



MOUNTAINFILM
FOR STUDENTS

HOW TO COUNT A WOLF

DIRECTORS Benjamin Drummond
Sara Joy Steele
DURATION 8 mins

Monitoring wolf populations where they have been long absent is no easy feat and entails risks to both wildlife biologists. But, perhaps the survival of the wildest of species depends on human management.



Standards

COMMON CORE ANCHOR STANDARDS FOR READING

CCSS.ELA-LITERACY.CCRA.R.1 / Key Ideas and Details

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-LITERACY.CCRA.R.2 / Key Ideas and Details

Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

CCSS.ELA-LITERACY.CCRA.R.8 / Integration of Knowledge and Ideas

Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

CCSS.ELA-LITERACY.CCRA.R.9 / Integration of Knowledge and Ideas

Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

COMMON CORE ANCHOR STANDARDS FOR WRITING

CCSS.ELA-LITERACY.CCRA.W.1 / Text Types and Purposes

Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-LITERACY.CCRA.W.2 / Text Types and Purposes

Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-LITERACY.CCRA.W.7 / Research to Build and Present Knowledge

Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

Themes

 conservation, ecology, wolves

Key Vocabulary

 conservation, gray wolf, pack, tracking

Filmmaker Interview



**BEN DRUMMOND &
SARA JOY STEEL**

Why did you become a filmmaker and how did you get started?

Sara and I began telling stories together in college. Initially we combined her writing with my still photography, but we soon wanted to let our characters tell their stories in their own voices. We added audio and began producing multimedia content, which then morphed into the filmmaking we do now.

When editing the film, was there anything you wished you could have included in the final cut?

We are fascinated by Trent's research using AudioMoth microphones and machine learning to determine the presence or absence of wolves using sound. This new method is briefly covered towards the end of the film, but it's something that really deserves its own story. If successful, the AudioMoths are not only less dangerous for both the animals and people, but it could

potentially scale to much larger landscape areas and allow them to monitor for wolves in places where they're not known to have recolonized.

difficult job, physically, emotionally, and politically. We hope our film will help people better understand that.

“How to Count a Wolf is a great example of how scientists and storytellers can be essential allies.”

When you made the film, did you have a specific audience in mind?

We worked closely with Washington Department of Fish and Wildlife to try and reach an audience that cares about wild places but might not be part of the conservation or science conversation. The rapid recolonization of the state has been contentious in some areas, and the agency was interested in trying to set emotions aside and just explain how they know what they know about wolves in Washington.

What are some of the challenges you encountered while making this film?

The helicopter scenes are a big highlight of this project but were risky to film. We were told we couldn't join the team in the helicopter (they didn't physically have room for a film crew and wouldn't allow it even if they did). So, we rigged the helicopter with a bunch of remote cameras, gave the biologists and pilot a small camcorder and then paced around the empty pilot lounge as they disappeared into the fog. The material they brought back exceeded our wildest expectations.

Is there an action you hope people are inspired to take after seeing this film?

For the Washington Department of Fish and Wildlife, I think they hope people will put more trust in their science. For us personally, we were really struck by the personal dedication of the biologists who are tasked with an exceptionally

What's the next big adventure or film project on the horizon for you?

How to Count a Wolf is a prequel of sorts to another film we produced this year, *The Predator-Prey Project*. This film explores a larger research project that's trying to understand what happens to deer and elk, as well as other predators such as cougars, when wolves recolonize a landscape. It's a huge, five-year study of which the wolf data is a small part. You can find [The Predator-Prey Project film on our website.](#)

What is one piece of advice you can give students that you wish someone had shared with you?

How to Count a Wolf is a great example of how scientists and storytellers can be essential allies. Good science requires good communication, now more than ever. This is a tremendous opportunity for students interested in environmental science, conservation, journalism, visual storytelling, or any combination thereof.

