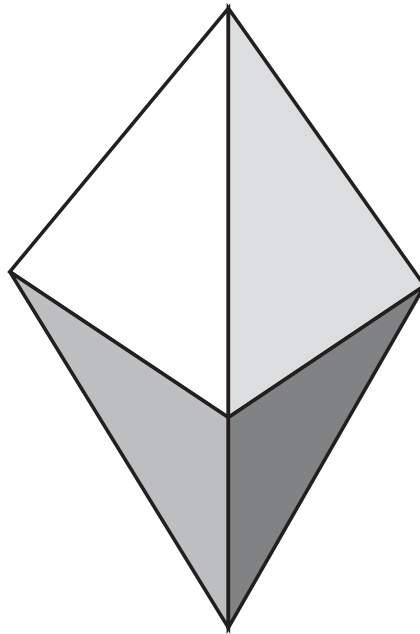


# BIO ZONE

in orbit around Callisto, the eighth moon of Jupiter



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## A BRIEF HISTORY

The year is 2300. All of Earth's resources have been diminished. A group of biologists have conferred with others on Earth about establishing a permanent manned colony in orbit around Jupiter and BioZone is the result of their efforts. Construction of BioZone began on Earth with the establishment of a panel of scientists and engineers. Embryos from many Earth species were collected, frozen and shipped to outposts near Mars for later transport to BioZone when the time arose. Physical construction of the first BioZone Module was completed in the middle of the 23rd century and became operational in the year 2265. Now, in 2300, BioZone is quite viable and is a productive partner with the colonies of Alpha-Omega. BioZone is an outpost of the Alpha-Omega Colonies. Colonies of Alpha-Omega are in orbit around four of Jupiter's moons: Europa, Io, Ganymede, and Callisto. BioZone is in orbit around Callisto.

BioZone is a scientific colony to perform research, preserve endangered animal species, and grow food for the Alpha-Omega colonies.

## FACTS ABOUT CALLISTO

The eighth moon of Jupiter

Orbit: 1,883,000 km from Jupiter

Diameter: 4800 km

Mass:  $1.08 \times 10^{23}$  kg

Discover by Galileo and Marius in 1610

Slightly smaller than Mercury but one-third the mass

Composition: 40% ice; 60% rock and iron

Surface covered with craters; most cratered surface in the solar system

Atmosphere: Carbon Dioxide

Surface Gravity: .127

Orbital Period (days): 16.68902

Rotational Period (days): 16.68902

Density (gm/cm<sup>3</sup>): 1.86

Orbit Speed (km/sec): 8.21

Escape Velocity: 2.4 km/sec

Subsolar Temperature (K): 168

Subsolar Temperature at Equator (K): 126

Surface Composition: dirty ice

Core is not hot.

Holds salty water.

Third largest satellite in the solar system.

Water mantle.

## BIO ZONE STRUCTURE

BioZone is designed in such a way that more structures can be added as needed. The basic structure is diamond shaped (see Diagram 1 below).

