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TEACHER RESOURCES

From Fynbos to Savannah (And everything in between):

Plant conservation in South Africa

by Mr. Rupert Koopman (Botanical Society of South Africa)

These educational materials were designed to accompany the video seminar “From Fynbos to Savannah (And everything in between): Plant conservation in South Africa” by Mr. Rupert Koopman, presented on July 14th, 2021 as part of a virtual Holden Forests & Gardens Scientist Lecture Series, Growing Black Roots: the Black Botanical Legacy.

Learn more about the lecture series here: <https://holdenfg.org/resource/series/growing-black-roots-the-black-botanical-legacy/>

Comprehend and Connect: Find your own inspiration for conservation.

1. Listen to the talk to find out: What motivates conservation of South African plants? What reason does Mr. Koopman give for why we should care about this topic?
2. Learn more about the unique and epic plant biodiversity of South Africa. Visit a page describing South African vegetation <http://pza.sanbi.org/vegetation>.
 - a. What are “Biomes”? Which Biomes in South Africa are unique to this region, i.e. found nowhere else in the world? Which Biomes can be found in other parts of the world?
 - b. What are the six “Floral Kingdoms”, and how does the geographic size and plant diversity within the different Kingdoms compare to that of the Cape Region of South Africa?
3. In addition to the fact that South Africa is a hotspot of global biodiversity, what are some other things that you might consider as important reasons for conserving the Biomes of South Africa? Use the Think-Pair-Share technique to lead a classroom discourse on this topic: each student talks a few minutes to reflect by themselves, then get together with a classmate to share and listen to their ideas, finally, regroup with the whole class allowing each team to share and invite discussion on their ideas. Consider the following dimensions:
 - a. Resource use by humans (consider known & still undiscovered resources)
 - b. Economy (consider global & local economy)
 - c. Code of ethics or morals (consider impact of different ethical frameworks)
 - d. Ecosystem services (consider both biological and social benefits of the ecosystem)

To Do: Gain insight into the human impact of different conservation approaches.

1. Listen to the talk to find out: Are people excluded from the land managed by Mr. Koopman? Who is allowed to access the land? Who makes decisions about individual plant species, plant communities, and conservation of the land?
2. Learn about social justice aspects of conservation.
 - a. Read “What is Fortress Conservation” excerpt in Box 1.
 - b. Read an excerpt about how “Fortress Conservation” has impacted indigenous communities in the US, in Box 2.
 - c. Research four alternatives to “Fortress Conservation” that take the livelihoods of local people into account. Use Google to search for each term.

- i. Extractive reserves
- ii. Joint forest management
- iii. Community-based conservation management
- iv. Integrated conservation and development projects

Box 1: WHAT IS FORTRESS CONSERVATION?

FROM The Sage encyclopedia of Environment and Society

<https://sesmad.dartmouth.edu/theories/90>

“Fortress conservation is a conservation model based on the belief that biodiversity protection is best achieved by creating protected areas where ecosystems can function in isolation from human disturbance. Fortress, or protectionist, conservation assumes that local people use natural resources in irrational and destructive ways, and as a result cause biodiversity loss and environmental degradation. Protected areas following the fortress model can be characterized by three principles: local people dependent on the natural resource base are excluded; enforcement is implemented by park rangers patrolling the boundaries, using a “fines and fences” approach to ensure compliance; and only tourism, safari hunting, and scientific research are considered as appropriate uses within protected areas.”

Box 2: FORTRESS CONSERVATION & THE MAKINGS OF YOSEMITE NATIONAL PARK

By Grace Ferrara

<https://smea.uw.edu/currents/fortress-conservation-the-makings-of-yosemite-national-park/>

This year, the National Park Service celebrates its 100th anniversary in caring for our national parks. For 100 years, the Park Service has protected and maintained some of our nation’s greatest treasures and provided connections for millions of people to the Great Outdoors. The creation of the Park Service in 1916 represented a major step forward in the struggle to protect our natural environment from the encroaching threats of urbanization. To celebrate their centennial, the Park Service has launched several programs, including Every Kid in a Park and Find Your Park to encourage people to get out and enjoy some of our most awe-inspiring national heritage. I, for one, am a big fan of the work the Park Service does to preserve some of our most precious environmental and cultural resources. However, the 100-year mark of this beloved agency has led me to reflect on its history and origins. In alignment with what seems to be the rest of American history, the story of how National Parks came to be is not as altruistic as one would expect.

