BauchRhoMFig

Sophie Wulfing

12 July, 2023, 15:01

Table 1: Parameter values used in this analysis

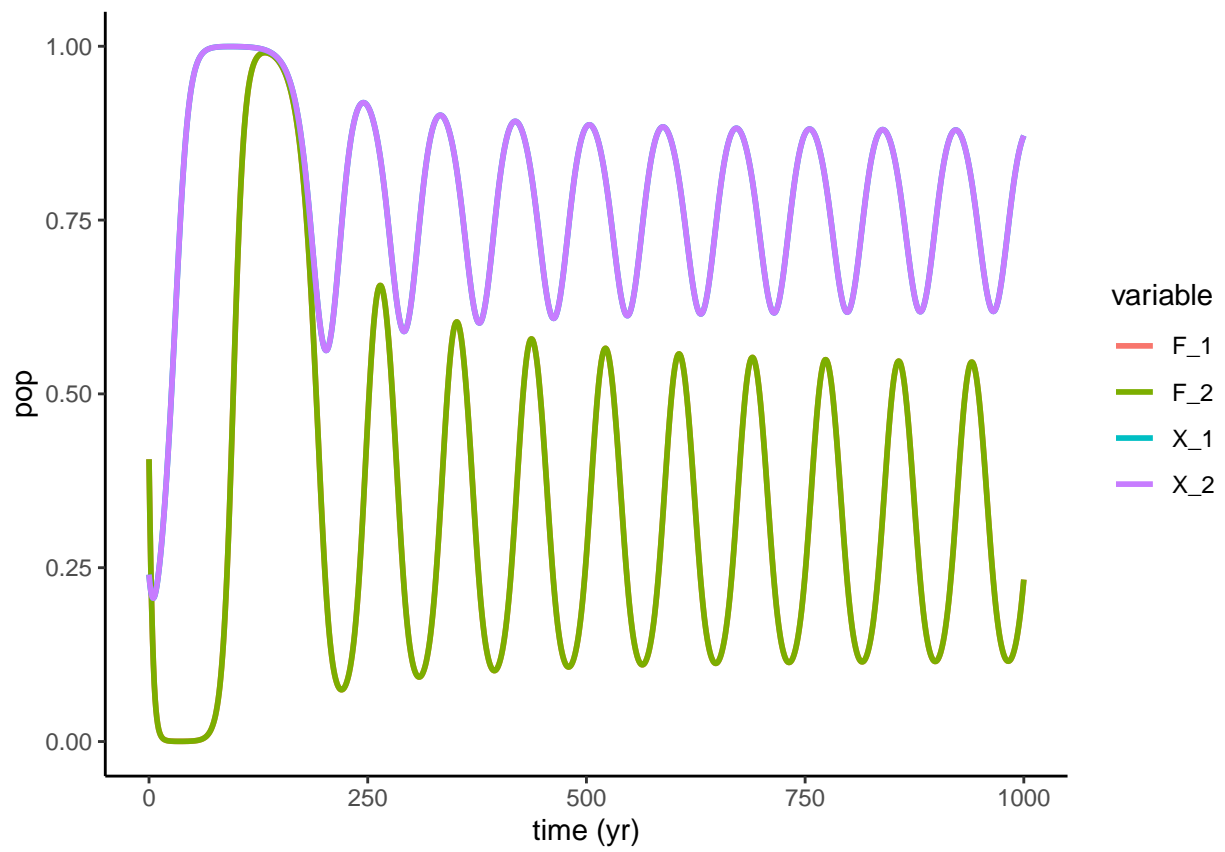| Parameter	Population_1	Population_2	Def
r	0.16	0.16	Fish net growth
s	0.8	0.8	Supply and demand
h	0.5	0.5	Harvesting efficiency
k	0.17	0.17	Social learning rate
w	1.44	1.44	Conservation cost
c	0.5	0.5	Rarity valuation
d	0.3	0.3	Social norm strength (within pop)
i	0	0	Fish immigration (from opposite patch)
rho	0	0	Social norm strength (opposite pop)

