

YEARS OF LIVING DANGEROUSLY



THE YEARS OF LIVING DANGEROUSLY - EDUCATIONAL COMPANION

Provided to you by the *National Wildlife Federation*

INTRODUCTION

About the Series

This groundbreaking documentary event series explores the human impact of climate change. From the damage wrought by Hurricane Sandy to the upheaval caused by drought in the Middle East, *YEARS OF LIVING DANGEROUSLY* combines the blockbuster storytelling of top Hollywood movie makers with the reporting expertise of Hollywood's brightest stars and today's most respected journalists.

Purpose

As the educational partner for the *YEARS OF LIVING DANGEROUSLY*, *National Wildlife Federation*...

How To Get The Most Out Of This Educational Experience

Around the country our schools are providing students with unique, experiential, and applied learning opportunities. The *Years of Living Dangerously* is one of those opportunities you don't want to miss. As the series unfolds the biggest stories of our time students become emotional involved in the lives of those represented and through your instruction and facilitation will become agents of change, empowered by knowledge and evidence to create and solve our problems today and into the future.

EPISODE 2 – LESSON 1

EPISODE SUMMARY: "End of the Woods"

In episode two, Harrison Ford continues his investigation into the global effects of the palm oil industry and further explores the corruption that has ravaged the Indonesian landscape resulting in the country being one of the world's largest emitters of greenhouse gases through deforestation. Meanwhile, [former] Governor Arnold Schwarzenegger joins an elite team of wild-land firefighters—known as the "Hot Shots"—as they battle a new breed of forest fires, one made more deadly by climate change. He also discovers another killer wiping out trees at an even faster rate than forest fires.

LESSON SUMMARY

Students will use the stories in episode two to better understand the long term impacts deforestation and longer wildfire seasons have on the environment.

Story 1 – The End of the Woods

Correspondent: Arnold Schwarzenegger

Location: Pocatello & Diggs, ID, Missoula & Superior, MT, Albuquerque, NM, and Prescott, AZ

Story: Arnold Schwarzenegger joins an elite team of wildland firefighters as they battle a new breed of forest fire, one made more deadly by climate change. And he discovers another killer, one wiping out trees at an even faster rate than forest fires.



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Story 2- The conclusion of Last Stand

Correspondent: Harrison Ford

Location: Java, Sumatra, & Borneo, Indonesia,
Mountain View & Los Angeles, CA

Story: YEARS correspondent Harrison Ford travels to Indonesia to investigate how corruption, illegality and the world's seemingly unquenchable appetite for palm oil have combined to ravage the landscape and make the country the world's largest emitter of greenhouse gases through deforestation.



LEARNING OBJECTIVES EPISODE 1: LESSON 1

1. Students will examine evidence and sources of evidence to draw conclusions and make predictions.
2. Students will quantify changes in land cover over time
3. Students will recognize the role deforestation plays in climate change and the serious implications it has on the economy, communities, and the environment.

TEACHER BACKGROUND

Land cover change has effects and consequences at all geographic scales: local, regional, and global. Human changes to the land are enabling our own populations to grow, but they also are affecting the capacity of ecosystems to produce food, maintain fresh water and forests, regulate climate and air quality, and provide other essential functions necessary for life. It is critical for us to understand the changes we are bringing about to the earth system, and to understand the effects and consequences of those changes for life on our planet.

Rainforest loss around the globe releases as many heat trapping gasses (greenhouse gases, GHG) into the atmosphere as all the world's cars, trucks, ships, and airplanes combined. Accounting for around 20% of global carbon dioxide emissions, tropical deforestation is a major driver of global climate change, when the carbon stored in our planet's forests is released as forests are cut and burned. Deforestation also threatens the local biodiversity of a region, such as the orangutan populations whose numbers of significantly declined due to habitat loss from deforestation. Deforestation also reduces and degrades water supply and soil quality and has devastating impacts on local communities – all key factors that perpetuate global poverty. When people think of the causes of deforestation, logging for timber and paper usually comes to mind. In fact, the largest driver of deforestation in Indonesia, Malaysia, Borneo, and Sumatra is for palm oil. Palm oil is used in many processed foods, cosmetics, household products.

MATERIALS

1. Science notebook
2. One-to-One or paired use of computer with internet access
3. Ability to watch a Global Forest Watch video on YouTube.
4. Transparency with 1 inch grid lines.

