

Index

A

- AAP sanctuary, Netherlands 246
- AarhusKarlshamn 152
- Abbott's gray gibbons (*Hylobates abbotti*) xiii, xvii, xx–xxi
- Abundance Annex 2, 194, www.stateoftheapes.com
 - acacia plantations 168, 175, 176, 183
- Aceh, Indonesia 128–130, 132, 133, 141, 156
- Africa
 - agro-industry impacts 47–48, 94–95
 - ape distribution xviii
 - human–wildlife conflict mitigation strategies 35–36
 - land deals 43, 74, 75
 - responsible practices 100–101
 - sanctuaries 231
 - target for agro-industry 14–15, 34, 165–66
 - see also Central Africa; East Africa; sub-Saharan Africa; West Africa; *specific countries*
- African Agriculture Fund 86
- African apes xviii, 72, 93, 165–66, 184,
 - Abundance Annex see also bonobos (*Pan paniscus*); chimpanzees (*Pan troglodytes*); gorillas (*Gorilla* spp.)
- African Convention on the Conservation of Nature and Natural Resources 108
- African Development Bank (AfDB) 86
- African Export–Import Bank 86
- agile gibbons (*Hylobates agilis*) xvii, xx–xxi, 239
- Agreement on the Conservation of Nature and Natural Resources 108
- ape distribution xviii, xx–xxi
- ape index x–xiv
- APES Database (Ape Populations, Environments and Surveys) xviii, xxi, 198, Abundance Annex (www.stateoftheapes.com)
- apes and industrial agriculture questionnaire responses 260–63
- APES Portal (Ape Populations, Environments and Surveys) xviii, xxi, 2, Abundance Annex (www.stateoftheapes.com)
- areal penggunaan lain* (APL) 128–130, 156
- armed forces 199
- Asia
 - agri-industry impacts 48–49
 - ape distribution xx–xxi
 - business expansion in Africa 86
 - crops, industrial 48–49
 - investors in African agribusinesses 85
 - land deals 43–45
 - see also *specific countries*

- Asia Pulp and Paper 159
- Asian apes xx–xxi, 165–66, 184, Abundance Annex
 - see also gibbons (*Hylobatidae*); orangutans (*Pongo* spp.)
- Atama 77, 86, 92, 94, 95

B

- bananas 30, 170, 176
- Bangladesh 48, 188
- Benin 73
- Best Management Practices for Orangutan Conservation* (USAID) 147
- Best Practice Guidelines for the Prevention and Mitigation of Conflict between Humans and Great Apes 33
- BGFI Bank of Gabon 86
- biodiversity
 - loss 1
 - protection
 - conservation agriculture (CA) 23, 24, 34
 - EIAs and EMPs 17, 31, 116–17, 118–19, 120–21, 140
 - low-carbon-density land (LCDL) 15
 - mitigation hierarchy 28
 - public–private partnerships 32–33
 - REDD+ project 22
 - RSPO see Roundtable on Sustainable Palm Oil (RSPO)
- biofuels 21, 51, 76, 82–83, 85, 88–90, 137
- Biopalm Energy 86
- BNP Paribas 87
- Bolloré Group 50
- bonobos (*Pan paniscus*)
 - in captivity 231, 243, 256
 - case study see Luo Scientific Reserve/Wamba
 - case study
 - crop raiding 170–72, 175
 - disease 184
 - distances travelled xxi, xxii
 - distribution xviii
 - ecology xxi
 - habitat, agro-industry impacts on 93, 170–72, 174, 177, 181–82, 188
 - home ranges and territoriality xxiii
 - overview x
 - range overlap with agro-industry 96
 - range overlaps of groups 180
 - reproduction xxiii–xxiv
 - socioecology xv
 - states found in xvi
 - trafficking death toll 234
- Bornean gray gibbons (*Hylobates muelleri*) xiii, xvii, xx–xxi
- Bornean orangutans (*Pongo pygmaeus*)
 - agro-industry impacts 24, 66–67, 173, 180
 - in captivity 233
 - case study see Sabangau peat swamp forest
 - case study

