

SCIENTISTS IN THE FIELD

Where Science
Meets Adventure

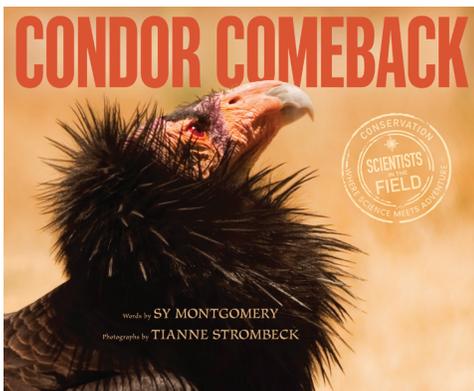
DISCUSSION AND ACTIVITY GUIDE

Condor Comeback BY SY MONTGOMERY with photographs by Tianne Strombeck
Teacher Guide by Ed Spicer



About the Series

Condor Comeback is part of the award-winning Scientists in the Field series, which began in 1999. This distinguished and innovative series examines the work of real-life scientists doing actual research. Young readers discover what it is like to be a working scientist, investigate an intriguing research project in action, and gain a wealth of knowledge about fascinating scientific topics. Outstanding writing and stellar photography are features of every book in the series. Reading levels vary, but the books will interest a wide range of readers.



Condor Comeback
by Sy Montgomery
978-0-544-81653-4

About the Book

Taller than many seven-year-old children and weighing in at around thirty pounds, the California condor is a monster of a bird—and many folks, unfortunately, believe this quite literally. At one time condors were shot for sport, and today, some hunters are resistant to giving up the lead bullets that poison condors by introducing lead to their food sources. These incredibly intelligent birds, however, have much to teach us about environmental cleanup. Their beauty and their ability to soar like aerial dancers thousands of feet in the sky make them a favorite of a large (and growing) number of school children each year. Go ahead! Look at Condor 174 just before the first chapter; see if you don't become a fan just like Dr. Estelle Sandhaus.

About the Author

Sy Montgomery, author of more than ten books for the fabulous Scientists in the Field series, may legitimately be called the grand dame of science writing for children. She has observed hyenas, floated down the Amazon with the fish, discovered secrets about great white sharks, tested octopuses, chased cheetahs, laughed with tapir scientists, carefully spied on the kakapo (a flightless parrot), braved the cold with snow leopards, visited the cloud forests of Papua New Guinea to see tree kangaroos, played with tarantulas, and held lots of snakes. And that does not even count the research she's done for books outside this series! Now Montgomery is back to share getting pooped on and bit by the miraculous California condor, which she does to encourage us to aide the comeback of the fantastic California condor, which many thought would go the way of the passenger pigeon.

About the Photographer

Tianne Strombeck has done photography for *National Wildlife* and *Discover* magazines. Her work has also appeared online for such notable organizations as the Audubon Society and National Geographic. Considering the very artistic nature of her photography, readers will not be surprised to learn that she trained as an oil painter. Strombeck makes her home in Garland, Texas.

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Pre-Reading Activities:

Much of *Condor Comeback* deals with taking a huge risk that was vital to the very survival of the California condor as a species. Students may benefit from exploring scientific risks gone bad (the Challenger expedition, for example, or Chernobyl) as well as others that worked out reasonably well (and any that are mixed, such as projects like the International Thermonuclear Experimental Reactor). Since the science of risk assessment is so much under the microscope today, it may be worth introducing students to the scientific process of risk management: discuss how science identifies hazards, uses statistical models to determine responses, quantifies exposure assessments, and develops plans for dealing with risk and controlling the outcomes.

Research the Endangered Species Act and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). How are these used to protect various organisms? What are their strengths and weaknesses? How are they similar and how are they different? How does our political environment impact our commitment to endangered species?

Before they do any research, have students jot down perceptions or guesses about the behavior and life of the California condor. What is this creature like? How does it behave? What does it eat? Why is it endangered? Etc. Brainstorm a list of birds, mammals, reptiles, insects, fish, etc. that share characteristics with the California condor. Why do each of these creatures call the condor to mind? Are there any commonalities?