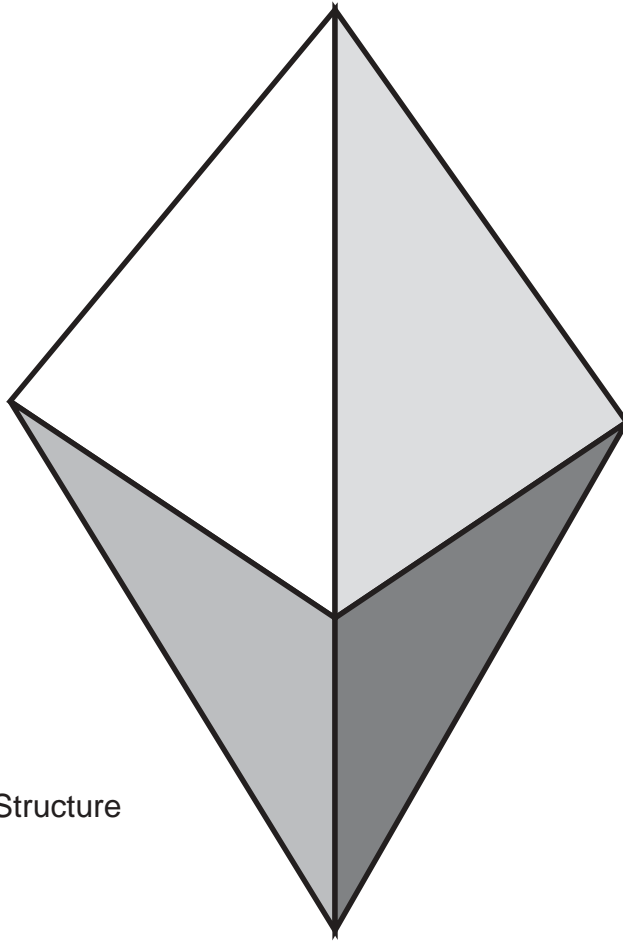


DIAGRAM 1: BioZone Structure

Each BioZone module has been designed to represent different biomes on Earth. Biomes include: (1) mountains, (2) prairies, (3) savannahs, (4) forests, (5) deserts, (6) caves, (7) fresh water, (8) beach, and (9) salt water.

Take a look at the two views of a BioZone Module on page 4 and page 5. Diagram 2 represents a cross-section view of a BioZone Module. Diagram 3 represents a top view of a BioZone Module. Note the Bio Dome in Diagram 3.

