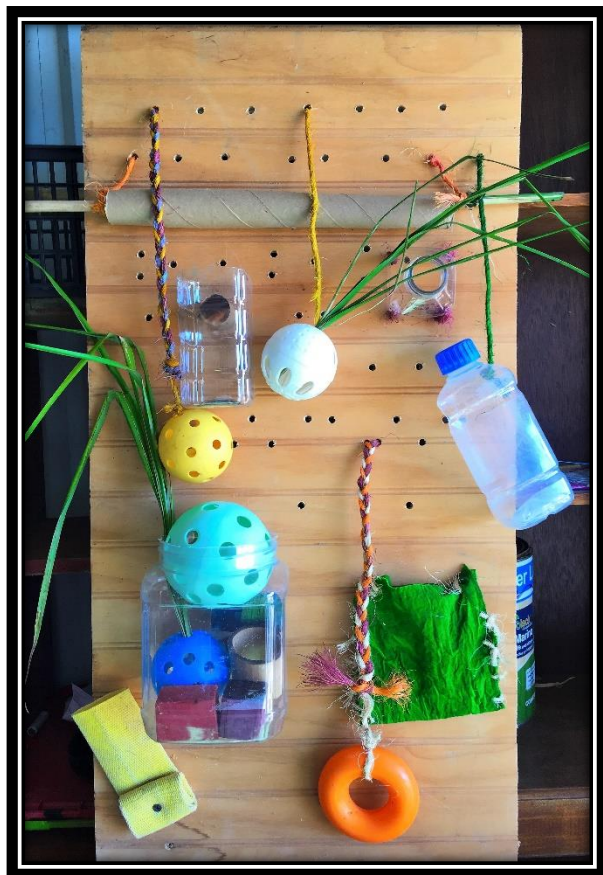




INTERACTIVE BOARD

With permission, adapted from information of
Stephanie Vargas Eaton and José Antonio Romero Meza
Animal and Environmental Enrichment Department Coordinators
Zoológico Parque del Niño Jersey, Ensenada, Baja California, México



Main goal

Offer novel sensory experiences, objects that are easily manipulated, complex food containers, to provide the animals with pentadactyl characteristics, like small primates and procyonids, with choices and opportunities to exercise their cognitive abilities and to spend more time performing natural foraging behaviors, while they discover and recognize different scents, shapes, and colors.

Target species

Squirrel monkey (*Saimiri sciureus*), cotton eared marmoset (*Callithrix jacchus*), black-tufted marmoset (*Callithrix penicillata*), capuchin monkey (*Cebus apella*) and ring tailed lemur (*Lemur catta*), raccoon (*Procyon lotor*).

Materials

Materials vary depending on species, individuals, availability, and approved use. The items used in the enrichment pictures in this document are listed below. The food range described refers to the quantity that was used among the animals, depending the species, weight and age of each individual.

Material List

16" pieces of fire hose
6 x 6" piece of cloth
Airflow plastic balls
Cardboard tube or cardboard oats container
Corn leaves
Different bird feathers
Perforated hardboard or a drilled wood board
Bottle Caps
Pinecone
Wood screws

Different sizes of small plastic containers
Egg carton
Natural sisal ropes dyed with food coloring
Old boot without shoelaces
One cleaning brush
Paper bags
Pieces of wood dyed with food coloring
Tetra pack container
Transparent and rigid plastic bottles



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Food and natural scents

10 g of natural whole grain oatmeal	5-10 g of honey bee
5 g of dried peppermint leaves	5-10 g peanut butter
5 g sugar cane	5-10 g of grated coconut
4-8 mealworms	1-3 ml mint scent
5-10 g of strawberry jam	1-3 ml vanilla scent

Safety Considerations

- f Evaluate the destructive ability of each species and the individuals that will have access to the item.
- f Don't use compact, varnished, or other wood that can be easily bitten and torn apart by the animals
- f Polish the wood board for eliminate splinters
- f The holes of the wood board must have the proper diameter for avoid stuck fingers or other entrapment
- f Only use natural sisal ropes
- f Only use food coloring colors
- f Airflow plastics balls must be made of rigid plastic, non-toxic
- f Screws used must be the proper size so as not to go through the wood board and stick out the other side
- f Braid the ropes for avoiding possible entanglement
- f Offer the enrichment item only under supervision
- f Try to set as many different stimuli as it is possible, not repeating in the same enrichment
- f Install sisal ropes, firehose envelopes, bottles, paper bags, etc. as safely as possible, allowing the (often very clever) animals to handle it but not remove or destroy it.
- f This kind of enrichment was supervised all time while it was used by the animals. Supervising the enrichment is important because it is possible that at any time an animal could be entangled. No animal was injured during the implementation of this interactive board.

