

Porcupine Husbandry Survey *Hystrix indica*

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Are your porcupines housed primarily indoors?

Response

yes in winter, no in summer
yes
NO
No
yes
no
yes

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

What are the dimensions of your indoor exhibit?

Response

10'7" x 10'7" x 8'
N/A
16' W x 10' L x 11' H
7' L x 10' W x 10' H

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Is there shifting capability?

Response

yes
if needed we would shift him into a rolling shift cage
N/A
yes
yes
yes

Question:

Institution

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo

San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Please describe the general design of your indoor exhibit?

Response

in the winter he is housed in a glass front 12 x 12 exhibit; the floor is smooth concrete and the ceiling is a skylight; there is access to a back cage for training and cleaning of front exhibit
he is not on exhibit but is kept inside and used as a presentation animal. He is housed indoors in an enclosure made of concrete walls with metal mesh and a sealed concrete floor.
N/A
concrete rock exhibit with natural logs; length of exhibit- front viewing windows; back-piano wire
fiber glass rock work, natural perches for chewing

Question:

Institution

Columbus Zoo

What type of substrate do you use in your porcupine exhibit?

Response

pine shavings on indoor concrete; grass in outside yard

Disney's Animal Kingdom	pine shavings
Little Rock Zoo	N/A
Mill Mountan Zoo	
Omaha Henry Doorly Zoo	concrete (hosed/ disinfected daily)
San Diego Zoo (ZSSD)	decomposed granite
Wildlife Conservation Society/ Bronx Zoo	

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

What cage furniture do you use?

Response

small rock shelf
 large portions of tree trunks
 N/A
 holding cage has hay and logs
 plastic igloo, tree stumps and browse
 logs, browse

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

What type of heating and ventilation system do you use?

Response

forced air for 4 exhibits
 building is temp controlled and set at approximately 72 degrees F
 N/A
 same system as whole building
 natural- enclosure is chain link with front and sides open to air
 air circulators that circulate hot or cold air depending on the season

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

What is the average temperature range of your indoor exhibit?

Response

65-73 degrees F
 72-76 degrees F
 N/A
 75 degrees F
 68-72 degrees F

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Is the exhibit on a light cycle?

Response

no
 yes
 N/A
 no
 yes

Question:

Institution

If so, what is the day/night cycle?

Response

Columbus Zoo		
Disney's Animal Kingdom	ordinary day/night as the building has two sky lights	
Little Rock Zoo	N/A	
Mill Mountan Zoo		
Omaha Henry Doorly Zoo		
San Diego Zoo (ZSSD)		
Wildlife Conservation Society/ Bronx Zoo	10am-10pm: night cycle	10pm-10am: day cycle

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Do your porcupines have an outdoor exhibit?

Response

yes
 Yes
 Yes
 no
 yes
 no

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Do you have temperature restrictions for them to be outside?

Response

yes
 yes
 Yes
 Yes.
 no

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

If so, what are your temperature guidelines?

Response

55 F degrees or higher
 50-90 degrees F
 They are locked in at night below 40 F but have access during the day down to 35 F if sunny.
 Sustained 35 degrees F. daytime temperature. They are put in a indoor holding area for winter.

Question:

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Do you have an indoor holding area?

Response

yes
 yes (see indoor enclosure)
 Yes
 Yes
 no
 yes

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountain Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

What is the dimension of your indoor holding space?

Response

2 pens: 8 x 8

7' long by 6 1/2' wide by 5 1/2' high.
10' wide X 12' deep X 10' high.

6' L x 2' W x 3' H

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

Mill Mountain Zoo

Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

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

Response

2 pens separated by a transfer door; concrete floor

It is a concrete block room, with a smooth cement floor. It opens to a hallway that services 11 other exhibits. It has a guillotine door to allow access to adjoining dens if desired.

Concrete floor, block walls on 3 sides, chain link front with keeper door. Pine shaving substrate is used when porcupines are housed in this area.

balen cages with concrete floors; ramp run system to exhibit

box wire cage, metal frame, solid floor; one half is box wire, the other half is solid metal for privacy

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

Mill Mountain Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

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

Response

full building hanging overhead hot water forced air heater

Heat lamp in the den, service hall heated with gas heat, fans are used in the summer.

