AP BIOLOGY • EXERCISE SHEET

8.5 Community Ecology

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

Build the skills to answer exam questions on **community ecology** —species interactions.

You must be able to:

- describe **competition** 竞争, **predation** 捕食, and **symbiosis** 共生 (mutualism, commensalism, parasitism)
- give the +/− effect on each partner
- identify an interaction from a description

1 Worked examples

Study these first. Each one shows the method for a question type used later —follow the steps and you can do the Practice and Exam-style questions yourself.

The main interactions

- **Competition** (−/−) —both species are harmed as they use the same limited resource.
- **Predation** (+/−) —the predator benefits, the prey is harmed.
- **Mutualism** (+/+) —both benefit.
- **Commensalism** (+/0) —one benefits, the other is unaffected.
- **Parasitism** (+/−) —the parasite benefits, the host is harmed.

Reading effects

Assign a +, −, or 0 to each partner. For example, a bee and a flower: bee gets nectar (+), flower gets pollinated (+) → **mutualism**.

A worked identification

A tick feeding on a dog: tick benefits (+), dog harmed (−) → **parasitism**.

Competitive exclusion

Two species competing for exactly the same niche cannot coexist indefinitely —one outcompetes the other (competitive exclusion).

2 Practice

Now apply the methods above.

2.1 State the effect (+/−) on each partner in predation. [1]

2.2 Name the interaction where both species benefit. [1]

2.3 Classify a tick feeding on a dog. [1]

3 Exam-style questions

3.1 An interaction that benefits one species and harms the other is [1]

- **A** mutualism
- **B** commensalism
- **C** parasitism
- **D** competition

3.2 A bird eats insects stirred up by a grazing buffalo; the buffalo is unaffected.

(a) Name the interaction. [1]

(b) State the effect on each partner. [2]

3.3 Explain why two species competing for exactly the same resources cannot coexist indefinitely. [2]

4 Go further

You are now ready for the real exam questions on this subtopic:

- work through the **8.5 Community Ecology** lesson on the **Learn** page;
- read the **Community Ecology** section of the AP Biology handout on the **Know** page.

Solutions

2.1 Predator +, prey −.

2.2 Mutualism.

2.3 Parasitism.

3.1 C —parasitism (or predation) benefits one and harms the other.

3.2 (a) Commensalism. (b) The bird benefits (+); the buffalo is unaffected (0).

3.3 One species will use the shared resource slightly more efficiently and outcompete the other, which declines or is excluded (competitive exclusion).