

## Index

---

- activity patterns, 32  
   non-resident, 42, 44  
   resident, 43–5
- adaptations, 299, 354, 358, 387, 398, 419, 456  
   ecological, 357, 400  
   physiological, 30
- Afrotheria, 21
- Alaska, 120, 139
- allopatry, 260, 329, 377, 400, 460–1
- allozymes, 7, 84–6, 315, 319, 321
- Alnus*  
   *glutinosa*, 392  
   *incana*, 392
- Alpine shrew. *See Sorex alpinus*
- Alps, 4, 24, 150, 167, 187–202, 295, 316, 318–20,  
   325, 330, 345–6, 355, 376, 388, 390, 398,  
   428–9, 433
- Altai, 26, 82, 84, 147, 180, 428, 431, 436
- American mink, 236, 239
- amino acid racemisation, 415
- analysis  
   Bayesian, 318  
   discriminant function, 338, 349, 354  
   multivariate, 69, 338–9, 419  
   principal components, 338, 341  
   supertree, 418
- anaphase, 218–19, 247–8, 255, 257, 369
- Anaplasma phagocytophilum*, 47
- Andorra, 125
- aneuploidy, 258–9
- antemolars, 352, *See also* teeth
- Apodemus*, 116, 432
- apomorphy, 4, 136, 190, 420
- apoptosis, 233, 240, 256
- Araneae, 28
- Arctic Ocean, 390, 428
- arm  
   combination, 78, 139, 144, 146, 149, 151, 155,  
   160, 170, 256, 298, 400, 460  
   ratio, 241  
   swapping, 456–7
- arms, side, 229, 256
- arthropods, 20, 28–9, 393
- Arvicantbis*, 187
- Asia, 114, 137, 139–40, 417, 432
- asymmetry, fluctuating, 40, 72
- asynapsis, 218, 225, 229–33, 256, 258, 369
- Atlantic Ocean, 169, 202, 427, 429, 434
- ATR protein labelling, 225
- aurochs, 429
- Austria, 28, 115, 166, 414, 419, 432, 434
- B chromosomes, 86
- Babesia microti*, 47
- badger, 46
- Baikal Mountains, 82
- Balkans, 7, 114, 116, 199, 201–4, 207–8, 211–12,  
   355, 431, 433–8, 440
- bank vole, 47, 114, 128, 393
- barn owl, 46, 49
- barriers  
   geographic, 85, 258, 288, 297, 301–2, 305, 326,  
   337, 423  
   reproductive, 324, 375, 377, 399
- Bashkiria, 165, 168
- behaviour, 37, 41, 384, 394–400, 459  
   aggressive, 41–2, 395–8  
   dominant, 394–6  
   exploratory, 33  
   mating, 43, 301  
   social, 41–2, 44, 73, 395  
   submissive, 395  
   territorial, 43, 391
- Belarus, 7, 125, 149, 155, 157, 159, 166–7, 287, 355
- Belgium, 24
- Bergmann's rule, 75, 346
- Beringia, 114, 140
- Betula pendula*, 392

## 464 Index

- Biharian, 415–16, 420, 422  
 BIOCLIM climate envelope, 417  
 biostratigraphy, 415  
 bivalent, 218, 220–32, 239–41, 249  
 Black Sea, 355, 429  
 body mass, 19, 29–32, 36–7, 43, 46, 70–83, 128,  
 341, 345, 347, 356, 358, 393  
 body size. *See* body mass  
 body, polar, 96, 219, 221  
 Bølling–Allerød interstadial, 129, 200, 424–9,  
 433, 438  
 bottleneck, 84, 96, 113, 116–17, 124, 200, 211  
 bouquet, 226–9  
 brain, 20, 23, 31, 70, 344  
 Britain, 2–3, 5, 7–8, 34–5, 38, 78, 85, 114–28, 150,  
 200–1, 204, 207, 210, 226, 251, 257, 282, 291,  
 302–3, 322, 345, 352, 385, 407, 410, 422, 424,  
 428–9, 431, 433, 437  
 British Isles, 25, 204  
 Bulgaria, 3, 166, 208, 412, 420, 422  
  
 capture, mitochondrial, 114  
 capture-mark-recapture, 42, 44–5  
 Carnivora, 70, 187  
 Carpathians, 115–16, 128, 204, 211, 432  
 cat, 45, 236, 239, 242, 244  
 Caucasian shrew. *See* *Sorex satunini*  
 Caucasus, 25, 139, 432  
 C-banding, 88, 96  
 central Asia, 4, 20, 142, 410  
 centroid size, 341, 343  
 centromere, 88–90, 94–6, 137, 140, 144, 204, 222,  
 229, 231, 241–2, 245–7, 256, 260, 371, 376  
 interference, 242, 247  
 cestodes, 46  
 chiasma, 93, 218, 220, 225, 230, 371  
 interference, 242  
 chimpanzee, 366  
 China, 121, 407  
 Chinese muntjac, 236  
 chromatid, 220–1  
 chromatin, 225–6, 241  
 chromomere, 241  
 chromosome  
 arm, 4, 88–94, 96, 138, 143, 156, 190, 221–4,  
 231–2, 238, 240–2, 244, 273, 341, 375  
 banding, 3, 7, 87–8, 136, 138, 221–2  
 nomenclature, standard, 3, 7, 87–90, 137–8,  
 141, 156, 193, 198, 206, 221–5, 286, 315,  
 369  
 painting, 21, 87, 89–90, 135–6, 138–40  
 pairing, 93, 218–21, 239, 242, 244, 273,  
 459–60  
 polymorphism, 2, 5, 78, 96–7, 160, 245, 277,  
 283, 296, 354, 370, 372  
 signature, 135, 207  
*Clethrionomys*, 114, 393  
*glareolus*, 393  
 climate, 24, 30, 32, 38, 71, 74, 128, 200, 202, 330,  
 337, 355, 407–9, 417, 419, 425–40  
 cycles, 407–9, 422–3, 427, 433, 438–40, 457–8,  
 460  
 modelling, 417–18, 430, 434, 437  
 variables, 74, 341, 354–6, 417, 430, 434  
 cline, 155, 258–9, 274, 276–7, 279–81, 283–8, 292–3,  
 297–8, 304–5, 324, 326–8, 330, 346, 349–50,  
 352, 372, 386–7  
 coincident, 274, 283–5, 288, 292, 328  
 multiple, 279–81, 283  
 opposing, 274, 276–7, 279–81, 292  
 phenotypic, 350  
 single, 283  
 staggered, 274, 279–81, 285–7, 292, 386  
 clock, molecular, 115, 422–3, 428, 439  
 coalescence, 113  
 Coccidia, 47  
 Coleoptera, 28  
 colonisation, 7, 12, 69, 85, 125–9, 186, 196,  
 200, 206–7, 209–10, 212, 317–18, 423,  
 457  
 postglacial, 389  
 competition, 36, 72, 330, 344, 393–4, 398, 440  
 complex, synaptonemal, 159–60, 220, 226, 241  
 condensation, chromosomal, 220, 241  
 configuration  
 meiotic chain, 203, 225, 229–32, 247–8,  
 258–60, 273, 279, 282–3, 285, 289–91, 301–2,  
 304–5, 321, 325–6, 349, 369–70, 372, 376,  
 400, 460–1  
 meiotic ring, 225, 230–1, 248, 259, 261, 279,  
 283, 285–7, 291, 295, 304–5, 321, 351, 369,  
 372, 460–1

