Bonner zoologische Beiträge	Band **51** (2002)	Heft 2/3	Seite 120	Bonn, September 2003

Historical Collection Material – What Information can it Provide for the Study of the Change of Biodiversity?

S. FRAHNERT & Manfred ADE

Institut für Systematische Zoologie, Museum für Naturkunde, Humboldt Universität zu Berlin

SUMMARY

Natural history museums hold historical collections of specimens that have been sampled during the last centuries. This means that they provide voucher specimens from time horizons of the recent past. Thus, on the one hand, historical samples of natural history museums are the most reliable sources of information to reveal what kind of species has been found in a certain area and time. On the other hand, the value of this historical material for global change issues is often critically discussed because of its limited quantity as well as the quality of the data collection report.

To reveal the value of historical collection material we started a pilot project based on databases of historical parts of the bird and mammal collections from Southern Africa at the Museum für Naturkunde Berlin (MfN Berlin). Collection history, data quality, taxonomic composition and methods of overcoming constraints produced by missing data in these collections were analysed to reconstruct historical distribution patterns of selected species. The results of the pilot project will be presented.

The investigation reveals that the specimen flow into the MfN Berlin was composed of a confusing mixture of collecting, exchange and trading activities. Therefore, the motivations for collecting and keeping the material were heterogeneous and sometimes far from being scientific. This resulted in serious shortcomings in the data quality for the mobilisation of data for biodiversity- and global change issues, which means data-incompleteness, misnaming and imprecise labelling. It turned out that completion of the data lack is feasible to a large degree and that historical documents concerning the activities of collectors and donors are the most important source of information for closing the gaps. Most of the material from Southern Africa of the bird and mammal collections was collected in German colonial times (1890-1920). Furthermore, the bird collection shows a second peak of major input at the beginning of the 1940s (extensive field expedition of NIETHAMMER & HOESCH). Research on changes in biodiversity in Southern Africa should be focussed on the comparison of these times with more recent information.

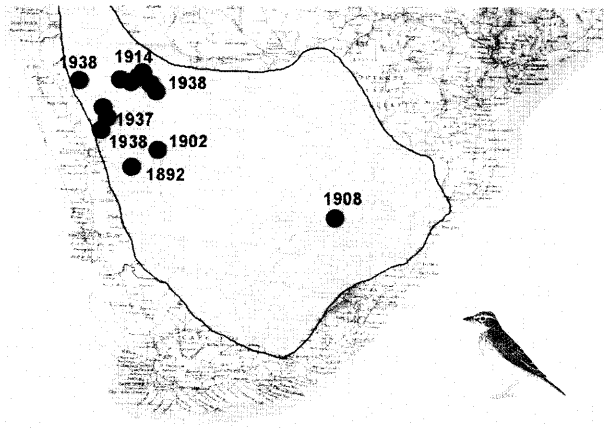

Fig. 1: Reconstruction of the historical distribution pattern of the Sabota Lark (Mirafra sabota) in Southern Africa based on the ornithological collection of the MfN Berlin. selected area = recent distribution (KEITH, S., URBAN, E. K. & FRY, C. H. (1992): The birds of Africa. Vol. IV. Academic Press), spots = historical collecting localities with collecting year.

The application of the completed data for the reconstruction of historical distribution pattern is shown in two examples (Sabota Lark, *Mirafra sabota* and Mountain Reedbuck, *Redunca fulvorufola*). Data suggest that stasis of the general distribution pattern as well as shrinking has occurred. Important insights are that both species managed to coexist with man for a long time. The Sabota Lark has coexisted more than 100 years and the Mountain Reedbuck nearly 200 years within the general distribution area. Future research will address specific sites, population densities and biological or ecological explanation, respectively, of this phenomenon. Likewise, potential factors underlying the local extinction of the Mountain Reedbuck will be addressed.

The full paper is published: Ade, M., S. FRAHNERT & Ch. STARK (2001): Analysing databases of Southern African material at the Museum für Naturkunde in Berlin. Mitt. Mus. Nat.kd. Berl., Zool. Reihe **77,2**: 325-331.