Pre-Screening Activity

Middle School

Within a wolf pack, there are complex and fluid social structures that dictate the pack's hierarchy. Wolves will take on roles as an alpha, beta, or omega wolf within a wolfpack, and each role is equally important to the health of the pack. Wolves' roles can be fluid and a beta wolf can become an omega, or vice versa. Although it is less common for an alpha to change roles, as they remain an alpha for the majority of their lives. This complex social dynamic also includes the lone wolf, which may choose to leave a pack and travel hundreds of miles in search of another pack to join.

To help with flexible groupings within your classroom, ask students to choose to take on the role of an alpha, beta, omega, or lone wolf. Then split up into groups of threes, or fours, so that each group has one of each with the lone wolf given the option to work alone or to join another group. Each alpha, beta, omega, and lone wolf will have certain roles to fill in order to maintain the overall health of the pack, but first it is important to understand the characteristics of each role.

Once students have divided themselves into groups (and it is okay if the lone wolf would like to remain alone!), have students visit the [Living with Wolves Interactive Museum](#) on **Pack Anatomy**. Click on each picture in the interactive museum to read the subtext, or scroll down and click through the photos to gain more information on the different roles and characteristics of an alpha, beta, omega, and lone wolf. Have students review information, and decide what characteristics would be important for each member to fulfill (ex: an alpha would most likely be the decision maker, a beta would make sure that everyone is okay with the job they are performing, and the omega would make sure to hear all members of the group, while maintaining a jovial attitude). There is a lot of information in the interactive museum, so encourage students to click through the pictures to learn about the various roles of the pack, and how wolf pups are raised by the pack. The students would then share their findings on each role within the pack (alpha, beta, omega, and lone).

Once the roles of the wolf pack are discussed and clearly defined, have the students sit with their pack to watch the film, *How to Count a Wolf*.

Alpha Wolf	Beta Wolf	Omega Wolf	Lone Wolf



Pre-Screening Activity

Middle School (cont.)

In the film, there are several images that could ignite a student's curiosity or create a strong emotional response. Have each group take a piece of paper and fold it in half. On one side of the paper have students write **Curious About**, and on the other side **Heart Response**. On the side titled "Curious About" have students write questions they may have throughout the film. On the side titled "Heart Response" students may choose to write how they feel in response to certain images or the tracking techniques documented in the film.

Curious About

Questions you have throughout the film

Heart Response

Feelings you have about images or tracking techniques used in the film

Let students know that *How to Count a Wolf* was created by the Washington Department of Fish and Wildlife to bring more information to the general public about how naturally occurring wolf packs are tracked within the state of Washington. The wolves there returned to the state via migration, whereas in other states they have been reintroduced by government agencies after the passing of ballot initiatives. It may be helpful to locate Washington on a map, and point out that the northern part of the state shares a border with Canada, as Canada supports wolf-mitigation as opposed to wolf-tracking and protection. In addition to this, bordering Washington on the east is Idaho, who recently passed a law which allows the killing of 90% of its wolves.

Afterward, direct students to work as a group (or wolf pack!) to compile their curiosities and heart responses. When done, it would be interesting for the groups/packs to share what questions and responses they have, and to look for any similarities and/or differences in perspectives between each group/pack.

Discussion Guide

GENERAL/OPEN PROMPTS

1. What are the benefits of tracking the gray wolf? Why do you think this is important? Why do you think it is important for scientists to know how many wolves there are and where they roam?

EXPLORING SELF

1. Even though wolves are not wild dogs, it is hard not to anthropomorphize them and see their similarities to the pets we love so much. What feelings are brought up seeing the scientists collar the wolves and take their blood, measurements, and weight?
2. In listening to wolves howl, what do you think they are communicating with each other? In the film one of the scientists does his best to imitate a wolf. Do you think a pack can tell the difference between a wolf howl and a human howl?

EXPLORING THE WORLD

1. Why is it necessary to track wild animal populations? What would be the benefits and the consequences of tracking wild animals?