- conservation threats, 48  
 constriction, secondary, 91  
 control region, 85  
 Cornwall, 150  
*corpora lutea*, 248, 251  
*Cricetulus barabensis*, 273  
 Croatia, 125, 166, 208, 412  
*Crocidura*, 33  
   *russula*, 129  
 Crocidurinae, 20, 22  
 crossing over, 220, 236, 239–45, 366, 389  
*Cryptotis parva*, 344  
*Ctenomys talarum*, 229, 232, 239  
*Ctenophthalmus nobilis*, 46  
 cytb. *See* cytochrome *b*  
 cytochrome *b*, 24, 85, 116, 199, 319, 422, 438, 458  
 Czech Republic, 7, 27, 39, 125, 151, 166, 274, 283, 322, 325, 386, 412, 432, 434, 436  
 Czechoslovakia, 3
- Dansgaard–Oeschger events, 426, 428, 430  
 Danube, 80, 166, 208  
 DAPI, 221–2  
 DAPI-staining, 222, 241  
 Dehnel's phenomenon, 20, 23, 37, 70–1, 75, 337, 344–5  
 Denisova Cave, 413, 432, 437  
 Denisovans, 407  
 Denmark, 28, 125, 154, 164, 195, 200–2, 204, 207, 433, 457  
 Dermoptera, 21  
 de-speciation, 304, 458, 461  
 development, postnatal, 20, 36–7  
 DFA. *See* discriminant function analysis  
 diakinesis, 93, 220, 223–7, 230, 233, 236–7, 239–40, 244, 248  
 diet, 24, 28–9, 38, 45–7, 49, 344, 393  
 differentiation, 3, 12, 70, 82, 84–6, 123, 125, 142, 194, 244, 260, 304, 318, 320, 324–5, 327–9, 337–8, 347, 349–52, 356–9, 366, 376–7, 385, 388, 400, 419, 423, 460  
 chromosomal, 75, 125, 134, 169, 302, 318, 329, 375, 377, 386–7, 458  
 ecological, 3, 393, 400  
 genetic, 85, 282, 302, 319–30, 350–1, 354, 357, 365, 372, 374–7, 388, 438–9, 457–60  
 morphological, 80, 337, 340, 461  
 phenotypic, 69, 76, 337–8, 347–8, 359  
 dimorphism, sexual, 70–1  
 Diplopoda, 28  
 diplotene, 220, 225, 229, 236–7, 239, 242–5  
 Diptera, 28  
 disparity, 337, 339–41, 351–2  
 dispersal, 36, 38, 42, 44–5, 48, 73, 86, 195, 258–9, 272, 279, 287, 296–8, 301, 305, 314, 358, 386, 390, 457  
 distance, geographic, 26, 74, 85, 194–7, 205, 209, 271, 324, 326, 337, 352  
 distribution, 3, 7–8, 25, 43, 47, 77, 80, 83–4, 112–20, 128–9, 142, 186, 188, 194–6, 199–204, 209–12, 297, 299, 325, 337, 351, 353, 355, 357, 385, 388–90, 434, 457–8, 460–1  
 Holarctic, 4  
 Nearctic, 20, 140  
 Palaearctic, 20  
 range, 3, 24, 35, 48, 145, 165, 169, 325  
 D-loop, 116, 120–1  
 DNA, 24, 70, 86, 88, 114–15, 142, 204, 241, 319, 432  
 ancient, 86, 114–15, 407, 414–15, 420, 423, 459  
 double strain breaks, 220  
 fingerprinting, 86  
 mitochondrial, 7, 85–6, 112–29, 131, 142, 186, 203, 295, 314–15, 317, 320, 328–9, 376  
 probes, 137, 142, 222, 226  
 DNA-DNA hybridisation, 86  
 Dnieper, 79–80, 149, 155, 159  
 dog, 236, 239, 242, 244  
 Doggerland, 429  
 Don, 26, 159  
*Doratopsylla dasyncema*, 46  
 drive, meiotic, 96, 194, 211, 219, 255–8, 260, 306  
*Drosophila*, 11, 366–8  
 Drosophilae, 11  
 DSB. *See* DNA double strain breaks

