Plots below before changing age mortality calcs

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| --- | --- | --- | --- |
|  |  |  |  |
| Age imp val =1  MR = OFF  Recruitment rate of 0.005 | A graph of different sizes and numbers  AI-generated content may be incorrect. | A graph of a graph showing a number of times  AI-generated content may be incorrect. | Population stable |
| Age imp val =1  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 | A graph of a graph of a person's size  AI-generated content may be incorrect. | A graph of time and time  AI-generated content may be incorrect. | Population hits peak. Possibly due to shared impact, with MR stabilising thus contributing 0? Complementary probability should |
| MR = 1; introduced at tp 1000 (Age imp val = 2-MR)  Pop\_init  MR\_mean = 0.1 MR\_sd = 0.366 | A graph of a graph of a person's size  AI-generated content may be incorrect. |  |  |
| Age imp val =1.5  MR = 0.5  Pop\_init  MR\_mean = 0.653MR\_sd = 0.366 | A graph of a number of people  AI-generated content may be incorrect. |  |  |
| Age imp val =1.8  MR = 0.2  Pop\_init  MR\_mean = 0.653MR\_sd = 0.366 | A graph of a person's size  AI-generated content may be incorrect. |  |  |

Below: Plots before changing age mortality calcs

|  |  |  |  |
| --- | --- | --- | --- |
| Age imp val =0  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =0.5  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =1  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  | *Max mortality when MR also = 1* |
| Age imp val =1.5  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  | *No change* |
| Age imp val =2  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  | *Actually brought final mort chance down* |  |
|  |  |  |  |
| Age imp val =1  MR = 0  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =1  MR = 0.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =1  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  | *Creates greater spread of mortality chance across age groups* | *Decreases mortality chance* |
| Age imp val =1  MR = 1.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  | *Increases age mortality chance* | *Increases mortality chance in the left hand side* |
| Age imp val =1  MR = 2  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  | *Increases age mortality chance* | *Increases mortality chance in the left hand side* |
| > age\_impact\_val  [1] 2  > MR\_death\_impact\_val  [1] 2 |  |  |  |

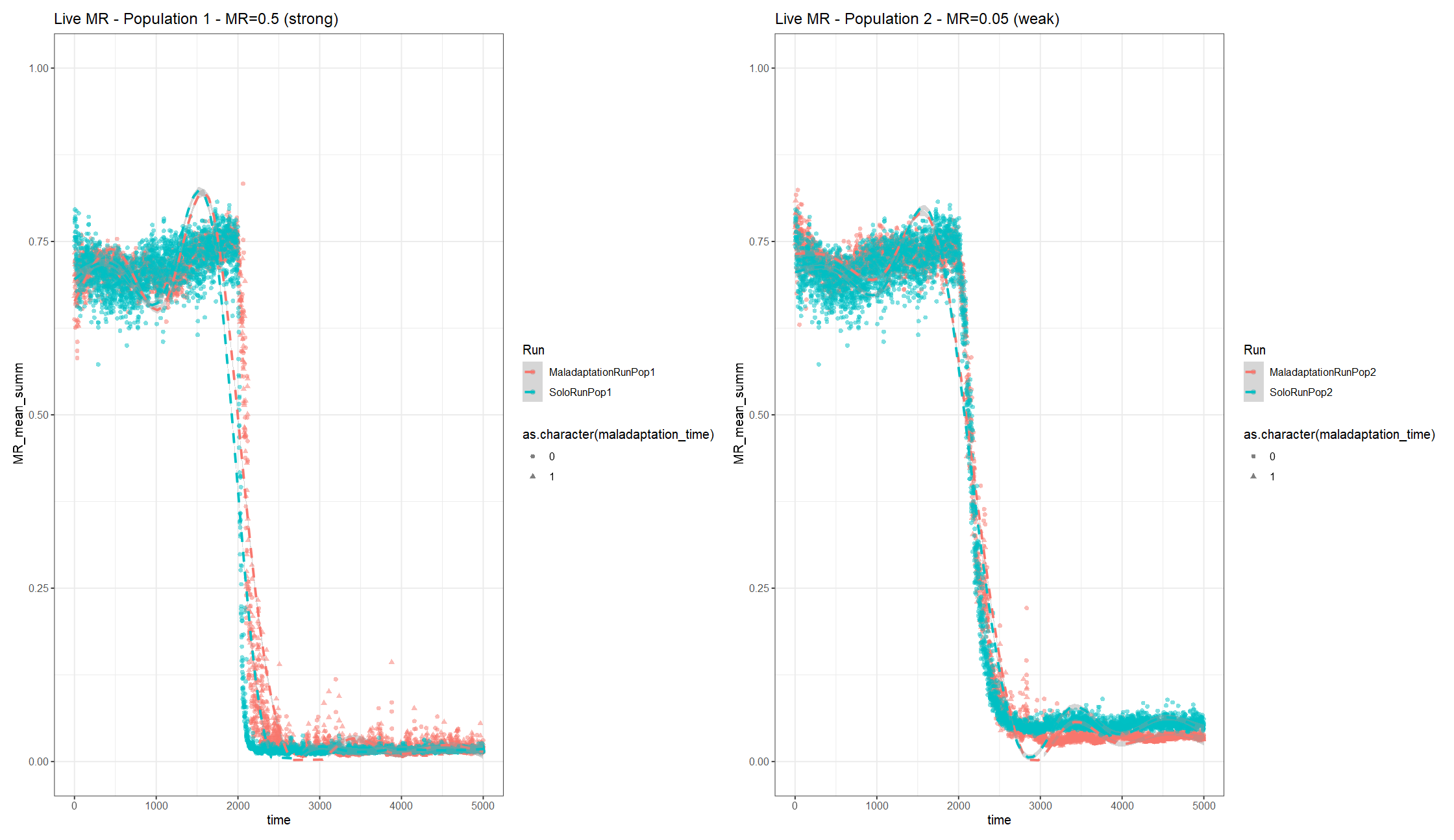
Plots below, **after** changing mortality

