Interim Progress Report (FY2020; May – June 2020)

NM Wildlife Data Jam: K-8 Students Collecting, Analyzing, and Communicating Data

Project Objective
The goal of the New Mexico Wildlife Data Jam Project is to increase K-8th grade students’ knowledge of New Mexico wildlife and students’ ability to collect, analyze, and communicate scientific data. This one-year project (May 2020 – May 2021) will allow the Asombro Institute to reach more than 700 students by incorporating activities about New Mexico wildlife to expand two successful programs: (1) hands-on, data-rich field trips for K-5th graders to Asombro’s Chihuahuan Desert Nature Park and (2) the Desert Data Jam, which challenges middle school students to examine and analyze real datasets and then develop creative projects (e.g., songs, videos, physical models) to communicate trends in the data to nonscientist audiences.

Progress from May – June 2020
The Asombro Institute for Science Education elementary education team made considerable progress on the development of a field trip module for upper elementary students. Based on the science, language arts, and math standards we wanted to cover (see below), we narrowed the focus of this module to 4th and 5th grades. The “Conservation Research” field trip module focuses on the black-tailed prairie dog (Cynomys ludovicianus), which is listed as a Species of Greatest Conservation Need in the 2016 State Wildlife Action Plan for New Mexico because it is declining, vulnerable, and a keystone species in the Chihuahuan Desert Ecoregion.

Throughout the field trip, students participate in hands-on activity stations that help them gain knowledge about the black-tailed prairie dog and the Chihuahuan Desert Ecoregion. This culminates in conservation action planning for the species at the end of the field trip. Stations include:

- **Station 1: Ecosystem Jenga** - Students will use a Jenga-style, block removal game to model interactions between biotic and abiotic ecosystem components and the stability of an ecosystem. They will draw cards representing various environmental changes and remove the designated blocks in our specially designed, large Jenga model.

- **Station 2: Criollo Cattle** – Prairie dogs are often found on rangelands in the Chihuahuan Desert Ecoregion. This field trip station allows students to gain a firsthand account of a large research project being conducted by scientists at the Jornada Experimental Range and New Mexico State University. Scientists are comparing a desert-adapted biotype of cattle (Raramuri Criollo) and a traditional British type (Angus). The ultimate goal is to enhance ranch and rangeland resilience in the southwest. Students will learn how researchers are using science to try to meet human needs while simultaneously protecting the Chihuahuan Desert.

- **Station 3: Habitat Suitability Survey** - This field trip station will introduce students to some of the methods that conservation scientists use to determine if a particular habitat is suitable for the black-tailed prairie dog, a Species of Greatest Conservation Need (SGCN) in New Mexico. In small sample plots that model the larger habitat, student groups will collect data on plant cover, presence of tall plants, soil texture, temperature, humidity, and wind speed.
Station 4: Increasing Habitat Quality: Action Planning for Black-tailed Prairie Dogs -
Asombro scientists will lead students through a review of the data they collected in the Habitat Suitability Survey station to determine if the sample area meets the foraging, protection, and shelter needs of black-tailed prairie dogs for reintroduction. Working in small groups, students will be given a habitat quality problem to address, devise a possible action plan, and implement a portion of their hypothetical plan in the field. For example, students may identify locations for artificial burrows, work to restore native plants, or create a public awareness campaign to support black-tailed prairie dog reintroduction.

Education Standards Addressed
The field trip module has been carefully designed to address multiple education standards in science, English Language Arts (ELA), and math for 4th and 5th grades. These include:

Next Generation Science Standards
5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

Common Core State Standards
ELA-LITERACY.W.4.2 and W.5.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
ELA-LITERACY.SL.4.1 AND SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
ELA-LITERACY.L.4.4 and L.5.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 (or grade 5) reading and content, choosing flexibly from a range of strategies.
MATH.CONTENT.4.NBT.A.3. Use place value understanding to round multi-digit whole numbers to any place.
MATH.CONTENT.5.NBT.A.4. Use place value understanding to round decimals to any place.

Next Steps
1. Work is currently underway on the pre-field trip and post-field trip activities associated with the 4th and 5th grade field trip module. As soon as these are complete, the whole module will undergo several rounds of edits and revisions by Asombro staff.
2. Next, we will submit the full module to the Share with Wildlife Coordinator for review by the Agency’s Conservation Education Coordinator, as specified in our Scope of Work. We will complete this step by the end of July 2020.
3. Asombro educators will develop a field trip module for kindergarten and 1st grade students using the same process we followed for the 4th and 5th grade field trip. Planning for this module is already well underway.
4. Following approval and a lifting of social distancing guidelines, we will pilot test the new field trip modules with one school per grade band. We will collect feedback from teachers and students and use this information to modify and re-test the modules, as needed, to maximize student engagement and learning.
5. In fall 2020, our secondary education team will compile a dataset for use by middle school students in the Desert Data Jam. This dataset will consist of data from the State Wildlife Action Plan for New Mexico.
6. All lessons will be delivered by Asombro educators to students throughout the 2020 / 2021 school year.
7. Evaluation data will be compiled, and the Asombro Institute for Science Education will submit a final report to the Share with Wildlife Coordinator in late April 2021.

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