This book informs readers that California condors have a social structure. The coronavirus has brought our own social structure into vivid focus. Have a discussion about what any social structure does for its members. Indeed, the process of scientific research depends infinitely more on the cooperation of a large team than it does on individual brilliance. The name of this series, *Scientists in the Field*, is plural.

Before they read *Condor Comeback*, have students brainstorm answers to the following questions about various endangered species, including the California condor but especially any endangered animals or plants in your area: Why is the animal or plant on the verge of becoming extinct? What are useful steps that would make saving the animal or plant more likely? Discuss

with students instances in which we so want to see a particular result that we become anxious anticipating possible failures. Discuss with students the job of scientific observation and how what we WANT to happen often clouds our ability to see and interpret what DOES happen. Have students create a checklist for ensuring that our own desires do not eclipse our ability to interpret what does happen. How do we rise above our own expectations?

Discussion Questions:

The cost of saving a species like the California condor from going extinct is in the billions of dollars. It is also true that plants and animals have been going extinct for thousands of years, including before humans entered the picture. Why should we care about the California condor or any other animal going extinct, especially when that seems to be what happens naturally? Does the rate of extinction make any difference? How do ecosystem services factor into this debate? Should the question of cost even come into this argument? What would have to happen for you to place more value in saving condors, vultures, buzzards, hyenas, or other animals that act as undertakers in our animal world?

Does our current pandemic change the way we think about protecting California condors? Should it? How do current events influence our approach to the demands of scientific investigations? Are there portions of scientific research that should never be defunded? Will this pandemic change how we think of scientific research and discovery?

Is the name “California condor” an appropriate name for this large bird that cares nothing for local, state, or international borders?

Before the book begins (p. V), a map shows the current range of condors juxtaposed against the historic range of condors. How do scientists make these maps? It is not as if the California condor has kept a record of its ancestral homes.

Assume that you are a local, regional, state, or even federal politician who deeply loves California condors. Yet in your area, you have plenty of folks that think there are better ways of spending money than on conserving condors, birds which many see as not worth saving even if money were no object. What would you say to convince

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your voters to allow spending money on conservation or, better yet, to share your passion? Is there any safe way to build condor conservation programs that eliminates or minimizes the cost? If you cannot get rid of the cost, is there any way to bring in income to cover or offset the cost?

Is it more important to focus on improving the image of scavengers or to work on changing damaging human behaviors (such as banning lead bullets)? Does the practice of not naming wild animals and giving them numbers—the first condor we meet is introduced as Condor 174—help, hurt, or have no influence on how the average person thinks about condors?

This book shows scientists working in extremely hot, rugged, isolated places. Scientists spend long stretches isolated in the field, observing condors, then go into the lab for more hours of isolation, entering and interpreting data. “The folks in this room have a Herculean task—and one that involves duties outside most job descriptions” (p. 14). Discuss your observation skills, your stamina, and your ability to be persistent. What would have to happen (if anything) for you to see yourself in a science career? On page 31, we learn that a condor bit the author, Sy Montgomery, and that’s after she was pooped on. We must not forget the rattlesnakes, either! Do you have the stamina and fortitude it takes to do this sort of work? Are these aspects of conservation something common to the work of scientists in general, or specific to those with a focus on animal species? Why is it that we seem to need to safeguard many animals from people (and a society) that often seem determined to do them harm?

Condors and vultures are poorly appreciated for their cleanup work. What one person sees as worthless, someone else sees as important. What is something you do that other people may not see the value of? If one of the scientists in this book asked you for help, what ability would that scientist be attempting to tap? What new skills or traits would you need to develop to become a better scientist?

Applying and Extending Our Knowledge:

On page 16, we read, “*The worst danger, and the cause of well over half of all condor deaths to this day, is lead poisoning from bullets in the carcasses they eat.*”

