

Porcupine Husbandry Survey *Sphiggurus mexicanus*

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Are your porcupines housed primarily indoors?

Response

no
Yes
Yes
no, primarily outdoors in an off-exhibit area (education animal)

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What are the dimensions of your indoor exhibit?

Response

In temporary housing at moment - pre-fab cages 8' long by 4' wide by 6' tall
app. 8' X 31' X 5.5' Please see attached exhibit diagram.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

Is there shifting capability?

Response

Currently, nothing. We place litter boxes on the floor. Previously-mulch
Generally, no substrate to prevent anything from being pulled into the aquarium filter.
Shortly following births of tamarins, we will add straw to the floor to soften the falls if they fall or are dropped.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

What cage furniture do you use?

Response

Tree limbs for props. Nestboxes.
The exhibit is furnished with a 24" X 12" X 12" nest box for cotton-top tamarins. It is also furnished with numerous hanging grapevines as well as 4 trees with forks for the porcupine and the two-toed sloth to sit on.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

What type of heating and ventilation system do you use?

Response

Central AC and Heat in building
4 forced air ducts push heated air into the exhibit. The door to the exhibit is covered with a 0.5" X 0.5" mesh that lets the exhibit air flow out an exhaust fan located below the exhibit.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

What is the average temperature range of your indoor exhibit?

Response

74
Aquarium water temperature averages 80-82 degrees Fahrenheit, and the air temperature in the exhibit usually averages 84-86 degrees Fahrenheit.

Question:

Is the exhibit on a light cycle?

Institution

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo
 Palm Beach Zoo

Response

no
 yes
 Not exactly.

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo

If so, what is the day/night cycle?**Response**

37967
 The exhibit is not on a specific natural light cycle. However, the lights in the exhibit are on for 1-2 hours longer each night during the summer, since the zoo is opened later at this time.
 natural light

Palm Beach Zoo

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo

Do your porcupines have an outdoor exhibit?**Response**

yes
 no
 Not presently, but we are attempting to create an outdoor area for her for the summer time.
 yes

Palm Beach Zoo

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo
 Palm Beach Zoo

Do you have temperature restrictions for them to be outside?**Response**

yes
 NA
 Not yet
 yes

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo

If so, what are your temperature guidelines?**Response**

access to indoor space below 60 degrees F
 NA
 Our temperature restriction will probably be a minimum temperature of 75 degrees.

Palm Beach Zoo

anything below 45 degrees F and she is brought indoors (usually in a crate overnight); she is given a heat lamp for temps between 45-55 F; on extremely hot days she is given frozen water bottles

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo

Do you have an indoor holding area?**Response**

yes
 NA
 If the porcupine would go out during the day, she would come in to her current exhibit in the evening and during non-summer months.

Palm Beach Zoo

Question:**Institution**

Cameron Park Zoo, Waco
 Houston Zoo
 Oglebay's Good Zoo
 Palm Beach Zoo

What is the dimension of your indoor holding space?**Response**

6' x 6' x 7'high
 NA
 Same as indoor exhibit listed above.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Describe your indoor holding space (construction, layout, etc)

Response

a concrete floored, cinderblock walled structure with two doors, one to the exhibit, the other to the service area for the aviary
NA
Same as indoor exhibit listed above.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What type of heating and ventilation does your holding area have?

Response

the door is left slightly ajar at all times to allow
NA
Same as indoor exhibit listed above.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What are the dimensions of your outdoor exhibit?

Response

roughly 12' high x 14' x 14'
NA
Not sure yet.
10' x 10' x 10'

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Please describe your outdoor exhibit.

Response

dirt with a variety of ornamental desert plants, as well as ambient grass/weeds; this is meant to represent the "South West". It is essentially a telephone-pole framed outdoor aviary built onto the side of the reptile house with windows allowing a view
NA
Outdoor exhibit would consist of 1-2 trees with ground space beneath them marked off from the public.
the floor is an under-wire dirt floor covered with mulch; there are numerous climbing structures in the exhibit including logs and tree limbs; she has a hollow log she uses as a den box

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Are your porcupines part of a mixed species exhibit?

Response

yes
Previously
Yes
no

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If so, what species are they mixed with?

