

- Parasites feed on living hosts and do not always kill them
- Endemic parasites cause chronic impacts on a host – low-level, persistent, nonlethal debilities or diseases
- Other parasites cause epizootic disease (animals) or epidemic disease (humans)
- Death from parasites is unusual and occurs only if:
 - Serious illness facilitates transmission (rabies)
 - The parasite does not depend on the infected host for survival and complete its life cycle after the host dies
 - The pathogen moves through host populations over a wide geographic area and over a long period of time
- Disease can be drastic, but is more often subtle with impacts to affect natality or normal movement
- Parasites can have **important indirect effects** on their hosts by
 - Responding to the nutritional state of the host and becoming pathogenic or otherwise increasing vulnerability to predation
 - Altering the behavior of the host
- **Pathogenicity is influenced by the nutritional statuses of the host** (Keymer and Dobson 1987) – low protein increased susceptibility to infection
- Murray et al 1997 – snowshoe hare supplemented with high-quality food during winter had better survival than those not supplemented although both popn's were treated with antihelminthics - there was a **synergistic** effect on survivorship:
 - 56% survival for control group
 - 60% survival for dewormed but not fed group
 - 73% survival for fed but not dewormed group
 - 90% survival for fed and treated group
- Soay sheep – interaction between nutritional condition and parasites (Gulland 1992)
- **Interactions of parasites with predators**
 - Parasites affect a host's vulnerability to predation by changing its escape ability (Murray et al. 1997 snowshoe hare, Joly and Messier 2004 bison, grouse – Dobson and Hudson 1994 and Hudson et al. 1992a)
- **Parasites have three types of impact on host communities**
 - **Competition**
 - Affected when parasites have a greater effect on one of the competitors (northward spread of white-tailed deer and brainworm wiping out moose and caribou)
 - **Reducing predation**
 - Can reduce efficiency of predators so that the prey increase at the expense of their competitors (alter the effect of apparent competition)
 - **Increasing prey susceptibility**
 - Can increase the availability of prey for a predator and so alter competitive relationships between predators