First observations of nest and nestling of the Black-cheeked Ant-Tanager *Habia atrimaxillaris* (DWIGHT & GRISCOM 1924), endemic to the Golfo Dulce rainforests, Costa Rica

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Abstract:
Nest and nestlings of the endemic Black-cheeked Ant-Tanager *Habia atrimaxillaris* were detected for the first time near the Tropenstation La Gamba, in SW Costa Rica, in February 2008. The nesting site is situated in the largely primary Esquinas forest near the Golfo Dulce, where *H. atrimaxillaris* is regularly observed. Nest and nestlings are described in comparison with other *Habia* species. Aspects of breeding behaviour include new findings like a non-breeding helper involved in rearing the juveniles.

Key words:
Habia atrimaxillaris, Black-cheeked Ant-Tanager, Thraupidae, nest, breeding behaviour, helper, Golfo Dulce, Costa Rica

Resumen:
Nidos y polluelos de la especie endémica, *Habia Atrimaxillaris*, "tangara hormiguera carinegra" (Thraupidae, Passeriformes), fueron encontrados por primera vez cerca de la estación tropical La Gamba, al sur-oeste de Costa Rica, durante el mes de febrero de 2008. El sitio de anidación se encuentra situado en el extenso bosque primario "Esquinas", cerca del Golfo Dulce, donde *H. atrimaxillaris* es observada regularmente. Los nidos y polluelos son descritos, comparándolos con otras especies de *Habia* sp. Se incluyen nuevos hallazgos del comportamiento reproductivo, como una nodriza que participa en la crianza de los juveniles.

Palabras claves
Habia atrimaxillaris, Tangara hormiguera carinegra, Thraupidae, nido, cria, comportamiento, nodriza, Golfo Dulce, Costa Rica

The Black-cheeked Ant-tanager *Habia atrimaxillaris* is an endemic bird species in Costa Rica. Its total distribution range is limited to the rainforests of the Golfo Dulce in the pacific region of the southwest of Costa Rica (STATTERSFIELD et al. 1998). This species is classified as endangered because of its small range and large reduction of suitable habitats. Population is estimated with at least 10.000 individuals. The habitat of *Habia atrimaxillaris* is the understorey of wet primary forests in the lowlands of the Corcovado national park and the Golfito faunal refuge (BIRDLIFE INTERNATIONAL 2000, 2007, IUCN 2007). *Habia atrimaxillaris* is characterised by the mostly blackish head with contrasting salmon throat. Males have a throat from bright salmon to dusky red on the breast, and females' throats are slightly duller salmon (STILES & SKUTCH 1989).
Concerning breeding biology of the 242 tanager species (Thraupidae) little is still known. The nests of 124 species remain undiscovered (ISLER & ISLER 1999). The five species of the genus *Habia* are reported to be well investigated by WILLIS (1972),

Though the Black-cheeked Ant-tanager it is a common bird in the forest near the Tropenstation La Gamba (www.lagamba.at) (SAUBERER et al. 2007) nest, nestlings and details of breeding biology were unknown until now (AUBRECHT 2008).

Methods and locality

Observations were made about 10 m distant to the nest using binoculars (SCL 10x50 Swarovski); photographs were taken by digital cameras. Behaviour at the nest was recorded during daylight (5:30 AM to 5.30 PM) from February 12th to 13th.
The nesting site is situated in a primary gorge forest of the Esquinas Forests on the property of the Tropenstation La Gamba (8°42'N, 83°11'W, 66 m above sea level). The Esquinas Forests are located in the southwest of Costa Rica at an elevation from sea level up to 575 m (Cerro Nicuesa), and consist largely of primary lowland forest partly intersected by secondary growth and agriculture land on the edges. Temperature and humidity is very high all the year round, and precipitation about 6.000 mm per year with lesser rainfalls between January to March (WEBER et al. 2001, SAUBERER et al. 2007).

Results

The nest was discovered during a botanical field course of the University of Vienna (Austria) on February 8th, 2008. Three adult birds behaved very nervously uttering loud calls.
Nest:
The nest was attached and fixed with plant materials to two neighbouring stems of the dwarf palms (*Geonoma* sp.) in about 150 cm height. Palm leaves above the nest protected it from rain. The nest was cup-shaped and made of larger leaves on the outside. The complete inside was woven out with black hyphen from a fungus (XXXX). The nest had an outside diameter of 150 mm and 90 mm diameter inside and a height of 60 mm.
The distance from the nest site to the edge of the forest was appr. 100 m.
The nest was deposited at the ornithological collection of the Museo Nacional de Costa Rica.
Nestling biology:
We found the nest on Feb. 8th occupied with two partially naked chicks presenting yellow throats when begging for food (Plate 1). During our observations (12th and 13th of February) the hatchlings had developed partially dark feathers (Plate 2). The chicks were leaving the nest between February 18th and 20th. The nesting period therefore can be limited to at least 10-12 days.
Three adults and at least one non-breeding bird were feeding the chicks. One of the parents stayed in the nest during the night. This parent bird arrived between 5:30 pm and 5:55 pm and left the nest about 5:40 am in the morning next day.
Up to three adults were feeding the chicks during the whole day (Fig.1). Feeding frequencies show little regularity between the two days. The menu ranged from small lizards, to caterpillars, crickets, grasshoppers, cicadas and butterflies. The adults were obviously hunting together, because they left the area around the nest together and most often returned together with food for the chicks (Plate 3). The nest was left alone up to one hour. On February 12th the adults arrived 31 times with food for the chicks and on February 13th even 49 times. Approaching the nest with food the adult birds always chattered very loudly. The average retention time of the feeding adult in the nest was between 0.5 minutes up to three minutes. Sometimes only two adults returned to nest.
During our observations on both days the time of one adult remaining in the nest was about 20 minutes/day.
Adults were sometimes cleaning the nest from faeces by carrying it out of the nest. It also seemed that adults consumed the faeces (Plate 4).