- crop raiding 168, 176, 185
 - distances travelled xxi, xxii
 - distribution xvi, xx–xxi
 - HCV Initiative 4 146–47
 - human–wildlife conflict 25–27
 - killings 185
 - overview xii
 - range overlap with agro-industry 66, 67
 - rescues 25–27, 32, 232, 233
 - survival criteria 67
 - Tabin Wildlife Reserve 144
 - see also* orangutans (*Pongo* spp.)
 - Bornean white-bearded gibbons (*Hylobates albibarbis*) xvii, xx–xxi, 65, 239
 - Borneo
 - agro-industry impact on ape habitats 24, 65–67, 168, 172–73, 180
 - ape range – agro-industry overlap 66, 67
 - case study, long-term *see* Sabangau peat swamp forest case study
 - deforestation 46, 62–65, 68 *see also* Sabangau peat swamp forest case study
 - honorary wildlife rangers 144
 - human–wildlife conflict 25–27, 67, 180
 - industrial plantations 65
 - killing of apes 185
 - Mega Rice Project 201
 - orangutan conservation 146–47
 - overview 61–62
 - palm oil 24, 25, 62, 64–65, 67, 146–47, 176
 - protection strategies 69
 - rescues/rescue centers 25–27, 32, 232, 238
 - SMART for HCV 145
 - Tabin Wildlife Reserve 144
 - see also* Indonesia; Kalimantan
 - Borneo Orangutan Survival Foundation (BOSF) 26–27, 146–47, 232
 - Bossou chimpanzees 177, 182
 - Brazil 82, 256
 - British American Tobacco (BAT) 30
 - Brunei 42, 61, 63, 64 *see also* Borneo
 - Budongo Forest Reserve, Uganda 29–31
 - Bugoma Forest Reserve, Uganda 29–31
 - Bukit Barisan Selatan National Park, Indonesia 122–23
 - Bukit Tigapuluh Ecosystem, Sumatra 141
 - Bulindi, Uganda 6, 29–31, 38
 - Bunge 86, 99
 - Burkina Faso 73
 - Burundi 47, 211, 214
- C**
- cacao 22, 30, 58
 - Cambodia
 - ape range – agro-industry overlap 45
 - ape distribution xx–xxi
 - concession allocation 133
 - deforestation 44
 - EIAs 120–21
 - forest ownership 132
 - land deals 43, 44–45
 - land tenure 112
 - Law on Forestry 127, 133
 - multilateral treaties 108
 - palm oil 44
 - protected areas 44–45, 124–25
 - Cameroon
 - agro-industry, history of 49–51
 - agro-industry impact on ape habitats 54, 68–69, 94
 - agro-industry, potential sites 92, 93, 96
 - ape abundance 49
 - ape distribution xviii
 - ape range – agro-industry overlap 53, 54, 75
 - area under concession 74
 - concerns about agro-industry 54–55, 68–69
 - concession allocation 115
 - current agro-industry situation 54
 - deforestation 49, 54
 - EIAs 120–21
 - environmental protection 118
 - forest and ape status 46, 49
 - forest ownership 132
 - governance 101
 - land deals 43, 81
 - land/resource tenure 110, 111, 112, 113
 - Law on Environmental Management 118
 - multilateral treaties 108
 - national parks 133
 - palm oil 51–52, 70–71, 75, 77, 78, 79, 81, 92, 160
 - protected areas 53, 54, 124–25
 - public interest litigation 127
 - rescues/rescue centers 235–37
 - rubber 52–54, 83
 - Rural Sector Development Plan 81
 - smallholder farming 78, 98, 160
 - sugarcane 52, 83
 - Cameroon Development Corporation 50, 52, 78, 86
 - Cameroon Sugar Company (CAMSUCO) 52
 - Campo Ma'an National Park, Cameroon 52–53
 - Canary Islands 246
 - Cantanhez National Park, Guinea-Bissau 35–36
 - Cao Vit gibbons (*Nomascus nasutus*) xiv, xvii, xx–xxi
 - captive apes
 - information 257–58
 - key issues 246–47
 - in labs 232, 242, 254–55, 256
 - legislation 229–231, 241–42, 243, 246, 248–254, 256–57
 - in non-range states 241, 256
 - in non-range states: EU 241–42
 - circuses and entertainment 243–45
 - Linda's story 246–47
 - sanctuaries 245–48
 - zoos 242
 - in non-range states: Japan 258
 - in non-range states: US 248
 - Captive Primate Safety Act 248–49

- Humane Care for Primates Act 249
 numbers 254–56
 public contact prohibition petition 250–51
 sanctuaries 249, 251, 252–53, 254, 255, 256
 split-listing of chimpanzees 249–250
 sub-national legislation 251–54
 overview 195, 258–59
 performers 230, 231, 243–47, 250–51
 pets
 in range states 26, 126, 222, 238, 240
 in the US 250, 251–52, 254
 welfare risks 230, 233, 246–47
 professional associations 231
 in range state sanctuaries 231–32
 rescue challenges 232–34
 social attitudes 257
 trafficking 232, 234, 235, 240, 256
 see also rescues/rescue centers
 carbon dioxide (CO₂) 20–21, 81
 see also greenhouse gas (GHG) emissions
 carbon sequestration 20, 154
 Cargill 86, 99
 case studies, long-term 197–200, 226
 bonobos *see* Luo Scientific Reserve/Wamba
 case study
 Bornean orangutans *see* Sabangau peat swamp
 forest case study
 chimpanzees *see* Gombe Stream National Park
 case study
 silvery gibbons *see* Mount Halimun Salak
 National Park case study
 cashews 35–36, 46
 cassava 56, 216
 Central Africa
 agro-industry threats 93
 forest administration resources 119
 infrastructure development 172
 land acquisitions 74, 75
 palm oil 58, 77, 79
 rubber 83
 see also specific countries
 Central African Republic (CAR) 47, 75, 93
 central chimpanzees (*Pan troglodytes troglodytes*)
 x, xvi, xviii, 49, 148, 150
 Centre for International Cooperation in Sustainable
 Management of Tropical Peatlands (CIMTROP)
 202, 204
 cereals 75, 83–85
 certified sustainable palm oil (CSPO) 136, 137, 140,
 152–53, 157–58, 162, 163
 chimpanzees (*Pan troglodytes*)
 Bossou community 177, 182
 Bulindi village 29–31, 38
 in captivity 231, 232, 243, 245–47, 248, 249–250,
 254–56, 258
 case study *see* Gombe Stream National Park
 case study
 crop raiding 30–31, 35–36, 170–72, 175, 177, 184,
 185, 237, 262–63
 deforestation impacts 174
 diet xix, xxi
 disease 184–85, 240
 distances travelled xxi, xxii
 ecology xix, xxi
 habitat, agro-industry impacts on 29–31, 46,
 170–72, 174, 177, 181–82, 188
 home ranges and territoriality xxii–xxiii, xxiii
 human–wildlife conflict 30–31
 intraspecific aggression 36, 180, 181, 212
 killings 31
 Linda's story 246–47
 memory xxii
 nest building 177
 overview x–xi
 range overlap with agro-industry 53, 54, 93, 96
 regenerated forests 178
 reproduction xxiii–xxiv
 rescues/rescue centers 195, 230, 235–37
 socioecology xv
 states found in xvi
 trafficking death toll 234
 see also specific subspecies
 China 48, 158, 188
 China Development Bank Corporation 86
 circuses 243–45
 CITES Appendices xv
 Citi 87
 climate change 4, 19–21, 190, 207
 coffee 30, 56, 58
 compression effects 179–183, 198, 202
 concession allocation 114–17
 concessions, defined 3
 Congo Basin 7–8, 14, 42, 72, 77, 91, 92, 98
 conservation agriculture (CA) 23, 24, 34
 conservation and mitigation strategies 33–37
 consumer agency 38, 157
 Convention on Biological Diversity (CBD) 108, 135–36
 Convention on Conservation of Migratory Species of
 Wild Animals 108
 Convention on International Trade in Endangered
 Species of Wild Fauna and Flora (CITES)
 108, 122, 135, 246
 Convention on the Conservation of Migratory
 Species 135
 Convention on Wetlands of International Importance
 (Ramsar Convention) 136
 corn 83–84
 corporate social responsibility (CSR) 99, 100
 corruption 17, 101–2, 128, 129, 199, 221
 Credit Suisse 87
 Cress, Doug 234
 Crookes Brothers 83
 crop-protection measures 31, 37, 39
 crop raiding 174–75, 183, 237, 262–63
 bonobos 170–72, 175
 chimpanzees 30–31, 35–36, 170–72, 175, 177, 184,
 185, 237, 262–63
 gibbons 175, 262–63
 gorillas 170, 184

orangutans 9, 26, 168, 175, 176, 183–84, 185, 262–63
 crops grown 14, 40–41, 46, 167
 Africa 30, 47–48, 56, 73, 75, 90
 Asia 48–49, 62, 63
 Cross River gorillas (*Gorilla gorilla diehli*) xi, xvi, xviii,
 49, 93, 179, 181
 Cross River National Park 95
 crowding effect 179–183, 200, 202, 205–6