Figure 1: New Model with default paramters
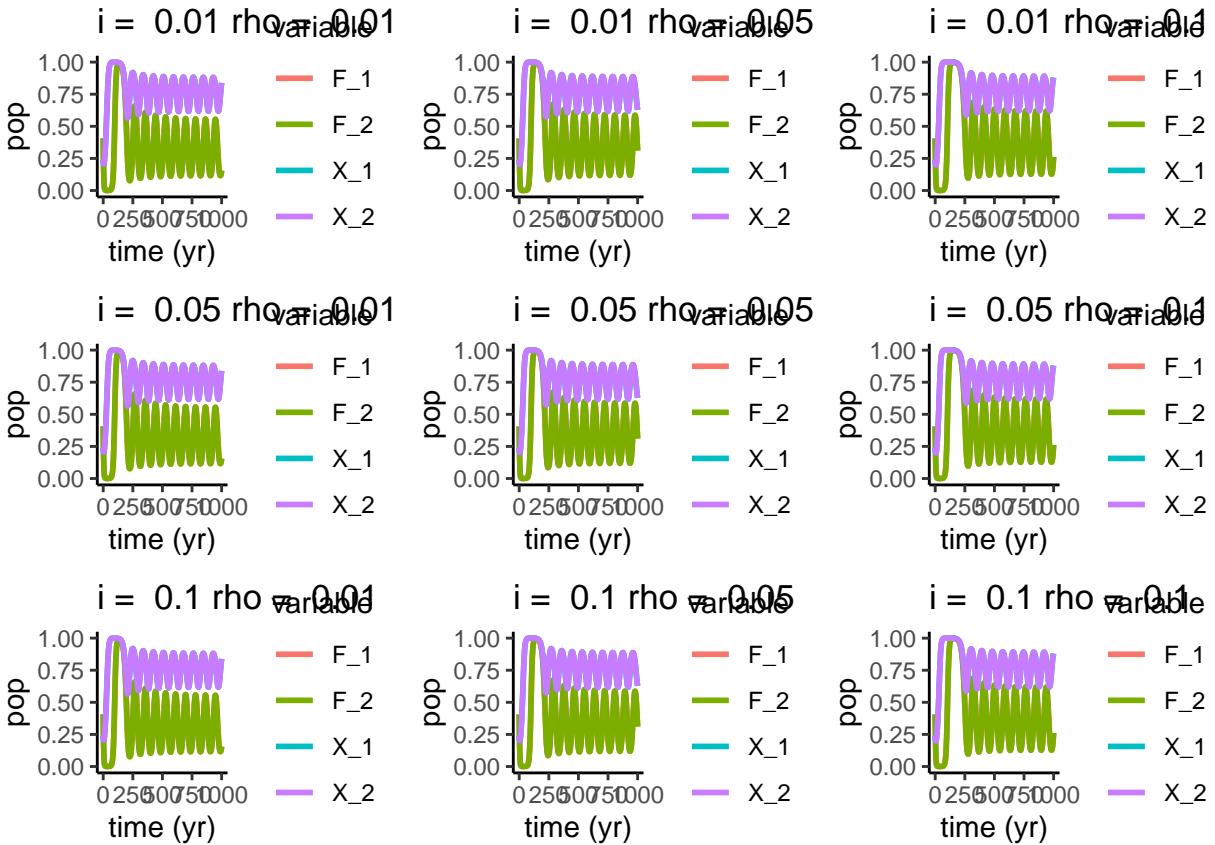
i and rho have no affect

Except they seem to be decreasing the frequency of osciillations. See if this is universally true by extending this experiemtn past i = .1 and rho = .0. Specifically rho seems to be decreasing teh oscillation frequency