Dr. S. FRAHNERT, Institut für Systematische Zoologie, Museum für Naturkunde, Humboldt Universität zu Berlin, Invalidenstraße 43, D-10115 Berlin, Germany

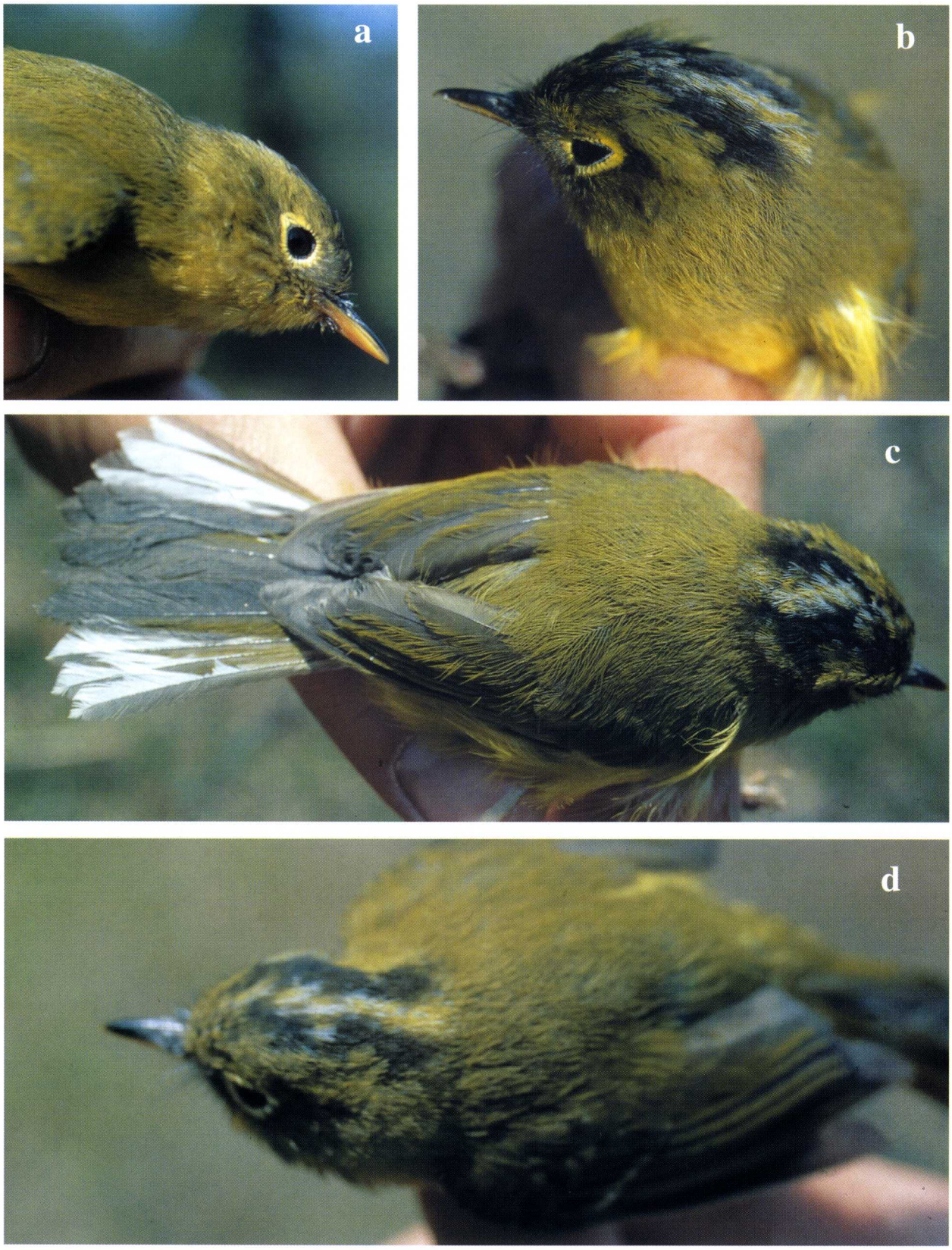

Plate 1a-d: *Seicercus whistleri whistleri*, Nepal, Bhojpur Distr., Irkuwa Kola, 2750 m; 7 April 2001 (tissue sample MAR 2660); photographs J. MARTENS & P. KESSLER.