## 466 Index

- dysfunction, hybrid, 366–9  
 dysgenesis, hybrid, 300
- earthworms, 28–30, 32
- ecological niche modelling. *See* species  
 distribution modelling
- ecology, 39, 69, 384, 400
- ecosystem importance, 48
- ecotone, 272, 387
- EEKG. *See* group, karyotypic, East European
- electron microscopy, 221
- element  
 axial, 220, 226, 231  
 central, 220  
 lateral, 220
- elephant shrews, 21  
*Ellobius tancrei*, 232, 273
- encephalitis, 46
- encounters, 395–8  
 interspecific, 394, 396  
 intraspecific, 394–8
- endemism, 21, 204, 295
- endonuclease, 220
- England, 5, 7, 26, 34, 43, 47, 78, 89, 93, 112, 147,  
 150, 152, 161, 167, 251, 274, 283, 287, 370,  
 386–8, 419, 436
- Erinaceidae, 21, 135
- errors, meiotic, 273–9, 459
- Estonia, 125, 163, 165, 208, 210
- Eulipotyphla, 21, 48, 135
- Eurasia, 24, 116–17, 139–40, 146, 409–10, 415,  
 423, 428–9, 432
- Eurasian least shrew. *See* *Sorex minutissimus*
- Europe, 2–3, 20, 22, 24, 26, 34–5, 39, 46, 71, 74,  
 80, 85–6, 96, 113–14, 118–20, 169, 190, 196,  
 200–4, 207–8, 211, 295, 315, 325, 330, 355,  
 385, 388–9, 395, 410, 414, 418, 422–3,  
 428–38
- European grayling, 45
- Euryparasitus emarginatus*, 46
- Eutheria, 20, 135
- event, founder. *See* bottleneck
- expansion, postglacial, 113, 129, 199, 202–4, 207,  
 209, 338, 409–11, 421–2, 429, 433, 437–8,  
 440
- extinction, 29, 39, 114, 358, 387, 429
- Fennoscandia, 39, 200, 202, 204–7, 210,  
 457
- fertility, 5, 7, 20, 233, 257–61, 273, 281, 285, 296,  
 304, 324, 326, 366–7, 369–70, 375, 399,  
 459–61
- field vole, 47, 113–15, 118–19, 200
- Finland, 26, 35, 40, 114–25, 147, 153–4, 156–7,  
 163, 195, 210, 345, 352, 457
- FISH. *See* fluorescent *in situ* hybridisation
- fission, 4, 94, 96–7, 137–42, 191–6, 203, 226, 229,  
 257, 273, 278, 281, 285–8, 300–1, 303, 365,  
 456–7
- fitness, 203, 248, 257–60, 281, 283, 285, 297, 301,  
 366, 368–71, 386, 400, 440, 461
- fixation, 11, 95–6, 194, 210–12, 218–19, 257, 272,  
 302, 306, 319, 391, 457
- fleas, 46
- flies, 28, 368
- flukes, 46
- fluorescent *in situ* hybridisation, 86, 88, 135–7,  
 139, 141–2, 226, 236
- flying lemurs, 21
- FN. *See* number, fundamental
- formula, dental, 20, 75
- France, 7, 25, 77, 79, 117, 119, 125, 150–1, 201, 203,  
 277, 330, 355, 387–8, 410, 428, 431–4, 436–8,  
 440
- frequencies, allelic, 314
- F-statistics, 314, 321, 326–9, 347–8
- fungi, 29, 42, 47–8
- fusion, 11, 95, 136–7, 141–4, 147, 151, 154, 166, 169,  
 187–91, 315, 341, 376, 456–7
- Robertsonian, 4, 8, 94–7, 137, 140–2, 187–95,  
 198, 209–10, 212, 226, 229, 232, 240, 257–8,  
 273, 279, 300, 303, 317, 330, 365, 367–9,  
 420, 456
- tandem, 90, 140, 223, 420
- gamete, 219, 221, 229, 289–91, 367, 369, 372
- Gastropoda, 28
- G-banding, 136. *See also* chromosome, banding  
 gene  
 complexes, co-adapted, 245–7  
 expression, 218, 233, 256  
 flow, 7, 12, 76, 121, 247, 260, 272–9,  
 282, 301, 304, 313–20, 337–8,

- 349–52, 357–8, 370–6, 386–7, 400, 423, 458, 460  
 mapping, 7, 85, 236, 239, 241  
 genetic drift, 85, 113, 123, 199, 211, 257, 272, 306, 319, 371, 376  
 genome, 7–8, 49, 86, 90–2, 129, 135, 140, 218, 236, 239, 247, 326, 367, 377, 456  
 genotype, 114–15, 272, 313  
 germ cell, 92, 233–5, 256  
 death, 93, 218–19, 230–1, 233, 258–9, 324, 367, 369  
 Germany, 7, 24, 28, 35, 73, 80–1, 119, 125, 151, 156, 158, 163, 166, 195, 352, 387, 410, 419–20, 422, 424, 431, 433–4, 436–7  
 gestation, 32, 36, 258  
 ghost lineage, 420  
 GIS, 161  
 glaciation, 78, 113, 119, 125, 195, 199, 320, 328, 330, 377, 410, 414–15, 422–8, 430–1  
 golden moles, 21  
*granarius*-like ancestor, 140  
 greater white-toothed shrew, 129  
 group, karyotypic, 76, 95, 120, 123, 129, 188–91, 196, 199, 317, 320, 347–8, 353, 357–8, 458  
 East European, 120, 190–1, 209–10, 318  
 North European, 190, 209–10, 317, 320, 357  
 Siberian, 190, 209–10  
 West European, 120, 123–4, 190, 201–12, 318, 320, 349  
 guild, 29  
 $h^2$ . *See* heritability  
*Haemogamasus horridus*, 46  
 Haldane's rule, 326, 329  
 hantaviruses, 47–8  
 haplotype, 85  
 Hardy–Weinberg proportions, 399–400  
 Haslital, 295, 302–3, 325–7, 329, 349, 372–4, 376, 390, 393–4, 399  
 heavy metals, 29–30, 48  
 hedgehogs, 21–2, 135  
 helminths, 46  
 heritability, 344, 357  
 heterochromatin, 95, 242  
 constitutive, 86–7  
 heteroduplex, 226  
 heteroplasmy, 85  
 heteropycnosis, 92–3  
 Heterosoricidae, 22  
 heterozygosity, 5, 7, 85, 217, 230, 239, 248, 256–8, 278, 302, 304, 369, 459  
 heterozygote, 5, 96, 155, 159, 161, 164, 218–20, 232–3, 245, 248, 255–9, 261, 273–4, 277, 279, 287–8, 290–1, 296, 319, 345, 366, 368–71, 373, 375, 440, 461  
 complex, 5, 222, 226–7, 230, 237, 247–53, 257–61, 277, 279, 281–3, 285–94, 296–8, 300, 302, 305, 321, 324–5, 369–73, 375  
 simple, 225–6, 229–35, 237–8, 245, 248–58, 260, 273, 279, 281–3, 287–8, 296, 305, 324–5, 369–72, 386  
 High Tatras, 431  
 Holocene, 119, 199, 357, 415, 429, 433, 438  
 climatic optimum, 425  
 home range, 41–4, 352, 358, 393  
 homology, monobrachial, 190, 230, 279, 283, 294, 304  
 homoplasy, 194  
 homozygote, 159, 218, 225–8, 230, 233–5, 237–9, 244–9, 251, 259–60, 277, 282, 285, 305, 345, 369–71, 461  
 Hotelling's  $T^2$ , 392, 396  
 house mouse, 8, 191, 211, 232–3, 244–5, 258–60, 273, 282, 371, 376  
 house shrew. *See* *Suncus murinus*  
 HT. *See* Haslital  
 Hungary, 125, 166, 412, 419–20, 422, 431–4  
 hybridisation, 4–5, 7, 114, 142, 145, 148, 150–2, 160, 164, 167, 188, 191–4, 207, 261, 281, 288–91, 295–7, 300, 304, 318, 325, 349, 440, 456–7, 459–60  
 hypsithermal. *See* Holocene, climatic optimum  
 hybrid zone. *See* suture zone and tension zone  
*Hystriochopsylla talpae*, 46  
 Iberia, 25, 114, 116, 139–40, 201, 203–4, 295, 421–3, 431–3, 437, 440  
 Iberian peninsula. *See* Iberia  
 Iberian shrew. *See* *Sorex granarius*  
 immunodeficiency, 47