Electric space heaters. Manually operated windows in keeper space.
same

building heat, half of the cage is boxwire, so it is open air for ventilation

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

Mill Mountain Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

What are the dimensions of your outdoor exhibit?

Response

15 x 8
12' x 12'
36 feet long with a width of about 22 feet at the front narrowing to 3 feet at the back.

13' wide X 17' deep X 11' high.

10' x 15'

Question:

Institution

Columbus Zoo

Please describe your outdoor exhibit.

Response

grass substrate with hot wire near edge of exhibit as it drops off a dry moat

Disney's Animal Kingdom	the outdoor exhibit is in a back, off-show area. The enclosure is made of chain link with concrete floor. It contains a small dirt dig box in one corner. This enclosure is used as an area to offer additional enrichment both day and night
Little Rock Zoo	Gunnite exhibit covered with cypress mulch, decorated with logs and tree limbs, cont. below
Mill Mountain Zoo	vinyl coated 2" X 4" mesh, concrete floor covered w/mulch, 5' long X 3' deep heated stone shelter w/glass window. Shelter is heated by electric pig blanket on floor w/expanded metal false floor protection. Small concrete/stone pool about 3' long X 1 1/2'
Omaha Henry Doorly Zoo	
San Diego Zoo (ZSSD)	decomposed granite substrate, rectangular shape with cement floor; logs, leaf litter, shavings all placed along perimeter areas of enclosure for enrichment, defecation, cover; use a stainless steel bucket for water that is changed daily- bucket is clipped
Wildlife Conservation Society/ Bronx Zoo	

Question:
Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

Mill Mountain Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Are your porcupines part of a mixed species exhibit?
Response

not anymore
no
No, #19 cont. Exhibit also has a 24 inch diameter plastic culvert about 3 feet long that they get in.
Yes
no
no
yes

Question:
Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

Mill Mountain Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

If so, what species are they mixed with?
Response

once with 2 flying foxes

N/A 19 cont. The exhibit has a stream that runs through the middle that can be plugged to make a pool 2-3 feet deep. They like the water when it is hot.

1.0 Wrinkled hornbill

Indian Fruit Bat

Question:
Institution

Columbus Zoo
Little Rock Zoo

Little Rock Zoo
Little Rock Zoo
Little Rock Zoo
Mill Mountain Zoo

Wildlife Conservation Society/ Bronx Zoo

Mixed Species / Comments:
Response

pulled off exhibit at night when bats were active
N/A 19 cont. At times the exhibit has some grass, the porcupines are pretty destructive!
N/A
N/A
N/A
Hornbill dominates exhibit during daylight hours. Hornbill will eat some of porcupine diet, extra is added.
the bats have high perching, and their food and water bowls are placed high as well; there hasn't been any interaction between species

Question:

Are your porcupines singly housed?

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Response

yes
 yes, we have only 1 male
 No
 No
 no
 yes
 no

Question:**Institution**

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo

If not, how many animals are housed together?**Response**

We currently have 2 exhibits, two males on one and two females on the other.

Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

1.1
 0.2 and 0.1 (alone)
 1.1

Question:**Institution**

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)

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

None
 when we had 0.3 we tried them together and 0.1 adult was aggressive toward 0.1 adult and not toward 0.1 juvenile
 would be concerned about breeding or aggression as we have an intact male who has shown tendencies towards breeding behavior when out on a leash
 we haven't had any problems with introductions with the current pair we have, however, introductions can be difficult and long if animals are aggressive

Wildlife Conservation Society/ Bronx Zoo

Question:**Institution**

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Do you separate animals at night?**Response**

