneus*, 111, 200, 206; *Sorex araneus* complex, 198; *S. arcticus*, *S. coronatus*, *S. daphaenodons*, *S. granarius*, and *S. siberiensis*, 198
- South America, 37, 175, 177
- South American marsupials, 159 (*see also* marsupials)
- South East Asia, 177
- spacer sequences, 255 (*see also* sequence, DNA)
- Spain, 243
- Spalax*: *S. ehrenbergi*, 181, 183, 216, 228, 232; *S. ehrenbergi* complex, 180
- spatial isolation, 22, 223, 227 (*see also* isolation)
- spatio-temporal scales, 13
- speciation, 4, 5, 10, 13, 15, 17, 18, 20, 27, 29, 31, 40, 42, 43, 44, 46, 48, 49, 51, 52, 54, 55, 57, 58, 59, 60, 63, 65, 66, 67, 71, 72, 74, 84, 85, 86, 87, 88, 89, 90, 91, 92, 95, 97, 104, 110, 122, 149, 151, 154, 155, 157, 159, 164, 171, 172, 180, 181, 185, 187, 189, 191, 201, 204, 205, 206, 207, 209, 213, 214, 216, 220, 222, 225, 226, 227, 228, 229, 231, 232, 233, 234, 236, 237, 238, 241, 244, 245, 254, 255, 258, 259, 260, 264, 265, 267, 270, 273, 280, 285
- speciation by hybridization, 240 (*see also* hybridization)
- speciation by monobrachial homology, 275 (*see also* monobrachial, homology, chromosome)
- speciation research, 5
- speciation theory, 2, 6, 7
- species, 5, 8, 9, 22, 25, 26, 32, 33, 34, 35, 37, 42, 88, 135, 153, 156, 172, 173, 174, 176, 177, 184, 191, 203, 208, 210, 269, 276, 281, 287, 290
- species boundary, 16, 17

## SUBJECT INDEX

335

- species complexes, 2, 3, 4, 5, 7, 35, 51, 84, 172, 174, 189, 191, 204, 206, 213, 215, 219, 232, 269, 270, 278, 286, 287
- species concepts, 3, 4, 7, 12, 16, 17, 21, 30, 33, 209, 213, 275, 280, 281, 288, 289
- species distribution, 37, 54, 99, 121, 227 (*see also* distribution, geographic, lineages)
- species group, 8, 176
- species hybrids, 45, 127, 128, 213 (*see also* hybrids)
- specific mate recognition system (SMRS), 14, 15, 32 (*see also* recognition, species concept)
- specific site breakage, 104 (*see also* chromosome break)
- spermatogonia, 108, 133, 134, spermatid abnormalities, 44, 161 spermatid nuclei, 110 (*see also* nuclei)
- spermatocytes, 133, 134, 145, 150 spermatogenesis, 46, 105, 130, 132, 134, 139, 142, 143, 145, 150, 152, 153, 156, 165, 166, 200
- spermatozoa, 14, 46, 106, 108, 110, 142, 143, 145, 152, 157, 167, 230, 284
- spindle, 96, 108
- spindle orientation, 111
- spindle structure, 143, 144
- spontaneous mutants, 5, 93, 94, 112, 116, 118, 119, 121, 128, 129, 130, 133, 134, 135, 140, 164, 169 (*see also* mutant, chromosome)
- spontaneous mutation rate, 93 (*see also* rate, mutation)
- Sri Lanka, 107, 177
- stabilized recombinant, 241 (*see also* recombination)
- stabilizing selection, 63 (*see also* selection)
- stages of speciation, 40, 41, 42, 43, 44 (*see also* speciation)
- stasipatric speciation, model of, 117, 161, 207, 208, 214, 215, 216, 219, 220, 226, 228, 275, 278, 282 (*see also* speciation, chromosome)
- stasis, 55, 285, 286
- Stauroderus scalaris*, 103
- sterility, 1, 12, 13, 15, 30, 32, 33, 46, 89, 90, 106, 129, 134, 139, 140, 142, 143, 144, 145, 149, 150, 152, 156, 159, 165, 167, 174, 222, 225, 226, 236, 238, 239, 241, 242, 252, 259, 263, 272, 279, 282
- sterility alleles, 79 (*see also* alleles)
- stick insects, 228
- sticky ends, 99
- stillborn, 129
- stochastic processes, 62, 63, 82, 117, 118, 119, 120, 121, 122, 124, 239, 249, 271
- structural chromosomal rearrangements, 90, 105, 134, 168, 199, 211, 215, 216, 217, 240, 255, 266, 269, 280 (*see also* chromosome, rearrangements)
- structural genes, 36, 37, 43, 44, 52, 149, 172, 262, 264 (*see also* gene)
- structural heterozygosity, 30, 38, 84, 87, 90, 113, 128, 129, 132, 135, 139, 144, 168, 170, 217, 263 (*see also* heterozygosity)
- structural hybrids, 74, 80, 126, 141, 146, 149, 164, 166, 167, 168, 169, 199, 254, 273, 282 (*see also* hybrids)
- structural mutations, 4, 5, 72, 73, 75, 80, 84, 85, 87, 89, 90, 98, 106, 117, 122, 123, 124, 135, 150, 151, 166, 288 (*see also* mutations)
