

# Elk Pellets Aren't All Alike

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Folks interested in finding wild animals may spend considerable time looking for droppings (pellets), tracks, beds, rubs, and other animal signs. Collectively, these signs may tell the observer about relative numbers of animals, how they move, habits in using certain areas, and the frequency of use of an area.

Today's range researcher uses new technologies to draw even more information from traditional animal signs. For example, elk pellets may be examined microscopically to help determine dietary make-up. Such findings aid the land manager in planning how future activities will be programmed to maintain or enhance wildlife habitats.

During our studies of wildlife use of forested ranges in the Blue Mountains of Oregon, we discovered some strikingly different elk pellets. These pellets were lighter in color and seemed heavier and larger than usual. In contrast to the common shiny surfaced pellet, these pellets were dull and dusty on the outside and when broken had a very gritty material among plant remnants. Some pellets contained no plant remnants and resembled little balls of compacted soil. The common pellet is dark colored and contains partially digested vegetation but little if any soil. We concluded these pellets were comprised of soil which passed through the digestive tract along with other dietary components. We called these droppings "soil pellets" in contrast to "normal pellets," even though both kinds are normal in the biological sense.

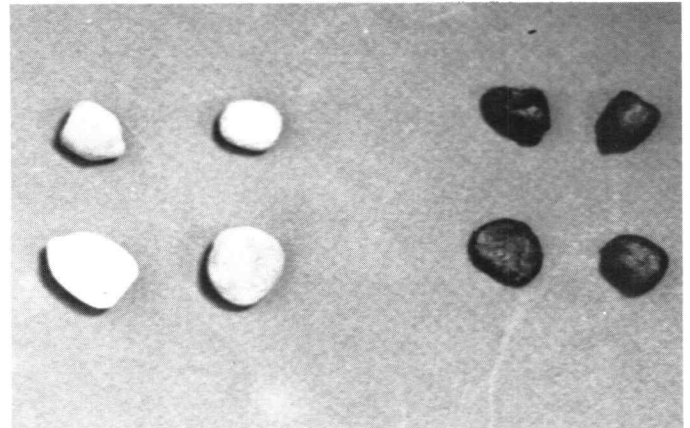
We and our co-workers began to watch for more soil pellets while doing other work. Elk are known to frequent salt licks, and we expected to find soil pellets nearby as substantial quantities of soil are usually missing in those areas. While there were some soil pellets near licks, they were not abundant. Most defecation probably occurs away from such places and makes soil pellets more difficult to find.

Elk apparently eat soil associated with burn slash piles in logged areas. There was evidence of animals pawing and apparently eating the soil which had changed color (sometimes to white, others to red) from fire effects. We believe the elk eat the soil to obtain minerals released from logging slash or other organic debris when burned. The

minerals are absorbed into the soil as salts when they are dissolved by rain or snow melt.

We don't know how elk determine the desirability of soil in burned slash piles or at salt licks. The process seems selective because not all burned piles are used this way.

We compared 14 different soil pellet collections with 20 other normal pellet collections. These collections came from



*Elk pellets with a high soil content (left) have a different surface texture and color than those we usually see (right). The nearly white pellet (lower left) is comparatively rare in our experience. Its color is probably associated with naturally white soil deposits occurring along the North Fork of the John Day River where the pellet originated.*



*A burned slash pile where elk have apparently been eating soil.*

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various locations and appeared to be of varied age. We obtained an approximation of the soil content of the pellets by ignition of the organic contents in a high temperature oven leaving only inorganic residue. By calculating the difference in the average residue percentages of normal and soil pellets, we estimated the soil content.

Initial weights of the soil pellets (2.4 grams before ignition) averaged 3 times that of normal pellets. After ignition, the residue weight from soil pellets was 10 times that from the normal pellets, and the percentage residue in soil pellets was

much higher than the normal pellets. Soil pellets contained an average of 58% more inorganic residue, presumably from soil eaten by elk.

Are there dietary or digestive benefits from eating soil? It is obviously eaten by preference, but are the animals healthier because they eat soil? What quantitative relationships exist among the specific minerals consumed that might be beneficial? Our observations raised these questions and we will be looking for answers as our work continues.

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