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Rollo Beck's Collections of Birds in Northeast New Guinea

MARY LECROY¹ AND JARED DIAMOND²

ABSTRACT

In 1928–1929 Rollo Beck discovered in New Guinea a spectacular new species of bowerbird, *Sericulus bakeri*, which according to his specimen labels he collected near the previously well-studied lowland town and former colonial capital of Madang. That seemed so implausible that suspicions arose that Beck had intentionally falsified the locality—especially when it eventually turned out that the new bowerbird is instead confined to the nearby Adelbert Mountains. Beck made this discovery in the course of amassing large collections in northeast New Guinea that, in fact, have never been published as a whole, although Ernst Mayr (1941) in his *List of New Guinea Birds* included some of Beck's records. Much doubt has remained about Beck's collecting localities. Hence we have now reconstructed Beck's itinerary on the basis of his field diary and specimen register; the letter by his wife who accompanied him; a spreadsheet of his cataloged specimens in the American Museum of Natural History (AMNH); and correspondence, records, and photographs archived at the AMNH. We show that Beck collected at 10 sites grouped into three areas: the foothills of the Adelbert Mountains and adjacent lowlands, the westernmost foothills of the Huon Peninsula, and the Cromwell Mountains in the east of the Huon Peninsula. We assemble a table listing all species that Beck collected at each of the 10 sites. For each site, we discuss the upland species, open-country species, and other groups of species collected there. Those results illuminate the upland avifaunas of the Adelbert Mountains and the Huon Peninsula, range borders in Northeast New Guinea, and a possible Massenerhebung effect in the Cromwell Mountains. It is clear that Beck's labeling of his *Sericulus bakeri* specimens as collected at Madang was not done with intent to mislead, but is instead readily understandable from Beck's previous collecting experiences and his preparation for his New Guinea trip.

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INTRODUCTION

Figure 1

In 1928–1929 the professional collector Rollo Beck made large collections of birds in northeast New Guinea for the AMNH. The best-known result of Beck's efforts was his discovery of a spectacular new golden and black species of bowerbird, later named *Sericulus bakeri* (Chapin, 1929). The field labels of its three specimens gave the locality as the coastal lowland town of Madang. But Madang, as the former capital of Germany's New Guinea colony, had been the site of many bird collections from 1886 onward. Hence it was astonishing that such a spectacular new bowerbird should apparently turn up at such a well-studied site.

That mystery was not resolved until 1959, when E. Thomas Gilliard found that *Sericulus bakeri* was an upland species confined to the Adelbert Mountains west-northwest of Madang, and that Beck had actually collected the bowerbird in those mountains (Gilliard, 1969; Gilliard and LeCroy, 1967). Thus the suspicion arose that Beck had intentionally falsified his collecting locality so as to preserve for himself the option of returning to the true locality and discovering other new species to be expected at the site that had yielded *Sericulus bakeri*. This was perhaps fostered by the fact that James P. Chapin, Associate Curator in the Department of Ornithology, received no reply when he wrote asking Beck for more information on the collecting locality as he was preparing to describe the new bowerbird. Later, Gilliard (1969: 332) wrote, "Regarding the mystery, I presume that Rollo Beck planned to return to the isolated Adelbert Mountains to make a comprehensive survey of the fauna. He knew that someone would beat him at this if he divulged that the strange new bowerbird was restricted to this small 'mountain island.'" Frith and Frith (2004: 344) wrote, "The home of this bird remained a mystery for 30 y because R.H. Beck kept it a secret (presumably intending to return to collect more and/or see if the area supported other undescribed bird spp.)...."

The broader significance of Beck's New Guinea expedition is that he made large collections of birds in three important areas of New Guinea. First, his was the first collection of birds from the Adelbert Mountains, one of the 10 isolated outlying mountain ranges rising out of the lowlands of northern and southwestern New Guinea (fig. 2A), and important for understanding the biogeography and evolution of New Guinea birds (Diamond, 1985). Second, Beck made what to this day remains the only bird collection from the western extremity of the mountains of the Huon Peninsula, the largest and highest of the 10 outlying ranges. Finally, Beck collected in the main body of the Huon Peninsula, where other collectors also operated but where Beck's collections remain the second largest.