VOCABULARY

Carbon cycle, carbon sinks, climate, climate change, commercial agriculture, corruption, dendroclimatology, deforestation, evidence, emissions, fact, greenhouse gases, Green Peace, impact, local versus global, opinion, palm oil, palm oil conglomerate, peat, pine bark beetle, plantation, refuge, scarcity, sequester, tree line, want versus need

WHAT TO DO

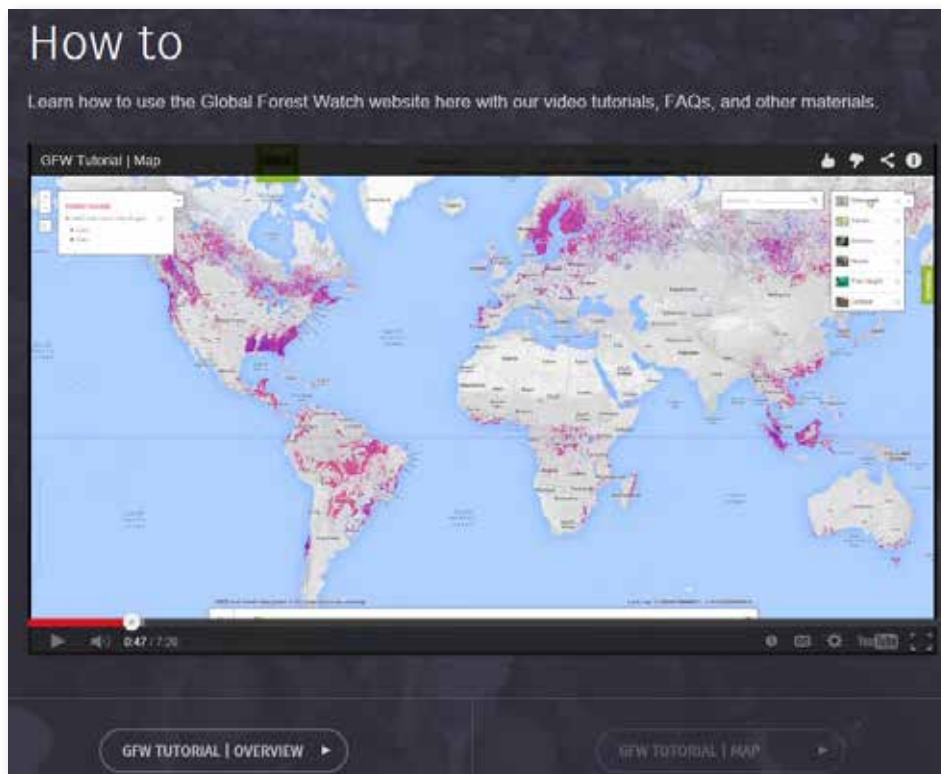
Have students take our online quiz both before and after the lesson. If you'd rather print out a paper copy or project the quiz on your SMART Board see page 8.

ENGAGE: 20 MINUTES

1. Go to Global Forest Watch - <http://www.globalforestwatch.org/>
2. Have students investigate the site, specifically:
 - a. The scrolling stats across the home page screen. Ask them to jot the stats down in their science notebook.
Special Note - Students may want to continue taking a few notes as this lesson will require them to retrieve and analyze data.
 - b. Read and watch the 2:33 clip in the "About" section. (Tab across the top)



- c. Click on the "How To" tab across the top. Watch the video segment from the beginning to minute 3:58.
- d. While on the same "How To" page click and watch "GFW Tutorial | Map", from the beginning to minute 6:48.

