

Activity Pattern of Golden Jackal (*Canis aureus*) in Captivity; with Special Reference to Sajjangarh Biological Park, Udaipur, Rajasthan

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Abstract—The golden jackal (*Canis aureus*) is the most widespread species among the other species of it. Jackals are also known as Gidhar in local language. In India golden jackals are found in Maharashtra, Rajasthan, Gujrat and Haryana. Golden jackal's role in ecosystem is as of scavenger. Golden jackals are one of the few mammalian species to have long term pair bond. This research discusses about Golden jackal's behavior during the different seasons. The study has been conducted in Sajjangarh biological park, Udaipur. This study was conducted during September 2016 – April 2017. The golden jackals were kept in an enclosure, in Sajjangarh biological park. The enclosure was spread in 3400 sqmt. This enclosure was surrounded (covered) with cement and stones boundary wall and fancing of Adooshtha plants. There was 18 feet deeper digged area nearer the boundrywall due to safety purpose. There were 4 male and 2 female jackals in the enclosure. The jackals were observed more active during summer season according to winter season. Also their drinking rate was 27% in a day in summer season which decreased to 14% in winter season. One of the generalized views is that jackals are nocturnal but this behavior also changed in captivity. Also the jackals were habituated of visitors, so now they have stopped hiding themselves behind the shrubs or den. The jackals are not habituated of hunting in captivity.

Keywords: Golden jackal, *Canis aureus*

1. INTRODUCTION

Jackals are wolf like canids, which includes three types of jackals: the black backed jackal (*Canid mesomelas*), the side-striped jackals (*Canid adustus*) and the golden jackal (*Canis aureus*). The golden jackal (*canis aureus*) is a medium sized canid that is widely distributed in Rajasthan, Haryana, Gujrat and Maharashtra and also spotted in Bandhavgarh and bandipur National Park. Golden jackals are listed in schedule III of the wildlife protection act[1972, (2)] that says that golden jackals are provided less protection in comparison of endangered species. This species is not threatened but still government has banned on it's hunting. Golden jackals are smaller than wolves. Compare to wolves golden jackals have shorter legs and shorter tail. Their forehead is less prominent.

Their coat colour vary in different colour such as pale creamy yellow in summer and dark tawny in winter. The golden jackals are omnivorous, feed on small mammals, fish, birds, hairs, food left by other animals kills, grassland berries. Golden jackals live in a group called packs. Typically six to seven members are include in a pack and sometimes fifteen to eighteen members are also noticed in a group but very rarely. Mostly golden jackals hunt alone but sometimes they hunt in a pack also Golden jackals are very smart. They defend their territory by scent mark through urination and defecation.



Golden jackals have good tolerance of dry habitats so they can live in a wide variety of habitats like semi desert, evergreen forests, savannas and agricultural area. In India, golden jackals are found in semi urban and rural landscapes. Greeting, grooming, and group howling are social interactions of golden jackal. Howling is an important part of their interactions. They howl at dawn and at evening. Golden jackals respond to human presence, change in the weather or any kind of threat to their lives, they start howling and warn their other members of pack. Golden jackals are monogamous which means they live their entire life with one partner only. They do not separate until death. The female jackal breed once in a year. In India the breeding period is from February to March. And the gestation period occurs 63 days average. The golden jackals do not dig burrows but take over the dens of red fox and porcupines. Golden jackals live upto 14-16 years of age.

Study area

The study has been conducted in Sajjangarh biological park, Udaipur, Rajasthan. This study was conducted during September 2016 – April 2017. Sajjangarh Biological Park is situated at a distance of 7 kms from existing Udaipur zoo and 5 Kms in west of Udaipur city. The area lies in foothills of Sajjangarh Wildlife Sanctuary, but is a revenue area apart from Sajjangarh reserve forest block which is having total geographical area of 520.3105 hectares. Area selected for Biological Park at Sajjangarh lies in the Aravalli hill ranges, which is one of the oldest formations in the world. The area lies in Archean formations. The underlying rocks are mainly quartzite, granite, limestone, marble, schist and vollstone. The soil depth is fairly good downhill side as well as in nallahs. Area is rocky foothills. The moisture retention capacity is poor, and hills covered with spars vegetation. Here soil becomes hard on drying. Aeration of soil is better. The floral constituents of the area are mostly edapho-climax type forests. Forests of the Biological Park area are composed of wide floral diversity dominated by mixed miscellaneous forests.



