

### The nest and eggs of Turquoise Jay *Cyanolyca turcosa*

The genus *Cyanolyca* includes nine species of large colourful corvids distributed from Mexico to Bolivia, reaching their maximum diversity in Middle America<sup>1,12,14</sup>. The distribution and taxonomy of *Cyanolyca* jays is relatively well understood<sup>1,2,12</sup> but information on their natural history is sparse, with nests described for just four species<sup>3,9,17,19</sup>.

Turquoise Jay *C. turcosa* inhabits humid, montane forests and forest borders (1,500–3,500 m) in south-west Colombia, both Andean slopes in Ecuador, south to northern Peru<sup>1,4,13–16</sup>. It is closely related to Black-collared Jay *C. armillata* and White-collared Jay *C. viridicyanus*<sup>2</sup>, and all three taxa were formerly considered conspecific<sup>5</sup>. To date, nests of Turquoise Jay have been mentioned several times in the literature, but its nest and eggs have not been described<sup>1,11</sup>. Based on observations in northern Ecuador, we present detailed descriptions of two nests and one clutch of eggs.

The first nest was found by J. Simbaña on 28 November 2012 at Guango Lodge, Napo prov., north-east Ecuador (00°22'S 78°12'W; 2,700 m). He observed a single adult flush from the

nest on his approach. It left the area silently and appeared to join a flock of conspecifics c.50 m away. Twenty minutes later, an adult returned to the nest, again silently, and settled there after feeding a small prey to a tiny nestling not visible over the rim of the nest. We made no further observations at this nest until we returned a month later to collect and measure it. This nest was centrally located in a sparsely leaved, 13 m-tall *Weinmannia* tree (Cunoniaceae), 10 m above the ground. It was a bulky cup, easily visible from the ground, and supported by five small (2–4 cm branches), which sprouted from the trunk. It was nearly identical in composition to the nest described in more detail below, and similarly well lined with pale brown, flexible rootlets. Externally, the bulky, cup-shaped nest was 24–28 cm in diameter and 15 cm tall. The neat, inner cup was 11 cm wide and 9 cm deep. The nest tree was in a forest gap, surrounded by dense *Chusquea* bamboo, with its crown (and the nest) fairly isolated, being c.10 m from the nearest vegetation. Habitat in the area surrounding the nest was fragmented, extremely humid cloud forest typical of this region, with a 20–30 m-high canopy and an understorey dominated by bamboo. However, large tracts of

intact forest were less than 100 m from the nest. Rainfall is relatively aseasonal, but similar to the nearby Papallacta area, November being among the drier months<sup>8</sup>.

We found a second nest on 16 March 2013 along the narrow, unpaved road into the Pululahua Crater, Pichincha prov., north-west Ecuador (00°04'N 78°30'W; 2,050 m). At 15h00, an adult flushed from the nest, skulked silently in nearby vegetation and then left the area. We observed two eggs in the nest using a mirror. Periodic observations during the rest of the afternoon and the subsequent morning revealed that incubation was underway, but we never observed more than one adult approaching the nest at any given time. The flock of conspecifics to which the adult(s) attending the nest belonged rarely spent more than a few moments in the vicinity of the nest, and vocalised little except when > 30 m from the nest. Once the incubating adult joined the flock as it passed the nest, but generally the bird arrived and left while no other jays were in the vicinity. Interestingly, although we could not confirm this, we suspect individuals from the same flock of jays may have also been attending a second nest near the canopy of a densely foliated tree, just 50 m from the studied nest.

The second nest was a bulky, externally untidy cup of green moss and twigs (Fig. 1). The twigs were mostly 10–15 cm long and 3–4 mm in diameter, and some bore spines. They were mixed into the mostly moss exterior, and appeared to provide structural integrity to the otherwise loosely packed moss. Internally the cup was thickly lined with flexible fibres and rootlets, most of which were pale whitish or light brown (Fig. 2). Externally the nest was slightly asymmetrical, measuring 27 cm in diameter at its widest point and 23 cm at its narrowest. It was 12.5 cm tall outside and the internal cup was 10 cm wide and 8 cm deep internally. The two eggs were very fresh, and showed no signs of development when held up to a light. They were very pale blue (almost white),



Figure 1. Nest of Turquoise Jay *Cyanolyca turcosa*, Pululahua Crater, Pichincha prov., Ecuador, 16 March 2013 (Harold F. Greeney)