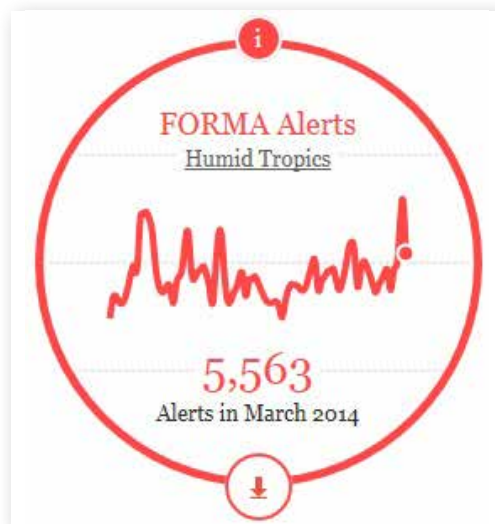


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EXPLORE: 45 MINUTES

PART 1: 30 MINUTES

1. Continue using the site for the rest of this lesson. www.globalforestwatch.org
2. Students will need to click on the “Countries” tab across the top navigation.
3. Choose “Indonesia” and take a few minutes exploring the statistics and information on this page. Have students answer these questions in their science notebook.
 - a. What are FORMA alerts? (Remember to click the “i” for information – scroll down to the bottom of the drop down for a more robust description.)
 - b. Provide students with this information: Indonesia has 141.7 million hectares of tree cover. Ask students and have them solve: What is this in acres? – 1 hectare = 2.47105 acres –
 - c. Provide students with this information: To put this in perspective an acre is roughly the size of a football field without the end zones. Once students know how many acres of tree cover Indonesia has, they will be able to visualize the acreage using football fields. Ask them to make this notation in their science notebook.
 - d. Taking this visualization a step further, have students Google how many square miles of land their state contains and then convert it to acres.



For instance – Texas has 268,820 square miles of land. This equates to 171,520 acres. ASK: How many Texas’s “fit into” Indonesia’s tree cover? Using Indonesia’s conversion from “b.” – 141.7 million hectares x 2.47105 acres = 348.42 acres. The answer? – 2 entire states – 171,520 x 2 = 343,040 acres

PART 2: 15 MINUTES

1. Provide students a map of Indonesia, found on page 12. This will help them find specific locations later on in the lesson and will also assist students as they explore the various layers to gain evidence that will help them draw conclusions.
2. Continue using Global Forest Watch, staying on the same page as PART 1, <http://www.globalforestwatch.org/country/IDN>, choose the third bubble, “Analyze”.
3. Since students watched the introduction, “GFW Tutorial | Map”, as a part of the Engage, allow students the opportunity to practice using the different layers, specifically the following categories: Forest Change, Forest Cover, Forest Use, and Conservation.
4. Remind and encourage students to click on the “i” if they don’t understand a data set or layer.

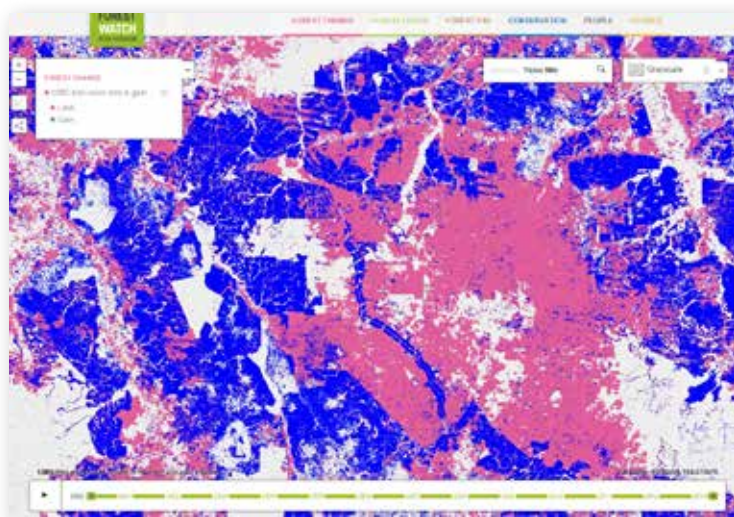


Special Note - this exploration time with the analysis tool is important to student success in the upcoming Explain section. Please do not bypass the Explore section.

EXPLAIN: 60 MINUTES

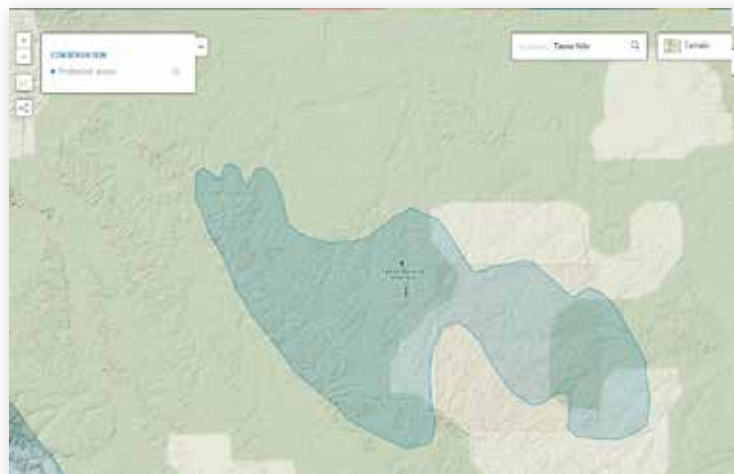
PART 1: 15 MINUTES

1. Distribute or post the Indonesian maps from page 12. We are going to focus on Tesso Nilo National Park, one of the areas Harrison Ford focused on during his work in Indonesia.
2. Explain to students that we are going to use Global Forest Watch, GFW to look more closely at Tesso Nilo National Park. Have them follow these directions:
 - a. Click on “Map” from the tabs across the top.
 - b. In the search box, in the upper right, type “Tesso Nilo” and click enter.
 - c. When your map locates Tesso Nilo it will automatically show Tree Cover Loss & Gain for Tesso Nilo and surrounding areas from 2000-2013.
 - d. Click the play icon across the bottom to show tree loss over the last 12 years. Ask: What can you observe about tree cover over the last 12 years?