D

deforestation 14
 Africa, rates in 29–30
 agricultural expansion 30, 41, 92, 173–74
 Borneo 62–65, 68
 see also Sabangau peat swamp forest case study
 Cambodia 44
 Cameroon 49, 54
 DRC 29, 211
 GHGs released 20–21, 22
 human–wildlife conflict 26, 29–31
 impacts on ape populations 65–66, 166, 198, 238
 see also habitat, agro-industry impacts on Java 224
 Liberia 29, 55, 61
 sub-Saharan Africa 92
 Sumatra 196–97
 see also forest protection
 demand for agricultural commodities 87–90
 Democratic Republic of Congo (DRC)
 agro-industry impact on ape habitats 47, 188
 agro-industry, potential sites for 92, 93, 96
 ape distribution xviii
 ape range – agro-industry overlap 75, 93, 96
 area under concession 74
 case study *see* Luo Scientific Reserve/Wamba
 case study
 concession allocation 116
 corn 84
 deforestation 29, 211
 EIAs 120–21, 127
 Forestry Code 127
 gorillas 169, 170, 257
 land ownership 132
 land/resource tenure 110, 112, 113
 Law on Basic Principles of Environmental
 Protection 133
 multilateral treaties 108
 palm oil 75, 78, 86
 protected areas 124–25
 REDD+ project 22
 rescues/rescue centers 195, 232, 257
 restart of old plantations 171
 rubber 83
 Development Bank of Central African States 86
 diet xix, xxiv–xxv
 disease 36, 166, 184–85, 211, 214, 238, 240
 distances travelled by great apes xxi–xxii, xxii
 Dja Faunal Reserve, Cameroon 52–53

E

East Africa 82, 84, 85, 172 *see also specific countries*
 eastern chimpanzees (*Pan troglodytes schweinfurthii*)
 x, xvi, xviii, 29–31, 38
 eastern gorillas (*Gorilla beringei*) xi, 93 *see also*
 Grauer's gorillas (*Gorilla beringei graueri*);
 mountain gorillas (*Gorilla beringei beringei*)
 eastern hoolocks (*Hoolock leuconedys*) xii–xiii, xvii,
 xx–xxi
 Ebola virus 55, 61, 80, 184
 Ecobank 86
 education 31, 37, 146, 212, 226, 257–58
 employment 18, 56, 58, 71, 73, 220
 encroachment 41–43, 67–69 *see also* deforestation
 environmental impact assessments (EIAs) 17, 31, 116–17,
 118–19, 120–21, 140
 environmental management plans (EMPs) 17, 118
 environmental protection 117–19, 133
 Equatorial Palm Oil, Liberia 59, 94
 Ethiopia 83, 84, 85
 eucalyptus 168, 175, 176–77
 European Union (EU)
 agro-industry investors 85, 86
 Biofuels Directive 88, 89
 captive apes 241–42
 circuses and entertainment 243–45
 Linda's story 246–47
 sanctuaries 245–48
 zoos 242
 Everything-but-Arms arrangement 91
 palm oil imports 79, 157–58
 Renewable Energy Directive 89–90
 expansion drivers 87–92

F

Fernan-Vas Gorilla Project, Gabon 232
 Feronia 86, 171
 fertilizers 20, 21
 fires 21, 62, 65, 81–82, 104, 129, 130, 138, 206–7
 Firestone 57
 foreign direct investment 51, 81, 85–86
 forest protection
 Brazilian model 82
 Norway–Liberia Deal 61
 “passive protection” 96–97
 zero-deforestation commitments 99, 100, 113,
 144, 159
 Forest Stewardship Council 145
 forests
 carbon sequestration 20, 21, 22
 Congo Basin 72
 FAO classification 20
 fragmentation 24
 high carbon stock (HCS) 100, 144
 high conservation value (HCV) 100, 140, 144
 land use planning 186
 loss *see* deforestation

management 205–6
 protection *see* forest protection
 REDD+ project 22
 regeneration 200, 213
 reserves 29
 tenure 109–13
see also Sabangau peat swamp forest case study
 free, prior and informed consent (FPIC) 17, 59, 61,
 94–95, 100, 148
 FRI-EL Green Power 86

G

G20 Inter-Agency Working Group 4

Gabon

agro-industry impact on ape habitats 47, 94
 agro-industry, potential sites for 92, 93
 agro-industry practices 100
 ape abundance 148
 ape distribution xviii
 ape range – agro-industry overlap 75, 93, 96
 area under concession 74
 deforestation rates 147–48
 EIAs 120–21
 forest cover 147
 gorillas 96, 151
 HCV forests 148–151
 human population 148
 land deals 43
 land/resource tenure 112, 113
 multilateral treaties 108
 national parks 122, 133
 Olam International 147–151
 palm oil 81, 86, 92, 148–151
 protected areas 124–25
 rescues/rescue centers 232
 rubber 83
 Strategic Plan for an Emerging Gabon 81
 genetically modified organisms (GMOs) 4
 Ghana 14, 47, 73, 74, 75, 78, 84, 85
 gibbons (*Hylobatidae*)
 in captivity 231, 242, 243, 245, 254, 255
 case study *see* Mount Halimun Salak National
 Park case study
 crop raiding 175, 262–63
 deforestation impacts 65, 173
 diet xxiv–xxv
 disease 184
 distribution xx–xxi
 habitat, agro-industry impacts on 136, 169, 173,
 176, 180–81, 188
 home ranges and territoriality xxiii, xxv
 overview xii–xiv
 reproduction xxv
 rescues/rescue centers 238–39
 socioecology xxiv–xxv
 states found in xvii
 survival criteria 67

