What’s New Field Research Journal

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Date of observation: 4/3/12

Time: 9:15 am- 11:09am

Location: Brecon Beacons National Park, Wales, UK

Temperature: 45ᵒF/7.5ᵒC

Notes:

A new species was observed during the field observation trip on Tuesday, 4/3/12, in the Brecon Beacons National Park in Wales, UK. The new species will be called caniduck until further research gives it a proper name in the binomial nomenclature system.

Observations about physical traits:

The adult animal was about 2.5 feet long and covered in fur. The animal had four offspring with it. They looked identical to what was assumed to be the mother, except for their size. The young were about 6-8 inches in length. The fur on all the animals was mottled dark and light brown. The adult had a tail that was about 1-1.5 feet in length. The young had tails that were about 3 inches in length. They were observed floating in the river Usk in an area of steady current. Upon closer observation, they were noted to have paws like that of a dog, except more flexible and webbing was present between the digits. They seemed to use little energy staying afloat. Their oily coat repelled water. When they stepped onto the riverbank, they shook off and appeared nearly dry instantly. Their fur was thick, but medium in length. It looked to be about 2-3 inches in length. Their tails appeared to be similar to a beaver, flattened and covered in thick skin or armor. However, the tails on these creatures were vertical and slightly narrower than that of a beaver. They had wide, short ears positioned at the top of their head. As they floated in the water, their bodies were submersed about half-way, with their necks and heads above water. Their tails swished near the surface of the water and seemed to keep the animals in relatively the same location despite the current. The heads of the animals resembled a dog or fox, with long snouts and sharp teeth. The nostrils on the snout were able to be sealed by collapsing the nostrils when the animal ducked its head into the water.

In the climate of Wales, an animal of this size would likely have no trouble finding enough food to eat in the temperate weather. The adult was about 2.5 feet long. By looking at its teeth and shape of its head, it appeared to be carnivorous. It was also observed eating small fish. This size would allow it to survive on a carnivorous diet without depleting the food sources in the area. Larger caniducks may have had trouble finding food, so they were not able to reproduce. Therefore, the smaller size would have been selected for. A smaller size would have an easier time surviving on smaller portions. However, a smaller caniduck may not be able to navigate the river or track and catch its aquatic prey as easily. The bulk of this animal would allow it to keep warm in the cool water and climate, as well as use its size and strength to catch and feed on the agile fish.

Their light and dark brown fur was hard to spot on the murky river. When they climbed on to shore, they was difficult to pick out against the mud and leaf-litter. This coloration looks to be a perfect adaptation to its environment. It helps camouflage them on land. This would allow them to elude potential predators more easily. A darker or lighter coloration would be more easily spotted and therefore, more easily caught by predators. This mottled mix of colors has allowed caniducks to survive in this riverside habitat.

The fur of the caniduck was thick and coated in oil. Even the young had oily, thick coats. The oil appeared to make it quite waterproof. This thick, oily fur would be necessary for survival in this temperate, maritime climate where rain is common. Caniducks that lack the oily coat would likely be less buoyant and would be less insulated. These animals would not survive, leading to the selection of the thick oily trait in this species.

The paddle-like tail of the caniduck was another unique trait. The animals used them to propel itself against the gentle current so that it stayed in one place on the river. These were thick, vertically –shaped paddles. This trait may have been selected for because animals with this trait were able to navigate the river more easily than animals with thinner tails. Being able to navigate the river more easily would allow those individuals to find food more easily. This would allow them greater chances at survival and reproduction. In this way, the vertical paddle-tail would be selected for in the caniduck species.

