EGJ
Issue 28
Spring 2009
ISSN 1076-7975

The Anatomy of a Wolf Den Site: A Field Report

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Abstract
The mythology of the wolf vastly outstrips scientific knowledge of the species in the mind of the average citizen. The present article, based on research in the Crown of the Continent Ecosystem, redresses this imbalance by showing an "up close and personal" view of a classical den site. It shows first how to respect the security and privacy of the animals, and then how to recognize and interpret the basic elements of a site such as pathways, den openings, and tracks. This kind of look at the "material culture" of a typical pack can replace ideology and fantasy about the species with respect, awe, and intimacy, and so help to form a corresponding "pack" of knowledgeable stakeholders committed to its preservation.

Keywords: endangered species, gray wolf, tracking, Montana, Idaho, Wyoming.

The current controversy over the delisting and relisting of the gray wolf as an endangered species has made accurate information about its population and behavior crucial. Yet the wolf has remained an elusive species because of its near extinction, its avoidance of humans, and until fairly recently, a lack of systematic research.

Ignorance, therefore, including misinformation and disinformation—not to mention mystification—characterizes the mass public. The wolf is largely an abstraction viewed as a fantasy and not a reality in popular media, literature, and other circles. For example, much of our so-called knowledge is based on packs in captivity rather than knowledge built on scientific observation and study of wolves in the wild. Few people have an intimate understanding of the daily life of wolves in the wild, which makes close identification with them extremely difficult.

This report sheds some light on the gap in academic knowledge by describing the classic wolf den site. The description is based on the author's research as a tracker on a project directed by Cristina Eisenberg of Oregon State University and supported by Glacier National Park; Waterton Lakes National Park; University of Alberta; Boone and Crockett; Montana Fish, Wildlife, and Parks; Nature Conservancy; and other bodies. It applies to the Crown of the Continent Ecosystem, and somewhat more generally to those U.S. states with the largest wolf populations in the west of the lower 48 states (Montana, Idaho, and Wyoming).

Before approaching a known den site, out of respect for the security of the animals and their sensitivity to human encroachment, an etiquette protocol needs to be followed. One should park vehicles far away and walk quietly to the site. A different route to and from the den needs to be taken each day to avoid leaving a visible trail. One should also check for nearby wolf presence lest their survival routines be disturbed. In addition to radio beeps (if some of the wolves have been collared) and live sightings in the vicinity, telltale signals include fresh track and sign, howling, and recent reports of wildlife professionals, local residents, and tourists. If the animals are very close, the investigation should be aborted and scheduled for later. To minimize disruption, time at the site should be short and spent quietly. It is also important to leave as few human scents as possible (for example, by eating and urinating far away from the den), while not removing anything unless absolutely necessary.


Photos 1 and 2: Checking the area first for nearby wolves.

A den usually forms the hub of what trackers call a hub-and-spoke, or cluster, junction of routine pathways. Given the frequent trips of the wolves to the site, as well as the large size of the many animals who often travel together, the paths are usually deep, wide, and well trodden. Some paths are known to have been used for up to twenty years and so are aptly called “ancestral trails.”

Photo 3: Path to a den site.

Wolves register the typical canid track showing claws and four fairly large toe pads but a comparatively small triangular heel pad. Under the right conditions the number of prints may help gauge pack size, while the ratio of small to large prints can offer a clue as to litter size.

Photo 4: Wolf track.

A typical den is on high ground in a meadow, or not far away in a bordering conifer stand, often right under a large tree root to provide a stable “ceiling.” Firs and especially spruces, occasionally fallen ones, are favorite spots. An open water source is normally close by.

Photo 5: Meadow as seen from a wolf den.

Photo 6: Typical wolf den beneath a fallen spruce tree. The thick layer of dead needles and other debris at the entrance suggest abandonment.

Whether the den is being used or has been abandoned can be determined by looking near the opening at the amount of fallen debris (leaves, twigs, pebbles), the roughness or smoothness of the substrate, the presence or absence of snagged hair on overhanging roots, as well as the freshness of tracks, scat, feeding sign, dislodged pebbles, scuffed moss on branches, and green and undisturbed vegetation.

Photo 7: Den currently used, as seen in the lack of debris and smoothed substrate at the opening.

Wolves occasionally start to dig a den but give up because of large roots, rocks, or other causes. A lot of debris at the opening but an absence of track and sign are good hints as to a false start. Also, if possible, one can with the help of a flashlight crawl inside to estimate overall size and

depth, and indeed even to draw a den's architecture. Such drawings may cast light on litter size and other features of pack life.

