



# Videographic Study on Brown Kiwi (*Apteryx mantelli*) Juvenile Behavior in Captivity

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Smithsonian  
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## Introduction

The kiwi, indigenous to New Zealand, is a small flightless bird that is unique in the bird world. Kiwi have a strong sense of smell, solid bones, a hair-like covering, and vestigial wings, which grants them the title of "honorary mammal" (Peat 2006). The Brown Kiwi (*Apteryx mantelli*) is the only kiwi that can be seen outside of New Zealand (Brader 2012). To date, there have been no published records of kiwi behavior outside of New Zealand or a budget of kiwi behavior in captivity.

This poster will focus on the videographic analysis of kiwi behavior in captivity at the National Zoological Park of The Smithsonian Institution (the National Zoo).

In 2010, two female kiwi chicks were born to Nessus and Maori at The National Zoo, named Hiri (b. March 30, 2010), and Areta (b. June 15, 2010). Areta died on February 14, 2011 due to a coccidia infection. Hiri and Areta looked almost identical and the only apparent difference in appearance was that Hiri was slightly larger.

## Methods

Hiri and Areta were placed in the same enclosure after several months. Videographic recording spanned for 39 days (January 6, 2011 – February 13, 2011) of conjoint living. 12 days spread out over this 39 day period were available for analysis after technical/camera issues and/or resource constraints.

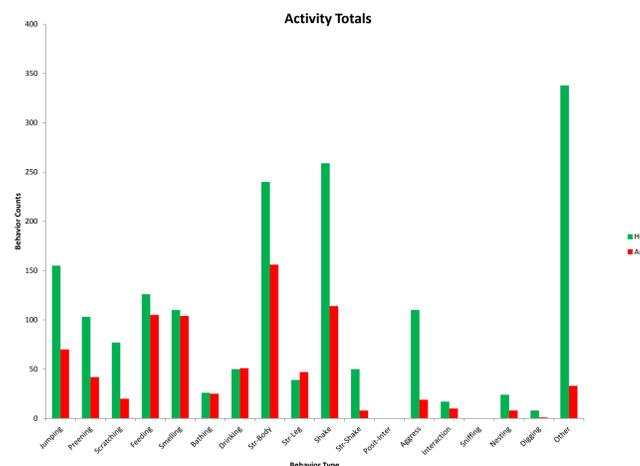
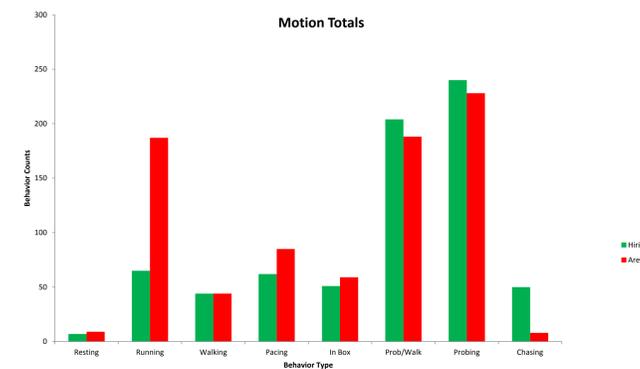


In this study there were 26 kiwi behaviors observed as follows:

**Motion Behaviors:** Resting, running, walking, probing/walking, probing, chasing, pacing, and in-box.

**Activity Behaviors:** Jumping, preening, scratching, feeding, smelling, bathing, drinking, stretching-body, stretching-leg, shaking, stretching/shaking, positive interaction, aggression, interaction, sniffing, nesting, digging, and other.

## Graphs



## Results

### Frequency of Behavior

For the most part, the juveniles' feeding, drinking, bathing, probing, probing/walking, walking, in-box, resting, stretching-leg, pacing, interaction, and smelling behaviors were almost identical (12 of 26).

Hiri participated in stretching-body, jumping, preening, shaking, scratching, stretching/shaking, aggression, chasing, digging, nesting, and other more frequently than Areta (11 of 26). Positive interaction and sniffing were never recorded (2 of 26). Areta participated in running more often than Hiri (1 of 26). Hiri frequently climbed on her box and occasionally rolled in the dirt, while Areta rarely participated in either activity.

### Different Behaviors during Different Time Periods

There were some notable behaviors that were seen during different time periods. For instance, pacing increased after 1800 -- usually when Hiri emerged from her box. Climbing was strikingly higher between 1800 and 2100 and was so rapid at times that it was impossible to record precisely. Hiri's aggressive behavior and chasing behavior also increased when she first emerged from her box at 1800, and Areta's running behavior also increased at 1800.



## Discussion

### Behavior between the Two Juveniles

The sisters were rarely tolerant towards each other and were never friendly. Many times, Hiri was aggressive when she wanted food, water, or her specific house, but she was also aggressive for no apparent reason. Hiri and Areta performed nonaggressive interactions by either staring at each other, coming in close contact without bothering each other, or smelling each other.

### Territoriality

Hiri and Areta tended to have their own specific territories that they marked somewhat through probing, probe/walking, smelling, pacing, and feces. The pacing gave a clearer picture on what territory they claimed. In addition, Hiri clearly marked her territory by smelling and fecal locations, while Areta did not perform these behaviors as often. Hiri also chose her house to deposit her feces while Areta did not choose a central location.

Areta tended to choose a larger territory than Hiri, which was odd due to Areta's smaller size compared to Hiri. These birds tended to keep their same territory when they were in the enclosure together. After Areta's death, Hiri used the entire enclosure as her territory.

### Future Enrichment and Setup Ideas:

- 3D Objects
- Hollow logs
- Stepping stairs
- A platform to climb on
- More bushes to probe

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