Instructions for Construction, Use, and Observation

1. In your wood board select the different kinds of stimuli that are you going to offer depending the individual.
2. When you use screws to attach any item, make sure that the screws do not pierce the wood board leaving a sharp screw end exposed. In some cases, you may need to flex fire hose or adjust other materials to have more surface for the screws.
3. Tie the ropes correctly allowing mobility and handle, Braided ropes may decrease the possibility of entanglement.
4. You can use short sisal fibers or make a brush.
5. You can make an “envelope” flexing and screwing one end of the fire hose on the board; use the piece of cloth to make a little bag or envelope tying it on the board with sisal rope; tie the paper bag, the tetra pack, the pinecone, etc. Be creative; choose and set different objects and containers listed above, so that the animal can easily handle and reach them, in an appropriate level of complexity for the individual animals.

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6. After all the materials are set, select and distribute some of the food and scents available. This is generally only for enrichment and not part of their daily diet.
7. Evaluate during all the behaviors and recognize what the animals prefer or dislike, and if some of the materials are too easy or complicated depending the species and individuals.
8. Change the design, items, complexity, etc. in accordance with your observations and goals.

Results

During the 20-minute period of supervision and observation of each specie, the animals were distracted and there was no stressful behavior. The different heights used in this kind of enrichment and its attractiveness promote that the animal stood up on its hind legs, an olfactory behavior, foraging, playing, exploration; resulting to be an effective occupational therapy. More detailed information for each specie observation is below.

Squirrel monkey (*Saimiri sciureus*)