No
 No
 no, 1.0 and 0.2 are next to each other at night
 no

Question:**Institution**

Columbus Zoo
 Disney's Animal Kingdom

Please describe your porcupine diet:**Response**

rodent chow, onkey biscuit, raw apple, carrot, sweet potato, corn on the cob, endive, kale
 Daily: 2 branches of various types of browse, browse biscuit, kale, endive, spinach, sweet potato, carrots, corn on the cob, apple
 3x/wk: banana; 1x/wk: corn flakes cereal

Little Rock Zoo	Per porcupine per day: 1-2 cups monkey chow (their appetites vary seasonally, eating more in the colder months), 1 banana, 1/2 apple, 1/2 orange, 1/2 carrot, 1/2 medium yam, 1 leaf romaine or kale. Produce is cut into french fry size strips. Access to
Mill Mountan Zoo	2 cups rodent chow, 1 cup monkey biscuits, 1/2 cup sunflower seeds, 1/2 cup corn, 1 sweet potato, 1 apple, 1 banana, 2 oranges, 2 kale leaves,
Omaha Henry Doorly Zoo San Diego Zoo (ZSSD)	rodent blocks, kale, sweet potato, carrot, corn on the cob, apple, banana daily: he receives 3 cups herbivore pellets and 2 cups leafeater biscuits; he also receives an ear of corn (200g) and roughly 200g of yam; each day of the week we add something different to his diet, so he also gets kale, cabbage, dandelions, spinach rot
Wildlife Conservation Society/ Bronx Zoo	120g Hi Fiber primate biscuit, 150g yam or carrot, 460g mixed greens; 1/2 apple 3x per week; this is per animal with an estimated weight of 20kg

Question:
Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

How is the diet presented?
Response

on floor
bowl, box, cardboard tube, bag, or hidden within the enclosure
Diet is spread on the clean den floor.
In 2 bowls late afternoon.
scattered, in bowls, in boxes, or hidden
a trainer feeds yam, carrot, and treats by hand, or in a silver pan all together
on the floor of the enclosure in whole pieces

Question:
Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

How many times per day are the animals fed?
Response

twice
once in the am, once in the pm, and part of his diet is used throughout the day in presentations
Two, monkey chow in the morning and produce in the afternoon.
Once, late afternoon.
2x
depends on training- some days once, other days 2-3 times
2x, diet is split in half

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

How are your porcupines restrained for medical procedures?
Response

knockdown
squeeze cage crate and then injected with a sedative
Crate them and sedate if necessary.
no
pole syringed
gloves manual restraint for smaller, tractable animals; squeeze cage for larger animals, squeezing laterally and hand injecting with a 1-1/2" needle on a butterfly works well
these animals are usually injected with a chemical immobilizing agent such as Telazol or Ketamine, or are placed in an induction chamber to be anesthetized with gas (isoflurane)

Question:

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

Institution

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Mill Mountan Zoo

Omaha Henry Doorly Zoo

San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

Response

1. Telazol 175mg / 11.69 mg/kg blowdart IM: light sedation at 8 minutes, plus Ketamine 50mg 11.02mg/kg blowdart IM: this exam was cancelled as animal never reached complete sedation 2. Telazol 175 mg blowdart IM, plus Isoflurane 3% facemask:

injected with medetomidin and butorphenol; masked with isoflurine

Have never immobilized the asian porcupines, in the past we did immobilize an African Crested porcupine in a flight kennel put inside a bag using isoflourine. Very effective, little to no stress.

difficult to immobilize (need to contact vet staff)

we've found that ketamine at 3-4mg/kg, medetomidine at 0.03mg/kg and butorphenol at 0.3mg/kg given in combinations as a single IM injection works well for induction. Maintenance is usually on isoflurane via intubation or face mask. Reversal with atipam

due to larger size of the Indian Crested Porcupine, an injectible immobilizing agent is used prior to induction of gas anesthesia. Telazol has been the drug combination used most for this purpose in our ICP's. It's implementation has provided good seda

Question:

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

Institution

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Mill Mountan Zoo

Omaha Henry Doorly Zoo

San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

Response

none with this particular animal

None

poor respiration

expected bradycardia, otherwise no significant problems

no problems have been encountered thus far that can be attributed to anesthesia alone; one animal with azotemia and infection did not recover well from anesthesia with Telazol and died the next day

Question:

What routine medical procedures do you perform on your porcupines?