- How many different types of bullets exist? How much does each different type of bullet cost? Are there any guns that must use lead bullets exclusively? With the help of your school or town librarian, research the bullet market and prepare a chart or graph showing how much each bullet costs, how much people in the United States spend on lead bullets each year, and what the average hunter would have to spend to commit to hunting without lead bullets. Research the background behind the California law that now outlaws lead bullets. Be sure to explain why Fish and Wildlife promotes copper-based bullets. The text says they are “nowhere near as toxic as lead” (p. 25). Do copper-based bullets have some environmental, ecological risk?
- We learn that just a small piece of the “cometlike tail” of the lead bullet is enough to kill a condor who eats it (p. 14). How does lead kill condors? Prepare an illustrated explanation of chelation, the process by which lead proves to be fatal to condors and other animals. Prepare another graphic or animated explanation for how the Los Angeles Zoo veterinarians cleanse lead from condor blood. If you were working with much younger students, how would you explain these same facts?
- While California has outlawed lead bullets, other states have not. Montgomery acknowledges that enforcing the California law is difficult all by itself. Debate the need for a national law forbidding lead bullets. Have a four-person team for each side of the debate. Have classmates sit as judge and jurors.
- Assume you are planning to move condors into an area that sees a lot of hunters. Prepare a brochure that explains to hunters the need for lead-free hunting and why hunters should welcome these foreboding birds.
- Prepare a list of other animals that are adversely affected by lead bullets in addition to those mentioned in the section “Beyond Condors” (p. 44). Prepare a Venn diagram (or similar) showing the similarities and differences for how lead adversely affects condors and different species. Research Andean condors to learn if lead is as harmful to them as it is to California condors.
- Write a letter to the editor or write a poem or an essay or a short story about condors and lead bullets.

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- If you were going to pick three songs that come closest to describing condors dealing with lead bullets, what songs would you choose? Prepare a brief annotation that justifies each song.

While lead poisoning is the most serious threat to condors, fire is a serious threat as well. The condor and any other animal must contend with many different threats.

- While the California fires were very much part of the news cycle (as were the fires in Australia), fires are often misunderstood. While plants and animals are destroyed by fire, many habitats require fire to stay healthy. How does fire help habitats stay healthy and when are fires simply and utterly destructive? Prepare a graphic explanation that shows fires at their best and at their worst, from a human perspective and an ecological perspective.
- Many animals become extinct. Extinction is something that has happened regularly to all sorts of plants and animals. There are scientists that even predict the eventual extinction of humans. Is there a pattern to extinction? Find one animal that is now extinct and trace its history from the time it had its largest numbers to the death of its last representative. How does this match what happened and almost happened to the California condor? At one point there were ZERO condors living in the wild. What happened with the condors that is different from the history of the plant or animal you chose?
- Research all the threats to the California condor. Make a pie graph or bar chart or similar visual that shows how much of a risk each different threat is to the condor population.
- While the California condor's situation is improving, search online for threats to other types of vultures. Present a status report on the California condor cousins around the world in terms of the threat of extinction. What action would you suggest to protect other vulture species?

Common Core Connections

CCSS.ELA-Literacy.W.6.1(a-d) Write arguments to support claims with clear reasons and relevant evidence.

CCSS.ELA-Literacy.W.6.1.E Provide a concluding statement or section that follows from the argument presented.

CCSS.ELA-Literacy.W.6.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-Literacy.W.6.2.A Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

CCSS.ELA-Literacy.W.6.2.B Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.

CCSS.ELA-Literacy.W.6.2.C Use appropriate transitions to clarify the relationships among ideas and concepts.

CCSS.ELA-Literacy.W.6.2.D Use precise language and domain-specific vocabulary to inform about or explain the topic.

CCSS.ELA-Literacy.W.6.7 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

CCSS.ELA-Literacy.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

CCSS.ELA-Literacy.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.RI Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-Literacy.RI Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

CCSS.ELA-Literacy.W.6.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

CCSS.ELA-Literacy.W.6.9.A Apply grade 6 Reading standards to literature (e.g., "Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics").

Examine the historic territory of the California condor not currently part of their range. Are there any portions of this historic territory that are capable of sustaining new condors?

- Make a map of likely new California condor territory. Outline the concerns ecologically, environmentally, financially, and socially. In groups, create an action plan for adding this mapped region to the new territory that addresses each of these areas of concern (and any others). Have each group present an executive summary listing the overall recommendation of whether adding this area is feasible (ecologically, environmentally, etc.), complete with the pros and cons.
- After all of the groups have presented their executive summary, have a class discussion and maybe even a vote on whether this area should be added to new condor territory.
- Prepare a consolidated report and executive summary of the class decision. Students may find it useful to ask questions of the various scientists and researchers working with California condors. Students should make sure they are aware of the minimum territory for condors and their other habitat requirements.

