

Solar worship: the Rufous-tailed Jacamar sunbathes on the ground

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ABSTRACT: Sunbathing is a comfort behaviour widespread among birds, but remains inadequately documented for jacamars (Galbulidae). Herein I briefly describe and illustrate sunbathing by the Rufous-tailed Jacamar (*Galbula ruficauda*) on a dirt road in the Atlantic forest of Southeastern Brazil. A female with worn tail tip displayed sunning behaviour after 9 min of dustbathing. The bird crouched on the ground with its back oriented towards the sun, spread the wings and remained in this posture for about 3 min, raising its head from time to time to watch flying insects. The sunning session ended with the bird ejecting a chitinous pellet. Afterwards, it flew to a perch where it preened for about 5 min before starting to chase flying insects. Sunbathing by the Rufous-tailed Jacamar is similar to that displayed by puffbirds and some woodpeckers while on the ground. Because the jacamar preened its plumage after dustbathing and sunning, it is likely that the main functions for these behaviours on the sandy ground were feather maintenance and parasite removal.

KEY-WORDS: *Galbula ruficauda*, comfort behaviour, sunning, dustbathing, Atlantic forest, Southeastern Brazil.

INTRODUCTION

Sunning or sunbathing is a comfort behaviour widespread among birds (Kennedy 1969, Mueller 1972, Burton 1985). While sunbathing, birds may display a trance-like state or condition (Mueller 1972, Cade 1973, Blem & Blem 1992) and I observed that, while in this trance, several bird species such as doves, thrushes, and flycatchers allow a close approach. Sunning can have several functions, including thermal regulation, feather maintenance, gaining vitamin D, parasite removal, and soothing irritated skin from emergence of new feathers (Kennedy 1969, Mueller 1972, Blem & Blem 1993, Clayton *et al.* 2010). Although recorded for several species of Piciformes such as woodpeckers and puffbirds (Rasmussen & Collar 2002, Winkler & Christie 2002), sunbathing remains inadequately documented for jacamars, Galbulidae (Tobias 2002). In a detailed account on life history of the Rufous-tailed Jacamar (*Galbula ruficauda*), there is no mention to sunning (Skutch 1963).

METHODS

I report here on a female Rufous-tailed Jacamar sunning on a dirt road (23°20'40"S, 44°50'38"W, 9 m. a. s. l.) in

a stretch of the Atlantic forest at Ubatuba, São Paulo, Southeastern Brazil, on 17 December 2014, in the late afternoon. Throughout the observation, I used the "ad libitum" sampling method, which is adequate to record rare events (Altmann 1974). Digital photos of the jacamar displaying dustbathing, sunning, and regurgitating behaviours are housed as vouchers in the Museu de Zoologia, Universidade Estadual de Campinas (ZUEC).

RESULTS

I noticed a female jacamar with worn tail tip landing on the ground of a dirt road at the edge of a forest stretch at 16:33 h (air temperature 29°-30°). Immediately upon landing, the bird began a dustbathing session that lasted about 9 min (16:33-16:42 h), but was briefly interrupted three times because of people and a motorcycle moving on the road. The bird dustbathed with quick movements of one wing and the corresponding body side touching the ground and stirring the sand. It interchanged the left and right body sides and wings while dustbathing. The dust was scattered on the ruffled feathers on the back by downwards and upwards wing movements (Figure 1a). Aside from these interchanging side movements, I

observed that the bird also interchanged its feet to scratch the ground backwards while dustbathing.

After dustbathing, the jacamar began sunning itself for 3 min (16:42-16:45 h). While sunning, the bird crouched on the ground with its back oriented towards the sun with its spread wings touching the ground (Figure 1b). It fluffed the plumage a little, but the feathers remained neatly arranged on the body. The bird raised its head from time to time to watch flying insects and

directed the head towards the potential prey (Figure 1c). It held the bill at an angle of about 45° to 80° while watching insects flying nearby, but resumed the sunning posture afterwards without leaving the ground. The sunning session ended as the bird turned its body, opened its bill widely and ejected a chitinous pellet (Figure 1d) that contained insect remains. Afterwards, it perched on a branch and preened the feathers for about 5 min (16:46-16:51 h) before starting to chase flying insects.

