**Population Ecology Notes Guide 2019**

**Concept: Describe the structure of a community according to its species composition and diversity.**

-Life takes place in populations

-Population

-group of individuals of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species in same area at same time

-Factors that affect Population Size

-Abiotic factors

-sunlight & temperature, precipitation / water, soil / nutrients

-Biotic factors

-other living organisms, prey (food), competitors, predators, parasites, disease

-Intrinsic factors

-adaptations

Population Spacing

-Dispersal patterns within a population: Clumped, Uniform, Random

Population Size

-Changes to population size

-adding & removing individuals from a population

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-death

-immigration

-emigration

Population growth rates

-Factors affecting population growth rate

-sex \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-how many females vs. males?

-generation time

-at what age do females reproduce?

-age structure

-how females at reproductive age in cohort?

Demography

-Factors that affect growth & decline of populations

-vital statistics & how they change over time

Survivorship curves

-Graphic representation of life table

Age structure

-Relative number of individuals of each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Survivorship curves

-Generalized strategies

Trade-offs: survival vs. reproduction

-The cost of reproduction

-increase reproduction may decrease survival

-age at first reproduction

-investment per offspring

-number of reproductive cycles per lifetime

Reproductive strategies

-\_\_\_\_\_\_\_\_\_\_-selected

-late reproduction, few offspring, invest a lot in raising offspring

-primates

-coconut

-r-selected

-early reproduction, many offspring, little parental care

-insects

-many plants

Trade offs

-Number & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of offspring vs. Survival of offspring or parent

Life strategies & survivorship curves

Population growth

-change in population = births – deaths

Exponential growth rate

-Characteristic of populations without limiting \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-introduced to a new environment or rebounding from a catastrophe

Regulation of population size

-Limiting factors

-density \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: competition: food, mates, nesting sites predators, parasites, pathogens

-density independent: abiotic factors, sunlight (energy), temperature, rainfall

A population can produce a density of individuals that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the system’s resource availability.

Logistic rate of growth

-Can populations continue to grow exponentially?

Carrying capacity

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ population size that environment can support with no degradation of habitat

varies with changes in resources

Changes in Carrying Capacity

-Population cycles

-predator – prey interactions

Logistical growth equation

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