- structural RNA, 255 (*see also* RNA)
- subdivided populations, 193, 205, 241 (*see also* population)
- subfertility, 142, 144, 167, 176, 190, 191, 196, 197, 268, 270 (*see also* fertility)
- submetacentric, 97 (*see also* chromosome, karyotype)
- subspecies, 21, 26, 35, 42, 44, 147, 149, 150, 153, 156, 161, 162
- successive species, 20, 28 (*see also* species)
- supernumerary chromosome drive, 108 (*see also* meiotic drive)
- supernumerary segment polymorphism, 116 (*see also* polymorphic, chromosome, heterochromatin)
- super-rings, 135, 143, 142 (*see also* multivalents, chromosome)
- survivorship, 119, 223
- Sus scrofa*, 129, 134
- Sweden, 198, 206
- Swedish cattle, 130 (*see also* cattle, *Bos*, domestic)
- Swiss Alps, 219
- Switzerland, 198
- symmetrical gene conversion, 105 (*see also* gene conversion)
- symmetrical karyotypes, 96 (*see also* karyotype)
- sympatric, 9, 11, 16, 17, 32, 33, 34, 35, 42, 45, 49, 148, 183, 209, 211, 213, 222, 227, 259, 282
- sympatric speciation, 18, 49, 211, 272 (*see also* speciation, internal models)
- synapsis, 82, 141, 143, 145, 150, 152, 157, 165, 166, 167, 168 (*see also* chromosome, pairing)
- synaptic adjustment, 82 (*see also* chromosome, pairing)
- synaptonemal complex, 80, 82, 101, 129, 132, 140, 146, 154, 156, 161, 165, 254
- syngamy, 14, 32
- synonymy, 9
- synthetic diploid hybrid, 242 (*see also* hybrids)
- Systema Naturae*: Linnaeus, 8 (*see also* nomenclature)
- systematics, 3, 8, 26, 27, 28, 33, 147, 176, 203
- t*-haplotype, 113, 114 (*see also* meiotic drive)
- tahr, 132 (*see also* *Hemitragus*)
- tandem arrays, 250, 255, 256
- tandem duplications, 110
- tandem fusion, 73, 74, 89, 90, 130, 150, 166, 232, 233, 273 (*see also* chromosome, fusion, translocation)
- Tarsipedidae, 159
- taxa, 7, 8, 9, 34, 42
- taxonomy, 8, 9, 11, 15, 16, 25, 27, 29, 32, 197
- tectonic activity, 194
- Tel Aviv-Yafo, 179
- telocentric chromosomes, 75, 97, 177 (*see also* chromosome)
- telocentric karyomorph, 75 (*see also* karyomorph)
- telomeric, 74, 101, 145, 266
- telomeric association, 82 (*see also* associations, chromosome)
- telomeric heterochromatin, 247 (*see also* heterochromatin)
- temperature-dependent sterility, 257 (*see also* sterility)
- temporal lineages, 19, 22, 24 (*see also* lineages)
- tension zone, 2, 15, 219, 230, 231, 275 (*see also* hybrid zone)
- terminal sites, 247
- terrestrial organisms, 229
- Tertiary, late, 190
- tertiary trisomic chromosomes, 145, 146 (*see also* translocation, chromosome)
- testis size, 153
- testis weight, 200
- tetraploid, 241, 242 (*see also* polyploidy)
- theoretical models, 4, 5, 28, 90, 91, 122, 124, 271
- theoretical overview, 87

- Thomomys*, 84, 191, 216; *T. bottae*, 84, 191, 192, 193, 201, 205, 216; *T. talpoides*, 191, 193, 205, 216; *T. t. fossor*, 191; *T. umbrinus*, 191, 192, 193, 194, 196, 197, 201, 202, 205
- tissues, 3
- tobacco mouse, 141 (*see also Mus poschiavinus*)
- Tolgadina infirma*, 103
- transcript processing, 254
- transferrin, 177
- transient characters, 36
- transient polymorphism, 7, 84, 86, 87, 225 (*see also* polymorphic, chromosome, genic)
- translocation, 79, 90, 98, 101, 103, 105, 108, 129, 130, 132, 134, 145, 168, 202, 205, 214, 225, 227, 238, 267, 279 (*see also* chromosome)
- translocation triad, 213 (*see also* triad)
- transmission rate, 104, 105, 108, 111, 114
- transmission ratio, 113, 114, 116
- transmission ratio distortion, 257 (*see also* segregation distortion)
- transposable elements, 59, 66, 94, 95, 98, 99, 103, 104, 105, 123, 251, 255, 256, 257, 258, 259, 260, 265, 267, 268, 274 (*see also* mobile)
- transposable gene control systems, 263 (*see also* gene, mobile)
- transposons, 259
- triad hypothesis, 208, 209, 211, 212, 220, 275
- triad inversion systems, 213 (*see also* inversion, chromosome)
- triploid, 243 (*see also* polyploidy)
