Factors affecting population size I.

Environmental resistance (ER)– made up by all the factors affecting growth and size of population
The carrying capacity – the maximum number of a species that the habitat can hold, determined by the availability of nutrients, shelter, breeding sites
Biotic potential – the ability to breed (bacteria – a high biotic potential, humans – a low biotic potential)

Factors affecting population size II.

Biotic factors
Food – important quantity and quality
Predators – prey population larger → easier for predators to find a prey; the number of predators falls → the number of prey species increases
Competitors – organisms that require the same resources from the environment → reducing of the population growth
Parasites – cause disease → slow down the growth and reproductive rate of organisms

Factors affecting population size III.

Abiotic factors
Temperature - higher temperatures speed up enzyme-catalysed reactions → growth increase
Oxygen availability - affects the rate of energy production by respiration
Light availability - photosynthesis, breeding cycles in animals and plants
Toxins and pollutants - can affect the reproductive cycle (oestrogen-like substances) or tissue growth (SO_2)

Human exploit ER

-Predators eliminated from farms
-More available food for domestic animals
-Fertilisers and artificial light used for plant growth
-Predators used to control pests
-Anaerobic conditions, low temperatures – prevent microbes from consuming human food
-Pesticides eliminate competitors from crops

Relationship between organisms and their environment

Ecological valency (EV) – the ability to tolerate different conditions of the environment
Minimum – pesimum - ecological optimum- pesimum – maximum (Gaussian curve)
Wide EV – cosmopolitan organisms
Narrow EV - bioindicators