Wolf Predation:

Hunting Behavior and Predator-Prey Systems

The Food of Wolves

- Data on wolf food consumption
  - Stomach contents from carcasses
  - Scat analysis

Wolf Feeding Habits

"The Wolf is Kept fed by his feet"

- Large Ungulate – Main Prey
- Secondary Prey – Beaver, Snowshoe Hare

Predatory Adaptations

- Teeth and Skull

  Sagittal Crest – Temporalis muscle

  Canines and Incisors – Stab/Hold

  Carnassials – Leverage/break bone

Ingestion and Digestion

Feeding in wolves begins with Salivation

- Parotid, Mandibular and Sublingual glands
  - Slightly acid secretion aids in swallowing
- Gastrin hormone stimulates production of acid and enzymes to aid in digestion
- Stretch receptors detect distension of the stomach wall ~ 20-25% of body weight

Caching

Excess food – mostly a summer time task

- Wolves may distance themselves from the actual kill before caching

Fat Storage and Feasting

Wolves may not always be successful

- Kill efficiency varies with opportunities
  - Examples of Wolf Success per study (winter kills)
  - Motivation – time since last kill
  - Opportunities – snow depth, vulnerability of prey

Denali Nat'l Park – Alaska	Moose 19 – 38%
Alberta Canada	Bison - 10 %
Isle Royale, Michigan	Moose 8 – 9%
Northern Minnesota	Deer – 20 %

Surplus Killing of Prey

- Prey are abundant and vulnerable
- Domestic livestock issues
  - Carcass dumps
  - Calving areas
  - Adjacent Forestland

Loss to scavengers and other predators

- Ravens – dominant scavenger
  - Yellowstone NP – 135 ravens on an elk kill
  - Yukon Study – ravens consumed 81 lbs of meat per day from a moose kill

Other Scavengers

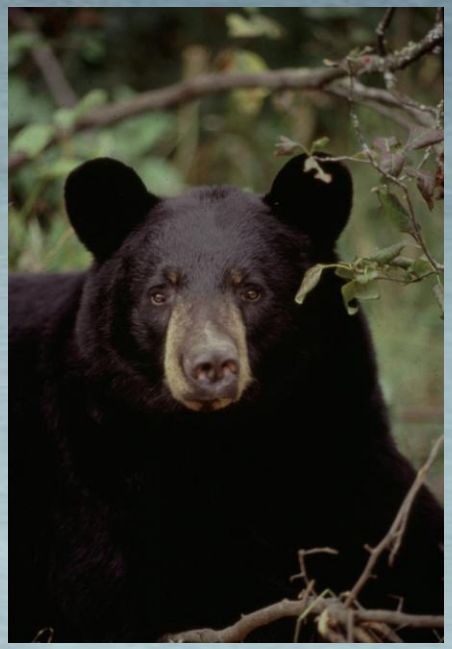
Fox

Coyotes

Bears

Canadian Jays

Chickadees



Prey Defense Mechanisms

- Size
  - Moose, Bison, Musk ox
- Weapons
  - Antlers, hooves, speed agility, lack of scent
- Behavior
  - Hiding, Aggressiveness, Grouping, Synchronized Birth (precocial birthing pattern)
- Landscape Use
  - Migration, Deer Yards, Forest Cover, Spacing
- Escape Features
  - Water, Steepness, Shorelines,

Effects of Snow and other Weather

- Initially affects prey escape
  - Heavier animals- smaller, sharper hooves
- Secondary problem
  - Affects prey nutrition and fetal development
- Other weather – droughts affect tick populations which affect moose

Winter Tick

Prey characteristics

- Sex –
  - Males killed most often during the rut
- Age
  - Calves, fawns, older animals
- Weight
  - Lighter individuals taken more often
- Injuries
  - Old and new wounds make prey vulnerable
- Parental age
  - Offspring of older parents taken less often

Hunting Behavior

- Locate Prey
  - 28 – 50% winter time spent in travel
  - Sense of smell – wooded habitats
  - Sense of sight – open habitats
  - Chance Encounter - may include a period of stalking

The Encounter

Three outcomes can occur:

1. Prey remain in place: Stand at Bay

2. Prey may approach the wolves: Aggressive

3. Prey may flee: Wolves immediately pursue

Sequence of the Hunt

- The Rush
  - Small vulnerable different than large prey

This behavior may occur many times without following through to a Chase

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YUV420 codec decompressor
are needed to see this picture.

The Chase

- Continuation of the Rush
  - Generally after a weaker individual is picked
  - Chases are usually not long in late winter

QuickTime™ and a
Cinepak decompressor
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Solo, Pair and Pack Hunting

- One lone wolf is capable of taking down prey

Pairs and Packs

Strategic Cooperation

Meaning:

"Conducting the hunt or chase in such a way as to capture the prey more effectively than merely running after it as a group."

The Ecology of Feeding

Dominant wolves may eat first

- Gorging on a carcass may occur in the first 15 minutes
- Lower ranking wolves may wait or attempt to approach submissively

Possession Rights

Tug of War – lower ranking wolves struggle to tear away parts of the carcass

Summer Time – Feeding pups
Pups have Rights…

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YUV420 codec decompressor
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Carcass Consumption

- Viscerates large organs, heart lungs
- May eat the stomach lining, not contents
- Back straps, haunch muscles
- Skeletal structure may be all that remains within a day

Kill Site Patterns

- Wolves may gorge until full – then find a bed to rest and digest food (sleeping for at least 5 hours)
- Second feeding may occur 6 – 8 hours later
- Look for beds with scraps or bones – subordinates
- Beds are generally less than 100 meters from kill
- May mark extensively around a kill

Kill Site Investigation

- Determining pattern of kill – backtracking
- Looking for signs of scent marking
- Looking for fresh beds
- Looking for bones, other evidence
- Scat Analysis:
  - Excessive meat – black runny scat
  - Digested meat – black firm scat
  - Limited meat in system – scat mostly hair
  - No meat in system –scat whitish in color- small

Any Questions?