DIAGRAM 2: BioZone Cross Section View

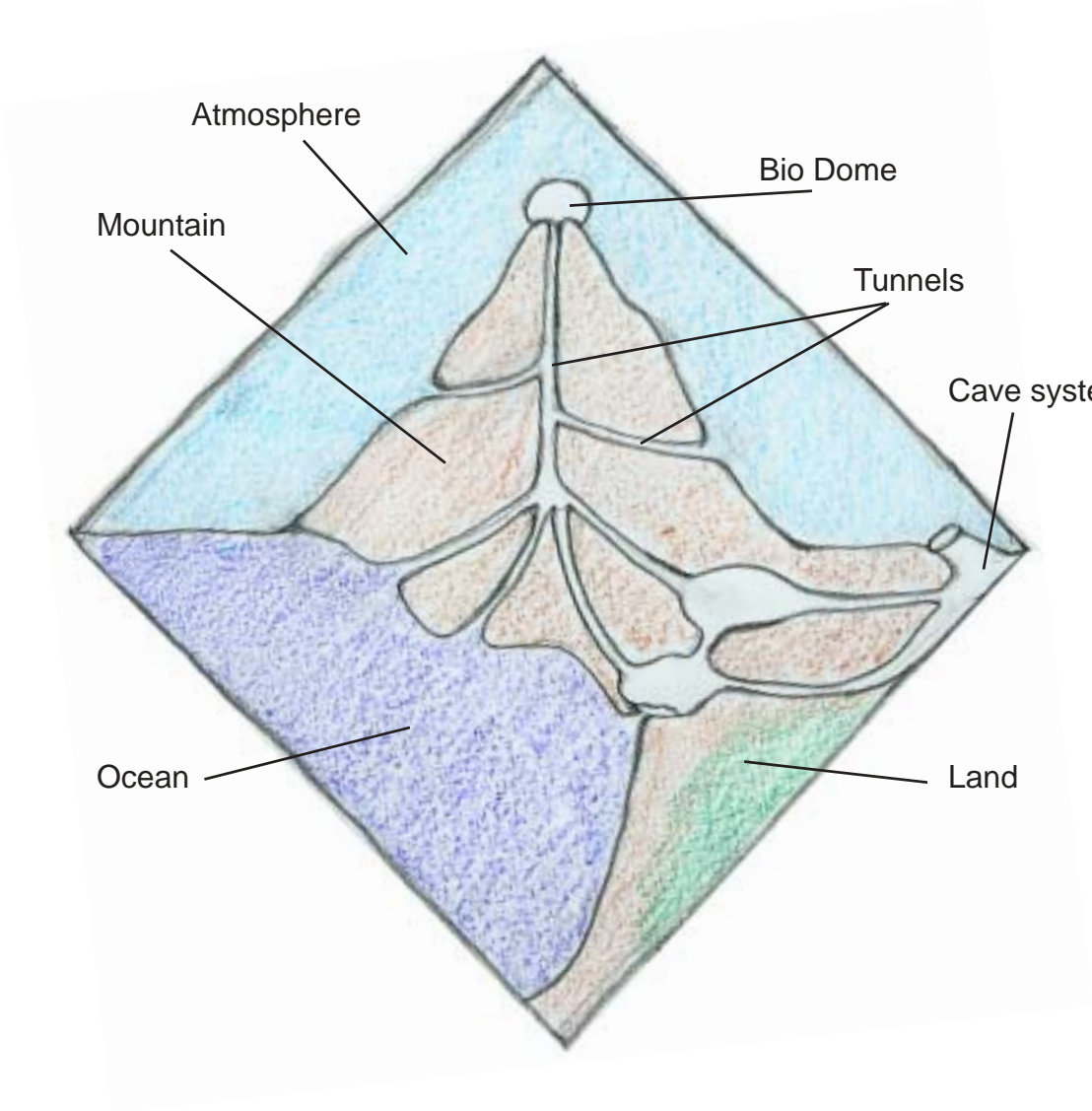
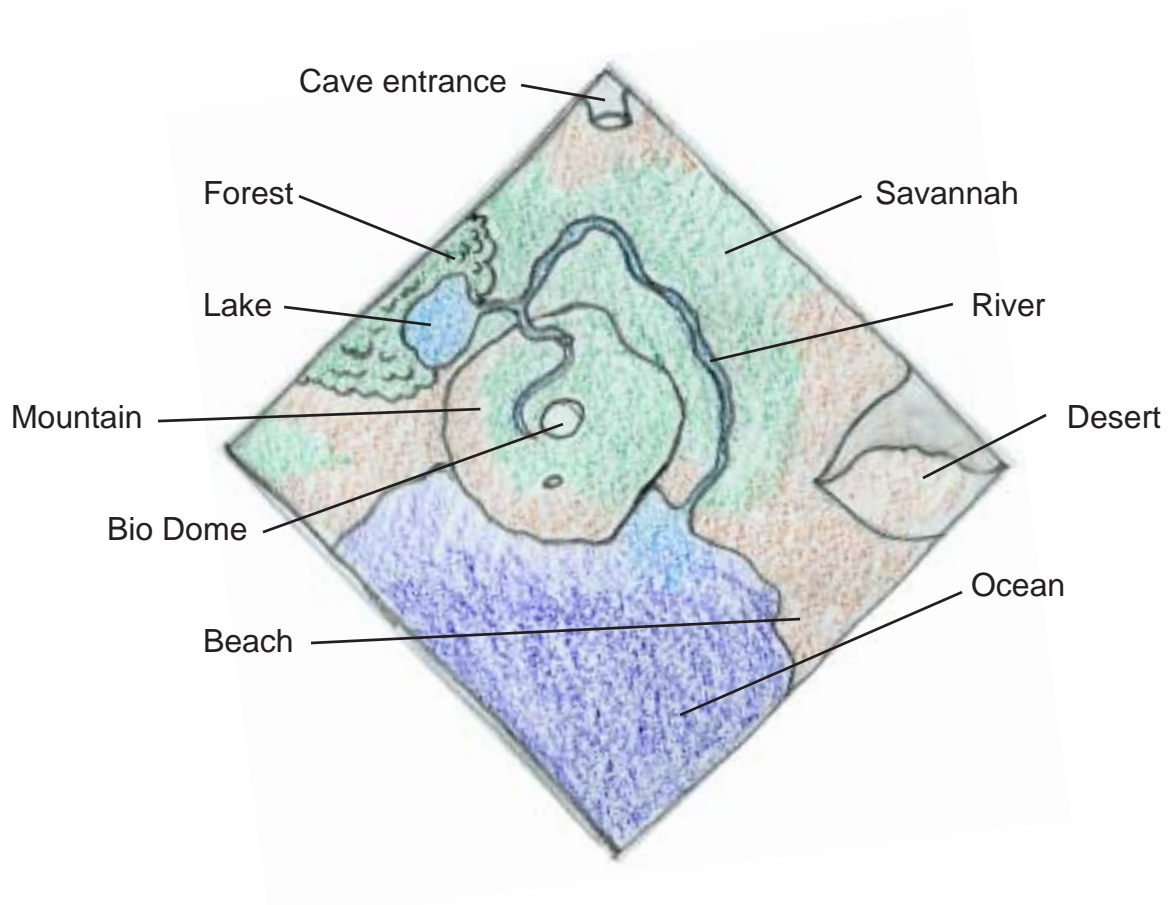