trafficking death toll 234
see also specific species
 Global Forest Watch (GFW) 42, 158
 Global Roadmap Project 16
 Golden Agri-Resources (GAR) 86, 99, 100, 159
 Golden Oil Holdings 86
 Golden Veroleum Liberia (GVL) 59, 94, 95, 100
 Gombe Stream National Park case study 198–99,
 207–15
 causes of population changes
 disease 211
 habitat change/loss 211
 intraspecific aggression 212
 killings 212
 changes in population size and ranging patterns
 209, 210
 context and background 207, 209
 Greater Gombe Ecosystem Conservation Action
 Plan (GGE–CAP) 212–13
 map 208
 methodology 209–10
 recommendations 214–15
 reducing threats 212–13
 disease 214
 habitat loss 213–14
 hunting/poaching 214
 gorillas (*Gorilla spp.*)
 in captivity 231, 232, 243, 255
 crop raiding 170, 184
 diet xix
 disease 184–85
 distances travelled xxi
 ecology xix
 habitat, agro-industry impacts on 165, 169–170,
 173–74, 175, 176–77, 181, 188
 home ranges and territoriality xxii, xxiii
 hunting/poaching 186–87
 overview xi–xii
 range overlap with agro-industry 54
 reproduction xxiii–xxiv
 socioecology xv
 states found in xvi
 trafficking death toll 234
see also specific species
 governance 22, 67, 100–101 *see also* legal frameworks;
 legislation
 Grauer's gorillas (*Gorilla beringei graueri*) xi, xvi,
 xviii, xxii, 93, 169, 170, 257
 Great Ape Information Network (GAIN) 258
 great apes *see* bonobos (*Pan paniscus*); chimpanzees
 (*Pan troglodytes*); gorillas (*Gorilla spp.*);
 orangutans (*Pongo spp.*)
 Great Apes Survival Partnership (GRASP) 232, 234
 greenhouse gas(es) (GHG) 4, 19–21, 22, 24, 90, 142, 154
 GreenPalm certification 152–53, 157, 158
 Greenpeace 138, 144, 157, 159
 Guinea *see* Republic of Guinea
 Guinea-Bissau 35–36, 46, 47, 177, 188
 Gunung Leuser National Park, Sumatra 154

H

- habitat, agro-industry impacts on
 - by ape species 167–68
 - bonobos 93, 170–72, 174, 177, 181–82, 188
 - chimpanzees 29–31, 46, 170–72, 174, 177, 181–82, 188
 - gibbons 136, 169, 173, 176, 180–81, 188
 - gorillas 165, 169–170, 173–74, 175, 176–77, 181, 188
 - orangutans 24, 136, 166, 168, 172–73, 180, 188
 - Borneo 24, 65–67, 168, 172–73, 180
 - Cameroon 54, 68–69, 94
 - by crop type 167
 - DRC 47, 188
 - Gabon 47, 94
 - habitat loss 165–66
 - Indonesia 48, 188
 - Ivory Coast 47
 - key findings 166–67
 - Liberia 59–60, 94
 - long-term impacts 179–183
 - Malaysia 48, 188
 - Myanmar 49
 - Nigeria 47, 95, 171
 - by phase of production 177
 - habitat destruction and clearance 173–74
 - infrastructure development 172–73
 - mature plantations 176–77
 - young plantations 174–76
 - remediations 177–79, 190–92
 - Republic of Congo 20–21, 47, 94, 188
 - research needed 166
 - sub-Saharan Africa 92–96
 - Sumatra 24, 104–5, 154, 156, 168, 190–91
 - survey 188–190
 - threats to apes 240
 - types of impacts 165, 211
 - Uganda 48, 95, 188
 - West Africa 93
 - see also* deforestation; human–wildlife conflict
 - Hainan gibbons (*Nomascus hainanus*) xiv, xvii, xx–xxi
 - Herakles Farms, Cameroon 52, 86, 92, 94, 95
 - HEVECAM, Cameroon 53
 - high carbon stock (HCS) forests 100, 102, 142, 144, 148, 159
 - high conservation value (HCV) forests
 - assessments 140
 - Gabon 148–151
 - Golden Veroleum Liberia 100
 - HCS approach 159
 - HCV areas 145
 - Olam International 100
 - RSPO clearance prohibition 154
 - RSPO Principle 7 140
 - RSPO task force 156
 - set-aside system 178
 - Wilmar International initiatives 144–47
 - home ranges and territoriality xxii
 - hoolocks (*Hoolock* spp.) xii–xiii, xvii, xxiv–xxv
 - human conflict impacts 218–19
 - human settlements 172, 206, 215–16, 235
 - human–wildlife conflict 39
 - Borneo 25–27, 67, 180
 - disease risks 184–85, 211
 - Indonesia 25–27
 - killing of apes 185, 212
 - land use planning 186
 - mitigation strategies 33–37, 39
 - pets 240
 - socioeconomic factors 183, 187–88
 - Uganda 29–31, 82
 - see also* crop raiding
 - hunting/poaching 54, 55–56, 60, 166, 172, 185, 186–87, 199, 202, 214, 217, 218–19
 - Hylobates* genus xiii, xxiv–xxv *see also specific species*
-
- I
 - Illovo Sugar 83
 - Independent Monitoring of Forest Law Enforcement and Governance (IM-FLEG) 94
 - India 48, 90, 188
 - Indonesia
 - agro-industry impact on ape habitats 48, 188
 - ape distribution xx–xxi
 - case study *see* Mount Halimun Salak National Park case study
 - concession allocation 115, 133
 - corruption 128, 221
 - EIAs 120–21, 133
 - forest protection laws 33–34
 - greenhouse gas (GHG) emissions 21
 - human–wildlife conflict 25–27
 - infrastructure development 172
 - land deals 43
 - land prices 91
 - land tenure 19, 112
 - multilateral treaties 108
 - national parks 122–23, 133
 - Orangutan Indonesia Conservation Strategies and Action Plan 2007–2017 32
 - palm oil 12–13, 18–19, 24, 25, 81–82, 134–35, 136, 137
 - poverty 18–19
 - productive use requirements 113
 - proportion of land for expansion 64
 - protected areas 124–25
 - rescues/rescue centers 25–27, 32, 174–75, 238–39
 - RSPO HCV task force 156
 - species protection 125
 - Tripa peat swamp forests, Aceh 128–130, 141
 - Wilmar International 144
 - zero-deforestation commitments 113
 - see also* Borneo; Sumatra
 - Indonesian Palm Oil Association 138
 - industrial agriculture, defined 3
 - industrial agriculture, overview 4–5

