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SHORT COMMUNICATION

Interbirth interval of a free-ranging jaguar

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Reproductive parameters such as litter size, cub survival, and interbirth interval are essential for estimating the rates at which jaguar, *Panthera onca* (Linnaeus, 1758) populations might grow (c.f., Eizirik et al. 2002), and thus are a major conservation concern. However, most information about reproduction in jaguars comes from observations in zoos (Seymour 1989), and even these observations are not always congruent with those from the wild (Hayssen et al. 1993). Also, some important data, such as the interbirth interval for jaguars, apparently has rarely been documented (Sunquist and Sunquist 2002), either in captivity (Hayssen et al. 1993:308) or in the wild (Guggisberg 1975:265; Quigley 1987:13). Thus, we report here reproduction-related observations made on an adult female jaguar captured, radio-collared, and frequently monitored in Corcovado National Park (CNP), Costa Rica during 1996–1999.

The 500-km^2 CNP is located in the western half of the Osa Peninsula on the southern, Pacific Ocean side of Costa Rica (8°29′N, 83°30′W). The jaguar was monitored in a portion of the park adjacent to the beach and surrounded by areas that were farms when the park was established in 1975 but are now a mosaic of second growth habitats (Boinski 1987). Several small rivers flow through the area from the pluvial low-mountain forest at higher elevations (50–700 m above sea level; Tosi 1969) down through the extremely humid tropical forest at low elevations. During the study period, the rainy season typically lasted from May–November (Carrillo 2000).

The 60-kg adult female jaguar was first captured on 25 February 1996 in a box trap baited with shark meat, then immobilized with 10 mg/kg of ketamine (100 mg/ml, Bristol Laboratories, Syracuse, New York 13201,USA) mixed with 5 mg/kg of Rompun (100 mg/ml, Mobay Corporation, Animal Health Division, Kansas 66201, USA). She was weighed, fitted with a 500 g radiocollar (Telonics Inc. Mesa, AZ 85204, USA), allowed to recover in the trap, and then released. We monitored her for the next three and a half years, usually locating her by triangulation once or twice a week, but also by tracking her (i.e., following sets of footprints to identify individuals) to within 100 m. She was recaptured once but released immediately.

The radio-monitored female was attended by an adult male in March 1996, and probably gave birth in late May or early June (Table 1). By July she was accompanied by only one cub. That cub remained with her for 19–20 months, but by February 1998 she was observed and appeared pregnant. She localized her movements in the same area where she had probably given birth some 22 months earlier and probably gave birth in late March or early April 1998 (Table 1). The single cub still accompanied her regularly in June 1999.

The 22- to 24-month birth interval we documented is similar to that suggested by Mondolfi and Hoogesteijn (1986) and calculated from observations by Quigley (1987) and Quigley and Crawshaw (2002). A similar value can also be calculated from the gestation interval

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Table 1. Reproductive observations of a female jaguar in Corcovado National Park, Costa Rica.

Year	Date	Observation
1996	25 Feb	Female captured and radiocollared; not lactating.
	1–17 Mar	Female was twice observed accompanied by a male; her tracks were observed 9 other times, always with larger tracks of a male.
	26 Apr	Female was recaptured, weighed 2 kg more than when previously captured, and had an enlarged belly, suggesting that she was pregnant.
	May	Female was repeatedly located in a small, inaccessible area with a significant slope in rocky highlands (i.e., a probable den site).
	13 Jul	Tracks of female accompanied by tracks of 1 cub.
1997	Jan–Dec	Cub with female on every observation, as indicated by tracks.
	Jul	Cub tracks almost the same size of as those of the female.
1998	Jan	Cub tracks were seen with tracks of female on only 2 of 7 occasions.
	4 Feb	Female observed and appeared pregnant (she had an enlarged belly).
	Mar	She was again repeatedly located in the area of her previous den.
	2 Jul	Tracks of female accompanied by tracks of 1 cub.
	22 Aug	Female observed on the beach and her teats were extended and appeared full of milk.
1999	22 Jun	Cub still with its mother but its tracks are almost the same size.

(we observed 2.5- to 3-months, similar to the 3.0- to 3.5-months [91–111 days] reported for animals in captivity [Hemmer 1979]), and the age at which subadult jaguars disperse (18–25 months in Brazil; Crawshaw 1995; Quigley and Crawshaw 2002).

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