

Scientist Profile: Dr. Clinton Epps

Watch the video profile of Dr. Epps to learn more about Dr. Epps' research and see the bighorn sheep in their natural habitat. Ask students to record any questions that they have while watching the video.

Discussion

Connect the video profile of Dr. Epps to his motivation for the research and remind students that this case study is based on real scientific data.

Question: How could Clinton Epps make such an impact on science even though he was only a student at the time?

Answer: He had a creative impulse and he did the hard work necessary to pull it off. He also had a group of collaborators to work with as well as guiding him.

Question: What motivated Dr. Epps to do fieldwork outside of his lab and office?

Answer: Dr. Epps needs to feel connected to his research, which he finds difficult to do when he is at a desk. He likes to visualize his research, so he often goes to field sites so that he can really understand the places that he studies.

Question: How common do you think it is for scientists to work outside?

Answer: Depending upon the subject, scientists work outside. Ecologists, Earth scientists, botanists, entomologists, primatologists, all work outside.

Discuss DNA collection in the video in order to understand how DNA patterns can reveal levels of breeding.

Key Idea: DNA from individuals in a population can be collected from animal droppings.

Question: We finished watching the video of Dr. Epps collecting and smelling sheep droppings. Why did he do this?

Answer: Freshness. The fresher the droppings, the easier it is to extract DNA.

Question: How is Dr. Epps using DNA to investigate the effect of highways on bighorn sheep?

Answer: By looking at the genetic material of the different populations of bighorn sheep to see whether they are breeding.

Key Idea: Populations that are isolated from one another will share less DNA than populations that interbreed.

Question: How would you expect the genes of mountaintop sheep populations that are separated by highways to compare to the genes of mountaintop sheep populations that have no highway separating them?

Answer: Bighorn sheep populations separated by highways will share fewer genes than bighorn sheep populations without highways separating them.