industrial tree plantations (ITPs) 65
 infrastructure development 172–73
 ING 87
 Institute of Economic Affairs 4, 14
 interbirth intervals xii, xxiv, xxv, 182, 186, 194, 199–200
 International Animal Rescue (IAR) Indonesia 25–27, 174–75, 232, 240
 International Finance Corporation 86
 International Species Information System (ISIS) 242
 International Tropical Timber Agreement 108
 International Union for Conservation of Nature (IUCN) 32
 investment sources 85–86
 IUCN Red List Categories and Criteria xv
 IUCN SSC APES Database 198
 Ivory Coast
 agro-industry impact on ape habitats 47
 agro-industry, potential sites for 14
 ape distribution xviii
 ape range – agro-industry overlap 75, 92, 93
 palm oil 75, 77–78, 79, 80
 rubber 83
 sugarcane 83
 Wilmar International 144
 Iyondji Community Bonobo Reserve, DRC 218

J

Jane Goodall Institute (JGI) 208, 212–13
 Japan 225, 256, 258
 jatropha 76, 85, 102
 Java 221 *see also* Mount Halimun Salak National Park case study
 Javan gibbons (*Hylobates moloch*) xvii, xx–xxi, 222
 see also Mount Halimun Salak National Park case study
 Justin Sugar Mills SA 52

K

Kalaweit rescue organization 145, 238–39
 Kalimantan
 ape range – agro-industry overlap 66
 captive apes 233
 Central Kalimantan Project 146–47
 crop raiding 176
 human–wildlife conflict 25–27
 intact forest area 63
 killing of apes 67, 185
 land targeted for agro-industry 64
 orangutan conservation 146–47
 orangutan population 66–67
 palm oil 65
 rescues/rescue centers 25–27, 32, 232, 238–39
 SMART for HCV 145
 see also Borneo; Indonesia; Sabangau peat swamp forest case study

Kano, Takayoshi 215
 Kenya 82, 84
 key findings
 agro-industry expansion 42–43
 economic development and biodiversity conservation 15
 habitat, agro-industry impacts on 166–67
 Round Table on Sustainable Palm Oil (RSPO) 136–37
 sub-Saharan Africa 73
 killing of apes, non-consumption 31, 67, 170–71, 180, 185, 186, 212, 237
 Kinabatangan, Borneo 168, 172–73, 176, 180
 Kinyara Sugar Works Ltd. (KSWL), Uganda 30, 31
 Kloss' gibbons (*Hylobates klossii*) xvii, xx–xxi, 238, 239

L

land access 90–91
 land deals 43–45, 72, 74, 81, 83, 109
 Land Matrix 42, 43, 74, 76, 77, 83
 land tenure 19, 51, 91, 109–13
 land use planning 10, 33–36, 39, 69, 186, 212–13, 213–14, 226
 Lao People's Democratic Republic (Lao PDR) xvii, xx, 44, 48
 Lar gibbon (*Hylobates lar*) xvii, xx–xxi, 252–53
 Latin America 14–15
 law enforcement 82, 119, 124, 125, 126–131, 215, 220
 legal challenges 127, 129–130
 legal frameworks 105–9, 131–32
 concession allocation 114–17
 environmental protection provisions 117–19
 implementation and enforcement 119, 124, 125, 126–131
 land/resource tenure 109–13
 legal challenges 127, 129–130
 protected areas/species 119–125
 see also legislation
 legislation
 ape captivity 229–231, 242, 243, 246, 248–254, 256–57
 different sets 115
 enforcement 118
 environmental protection 117–18
 forest protection 33–34, 55, 120
 international 107, 108, 135–36
 protected areas 119–122, 124–25, 128–29
 protected species 54, 122–25
 sustainable development 101–2
 transparency 116
 see also legal frameworks
 Leuser Ecosystem, Aceh 128–130, 141, 156
 Liberia
 agro-industry, history of 56
 agro-industry impact on ape habitats 59–60, 94
 agro-industry, potential sites for 92, 93
 agro-industry practices 100

