

Dew-bathing in the Atlantic Forest endemic Robust Woodpecker *Campephilus robustus* (Lichtenstein, 1823) (Aves: Picidae)

Paul SMITH^{1,2,*} , Kevin P. JOHNSON³ 

¹Para La Tierra, Centro IDEAL, Pilar, Dpto. Ñeembucú, Paraguay

²FAUNA Paraguay, Encarnación, Dpto. Itapúa, Paraguay

³Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Champaign, IL, USA

Received: 07.03.2019 • Accepted/Published Online: 14.06.2019 • Final Version: 01.07.2019

Abstract: The bathing behavior of woodpeckers (Picidae) is almost unknown and the paucity of reports of bathing in the family has led to suppositions that they may do so rarely. An unusual observation of the Atlantic Forest endemic Robust Woodpecker *Campephilus robustus* dew-bathing socially is reported from Paraguay and discussion of its significance follows. Dew-bathing has been reported for a small number of New World bird families and has often been linked to a shortage of water, but has never been previously reported in New World Picidae. Given the environmental conditions in this humid habitat it is considered that dew-bathing in this family is related to structure and ecological constraints and not to limited access to water. Picids are highly arboreal birds with structural modifications for arboreality that make them awkward and thus potentially vulnerable when on the ground. A propensity for dew-bathing in forest canopies at sunrise may be a factor in the rarity of such observations and contribute to the lack of published reports.

Key words: Arboreal, adaptation, maintenance behavior, Paraguay

Bathing is a widespread maintenance behavior in birds, but relatively little attention has been given to it. Generally bathing is thought to improve feather condition, and it has been shown to increase flight performance in European Starlings (*Sturnus vulgaris*) (Brilot et al., 2009). Most published reports are of single unusual incidences (Miller, 1942; Cornish, 1951; Madge, 1964; Oliver, 1979; Spencer, 1982), although there are a few more comprehensive studies suggesting that in some regions nearly all species of birds engage in bathing behavior (Okahisa et al., 2015). For example, Taylor (1966) described the behavior of some South African birds visiting bird baths, and Stainton (1982) investigated the relative timing of bathing, dusting, and sunning behaviors in a small number of British passerines. Species level differences in bathing behavior have also been observed (Verbeek, 1969), and Slessers (1970) provided a comprehensive review of bathing behavior across species, categorizing it into four basic methods: Method 1, wading and bathing; Method 2, bathing on the wing; Method 3, dive bathing; and Method 4, rain- and dew-bathing.

There are few records of bathing in woodpeckers (Picidae), and it may be that they bathe rarely. Indeed there is no mention of bathing behavior of woodpeckers in most of the recent monographs on the family (Short,

1982; Gorman, 2014), while Winkler et al. (1995) stated simply that they “occasionally bathe” but “there are no specialized features which would merit detailed description”. Winkler and Christie (2018) made reference to bathing in puddles on the ground or in tree holes. This contradicts the conclusion of Slessers (1970), who classified most woodpeckers as “Method 4” bathers, in which the feathers are exposed to drizzling rain or dew. Slessers (1970) suggests that this method is used by arboreal birds because their “short and weak legs are not suited for movements on the ground”. Therefore, it may be that the arboreal habits of woodpeckers necessitate unusual bathing behaviors that are perhaps difficult to observe (explaining the apparent rarity of reports). Observations of bathing woodpeckers are thus of note. Here we provide details of social dew-bathing behavior in the Atlantic Forest endemic Robust Woodpecker *Campephilus robustus* (Figure).

The observation was made by both authors using 10 × 40 binoculars close to the dwellings at the edge of the Atlantic Forest at Estancia Nueva Gambach (Pro Cosara), a 295-ha property on the southern tip of San Rafael National Park, Itapúa department, Paraguay (26°38'16.3"S, 55°39'51.1"W).

* Correspondence: faunaparaguay@gmail.com



Figure. Male Robust Woodpecker *Campephilus robustus* (Estancia Nueva Gambach/Pro Cosara), June 2011 (Photo: Sylvia Qu).

At around 0600 hours (dawn, GMT -4 h) on 26 September 2018 three Robust Woodpeckers *Campephilus robustus* were observed dew-bathing in the canopy of a Guatambú *Balfourodendron riedelianum* (Rutaceae) tree. The morning was cool, misty, and with high humidity, with heavy dew/rain cover on the vegetation. Birds were seen to fly from the trunk “crashing” into the canopy of the tree, striking the leaves with some force. The birds flapped vigorously for 2–5 s in a clump of leaves, wetting the body and wings. Following a few bouts of this behavior, the birds returned to the tree trunk and preened their feathers. This behavior is analogous in some aspects to a brief description of a similar behavior in Great Spotted Woodpecker in southeast England during June (Winkler and Christie 2018).