## 468 Index

- immunostaining, 220–1  
 inactivation. *See also* meiotic sex chromosome  
 inactivation  
 Indian muntjac, 11  
 Insectivora, 21  
 interglacial, 408–9, 415, 422–8, 432, 438,  
 457–8  
 International *Sorex araneus* Cytogenetics  
 Committee, 5–8  
 introgression, 124, 142, 153, 160, 295, 314–15, 318,  
 325, 328, 330, 351, 367, 432, 440  
 intron, 86, 116  
 inversion, 93, 190, 240, 365, 374  
 Irtysh, 164, 388  
 ISACC. *See* International *Sorex araneus*  
 Cytogenetics Committee  
 isolation  
 by distance, 85, 352, 354  
 geographic, 80, 260, 432  
 prezygotic, 399  
 reproductive, 5, 261, 304, 366, 368, 375,  
 459–61  
 isotope stratigraphy, stable, 415  
 Italian peninsula, 25, 295, 355, 422–3, 431  
 Italy, 4, 25, 114, 116, 119, 125, 128, 201, 320, 330,  
 410, 412, 414, 422–3, 431–3, 435–6  
 ITS. *See* site, interstitial telomeric  
*Ixodes*  
*ricinus*, 46–7  
*trianguliceps*, 46–7  
 Japan, 120  
 Kamchatka, 429, 432  
 Kazakhstan, 164, 168, 393  
 kinetochore, 229  
 Kolyma, 419, 422, 428  
 Korea, 432  
*Labidophorus soricis*, 46  
 Lake  
 Baikal, 26, 116–18, 128, 148, 169, 208, 393, 431,  
 434  
 Neuchâtel, 167, 387, 391, 394  
 Seliger, 163  
 land bridge, 123  
 Beringian, 140  
 landmarks, 221, 338–41  
 Last Glacial Maximum, 113, 199, 390, 411–12,  
 415, 426–7, 435  
 Latvia, 125, 152, 165, 210  
 Laurasiatheria, 19, 21  
 Laxmann's shrew. *See* *Sorex caecutiens*  
 Lena, 26  
 length, condylobasal, 71, 73, 78–82, 338, 345  
 leptospirosis, 47  
 leptotene, 220, 226, 229  
*Lepus*, 114  
 Les Houches, 296, 325, 372–3  
 lesser striped shrew. *See* *Sorex bedfordiae*  
 LGM. *See* Last Glacial Maximum  
 LH. *See* Les Houches  
 lifespan, 70–1, 75, 233, 258  
*Ligustrum vulgare*, 392  
 linkage, 236, 366, 372  
 disequilibrium, 247  
 Lipotyphla, 21  
 Lithuania, 125, 169, 210  
 litter size, 32, 35, 259  
 Lovatj, 163  
 Lumbricidae, 28  
 luminescence, optically stimulated, 415  
 Macedonia, 161  
 Macroscelidea, 21  
 Mahalanobis distances, 396  
 mammoth steppe, 409, 429  
 mandible, 3, 20, 23, 71, 76, 338–59, 414  
 markers  
 biochemical, 90, 315  
 chromosomal, 273  
 genetic, 12, 118, 187, 200, 236, 315, 319, 327–9,  
 375, 458  
 microsatellite, 124, 318–20, 324, 374  
 molecular, 84–5, 117, 187, 204, 314, 320, 325,  
 438, 460  
 morphological, 420  
 nuclear, 114, 315  
 sex-linked, 315  
 Massif Central, 25, 150, 203, 387, 434

- mating  
 assortative, 301–2, 304, 371, 386, 399–400, 461  
 system, 43, 394, *See also* behaviour, mating
- matrix representation parsimony, 417
- MaxEnt reconstruction, 418
- Mediterranean, 25, 114, 116–18, 128, 432
- meiosis, 2, 12, 217–23, 248–61, 273–9, 285, 293, 326, 367, 369–70, 372–4, 386, 461
- meiotic sex chromosome inactivation, 225, 231
- meiotic silencing of unpaired chromatin, 225, 231, 256
- Menotyphla, 21
- metabolic rate, 20, 24, 30–1, 33, 47, 344
- metabolism, 19, 24, 30, 32, 356
- metaphase, 220–7, 230, 233, 240–1, 247–56
- metapopulation, 355, 358
- Mezen, 162, 390
- microsatellite. *See* markers, microsatellites
- Microtus*  
*agrestis*, 47, 113, 200  
*arvalis orcadensis*, 115  
*oeconomus*, 40
- migration rate, 41, 319, 329
- Milankovitch cycles, 409, *See also* climate cycles
- Millet's shrew. *See* *Sorex coronatus*
- MIS. *See* stages, marine isotope
- MLHi protein labelling, 220, 222, 236–40, 242–6
- Moldova, 355, 433
- mole voles. *See* *Ellobius*
- mole rats, 273, 368
- moles. *See* Talpidae
- monogamy, 394
- Montenegro, 125
- morphometrics, 70–6, 336–59, 422  
 geometric, 12, 69, 82, 458
- MRP. *See* matrix representation parsimony
- MSCI. *See* meiotic sex chromosome inactivation
- MSUC. *See* meiotic silencing of unpaired chromatin
- mtDNA. *See* DNA, mitochondrial
- multivalent, 222, 231–2, 237, 260, 282, 367, *See also* configuration, meiotic
- Muntiacus *muntjak*. *See* Indian muntjac
- reevesi*. *See* Chinese muntjac
- Mus*  
*musculus domesticus*. *See* house mouse  
*poschiavinus*, 11
- mutation, 337  
 chromosomal, 97, 121–2, 196, 209, 217, 274, 300–1, 303, 305, 421, 439, 457  
 colour, 23  
 deleterious, 219  
 neutral, 272  
 rate, 96, 113, 115, 123, 315  
 Robertsonian. *See* mutation, chromosomal  
 stepwise, 197–8, 458
- mutL 1 protein labelling, 220
- Myanmar, 121
- Myodes*. *See* *Clethrionomys*
- Myosoricinae, 22
- Myxosporea, 47
- Nannomys minutoides*, 273
- Nannospalax*. *See* mole rats
- Neanderthals, 407
- NEKG. *See* group, karyotypic, North European
- Neomys*. *See* water shrew
- Nepal, 121
- Netherlands, 24, 38, 78, 125, 202
- network analysis, 188, 191–9, 202, 204–6, 209–10, 340, 411, 437
- NGRIP. *See* North Greenland Ice Core Project
- niche, 29, 385  
 trophic, 29, 394
- nondisjunction, 219, 247–55, 257–9
- NORs. *See* nucleolar organiser regions
- North America, 4, 20, 22, 137, 140, 142
- North Sea, 200, 429
- Northern Dvina River, 390
- North Greenland Ice Core Project, 426–8
- Norway, 74–5, 77–8, 125, 147–8, 152, 164
- nucleolar organiser regions, 91