Response

2 Black Vultures, 1 Turkey Vulture, 1 Roadrunner
we have housed them with squirrel monkeys, sloths, prevost squirrels, and acouchis
5.1 Cotton-top Tamarins, 1.0 Two-toed Sloth, 0.0.3 Pacu, 0.0.1 Oscar, 1.0 Red-cheeked Mud Turtle, 1.0 Ocellated Freshwater Stingray

Question:

Institution

Cameron Park Zoo, Waco

Cameron Park Zoo, Waco
Houston Zoo

Oglebay's Good Zoo

Oglebay's Good Zoo

Oglebay's Good Zoo

Mixed Species / Comments:

Response

Black vultures: once or twice it was necessary to remove a single quill from the head of one of the vultures. The last time was over a year ago.

Roadrunner: no interactions observed

Did well with everything, but we had trouble with animals getting quills in their feet/hands, and face.

Porcupine will approach sloth to sniff him, but he usually vocalizes at her and begins to move. When this commences, she usually moves away from the sloth.

When the porcupine was first introduced into the exhibit, she tried to sleep on top of the cotton-top tamarin nest box. One morning approximately 2 weeks later, it is believed that one of the juvenile tamarins went to inspect the porcupine and got a qui

There have been no interactions noted between the porcupine and the fish/turtle.

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo

Oglebay's Good Zoo

Palm Beach Zoo

Are your porcupines singly housed?

Response

yes

Usually, but not always

Yes

yes, we have 1 female

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo

Oglebay's Good Zoo

Palm Beach Zoo

If not, how many animals are housed together?

Response

previously 1/2 (parents and offspring)

we have housed 2.2, but currently have 1.1 groups

Not applicable

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo

Oglebay's Good Zoo

Palm Beach Zoo

Please describe any concerns or issues you may have regarding introductions between conspecifics.

Response

Intros have been fairly easy. Can look scary at times.

Not applicable

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo

Oglebay's Good Zoo

Palm Beach Zoo

Do you separate animals at night?

Response

no (when family was maintained)

no

Not applicable

Question:

Institution

Cameron Park Zoo, Waco

Please describe your porcupine diet:

Response

1 Old World Monkey Biscuit (Mazuri), 1/2 medium/small sweet potato, 1/2 apple, 1 peeled small banana, handful of spinach or two Romain or kale leaves; cantalope or grapes as enrichment

Houston Zoo	3 oz. Mazuri rodent pellets, 2 oz. rodent produce mix (carrot, yam, apple, pear, potato, grapes, banana etc), 2 oz. greens (kale, spinach, mustard greens), 1 oz. raw corn, 4 peanuts 3x/week
Oglebay's Good Zoo	41 grams Leaf-eater diet, 42 grams bananas, 30 grams grapes, 40 grams apple, 20 grams pear, 15 grams bok choy, 15 grams spinach, 15 grams melon, 20 grams carrots, 20 grams yam, 15 grams sweet red pepper, 15 grams broccoli
Palm Beach Zoo	8 blocks rodent chow, 1/8 cup sunflower seeds, 3 Hi-Pro biscuits, 40-45g apple, 1" thick slice of steamed yam or large carrot, 20g vegetable (green pepper, etc), 50-60g vitamin C (orange, cantalope, etc), 1 leafy green (usually kale), 1-2" thick slice of

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

How is the diet presented?

Response

all placed in rubber bowl at back of aviary
usually in a bowl, occasionally scattered, sometimes hidden in boxes
Diet is presented in a small stainless steel bowl hidden behind a rock in the corner of the exhibit.
in an elevated food bowl

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

How many times per day are the animals fed?

Response

once, around 4:30 pm
twice, but usually don't come over for the rodent pellets
Once
once per day, afternoon only

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

How are your porcupines restrained for medical procedures?

Response

They crate on cue
Have not had to restrain her for any medical procedures yet. She has been physically restrained with gloves to desensitize her to the aquarium water in the exhibit to ensure that she would be able to find her way out of the water if she fell into the aq

Palm Beach Zoo

we handle her with gloves

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If you need to immobilize the animals, what drugs have you used and how would you describe their effectiveness:

Response

isoflurine-seems to work
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

During an immobilization what, if any, problems have you seen?

Response

none
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What routine medical procedures do you perform on your porcupines?

Response

nail trims, dental check
Not applicable
monthly fecals

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

What vaccinations do you use?

Response

When the outside exhibit is prepared, she will be vaccinated for rabies with Imrab-3.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What health concerns do you have that are specific to porcupines?

Response

we have had several develop gastroliths
None at this time
she has had only minor allergy problems

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Have you successfully bred this species at your institution?

Response

yes, a total of 4 births, all from the same female: 11/97, 10/98, 8/99, 1/01- the final birth was a stillbirth and the female parent died from septicemia 6 days later

yes
No
no

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Do you keep the sexes together at all times?