Figure 2. Complete clutch of eggs in nest of Turquoise Jay *Cyanolyca turcosa*, Pululahua Crater, Pichincha prov., Ecuador, 16 March 2013 (Harold F. Greeney)

flecked with small, pale brown and lavender markings, more densely distributed at the larger ends, which also bore several narrow, black scrawls (Fig. 2). The eggs measured  $33.5 \times 23.5$  mm and  $32.9 \times 23.2$  mm, and weighed 9.8 g and 9.4 g, respectively. The nest was precariously saddled over a nearly level branch, c.4–5 cm in diameter, and supported by three smaller branches (1–2 cm diameter), which passed through the external parts of the nest and held it in place. It was 6 m above the ground in a 9 m-tall, spiny *Barnadesia* (Asteraceae) tree. The nest was sited directly above the infrequently used road, c.2.5 m from the trunk and 1.5 m from the tip of the branch. It was poorly concealed by the sparse vegetation surrounding the nest, and clearly visible from most angles. Habitat in the area was fragmented, seasonally humid cloud forest, with a partially grazed understorey dominated by *Chusquea* bamboo. March is one of the wetter months in this area, similar to the nearby Tandayapa Valley<sup>6</sup>.

In addition to these nests, on 20 December 2008, at Bellavista Cloudforest Reserve, above Tandayapa, Pichincha prov., north-west Ecuador (00°15'N 78°38'W), HFG observed three active nests (cf. MacLean<sup>11</sup>). All

were under construction, two at an elevation of 2,300 m and one at 2,200 m. Two nests appeared to be just beginning and one nearly complete. They were placed in multiple forks of small branches, centrally located in the crowns of isolated trees beside roads or landslides. Two were in Melastomataceae, and one was in an unidentified tree with a similar, open-branched architecture. The nests were 16 m, 9 m and 13 m above the ground in 18 m, 9.5 m and 14 m-tall trees, respectively. All were predominantly constructed of moss and they appeared to be similar to the nests described above, but we were unable to examine them closely. At all three nests there were three adults in their vicinity. At two nests, however, we observed only a single bird bringing moss. At the third nest we clearly observed three individuals adding material. At one nest, which seemed fairly early in the building process, two adults aggressively approached a Plate-billed Mountain Toucan *Andigena laminirostris* that perched 15 m from the nest. They emitted loud vocalisations and flew to within 2 m of the toucan, chasing it from the area after several minutes.

Since few nests of other *Cyanolyca* jays have been described, we refrain from a

detailed discussion, suffice to say that nests of Turquoise Jay studied here are very similar to the nest and eggs of Beautiful Jay *C. pulchra* described by Solano-Ugalde *et al.*<sup>17</sup> and Laufenberg & Woodward<sup>10</sup>. Instead, we review previously published breeding records for Turquoise Jay. FjeldsÅ & Krabbe<sup>4</sup> reported 'juveniles' in September in north-west Ecuador, November and February in north-east Ecuador, June in south-east Ecuador, and May in north-west Peru. Even though they provided no indication of the age of these birds, in other instances they refer to 'fledglings' and presumably these records were of individuals no longer attended by adults and thus probably 1–2 months out of the nest. Greeney *et al.*<sup>8</sup> reported adults feeding fledglings in July in north-east Ecuador, whereas Greeney *et al.*<sup>7</sup>, found nests with eggs or nestlings in October and December in south-east Ecuador. In north-west Ecuador, Greeney & Nunnery<sup>6</sup> found a nest under construction in May and one with nestlings in June, and Welford *et al.*<sup>18</sup> reported a nest with nestlings (parasitised by cowbirds) in February. Together with the nests reported here, these records provide a preliminary indication of the reproductive seasonality for Turquoise Jay in Ecuador, and suggest that most breeding in north-west Ecuador probably occurs during the wetter months (December–May). Conversely, although the breeding period may be more protracted in eastern Ecuador, it appears that this species prefers to nest during the drier months in both the north and south (September–January). The single described nest of Beautiful Jay from north-west Ecuador<sup>17</sup> follows this wet-season pattern, but further breeding records for these and other *Cyanolyca* are needed to test the robustness of this apparently geographically disjunct pattern of reproductive seasonality in Ecuadorian jays.

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