## 470 Index

- nucleotide, 85, 115, 122, 187, 315, 377  
 nucleus, 226  
 number, chromosomal, 3, 95, 136, 366  
   autosomal, 137, 140  
   diploid, 11, 138–9, 142, 144, 245, 273, 456  
   fundamental, 139–40, 341, 351  
 numts (nuclear copies of mitochondrial genes), 116
- Ob River, 26, 164–5, 388, 429  
 offspring, 20, 33–8, 41, 43, 45–6, 203, 253, 255, 258, 281–2, 293–4, 296, 374, 394, 398, 456  
 Oka River, 159, 168, 388  
 Omolon River, 393  
 oocyte, 219, 221, 233  
 Opiliones, 28  
 OSL. *See* luminescence, optically stimulated  
 overdominance, 345  
 OxCal 4.3. *See* Oxford Radiocarbon Lab's model  
 Oxford Radiocarbon Lab's model, 428  
 oxygen isotope curve, 426. *See also* stages, marine isotope
- pachytene, 93, 221–41, 244, 256, 369  
 palaeoclimate models, 418, 430, 437  
   CCSM, 418  
   MIROC3.2, 418, 434  
*Palaeopsylla soricis*, 46  
 parapatry, 24, 29, 119, 137, 146, 159, 169, 295, 297, 325, 330, 347, 350, 352, 357, 385–8, 393–4  
 parasites, 38, 46–7  
 parsimony, 187–90, 198, 202, 204, 209–10, 212, 417  
 paternity, multiple, 36  
 pathogens, 47  
 PAUP (Phylogenetic Analysis Using Parsimony software), 187–8  
 PCA. *See* analysis, principal components  
 peaks  
   acrocentric, 146, 155, 274, 279, 281–2, 287–8, 291, 301–3, 305, 370–1, 386, 461  
   recombinant, 279, 281–2, 291, 302–3, 305, 370–1, 386, 461  
   pelage, 23, 31, 37, 46, 77–8, 80, 82  
   periods, glacial, 113, 119, 123, 199, 358, 407–8, 410–11, 415, 418, 422–39, 457–8, 460, *See also* Last Glacial Maximum  
 Petchora River, 162  
*Petrogale*, 273  
 phenotype, 12, 69–76, 336–59, 423, 456, 458  
 phylogeny, 5, 115, 120, 125, 135, 140, 187–99, 302, 358, 411, 418–20  
 phylogeography, 7, 186–212, 409, 417–18, 423–40  
 phylogroup, 113–16, 128, 337, 347, 350, 358, 424, *See also* group, karyotypic  
 Placentalia, 20  
 pleiotropy, 356  
 Pleistocene, 24, 76, 115, 120, 199, 320, 328, 330, 407–40, 457, *See also* Quaternary  
*Pneumocystis carinii*, 47  
 pneumonia, 47  
 Poland, 3, 5, 7, 30, 33, 35, 39, 73, 125, 149, 151–2, 156, 160, 162, 166, 200, 202, 210, 226, 248, 251, 257, 274, 282, 285, 288, 291–4, 297–8, 302, 321, 324–5, 349, 352, 354, 370–1, 386, 419, 431–2, 434  
 polymorphism, 315–16, *See also* chromosome polymorphism  
   morphological, 353  
 polymorphism, single nucleotide, 319  
 population  
   density, 34, 38–9, 41, 43, 45, 72, 272, 296, 305  
   dynamics, 34, 39  
   expansion, 85, 96, 116, 123, 199, 203  
   size, 38–9, 85, 123–4, 329  
*Porrocaecum*, 46  
 Portugal, 431  
*Potorous tridactylus*, 2  
 pre-alignment, 226  
 predators, 28, 45–6  
 processes  
   selective, 36, 114, 118–19, 123, 146, 169, 191, 199, 211, 259–61, 272–3, 279, 285, 287–8, 293, 298, 301–2, 304–5, 314, 324, 337, 344, 346, 350, 353, 355, 357–8, 370, 385, 387, 420, 461  
   stochastic, 319, 461, *See also* genetic drift  
 promiscuity, 36, 43, 394



