Equations

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Ailanthus altissima

Mostly from Crandall & Knight 2017, but with fire effects left out and notation changed slightly for consistency's sake

$$n(y,t+1) = vgf_d(y)B(t) + \int_L^U [P(y,x) + vgF(y,x) + C(y,x)]n(x,t)\mathrm{d}x$$

$$P(y,x) = s(x)g(y,x)$$

$$F(y,x) = f_p(x)f_s(x)f_d(y)$$

$$C(y,x) = c_d(y)h_n(x)$$

$$B(t+1) = v_s s_b B(T) + vg_b \int_L^U [f_p(x)f_s(x)]n(x,t)\mathrm{d}x$$

Control Treatment Parameters

$$Logit(s(x)) = 0.944 + 0.063x$$

$$g(y,x) = 1.05x$$

$$log(f_s(x)) = 6.86 + 0.019y$$

$$logit(f_p(x)) = -27.85 + 0.25y$$

$$f_d = Normal(\mu = 0.7, \sigma = 0.245)$$

$$h_n(x) = 0.62$$

$$c_d(y) = Normal(\mu = 2.97, \sigma = 1.63)$$

Competitor Removal Treatment Parameters

$$Logit(s(x)) = 0.093 + 0.31x$$

$$g(y,x) = 1.04x$$

$$log(f_s(x)) = 6.86 + 0.019y$$

$$logit(f_p(x)) = -27.85 + 0.25y$$

$$f_d = Normal(\mu = 1.5, \sigma = 0.88)$$

$$h_n(x) = 1.81$$

$$c_d(y) = Normal(\mu = 2.96, \sigma = 1.65)$$

Euonymus alatus

Eqs 1-3 adapted from Kuss et al. 2008

$$n(y,t+1) = \int_L^U [P(y,x)]n(x,t)\mathrm{d}x + \int_L^U [F(y,x)]n(x,t-1)\mathrm{d}x$$
$$P(y,x) = s(x)g(y,x)$$
$$F(y,x) = E_{p_i} f_p(x,t-1) f_s(x,t-1) f_d(y,t+1)$$

I think I need to add a $ +E_{p_2}f_p(x,t-2)\ldots$ here. Thoughts?

Control Treatment Parameters

$$Logit(s(x)) = -1.3459 + 0.31055x + -0.00013x^2$$
$$g(y,x) = 82.295 + f_g(x) \text{ where } f_g(x) \text{ is a standard smooth function of } x$$
$$Log(f_s(x)) = 1.178 + 0.0157y$$
$$Logit(f_p(x)) = -7.5401 + 0.03225y$$
$$f_d(y) = Normal(\mu = 7.545, \sigma = 2.7695)$$

Competitor Removal Treatment Parameters

$$Logit(s(x)) = 1.5086 + 0.03314x + 0.00117x^2$$
$$g(y,x) = 82.551 + f_g(x) \text{ where } f_g(x) \text{ is a standard smooth function of } x$$
$$Log(f_s(x)) = 1.178 + 0.0157y$$
$$Logit(f_p(x)) = -7.5401 + 0.03225y$$
$$f_d(y) = Normal(\mu = 7.545, \sigma = 2.7695)$$

Ligustrum obtusifolium

$$n(y,t+1) = \int_L^U [P(y,x)]n(x,t)\mathrm{d}x + \int_L^U [F(y,x)]n(x,t-1)\mathrm{d}x$$
$$P(y,x) = s(x)g(y,x)$$
$$F(y,x) = E_p g_i f_p(x,t-1) f_s(x,t-1) f_d(y,t+1)$$

Control Treatment Parameters

$$Logit(s(x)) = -0.352 + 0.122x + -0.000213x^2$$

$$g(y,x) = 5.781 + 0.988x$$
$$Logit(f_p(x)) = -11.489 + 0.08368x$$
$$Log(f_s(x)) = 2.6204 + 0.01256x$$
$$f_d(y) = Normal(\mu = 5.6655, \sigma = 2.0734)$$

Competitor Remvoal Treatment Parameters

$$Logit(s(x)) = 0.0209 + +0.0831x + -0.00012999x^2$$
$$g(y,x) = 7.229 + 0.988x$$
$$Logit(f_p(x)) = -11.489 + 0.08368x$$
$$Log(f_s(x)) = 2.6204 + 0.01256x$$
$$f_d(y) = Normal(\mu = 5.6655, \sigma = 2.0734)$$

Lonicera maackii

$$n(y,t+1) = \int_L^U [P(y,x) + F(y,x)]n(x,t)\mathrm{d}x$$
$$P(y,x) = s(x)g(y,x)$$
$$F(y,x) = E_p g_i f_p(x) f_s(x) f_d(y)$$

Control Treatment Parameters

$$Logit(s(x)) = -2.830987 + 0.403509x + -0.000421x^2$$
$$g(y,x) = 16.884 + 0.9972x$$
$$Logit(f_p(x)) = -10.4478 + 0.0485x$$
$$Log(f_s(x)) = 3.391 + 0.0105x$$
$$f_d(y) = Normal(\mu = 3.118, \sigma = 1.215)$$

Competitor Removal Treatment Parameters

$$Logit(s(x)) = -2.784776 + .272694x + -0.000175x^2$$
$$g(y,x) = 14.6068 + 0.9964x$$
$$Logit(f_p(x)) = -10.4478 + 0.0485x$$
$$Log(f_s(x)) = 3.391 + 0.0105x$$
$$f_d(y) = Normal(\mu = 3.118, \sigma = 1.215)$$