A4.2 Conservation of biodiversity: data-based questions

What the Cell · DP Biology · data-based questions

Name _____ **Date** _____ **Total** _____ / 13

Read the data carefully before you answer. The number of marks shows how many separate points to make. Show your working in calculations.

1 Insect decline and bee food

7 marks



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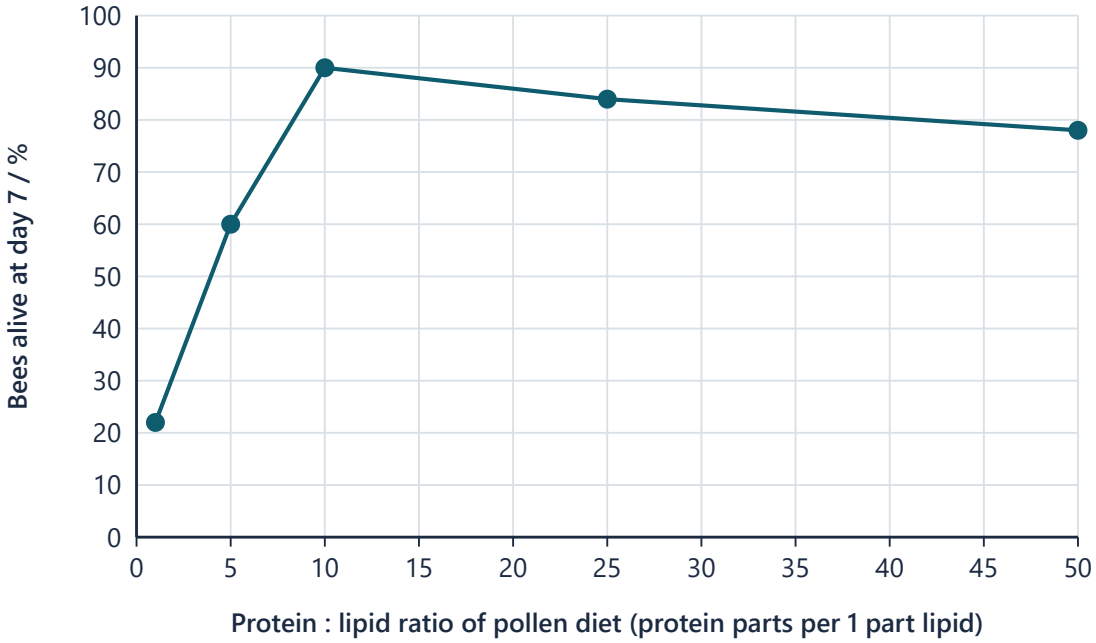
A review of 70 long-term studies estimated how fast insect biomass is falling each year in different orders of insects.

Insect order	Mean decline in biomass / % per year
Lepidoptera (butterflies and moths)	3.1
Coleoptera (beetles)	2.4
Hymenoptera (bees, wasps and ants)	1.9
All insects	2.5

a **State** the mean annual decline in biomass for all insects. **[1]**

b A region has 400 000 insect species. **Calculate** how many would remain after one year if the number of species fell at the same rate. **[1]**

Bumblebees were fed artificial pollen with different ratios of protein to lipid, and survival was recorded after 7 days.



c **Describe** the effect of a high lipid content on survival. **[1]**

d **Identify**, with a reason, the best ratio of protein to lipid for bumblebees. **[1]**

e **Discuss** how the loss of wildflower habitats could contribute to the decline of bumblebees, using the data. **[3]**

2 Threats to wilderness

6 marks

Large wilderness areas have very few people and are mostly undisturbed. Conservationists recorded which human activities threaten wilderness areas in five biomes. A tick means the activity threatens that biome.

Activity	Tropical forest	Boreal forest	Tundra	Desert	Grassland
Climate change	✓	✓	✓	✓	✓
Hunting	✓	✓	✓	✓	✓
Mining	✓	✓	✓	✓	
Fire	✓	✓			✓
Logging	✓	✓			
Agriculture	✓				✓
Pollution		✓	✓		

a **State** how many of the activities threaten all five biomes. **[1]**

b **Identify** one activity that threatens deserts but not grasslands. **[1]**

c **Compare** the threats from pollution and climate change. **[2]**

d **Suggest** how fire could reduce biodiversity in a tropical forest. **[2]**