PART 2: 45 MINUTES

- a. In the upper right have students change from “Gray Scale” to “Terrain”. Next click on “Forest Change”. Click “None”
- b. Click “Conservation” and choose “Protected”. Now students will see all of Tesso Nilo National Park. (If needed, use the plus and minus buttons to the left to zoom out if they do not see the park in its entirety.)
- c. Now have students go to “Forest Use” and click “Oil Palm”. Ask: What observations can you make about this image that includes both the protected boundaries of Tesso Nilo and the location of oil palm plantations? Students will notice there is some overlap and this should cause concern.
- d. Provide this information to students. This plantation that overlaps into the protected boundaries of Tesso Nilo National Park are owned by Wilmar. Wilmar is Asia’s leading agribusiness and controls 45% of the global production of and trade in oil palm. Wilmar also supplies that oil palm to Unilever in the U.S., which is the largest consumer of oil palm in the world.
- e. Have students go to the Unilever website, <http://www.unileverusa.com/>. Hover over “Brands In Action” across the top and click on “View Brands”. Have students count how many brands they have used or eaten either in the past or are currently in their homes.



f. Now hover over “Sustainable Living” across the top and click on “Sustainable Sourcing”. Students need to read the following sections:

- 1st text box on the page
- Our Perspective
- Our Sustainable Agriculture Code
- Sustainable Palm Oil
- Future Challenges (Side bar on the right)

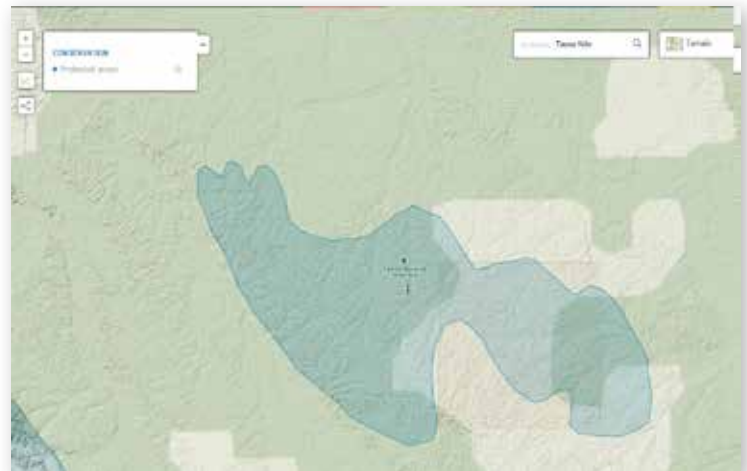
g. Now have students go back to the Global Forest Watch site as we bring this to a close. If students have closed the page have them open it back up.

- Go to: Maps
- Search: Tesso Nilo
- Go to “Forest Change” and click “None”
- Go to “Conservation” and click “Protected”



This is where you want students to pick up. Have them go to “Forest Change” and click on the “i” next to “FORMA” so they remember what it means, detects areas where tree cover loss is likely to have recently occurred. Now have students choose the “FORMA” layer. Ask: What did you observe? What does this mean? Remind students this data reflects 2006 to 2014.

h. Have a discussion with the class. What are our options as consumers? What are our options as citizens, based on what we have learned from our analysis? Keep a flip chart of ideas or type them up on the SMART Board. Encourage students to follow through with their actions as long as they are safe and appropriate. We want to encourage responsible consumerism and citizenship. Although some students may be angry, provide positive channels for that anger or frustration. For example, students could contact Unilever for a more detailed explanation to their questions. Another avenue to channel frustration is by using our pocket book to voice our concerns.