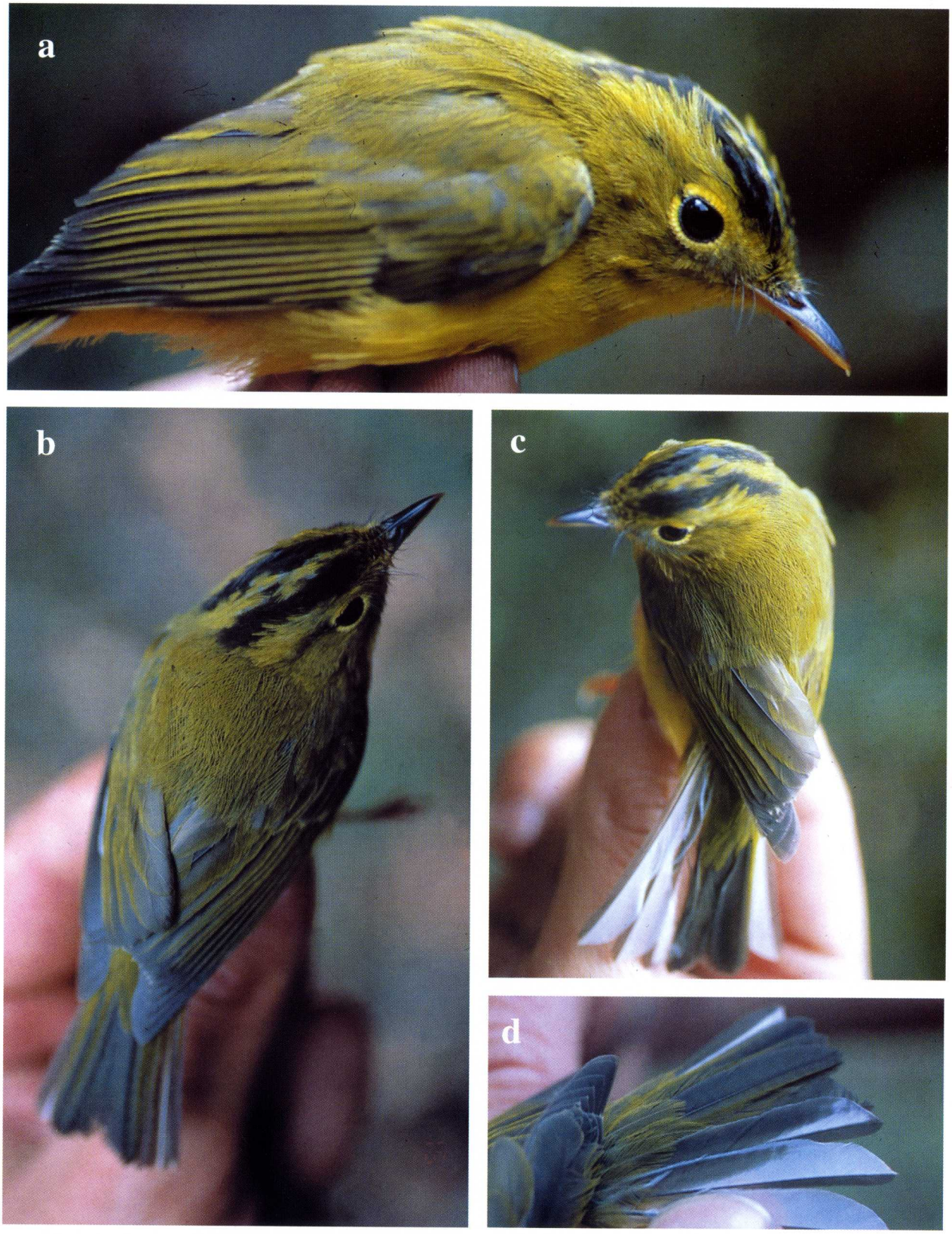

Plate 2a-d: *Seicercus burkii s. str.*, Nepal, Bhojpur Distr., Irkuwa Khola above Phedi, 2220 m, 15 April 2001; two birds photographed: Dresden C 61082 (2a, b, c; tissue sample MAR 2730) and Dresden C 61083 (2d; tissue sample MAR 2731); photographs J. MARTENS & P. KESSLER.