Birds of La Gamba – a call for research and scientific collaboration

Aves de La Gamba – un llamado para la investigación y colaboración científica

Gerhard Aubrecht & Christian H. Schulze

Abstract: The knowledge of the avifauna of the La Gamba region, Costa Rica is still limited and closely connected with the foundation of the Tropical Station La Gamba. Special attention is drawn to the biogeographical situation, bird conservation, endemic birds, the faunistic inventory and ecological studies. Existing gaps in our knowledge and possible contributions by ongoing research to quantifying the importance of countryside habitats to act as corridor for movements of forest birds are addressed.

Key words: avifauna, ornithology, Tropical Station La Gamba, Costa Rica, ornithological research.

Resumen: El conocimiento acerca de la avifauna de la región de La Gamba, Costa Rica está aun limitadaoy estrechamente conectad con la fundación de la estación Tropical La Gamba. Especial atención es dada a la situación bioegeográfica, conservación de aves, aves endémicas, el inventario faunístico y estudios ecológicos. Se abordan los claros existentes en nuestro conocimiento y las posibles contribuciones de las investigaciones en curso, al momento de cuantificar la importancia de los hábitat rurales para actuar como corredores del movimiento de las aves del bosque.

Palabras clave: avifauna, ornitología, Estación Tropical La Gamba, Costa Rica, investigaciones ornitológicas.

A close look on the avifauna of La Gamba reveals the increase of knowledge during the last 10 to 15 years as well as the gaps that still exist. The three contributions about birds in this volume show different approaches to this situation. Graham Tebb, the "guardian" of the La Gamba bird list (Sauberer et al. 2007), meticulously describes the state of the bird inventory and presents an updated checklist for the area, which outlines recent changes in distribution areas and documents the status of rarities, migrants and resident birds. Christian H. Schulze and Isabell Riedl quantify in a comparative approach how countryside habitats contribute to the high regional bird richness. This baseline study on the importance of different landscape components for maintaining bird species richness in the region of La Gamba provides important information for the interdisciplinary corridor project (described in this volume). Gerhard Aubrecht tries a museological approach in describing the research history and the known museum specimens of the endemic black-cheeked ant-tanager (*Habia atrimaxillaris*) in an exemplary way. In this introduction, we therefore wish only to highlight some important aspects, without repeating the contents of the special contributions.

The area of La Gamba and the adjacent Golfo Dulce region was neglected by ornithologists for a long time during the exploration of the Costa Rican avifauna. The area is far away from the capital city and central regions and lacked any research infrastructure for a long time. In contrast, in other areas like Monteverde (Nadkarni & Wheelwright 2000), La Selva (McDade et al. 1994) and Las Cruces (e.g., Borgella Jr. et al. 2001), where research facilitated by OTS (Organisation of Tropical Studies) has a long history (Burlingame 2002), ornithological studies represent a substantial proportion of the local research activities (e.g., Blake & Loiselle 2000, Sekercio lu et al. 2002, 2007, Wheelwright et al. 1984). As outlined by Tebb (this volume) and Aubrecht (this volume), collectors and professional researchers only visited the region very infrequently, resulting in very little and scattered information available on the avifauna of La Gamba and its vicinity (Chaves et al. 2005). It was the establishment of the La Gamba Tropical Station in 1993 which focused interest on scientific studies including the avifauna of the region. The first ornithological publications concerning La Gamba focused on hummingbird-plant

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interactions (KASTINGER & WEBER 1999, 2000). A popular booklet (SAUBERER et al. 2007) about the birds of the Golfo Dulce region provided some first impressions of bird habitats and species richness, and the first preliminary checklist for the regional avifauna. The first diploma theses with ornithological contents were recently completed (RIEDL 2008, SEAMAN in prep.). In 2001, Ghiselle Alvorado visited the area to collect birds for the National Museum in San José. However, the period of ornithological research and documentation in the region of La Gamba is still very short. Therefore, it seems necessary to point out existing gaps in our knowledge and to emphasise the necessity for further studies on the region's bird fauna. The vicinity of the Tropical Station La Gamba offers an opportunity to study forest bird communities in one of the last existing lowland rainforest areas on the Pacific side of Central America.