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ELABORATE: 30-40 MINUTES

1. Explain to students that they will quantify tree loss in Tesso Nilo National Park. You will need to go back to the Global Forest Watch site and get students to this map:
 - Go to: Maps
 - Search: Tesso Nilo
 - Change from “Gray Scale” to “Terrain”
 - Go to “Forest Change” and click “None”
 - Go to “Conservation” and click “Protected”
 - Click the “Draw” tool and outline Tesso Nilo National Park. (This will take a minute or two.)
 - Go to “Forest Change” and click on “UMD Tree Cover Loss and Gain”
 - Calculation totals will generate on the right side of the screen. (These will vary because of outline variances)
 - Have students calculate the percent lost over the 13 year time span and from 2010 to 2013.

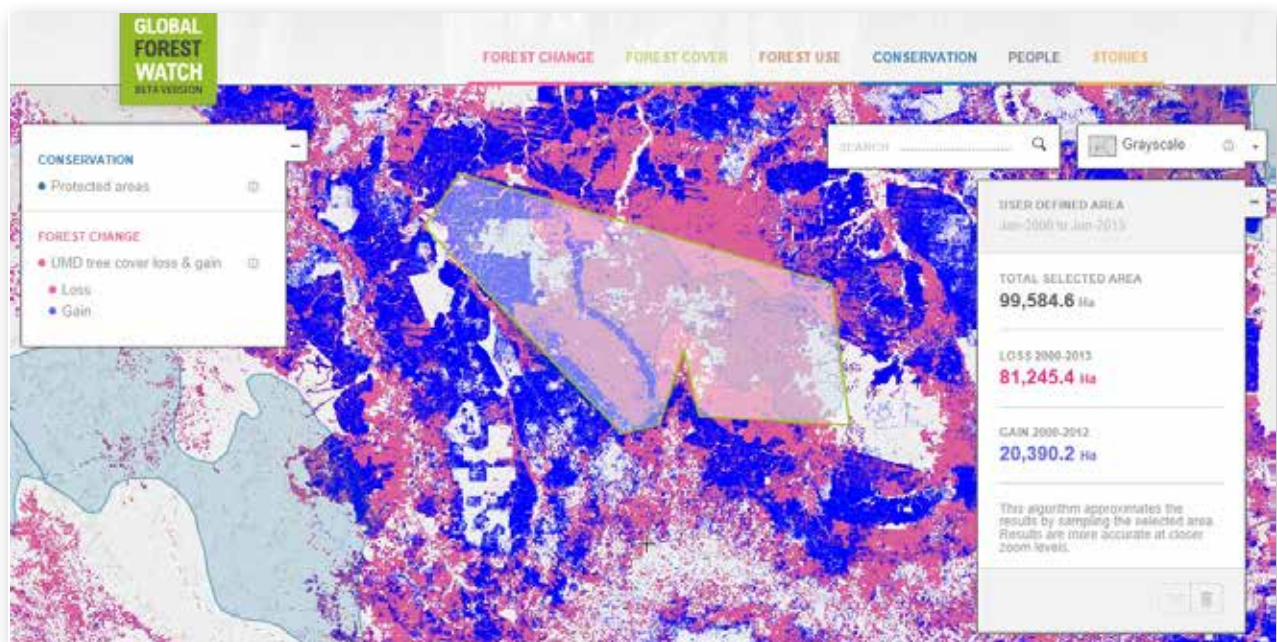
DRAW TOOL



OUTLINE OF TESSO NILO



CALCULATION TOTALS FOR OUTLINED AREA



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Ask students to answer the following questions in their science notebook.

- a. What does the percent change over both time periods tell you about deforestation in Tesso Nilo?
- b. How does this loss of tree cover effect wildlife?
- c. How does this loss of tree cover effect indigenous communities who live within Tesso Nilo?
- d. How does this loss of tree cover effect greenhouse gas emissions?

EVALUATE: 10-15 MINUTES

ASSESSMENT TOOLS:

- A. Justified True/False – see page 9
- B. Online Pre/Post Quiz

Take our online quiz:

1. Forests store vast amounts of carbon from the atmosphere. *True/False*
2. Palm oil is found in over 50% of the products we buy from the store. *True/False*
3. All palm plantations are harvested sustainably. *True/False*
4. Wildfires impact communities, economies, and wildlife. *True/False*
5. Tree rings can only provide evidence as to the age of a tree. *True/False*
6. Orangutans are endangered because their natural habitats are being destroyed for palm plantation production. *True/False*
7. 85% of the world's palm oil comes from Indonesia and Malaysia. *True/False*
8. Impacts related to climate change have created conditions within trees that allow the bark beetle to survive and grow and increased numbers. *True/False*
9. Biodiversity is not necessary to sustain an ecosystem. *True/False*
10. A fair and just government can be defined as one whose officials use their powers for illegitimate private gain. *True/False*



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Name: _____

Date: _____

Period: _____

JUSTIFIED TRUE OR FALSE STATEMENTS

EPISODE 101 – DRY SEASON

Justified True or False Statements provide a set of claims or statements that are examined by you. You are meant to draw on evidence from what you have learned to analyze the validity of the statements, and then describe the reasoning used to decide whether each claim is true or false.