DIAGRAM 3: BioZone Top View



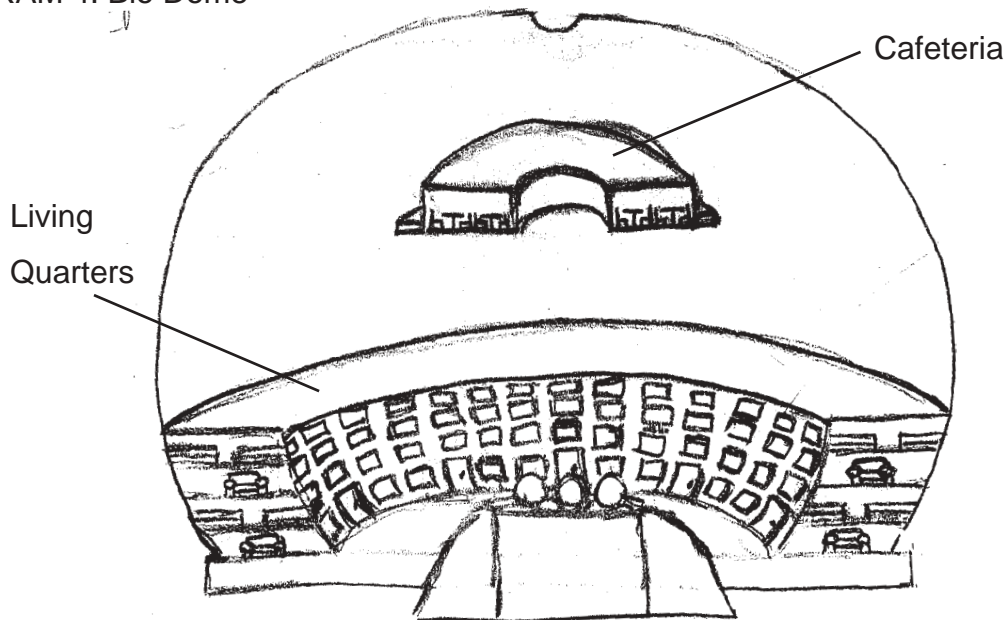
### BIO ZONE MODULES

BioZone Modules in place now contain the biomes listed above. Future modules to be constructed will include tundra, rain forest, arctic, deep sea, and high mountain environments. All biomes are teeming with life in BioZone. Very few people are needed to manage BioZone Modules. The majority of the people living in BioZone are harvesters for the crops being grown inside the mountain using a hydroponic method of suspending plants in soil-less containers and feeding the plants with artificial sunlight and plenty of water. An abundance of food is grown in the hydroponic farms.

## HOUSING

Colonists of BioZone live on the peak of a mountain overlooking the animals biomes. The living and working quarters is called the Bio Dome (see Diagram 4 below).

DIAGRAM 4: Bio Dome



Housing units are private cubicles much like apartment buildings of the 21st century. Preparing meals in the housing units is not necessary since a cafeteria is suspended above the living quarters where all meals can be eaten (free of charge).

The area above and around the housing units is a common recreation area, which includes running tracks and a variety of sports facilities and fields. Limited access is granted to the biomes, to ensure that humans do not alter the natural growth of the animal and plant species within them.



## CULTURE

All cultures are welcome in BioZone. This colony is non-discriminant. Each module is limited in the number of people allowed to live and work inside. Most modules are constructed to accommodate 500 to 1000 people. There are no malls or elaborate entertainment centers within BioZone. For shopping, education, entertainment, government affairs, non-denominational religious services and almost all other amenities of life, colonists in BioZone must travel to Outpost Alpha. Details of Outpost Alpha are described in another project.

## TRANSPORTATION

Transportation includes several methods. Teleportation is used for long distance transport. This method is the preferred method for travel between BioZone and the other colonies of Alpha-Omega. BioZone does have a docking port for the arrival and departure of colonists via conventional shuttle craft. BioZone has a small fleet of shuttle craft in port, but most shuttle transport is onboard shuttle craft from other colonies. Hoverboards is the preferred way of travelling between points inside BioZone. Every colonist is provided with a hoverboard upon entry into the colony. Completely sealed pods are used for transportation inside the tunnels which lead to the biomes of BioZone.