Biogeographically, the Golfo Dulce region – with its still remaining lowland rainforests – is described as isolated in Costa Rica by JANZEN (1983), but better connected to the adjacent Panama. Historical and recent land use transformed vast stretches of rainforest along the Pacific coast, which had large impacts on the avifauna. The nearby Osa Peninsula on the other hand seems further isolated, being only connected by a relatively small isthmus (KAPPELLE et al. 2002). In a broader sense, the region is interesting as a transition zone and melting pot of both nearctic and neotropical avifaunas. Furthermore, it is classified as the endemic bird area "South Central American Pacific Slope" (STATTERSFIELD et al. 1998) and contains recognised areas for threatened birds in the neotropics (WEGE & LONG 1995), particularly "Rincón", "Golfito" and "Río Coto" with the protected areas "Corcovado National Park", "Golfo Dulce Forest Reserve" and "Golfito Faunal Refuge". Thus, the region is of outstanding importance for bird conservation. The endemic birds and species with limited distributions of special interest are described by TEBB (this volume).

From the situation described above, some conclusions can be drawn about where future ornithological research could focus:

The species inventory of La Gamba is still far from being complete. Therefore, a further documentation of bird records from the area is highly recommended. This would not only improve the completeness of the bird inventory but would allow us to document temporal changes of bird species composition and the occurrence of individual species. Several species expanding their ranges northwards or southwards along the Pacific slope have recently reached La Gamba and others will certainly follow.

For a more detailed documentation of the temporal dynamic of bird assemblages, permanent bird census points should be established covering all the major habitat types within the region (primary forest, forest margin, gallery forests, and countryside habitats). The resulting data could be used to quantify how temporal dynamic of bird assemblages are affected by habitat type, changes in land use and the appearance of range-expanding or even invasive species.

A comparison of the avifauna of existing reserves on the southern Pacific slope of Costa Rica with baseline studies on population densities of endangered species would provide important information about the extent to which these protected forest areas complement each other on a regional scale.

The area represents one of the last remaining large blocks of evergreen lowland rainforest on the Pacific slope of Central America, providing a unique opportunity for synecological studies on bird communities of this ecosystem type.

Furthermore, an intact gradient of forest types ranging from mangrove and coastal forest to lowland rainforest is available for studying differences in species composition between forest types and niche partitioning of forest species.

The diverse landscape matrix of lowland rainforest, riparian forest strips and human-modified habitats provides an opportunity to study the importance of different land use systems for maintaining species richness, particularly of forest birds and endemic species, and interactions between closed forest bird communities and adjacent human-modified habitats. While for a certain fraction of forest birds, countryside habitats may represent ecological sinks or traps, certain land use systems (e.g. agroforestry systems) may provide valuable secondary habitats for others, or at least stepping stones for movements between forest fragments.

There are still many gaps in our knowledge about the autecology and biology of species. Breeding times, breeding ecology, and seasonal (altitudinal) movements still need to be studied. Especially interesting are the distinct Caribbean and Pacific distribution patterns of (sub)species which might reveal further new systematic results as recently shown with Cherrie's tanager (*Ramphocelus costaricensis*) and Passerini's tanager (*Ramphocelus passerinii*).

Special habitats like the sea coast (marine birds and waders) and mangroves are still poorly investigated. Two species of special interest, the threatened and endemic mangrove hummingbird (*Amazilia boucardi*) and the threatened yellow-billed cotinga (*Carpodectes antoniae*) are restricted to mangrove habitats and need spe-

cial attention. The conservation status of both species is incompletely known. More detailed studies on the biology of such species with high conservation relevance are urgently needed to develop efficient conservation strategies. *Habia atrimaxillaris* is another species with a high conservation value to it highly restricted distribution range (see AUBRECHT, this volume). The rainforest of La Gamba holds one of the last large populations of the species, providing a rare opportunity to study its life history and population density.

Seasonal movements directly lead to the problems of landscape fragmentation. Which species can adapt to these changes and which populations act as ecological sources or sinks? How do rapid and/or long-term changes in land use influence bird communities? How do bird communities and species react to the establishment of ecological corridors and how can the effects of nature conservation be measured by monitoring studies?

All these questions offer many possibilities for future ornithological research in the La Gamba region. The Tropical Station La Gamba offers an increasingly useful infrastructure, a scientific focal point and a starting point for ornithological investigations. Any scientific collaboration is very welcome.

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