EXPLORING FILMMAKING

1. Why do you think Drummond and Steele chose to start with the high-intensity scene of the scientists tracking wolves from the helicopter? Would starting with a different image change the film's narrative? Would you keep it the same or change how Drummond and Steele chose to introduce the topic?
2. The film focuses on the conservation of the gray wolf and the interviews selected support those efforts through tracking. Do you think Drummond and Steele chose not to interview a rancher who owns livestock? Do you think including this voice would strengthen their documentary? Why or why not?
3. At the end of the film, one of the wolf biologists states "I like to say they are just another critter on the landscape and they're not near the big bad wolf that everyone makes them out, but they're not a saint either, you know. They're right in the middle and I just wish folks would understand that a little bit more." Do you think this film succeeded in conveying that message?

EXPLORING SOCIAL ISSUES

1. Do you think the use of audio recorders to track wild animals could become the preferred way scientists choose to track wild animal populations? Why or why not?

SENSE OF WONDER

1. In the film, a scientist notes that the "wolves are just regular, and they do just regular wolf stuff all day, not knowing that they are controversial." Do you think humans could be more flexible in their adaptability to living near wolf populations? How can we change our habits (and habitat impact) to create a sense of belonging for humans and wild animals?

Activity

Middle School

Responses to wolves vary across states and countries. For this activity, students could continue to work with their group/pack or as a lone wolf to gather more information on how different U.S. states and Canada respond to the conservation or mitigation of wolf packs. Students will work with their groups/packs to explore government responses from Washington, Idaho, Montana and British Columbia and present their findings to the class.

Prior to researching individual states' and Canada's responses to wolves, it might be helpful to understand the importance of wolves to an ecosystem. *Living with Wolves'* article titled, [“Wolves and Our Ecosystems”](#) has created an easy-to-read article with pictures that outlines the benefits of wolves to plants, ungulates, and other animals and the benefits of ecotourism. You could read through this article as a class or as groups/packs and report findings to the class prior to having the students research further. After the students share their research, it would be interesting to lead the class in a discussion around:

“What is the best way to support wolves in human-populated areas? Do different responses make sense when the wolf does not know whether it is in Idaho, Washington, Montana or Canada?”

Washington

In Washington, the setting of *How to Count a Wolf*, the gray wolf is a state-protected species. In the eastern third of the state, gray wolves are delisted as a federally endangered species, whereas in the western two-thirds of the state, the gray wolf remains a federally-listed endangered species. However, since wolves are protected at a state level it is illegal to hunt, trap, or kill the species. [The Wolf's Return to Washington](#) is an eight page pamphlet by the Washington Department of Fish and Wildlife published in 2019, which outlines Washington's response to the protection and conservation of the gray wolf. Pages four through eight of the document are most helpful in understanding the state's response using both non-lethal and lethal deterrent practices to protect livestock populations.

Idaho

In Idaho, the trapping, hunting and killing of wolves was made legal in May of 2021. As of 2021, the state's overall wolf population is at roughly 1,500 as compared to Washington's 178. This article from NPR's Troy Oppie, titled [“New Idaho Law Calls for Killing 90% of the State's Wolves”](#) outlines Idaho's response to its increased wolf population.

Montana

The experiential article from NPR's Nathan Rott titled [“Wolves at the Door”](#) outlines Montana's response to the wolf population through the use of hunting. Turns out only 1% of wolves are actually killed with hunting tags, as they are an elusive predator! Scroll through for beautiful photography and sounds to help with the narration of the article.