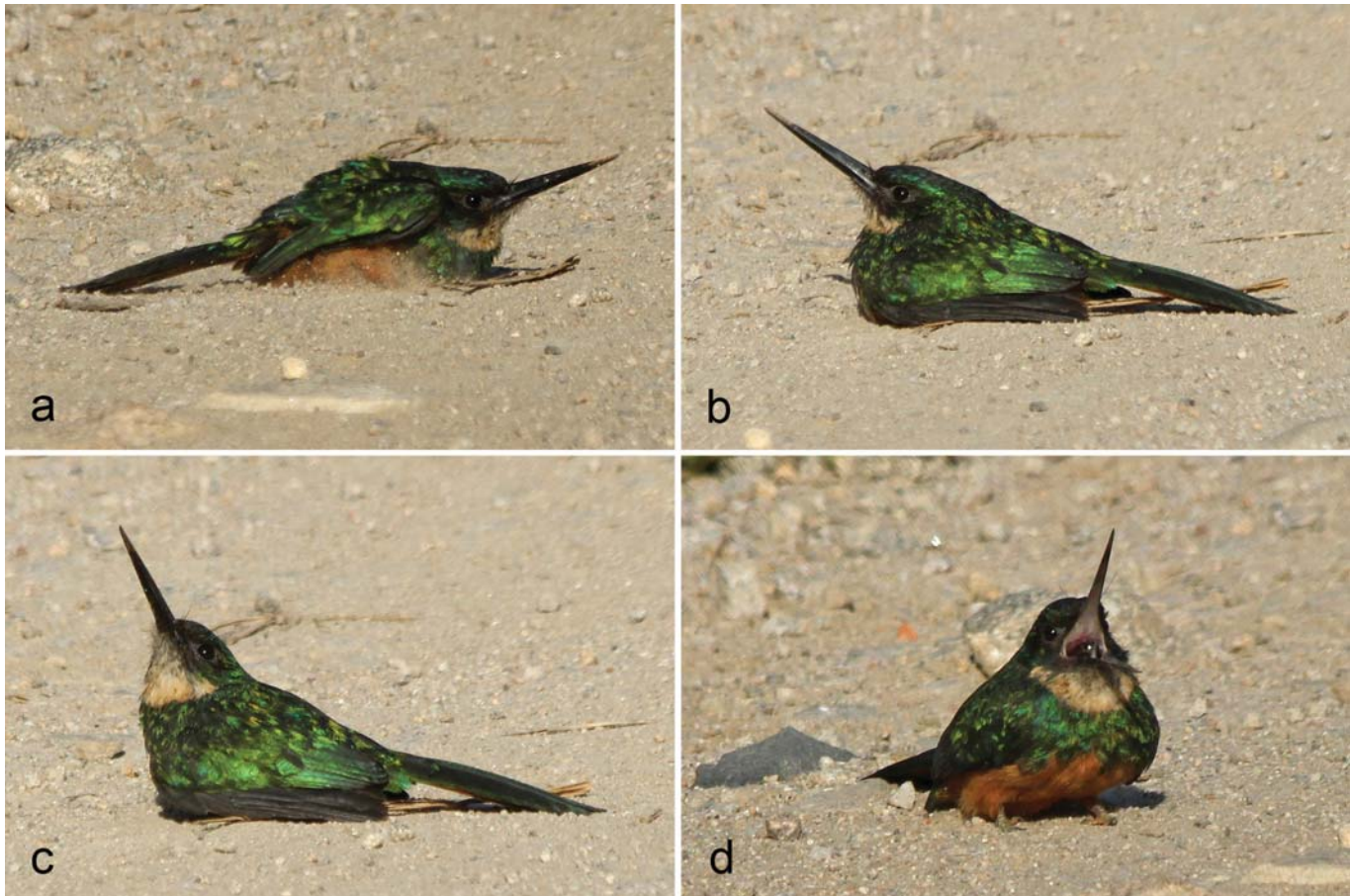


FIGURE 1. A female Rufous-tailed Jacamar (*Galbula ruficauda*) on a dirt road (23°20'40" S, 44°50'38" W, 9 m. a. s. l.) in a stretch of the Atlantic forest at Ubatuba, São Paulo, Southeastern Brazil. The bird dustbathes with movements of wings and belly towards the substrate, raising dust that accumulates on its feathers (a); after dustbathing, the bird sunbathes crouched on the ground with spread wings and back oriented towards the sun (b); the bird raises the head to watch flying insect but continues sunning, (c); opening its mouth widely, the bird regurgitates a chitinous pellet and ends the sunning session (d).

