A

AAP sanctuary, Netherlands 246
Aarhus–Karlshamn 152
Abbott's gray gibbons (Hylobates abbotti) xiii, xvii, xx–xxi
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
agro-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 xxii
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
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, 47, 232
Bossou chimpanzees 177, 182
Brazil 82, 256
British American Tobacco (BAT) 30
Brunel 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
Cantarhez 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
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
2005 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
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, 18
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 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 179–83, 200, 202, 205–6
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 94, 95, 96
ape distribution xviii
ape range – agro-industry overlap 75, 93, 96
area under concession 74
see case study also by 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 112
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
2008 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
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

tagro-industry impact on ape habitats 47, 94
tagro-industry, potential sites for 92, 93
tagro-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 (Hylabatidae)
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
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
Habitat, agro-industry impacts on ape species

- Bonobos: 93, 170–72, 174–81, 182, 188
- Chimpanzees: 29–31, 46, 170–72, 174, 177, 181–82, 188
- Gibbons: 136, 169, 173, 176, 180–81, 188
- Orangutans: 24, 136, 166, 168, 172–73, 180, 188

Borneo: 24, 65–67, 168, 172–73, 180
Cameroon: 54, 68–69, 94
Indonesia: 48, 188
Ivory Coast: 47
Liberia: 59–60, 94
Nigeria: 47, 95, 171
Republic of Congo: 20–21, 47, 94, 188
Ghana: 47, 94
Habitat loss: 165–66
Indonesia: 48, 188
Ivory Coast: 47
Key findings: 166–67
Liberia: 59–60, 94
Long-term impacts: 179–83
Malaysia: 48, 188
Myanmar: 49
Nigeria: 47, 95, 171

By phase of production

- 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: 91

See also: Deforestation; human–wildlife conflict
Hainan gibbons (Nomascus hainanus): xiv, xvii, xxiv–xxv
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
Hoolock (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
Hylabates genus: xxiv–xxv

See also specific species
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: Mount Halimun Salak National Park case study
- Concession allocation: 115, 133
- Corruption: 128, 221
- EIA: 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: 119, 112
- Multilateral treaties: 108
- National parks: 122–23, 133
- 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 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
Jane Goodall Institute (JGI) 208, 212–13
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
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 49
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, 127, 210
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

Downloaded from https://www.cambridge.org/core. IP address: 54.191.125.211, on 15 Jan 2017 at 18:53:19, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/CBO9781131648895
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
snares 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
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
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
habitats, 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
protected legislation  33–34
reintroduction of rescued animals  32
reproduction  xxiii–xxiv
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
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 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

State of the Apes 2015
Industrial Agriculture and Ape Conservation

Downloaded from https://www.cambridge.org/core. IP address: 54.191.125.211, on 15 Jan 2017 at 18:53:19, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
Sabah 63, 64, 65, 144
Sabahmas Conservation Area (SCA), Borneo 144
Sabangau peat swamp forest case study 198, 200–207
catchment map 202
corner 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 (Symphalangus 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 Camerounoise 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 Caoutchous (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 2, 66
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) xiii, 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

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
rubber 83
see also specific countries
western black-crested gibbons (Nomascus concolor) xiv, xvii, xx–xxi
western chimpanzees (Pan troglodytes versus) x, xvi, xvii, 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