The grant for Yosemite National Park was established in 1864 to protect the park from development by white settlers, saving it solely “for resort and recreation... to be left inalienable for all time.” This was the first time that an area of land was set aside for conservation purposes by the federal government. The establishment of this park has guided the creation of natural parks and reserves in the United States and abroad ever since. However, contrary to the language of the grant, the park was not untouched by people at the time of its establishment. The Yosemite band of the Miwok tribe had been thriving in the valley for nearly four thousand years by the time the park was established. This was of little consequence, however, to the white settlers who saw the tribe as a threat and a blight on the landscape.

3. Conduct a classroom debate on the pros and cons for two of the alternatives to fortress conservation. Split your class up into two groups, each taking one side of the debate. First, list the arguments FOR the side of the debate your team has taken, then make a list of arguments AGAINST the opposing side. Next, bring the two groups together to debate. Make sure to follow good debate protocol, whereby each side has a set time to speak and the other side has a set time for rebuttal (https://www.worksheetplace.com/mf_pdf/Debate-Format-and-Vocabulary.pdf).

Follow-up work: Reflect on the complexity of conservation solutions as not just an environmental issue, but also a social and economic issue.

1. Listen to the talk to find out: What are South Africans doing to protect biodiversity? What does Mr. Koopman suggest that people from outside the local community can do to support South African conservation efforts?
2. Learn about the Stakeholders perspective for implementing conservation that acknowledges local economic constraints and honors traditional lifeways.

- a. Define “Stakeholder”.
 - b. Learn more about SANBI, or the South African National Biodiversity Institute <https://www.sanbi.org/about/>, an organization that is using a stakeholder approach to conservation.
 - c.
 - i. Employees – people who work for SANBI
 - ii. Customers – people or organizations who use information generated by SANBI, who visit the parks, or who use physical resources located within the parks and preserves managed by SANBI, including: policy makers, knowledge seekers, visitors to the various National Botanical Gardens spread across the country and local communities
 - iii. Suppliers – people or organizations who provide items needed for the work of conservation, i.e. plants for restoration, computers to analyze data
 - iv. Funders – people or organizations who provide grant or donation dollars to support the work
 - v. Government departments – national agencies engaged in management of natural resources, budgeting, environmental regulation, policy making and enforcement
 - vi. Municipalities – local agencies engaged in city planning, zoning, as well as local policy making and enforcement
 - vii. Partners – Non-governmental organizations which collaborate with and have overlapping goals as SANBI, they may provide advice, labor, money or other direct assistance, or they may work independently and synergistically alongside SANBI, for example, tourism organizations that lead guided hikes in the national parks contribute to the educational goals of SANBI and must consider constraints outlined by conservation objectives in the parks, but have their own needs and objectives separate from SANBI
 - viii. Tertiary institutions – organizations in the region that are not directly partnering with SANBI, but which may have some interest in the local landscape, for example, scientists at a nearby university who study wildlife
 - ix. Civil society – anyone who is not part of the above stakeholder groups, can include people in South Africa but also other countries
 - x. Media – people who do reporting for news outlets
3. Use a stakeholder analysis to consider potential impacts of a conservation effort.
- a. Teacher’s note: this can be as simple as having a conversation about who has an interest in particular conservation issues or can reach the level of a full analysis that includes data collection. This abbreviated lesson is based on the following: https://www.amnh.org/content/download/158575/2593966/file/LinC7_Stakeholder%20Analysis.pdf
 - b. Determine an area of conservation concern, pick a location in your own region.
 - i. Have a Brainstorming session – make a list of all the people who use the location, how they use it. Use the list of SANBI stakeholders provided above to ensure you include different types of stakeholders.
 - ii. Discuss how the list you have made is potentially limited or biased by your own perspective/ experiences.

- c. Have any solutions been proposed to address the conservation concern? Use news articles or social media to find proposed solutions.
 - i. If a solution has been proposed, determine if it fits the description of Fortress Conservation, or one of the other four alternative models show in part 2C.
 - ii. Discuss how each of the four alternative models show in part 2C could be implemented.
- d. Return to your stakeholder table to determine, what interest does the group have or what will be the impact of these solutions on each group? Are they likely to be “For” or “Against” each proposed solution? Which solution would you recommend, based on all the available information?