- ape abundance 55–56
 - ape distribution xviii
 - ape range – agro-industry overlap 75, 93
 - cocoa and coffee 58
 - concerns about agro-industry 60–61, 68
 - concession allocation 116
 - deforestation 29, 55, 61
 - Ebola virus 61
 - EIAs 120–21
 - Extractive Industries Transparency Initiative Act 116
 - forest ownership 132
 - forest protection laws 55
 - governance 101
 - land deals 43, 74
 - land tenure 112
 - multilateral treaties 108
 - National Forestry Reform Law 55
 - national parks 133
 - Norway–Liberia Deal 59, 61, 68, 83, 101
 - overview 55
 - palm oil 58–59, 77, 86
 - protected areas 124–25
 - rubber 56–58, 83
 - Liberia Palm Developments (LPD) 94, 95
 - Liberia Rubber Corporation 56–57
 - local communities
 - agro-industry conflicts 82, 94–95, 100
 - conservation education/efforts 212–15, 220
 - free prior and informed consent (FPIC) 59
 - free, prior and informed consent (FPIC) procedure 148
 - involvement 226
 - land rights 110–11
 - land tenure 51, 91
 - perception of wildlife 183
 - see also* human–wildlife conflict
 - logging 54, 62, 92, 166, 200, 202, 235 *see also* Sabangau peat swamp forest case study
 - long-term research 200, 226 *see also* case studies, long-term
 - low-carbon-density land (LCDL) 15
 - Luo Scientific Reserve/Wamba case study 199, 215–220
 - civil war impacts 218–19
 - context and background 215–16
 - deforestation 216
 - methodology 216–18
 - population changes 217
 - recommendations 220
 - snare 219, 220
 - survivorship 219–220
 - Lwiro sanctuary, DRC 232
- M**
- Malawi 84
 - Malaysia
 - agro-industry impact on ape habitats 48, 188
 - agro-industry promotion 114
 - ape distribution xx–xxi
 - deforestation 65, 68, 69
 - EIAs 17, 120–21, 133
 - land/resource tenure 112, 113
 - legal challenges, blocks to 127
 - multilateral treaties 108
 - palm oil 18, 24, 64, 65, 81–82, 134–35, 136, 137
 - plantation establishment 17
 - poverty 18
 - protected areas 124–25
 - rubber 20
 - smallholder farming 63
 - Wilmar International 144
 - see also* Borneo
 - Malaysian Palm Oil Association 138
 - Mali 73, 83
 - Max Planck Institute 198
 - Mbargue Forest, Cameroon 235–37
 - media coverage 129
 - Mega Rice Project, Borneo 201
 - Migros, Switzerland 138
 - Mishmi Hills hoolocks (*Hoolock hoolock mishmiensis*) xii–xiii
 - mitigation hierarchy 28
 - Moloch gibbon (*Hylobates moloch*) xvii, xx–xxi, 222
 - see also* Mount Halimun Salak National Park case study
 - MONA Foundation 246
 - monocultures x–1, 2–3 *see also* palm oil
 - Mount Halimun Salak National Park case study
 - 199, 221–226
 - context and background 221
 - population surveys and monitoring 222–23
 - silvery gibbons in western Java 222
 - habitat estimates 223–24
 - long-term monitoring challenges 224–25
 - map 222
 - recommendations and opportunities 225–26
 - mountain gorillas (*Gorilla beringei beringei*) xi, xvi, xviii, 93, 169–170
 - Mozambique 82, 83, 84, 85
 - Mueller's gray gibbon (*Hylobates muelleri*) xiii, xvii, 65, 239
 - multilateral treaties 107, 108, 135–36
 - Myanmar
 - agro-industry impact on ape habitats 49
 - ape distribution xx–xxi
 - EIAs 120–21
 - Environmental Conservation Law 133
 - environmental protection 118
 - land ownership 132
 - land/resource tenure 112, 113
 - legal challenges, blocks to 127, 130
 - multilateral treaties 108
 - National Land Use Policy 132
 - productive use requirements 133
 - protected areas 124–25

N

- national parks 49, 54, 94, 95, 121–22, 122–23, 133, 154, 170, 184 *see also* Gombe Stream National Park case study; Sabangau peat swamp forest case study
- Nauvu 77–78
- nest building xxi, 168, 171, 176, 177, 262–63
- Nestlé 99
- Nigeria
- agro-industry impact on ape habitats 47, 95, 171
 - agro-industry practices 100
 - ape distribution xviii
 - ape range – agro-industry overlap 75
 - corn 84
 - land deals 75
 - palm oil 75, 77
 - rice 85
 - rubber 83
 - sugarcane 82
- Nigeria–Cameroon chimpanzees
(*Pan troglodytes ellioti*) x, xvi, xviii, 49, 52, 54, 171
- nitrous oxide (N₂O) 20–21
- Nomascus* genus xiii–xiv, xvii, xxiv–xxv
see also specific species
- non-governmental organizations (NGOs) 82, 127, 138, 141, 157
- Northeast Bornean orangutan
(*Pongo pygmaeus morio*) xvi
- northern white-cheeked gibbons
(*Nomascus leucogenys*) xvii, xx–xxi
- northern yellow-cheeked gibbon
(*Nomascus annamensis*) xvii, xx–xxi, 45
- northwest Bornean orangutan
(*Pongo pygmaeus pygmaeus*) xvi
- Norway–Liberia Deal 7, 59, 61, 68, 83, 101
- O
- Olam International 81, 86, 92, 94, 95, 100, 143, 147–151, 159
- Orangutan Indonesia Conservation Strategies and Action Plan 2007–2017 32
- Orangutan Tropical Peatland Project (OuTrop) 202
- orangutans (*Pongo* spp.)
Best Management Practices for Orangutan Conservation 147
- in captivity 126, 231, 232, 233, 240, 243, 245, 255
 - case study, long-term *see* Sabangau peat swamp forest case study
 - conservation projects 146–47
 - crop protection measures 37
 - crop raiding 9, 26, 168, 175, 176, 183–84, 185, 262–63
 - deforestation impacts *see* Sabangau peat swamp forest case study
 - diet xix
 - disease 184
 - distribution xx–xxi
 - ecology xix, xxi
 - habitat, agro-industry impacts on 24, 136, 166, 168, 172–73, 180, 188
 - home ranges and territoriality xxii, xxiii
 - human–wildlife conflict 25–27
 - killings 185, 186
 - nest building 168, 176
 - overview xii
 - population densities 153
 - protective legislation 33–34
 - reintroduction of rescued animals 32
 - reproduction xxiii–xxiv
 - rescues/rescue centers 25–27, 32–33, 34–35, 174–75, 232–33, 234
 - socioecology xv, xix
 - states found in xvi
 - trafficking death toll 234
 - translocation 32–33, 36, 154
 - use of plantations 175, 176
 - see also* Bornean orangutans (*Pongo pygmaeus*); Sumatran orangutans (*Pongo abelii*)
- Oxfam Novib 138
- P
- palm oil
- ape conservation practices 34
 - Best Management Practices for Orangutan Conservation* 147
 - biodiesel 21
 - Borneo 24, 25, 62, 64–65, 67, 146–47, 176
 - Cambodia 44
 - Cameroon 51–52, 70–71, 75, 77, 78, 79, 81, 92, 160
 - carbon sequestration 20
 - Central Africa 58, 77, 79
 - crop rotation impacts 24
 - CSPO 136, 137, 140, 152–53, 157–58, 162, 163
 - demand for 90, 137
 - DRC 75, 78, 86
 - employment 18
 - EU imports 79, 157–58
 - expansion 5, 14, 42
 - Gabon 81, 86, 92, 148–151
 - global price declines 80
 - greenhouse gas (GHG) emissions 20–21
 - human–wildlife conflict 25–27
 - impacts on ape habitats 24, 93, 94, 166
 - Indonesia 12–13, 18–19, 24, 25, 81–82, 134–35, 136, 137
 - investment sources 85–86
 - Ivory Coast 75, 77–78, 79, 80
 - Kalimantan 65
 - key findings 15
 - Liberia 58–59, 61, 77, 86
 - Malaysia 18, 24, 64, 65, 81–82, 134–35, 136, 137
 - mature plantations 176
 - model of suitability for plantations 14
 - national strategies 101
 - Nigeria 75, 77
 - Olam International 147–151