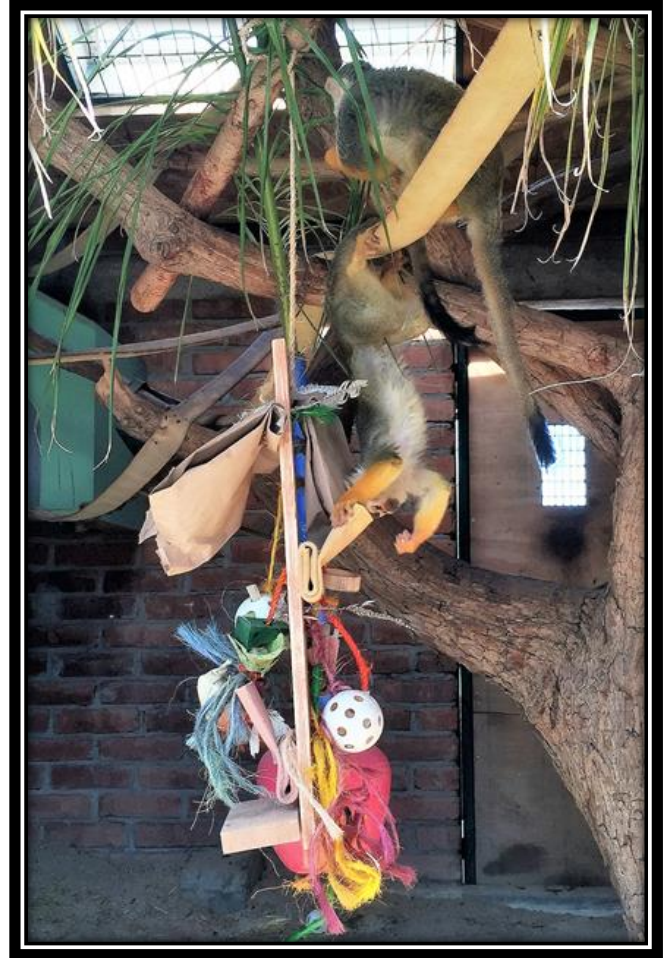
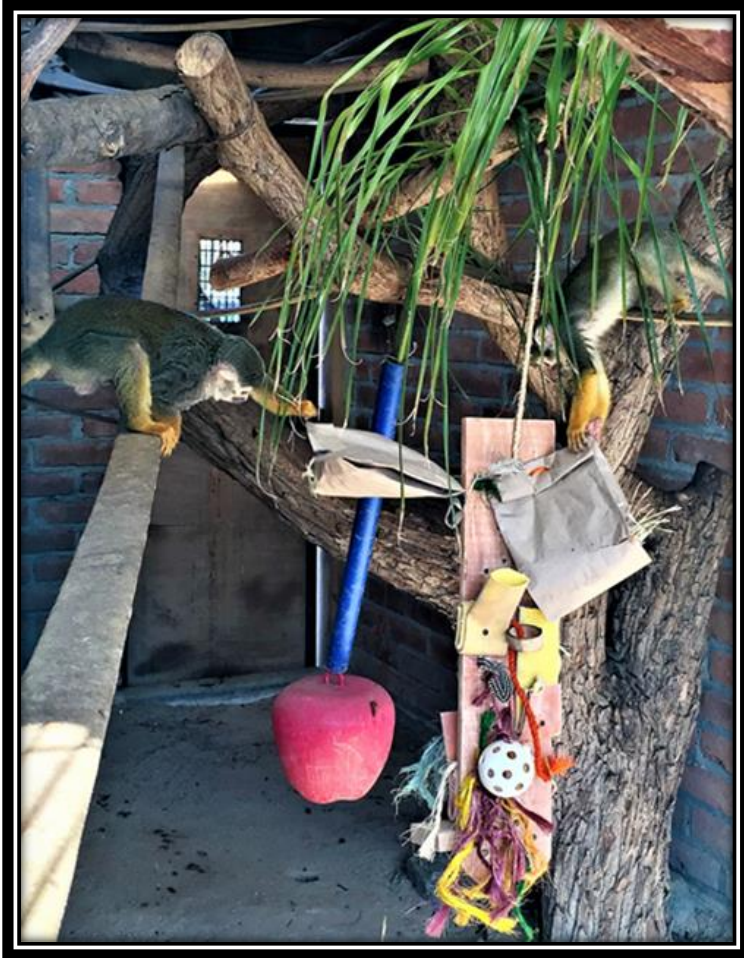
This board contained objects on both surfaces, which was ideal for the pair of monkeys, because in this way both had the same opportunity to interact with the board. The use of paper bags promoted that the monkeys would find a way to open it, because they could smell the oats inside the bags but could not see it.

In the case of the board that has a brush, the monkeys did not use it for rubbing but they were manipulating the bristles.