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- Won't condors simply expand into new areas as their numbers grow? Research the various release sites for condor chicks. What are the factors that go into selecting a site for the release of a condor chick? How do scientists work to influence condors into moving into areas that provide them the best chance for survival and, perhaps more importantly, out of areas that are too dangerous?
- Write a skit or a musical for younger students about the release of a condor fledgling. This creation should convey accurate information about condor habitat requirements and behaviors. Explain any anthropomorphic details included in the production in your program notes, outlining the dramatic needs or the rationale for including the detail. If possible, arrange to perform your skit or musical to younger students. Create a handout that provides students with take-home information about the California condor as well as notes about your program.
- Research cartoons, comic books, literature, etc. that include condors, vultures, or other carrion eaters. Write a summary that shows the range of feeling/opinion on these social engineers. When watching these cartoons or reading these stories, often created with little regard for the truth, keep track of false information, missing context, or elements that stretch the truth. Are there any common, recurring mistakes about vultures and condors? In addition to factual errors, note when the author makes value judgments. Montgomery quotes the words of noted scientist, Charles Darwin: "*He thought all vultures were disgusting, their bald heads 'formed to wallow in putridity'*" (p. 66). Do value judgments have a place in scientific assessment? Why or why not?
- One of the interesting risks taken to save the California condor was the decision to remove all condors from the wild. This required that scientists figure out how to raise condors in captivity. It turns out that the first condors released were very bad teen birds! These teen condors needed to be recaptured and re-socialized. There has never been a cartoon about it; create an outline for a series about this series of events, making sure to include how controversial the plan was.

Common Core Connections

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CCSS.ELA-Literacy.W.6.3.B Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.

Condors, vultures, buzzards, and other scavengers have not fared very well in popular culture or the media. Often they show up as a way to foreshadow the fact that something distinctly bad will happen. When Henrietta Baker found out that the government was planning to create a sanctuary for condors, she wrote about their possible extinction (p. 19), "*I say fine—we'd be better off if they did become extinct, and the sooner the better.*"

- Create an animoto video (or similar) showing the differences in the range of visual characterizations of condors/vultures.
- Do a survey of twenty (or more) people. Ask folks to tell you what (if anything) they know about the California condor and its daily behavior. Ask whether or not condors pose a risk to people and, if so, a brief description of what the risk may be. Prepare a graph with the results of your surveys. Turn this around and ask whether people pose a risk to a healthy condor population, with similar graphing. See if you can discover where any misinformation is generated. Write a summary for what you think your survey results tell you about condors. Discuss with the class to explore the strengths and weaknesses of your summary. Revise as necessary.
- If the California condor hired you to improve its image, what three strategies would you propose to get folks to think of condors more favorably? Write these strategies out with a rationale for why you think each would work. What would you suggest be done immediately? What would be a more long-term solution and what is the timeframe?

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CCSS.ELA-Literacy.W.6.2.B Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.

CCSS.ELA-Literacy.W.6.3 Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

CCSS.ELA-Literacy.W.6.3.A Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.

CCSS.ELA-Literacy.W.6.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

CCSS.ELA-Literacy.W.6.9.A Apply grade 6 Reading standards to literature (e.g., “Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics”).

CCSS.ELA-Literacy.W.6.9.B Apply grade 6 Reading standards to literary nonfiction (e.g., “Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not”).

CCSS.ELA-Literacy.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

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Montgomery states that California Condor 174 “towers” and weighs as much as a hundred baseballs. Page one also has information about wing size, flying speed, eye color, and how high in the sky they soar. And we read on page one, “*It’s easy to see why these birds have thrilled and fascinated people for thousands of years.*” And yet Montgomery made choices about the way she introduces this bird to readers like us.

