

WOLVES & HUMANS

The Science Museum of Minnesota

TERRITORY

Wolves are social animals that occupy territories. A territory is an area that is occupied more or less exclusively, that an animal will defend against individuals of the same species by means of overt repulsion or advertisement. It is the home range or the area in which the animal travels.

Under normal circumstances, wolf territories remain stable and fairly exclusive from year to year for generations. Territories may overlap other wolves' territories at the boundaries, yet interpack contact is avoided and nearly nonexistent along these frontiers. (How wolves avoid conflict, and maintain and advertise territories is discussed in more detail in the sections on olfaction, scent marking, and vocalizations.)

The precise nature of the spatial relationships between adjacent packs was unknown until recently. Only after years of monitoring packs in which a pack member had been radio-collared and located routinely, and by keeping and recording the pack's movements and activities did some of the mysteries begin to be better understood.

Factors apparently determining territories include: amount of area available, number of wolves in the whole population, amount of prey available and spatial behavior of the prey, disease, stress, interpack relationships, and pack stability. Spacing and territory seem adjusted and held by certain tensions, stress within and between packs, competition for food, etc., creating a control or balance between tolerance, defensive behavior, and aggression. Like most systems or rules in nature there are many variables, patterns of fluctuation or cycles. There must be some adaptability possible to meet local conditions and change.

Some wolf species migrate, following migrating prey such as the caribou of the tundra. Territories are more important to nonmigrating wolves, such as the subspecies that lives in Minnesota.

Younger wolves inherit their territories from the adults as the elders naturally die off with age. This is much like human adults who leave their land or homesteads to their descendants, or like the Indians who passed on their hunting grounds to the following generation.

Stability of the social unit is important. Continuity of pack leadership seems to bring perpetuity to territories. For example, if the leaders are killed by disease or by humans, pups not familiar with their territories may become "lost," rather than gradually inherit familiar territory they have learned about by traveling with the adults.

Expansion of a territory seems to depend on land and prey availability. In one study it was observed that where there was an increase in the number of wolf packs, the number of territories increased but the total amount of land used remained the same. The higher number of territories were compressed into the same area with each territory becoming smaller. Wolves, however, seem to reach

a maximum density at one wolf per 10 square miles (e.g., four wolves to 40 square miles, six wolves to 60 square miles).

When a pack increases in size, it may split into two or members might disperse. Those that leave to seek new territories are called "dispersers." Those that remain, awaiting perhaps their chance to move up the pack hierarchy or merely inherit the territory are called "bidders." Of course pack size can be reduced by natural mortality of pups or adults.

To be a disperser in an area where there are many adjacent packs can be risky. A dispersing wolf gambles that he will find an unoccupied territory in which to begin a new pack, or face the hazard of encountering neighboring wolves and be injured or killed as an intruder. Another potentially fatal encounter could be meeting humans. Most territorial battles, which are not frequent, involve a lone animal and the resident pack. Cases exist where a lone intruder was killed and eaten.

An increase in the wolf population might increase stress within the pack, stimulate interpack tension, intensify competition for food, and heighten aggression. Competition for food may result in an insufficient food supply. This in turn affects the nutritional state of the animals and can affect breeding females in particular; females who are in poor health may not produce pups or may produce pups of weak nutritional fitness with less chance for survival. A newly formed pack of two, a pair, may also suffer from "territorial stresses" and fail to reproduce. The number of males to females within the population seems altered under adverse conditions. Additionally, when food supply is short packs seeking this limited prey travel further from the "secure" centers of their territories and may trespass into the adjacent pack's territory. As human history demonstrates, trespassing is not limited to the behavior of wolves, and invites antagonistic, if not fatal results. A more unusual case even exists where a pack overtly trespassed and sought out the neighboring pack in an aggressive encounter. Packs may perhaps be displaced in this way.

Lone wolves do not have territories. To avoid conflict, they travel around pack territories, in the gaps, or "buffer zones" between territories. Coyotes were also found to use the buffer zones. Deer utilize these buffer zone "refuges" as well, for normally wolves are reluctant to travel to the edges or outside of their territories, where they might more readily encounter neighboring wolves. It is also reported that deer similarly sought such refuge in the "buffer zones" between warring Indian tribes! The Indians viewed these areas as risky for hunting because of the chance of meeting a hostile neighbor.

