

Exercise walk-through

2.3

Island Biogeography

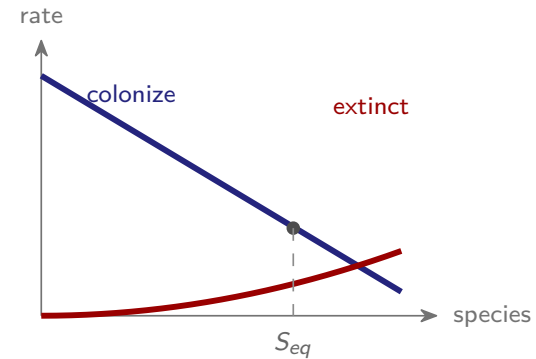
AP Environmental Science

Island biogeography

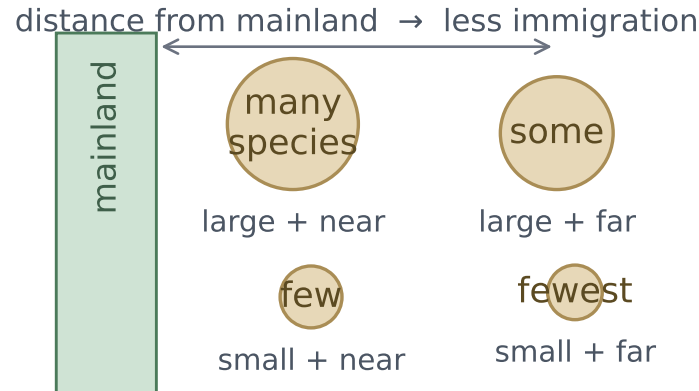
Island species number is a balance of two rates:

- **colonization** – new arrivals
- **extinction** – species dying out

Richest islands are **large & near**; isolation breeds **endemic species** found nowhere else.



Larger and nearer islands hold more species



larger area $\uparrow$ species · nearer mainland $\uparrow$ immigration ·
equilibrium richness

Larger and nearer islands hold more species, balancing immigration against extinction

Exercises 2.1-2.3

2.1 Do larger islands hold more or fewer species?

[1]

2.2 Do islands closer to the mainland receive more or fewer immigrants?

[1]

2.3 The number of species balances immigration against what?

[1]

Exercises 2.1-2.3

2.1 Do larger islands hold more or fewer species? [1]

2.1

- More species
-

2.2 Do islands closer to the mainland receive more or fewer immigrants? [1]

2.2

- More immigrants
-

2.3 The number of species balances immigration against what? [1]

2.3

- Extinction

Exercise 3.1

3.1 An island far from the mainland is expected to have

[1]

☐

A more species (more immigration)

B fewer species (less immigration)

C no extinction

D unlimited species

Exercise 3.1

3.1 An island far from the mainland is expected to have

[1]

☐

A more species (more immigration)

B fewer species (less immigration)

C no extinction

D unlimited species

3.1 B

- fewer species (less immigration)

Exercise 3.2 (a)

3.2 A forest is split into one large fragment and several small ones.

(a) Which fragment will likely keep more species?

[1]

Exercise 3.2 (a)

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(a) Which fragment will likely keep more species?

[1]

(a)

- The large fragment

Exercise 3.2 (b)

3.2 A forest is split into one large fragment and several small ones.

(b) Explain using island biogeography.

[2]

Exercise 3.2 (b)

3.2 A forest is split into one large fragment and several small ones.

(b) Explain using island biogeography.

[2]

(b)

- A larger area has more habitat and larger populations (lower extinction), so it keeps more species, like a large island

Exercise 3.3

3.3 Explain why connecting habitat fragments with wildlife corridors helps preserve species. [2]

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3.3

- Corridors let species move between fragments, increasing immigration and gene flow and reducing extinction – effectively making the fragments act like one larger habitat