- The first page is just under 500 words. How else could Montgomery introduce this bird? Assume that Montgomery’s audience is exclusively you and your class or just your neighborhood; write two or more introductions without going over 500 words that would generate interest for this thirty pound soaring machine. Feel free to change the chapter title as well.
- This book is filled with really amazing anecdotes, stories, facts, photos, and more. The book’s editor works with the author, often asking questions of the author and photographer about the placement and order of certain sections and photographs, whether sections and photographs need to be cropped or edited, and sometimes whether they need to be included at all. The goal is to make sure that the book is the very best book possible because the team considered its every aspect: what information to include, what order to present it in, what level of detail to go into, and much more. For example, is the cover photograph the best photograph to use for a cover? After reading the book, make predictions for ways an editor might have suggested the book begin or end.
- Look at just the photos in this book, including the cover photo. Arrange them by several different sorting criteria. Arrange them in order of your personal favorites. Arrange them by size or color or by location. Arrange them in the order that best tells the nonfiction story of the California condor. Arrange them in as many different ways as seem reasonable. Include a brief reason for your choices. Once you have the pictures isolated, see if you can put them in the same order as they are in the book—without looking. Look at your various configurations and discuss how each would change the book and why. The hope is that students see that writing style is a matter of choice even in a nonfiction book and that style is still a matter of personal choice (would you have described a condor’s weight in terms of the number of baseballs it equals?). Now look at the pictures and imagine they are included in a work of fiction. Individually come up with a few plot overviews for what sort of fictional work these photos could accompany. Share these in a group and then generate a plot overview that is the consensus of your group. Remember that these photos are the work of Tianne Strombeck and the property of Houghton Mifflin. This should always be clearly conveyed.
- Regardless of the order, a book about any animal needs to include its physical details. Readers must have photos and descriptions that help them to understand just what type of animal is depicted. Strombeck includes pictures of turkey vultures, Andean condors, king vultures, as well as a few other animals. You are asked by a kindergarten class, “What is a California condor?” Read over page one in this book and scan through the photos.

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Read other physical details about the condor presented in the book. Look at online information about condors. Create an eight-page nonfiction book with visual images explaining to young students what a California condor is. Work with your school or neighborhood librarian to make sure you credit all of your sources properly.

- The word “condor” is the common name for two of the seven different species of New World vultures. There are fifteen Old World vultures, making for twenty-two total vulture species. Create an animoto (or similar) video showing the differences between Old World and New World vultures. Create a Venn diagram (or similar) showing the similarities and differences between turkey vultures (which are common residents in much of the United States) and California condors.
- Is its size alone that has us creating a separate category for just the California condor and the Andean condor? Create a short story, folktale, rock opera or operetta, an epic poem, ode, or two sonnets creatively explaining why there are just two condors. Work with your school or local librarian for help tracking down information and scientists or other authorities, as well as to make sure proper citations are included, if required. Include a justification for the choices made and add research explaining what scientists believe germane to the fact that there are only two.
- Prepare a graphic depiction of the life cycle of the California condor.
- Several of the photos in this book show condors and vultures that are extremely colorful and very unlike their dark and dour reputation. Use some of these photos as models for art projects. Have some fun with this—perhaps have a “Peacock vs. Condor” beauty contest. Write skits or musicals. Have a class drawing contest with “Condor” teams drawing against “Peacock” teams to create the most beautiful bird.
- Ten to fifteen thousand years ago, perhaps the very last *Terratornis mirabilis* found itself trapped in the La Brea Tar Pits. This American vulture, according to its fossil records, had a wingspan of well over sixteen feet. Using what you know about the California condor, speculate on likely reasons why this vulture is extinct—remember that it was not because of lead bullets.

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[Note: Chapter 7 is entitled *The Chumash and Their Spirit Helper*. Please remind your students that in the United States alone, there are 574 federally recognized Indian Nations. Please emphasize that these are countries, just like the United States, Italy, or Japan are countries. There is not just one “Indian” and American Indians are separate and distinct from citizens of India. Many citizens of the various Nations prefer to be called by their tribal affiliation (Chumash, in this book). The best way to understand how to address any citizen is to ask, fully aware that there is no single answer or single story for the citizens of any nation. We mention this here because our experience leads us to conclude that far too many students speak of a mythic Indian that they believe to be extinct. 574 federally recognized Indian Nations—TODAY! We are taking this small detour because one of the stereotypes is that ALL American Indians have spirit guides. Some do, like the Chumash, but please help your students internalize that many Indian Nations are as different as the French are to the Japanese. The cultures that have spirit animals do not think it is funny to see U.S. students treat their culture as if it is some cute or quirky fad. Please be sensitive and please think about and plan for ways to respond professionally and instructively should you see (and you probably will) students and others responding as if there is just one universal Indian with a spirit guide. Remember that it is always a good plan to say, “I don’t know; let’s ask.”]