NOTE Please use grade appropriate spelling and grammar.

STATEMENT	T	F	WHY I THINK SO...
1. 20% of all emissions come from deforestation. This is larger than emissions from all transportation activities on the globe.			
2. Wildfires are natural occurrences and evidence doesn't link them to climate change.			
3. Acres of trees and forest are the same whether it's a naturally occurring forest or a plantation of palm trees.			

Use this space to include more evidence to support your claim and or to draw a model if applicable.

TAKING ACTIONS AND DESIGNING SOLUTIONS

Taking actions and/or designing solutions to our local, national, and global problems are a personal journey. Via Facebook and Twitter @YEARSofliving #YEARSproject, share how you are taking action to combat climate change or if you've designed potential solutions share those on Instagram - @YEARSofliving or make a Vine.

Want to engage your school?

Check out these two programs of the National Wildlife Federation, Eco-Schools USA and Schoolyard Habitats www.eco-schoolsusa.org – www.nwf.org/schoolyardhabitats

Want the opportunity to showcase your investigative reporting skills?

Check out National Wildlife Federation's Young Reporters for the Environment-USA www.YRE-USA.org

Are you graduating this year?

Check out our college programs, Campus Ecology and Eco-Leaders www.CampusEcology.org – www.NWFEcoLeaders.org

WRITER'S CORNER

Without language there is no science. To be practicing scientists and derive new knowledge, we need language – reading, writing, talking, listening, enacting, and visualizing. Writing is one way to communicate understanding of our learning while allowing us to be creative in our delivery and provide insight and possible solutions to problems.

1. Writing from the perspective of a Hot Shot, write 5 journal entries that take place over the course of a week depicting the experiences encountered while fighting a wildfire in California.
2. Read this brief article, Fire Detection Tool Puts Some Industries in the Hot Seat. <http://blogs.wsj.com/searealtime/2014/03/04/new-fire-detection-tool-puts-some-industries-in-the-hot-seat-2/> Explain how this article relates to the issues and events from correspondent Harrison Ford in episode 2.
3. Create a series of 5 Tweets, Instagram's, and/or Vine's that promote and raise awareness around one of the following topics presented in Episode 2: End of the Woods. Be sure to link to maps, articles, videos, fact sheets, art, music, either created by you or others, that you feel will raise awareness and help spread your message.
 - Wildfire prevention tips and raise awareness around how climate is impacting the length and severity of our fire seasons
 - Pine bark beetle identification, what infested trees look like at different stages, and raise awareness around how climate change is good for the beetle, but bad for our nation's forests
 - Raise awareness about palm oil's link to deforestation - What is palm oil? How am I connected? Why is it a problem? How can you help change consumer habits?

CAREERS – AGENTS OF CHANGE

Inspired by Episode 2? Thinking about your future? You have the power to make a difference today and in the future. Check out our episode 2 profile on Dr. Michael Mann and look into other careers inspired by the issues presented in Episode 2: End of the Woods.

Episode Career Profile

Dr. Michael Mann

Occupation:

Director of the Penn State Earth System Science Center and a member of the Penn State University Faculty, holding joint positions in the Departments of Meteorology and Geosciences, and Earth and Environmental Systems Institute

Education:

B.S in Physics and Applied Math – University of California at Berkeley, M.S. in Physics – Yale University, Ph.D. in Geology & Geophysics from Yale University

Why He's Involved: "We've seen the tip of the iceberg, there are some pretty severe impacts from extreme weather that we think is related to climate change, greater drought, more wildfires, a whole range of phenomena that we know are linked to climate change and are already happening."