Inside the Biological Park, Jackals, Jungle cat, Hare, Birds, Reptiles and variety of non-chordates are generally met with. At the periphery of Biological Park, forests of Sajjangarh

Wildlife Sanctuary are situated where major carnivore at the top of the food chain is Panther (*Panthera pardus*). Other vertebrates inhabiting the area are Striped Hyena, Jungle Cat, Jackal, Indian fox, Blue Bull, Indian Hare, Wild Boar, Squirrels, Rats, Hedgehog, Bats, Porcupine etc. Endemic bird White-napped tit is visible inside the Biological Park in thorny habitat. The climate of the area is sub-tropical with extremely hot summer and relatively moderate winter. The summer season starts in mid March and ends by mid June followed by rainy season from mid June to September. Winters starts early October and continues up to early March. Rainfall in the area is very erratic and unevenly distributed. Rains generally start in the last week of June and intermittently continue up to September end. Highest intensity of rain is generally observed in the month of August. The average annual rainfall is about 650 mm. The number of rainy days is 15 to 20 on an average. A wide variation to temperature is observed round the year. May and June are the hottest months when temperature reaches up to 45°C. Temperature starts declining in the month of October after withdrawal of monsoon. January is the coldest month with mean daily minimum temperature of around 6°C. Humidity in the air is generally low and rarely exceeds 30-35 percent except in the rainy season when it ranges between 50-60 percent. Winds blow from Southwest to Northeast during summer and the direction is reversed during winter season. Winds generally blow with moderate speed and rarely blow at a speed of 40-60 kms per hour. During summer, dust storms are sometimes observed.

Importance of observation-

Behavior is generally the animal's "first line of defense" in response to environmental changes. Careful observations of animals behavior can provide us many information about animal's requirements, preferences and dislikes, and internal states. These information's provide us that our interpretation of those observations is firmly grounded in a knowledge of species-typical behavior patterns. Observation of an animal's Behavior is also important in reducing illness, pain, fear, stress, or tension.

2. OBJECTIVES OF OBSERVATION-

- To focused on identifying and minimizing causes of suffering.
- We gain valuable information which contributes to keeping animals healthy and furthers conservation of wild populations of their species to find their basic needs, to avoid predation, to reproduce and interact socially, and to maintain health and resist diseases.
- Wildlife preservation by conservation breeding and release of captive bred animals.
- To provide better environment to animals to live even when environmental conditions are not in favor.

Golden jackal's activity in captivity-

The enclosure of golden jackal's was spread in an area about 3400sqmt. This enclosure is surrounded or covered with cement and stones boundary wall. There are total 6 golden jackals in the enclosure, where 4 males and 2 female jackals. This research discusses about Golden jackal's behavior during the different seasons. This study was conducted during September 2016 – April 2017. In this period various activities of golden jackals were observed

Observation in summer season- According to this research golden jackals were observed more active during summer season. They have been observed drinking water too many times in a day. Their urination and defecation rate is more in summer season. Golden jackals were noticed playing with other jackals most of the time in a day which includes running and fighting. Jackals were seen running to the circumference of the enclosure, mostly at the evening of a day between 4-5 pm. Sometimes jackals were noticed howling at evening. There were 2 manmade dens present in the enclosure but they were not seen using those dens. Jackals spend their daytime mostly in walking, running and standing. They are less interested in taking rest during daytime. Most entertaining part of summer season was to watch jackals playing in water. Due to high temperature jackals take bath too many times in a day.

DATA OF SUMMER SEASON-

TIME	WALKING	RUNNING	STANDING	SLEEPING	URINATION	DEFECATION	PLAYING	RESTING	DRINKING	BATH
10-11AM	8	15	8	0	0	0	2	3	2	2
11-12PM	7	5	8	0	2	0	4	2	1	1
12-1PM	9	5	5	4	1	0	2	5	2	2
1-2PM	8	9	2	7	2	0	1	3	1	1
2-3PM	13	11	5	20	3	2	0	5	3	3
3-4PM	9	21	4	8	4	2	6	2	2	2
4-5PM	9	8	2	0	4	1	5	0	3	3
TOTAL	63	84	34	39	16	5	20	20	14	14