Photo 8: False den, as suggested by the thick layer of debris at the opening.

Photos 9: Tracker blueprinting the internal architecture of a den.

Some dens are spread over a large area and show multiple openings, suggesting a large litter size needing such a “condo complex.” A large number of openings may also hint at longtime use.

Photos 10, 11 and 12: Three openings of a single den “condo complex.”

Above the den one may find an observation post overlooking a large open area where the alpha male stands protective watch while the alpha female nurses the pups. The spot is noticeable due to the path leading up to it, tracks, and the cleared and matted down substrate.

Photo 13: View from alpha male’s observation post stretching 100m in each direction.

Beds are usually found below the den where the animals seek protection from the elements, either from the hot sun or from wind, rain, and snow. Such spots are often at the base of evergreens.

Photo 14: Bed 30m below a den.

Scattered on the paths leading to the site, as well as around it, one can find abundant scat, which is normally much larger in length and diameter than that of coyotes, foxes, or domestic dogs. Scat can be very informative in terms of diet. For example the ratio of wild to domestic ungulate hair is an important finding given the common belief that wolves kill a lot of livestock. Deposits less than 28mm are usually considered to be left by pups, and the ratio of pup to adult scat at a new site may give some clue as to litter size. Fresh wolf scat has a sharp, rank odor that is noticeable at a distance and nearly overpowering close up. Sometimes a small latrine with several deposits can be found, which is usually considered by researchers a scent-marking post. The number of separate deposits can usually be estimated by the number of tapered “tails.”

Photos 15, 16, and 17: Large size scats showing common J-hook shape, and tapered ends.

Photo 18: Scent-marking latrine atop and around a small stump found 50m below a den opening.

Carcass parts including bones, antlers, and hair are often brought by the animals to the den from a kill site and can be quite abundant. Skulls of ungulates are an especially useful find since they tell us the age and sex of the prey and therefore what influence the carnivores are having on a herd. A sure sign of a wolf kill of a large animal is the missing end of a leg bone, which wolves break with their powerful carnassials teeth in order to pull out the nutritious marrow. The pressure is often so heavy that the bone splits horizontally. These large marrow-less bones are a giveaway sign of wolf presence, distinguishing the species from other apex predators in the vicinity.

Photos 19 and 20: Kill site with scattered carcass parts, as well as the cracked and missing end of an elk bone with horizontal splits—a “wolf signature sign.”

As the pups are being weaned and starting to reach adulthood they are taken away to spots close to the den called rendezvous sites. These are often found in large and open flat areas such as meadows, often at the foot of a slope. Such sites will often be close enough to a thick conifer stand, which provides cover if necessary. Big litters can trample down large areas, which in tall grass may take the shape of "crop circles." Here, under the caretaking of a few elders, the pups play and sleep while the other adults hunt. Since the hunters bring back food for the pups, the site is usually littered with carcass parts—a veritable "bone yard."

Photo 21: Part of a "crop circle" at a rendezvous site 2 km from a den.

At this site as well as around the den one can find pup digs, not unlike the ones a dog leaves in a yard. The youngsters also bring to the site "chew toys" from roadsides to gnaw on with their growing teeth. Pups will also chew on large branches, which will show abundant tooth marks.

Photos 22 and 23: Pup "chew toys": vodka bottle top and plastic bucket.

This kind of on-site look at the "material culture" of a wolf community does much to dispel the mythological fog that surrounds the species. Such up close and personal encounters with the animals, may aid in dispelling much of the misunderstanding of wolves. Perhaps with more citizen experience, a better empirical basis for policymaking would be established. For most, this would engender a more respectful, awesome, and intimate connection, and so help form a political "pack" of knowledgeable stakeholders committed to the preservation of the species.

Much is at risk. The loss of every species impoverishes our own. Recent studies of trophic cascades have shown that apex predators like the wolf keep their ecosystems viable. Their effects "cascade" through food webs, harmonizing the various populations and so promoting the fitness of all species involved, while their removal sharply reduces biodiversity and health.

There is the powerful symbology of "Wolf," which politically almost alone stands for nature itself. If we can save the wolf then the richness and wellbeing of the earth as a whole has a better chance.

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Electronic Green Journal, Issue 28, Spring 2009, ISSN:1076-7975