Dew-bathing has been reported in several arboreal and aerial families of Old World birds (Cornish, 1951; Madge, 1964; Ash, 1970; Slessers, 1970; Oliver, 1979;

Spencer, 1982; Löhrl et al., 1996) and in a small number of New World families such as Falconidae, Emberizidae, Vireonidae, Parulidae, Paridae, Tyrannidae, Trochilidae, and Regulidae (Miller, 1942; Mayfield, 1960; Van Nolan, 1960; Berger, 1961; Ficken 1962; Verbeek, 1962; Dow, 1968; Baptista, 1973; Hubbard, 1983; Eisermann, 2005). The Orange-breasted Falcon (*Falco deiroleucus*) has also been observed crashing into foliage repeatedly during a morning with light rain (Eisermann, 2005). Such behaviors have been associated with drought conditions when standing water is scarce, suggesting that the birds must take advantage of atmospheric humidity when it becomes available (Verbeek, 1962; Dow, 1968; Baptista, 1973). However other reports suggest that dry conditions may be irrelevant and dew-bathing may be used preferentially in some species even when ample water is available nearby (Cornish, 1951; Hancock, 1965; Eisermann, 2005).

Dew-bathing is reported here for the first time in a New World woodpecker, and it is of note that the humid forest habitat in which this observation took place is rarely dry. Indeed, the area had received heavy rainfall in the days prior. We speculate that the novelty of the observed behavior may be a result of the arboreal lifestyle and large body size of *Campephilus* woodpeckers, making them reluctant to descend to the ground to bathe in a highly biodiverse habitat with considerable predation risk. The difficulty of observing irregular and possibly opportunistic canopy bathing on humid mornings during the first minutes of daylight may explain the rarity of such observations.

Acknowledgments

These observations were obtained during the Sunbird/Wings Paraguay 2018 birding tour by FAUNA Paraguay. The first author is grateful to the PRONII Project of Conacyt Paraguay for support. We are grateful to Sylvia Qu and Pro Cosara for permission to use the photograph.

References

- Ash JS (1970). Observations on a decreasing population of Red-backed Shrikes. *British Birds* 63: 185-205.
- Baptista LF (1973). Leaf bathing in three species of Emberizines. *Wilson Bulletin* 85: 346-347.
- Brilot BO, Asher L, Bateson M (2009). Water bathing alters the speed-accuracy trade-off of escape flights in European starlings. *Animal Behaviour* 78: 801-807.
- Cornish AV (1951). Chiffchaff bathing on wet leaves. *British Birds* 44: 175.
- Dow DD (1968). Dew bathing and related behavior of the Cardinal. *Bird-Banding* 39: 227-228.
- Eisermann K (2005). An observation of foliage-bathing by an Orange-breasted Falcon (*Falco deiroleucus*) in Mal, Guatemala. *Wilson Bulletin* 117: 415-418.
- Ficken MS (1962). Maintenance activities of the American Redstart. *Wilson Bulletin* 74: 153-165.
- Gorman G (2014). *Woodpeckers of the World. The Complete Guide*. London, UK: Christopher Helm.
- Hancock M (1965). Birds ‘bathing’ in snow and wet grass, leaves and earth. *British Birds* 58: 155-156.
- Hubbard JP (1983). Calliope hummingbirds bathe on wet leaves. *NMOS Bulletin* 11 (1): 14-15.

- Löhr H, Thaler E, Christie DA (1996). Status and behaviour of the Tenerife Kinglet. *British Birds* 89: 379-386.
- Madge SM (1964). Carrion Crow 'bathing' on lawn. *British Birds* 57: 328-329.
- Mayfield HF (1960). The Kirtland's Warbler. Bloomfield Hills, MI, USA: Cranbrook Institute of Science.
- Miller AH (1942). Shower bathing of a spotted towhee. *Condor* 44: 232.
- Nolan V (1960). Breeding behavior of the Bell Vireo in southern Indiana. *Condor* 62: 225-244.
- Okahisa Y, Nakahara T, Sato NJ, Theuerkauf J (2015). Puddle use by New Caledonian rainforest birds. *Ornithological Science* 14: 41-45.
- Oliver PJ (1979). Sand Martins drinking and apparently bathing in dew. *British Birds* 72: 36.
- Short LL (1982). Woodpeckers of the World. Greenville, DE, USA: Delaware Museum of Natural History Monograph Series 4.
- Slessers M (1970). Bathing behavior of land birds. *Auk* 87: 91-99.
- Spencer KG (1982). Willow Warbler bathing in dew. *British Birds* 75: 36.
- Stainton JM (1982). Timing of bathing, dusting and sunning. *British Birds* 75: 65-86.
- Taylor JS. 1966. The bathing behaviour of some South African birds. *Ostrich* 37 (Supplement): 193-196.
- Verbeek NAM (1962). On dew bathing and drought in passerines. *Auk* 79: 719.
- Winkler H, Christie DA (2018). Woodpeckers (*Picidae*). In: *Handbook of the Birds of the World Alive*. Barcelona (Spain): Lynx Edicions. Available online at <https://www.hbw.com/node/52286>.
- Winkler H, Christie DA, Nurney D (1995). Woodpeckers. A Guide to the Woodpeckers, Piculets and Wrynecks of the World. East Sussex, UK: Pica Press.