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logistics/Q+A

definitions

intro to epidemic/compartmental models

check term paper topic date captioning

DEFINITIONS

- what kinds of data or observations can we make that will inform us about the eco/evo of ID?

counts, case reports, etc.

- BIASES/NOISE ~ observations
- GENERALIZATION.

lab experiment (control, no variation) <——————> observe data

DEFINITIONS

disease?

INFECTIOUS d. { horizontal transmission ; vertical transmission [parents + offspring] }

symbiont • CLOSE association. → ecto/endo → at least one life stage

- ectoparasites (ticks, fleas, ...)
- parasitoid wasps

→ so what?: evolutionary association
BIOCHEMICAL interaction

parasite (1) symbiotic organism
(2) bad for its host (lowers host fitness)
(3) doesn't typically kill its host (extended interaction)

{ pathogen: "a microorganism that causes disease" }

NATURAL ENEMY • any organism that benefits (gains fitness) by and lowers the fitness of another
+/− interaction

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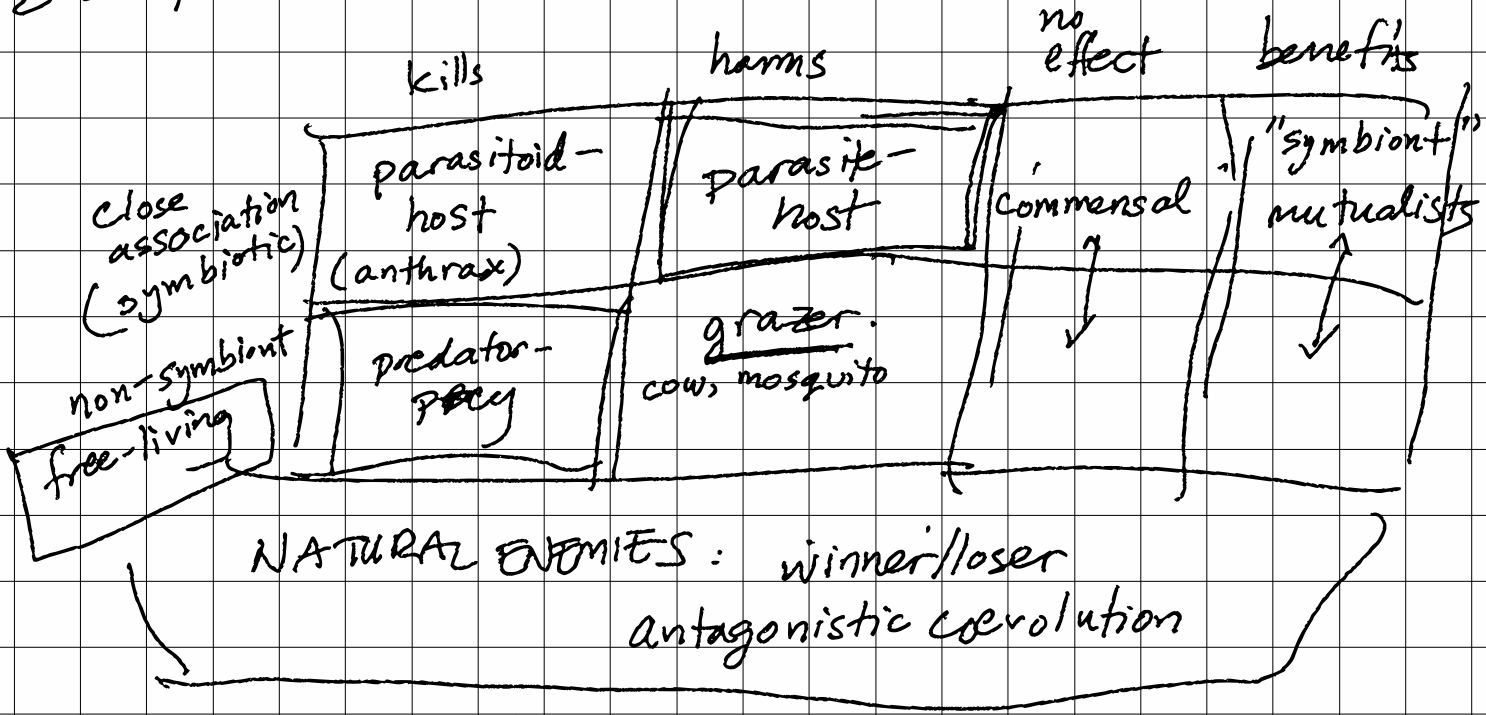

- transposable elements / selfish DNA.
  transmissible cancers. Tasmanian devil facial tumour disease
  prions: kuru,
- bovine spongiform encephalopathy,
  Chronic wasting disease (deer, elk)

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phages (viruses of bacteria)
viruses
- bacteria
fungi
protozoans

microparasites
① small
② INTENSITY-INDEPENDENT

- host infected or not?
  - viral load
  - how heavily infected?

nematodes
schistosomes
trematodes
molluscs. *

metazoans
large
multicellular

intensity-dependent
parasite burden
- models much harder!

ectoparasites → flea tick.

phytophagous insects. (aphids, Lepidoptera)

behavioral parasites

brood parasites ← eg. cuckoos
cowbirds
[ants??]
beta beetles?

- EVOLUTION of parasites.

symbiotic natural enemy

enemy → symbiont
⊛ symbiont → enemy.

host provides a stable environment ←
(transportation) → PHORETIC host ←
↳ starts taking resources from host

free living → symbiosis is usually a one-way evolutionary transition

lose a lot of phenotypic elements (mobility)

mutualism ↔ parasitism?

(more common in microparasites)

e.g. necrotrophic organism [soil bacterium]

parasitic organism

commensal ↔ parasitic

ECOLOGY or EVOLUTION?

population growth rate ⋮ (per capita pop growth rate)

evolutionary fitness