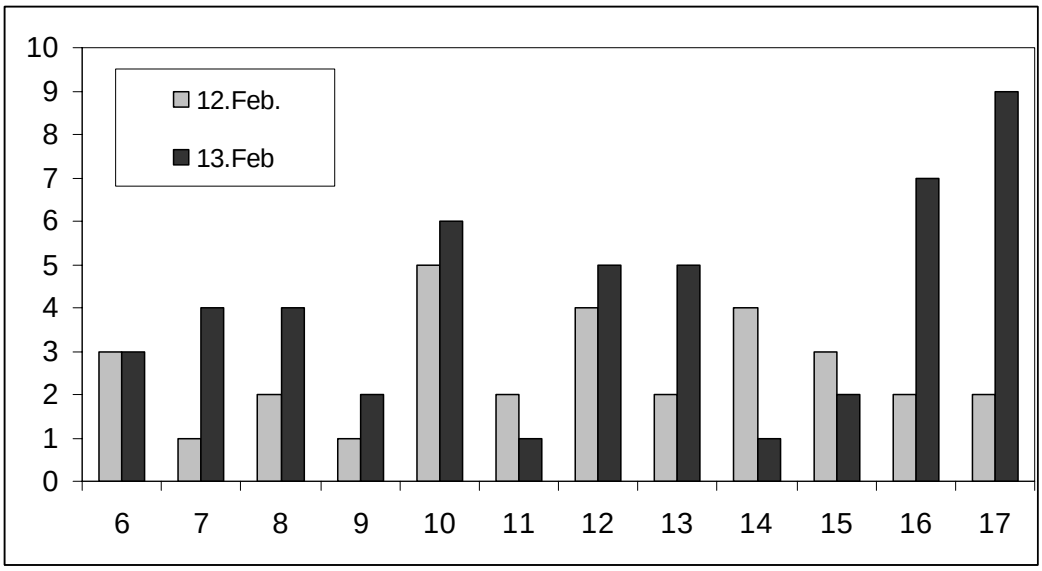

Fig. 1: Visits of adults while feeding chicks during the day

Discussion

As outlined in ISLER & ISLER (1999) and WILLIS (1972) *Habia* species are territorial over the whole year. They produce cup-shaped nests. Both parents feed the nestlings and additional non-breeding helpers were observed. Offspring's tend to stay with their parents for the first year and these birds are most possibly the helpers. The data for *H. atrimaxillaris* fit well into this description.

Breeding season for *H. atrimaxillaris* seems to be in the drier seasons (February to March). Like other ant-tanagers *H. atrimaxillaris* uses a palm stem when placing the nest in the understorey of the forest (WILLIS 1961). Red-throated Ant-Tanager (*Habia gutturalis*) and Red-crowned Ant-Tanager (*Habia rubica*) also line nests with rhizomorphs or "vegetable horsehairs" of the fungal hyphen of *Marasmius* sp. (WILLIS 1961).

Habia species	Nest height	Number eggs	Incubation time	Days nestlings	Breeding time	Helpers observed	Ref.
rubica	1-(1.4-4)-7	2-3	13-14	10	II, IV-VI (C. R.)		1)
fuscicauda	1.4-7	2-(3)-4	12-14	9	V (Panama)	Yes	1)
atrimaxillaris	**1.5**	**2 (?)**	**?**	**10-12**	**II (C. R.)**	**Yes**	**2)**
gutturalis	0.5	2	?	?	IV, V (Colombia)		1)
cristata	?	?	?	?	?		1)

Fig. 2: Comparison of some breeding parameters among the five *Habia* species using data from ISLER & ISLER (1999) (ref. 1) and from own observations (this paper, ref. 2).

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Plate 1: Two chicks on 8th of February 2008. Photograph by M. Watzka

Plate 2: Two chicks on 13th of February 2008. Photograph by W. Huber

Plate 3: Adult with grub at the nest; the two chicks' beging for feed. Photograph by W. Huber

Plate 4: Chicks with faeces in the nest. Photograph by W. Huber

Plate 5: The habitat of the nesting site. Dwarf palm with nest in foreground. Photograph by W. Huber

Plate 6: Adult with prey (cricket). Photograph by W. Huber

Plate 7: Adult on the nest. Photograph by W. Huber

Plate 8: Adult sitting in the nest. Photograph by W. Huber