- orangutan protection strategies 32–33
 - overlap with ape habitats 93
 - overlap with ape ranges 92–96, 136
 - and poverty 18–19
 - production amount 14, 18, 136
 - Republic of Congo 77, 81, 92
 - RSPO *see* Roundtable on Sustainable Palm Oil (RSPO)
 - smallholder farming 18, 19, 77, 160–61
 - sub-Saharan Africa 76–81, 90
 - Sumatra 24, 137, 160–61
 - surface cultivated 14
 - sustainable development 96–102
 - sustainable lending 87
 - trade 78–79, 80
 - uses 18
 - West Africa 58, 77, 79, 90
 - Wilmar International 144–47
 - yield intensification 24
 - Palm Oil Innovations Group (POIG) 100–101, 159
 - PALMCI group 77–78
 - Pamol 52, 78
 - peatlands 20, 21, 24, 154, 207 *see also* Sabangau peat swamp forest case study
 - pets *see* captive apes, pets
 - pileated gibbons (*Hylobates pileatus*) xvii, xx–xxi, 45
 - plantation establishment 17
 - plantations, mature 176–77
 - plantations, young 174–76
 - population crash 205–6
 - population recovery 206
 - poverty 18–19, 160
 - protected areas
 - benefits and limitations 198–99
 - Cambodia 44–45, 124–25
 - Cameroon 53, 54, 124–25
 - categories 46
 - DRC 124–25
 - Gabon 124–25
 - Global Roadmap Project 16
 - Indonesia 124–25
 - legislation 119–122
 - Liberia 55, 60, 124–25
 - Malaysia 124–25
 - management 226
 - Myanmar 124–25
 - see also* Gombe Stream National Park case study; national parks; Sabangau peat swamp forest case study
 - protected species 122–25
 - public–private partnerships 32–33
- R**
- Rabobank 87
 - Rainforest Alliance 136
 - REDD+ project 22
 - reforestation 178–79
 - regeneration of agricultural land 178–79
 - remediations 177–79
 - reproduction xxiii–xxiv, xxv
 - Republic of Congo
 - agro-industry impact on ape habitats 20–21, 47, 94, 188
 - agro-industry, potential sites for 92
 - ape distribution xviii
 - ape range – agro-industry overlap 75
 - area under concession 74
 - Atama plantation 77
 - land acquisitions 74
 - land deals 43
 - palm oil 77, 81, 92
 - sugarcane 83
 - Republic of Guinea 43, 47, 75, 92, 93, 177, 182
 - rescues/rescue centers
 - Africa 235–37, 257
 - Asia 25–27, 32–33, 34–35, 174–75, 225, 238–39
 - Asia and Africa 231–32
 - challenges 232–34
 - drivers and impacts 239–240
 - Europe 243, 245, 246–47
 - USA 248, 249, 251, 252–53, 254, 255
 - rice 18, 30, 52, 84–85
 - roads 16, 171, 172
 - Roundtable on Sustainable Palm Oil (RSPO)
 - architecture 140
 - Board of Governors 141, 142
 - General Assembly (GA) 140–42
 - Secretariat 142–43
 - Standing Committees (SCs) 141–42
 - certification categories 153
 - challenges 162
 - compensation 155
 - complementary initiatives 158–59
 - conservation impact, enhancing 157, 162–63
 - increasing demand for CSPO 157–58
 - traceability and transparency 158
 - costs to growers 152–53
 - creation 137–38
 - CSPO 136, 137, 140, 152–53, 157–58, 162, 163
 - industry applications 143
 - Olam International 147–151
 - Wilmar International 144–47
 - key findings 136–37
 - legitimacy 143
 - membership categories 138
 - operational challenges 152–53
 - Principles and Criteria 138–140
 - problems 59, 87
 - process-related obstacles 153–55
 - agreement, reaching 153–54
 - freeloading and non-compliance 156–57
 - interpretation 154
 - membership limitations 155–56
 - regulations, conflicting 156
 - stakeholder coverage, inadequate 156
 - sustainability promotion, steps towards 162–63
 - rubber 18, 44–45, 52–54, 56–58, 63, 83, 148, 171
 - Rwanda 47, 170