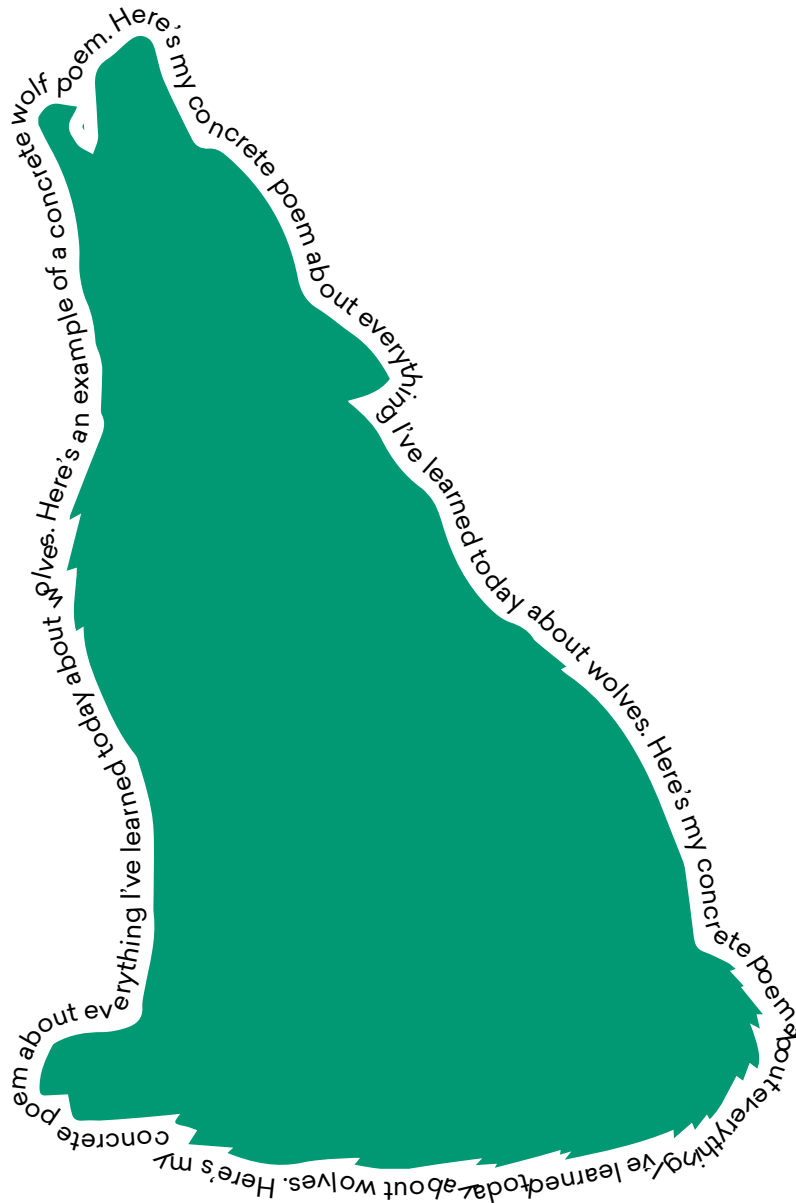
British Columbia

In British Columbia, a wolf cull – which involves radio-collaring single wolves, tracking them to their packs, then aerial gunning the wolf family units from helicopters – was made legal in 2015 to help save the caribou species. Since 2015, over 1,000 gray wolves have been killed. As recent as June 2021, research has surfaced that the killing of wolves has not buoyed the caribou population and the original data on which the cull was based, was error-laden. [Pacific Wild's Wolf Cull timeline](#) is a great interactive tool, which outlines the past five years and British Columbia's response. This article from Canada's *The Tyee* titled [“Keep Killing Wolves to Protect Caribou? No, Says New Research”](#) summarizes that the loss of habitat has negatively impacted the caribou population; not the increase of the gray wolf population.

Activity

Middle School (cont.)

Students will read through these articles in their group/pack, and then report information to the class. The presentation of information could be as simple as summarizing the articles, or creating a concrete-poem **using an outline of a wolf** to contain their findings.



