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Seasonal changes in population densities of the Grey Go-away-bird *Corythaixoides concolor* in acacia savanna in Namibia

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Abstract. The population density of the Grey Go-away-bird was assessed in a study plot (400 ha) composed of man-modified acacia savanna by means of the territory mapping method. The plot was located in Ogongo, Omusati Region, north-central Namibia. Contrary to expectation, the territory occupation in the Grey Go-away-bird decreased as the fruiting season progressed; in February/March 2020, 35 territories (8.8 breeding pairs per 100 ha) were mapped; in April: 26 (6.5 b.p./100 ha), and in May/June: 21 (5.3 b.p./100ha). In other parts of southern Africa, the population density of the Grey Go-away-bird was much lower. On the one hand, this can be attributed to food abundance (higher in Ogongo than elsewhere), and on the other hand, human disturbance and persecution (higher in towns than in Ogongo).

Keywords: Namibia, *Coryhthaixoides concolor*, savanna, population ecology.

The Grey Go-away-bird *Corythaixoides concolor* (Fig. 1) is one of two species of the genus *Corythaixoides* of the subfamily Criniferinae (family Musophagidae). It occurs in the southern part Africa. It inhabits savannas, arid acacia savannas, as well as *Burkea africana* and *Brachystegia* woodlands. It is common in suburban gardens and other man-modified habitats. It is monogamous and lives in defended territories (Fry et al. 1988). Sometimes it forms loose colonies or breeds cooperatively (du Plessis & Dean 2005). In southern Africa, breeding occurs throughout the year, with a peak from September to December. Much information on its biology comes from aviary breeders. Its ecology, however, is poorly understood (Fry et al. 1988). For instance, no data are available on its population density from any part of its range (Fry et al. 1988, du Plessis & Dean 2005).

The study aims to estimate population densities during two key periods: the late rainy season and early dry season, and to compare these values with those in other parts of Africa.

Figure 1. The Grey Go-away-birds.

The study area was located on the UNAM Ogongo campus. It is situated in the Cuvelai Drainage System, c. 50 km NW of Oshakati, Outapi district, Omusati region, North-Central Namibia (17.700S; 15.310E). The Cuvelai Drainage System, where the study area is situated, is a unique ecosystem comprising a network of water canals (oshanas), mopane and

acacia savannas (Mendelsohn et al. 2000, 2009, Mendelsohn & Weber 2011). The natural vegetation comprises acacia savanna composed mainly of *Vachellia erioloba*, *V. nilotica*, *Senegalia fleckii*, *S. mellifera*, *Albizia anthelmintica*, *Dichrostachys cinerea*, *Colophospermum mopane*, *Combretum spp.*, *Commiphora spp.*, *Grewia spp.*, *Ficus sycomorus*, *Boscia albitrunca*, *Sclerocarya birrea*, *Terminalia sericea*, *Zyzyphus mucronata*, *Hyphaene petersiana*. There is only a small part of the mopane savanna (composed almost entirely of young *Colophospermum* mopane shrubs) in the north-east corner of the study area. Both savannas are utilized as pastures for cattle, sheep, and goats (Kangombe 2007).

The total surface of the study area was 400 ha. Most of it (70%) constitutes natural acacia savanna (Fig. 2); the remaining area is converted into yards with buildings (17.5%), arable fields (7.5%), orchards (2.5%), and sports fields (0.5%). There are also numerous exotic trees planted in and around human settlements, such as *Kigelia africana*, *Moringa oleifera*, *Melia azedarach*, *Dodonaea viscosa*, and *Eucalyptus camaldulensis* (Fig. 3). Several permanent water bodies with standing water are also present. The area borders an artificial water canal to the north and an extensive oshana (a natural grassy depression filled with water during the rainy season) to the east.