Learn more about Dr. Mann's work and contributions to climate science

<http://yearsoflivingdangerously.com/science-advisor/michael-mann-ph-d/>



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- Climatologist or Atmospheric Scientist – <http://www.bls.gov/ooh/life-physical-and-social-science/atmospheric-scientists-including-meteorologists.htm> Atmospheric scientists study the weather and climate and how it affects human activity and the earth in general. They may develop forecasts, collect and compile data from the field, assist in the development of new data collection instruments, or advise clients on risks or opportunities caused by weather events and climate change.
- Wildlife Biologist – <http://www.bls.gov/ooh/life-physical-and-social-science/zoologists-and-wildlife-biologists.htm> Zoologists and wildlife biologists study animals and other wildlife, and how they interact with their ecosystems. They study the physical characteristics of animals, animal behaviors, and the impacts humans have on wildlife and natural habitats.
- Forest Fire Fighter – <http://www.fs.fed.us/fire/people/employment/> or <http://www.smokeybear.com/front-line.asp> America's wildland firefighters have earned a reputation for being among the best in the world. These dedicated men and women endure exhausting work, harsh living conditions, and long separations from friends and family to protect our nation's natural resources from the ravages of unwanted wildfire.



Above: The areas outlined in red include those that belong to and are governed by Indonesia.

Below: This map outlines Riau, Indonesia, one of Indonesia's provinces and also includes Teso Nilo National Park.



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21st CENTURY SKILLS	NGSS SCIENCE AND ENGINEERING PRACTICES
LEARNING & INNOVATION	1 Asking Questions & Defining Problems
Critical Thinking and Problem Solving	2 Developing & Using Models
Communication and Collaboration	3 Analyzing & Interpreting Data
INFORMATION, MEDIA, & TECHNOLOGY SKILLS	4 Using Mathematics & Computational Thinking
Media Literacy	5 Constructing Explanations & Designing Solutions
LIFE & CAREER SKILLS	6 Engaging in Argument from Evidence
Flexibility and Adaptability	7 Obtaining, Evaluating, & Communicating Information
Social and Cross-Cultural Skills	

NGSS HIGH SCHOOL
ECOSYSTEMS: INTERACTIONS. ENERGY, AND DYNAMICS
Students who demonstrate understanding can:
<i>HS-LS2-1</i> Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
<i>HS-LS2-2.</i> Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
<i>HS-LS2-6.</i> Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.
EARTH'S SYSTEM
Students who demonstrate understanding can:
<i>HS-ESS2-2.</i> Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.
EARTH AND HUMAN ACTIVITY
Students who demonstrate understanding can:
<i>HS-ESS3-1.</i> Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
<i>HS-ESS3-4.</i> Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
<i>HS-ESS3-5.</i> Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems;
<i>HS-ESS3-6.</i> Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

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CCSS – ELA/LITERACY HIGH SCHOOL

ENGLISH LANGUAGE ARTS – SCIENCE & TECHNICAL SUBJECTS

RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CRAFT AND STRUCTURE

RST.9-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–12 texts and topics.

RH.9-12.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.

INTEGRATIONS OF KNOWLEDGE AND IDEAS

RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

RH.9-10.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

RH.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

RH.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claims.

RH.11-12.8 Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other information.

WRITING TEXT TYPES AND PURPOSES

WHST.9-12.1 Write arguments focused on discipline-specific content.

PRODUCTION AND DISTRIBUTION OF WRITING

WHST.9-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

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CCSS – ELA/LITERACY HIGH SCHOOL *Continued*

RESEARCH TO BUILD AND PRESENT KNOWLEDGE

WHST.9-12.9 Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING

WHST.9-10.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline- specific tasks, purposes, and audiences.

ENGLISH LANGUAGE ARTS – SCIENCE & TECHNICAL SUBJECTS

RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

NCSS – HIGH SCHOOL

CULTURE

Learner will understand:

That behaviors, values, and beliefs, of different cultures can lead to cooperation or pose barriers to cross-cultural understanding;

That awareness and knowledge of other cultures is important in a connected society and an interdependent world;

That the cultural values and beliefs of societies influence their analysis of challenges, and their responses to these challenges.

Learners will be able to:

Construct reasoned judgments about specific cultural responses to persistent human issues;

TIME, CONTINUITY, AND CHANGE

Learners will understand:

The importance of knowledge of the past to an understanding of the present and to informed decision-making about the future.

PEOPLE, PLACES, & ENVIRONMENTS

Learners will understand:

The theme of people, places, and environments involves the study of the relationships between human populations in different locations and regional and global geographic phenomena, such as landforms, soils, climate, vegetation, and natural resources;

Concepts such as: location, physical and human characteristics of national and global regions in the past and present, and the interactions of humans with the environment;

Consequences of changes in regional and global physical systems, such as seasons, climate, and weather, and the water cycle;

The causes and impact of resource management, as reflected in land use, settlement patterns, and ecosystem changes;

The social and economic effects of environmental changes and crises resulting from phenomena such as floods, storms, and drought;

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NCSS HIGH SCHOOL *Continued*

The use of a variety of maps, globes. Graphic representations, and geospatial technologies to help investigate spatial relations, resources, and population density and distribution, and changes in these phenomena over time.