RECOMMENDED EXTENTIONS

Throughout *How to Count a Wolf*, different field survey techniques are utilized to track the wolf population (darting, tagging, collars, tracking through the use of footprints and cameras, traps, and the use of a newer tool called Audiomoths). **Audiomoths** are a “low-cost, full-spectrum logger” which can listen at audible and inaudible frequencies and are capable of recording uncompressed audio. They are a less-invasive and low-cost way to inventory a wild habitat (approximately \$60 to purchase the device and the software is free). In his article, **“Listening to Nature: The Emerging Field of Bioacoustics.”** Yale Environment 360’s Adam Welz covers how the tool of bioacoustics is poised to become a prominent way to track ecosystems. The article outlines the benefits to the sound recordings of a habitat, as the recordings can help scientists “efficiently determine how species are moving or changing in response to global warming, habitat destruction, or human disturbance.” This article also poses an important question: “would the publication and distribution of audio recordings of the wolves and other animals help support the conservation of this species?”

The filmmakers, **Benjamin Drummond and Sara Joy Steele’s Vimeo page** is a collection of their beautifully crafted films based on conservation efforts and environmental issues specific to Washington. Their film, ***The Predator-Prey Project***, which was also made for the Washington Department of Fish and Wildlife, follows the impact of wolves and cougars on the ungulate population as a measure of the overall impact of the predator’s on the ecosystem. The project works to tag several cougars, wolves, and ungulates to monitor populations, and track movements, to answer the question: “What are the impacts of wolves?”

National Geographic’s Resource Library article titled, **Wolves: Fact and Fiction** is a great resource for debunking myths about wolves (for example wolves don’t howl at the moon!)

The Washington Department of Fish and Wildlife developed a wildlife-themed curriculum for elementary, middle and high school to support students in the 2020-21 school year, titled the **Wild Washington Program**. High-quality lessons and resources are available based on themes, including the covering of topics such as fisheries, climate change, endangered species, and wildlife responses to wildfires.

REFERENCES

- Flahive, J. (2014, June 27). *Wolves: Fact and Fiction*. National Geographic Society. <https://www.nationalgeographic.org/media/wolves-fact-and-fiction/>.
- Living with Wolves. (2020, January 29). *Wolves & Our Ecosystem*. Living with Wolves. <https://www.livingwithwolves.org/about-wolves/why-wolves-matter/>.
- Living with Wolves. (n.d.). *The Hidden Life of Wolves*. <https://www.livingwithwolves.org/hiddenlifeinteractive/#/wolves-101/pack-anatomy/>.
- MacLeod, A. (2021, June 21). *Keep Killing Wolves to Protect Caribou? No, Says New Research*. The Tyee. <https://thetyee.ca/News/2021/06/21/Keep-Killing-Wolves-Protect-Caribou-No-Says-Research/>.
- Oppie, T. (2021, May 21). *New Idaho Law Calls For Killing 90% Of The State’s Wolves*. NPR. <https://www.npr.org/2021/05/21/999084965/new-idaho-law-calls-for-killing-90-of-states-wolves>.
- Pacific Wild . (2021, June 23). *BC Wolf Cull Timeline*. Pacific Wild. <https://pacificwild.org/the-history-of-the-wolf-cull-in-british-columbia/>.
- Rott, N. (2014, February 3). *Wolves At The Door*. NPR. <https://apps.npr.org/wolves/>.
- Washington Department of Fish and Wildlife. (2019). *The Wolf’s Return to Washington*. Washington Department of Fish and Wildlife. https://wdfw.wa.gov/sites/default/files/2020-07/wolf_status_recovery_report_single-page.pdf.
- Well, A. (2019, November 5). *Listening to Nature: The Emerging Field of Bioacoustics*. Yale E360. <https://e360.yale.edu/features/listening-to-nature-the-emerging-field-of-bioacoustics>.
- Wild Washington Program*. Washington Department of Fish & Wildlife. (n.d.). <https://wdfw.wa.gov/get-involved/environmental-education-curriculum>.