

Cambridge University Press

0521349435 - Fire and Vegetation Dynamics: Studies from the North American Boreal Forest

Edward A. Johnson

Index

[More information](#)

Index

- age distribution 101, 102, 106–7
 - single cohort 101–2
 - multiple cohorts 102–4
 - see also* mortality, population cohorts, population dynamics, recruitment, survivorship
- age of first reproduction 94–5
- age mosaic 91–3
 - see also* fire history models, stand origin map
- airstreams 6–9
 - Arctic 6, 9, 10
 - Pacific 6, 7, 9, 11
 - North Atlantic 6, 9, 10
- allometric relationship flame and intensity 58–60
- annual percent burn 86
- anomalies, 50 kPa 14–20
 - see also* synoptic fire weather
- area burned 90
- aspen, trembling 27, 29, 31, 32, 37, 57, 75
- average age of stands across the landscape 86
- average fire interval 85
- average prospective life time 86
- bark thickness 56
- blocking high pressure systems, *see* anomalies, 50 kPa
- blowdown 103
- boreal forest range 2
- Boundary Waters Canoe Area 85, 88, 94
- bulk density 52, 53, 69
- buoyant turbulent jet 58–60
- buried viable seeds 1, 73, 94
- cambial kill 56–7
- Canadian Fire Weather Index 30
 - Drought Fuel Moisture Code 31
 - Duff Fuel Moisture Code 31
 - Fine Fuel Moisture Code 30, 32
- Initial Spread Index 31, 33, 34
- Canadian Forest Fire Behaviour Prediction System 26
- chaparral 91
- Chinchaga River fire 19–21
- combustion 3
 - flaming 3, 39, 69
 - glowing 3, 40, 61, 69
- conifers 26, 27, 28, 29, 32, 35, 37, 57
 - crown architecture 50
- convectively driven fires 46
- convolution 93
- critical fire weather 19
- crown bulk density 52, 53
- crown fire 1, 33, 47
 - model of initiation 48–52
 - types 48
- crown kill 53–5
- deciduous trees 27, 29, 31, 32, 37, 57
 - crown architecture 50
- decomposition of forest floor 35
- dendrochronology 83
- diameter distribution 101, 102
- drying rate (k) 69
- duff burning 69–73, 76
- duff consumption 1, 61
 - see also* duff burning
- duff drying, 62–9
- duff layer (F & H) 61
- duff moisture 31, 70, 71
 - see also* duff drying
- emissivity 70, 71
- equilibrium moisture 30, 64
- fir, balsam 29, 37, 57, 76, 100, 103, 106
- fire behavior ix, 109
 - see also* duff consumption, fire frequency, fire intensity, rate of spread
- fire characteristic chart 46

128 *Index*

- fire cycle 85, 89, 90, 104
- fire frequency 78, 86, 93
- fire history concepts 85–6
- fire history models 79–82
 - parameter estimation 83
 - see also* Weibull and negative exponential distributions
- fire intensity 1, 39, 45
 - equation 40, 46
 - sensitivity 45
 - critical surface 48, 92
 - and forest age 91–2
 - and rise in temperature 48
 - and tree mortality 52–7
- fire interval distribution 80
- fire occurrence 3, 4
- fire pattern 38, 110
- fire scars 82
- fire season 6–9
- fire shape 35, 36, 110
- fire suppression 91, 96
- flame length 44–5, 58–60
- flammability 90, 108
- foliar moisture 35, 49, 50, 51
- forest floor depth 61, 62
- fuel accumulation 91–2
- fuel consumed 44, 45
- fuel distribution 47
- fuel drying, linear 67, 69
- fuel exponential drying 64, 65, 67, 69
- fuel types 25–30, 31, 34, 35
- hazard of burning 82, 90, 91
- heat budget 41, 69–71
- heat of combustion 39, 41, 71
 - high and low 41, 42, 43
- heat flux from flaming front 24
- heat of ignition 24, 48, 51, 71
- heat transfer modes 22–3, 41
- humidity 64, 65, 68
- Indian
 - caused fires 4–6
 - Cree 5
 - lifeways 4–5
 - population reduction 6
 - trapping 4
- juniper 37
- Labrador 94
- Lake St Joseph, Ontario 88
- latent heat 71
- Ledum groenlandicum* 26
- Lexis diagram 98
- lichens 26, 35
- lightning fires 6
- lightning location system 6
- litter layer (L) 61
- Little Ice Age 89, 95
- mass flow 52
- Merton's I 92
- mineral soil exposed 72, 75, 76, 100
- mixed fire frequencies 86–7, 89, 90
- mortality 52–7, 73–7, 93
- mosses 26, 35
- negative exponential distributions 64, 65, 67, 69, 79–82, 93
- Newfoundland 97
- North Pacific and Atlantic Oscillations 20
- Pacific North America Pattern 20
- pine
 - jack 27, 28, 32, 37, 57, 75, 76, 100, 101, 102
 - red 27, 29, 35, 37, 57, 76
 - white 27, 29, 35, 37, 57, 76
- pollen analysis 94, 95
- population
 - cohorts 1, 96–103
 - dynamics 1, 93, 97–105
 - see also* age distribution, mortality, recruitment, survivorship
- Porcupine River, Alaska 88
- process-response 1, 105
- pyrolysis 39
- Quebec 97
- Radiate heat flux 70–2
 - see also* fire intensity
- rate of spread 1, 24, 33, 43
 - critical for crowning 52
 - models 24
 - scale of variation 25
 - slope and wind 31
- recruitment 98, 99, 104
- regions of high lightning occurrence 6
- renewal distribution 82
- rooting depth and duff consumption 73–7
- Ruttledge Lake, NWT 88
- seed dispersal into burns 35, 37
- serotinous cones 100
- spatial autocorrelation 92, 109
- specific heat 71
- spruce
 - black 26, 28, 37, 57, 75, 76, 100, 102, 103
 - white 29, 37, 57, 75, 100, 106
- spruce budworm 103, 106

Cambridge University Press

0521349435 - Fire and Vegetation Dynamics: Studies from the North American Boreal Forest

Edward A. Johnson

Index

[More information](#)

Index

129

- stand origin map 78, 79
see also age mosaic, fire history models
Stefan–Boltzmann law 70
succession 94, 105–6
survivorship 93, 97
synoptic fire weather 3, 11, 14
see also anomalies, 50 kPa
thunderstorm days 8
- time-since-fire distribution 81
treeline 9
Vaccinium 27, 73
Weibull distributions 79, 82
wind driven fires 46
Wood Buffalo National Park 94