%DATA OF SUMMER SEASON-

TIME	WALKING	RUNNING	STANDING	SLEEPING	URINATION	DEFECATION	PLAYING	RESTING	DRINKING	BATH
10-11AM	20%	37.50%	20%	0%	0%	0%	5%	7.50%	5%	5%
11-12PM	14.58%	10.41%	16.66%	0%	4.16%	0%	8.33%	4.16%	2.08%	2.08%
12-1PM	25.71%	14.28%	14.28%	11.42%	2.85%	0%	5.71%	14.28%	5.71%	5.71%
1-2PM	23.52%	26.47%	5.88%	20.58%	5.88%	0%	2.94%	8.82%	2.94%	2.94%
2-3PM	20%	16.92%	7.69%	30.76%	4.61%	3.07%	0%	7.69%	2.56%	2.56%
3-4PM	15%	35%	6.66%	13.33%	6.66%	3.33%	10%	3.33%	3.33%	3.33%
4-5PM	25.71%	22.85%	5.71%	0%	11.42%	2.85%	14.28%	0%	8.57%	8.57%

Observation in winter season

In winter season golden jackals were observed less active than summer season. Their drinking rate decreased in winter. Also, their urination and defecation rate decreased. In winter season golden jackals were rarely seen playing. Their playing rate also decreased. Mostly, jackals spend their daytime in walking, standing, resting and sleeping. In winter, jackals were not seen taking bath. They behave lazy during winter, they were rarely seen playing. They were observed taking long nap in sunlight.

DATA OF WINTER SEASON

TIME	WALKING	RUNNING	STANDING	SLEEPING	URINATION	DEFECATION	PLAYING	RESTING	DRINKING	BATH
10-11AM	19	4	9	8	0	0	3	27	1	0
11-12PM	10	0	9	40	0	0	0	20	2	0
12-1PM	6	3	11	6	0	0	0	12	1	0
1-2PM	11	4	13	44	1	0	0	4	1	0
2-3PM	7	0	3	59	0	0	0	11	0	0
3-4PM	15	0	10	48	2	0	0	7	4	0
4-5PM	18	34	12	12	1	1	0	5	3	0
TOTAL	86	45	57	217	4	1	3	86	12	0

%DATA OF WINTER SEASON-

TIME	WALKING	RUNNING	STANDING	URINATION	DEFECATION	PLAYING	RESTING	DRINKING	BATH
10-11AM	27%	5.63%	12.67%	0%	0%	4.22%	38.02%	1.40%	0%
11-12PM	12.34%	0%	11.11%	0%	0%	0%	24.69%	1.23%	0%
12-1PM	15.38%	7.69%	28.20%	0%	0%	0%	30.76%	2.56%	0%
1-2PM	14.10%	5.12%	16.66%	1.28%	0%	0%	5.12%	1.28%	0%
2-3PM	8.75%	0%	3.75%	0%	0%	0%	13.75%	0%	0%
3-4PM	17.44%	0%	11.62%	2.32%	0%	0%	8.13%	4.62%	0%
4-5PM	24.32%	45.94%	16.21%	1.32%	1.32%	0%	6.75%	4.05%	0%

Other observations-

Jackals are generally shy. They hide themselves behind shrubs or rocks when they see humans but in biopark jackals are no more shy. When they hear the noise of golf cart they start looking at the front of the enclosure where visitors stand. They come forward to the fencing. They are not afraid of humans. Jackals are known for their hunting nature but this hunting nature is somewhere lost in captivity. Many times rats and birds were seen near the jackals but these golden jackals did not even try to hunt them because they were aware that they will get food without any hard work. Golden jackals were rarely seen howling. Howling is a part of warn to each other for any threat, but in enclosure they are habituated of humans so they howl very rarely. The defending nature to their territory in wild of golden jackals is well known. But in captivity this nature also has been lost. There were 6 golden jackals in the enclosure, so they live as a pack. So the defending nature by scent mark through urination and defecation was not seen. If we talk about mating nature, we know that in animals males fight with each other to meet with the female but in captivity golden jackals were not seen fighting to meet with the female. They do not react for the caretakers of the jackals when they give them food or clean their holding area. (Holding area is the place where animals are kept during night).

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