Ogongo has a semi-arid climate. The summers are sweltering and partly cloudy, while the winters are short, comfortable, and clear (Mendelsohn et al. 2000, Mendelsohn & Weber 2011). During the 2019/2020 rainy season (September to April), the total amount of rain in nearby Ongwediva was 702 mm (https://weatherandclimate.com/namibia/oshana/ongwediva).

This study was conducted in 2020. A territory mapping method (Sutherland 1996, Bibby et al. 2012) has been applied, as this method enables not only the estimation of population density but also the identification and plotting of occupied territories on a map. Four surveys of the entire area were conducted in each of the three distinct seasons. i.e., February/March, April, and May/June. Each survey consisted of four counts conducted on different days in a fragment of the study area to cover the whole study area. All records of the Grey Go-away-birds were plotted on the 1:5000 map. A caution was taken to avoid registering the same individuals by noting the movements of counted birds in the field and by paying special attention to simultaneously calling birds. At least two records in a clump were required to distinguish an occupied territory (Bibby et al. 2012).

Figures 2-3. Natural (left) and human-modified (right) acacia savanna in Ogongo.

In February/March 2020, 35 territories of the Grey Go-away-bird (8.8 breeding pairs per 100 ha) were mapped (Fig. 4A); in April: 26 (6.5 b.p./100 ha; Fig. 4B), and in May/June: 21 (5.3 b.p./100ha; Fig. 4C). Therefore, contrary to expectation the territory occupation decreased as the fruiting season progressed, which may indicate that not fruits (these are more abundant in the end of rainy season; Table 1) are the staple food of this species, as it is usually accepted (Rowan 1983), but rather flowers, nectar, buds and leaves (these are more abundant in the early rainy season; Table 1) and termites and *Imbrasia belina* caterpillars.

The Grey Go-away Bird eats, among others, flowers of *Sclerocarya birrea*; buds and young leaves of *Vachelia erioloba*, and the alien *Melia azedarach*; fruits of *Ficus spp*., *Dyospyros mespiliformis*, *Melia azedarach*, *Pisidium guajava*, and *Ziziphus mucronata*; insects such as *Hodotermes mossambicus* (Blattodea: Isoptera) and *Imbrasia belina* caterpillars (Lepidoptera: Saturnidae) (Rowan 1983, Venter & Venter 1996, du Plessis & Dean 2005). All these are available in Ogongo (Table 1). The blooming season for most of these trees extends from September to February, while the fruiting season follows from February to June (Table 1). In the Ogongo area, the Grey Go-away-bird breeding season extends from August to April, but it probably peaks in September to December (G. Kopij, own observation).

In other parts of southern Africa, population densities of the Grey Go-away-bird were much lower than those recorded in the Ogongo acacia savanna. In habitats different than the acacia savanna in the Ogongo area, the density was also much lower. For example, in the mopane savanna (1000 ha), the density was only 0.7 b.p./100 ha (Kopij 2023a). In the suburbs of NE Namibia and NE Botswana, it was around 1.8-2.3 b.p./100 ha. In suburbs of Katima Mulilo (4 plots pooled = 476 ha): 2.3 b.p./100 ha (Kopij 2019b, 2020a); in urbanized riparian forest in Katima Mulilo (85 ha): 1.8 b.p./100 ha (Kopij 2020b); in Kasane suburbs, NE Botswana (160 ha): 2.5 b.p./100 ha (Kopij 2018). Surprisingly, the Go-away-bird was not recorded at all in the suburbs of two towns situated in the Cuvelai Drainage System: Outapi (Kopij 2019a) and Onguadiwa (Kopij 2021).