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| --- | --- | --- | --- |
| **Recruitment score of 0.0022** | | | |
| Age imp val =1  MR = OFF  Recruitment rate of 0.0022 |  |  |  |
| Age imp val =1  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.0022 |  |  | Recruitment cant keep up as age impact + Mr impact are compounded (see age & MR = 0.5 at late intro) |
| Age imp val = 2  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 | Error: All dead at time 174 |  |  |
| Age imp val = 1  MR = 0.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 |  |  |  |
|  |  |  |  |
| Age imp val = 1.5  MR = 0.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 | Error: All dead at time 283 |  |  |
| Age imp val = 1  MR = 0.1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 |  |  |  |
| Age imp val = 1  MR = 0.01  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 |  |  |  |
| Changing MR age impact | | | |
| Age imp val =1  MR = 1  Turned off MR age impact  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 | All dead at time 64 |  | Increased mortality as MR age impact reduces MR score overall |
| Late MR intro | | | |
| Age imp val =1  MR = 1 – late intro at TP=1000  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 |  |  |  |
| Age imp val = 0.5  MR = 0.5 – late intro at TP=1000  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0. 0022 |  |  |  |

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| --- | --- | --- | --- |
| **Recruitment score of 0.005** | | | |
| Age imp val =1  MR = OFF  Recruitment rate of 0.001 |  |  |  |
| Age imp val =1  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  | Final individual mortality rates (calculated by complementary probability of both) are punished by MR hitting 0, therefore lower than age |
| Age imp val = 2  MR = 1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 | Error: All dead at time 198 |  |  |
| Age imp val = 1  MR = 0.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val = 1.5  MR = 0.5  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 | Error: All dead at time 313 |  |  |
| Age imp val = 1  MR = 0.1  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val = 1  MR = 0.01  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Changing MR age impact | | | |
| Age imp val =1  MR = 1  Turned off MR age impact  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  | Increased mortality as MR age impact reduces MR score overall |
| Late MR intro | | | |
| Age imp val =1  MR = 1 – late intro at TP=1000  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =1  MR = 0.5 – late intro at TP=1000  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  |  |
| Age imp val =1  MR = 0.1 – late intro at TP=1000  Pop\_init  MR\_mean = 0.653 MR\_sd = 0.366  Recruitment rate of 0.005 |  |  | Stabilises at a lower MR timepoint regardless because of higher inheritability of MR resistance |

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| Updated MR inheritance + competition + MR scale (removed initial rescale, converted all to 0-1) – Recruitment 0.003 | | |
| age\_impact = 1.0  MR\_death\_impact = F  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.05  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
|  |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.1  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.1  MR\_lateintro = T - 2000  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.15  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.2  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.2  MR\_lateintro = T - 2000  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.5  MR\_lateintro = F  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| age\_impact = 1.0  MR\_death\_impact = 0.5  MR\_lateintro = T - 2000  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |

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| Pop 1  Age imp val = 1.0  MR imp val = 0.5  Pop 2  Age imp val = 1.0  MR imp val = 0.05 | Blue = runs without maladaptation events (running it solo)  Red = runs with maladaptation events (running both pops in conjunction)  Where for each side pop 1, maladapts with pop 2 (triangle events)  For the left side, pop 1, the maladapted pop is brought higher with the influence of pop2  For the right side, the population is |  |



**Change MR recruitment to ^2 instead of ^4**

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| --- | --- | --- |
| Pop 1  age\_impact = 1.0  MR\_death\_impact = 0.5  MR\_lateintro = T - 2000  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| Pop 2  age\_impact = 1.0  MR\_death\_impact = 0.05  MR\_lateintro = T - 2000  recruitment\_const = 0.003  comp\_impact = 0.9 |  |  |
| Pop 1  Age imp val = 1.0  MR imp val = 0.5  Pop 2  Age imp val = 1.0  MR imp val = 0.05 | Blue = runs without maladaptation events (running it solo)  Red = runs with maladaptation events (running both pops in conjunction)  Where for each side, red, pop 1, maladapts with pop 2 (triangle events):   * For the left side, pop 1, the maladapted pop is **pulled up** with the influence of pop2 (less resistant) * For the right side, pop 2 is **pulled** **down** with the influence of pop1 (more resistant) |  |