As you can see, the number of wolves in a population and how they are spaced and occupy territories influence behavior, health, ecology, and survival in many ways.



WOLF TERRITORIES

QUESTIONS

ACTIVITIES

STUDENT WORKSHEET

QUESTIONS

Before discussing how wolves move through their territories and use "cognitive maps" the following questions might be discussed:

How do students feel about heading out towards an unknown area?

Do they feel more secure near home?

Point out how when they were babies their main "safety center" was near mother.

Note how students have increased the area they use and feel secure in: their "territory".

Discuss how they feel about walking on a strange block vs. familiar neighborhood streets.

How do they feel traveling alone vs. with a "pack" of friends?

How do they feel alone passing a "pack" of kids they do not know?
Alone vs. with their own "pack."

MAP / WORKSHEET ACTIVITY: a simulation of mapping radio-collared wolves

The attached map can be duplicated for each student. Each shape represents a wolf territory. Each has its own symbol to use for marking a single location of a single wolf wearing a radio-collar. For example the collared wolf in the Triangle pack was located at 20 locations within its territory and six times at the pack's den site, for a total of 26 sightings. For this project we will assume all the wolves collared are alpha animals, whom the other pack members will follow. We will accept him as the one who determines the extent of the territory and den site. (Locations are already mapped for the Triangle and Circle Packs)

QUESTIONS TO POSE TO STUDENTS

(Answers to be placed on worksheet.)

ANSWERS

How many territories do you see?

(5)

What do you notice about the size of the territories and what does that tell you?

(larger and smaller)...
(more wolves or fewer wolves)

WOLF TERRITORIES: QUESTIONS / ACTIVITIES / STUDENT WORKSHEET (CONT'D.)

QUESTIONS TO POSE TO STUDENTS cont.

(Answers to be placed on worksheet)

One pack is the largest pack with seven wolves: which territory would they most likely have on this map? (Fill in the number seven by the symbol in that territory)

Which territory is probably occupied by the newly formed pair? (Write two by symbol)

Which pack has six wolves? (Write 6 by symbol)

Which pack has five wolves? (Write 5 by symbol)

Which pack has three wolves? (Write 3 by symbol)

Why doesn't the large pack use the small territory?

Which wolf is probably a lone wolf without a territory?

Where will coyotes most likely be found? Mark the letter C at "coyote" locations.

Where will the most secure centers of each territory be? (Draw a dotted circle, like those found already drawn in the Circle & Triangle territory. This will indicate a den location as well)

Which wolf has trespassed the furthest from his own territory into another pack's territory? (Circle the symbol)

(More on next page)

ANSWERS cont.

(Largest territory, Clear Pine pack - write seven by Pine tree symbol)

(Smallest territory - South Pack - write two by + symbol)

(Circle pack)

(Trout Lake Pack)

(Triangle Pack)

(They need larger territory, more area in which to find more food for more wolves)

(Symbol *, "Lone star animal")

(In "buffer zone" areas, outside and around wolf areas)

(Den-centers will be drawn at locations not near borders or other territories. Each student may choose a different site but it should be central and not near other territorial borders)

(A Clear Pine wolf - in Trout Lake Territory - Note Circle & Triangle wolves are in over-lap areas not trespasses)

WOLF TERRITORIES: QUESTIONS / ACTIVITIES / STUDENT WORKSHEET (CONT'D.)

QUESTIONS TO POSE TO STUDENTS cont.

If a wolf left, (dispersed), from the Circle Pack where would he go to most safely start a new pack?

Discuss

Students can fill in symbols for locations of Clear Pine pack, Trout Lake pack and South pack as was done for Circle and Triangle packs. More locations should be placed near centers and less at outskirts. If more than one animal was collared there would be another set for its sightings.

ANSWERS cont.

(Northwest to "forest", possibly to northeast but probably not towards a town, and probably blocked by mines)

WOLF TERRITORIES WORKSHEET

FOREST



IRON MINES