- prophase I, 218–20, 256  
*Prunus spinosa*, 392  
 pseudotuberculosis, 47  
 pygmy shrew. *See Sorex minutus*  
 Pyrenees, 25, 79, 84, 119, 150, 202, 207, 355, 387,  
 428, 431, 433, 435
- Q-banding. *See* chromosome, banding  
 QTLs (quantitative trait loci), 344  
 Quaternary, 24, 407–40, *See also* Pleistocene  
*Quercus robur*, 392
- race, chromosomal
- Aberdeen, 89, 91–2, 129, 146, 148, 150, 161,  
 170, 200, 204, 207–8, 210, 225, 235, 247,  
 274, 297, 302–3, 342, 353, 424, 429
  - Abisko, 147–8, 153, 164, 171, 196, 210, 230,  
 232, 235, 274, 287–8, 320–1, 324, 328,  
 342
  - Åkarp, 147, 152, 169–70, 196, 342
  - Altai, 84, 147, 169–70, 208, 210
  - Ammarnäs, 147–8, 153, 169–70, 196, 206
  - Arendal, 147–8, 170, 196, 429
  - Baikal, 148–9, 160, 169, 208, 341–2, 345,  
 440
  - Bergen, 148, 171, 196
  - Białowieża, 148, 151–2, 155, 162, 166, 169, 171,  
 235, 275, 283, 287–91, 294, 297–9, 301, 313,  
 320, 322, 324–5, 327, 330, 342, 349, 351, 371,  
 374, 376, 387–8
  - Bobruysk, 148–9, 160, 170, 208, 386
  - Borisov, 149, 169–70
  - Bretolet, 150, 158, 170, 318–19
  - Carlit, 79, 150, 166, 170, 203, 207
  - Chysauster, 147, 150, 152, 167, 170, 274, 283,  
 302, 342, 370
  - Cordon, 96, 150, 161, 167, 169, 190, 203, 277,  
 296, 318, 323, 325–9, 342, 345, 349, 351, 372,  
 374, 440
  - Drnholec, 149, 151–2, 156, 162, 166, 170,  
 235, 251, 253, 272, 274–5, 283, 285, 288–91,  
 293–4, 297–302, 313, 320–1, 324–5, 327,  
 330, 342, 349, 351, 370–1, 376, 386,  
 388
  - Družno, 151–2, 156, 170, 199, 275, 289–90,  
 294
  - Goldap, 152, 171, 210, 275, 288–90, 294, 299
  - Guzowy Młyn, 151–2, 156, 171, 235, 252, 274,  
 285, 291, 293, 302–3, 347
  - Hällefors, 147, 152, 166, 170, 196, 230, 274,  
 285, 297, 320–1, 324, 342, 351, 399
  - Hattsjö, 147–8, 152, 169, 171, 196, 206
  - Hermitage, 5, 89, 92, 150, 153, 155–6, 161,  
 170, 196, 225–6, 230, 235, 251, 257, 274,  
 283, 287, 298, 302, 322, 342, 370, 387–8,  
 424, 429
  - Ilga, 153, 170, 300
  - Ilomantsi, 153, 168, 171, 196
  - Irkutsk, 153, 170, 208
  - Istranca, 81, 154, 170, 203, 207, 211–12
  - Jura, 154, 170, 342, 345
  - Jutland, 154, 168, 170, 196
  - Kalvitsa, 154, 171, 196, 342
  - Kanin, 154, 171, 208
  - Kiev, 74, 79, 149, 153, 155–6, 166–7, 169–70,  
 196, 208, 287, 355, 436
  - Kirillov, 155, 158–9, 161–2, 170, 208–9, 276,  
 285, 297, 300–1, 390
  - Kuhmo, 155–6, 163, 165, 171, 196, 342, 345
  - Laska, 80, 152–3, 155–6, 160, 170, 196
  - Łęgucki Młyn, 151–2, 156, 162, 171, 235, 251,  
 253, 274, 277, 287, 289–91, 293–4, 300, 302,  
 321, 342, 347, 349, 351, 370
  - Lemi, 157, 171, 196, 342
  - Lemland, 157, 169
  - Lepel, 157, 171, 210
  - Manturovo, 155, 157, 162, 165, 171, 208–9, 276,  
 285, 388, 390
  - Mologa, 158–9, 161, 171, 190, 277, 285, 295,  
 388
  - Mooswald, 150, 158, 170
  - Moscow, 91, 145, 158–9, 161, 163, 167, 170, 208,  
 225, 230–1, 258–9, 272, 275, 277, 283, 285,  
 289, 294–5, 298, 300–1, 318, 322, 324–5, 342,  
 349–51, 388, 390, 400
  - Neroosa, 74, 80, 159, 161, 169, 171, 208, 225,  
 230–1, 276–7, 285, 295, 355, 386
  - Nogat, 148–9, 160, 169
  - Novosibirsk, 85, 87, 139, 142–3, 160, 164, 166,  
 171, 190–1, 199, 222, 230–2, 239, 276, 278,  
 283, 285, 299, 301, 322, 342, 349–51, 353, 371,  
 387–8

## 472 Index

- race, chromosomal (cont.)  
 Öland, 153, 155–6, 160, 170, 196, 343, 429  
 Oxford, 5, 78, 89, 92, 147, 153, 155, 161, 165,  
 167, 170, 200, 204, 207, 210, 222, 225–6,  
 230, 235–6, 239–40, 243, 245, 247, 251, 257,  
 274, 283, 287, 297–8, 302–3, 322, 343, 370,  
 386–8, 424, 429  
 Pelister, 151, 161, 169, 190, 203, 207  
 Penza, 158, 161, 165, 171  
 Petchora, 155, 158, 162, 164–5, 170, 276, 285,  
 297, 300, 390  
 Popielno, 156, 162, 171, 203, 252–3, 275, 277,  
 287, 289–90, 294  
 Poyakonda, 87, 162, 170, 196  
 Pskov, 162, 171  
 Rügen, 163, 170, 196  
 Savukoski, 163, 171, 196, 343, 345  
 Seliger, 145, 159, 163, 167, 170, 225, 230,  
 258–9, 275, 277, 283, 289–90, 294, 298,  
 300–1, 318, 322, 324–5, 343, 349–51, 388,  
 390, 400  
 Serov, 85, 160, 162, 164–5, 168, 171, 196, 204,  
 210, 230, 276, 285, 343, 345, 388  
 Sidensjö, 147, 153, 164, 166, 170, 196, 230, 232,  
 235, 274, 287–8, 320–1, 324, 328  
 Sjaelland, 155, 161, 164, 170, 196, 429  
 Sok, 156, 158, 161–2, 164–5, 168, 171, 196, 276,  
 285, 300, 388  
 Stobnica, 151, 156, 190  
 Strelka, 165, 171, 208, 276, 389  
 Tallinn, 165, 171  
 Tomsk, 84, 147, 160, 165, 169–70, 208, 210,  
 222, 230–2, 239, 276, 278, 283, 291, 299, 301,  
 322, 343, 345, 349–51, 371, 387, 389  
 Turov, 166–7, 169–70  
 Ulm, 74, 80, 150–1, 155–6, 160, 166, 170, 196,  
 201, 207–8, 272, 274–5, 283, 287–8, 290, 322,  
 324–5, 343, 351, 386  
 Uppsala, 152, 164, 166, 170, 196, 206, 230, 285,  
 297, 320–1, 324, 343, 351, 400  
 Valais, 137, 190  
 Vaud, 343  
 West Dvina, 149, 159, 164, 166–7, 169, 171,  
 230, 277, 285, 295, 299, 349, 390  
 Wirral, 150, 160, 167, 170, 239–40, 243, 245,  
 274, 287, 298, 302, 343  
 Wrentham, 154, 161, 167, 170, 274, 283, 302,  
 370, 386  
 Yagry, 168, 171, 208  
 Yermakovskoie, 168, 170, 210  
 Yuryuzan, 153, 164–5, 168, 171, 196, 276, 285  
 Zima, 168, 170, 208, 210  
 Zuvintas, 169–70  
 raiation, 188–99, 203, 205, 209, 211, 271, 301–3,  
 318, 461  
 RAD51 protein labelling, 220, 223, 226, 231  
 radiocarbon dating, 115, 415, 417, 424, 427–8,  
 430  
 range  
 contraction, 128–9, 199, 204, 210, 338,  
 409–10, 422, 424–5, 433, 440, 458  
 expansion, 96, 113–29, 194–212, 297, 318, 338,  
 398, 409–11, 421–38, 457–8, 461, *See also*  
 expansion, postglacial  
 ratio, spermatocyte-to-spermatid, 233–4  
 Rb fission. *See* fission  
 Rb fusion. *See* fusion, Robertsonian  
 R-banding. *See* chromosome, banding  
 rearrangement, chromosomal, 5, 86–97,  
 134–46, 187–99, 217–20, 226, 244, 257–61,  
 279, 300, 303, 337, 365–9, 372–5, 439,  
 458–9  
 RecA protein labelling, 220  
 recombination  
 map, 7, 236, 371  
 model, 371, 375  
 suppression, 218, 242, 244, 260, 272, 279,  
 366–7, 371–2, 375  
 record, fossil, 22, 24, 76, 86, 115–16, 199, 204,  
 212, 407–40, 458–9  
 red fox, 46, 432  
 red-toothed shrews. *See* Soricinae  
 refugium  
 glacial, 7, 113–14, 116, 118, 120, 125, 199, 203–6,  
 317, 330, 338, 359, 412, 424–37, 440  
 northern, 114, 210, 390  
 southern, 119, 128–9, 202, 207, 209, 211–12  
 region  
 inter-SINE, 86, 318  
 pseudoautosomal, 244  
 reinforcement, 272, 301–2, 304, 371, 376, 400,  
 461