Response

we used to
no
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo

Oglebay's Good Zoo
Palm Beach Zoo

Do you introduce the sexes for breeding?

Response

no
throw them together if they have been introduced in pass. Otherwise use a howdy cage

Not applicable

Question:

Institution

If you introduce the sexes for breeding, please describe your introduction protocol:

Response

Cameron Park Zoo, Waco
Houston Zoo

Oglebay's Good Zoo
Palm Beach Zoo

place female in male's cage then remove male from this cage (formly his) after about two weeks

Not applicable

Question:

If they remain together, have you seen any aggression by either adult towards the newborns?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

no, and they are not separated before the birth
no
Not applicable

Question:

Do you make any special preparations for the birth?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

no
no
Not applicable

Question:

If yes, what are they?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

NA

Question:

How long do you leave the offspring with the mother before moving them?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

indefinitely
Not applicable

Question:

How long have you been able to keep the offspring with the parents?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

four years until death of offspring
indefinitely
Not applicable

Question:

What concerns do you have when housing the group together?

Institution

Response

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

none really, locating all animals daily was a little more complicated
none
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Have you ever hand to pull offspring for any reason?

Response

no
no
No

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo

Oglebay's Good Zoo
Palm Beach Zoo

Have you hand reared offspring?

Response

no
no, but we do handle them a lot while they are young and still nursing with no problems

No

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If yes, please describe your protocol (formula used, number of feedings, when weaned, etc.).

Response

NA

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Have you used any type of contraception for your porcupines?

Response

no
no
No

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If yes, what have you used and was it successful?

Response

NA

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Are any of your porcupines used for educational purposes or public demonstrations?

Response

yes, in the past

no
Yes
yes

Question:

Institution

Cameron Park Zoo, Waco

If yes, how is the porcupine used?

Response

animal was held by the keeper while the talk was delivered, both inside and outside exhibit; at present if animal is in public view, keeper will stroke fur with twig or piece of bark to expose quills

Houston Zoo
Oglebay's Good Zoo

NA
Our porcupine is used during on-site education programs. She is trained to go onto a tree with a fork in it that is attached to a plywood platform for programs. Visitors are not permitted to touch her.

Palm Beach Zoo

she is handled with gloves and put on a "tree-stand" for classes

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Do you consider it a successful outreach animal?

Response

yes
We would like to use them in the future
Yes
yes

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

What behaviors have you trained?

Response

to be held in front of varying numbers of people
NA-see below
Crate, tree, scale, tactile with tail and front nails. I believe that we will eventually have her trained to enter our anesthesia induction chamber and to allow her front nails to be trimmed without restraint.
no official training

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If your porcupines are not used for demonstrations, have you trained any husbandry behaviors?

Response

no
yes
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

If yes, what behaviors have you trained?

Response

crating, targeting, stationing
Not applicable

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Do you have any plans for future training ?

Response

no
yes
Mentioned above.
yes

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

What behaviors would you most like to train?

Response

A to B's.
Mentioned above.

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Do you provide your porcupines with environmental enrichment?

Response

yes
yes
Yes
yes

Question:

Institution

Cameron Park Zoo, Waco

Houston Zoo

Oglebay's Good Zoo
Palm Beach Zoo

If yes, please list what you use for enrichment and if possible comment on the success of the items:

Response

supplimentary food items are provided at intervals (cantalope, grapes, lettuce, etc.)

boxes (though we once had one get a little debbie box stuck on it's head during public hours), puzzle type feeders where they had to pull up a peanut tied onto a length of paper towel

Grape Juice Cicles, Pine Cones, Black Willow, and Bamboo so far.
pumpkins with diet inside, papertowel tubes and boxes with diet and treats inside, and food is also scattered and strategically placed in the exhibit

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Have you ever shipped a porcupine?

Response

yes
yes
Not from our institution
no

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo

Palm Beach Zoo

If yes, please describe your shipping crate (dimensions, construction, etc.)

Response

standard 16" long plastic pet carrier, lined with peg board
standard vari-kennel. Size 200
We did meet employees from the St. Louis Zoo in Indianapolis to pick up the porcupine that we currently house. The staff from St. Louis transported her to Indianapolis in one of their metal (I wasn't there, so I'm not sure what type of metal was used.)

Question:

Institution

Cameron Park Zoo, Waco
Houston Zoo
Oglebay's Good Zoo
Palm Beach Zoo

Comments or ideas to include in the Husbandry Standards:

Response

None at this time.