Investigation of Ambassador Wolves' Meat Diet Proposal

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Abstract

Endangered species are species that play a crucial part in the world and should therefore be preserved from extinction. Certain endangered species include the arctic wolf, being endangered by definition according to *nationalgeographic.org* defines that they are "threatened by extinction."There are several factors that lead a species to become endangered for instance the main factors are loss of habitat, habitat fragmentation, which could be the effect of human activities, loss of genetic variation and some other possible reasons vary from over-hunting, pollution, or low birth and high death rates. In an effort to support the NY Wolf Conservation Center's mission and the well-being of the ambassador wolves, we employed DNA barcoding to identify the species of the meats in the wolves diet. We were unable to identify three of the meat samples, but did determine that they require improved storage as they were contaminated with an unhealthy level of bacteria.The poultry meat was deemed un-harmful for the wolves, and suggestions were generated for the introduction of a bird meat species natural to Atka's intended natural environment.

Introduction

We are to investigate if the meat donated to the Wolf Conservation Center is actually legal in the USA. The DEC is responsible for providing the meat that is used to feed the animals at the Wolf Conservation Center and we wish to find out if they are actually being fed to their needs, and since it is possible that meat is not tested before being fed to the wolves, this project is beneficial to the wolves and to their health. We hypothesize that most of the meat being fed to the wolves will not be exactly as the organization claims to be and that some meat may come from endangered species. We have formed this assumption based on the numerous incidents where endangered and illegal species are being fed to several animals at other conservation centers, the number of endangered species in New York is vast that it is illegal to kill and feed those animals to animals at conservation centers. Not to suggest that the Wolf Conservation Center is doing so, but it is always good to know what an endangered species is being fed, if the food is helping them in any way, and if there's something that can be fed to the animals instead as an alternative. If these endangered species are not well taken care of and preserved in the best possible way, they could go extinct, and as that is exactly what we're trying to avoid, we think this project will be highly helpful and beneficial for those causes.

Materials & Methods

- Samples were donated by the WCC team
- DNA was extracted and purified from the samples.
- Polymerase Chain Reaction to amplify the DNA
- Confirm the presence of DNA through gel electrophoresis and send positive samples to lab for sequencing.
- Analyze sequence data using DNA Subway

Distilled water, lysis solution, silica resin, specimen tissue samples, scalpel, wash buffer, ice, transport icebox, microcentrifuge, tube rack, microcentrifuge tubes, micropipettes and tips, permanent markers, plastic pestles, vortexer, water bath, thermometer, thermal cycler, PCR beads, primers, load dye, PCR tubes, latex gloves, masking tape, camera, UV transilluminator, eGels and powerbox kit, and computer with internet access.

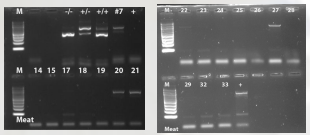
Results

In our first trial, 3 of the meat samples came out positive, as well did the control meat sample. The meats were identified as cattle and red jungle fowl.

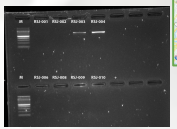
Meats Positive

RSJ-003
RSJ-006
RSJ-007
RSJ-004
RSJ-013

TRIAL 1

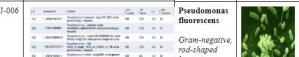
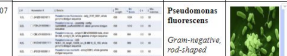
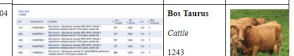


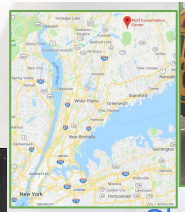
TRIAL 2



Tables & Figures

Qualitative Data

Sample Description	Sample Image	UBP Sample Code	DNA Subway Blast Matches	Closest Match Species and Bit Score	Image of Closest Math
Meat Sample 3a		RSJ-003		**Pseudomonas sp. ABAC61** *Anaerobic regulatory protein Arr* 926	
Meat Sample 3b		RSJ-006		**Pseudomonas fluorescens** *Gram-negative, rod-shaped bacterium* 1061	
Meat Sample 4a		RSJ-007		**Pseudomonas fluorescens** *Gram-negative, rod-shaped bacterium* 1034	
Meat Sample 4b		RSJ-004		**Bos Taurus** *Cattle* 1243	
Meat Sample 7a		RSJ-013		**Gallus gallus** *Red jungle fowl* 1263	



Discussion

As a result, it was found the kind of food that was given to wolves, the plants and poultry were determined to be beneficial for the ambassador wolves' diet. ...Recommendations to introduce a non-endangered arctic nesting bird (ie. sandpiper, Canada goose) and Deschampsia antarctica (Antarctic hair grass) into Atka's diet and habitat were made to WCC staff in order to align his dietary options more to his intended natural environment, and therefore benefit his health and well-being. The red meat the wolves are being fed require improved storage as the evidence of the presence of bacteria demonstrates. This suggestion will be shared with WCC staff in hopes that they will also share this information with the organizations donating the meat (Whole Foods, DEC, Westchester County agencies, etc.), so that more planets and meat as sampled will be given to wolves to increase their production. Eventually saving the ambassador wolves from extinction. Even though the results came out as expected, many things could have gone wrong. During the DNA testing, a step in the procedure could have been skipped which could have affected the results, leading to no information being found. Therefore multiple trails had to be made just in case the first try of the DNA testing didn't work. In the future,time management is something that will be crucial to control, in order to have results and no error. If the testing is done in a hurry the chances of error rises, which was attempted to be avoided.

References

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