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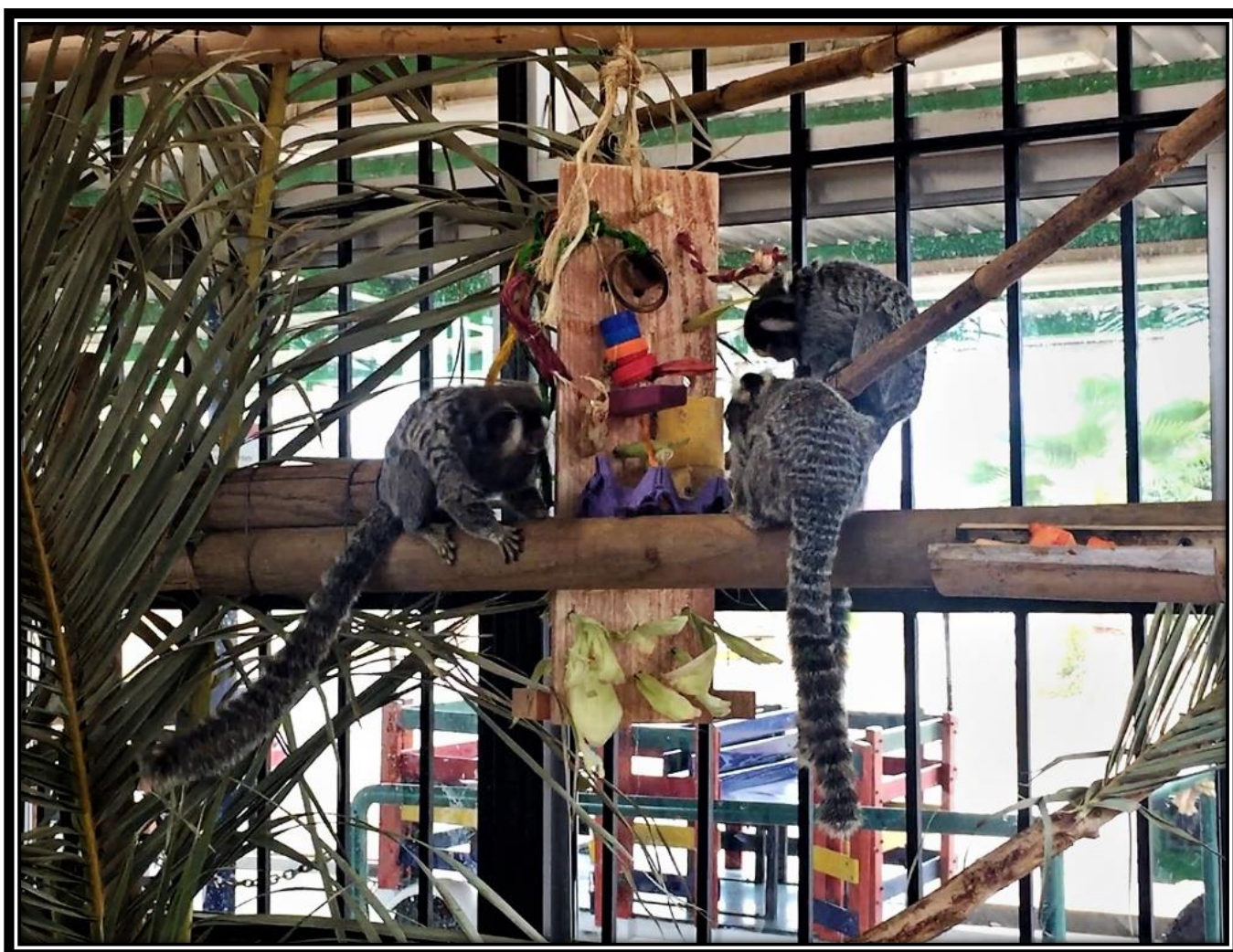


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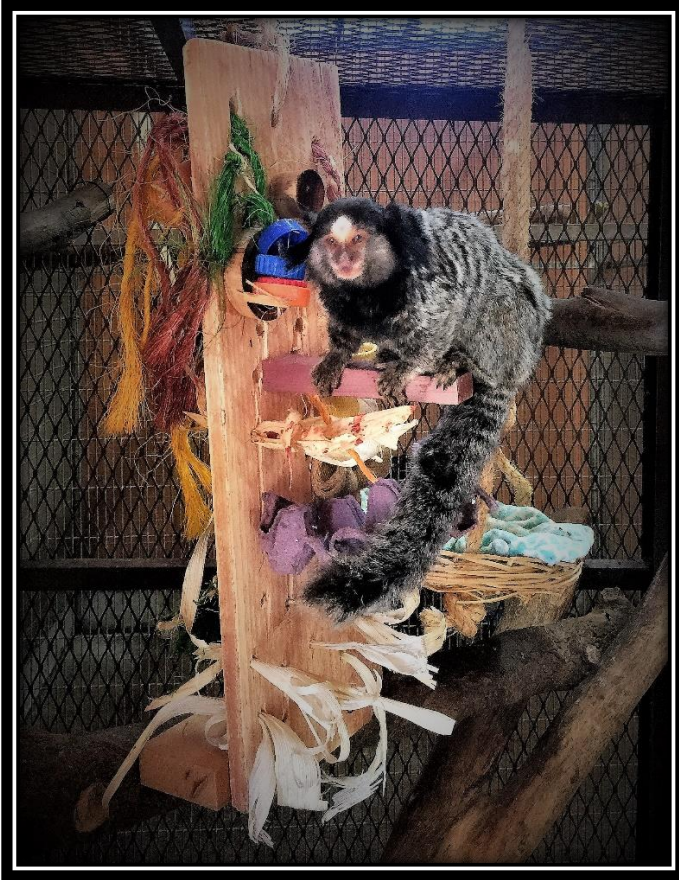
Cotton eared marmoset (*Callithrix jacchus*) and black-tufted marmoset (*Callithrix penicillata*)