## COMMERCE

BioZone conducts trade with the other colonies of Alpha-Omega. The other colonies provide energy, water, clothing, and other resources in exchange for food grown in the hydroponic gardens of the BioZone.

## PURPOSE

BioZone was developed to help preserve the endangered animals of Earth. All of the different people of Earth are represented throughout the colonies, but the animals are not. Our job is to make sure that they survive as well as humans. The colonists of BioZone grow food, perform experimentation, discover new medicines, and provide medical treatment to the occupants of BioZone.

## TENDING TO THE ANIMALS

Day to day operations of BioZone are conducted in the offices and labs of the Bio Dome. See Diagrams 5 and 6 below.

DIAGRAM 5: Bio Dome Office

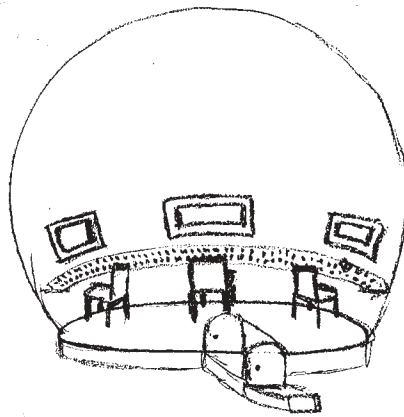
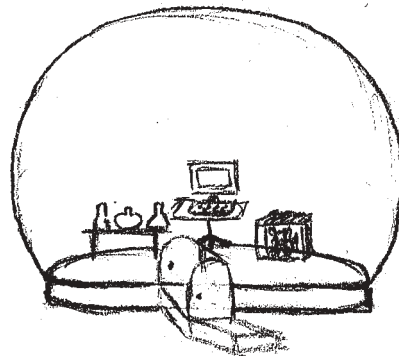


DIAGRAM 6: Bio Dome Laboratory



Observations of and feeding of the animals must occur every day. A fleet of Pods is provided for that task. 6 pods are flying at all times. As soon as the shift for one set of pods ends, another set of pods is launched. Pods are manned with 3-6 observers and handlers. There are no seats in the pods, only control consoles. Once the occupants are inside, the door to pod closes and sealing, allowing the pod to navigate in any environment it might need to explore (air, land, cave tunnels, on the surface of the water, or beneath it). See Diagram 7 and Diagram 8 below.

DIAGRAM 7: Pod

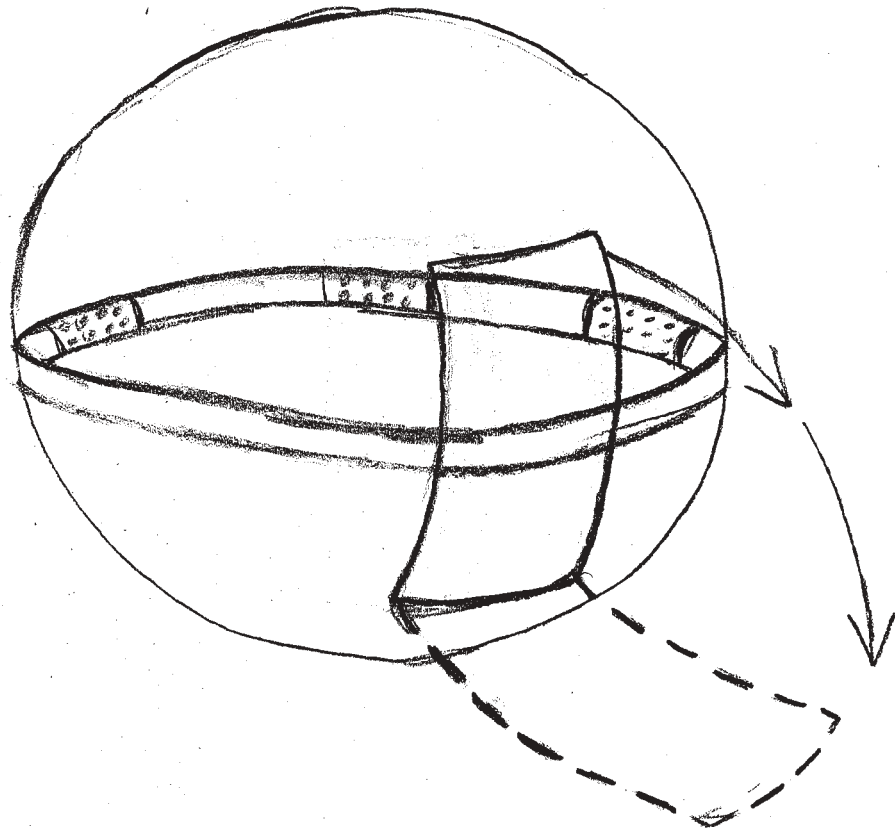
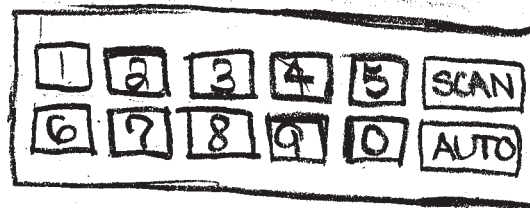