Learners will be able to:

Acquire, organize, and analyze geographic information from data sources, geographic tools and geospatial technologies such as aerial photographs, satellite images, geographic information systems (GIS) to determine patterns;

Evaluate the consequences of human actions in environmental terms.

INDIVIDUAL DEVELOPMENT AND IDENTITY

Learners will be able to:

Discuss the nature of stereotyping, bias, altruism, and conformity in societies, and their implications for personal, group, and national relationships.

INDIVIDUAL, GROUPS, AND INSTITUTIONS

Learners will understand:

How various forms of groups and institutions change over time;

The impact of tensions and examples of cooperation between individuals, groups, and institutions, with their different belief systems;

How the beliefs of dominant groups tend to become norms in a society;

How groups and institutions work to meet individual needs, and can promote the common good and address persistent social issues.

Learners will be able to:

Investigate how groups and institutions work to meet individual needs, promote or fail to promote the common good, and address persistent social issues.

POWER, AUTHORITY, AND GOVERNANCE

Learners will be able to:

Analyze and evaluate conditions, actions, and motivations that contribute to conflict and cooperation among groups and nations.

PRODUCTION, DISTRIBUTION, AND CONSUMPTION

Learners will be able to:

Ask and find answers to questions about the production and distribution of goods and services in the state and nation, and in a global context;

Evaluate the possible economic consequences of proposed government policies.

SCIENCE, TECHNOLOGY, AND SOCIETY

Learners will understand:

Science and technology have had both positive and negative impacts upon individuals, societies, and the environment in the past and present;

NCSS HIGH SCHOOL *Continued*

That the world is media saturated and technologically dependent;

Consequences of science and technology for individuals and societies;

Decisions regarding the uses and consequences of science and technology are often complex because of the need to choose between or reconcile different viewpoints;

Prediction, modeling, and planning are used to focus advances in science and technology for positive ends;

Science, technology, and their consequences are unevenly available across the globe;

Developments in science and technology may help to address global issues.

Learners will be able to:

Use diverse types of media technology to access, analyze, evaluate, create, and distribute messages;

Identify the purposes, points of view, biases, and intended audience of reports and discussions related to issues involving science and technology;

Identify and analyze reactions to science and technology from the past or present and predict ongoing effects in economic geographical, social, political, and cultural areas of life;

Formulate possible solutions that utilize technology, address real-life issues and problems, weigh alternatives, and provide reasons for preferred choices and plans of action.

GLOBAL CONNECTIONS

Learners will understand:

The solutions to global issues may involve individual decisions and actions, but also require national and international approaches (e.g. agreements, negotiations, policies, or laws);

Conflict and cooperation among the peoples of the earth influence the division and control of the earth's surface;

The actions of people, communities, and nations have both short – and long-term effects on the biosphere and its ability to sustain life;

Individuals, organizations, nations, and international entities can work to increase the positive effects of global connections, and address the negative impacts of global issues.

Learners will be able to:

Describe and explain conditions and motivations that contribute to conflict, cooperation, and interdependence among groups, societies, and nations;

Analyze the cause and consequences of persistent, contemporary, and emerging global issues, and evaluate possible solutions;

Analyze the relationships and tensions between national sovereignty and global interests, in matters such as territorial rights, economic development, the use of natural resources, and human rights;

Identify concerns, issues, conflicts, and possible resolutions related to issues involving universal human rights.

NCSS HIGH SCHOOL *Continued*

CIVIC IDEALS AND PRACTICES

Learners will understand:

The theme of civic ideals and practices helps us recognize where gaps between ideals and practices exist, and prepares us to work for social justice;

That seeking multiple perspectives is required in order to effectively grasp the complexity of issues involving civic ideals and practices;

The importance of becoming informed as the basis for thoughtful and positive contributions through civic action.

Learners will be able to:

Ask and find answers to questions about how to become informed and take civic action;

Research primary and secondary sources to make decisions and propose solutions to selected civic issues in the past and present;

Identify assumptions, misconceptions, and biases in sources, evidence, and arguments used in presenting issues and positions;

Develop a position on a public policy issue and defend it with evidence.



INGREDIENTS: VEGETABLE OIL
PALM OIL, PALM KERNEL OIL, CANO
CREAM BUTTERMILK*, SALT, MON
SOY LECITHIN, NATURAL AND ART
POTASSIUM SORBATE, CALCIUM DS