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On page 62, we read, “*The relationship between condors and the Chumash goes back thirteen thousand years.*”

And the Chumash are not the only culture with ties to vultures.

- Research the Chumash Nation. Prepare a report showing who they are today and who they were yesterday. What future plans does this Nation have?
- Thirteen thousand years ago is a long time. Prepare a report that reminds your class how a scientist determines that something happened thirteen thousand years ago. What are the important variables that allow a scientist to say, “This must be at least X years old?”
- The text states that “*Cassiopeia is the constellation named after a beautiful but arrogant woman in Greek mythology; but when the Chumash look at the same stars, they see something else: they see the wings of a condor!*” (p. 64–65). Research the Santa Ynez Band of Chumash Indians. Explore their history, especially as it pertains to the California condor. Compare their territory now to their territory historically. Prepare a superimposed map showing then and now. Students should be able to find images of various condor art and artifacts. Review how scientists determined that various artifacts or drawings referred to condors.
- In this same chapter, we learn that the Chumash population was in the “*tens of thousands*” (p. 64). Today the numbers are less than one thousand. Jacy Romero from the Santa Ynez Band of Chumash Indians links the fate of condors with her people. She sees the resurgence of the condor as a metaphor for her Nation. Do the people from different Nations go extinct? This chapter also states that many Chumash people were afraid to mention their culture because of discrimination. If people are afraid to mention their culture or practice their beliefs because of discrimination, what can we do to repair the damage caused by the discrimination perpetuated by American citizens? Discuss how this condor/culture metaphor works and make a list of action items that students in your area could take to insure the continued success of both condors and the Chumash Nation.
- Many countries have very interesting beliefs and rituals involving condors/vultures. In addition to those mentioned on pages 66–69, do a search (with the help of your school or neighborhood librarian) on beliefs and

rituals involving condors or vultures around the world. Prepare a report summarizing how vultures are used by various countries in cultural practices, medical research, or any other way. Remind students of the need to be respectful for beliefs that may not match our own.

- We learn that in 2006 we celebrated the first International Vulture Awareness Day and established the first Saturday in September as the annual day for continuing to celebrate awareness for vultures. Plan a Vulture Awareness celebration for your kindergarten students. Make sure that it includes art, movement, music, dance, drama, costumes, games, and plenty of fun. If you did the earlier activities involving creating nonfiction books, include those as handouts or prizes. Make sure that all of your activities are based on actual condor/vulture facts. Prepare a report for the kindergarten teacher or principal explaining the nonfiction information that is the foundation behind each activity.

Common Core Connections

CCSS.ELA-Literacy.W.6.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

CCSS.ELA-Literacy.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.W.6.8 Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

CCSS.ELA-Literacy.W.6.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

On page 61, Kathy Geshweng hears a bird and says, “*Oh! That’s a northern parula.’ Without even casting a glance at the small bluish gray warbler calling from a dead tree, Kathy recognizes who’s singing that rising, buzzy trill.*”

- No animal is able to live in isolation. When we study any animal, we need to pay good attention to the other animals (including humans) that are in the same habitat. We need to consider the plants and the climate and all of the factors that create a sustainable environment. Create a set of cards that show all of the major flora and fauna that one would find in California condor habitat. The information on page 59 and other pages will help, but research this area to make sure you include all

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major players. Pattern these cards after, perhaps, the Sibley Backyard Birding Flashcards or similar.

- Look at these cards and create a corresponding card and online link, if possible, for audible files of the sounds these animals make. Fabricate an “audible” link for what you think the plants or silent animals might be saying. Make sure you label it as a fictional interpretation. Splice together the sounds of these creatures and create background music.
- Write a brief overview of the current habitat of the California condor, explaining, if necessary, how the various locations with existing condor populations differ from one another. Include information about the weather patterns and climate ranges. Create a food chain graphic for this area.
- Look at the information on the historical range for the California condor. Research areas that no longer host condor populations. Evaluate what they lack compared to existing condor habitat; consider climate, food sources, nesting sites, etc. Prepare graphic depictions that can be overlaid to show what exists now and what has been lost in terms of habitat. What conclusions are possible from looking at current habitats and comparing them to historical habitats? What does this suggest in terms of future plans for condors?