S

- Sabah 63, 64, 65, 144
- Sabahmas Conservation Area (SCA), Borneo 144
- Sabangau peat swamp forest case study 198, 200–207
 catchment map 202
 context and background 200–202
 discussion
 impact of logging disturbance 203–5
 landscape 206–7
 population decline 206
 population recovery, post-logging 206
 timeline of population crash 204, 205–6
 methodology and results 202–3
 population densities 204
 population distribution shifts 203
- Sanaga-Yong Rescue Center (SYRC), Cameroon 235–37
- sanctuaries *see* rescues/rescue centers
- Sanctuary Project 258
- Sapo National Park, Liberia 94
- Sarawak 63, 64, 65
- Schwaben Park, Germany 243
- Senegal 48, 75, 84
- set-aside system 177–78
- set-up costs 91–92
- siamangs (*Symphylangus syndactylus*) xiv, xvii, xx–xxi, xxiv–xxv, 122–23, 145, 239
- Siat Group 86
- Sierra Leone 43, 48, 73, 74, 75, 77, 83, 85, 93
- silvery gibbons (*Hylobates moloch*) xvii, xx–xxi, 222
see also Mount Halimun Salak National Park case study
- Sime Darby, Liberia 59, 83, 86, 94, 95
- Sithe Global Sustainable Oils Cameroon (SGSOC) 52
- smallholder farming
 African agricultural model 81, 92
 conservation initiatives 22, 23, 162–63
 defining 3, 72
 economic schemes 63, 86
 engagement 98
 palm oil 18, 19, 77, 160–61
 proliferation 73–74
 rubber 57–58
 sustainable economic development 4
- social impact assessments (SIAs) 118, 140
- Société Africaine Forestière et Agricole du Cameroun (SAFACAM) 50, 52, 78
- Société Camerounaise de Palmeraies (SOCAPALM) 52, 78
- Société des Palmeraies de la Ferme Suisse 52
- Société d'Organisation de Management et de Développement des Industries Alimentaires et Agricoles (SOMDIAA) 52
- Société Financière des Caoutchoucs (SOCFIN) 78
- Société Immobilière et Financière de la Côte Africaine (SIFCA) 77, 86
- Société Sucrière du Cameroun (SOSUCAM) 52
- socioecology xv
 gibbon socioecology xxiv–xxv
 great ape ecology xix, xxi–xxiii
 great ape socioecology xv, xix
 reproduction xxiii–xxiv
- socioeconomic values 183
- sorghum 85
- South Africa 82, 83, 84
- South Sudan 48
- southern white-cheeked gibbons (*Nomascus siki*) xvii
- southern yellow-cheeked gibbons (*Nomascus gabriellae*) xvii, xx–xxi, 45
- southwest Bornean orangutan (*Pongo pygmaeus wurmbii*) xvi
- Spain 246
- Spatial Monitoring and Reporting Tool (SMART) 145
- species protection 32, 126
- Standard Chartered 87
- State of the Apes* website 194
- sub-Saharan Africa
 agricultural models, choice of 81–82
 agriculture's economic impact 73
 agro-industry 102
 crops 74–75
 expansion 71–73, 91–92
 impact on ape habitats 92–96
 investment sources 85–87
 land deals 74, 75–76
 overlap with ape ranges 74, 93
- ape distribution xviii
- cereals 83–85
- deforestation 92
- jatropha 76
- land prices 91
- land use changes 73–74
- palm oil
 demand for 90
 future expansion 79–81
 plantation area 76–77
 production 77–78
 trade 78–79, 80
- rubber 83
- smallholder farming 71–72, 73–74, 81
- sugarcane 82–83
- sustainable development 96–102
see also specific countries
- Sud-Cameroun Hevea, Cameroon 52, 94, 95
- sugarcane 29–31, 46, 52, 82–83
- Sumatra
 agricultural incomes 18
 agro-industry impact on ape habitats 24, 104–5, 154, 156, 168, 190–91
 deforestation 196–97
 deterrent techniques 37
 legal protection 128–130
 palm oil 24, 137, 160–61
 rescues/rescue centers 26, 32, 34–35, 145, 238–39
 Tripa peat swamp forests, Aceh 128–130, 141, 156
see also Indonesia
- Sumatran orangutans (*Pongo abelii*) xii, xvi, xx–xxi, xxii, 26, 128, 136 *see also* orangutans (*Pongo* spp.)
- Support for African/Asian Great Apes (SAGA) 258
- survey methods 200

sustainable crop production intensification (SCPI) 23
 sustainable development 96–102
 sustainable lending 87
 Sustainable Palm Oil Transparency Toolkit (SPOTT) 158
 Swaziland 82, 83

T

Tabin Wildlife Reserve, Borneo 144
 Tanzania 23, 48, 83, 84, 85, 188 *see also* Gombe Stream National Park case study
 Thailand 44, 49, 188, 230–31
 tobacco 6–7, 29–31
 tools for surveys/monitoring 226
 trafficking of live apes 234, 235, 238, 240, 256
 translocation 32–33, 36
 transparency 116, 119, 158
 Treaty on the Conservation and Sustainable Management of Forest Ecosystems in Central Africa and to Establish the Central African Forest Commission 108
 Tripa peat swamp forests, Aceh 128–130, 141, 156
 tropical ecosystems 13
 tuberculosis 240

U

Uganda
 agro-industry impact on ape habitats 48, 95, 188
 agro-industry practices 100
 ape distribution xviii
 cacao 30
 crop raiding 184
 crops 29, 30, 46
 deforestation 29–30
 forest reserves 29
 human–wildlife conflict 29–31, 38
 mountain gorillas 170
 Plan for Modernisation of Agriculture 29
 sugarcane 30–31, 82
 tobacco 6, 30–31
 Wilmar International 144
 Unilever 86
 United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) 42
 United States (USA)
 captive apes 248
 national legislation 248–251
 numbers 254–56
 sanctuaries 249, 251, 252–53, 254, 255, 256
 split-listing of chimpanzees 249–250
 sub-national legislation 251–54
 investors in African agribusinesses 85
 land prices 91
 Opportunities Act 91
 University of Palangkaraya 202
 Upper Guinea Forest 55

V

Vietnam 49

W

Walhi Aceh 129
 Wamba, DRC *see* Luo Scientific Reserve/Wamba case study
 West Africa
 agro-industry impact on ape habitats 93
 agro-industry, potential sites for 42, 92
 ape range – agro-industry overlap 75
 Ebola virus 80
 forest administration resources 119
 land acquisitions 74
 palm oil 58, 77, 79, 90
 rice 85
 rubber 83
see also specific countries
 western black-crested gibbons
 (*Nomascus concolor*) xiv, xvii, xx–xxi
 western chimpanzees (*Pan troglodytes versus*) x, xvi, xviii, 46, 55–56, 59–60, 61, 94
 western gorillas (*Gorilla gorilla*) xi, 93, 96, 169, 170
see also Cross River gorillas (*Gorilla gorilla diehli*); western lowland gorillas (*Gorilla gorilla gorilla*)
 western hoolocks (*Hoolock hoolock*) xii–xiii, xvii, xx–xxi
 western lowland gorillas (*Gorilla gorilla gorilla*)
 Atama palm oil project 94
 in Cameroon 49
 crop raiding 170
 distances travelled xxi, xxii, 170
 distribution xviii
 habitat 169
 Olam International project 148, 150–51
 overview xi
 range states xvi
 wheat 85
 Wilmar International 86, 95, 99, 100, 144–47, 159
 Wilson, E.O. 1
 World Bank 18, 22, 86
 World Heritage Convention 136
 World Resources Institute (WRI) 158
 World Wide Fund for Nature (WWF) 138, 159

Y

yield intensification 24, 160

Z

Zambia 83, 84
 zero-deforestation commitments 99, 100, 113, 144, 159
 Zimbabwe 82
 zoos 242