Institution

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Mill Mountan Zoo

Omaha Henry Doorly Zoo

San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

Response

none

annual physical exams which include blood and fecal collection along with radiographs if deemed necessary

None

none

annual fecals

fecal exams; general husbandry:eye checks, allowing us to touch him, tooth checks, done by trainers, not medical personnel at this time

physical examination, bloodwork, fecal floats and cultures are routinely performed on incoming animals being introduced to the collection; medical procedures are only performed on current collection porcupines only if indicated (symptoms of illness obser

Question:

What vaccinations do you use?

Institution

Columbus Zoo

Response

none

Disney's Animal Kingdom	rabies
Little Rock Zoo	None
Mill Mountan Zoo	none
Omaha Henry Doorly Zoo	
San Diego Zoo (ZSSD)	none currently
Wildlife Conservation Society/ Bronx Zoo	no routine vaccinations are performed

Question:

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

Institution

Response

Columbus Zoo	in winter: dry skin and occasional mites
Disney's Animal Kingdom	none with this particular animal
Little Rock Zoo	None
Mill Mountan Zoo	none
Omaha Henry Doorly Zoo	
San Diego Zoo (ZSSD)	occasional dermatophytosis associated with a typical dermatophyte or sometimes Geotrichia. Responsive to topical antifungals
Wildlife Conservation Society/ Bronx Zoo	glenticular sclerosis/cataracts, vertebral spondylosis

Question:

Have you successfully bred this species at your institution?

Institution

Response

Columbus Zoo	no
Disney's Animal Kingdom	no
Little Rock Zoo	Yes
Mill Mountan Zoo	no
Omaha Henry Doorly Zoo	yes
San Diego Zoo (ZSSD)	unknown
Wildlife Conservation Society/ Bronx Zoo	yes

Question:

Do you keep the sexes together at all times?

Institution

Response

Columbus Zoo	
Disney's Animal Kingdom	
Little Rock Zoo	No, we used to , but they were too prolific!
Mill Mountan Zoo	yes
Omaha Henry Doorly Zoo	
San Diego Zoo (ZSSD)	no
Wildlife Conservation Society/ Bronx Zoo	yes

Question:

Do you introduce the sexes for breeding?

Institution

Response

Columbus Zoo	
Disney's Animal Kingdom	
Little Rock Zoo	We have not put them back together since they were separated.
Mill Mountan Zoo	
Omaha Henry Doorly Zoo	yes
San Diego Zoo (ZSSD)	no
Wildlife Conservation Society/ Bronx Zoo	no

Question:

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

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo

Response

When we first acquired the porcupines, they were housed in adjoining dens with a screen door between them for a week then allowed together, there were no problems.

Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

howdy period, daytime together, full together
 ICPs we usually let sit side by side for a few days prior to introductions

Question:

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

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo

Response

The male and female were left together and there was no aggression toward the newborns or between the adults.

Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

no
 unknown
 no

Question:

Do you make any special preparations for the birth?

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo
 Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

Response

Not really, mostly just lock in at night as due date approaches.
 yes
 unknown
 no

Question:

If yes, what are they?

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo

Response

We also make sure the den is kept dry and warm and that there is plenty of bedding, wood chips and grass hay. In colder months the den has bedding anyway, but in warmer months it doesn't.

Mill Mountan Zoo
 Omaha Henry Doorly Zoo
 San Diego Zoo (ZSSD)
 Wildlife Conservation Society/ Bronx Zoo

shallow water bowls, more logs to get around exhibit, hay for bedding

Question:

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

Institution

Columbus Zoo
 Disney's Animal Kingdom
 Little Rock Zoo

Response

We have shipped offspring as young as 9 weeks. We separated male/female offspring at 9 months

Mill Mountan Zoo

Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

about 1 yr

we only bred 1x and shipped out the offspring before they were a year old

Question:

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

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

9 months for same sexes, we still have a 2 yr old female with mom and a 2 yr old male with dad.

Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

we shipped out all around 1 yr

one year

Question:

**What concerns do you have when housing the group together?
Response**

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo

The possibility of father breeding daughters or sons and daughters breeding.

Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Question:

**Have you ever hand to pull offspring for any reason?
Response**

Institution
Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

No

no

no

Question:

**Have you hand reared offspring?
Response**

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

No

no

no

Question:

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

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

N/A

Question:

Have you used any type of contraception for your porcupines?

Institution

Response

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

No, just separating the sexes.

no

no

no

Question:

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

Institution

Response

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

N/A

Question:

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

Institution

Response

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

no

yes

No

No

no

yes

yes

Question:

If yes, how is the porcupine used?

Institution

Response

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

we present him on an outdoor stage with no restraint

N/A

worked on a harness; school groups are also brought down to his enclosure and he is talked about and his dropped quills are passed around

ICP is used for educational classes within society grounds

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Do you consider it a successful outreach animal?

Response

yes
N/A

no
yes

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

What behaviors have you trained?

Response

target to hand, a pole, and to his crate
None

mark up, leash up, seat, walk on a leash, mouth check
targets in and out of crate

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

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

Response

yes
yes
Yes
They crate for transport.
yes
yes (see above)
no

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom

Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

If yes, what behaviors have you trained?

Response

here to target, paws up, crate
crate trained. We crate him so we can clean his enclosure without him in it and to move him from indoor to outdoor enclosure and any other move from A to B unless he is on stage
Shifting and walking onto a board for weighing.

hold to scan microchip in nose

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Do you have any plans for future training ?

Response

yes
yes
Not at this time.

yes
unsure at this time
yes

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

What behaviors would you most like to train?

Response

continued work with crate
back up, flash quills, scale training for weighing
Don't have any in mind.

not escaping from his harness during breeding season when out on a walk; he contracts his body and squeezes out of his harness so we are in discussions about his training protocol and his future at this time

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)
Wildlife Conservation Society/ Bronx Zoo

Do you provide your porcupines with environmental enrichment?

Response

yes
yes
Yes
Yes
yes
yes
yes

Question:

Institution

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

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

Response

paper mache with treats: very successful; ice blocks with treats: somewhat successful; antler sheds: no interest
the following have proven very successful: new tree stumps, different extracts, phone books, spices, large and small brown paper bags, antlers (vets sterilize first), dig box with sand, browse hut; semi-successful: coconut halves, cedar mulch, square of

They love to tear up cardboard boxes and tubes. We also give them logs from various trees and they love to chew the bark off, preferred trees are hickory, mulberry, and willow. (bamboo is also used) They like ice treats made with various fruit juices an

branches, logs, cardboard boxes, heavy cardboard tubes, hay.
browse, logs, boxes, chunks of wood, fruit ice blocks, barrels
approved browse which he loves to chew on, anything to chew on, chinchilla blocks; he does not like water, he can chew through anything except metal so finding enrichment items is difficult; he loves to dig for bugs in logs

browse, natural chew logs

Question:

Institution

Columbus Zoo
Disney's Animal Kingdom
Little Rock Zoo
Mill Mountan Zoo
Omaha Henry Doorly Zoo
San Diego Zoo (ZSSD)

Have you ever shipped a porcupine?

Response

no
no
Yes

yes
no

Wildlife Conservation Society/ Bronx Zoo

yes

Question:

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

Institution

Response

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Intermediated size flight kennel (32x22x23) Burlap was used to cover the windows and doors.

Mill Mountan Zoo

Omaha Henry Doorly Zoo

400 size air kennel with wire box inside; metal food bowl and a licksit for water

San Diego Zoo (ZSSD)

Wildlife Conservation Society/ Bronx Zoo

we use Air Transport Association guidelines when shipping porcupines

Question:

Comments or ideas to include in the Husbandry Standards:

Institution

Response

Columbus Zoo

Disney's Animal Kingdom

Little Rock Zoo

Mill Mountan Zoo

Omaha Henry Doorly Zoo

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