THIS IS WHERE FISH MOVEMENT IS INCREASING TO POP 1 AND SOCIAL INFLUENCE OF PUPULATION 2 ONTO 1. POP1: GAINING MORE FISH BUT LISTENING TO POP 2 MORE. Listening to pop 2 more means that as they lose fish, they will fish less but influence pop 1 to fish less so I assume F1 will increase while X1 decreases .
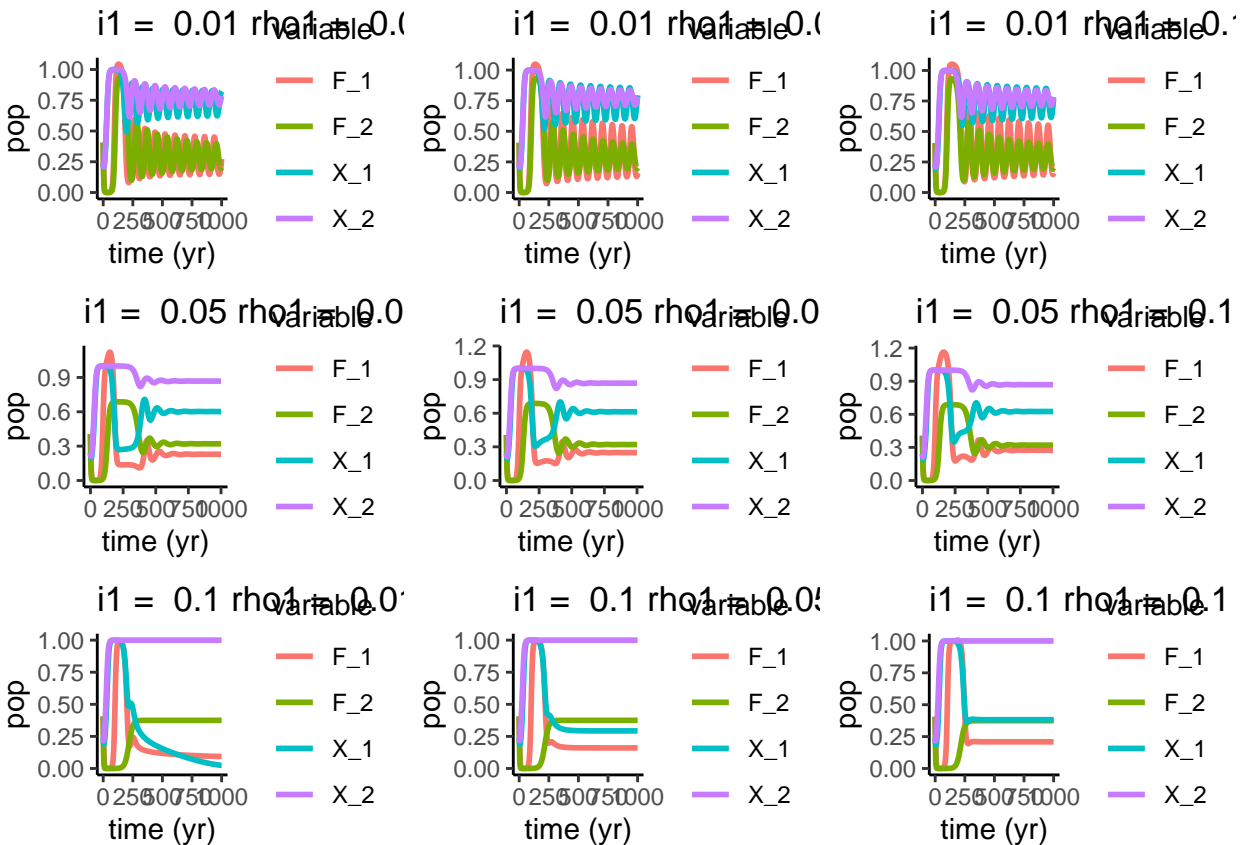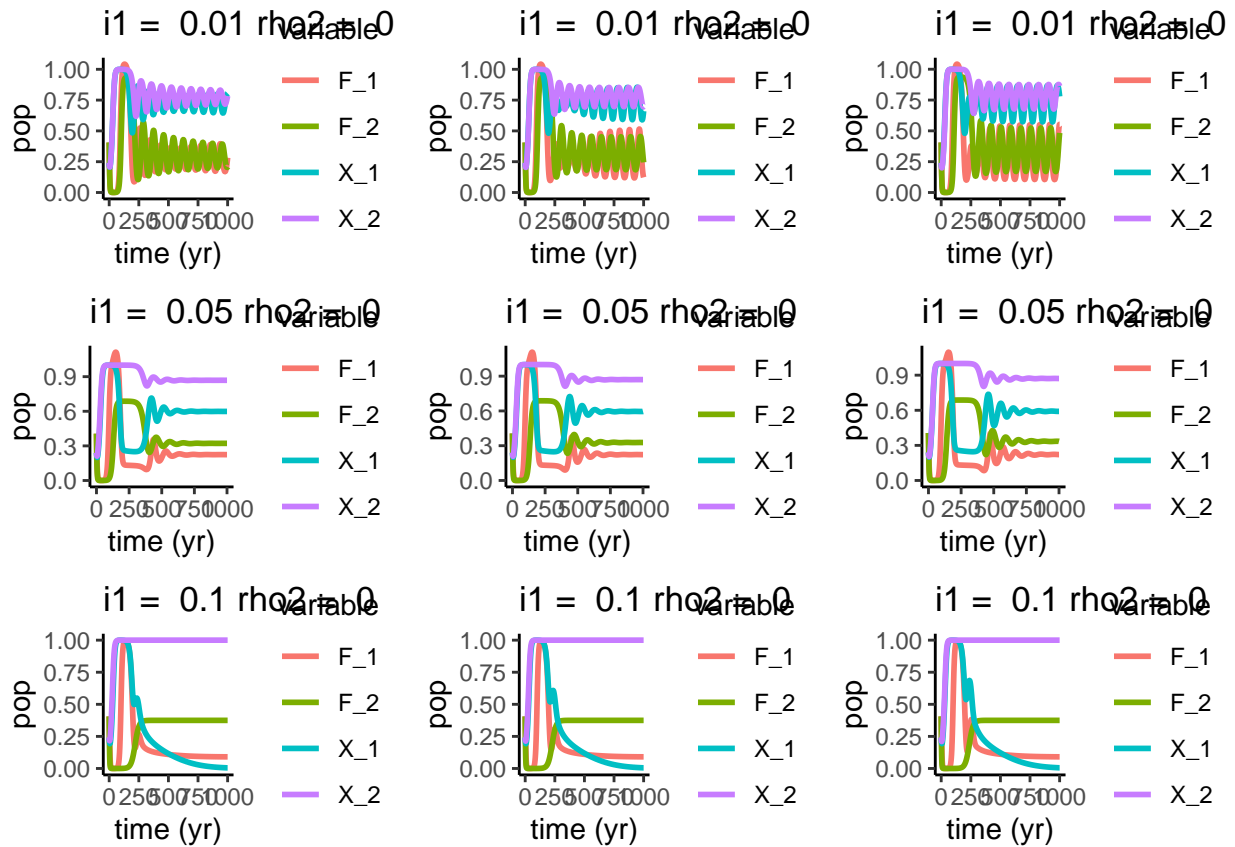

i dampens oscillations

F1 has initial peak and F2 initial crash (expected). But then as i increases, F1 actually decreases becuase X1 is decreasing as well (more immigration means more fish means more fishing). X2 eventualy all become conservationists as they lose fish to immigration so that results in stable F2 pops

In first row, rho seems to be increasing the fluctuation in F1 parameter. as X1 listens to X2 more, no idea why this would be (X1 does not seem to be affected). 3rd row, As X1 listens to X2 more, they fish less, resulting in more F1 (makes sense)

THIS IS WHERE FISH MOVEMENT IS INCREASING TO POP 1 AND SOCIAL INFLUENCE OF PUPULATION 1 ONTO 2. POP1: GAINING MORE FISH AND ISNT LISTENING TO POP 2 BUT POP 2 IS LOSING FISH WHILE COPYING THE PRACTICES OF POP 1. Listening to pop 1 more means that as they lose fish, they will actually fish more because that's what pop 1 is doing so should crash

i dampens oscillations

F1 seems to do worse with increased immigration (as seen by the increase in fishing). Whereas F2 seems to be unaffected. even though we think it should be crashing more with higher immigraion and influence

rho has some affect on the oscillations of the first row but not much