The feet of these animals at first appeared to be similar to a domestic dog, but on closer observation they were noted to have longer, more flexible digits. Also, when the digits were extended, webbing was visible between them. The webbing would allow them to move through the water habitat more easily. In the same way as the paddle-tail, the webbed feet were likely selected for due to the increased food availability to animals with this trait. The feet also appeared to have some fur and visible claws. The fur would aid the caniduck in keeping its limbs warm. Without this fur, caniducks would have poorer circulation and poorer use of its limbs. Being able to use its limbs efficiently would aid the caniduck in survival by helping it seek food, shelter, and safety. In this way, the fur on its feet were likely a trait that was selected over time. The claws on their feet also likely aid the caniduck in survival. In water, the webbing was helpful for locomotion, but once on land, the claws helped the caniducks climb over the muddy and leaf-littered riverbank. Without claws, or with very small claws, the caniducks would have difficulty maneuvering in their terrestrial habitat. If they could not get around on land, they would not survive long because it could not get to food or safety. The terrestrial habitat of the caniduck has allowed selection of its claws.

The snout of the caniduck looked much like that of a fox or domestic dog. One difference was that its nostrils could collapse and seal closed when it submerged its head. This ability likely evolved over time because caniducks without this trait would not survive as easily in the aquatic environment if it kept getting water up its nose and into its airways. Being able to seal off its airways would allow for increased rates of survival and would result in the selection of this trait in the population of caniducks.

Observations about behavior:

During the observation period of almost two hours, the caniducks were seen floating on the river. The adult dipped its head into the water several times and occasionally brought up a fish. If the fish was relatively small, the caniduck swallowed it whole. If it was larger, the caniduck carried it by mouth to the riverbank. There it used its claws to hold the fish and its teeth to tear it into manageable sized pieces. The young seemed to play with the fish, but only occasionally swallowed any. When the adult finished eating, they returned to the river, with the adult leading the way.

Floating on the river uses less energy than swimming or tracking prey. This behavior may have been selected for because animals that could float could be more efficient with their energy use and save energy for times when food is scarce. Caniducks who floated, rather than constantly swimming or walking, likely conserved energy and survived through the periods of scarce food. This would result in the selection of a floating behavior used to acquire food.

Another behavior observed by the caniduck was coming out of the water onto the riverbank. The animal was observed to do this when it caught large prey. If the caniduck tried to eat the large fish while floating on the river, it would likely lose most of all of the fish as it tried to manipulate and break it into smaller pieces. Caniducks who instinctively took large prey to land would be able to eat their catch more easily. This would allow them to gain energy more efficiently. This would result in higher survival rate among caniducks with this behavior. Over time, it would also result in the natural selection of this trait in this species.

The young caniducks seemed to play throughout the nearly two hours of observation. They bit at each other’s ears and tails in the water. On land, they pawed at each other and tackled one another. This behavior seems typical of young of many species. By playing, the young may be learning skills that will be useful to them as adults, such as hunting or prey capturing skills. Caniducks who play when they are young are likely more skilled as adults and more efficient at finding food. This higher efficiency would result in higher survival rates among caniducks who play. This would result in this play behavior being selected for over generations.

Observations about habitat:

The caniducks were observed in and near the Usk River in the Brecon Beacons National Park in Wales, UK. This region has a maritime climate with mild temperatures. The average temperature is about 50ᵒF/10ᵒC. Rain is common; this area receives on average about 3 meters of rain each year. October through January are the wetter months, with sunshine more common in February through September. The wet weather of the area makes the oily coat of the caniduck valuable and necessary. Without it, the candiduck would either have to stay sheltered and postpone feeding during the rain, or it would get wet and be more susceptible to the cool temperatures.

The caniducks were on the Usk River when they were spotted. The river is murky, but supports fish and other aquatic life. The river banks were wide and muddy, with leaf-litter and grasses covering the outer parts of the banks. Beyond the river, green grass covered the land and trees were abundant. Dense shrubs lined the forested areas, grew among the trees, and formed barriers between the fields.

More observations will be collected at a later date in order to learn more about this new species.

Resources:

Crown. (2011). Met office: climate. Retrieved from <http://www.metoffice.gov.uk/climate/uk/wl/print.html>