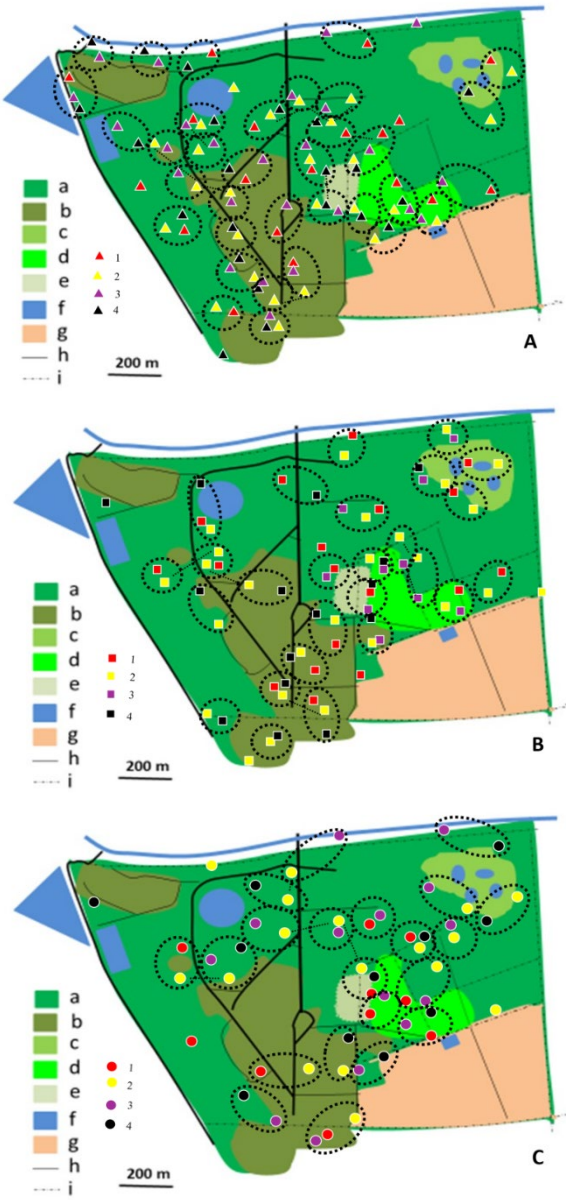

Figure 4. Distribution of the Grey Go-away Bird territories in Ogongo in February/March (A), April (B), and May/June (C) of 2020. Explanations: 1, 2, 3, 4: records of the first, second, third, and fourth surveys, respectively. Encircled are territories. Habitats (land uses): a – acacia savanna, b – built-up area, c – disturbed acacia savanna, d – orchard, e – sport field, f – water bodies, g – arable ground, h – roads, i – fences.

Table 1. Monthly rainfall, the breeding season of the Grey Go-away-bird, and the blooming season of trees in northern Namibia (Mannheimer & Curtis 2009) are factors that may influence the Grey Go-away-bird's diet in the Ogongo area, as buds, leaves, flowers, or fruits may constitute its diet. One asterisk denotes an occurrence, two asterisks – the peak of the occurrence.

Month of the year	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall	**	*	*							*	**	**
Breeding season	*	*	*	*					*	*	*	*
Ficus sycomorus Sycomore Fig	*	*	*	*	**	**	**	**	*	*	*	*
Vachellia erioloba Camel-thorn				*	*	*	*	*	*	*	*	
Vachellia millifera Black-thorn acacia	*	*	*								*	*
Senegalia nilotica Scented-pod acacia				*	*	*	*	*	*			
Dicrostachys cinerea Sickle-bush	**	*	*	*						**	**	**
Albizia anthelmintica Worm-cure Albizia								**	**	**		
Boscia truncata Shepherd's Tree	*	*						**	**	**	**	*
Sclerocarya birrea Marula	*									*	*	*
Ziziphus mucronata Buffalo-thorn	*	*	*	*						*	*	*
Diospyros mespiliformes Jackal-berry	*							*	*	*	*	*
Melia azedarach Syringia								*	*	*		
Pisidium guajava Guava	**	*	*	*	*	*	*	*	*	**	**	**

Also not recorded in inner Windhoek (Kopij 2022, 2023b). These towns are abundant in fruit, acacia, and other trees. The absence of the Go-away-birds from different towns in the Cuvelai Drainage System in north-central Namibia may be a result of human disturbance and persecution rather than a lack of food resources. No data on population density are available from other parts of Africa; however, the Grey Go-away-bird is known to favour acacia woodlands on alluvium (Du Plessis & Dean 2005).