DIAGRAM 8: Pod Console Keypad



## FOOD

Below is a list of foods grown in BioZone for consumption by the colonists of Alpha-Omega.

- |              |               |             |             |
|--------------|---------------|-------------|-------------|
| (1) corn     | (7) oranges   | (13) cows   | (19) sugar  |
| (2) carrots  | (8) beans     | (14) pigs   | (20) fish   |
| (3) grapes   | (9) bananas   | (15) milk   | (21) salmon |
| (4) lettuce  | (10) peas     | (16) juices | (22) tuna   |
| (5) potatoes | (11) chickens | (17) wheat  |             |
| (6) apples   | (12) eggs     | (18) honey  |             |

## ANIMALS

Below is a list of domesticated animals which live in BioZone:

- |            |             |             |           |
|------------|-------------|-------------|-----------|
| (1) horses | (3) cats    | (5) turtles | (7) birds |
| (2) dogs   | (4) lizards | (6) rabbits |           |

## PLANTS

Below is a list of non-food plants which grow in BioZone:

- |             |            |           |
|-------------|------------|-----------|
| (1) pines   | (2) maples | (birches) |
| (3) flowers |            |           |

## ENDANGERED SPECIES

Below is a list of endangered species being cared for in BioZone:

- |                      |                          |
|----------------------|--------------------------|
| (1) African Elephant | (6) Golden Lion Tamarin  |
| (2) Asian Elephant   | (7) Hybrid Spider Monkey |
| (3) Right Whale      | (8) Aye-aye              |
| (4) Blue Whale       | (9) Gorilla              |
| (5) Fin Whale        | (10) Red Wolf            |

- |                                  |                                |
|----------------------------------|--------------------------------|
| (11) Amur Leopard                | (31) Crested Shelduck          |
| (12) Anatolian Leopard           | (32) White-winged Duck         |
| (13) Asiatic Cheetah             | (33) Marquesan Kingfisher      |
| (14) Florida Cougar              | (34) Rufous-lored Kingfisher   |
| (15) Iberian Lynx                | (35) California Condor         |
| (16) Snow Leopard                | (36) Mauritis Kestral          |
| (17) Texas Ocelot                | (37) Hawaiian Crow             |
| (18) Tiger                       | (38) Cochabamba Mountain-Finch |
| (19) Marine Otter                | (39) Gouldian Finch            |
| (20) Giant Panda                 | (40) Blue-bellied Parrot       |
| (21) Lesser Panda                | (41) Whoopign Crane            |
| (22) Cuvier's Gazelle            | (42) Siberian Sturgeon         |
| (23) Western Giant Eland         | (43) Alabama Sturgeon          |
| (24) Wild Bactrian Camel         | (44) Chinese Paddlefish        |
| (25) Manipur Brow-Antlered Deer  | (45) Alabama Shad              |
| (26) Black Rhinoceros            | (46) Silver Shark              |
| (27) Broom's Pygmy-possum        | (47) Clanwilliam Redfin        |
| (28) Northern Hairy-nosed Wombat | (48) Wild Common Carp          |
| (29) Short-tailed Chichilla      | Just to name a few!            |
| (30) Giant Armadillo             |                                |

## WORKS SITED

<http://www.endangeredspecie.com/specieprofile.htm>

<http://www.seds.org/billa/tnp/>

<http://sse.jpl.nasa.gov/features/planets/jupiter/>

<http://www.nasm.edu/ceps/etp/jupiter/>

<http://www.jpl.nasa.gov/galileo/fact.html>

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