An additional record of a sunning Rufous-tailed Jacamar was obtained near the Rio Cachoeirinha (20°42'30"S, 48°51'00"W, 475 m a. s. l.), Olímpia, São Paulo, Southeastern Brazil, on 21 April 2010 at 14:31 h (D. L. Lucas Bessa, pers. comm.). The bird's feathers were wet and it oriented the chest towards the sun while perched on a twig (Figure 2). Its wings were more spread than those of the individual I recorded on the ground.

FIGURE 2. A female Rufous-tailed Jacamar (*Galbula ruficauda*) recorded near the Rio Cachoeirinha (20°42'30" S, 48°51'00" W, 475 m a. s. l.), Olímpia, São Paulo, Southeastern Brazil, sunbathes on a twig, its plumage wet and the chest oriented towards the sun. Photo by D. L. Lucas Bessa.



DISCUSSION

Sunning by jacamars seems to be poorly documented, if at all (Tobias 2002), and I am unaware of additional reports on this comfort behaviour among the Galbulidae except for a photograph of a sunbathing Rufous-tailed Jacamar perched on a branch after rain (Parasram 2009). The posture of the wings is similar to that which I recorded for the jacamar sunning on the ground, as is the direction of the back towards the sun (Parasram 2009).

What called my attention in the ground sunbathing jacamar was the head turning towards flying insects while the bird was sunning. While perched and hunting, most jacamar species direct their attention upwards and hold the bill at an angle of about 45° (Tobias 2002), and the sunning bird reported here was no exception even if unwilling to leave the ground.

Compared with the sunning posture recorded for Piciformes such as woodpeckers (Winkler & Christie 2002), the wings of jacamars tend to be less spread and the tail is not spread, a trait observed for another galbulid, the Three-toed Jacamar, *Jacamara lacyon tridactyla* when perched (T. A. Mello Júnior pers. comm.). The Acorn Woodpecker *Melanerpes formicivorus* sits with wings partially spread while sunbathing and apparently falls asleep (= trance?) for a few minutes (Koenig *et al.* 1995). I did not observe the jacamar orienting the side of the head towards the sun as some woodpeckers and several bird species do (Burton 1985, Winkler & Christie 2002, pers. obs.). These differences may be due to the very small sample of sunning jacamars (Parasram 2009, this paper) or they are characteristic of galbulids. Further natural history-oriented observations would clarify this subject.

Dustbathing is recorded among galbulids (Tobias 2002), but I was unable to find an adequate description of this behaviour. Some species of woodpeckers of the genus *Colaptes* dustbathe stirring the soil with the bill (Kilham 1975, pers. obs.), whereas I recorded ground scratching with the feet during the dustbathing of the jacamar, a behaviour that may seem unexpected for a bird with small feet (Tobias 2002). Galbulids regularly regurgitate pellets of chitinous parts of insects (Tobias 2002), but again I was unable to find information about under which circumstances they display this behaviour. Ejecting pellets of undigested food is a behaviour often observed in several bird species after sessions of preening or resting (pers. obs.).

The presumed or demonstrated functions of sunning include thermal regulation, feather maintenance, gaining vitamin D, parasite removal, and soothing irritated skin from emergence of new feathers (Kennedy 1969, Mueller 1972, Blem & Blem 1993, Clayton *et al.* 2010). Although some or all of these functions are possible explanations for sunning, only control of feather parasites has been

experimentally demonstrated (Blem & Blem 1993, Clayton *et al.* 2010). Dustbathing possibly has some of the functions suggested or demonstrated for sunning, *e.g.*, feather maintenance and parasite removal (Kelso 1978, Juana 1992, Sick 1997). Because the jacamar preened the plumage after dustbathing and sunning, it seems likely that the main functions for its behaviour on the sandy ground were feather maintenance and parasite removal (Kelso 1978, Juana 1992, Blem & Blem 1993, Clayton *et al.* 2010).

Sunning behaviour may be actually rare among jacamars, but there remains the possibility that some field ornithologists do not pay proper attention to widespread and “commonplace” behaviours such as feather maintenance, bathing, scratching, and other comfort behaviours (see Kelso 1978, Sazima 2011).

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