Common Core Connections

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CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.RI Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-Literacy.RI Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.

CCSS.ELA-Literacy.W.6.3.E Provide a conclusion that follows from the narrated experiences or events.

On page 46, we read, “*The feathers are so powerful,’ says Myra. ‘The blood shows if the bird was exposed during the past couple of weeks. But a feather has a longer history to tell.’*” Earlier, on page 23, we read, “*...nobody wants to go around wearing the stench of vulture vomit...*” On page 26, we read, “*This condor is panting pretty hard. It prompts Joseph to make an unusual request: ‘See if her*

breath smells funky,’ he says.” And on the next page, we read that bad breath can actually be a sign of lead poisoning: “*Surprisingly, healthy condor breath doesn’t stink. One researcher described it as smelling like a fresh raw carrot.*”

- These details about the condor are based on documented observations and firsthand experiences. They require scientists to think about details and ask questions, like what information a feather could hold. How does a scientist use the feather of a condor to learn about the health and the health history of a California condor? Prepare a graphic explanation for what scientists learn from condor feathers. Speak to folks in your area that work with birds in your neighborhood. Do they also do research on bird feathers? How is the bird research on condors similar and different from the bird research on other species?
- We learn that condors and other vultures have projectile, weapon-like vomit that stinks to high heaven. Perhaps some students have had experiences with skunks and other animals highly regarded for their ability to create a stink. But let’s assume you have been the unfortunate target of an awful blast of condor vomit. How do you get rid of the stench? First practice on removing a strong smell from something safe. Dip a piece of cloth in water with lots of lime juice or cinnamon. Test to see the least amount of water it takes to dilute the smell. Test with other safe products. Note: Be very careful when working with fragrances, because our sense of smell is extremely variable, with many students able to smell things others cannot. Some may be very sensitive to certain fragrances—they might not be able to tolerate a smell that other students love.
- We read on page 26 that Estelle and her team record everything on a data sheet. They check for things like whether the breast bone feels strong and firm, whether or not the eyes are clear, how healthy the toenails are, etc. If you have a pet, make a list of all the different things you think a vet should check and measure to ensure your pet is well. Invite a vet to your class and have them share the list of observations they make on various kinds of pets. Are there any behaviors that you recognize in pets you know that tell you about their health? Behaviors that those less familiar with the pet would not recognize? Explain.

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Common Core Connections

CCSS.ELA-Literacy.W.6.1.A Introduce claim(s) and organize the reasons and evidence clearly.

CCSS.ELA-Literacy.W.6.1.B Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.

CCSS.ELA-Literacy.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.RI Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

This book ends with the chapter “Condor Kids.” If you identified all the risks to California condors (above), you discovered that “microtrash” is also a significant risk to the health and safety of condors. However the takeaway message that ends this book is, in fact, stated in the very last sentence of the book (up to the back matter), *“The fate of the California condor really is in their hands—and now it’s in your hands, too.”*

- Do you care?
- What animals or plants or habitats are threatened in your area? What can you and your school do to help? Identify all the threats in your area and create an action plan that makes the situation a little bit better. Please examine page 85 for lots of great ideas.

Common Core Connections

CCSS.ELA-Literacy.W.6.1.A Introduce claim(s) and organize the reasons and evidence clearly.

CCSS.ELA-Literacy.W.6.1.B Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.

Other Websites to Explore:

Montgomery has an excellent list of links and books. Here are just a few more:

California Department of Parks and Recreation has an interesting archaeological article about the Chumash and the California condor written by John Foster:

https://www.parks.ca.gov/?page_id=23527

Sibley Backyard Birding Flashcards are one of MANY flashcards that could be used as a guide:

<https://www.sibleyguides.com/product/sibley-birding-flash-cards/>

Sy Montgomery’s website:

<http://symontgomery.com>

Tianne Strombeck’s website:

<https://www.tianimal.com>

The Earth Institute at Columbia University has an article on extinction by Renee Cho, one of many sources on the subject:

<https://blogs.ei.columbia.edu/2019/03/26/endangered-species-matter/>

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