- replication, late, 241  
 rhesus monkey, 236, 239  
 Rhine River, 387  
*Rhogeessa tumida*, 273  
 Rhone River, 390  
 richness, allelic, 85, *See also* heterozygosity  
 RNAi, 242  
 Romania, 79, 125, 166, 208, 355, 413, 434  
 root vole. *See Microtus oeconomus*  
 Russia, 3, 7–8, 26, 32, 35, 38–9, 45, 47, 72–4,  
 81–2, 125, 147–8, 152–3, 155, 157–8, 160–1,  
 163, 167–8, 195, 198, 202, 208, 210, 231,  
 275, 282, 285, 294, 297, 301, 322, 325,  
 348–9, 353, 355, 388, 390, 413, 419, 422,  
 431, 457
- Sayan Mountains, 26, 82  
 Scandentia, 21  
 Scandinavia, 3, 7, 39, 73, 85, 114, 194–8, 201, 345,  
 351–2, 357, 410, 429, 434  
 scent glands, 41, 71  
 Scotland, 78, 121–3, 147, 161, 274, 297, 352, 388,  
 424  
 SDM. *See* species distribution modelling  
 segregation, 218–21, 229, 240, 260, 273, 291,  
 460  
 selection. *See* processes, selective  
 seminiferous tubules, 233  
 sequences  
 AT-rich, 87, 95, 241  
 GC-rich, 87, 95, 241  
 Serbia, 125  
 sex chromosomes  
 aneuploidy, 92, 219, 247, 258, 367, 369  
 inactivation, 91, 223  
 multiple system, 2, 90–1, 136  
 trivalent, 2, 4, 223–6, 229, 231, 239–40, 242–4,  
 255–6, 260, 326, 419, 421  
 sex ratio, 33  
 shift, centromeric, 93, 95, 137, 140, 142, 190, 240  
 short tandem repeats, 314, *See also* markers,  
 microsatellite  
 Siberia, 3, 5, 7–8, 24, 26, 28, 35, 38–40, 74, 82, 84,  
 120, 139, 153, 160, 165, 168–9, 188, 190, 194,  
 202–3, 208, 210–11, 276, 345, 349, 352, 355, 371,  
 388–9, 393, 410, 429–31, 433–4, 436–7, 440  
 Siberian karyotypic group (SKG). *See* group,  
 karyotypic, Siberian  
 silencing of unpaired chromatin. *See* meiotic  
 silencing of unpaired chromatin  
 silver fox, 236, 239  
 site, interstitial telomeric, 88, 142  
 skull, 20, 23, 41, 70–1, 73, 76, 78–81, 336–59  
 Slovakia, 74, 76, 125, 155, 166, 413, 431–4  
 Slovenia, 29, 125, 166, 208  
 SNP. *See* polymorphism, single nucleotide  
 solenodon, 21  
*Sorex*  
*alpinus*, 120, 136  
*antinorii*, 4, 25, 77, 119, 128, 137, 139–40, 144,  
 150, 167, 190, 203, 261, 277, 282, 295–6,  
 302–3, 315–20, 322, 325–8, 330, 339, 342,  
 347, 349–51, 355, 368, 371–4, 376, 385, 391,  
 393–4, 396–7, 399, 414–15, 420–3, 431–2,  
 438–9, 459  
*araneus* group, 24, 26, 115, 136, 139, 141, 314,  
 316, 368, 385, 407, 416, 418–20, 458  
*arcticus*, 4, 137, 139–40, 416, 418  
*arunchi*, 4, 25, 69  
*asper*, 4, 26, 137, 139, 142, 418, 432  
*bedfordiae*, 121  
*caecutiens*, 45–6, 120, 419–20  
*coronatus*, 2–3, 24, 29, 69, 77, 79, 119–20, 128,  
 137, 139–40, 142, 154, 203, 295, 301, 315–18,  
 325, 330, 339, 342, 347, 349, 355, 368, 385,  
 387–8, 391, 394–6, 399, 414–16, 420–4,  
 431–2, 438, 459  
*daphnaenodon*, 4, 26, 137, 139, 393, 419, 422,  
 432  
*gemellus*, 2–3  
*granarius*, 4, 22, 25, 69, 93, 96, 119, 128, 137,  
 139–43, 190, 295, 315, 330, 355, 368, 385,  
 414–16, 420–3, 438  
*isodon*, 4, 45, 69, 80–1, 156  
*kennardi*, 418  
*macrognathus*, 419, 421  
*maritimensis*, 4, 137, 139–40  
*minutissimus*, 120  
*minutus*, 22, 28–9, 33, 45–6, 74, 113, 116–17,  
 236, 391, 393  
*obscurus*, 393  
*roboratus*, 69, 81

