

Mimicking Wild Lesser Flamingo Eating Habits to Create a Healthy Captive Diet

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Proper nutrition is essential for raising healthy and happy animals. One of the biggest challenges in caring for flamingos is formulating a diet that covers the nutritional requirements of the animals. Since the field of flamingo nutrition is not well studied, the information available on diets for flamingo keepers is rather miniscule. Currently, many zoos and institutions keeping flamingos formulate their own diets since commercial diets are few in numbers and often times do not provide the full range of nutrients needed by the flamingos. Here at the Three Ring Ranch, we house a thriving small flock of geriatric flamingos (25 years) on our specially formulated diet. Birds of a younger age might require a higher protein content and keepers will need to monitor birds' weights accordingly. The diet that we feed at the Three Ring Ranch mimics the natural diet of flamingos in the wild. By doing this, we think that we are providing the range of nutrients needed by the flamingos to remain healthy.

Different varieties of flamingos have different beak designs that govern how and what they eat. The flamingos at the Three Ring Ranch are variety called the Lesser Flamingos. These animals are filter feeders that obtain their food from the surface of the water. Being filter feeders, they require nutrients that are very small in size. Anything larger than 1.0 x 0.4 mm will not be able to pass through the excluder lamellae of the flamingo's mouth. The acceptable size of food that the flamingos will utilize is 1.0 x 0.4 mm to 0.01x 0.05 mm based on the anatomy of the beak and filters.

In the wild, Lesser Flamingos primarily feed on blue-green algae called Spirulina, which are nearly sixty percent in protein. Other constituents of their diet include crustaceans, mollusks and insects. It is therefore safe to assume that flamingos require high amounts of protein in their diets. In an older published survey, data showed that in zoos all over the Northern United States, zookeepers are serving diets that may not cover all the nutritional requirements. According to that survey, only one zoo out of seven surveyed at that time in an article from the Memphis Zoo and Aquarium included spirulina, blue-green algae, in their lesser flamingo diets. Many zoos have included high protein substitutes like trout chow and dog meal in their diets in order to meet the high protein requirements. A caveat of using substitutes is that the protein may not be in a readily metabolized form. Thus, utilizing natural blue-green algae makes the most sense. Knowing that flamingos in the wild naturally feed on blue-green algae, it is logical to assume that spirulina is likely a requirement in the lesser flamingo diet. We supplement with natural astaxanthin (red algae) increasing protein in the diet and maintaining normal feather coloration. Our algae is generously donated by local commercial algae growers along the Kona coast.

Our diet contains a combination of commercial products Mazuri Flamingo Breeder (protein 34%), Mazuri Flamingo Complete Bits (protein 19%), O.H. Kruse Grain & Milling Perfection Flamingo Diet fine grind (protein 24.2%), spirulina (blue-green algae) (protein 56%-62%) and astaxanthin (red algae) (protein approx 40%).

The flamingos are free-fed twice a day mimicking the twice a day feeding patterns of wild birds. Formula in the bowls begins to ferment after 8 hours, so optimal consumption decreases significantly. We prepare a diet sufficient for five flamingos.



Bickering causes increased appetite in flamingos. (Photo courtesy of Three Ring Ranch)

Recycling for cash, cont'd

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add them to the sanctuary's mailing list - send them a thank you letter and a sanctuary newsletter!

- Speaking of businesses, talk to some local businesses about being sponsors. For instance, talk to the local community bank about donating their old ink jet cartridges, the library, or nearby schools (let the kids help the animals!). Garnering support from Kinko's would be an ambitious goal but a jackpot considering the ink they go through. All of these businesses can contribute!



These are just a few ideas on how to start and strengthen your sanctuary's recycling program. With a little time and effort, recycling for cash can become a source of steady income for the sanctuary - and every little bit counts! In fact, this article addresses electronic and office supplies, but recycling can easily be expanded to include items such as glass, aluminum cans and plastic. Overall, recycling for cash will be a triple benefit by raising funds for the animals, raising public awareness about your sanctuary, and building community support.

Janelle has since moved on from the Sanctuary, and is now working at the Dallas World Aquarium. She is still involved in SWAVA and giving animals the kind of care that they deserve.

Flamingo Diets, cont'd

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Three Ring Ranch Lesser Flamingo Diet

Mazuri Flamingo Breeder, 2 cups

Mazuri Flamingo Complete Bits plus Perfection Flamingo Diet (1:1), 4 cups

Spirulina (blue green algae), 2 tablespoons

Astaxanthin (red algae), 1 teaspoon



Feeding Directions:

- * Remove old food from feeder before serving the new food.
- * Add each component in the specified amount to a 10 L bucket. We recommend adding the algae with caution because it is a very light powder and volatile.
- * Carefully add enough water to submerge the ingredients, let soak for 10 minutes.
- * After 10 minutes bring the volume up to 8 L
- * Mash up the floating pellets by hand so as to not clog the filters.
- * Mix thoroughly before each allotment is poured.

Because flamingos are filter feeders, it is important to mush up the Breeder pellets by hand to be sure that it has been done thoroughly. Given that Lesser Flamingos feed only on the first couple inches of water, shallow feeding dishes are used. In order to promote competition, we use fewer dishes than there are flamingos, causing bickering which leads to increased appetite.

The natural environment for the flamingos contains a pond where spirulina grows and blooms during the summer months. The flamingos will further supplement their bowl served diet by filter feeding on the blooming algae and thus enriching their lives.

In caring for flamingos, it is important to understand not only what they eat, but also how they eat. We've attempted to provide a diet that resembles their natural diet and in a manner that fits their natural feeding behavior. By doing this, we are better able to simulate a natural environment. These animals instinctively know what nutrients they require to be in optimal condition. In the wild, they will seek out these nutrients. By copying what they eat in the wild, we feel that we are providing them with the best captive diet possible.

References: *Flamingos*: Malcolm & Carol Ogilvie *Proceedings of the 1990 Flamingo Workshop*: Peter Shannon