Three things are needed in order for speciation to occur:

- Disruptive selection on a trait (in this case due to frequency dependence)

- Assortative mating

- A link between partner choice and selected trait

Look at speciation dynamics if individuals can choose which resource to utilise based on perceived fitness.

Eco-evolutionary dynamics = interplay between ecological and evolutionary processes

Implement ecology and evolution on same time scale

Test robustness of classical ecological speciation models

Model set-up:

1 population of M males and F females

2 resources of R1 and R2 size

Individuals have heritable ability X between -1 and 1 to utilise the resources

Initial X favours resource 1 (close to -1)

Males have attractiveness A

Females have preference P

A and P are random initially

In random order, individuals choose which resource to utilise based on size of resource, number of other individuals currently present at the resources and their X (R/N\*X)

When all individuals have chosen, resources are distributed across individuals present

Individuals utilise the resources and get a fitness (R\*e^-(X±1)^2)

Female is chosen based on fitness

Male is chosen based on female P and male A

Sexual reproduction → offspring’s X is mean of parents’ X + chance of mutation

Resources are refilled at the end of the generation