## 474 Index

- Sorex* (cont.)  
*runtonensis*, 418–22, 439  
*samniticus*, 4, 69, 77, 135, 330, 355, 385  
*satunini*, 4, 25, 69, 77, 81, 137, 139–40, 142, 159, 368, 418, 432  
*subaraneus*, 415–16, 419–22, 439  
*tundrensis*, 4, 26, 69, 82, 120, 137–9, 142, 393, 399, 414, 418–20, 429, 432  
*vagrans*, 393  
 Soricidae, 19, 22, 135  
*Soricimyxum fegati*, 47  
 Soricinae, 20, 22, 24, 37, 414  
 Spain, 79, 119, 139, 325, 330, 355, 413, 436  
 species  
   cryptic, 69, 385  
   distribution modelling, 120, 430–3, 437–8  
   recognition, 398, 400  
   sibling, 2, 4, 24, 29–30, 69, 79, 119, 128, 140, 186, 295–6, 301, 339, 385, 415, 458–61  
 sperm competition, 36, 43, 394  
 spermatocyte, 92, 221–2, 233–4, 256  
 spermatogenesis, 234, 324  
*Spermophilus brunneus*, 86  
 spindle, 218, 229, 256  
 stages, marine isotope. *See* climate cycles  
 starburst pattern, 119, 122–3, 125  
 stepping stone model, 121  
 sterility, 219, 258, 301, 326, 329, 369, 460  
 stoat, 46  
 STRs. *See* short tandem repeats  
 subpopulations, 314, 328  
 subspecies, 26, 76–84, 135, 356, 461  
 substitution rate. *See* mutation rate  
 SUMO-1 protein labelling, 225  
*Suncus murinus*, 229  
 super-supergene, 247, 261  
 suture zone, 195  
 Sweden, 5, 28, 77, 125, 147–8, 152, 160, 164, 166, 195, 210, 229, 231, 274, 285, 297, 317, 320–1, 324–5, 352, 388  
 Switzerland, 1–3, 7, 47, 119, 125, 139, 150, 154, 167, 202, 209, 277, 295, 320, 323, 325, 349, 371, 387, 391  
 SYCP protein labelling, 220–2, 226, 231  
 sympatry, 47, 385, 392–4, 399  
 synapomorphy, 136, 190, 420  
 synopsis, 221–33  
 synaptonemal complex. *See* complex, synaptonemal  
 synteny, 90, 135, 244  
 syntopy, 75, 80, 119, 399  
 taiga shrew. *See* *Sorex isodon*  
 Talpidae, 21–2, 26, 47, 135  
 tapeworms. *See* cestodes  
 teeth, 20, 23, 37, 73, 75, 78, 82, 338, 344–5, 352, 409, 414  
 telomere, 88, 137, 142–3, 222–3, 226, 229, 236, 242, 244–5, 376  
 telophase, 219  
 temperature tolerance, 30, 200  
 tenrecs, 21  
 tension zone, 272, 349–51, 370, 386  
 TerrainBase data set, 344  
 territoriality, 42–5, 391, 394  
 testis mass, relative, 387  
 Tibetan Plateau, 121, 409  
 ticks, 46–7  
 Tien Shan, 4, 139, 432  
 t-locus, 256  
 Tobol River, 388  
 tolerance, 204, 207  
 translocations, whole-arm reciprocal (WARTs), 94–6, 144, 187, 192, 195–6, 208–10, 212, 226, 231–2, 242, 257, 273, 279, 286, 300–1, 303, 317  
 transmission  
   biased, 219, 255–6  
   chromosomal, 249, 256, 258  
 treatment, hypotonic, 2  
 tree shrews. *See* Scandentia  
 trisomy, 93, 255  
   mosaicism, 94  
 trivalent. *See* sex chromosomes, trivalent  
 tuco-tuco. *See* *Ctenomys talarum*  
 tularaemia, 47  
 tundra shrew. *See* *Sorex tundrensis*  
 Turkey, 25, 81, 125, 185  
 twin acrocentrics, 244, 256, 387  
 type A and B karyotypes, 2–4

- Ukraine, 7, 38, 74–5, 80, 125, 149, 155, 159, 202, 208, 355, 436–7
- unfitness, 257–61, 272, 279, 281, 283, 297, 301–2, 304–5, 369, 376, 459–61, *See also* fitness
- univalence, 222, 225–7, 230, 232–3, 240
- Ural Mountains, 35, 47, 53, 81, 120, 165, 168, 180, 196, 276, 297, 393, 431, 433, 436
- Valais shrew. *See Sorex antinorii*
- Valdai Hills, 163, 295, 349, 390
- variation  
 interspecific, 337, 341, 347, 385  
 intraspecific, 2, 5, 69, 72–4, 76, 82, 124–5, 139, 146, 169, 186, 317, 337, 339, 345, 347, 355–6, 358, 368  
 sex-related, 71
- vicariance, 113
- Villanyian, 415
- Vistula River, 160
- Volga River, 157, 161, 163, 165, 388
- Vulpes vulpes*. *See* red fox
- Wales, 147, 150, 167
- WARTs. *See* translocations, whole-arm reciprocal
- water shrew, 23
- WEKG. *See* group, karyotypic, West European
- white-toothed shrews. *See* Crocidurinae
- wild cat, 46
- wildebeest, 264
- WISS algorithm, 188
- woolly mammoth, 429
- woolly rhinoceros, 429
- WorldClim data layers, 417
- X chromosome, 2, 90, 92, 95, 136, 190, 223, 248, 256, 315, 326–9, 420
- XY<sub>1</sub>Y<sub>2</sub>. *See* sex chromosome trivalent
- Y chromosome, 2, 88, 117, 136, 315, 319–20, 326–9
- Y<sub>1</sub> chromosome, 2, 88, 90, 92, 136–7, 161, 223, 225–6, 239, 244, 248, 256, 326–9
- Y<sub>2</sub> chromosome, 2, 90, 93, 136–7, 223, 256, 326–9, 420
- Yakutia, 26, 385
- yellow-necked mouse. *See Apodemus*
- Yenisei River, 148, 165, 168, 388, 429
- young. *See* offspring
- Younger Dryas (YD), 113–14, 116, 118–20, 123, 199, 426–8, 457, 461
- Zonal raciation, 197, 205, 301–3
- zone. *See also* cline  
 bimodal, 275, 283  
 coincident. *See* cline, coincident  
 hybrid. *See* suture zone and tension zone  
 staggered. *See* cline, staggered
- Zoo-FISH. *See* fluorescent *in situ* hybridisation
- zoonotic diseases, 47
- zygote, 219, 372
- zygotene, 220, 223, 226, 229