- triploid hybrid males, 242 (*see also* hybrids, polyploidy, male)
- trisomy, 112, 142, 145, 165
- tritium-labelled copies, 247
- Triturus apuanus*, *T. carnifex*, *T. italicus*, *T. marmoratus* and *T. vulgaris meridionalis*, 247
- trivalent, 77, 90, 132, 135, 139, 161, 140, 141, 143, 144, 146, 148, 151, 156, 167, 168, 236, 237, 273 (*see also* chromosome, multivalents)
- Tunisia, 148
- Turnera ulmifolia*, 49
- turnover mechanisms, 249, 250, 254 (*see also* genome)
- two-break rearrangement, 76, 263 (*see also* chromosome, rearrangements)
- type 1B model, 229 (*see also* speciation)
- type specimen, 8
- typological, 9, 12, 13, 21, 23
- unbalanced chromosome sets, 130, 132, 133, 143 (*see also* chromosome)
- unbalanced gametes, 127, 139, 142, 168, 170 (*see also* gametes)
- unequal chromatid exchange, 250 (*see also* chromatids)
- unequal chromosome exchange, 249, 250 (*see also* chromosome)
- unequal dyad, 111
- ungulates, 227, 229
- uniparental organisms, 11, 19, 21 (*see also* parthenogenesis)
- unique DNA sequences, 255, 264 (*see also* sequence, DNA)
- unitary evolutionary role, 19, 21, 23 (*see also* evolution)
- univoltinism, 87
- unlinked suppressors, 116
- unsynchronized pairing, 156, 166 (*see also* chromosome, pairing)
- urea denaturation, 35
- Uromys*, 74; *U. caudimaculatus*, 84
- vagility, 89
- vagility, low, 117, 121, 124, 213, 217, 227, 228, 229, 231, 233, 278
- Val Bregaglia (Italy), 139, 219
- Vandiemenna*, 110; *Vandiemenna* complex, 215
- varying lemming, 106 (*see also* *Dicostonyx*)
- vector systems, 14
- vegetative growth, 51
- Venezuela, 176
- Venezuelan spiny rats, 176 (*see also* *Proechimys*)
- vertebrates, 34, 44, 80, 88, 89, 104, 109, 124, 150, 191, 172, 177, 180, 213, 226, 246, 286
- vesperilionid bats, 175 (*see also* *Rhogeessa*)
- viability, 2, 5, 37, 41, 45, 49, 53, 60, 63, 72, 73, 77, 90, 126, 130, 134, 135, 148, 149, 152, 164, 167, 199, 207, 214, 240, 274, 279, 284
- Viatica, 17, 110
- vocalization, 181
- W chromosome, 94 (*see also* sex, chromosome)
- Warramaba virgo complex, 242 (*see also* grasshoppers)
- warthog, 129 (*see also* *Phacochoerus*)
- Western Australia, 190
- Western Europe, 135
- wheat, 116
- white-crimson mutation, 260
- white-footed mouse, 281 (*see also* *Peromyscus*)
- white-tailed rat, 84 (*see also* *Uromys*)
- woody plants, 222 (*see also* *Chamaelaucoideae*, *Boroniaceae*)
- Wyoming, 197
- X-autosome association, 52, 90, 106, 141, 142, 143, 145, 146, 149, 154, 161, 165, 167, 168, 169, 237 (*see also* sex, chromosome, associations)
- X chromosome, 45, 79, 90, 94, 105, 106, 107, 110, 142, 145, 167, 263 (*see also* sex, chromosome)
- X-chromosome/autosome rearrangements, 52, 74, 80, 105, 106, 116, 129, 146, 153, 230, 263, 284 (*see also* sex, chromosome, rearrangements, autosomes)
- X-chromosome breakage, 108 (*see also* sex, chromosome break)
- X-inactivation, 77, 80, 141, 142, 145, 146, 170, 273 (*see also* sex, chromosome)
- X-linked genes, 46, 106, 145, 146, 260 (*see also* sex, chromosome, gene)
- X-linked meiotic drive, 105 (*see also* meiotic drive)
- X-linked mutation, 106 (*see also* mutation)
- X-non-disjunction, 257 (*see also* sex, chromosome, segregation)
- X-ray art, 1
- X-reactivation, 146 (*see also* sex, chromosome)
- Xenopus muelleri*, 246
- XX/XXY sex chromosome system, 153 (*see also* sex, chromosome)
- XXY, XYY genotypes, 106
- XY chromosomes, 142, 145
- Y chromosome, 46, 47, 94, 106, 107, 108, 106 (*see also* sex, chromosome)
- Y-drive, 106 (*see also* meiotic drive)
- Y-Y interchange, 94, 95 (*see also* sex, chromosome, translocation)
- Yugoslavia, 198
- Zea mays*, 99, 102, 108, 116, 258, 260, 263
- zebra, 151 (*see also* *Equus*)
- zoological code, 8
- zoological nomenclature, 8 (*see also* nomenclature)
- zoology, 289
- zoos, 159
- zygotes, 16, 129, 133, 134
- zygotic loss, 144