They were quite curious. The attached wooden hanger turned out to be useful so these could reach the rest of the objects. They also pulled the corn leaves embedded in the board in order to recognize the item. The stacked caps, hung with sisal rope represented a challenge to reach the strawberry jam, a favorite flavor for these marmosets. The egg carton and the cloth envelope were good mealworm containers.



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Capuchin monkey (*Cebus apella*)

A container was used on this board, for its striking color and resistance. The cloth envelope was difficult to open, so it should be considered to leave a larger opening, and not adjust it so much with rope on the board. The scent of vanilla promoted interest in brush bristles, with which the capuchin monkey rubbed his hands. The pinecone was a useful challenge to reach the jam and oatmeal inside this one. The boot was interesting for its novel shape and texture for the animal. It also represented a funny curiosity for the spectator visitors.



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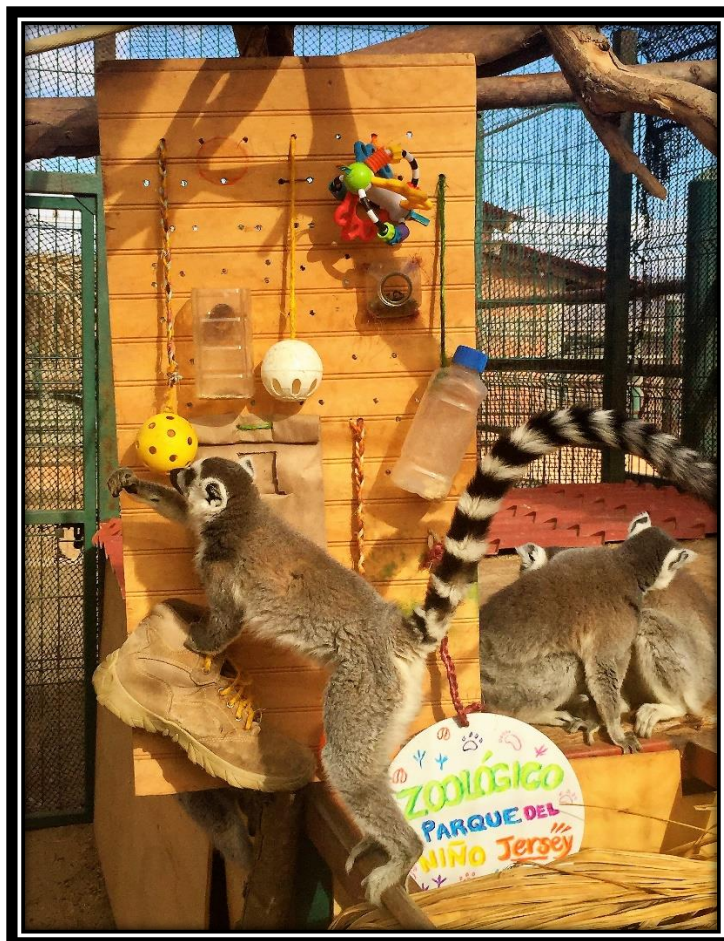
Ring tailed lemur (*Lemur catta*)

The juveniles were the most interested, however the adults were also interacting with the containers. Play with different heights of objects on the board promoted the lemurs to climb, jump and stood up on its hind legs. The manipulation of moving objects such as hanging balls, and brush like sisal ropes, was frequently observed.



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Raccoon (*Procyon lotor*):

The raccoon was interested in getting feathers, colored wood pieces, balls, and pulling the ones that hung on the board. The raccoon was highly skillful for manage the different, however, we observed that perhaps there were too many stimuli, because the multiple distractions delayed the solving of the challenges.

