Translating Field Studies on Bears into Science-Based Education

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Overview

Bear Trust International and the Alaska Wildlife Conservation Center (AWCC) are developing and implementing a new science-based education program rooted in field research on bears. This program links directly to field research on bear ecology (e.g., population estimation), behavior (e.g., human-bear conflicts), and conservation (e.g., the effects of climate change).

Science-based lessons include real data, incorporate technology (GIS, GPS, Program Mark), target high school learners, help youth develop conservation awareness through scientific inquiry, address STEM (Science, Technology, Engineering, and Math) US campaign to help students become more competitive in science and math goals, meet National Science Standards, and address goals outlined by the North American Association for Environmental Education (NAAEE).

The entire program will be web-based, project-based, and free on Bear Trust’s Education Portal. In addition, an expanded version of this program will be hosted in the upcoming, state-of-the-art Bears Education Awareness Research Sanctuary (BEARS) at the Alaska Wildlife Conservation Center. BEARS and AWCC are collaborating to build a signature interface system within the BEARS facility that will connect visitors with field studies on bears worldwide and expand the message of bear conservation.

Stakeholders: Science-Based Education

Youth
Youth need high-quality, science-based education that engages them with conservation, helps them become environmentally literate at a global scale, and hones their skills in science, math, critical thinking, problem-solving, ecological modeling, and communications.

Conservation Educators
Agency outreach coordinators, many conservation NGO’s, and zoo need timely, science-based information for sound education outreach.

STEM Educators
US students do not receive the Science and Math education they need. Last year, the US administration called for an increase in STEM education, tasking school districts to find innovative ways to get youth excited about science and math.

Bear Scientists
Many bear scientists seek ways to disseminate and translate their findings into relevant, engaging lessons for youth and education messaging for the public.

As part of its mission, the IBA seeks to “increase public awareness and understanding of bear ecology, conservation, and management by encouraging the translation of technical information into popular literature and other media, and through other education forums.”

Meeting Stakeholder Needs

Bear Trust and Alaska Wildlife Conservation Center are addressing Stakeholder Needs by developing and implementing Science-Based Education Programs rooted in bear research and ecology.

Program Goals:

• Help conserve all eight species of bears worldwide
• Help youth develop conservation awareness through scientific inquiry
• Collaborate with bear scientists, distil published results into relevant, project-based lessons and timely education messaging
• Inspire the next generation of conservation scientists and build scientific skills
• Provide innovative and engaging STEM education based on charismatic bears and rigorous bear research
• Develop and nurture “Dynamic Learning.” See flow chart
• Make science-based programs free to everyone, equal access to high quality conservation education

Who Benefits?

Youth

Conservation Educators

STEM Educators

Bear Scientists

IBA

B.E.A.R.S. Facility

The Alaska Wildlife Conservation Center is currently building the Bears Education Awareness Research Sanctuary (BEARS), which will host an expanded version of the Curriculum Guide to The Bear Book Volume II: Bear Trust and AWCC are designing a signature interface system with direct connections to bear research around the world. Visitors will be able to touch a screen and be transported to places like Peru where bear scientists are studying specialized bears. By touching another screen, visitors will be transported to Hudson Bay where scientists are studying polar bears. In one comprehensive facility, B.E.A.R.S. visitors will be able to immerse themselves in exciting bear research being conducted by top bear scientists worldwide.

Social Networking Tool

Using social media, we’ll provide a networking tool so students in one area can connect with students in other areas. For example, students in Idaho will be able to connect with students in Alaska, Colorado, New Jersey, Peru, India and beyond to discuss differences and similarities in bear conservation around the world.

Measuring Project Success

• Pilot Study: 5,000 students throughout the country
• Statistically valid survey: Delivered twice to pilot study participants, once before and once after the pilot study
• Response data from lessons using web interfaces

An Example: The Bear Book II and Curriculum Guide

The Bear Book Volume II: Narratives about field work with all 8 species of bears written by bear scientists
Curriculum Guide to The Bear Book Volume II: 12 lessons that link to, and build upon, narratives in book

• Includes real data from bear studies highlighted in the narratives
• Targets students in grades 9-12
• Addresses STEM goals and North American Association for Environmental Education (NAAEE) goals
• Meets National Science Standards
• Web-based
• Project-based
• Tutorials for more complex lessons that include wildlife science technology
• Professional development courses for high school teachers
• Free for teachers

Lesson Topics

• Modeling population demography using real capture-recapture data and Program MARK
• Estimating home ranges and habitat selection with a real GPS locations and a GIS
• Carbon footprint and 3 ton challenge using web applications: data from Polar Bear International
• Polar bears and climate change: data and results from the Hubbard Bay Project on predator prey interactions
• Human-bear conflicts: data and results from Colorado Parks and Wildlife study in Durango, CO
• Bear DNA and dispersal: using genetic markers to understand gene flow

Maximizing Impact: Dynamic Learning

From lesson development to implementation, our education program is designed to maximize impact. For example, bear scientists will share stories and data, Bear Trust will collaborate with graduate students for lesson development, high school teachers will be given professional development opportunities and “teach the teacher” workshops, high school teachers will teach lessons in class to high school students, and high school students will teach a lesson to middle school students. To further maximize impact, Bear Trust is collaborating with Alaska Wildlife Conservation Center, who receives 225,000 visitors annually and who will host an expanded version of our program in their upcoming Bears Education Awareness Research Sanctuary facility (B.E.A.R.S.).

We are seeking GRADUATE STUDENTS!

• Help develop lessons using real data
• Earn 1 credit
• Internships Contact Melissa at Bear Trust

About Bear Trust International

Bear Trust is a 501 (c) (3) non-profit, conservation organization founded in 1999 to help conserve wild bears, other wildlife, and habitat by focusing on four core project initiatives: 1) Conservation Education, 2) Wild Bear Research, 3) Wildlife Management, and 4) IBA Conservation. Bear Trust identifies gaps in research knowledge and conservation needs, develops projects to address gaps, and builds partnerships with bear scientists, conservation organizations, and others to optimize resources for the purpose of bear conservation. For more information, visit www.beartrust.org

About Alaska Wildlife Conservation Center

The Alaska Wildlife Conservation Center is a 501 (c) (3) non-profit, wildlife education-based, tax-exempt organization which contributes to conservation through education and outreach. The center is a leadership-based initiative: The Center’s sanctuary, set on 220 acres, provides habitats and support for scientists to work with live wildlife, and other conservation ambassadors special for the purpose of education and education of all ages. The Alaska Wildlife Conservation Center’s lead capital improvement campaign features B.E.A.R.S. (Bear Education Awareness Research Sanctuary), a new exhibit intended to foster interest in polar, brown, and black bears and conservation of the other four species of bears. Contact: Steve Mendive, steve@alaskawildlife.org, www.alaskawildlife.org

1
2