The applied method works well with strongly territorial species. The Grey Go-away-bird is a territorial bird, but some pairs may form loose colonies, while others may breed cooperatively. These may produce an error in the delimitation of territories, and consequently, may distort the results, slightly underestimating (in loose colonies) or overestimating (in cooperative breeding) the actual number of occupied territories (i.e., breeding pairs).

References

Bibby, C.J., Burgess, N.D., Hill, D.A. (2012): Bird censuses techniques. Academic Press, London.

Du Plessis, M.A., Dean, W.R.J. (2005): Grey Go-away Bird *Corythaixoides concolor*. pp. 249-250. In: Hockey, P.A.R., Dean, W.R.J., Ryan, P.G., Maree, S. (eds.), Roberts' birds of southern Africa. John Voelcker Bird Book Fund, Cape Town.

Fry, C.H., Keith, S., Urban, E.K. (1988): Birds of Africa. Vol. 3. Academic Press, London.

Kangombe, F.N. (2007): Vegetation description and mapping of Ogongo Agricultural College and the surrounds with the aid of satellite imagery. B.Sc. thesis. University of Pretoria.

Kopij, G. (2018): Atlas of breeding birds of Kasane. Babbler 64: 3-15.

Kopij, G. (2019a): Population density and structure of birds breeding in an urban habitat dominated by large baobabs (*Adansonia digitata*), Northern Namibia. Biosystem Diversity 27(4): 354-360.

Kopij, G. (2019b): Structure of avian communities in a mosaic of built-up and semi-natural urbanised habitats in Katima Mulilo town, Namibia. Welwitschia International Journal of Agricultural Sciences 1: 68-75.

Kopij, G. (2020a): Structure of breeding bird community along the urban gradient in a town on Zambezi River,

northeastern Namibia. Biologija 66(1): 1-9.

Kopij, G. (2020b): Changes in the structure of avian community along a moisture gradient in an urbanized tropical riparian forest. Polish Journal of Ecology 68(3): 251-262.

Kopij, G. (2021): Population density and structure of a breeding bird community in a suburban habitat in the Cuvelai drainage system, northern Namibia. Arxius de Miscellània Zoològica 19: 313-320.

Kopij, G. (2022): Population densities of selected bird species in the city of Windhoek, Namibia. Berkut 31: 40-47.

Kopij, G. (2023a): Status, distribution, and numbers of birds in the Ogongo Game Park, north-central Namibia. Namibian Journal of Environment 7B: 9-20.

Kopij, G. (2023b): Structure of breeding bird assemblages in the city of Windhoek, Namibia. Arxius de Miscellània Zoològica 21: 19-38.

Mannheimer, C.A., Curtis, B.A. (eds.) (2009): Le Roux's and Müller's field guide to the trees and shrubs of Namibia. Macmillan Education Namibia, Windhoek.

Mendelsohn, J., Jarvis, A., Roberts, C., Robertson, T. (2009): Atlas of Namibia. A portrait of the land and its people. Sunbird Publishers, Cape Town.

Mendelsohn, J., el Obeid, S., Roberts, C. (2000): A profile of north-central Namibia. Gamsberg Macmillan Publishers, Windhoek.

Mendelsohn, J., Weber, B. (2011): The Cuvelai Basin, its water and people in Angola and Namibia. Occasional Paper no. 8. Development Workshop, Luanda.

Rowan, M.K. (1983): The doves, parrots, louries & cuckoos of Southern Africa. David Philip, Cape Town / Johannesburg.

Sutherland, W.J. (1996): Ecological census techniques: a handbook. Cambridge University Press, Cambridge (U.K.).

Venter, F., Venter, J.-A. (1996): Making the most Indigenous Trees. Briza Publications, Pretoria.

***https://weatherandclimate.com/namibia/oshana/ongwediva.