Unfortunately, Beck's northern New Guinea collections have received little attention, because they were never the subject of a detailed published report. Beck himself published only a short popular magazine article about them (Beck, 1929), the locations of some of his collecting sites were uncertain, and it was also uncertain which species he had collected at each site. While Ernst Mayr evidently made some use of Beck's collections in preparing his *List of New*



FIGURE 1. Rollo Howard Beck (1870–1950). Photograph made in 1917, at the end of the AMNH Brewster – Sanford Expedition (AMNH neg. no. 36747).

Guinea Birds (Mayr, 1941), Mayr was misled in some cases by these ambiguities in the localities of Beck's specimens.

In the present paper we begin by reconstructing Beck's itinerary from his unpublished diary and field specimen register in the Archives of the Department of Ornithology, AMNH, and from correspondence, records, and Beck's photographs in the Central Archives, housed in the Library of the AMNH. Also, importantly, we were able to utilize a spreadsheet of cataloged specimens, provided to us by Thomas Trombone, that were identified for cataloging by Chapin in 1929. The Latin names have been updated and we have prepared a table (table 1) that lists all species, in Beehler and Pratt (2016) order, collected by Beck in Northeast New Guinea and that identifies each locality at which each species was collected. We then assess the biological significance of the set of species collected at each locality.

Table 1. Avian species collected by Rollo Beck in New Guinea, 1928–1929, and the localities at which each was collected. The nomenclature and arrangement follows Beehler and Pratt (2016). Abbreviations: **Md** = Madang; **N** = Nobonob; **Mg** = Meganum; **Mb** = Maban; **K** = Keku; **F** = Finschhafen; **W** = Wareo; **H** = Hompua; **Z** = Zagaheme; **S** = Sevia.

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Casuarius bennetti</i>					X					
<i>Aepyodius arfakianus</i>									X	
<i>Talegalla jobiensis</i>			X		X					
<i>Megapodius decollatus</i>	X			X					X	X
<i>Coturnix ypsilophora</i>	X									
<i>Coturnix chinensis</i>									X	
<i>Dendrocygna guttata</i>				X			X			
<i>Tachybaptus tricolor</i>							X			
<i>Columba vitiensis</i>									X	
<i>Reinwardtoena reinwardtii</i>			X	X	X				X	X
<i>Macropygia amboinensis</i>			X					X		X
<i>Macropygia nigrostris</i>	X		X		X				X	X
<i>Hemicophaps albifrons</i>								X		
<i>Alopecoenas jobiensis</i>	X		X	X	X	X		X		
<i>Alopecoenas beccarii</i>										X
<i>Goura victoria</i>			X	X						
<i>Chalcophaps longirostris</i>	X									
<i>Chalcophaps stephani</i>			X	X	X	X				
<i>Megaloprepria magnifica</i>			X		X	X	X			
<i>Ptilinopus superbus</i>			X	X	X					
<i>Ptilinopus bellus</i>									X	X
<i>Ptilinopus perlatus</i>			X		X	X				
<i>Ptilinopus ornatus</i>			X						X	
<i>Ptilinopus iozonus</i>	X	X	X			X				

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Ptilinopus pulchellus</i>	X		X	X	X					
<i>Ptilinopus coronulatus</i>		X			X					
<i>Ducula rufigaster</i>			X	X	X					
<i>Ducula chalconota</i>								X	X	X
<i>Ducula pinon</i>			X	X		X				
<i>Ducula zoeae</i>			X	X	X					
<i>Gymnophaps albertisii</i>		X			X	X				
<i>Ixobrychus sinensis</i>				X						
<i>Microcarbo melanoleucos</i>				X						
<i>Anhinga novaehollandiae</i>				X						
<i>Hypotaenidia philippensis</i>	X									
<i>Amaurornis cinerea</i>				X						
<i>Centropus menbeki</i>	X	X	X		X					
<i>Centropus bernsteini</i>					X	X				
<i>Microdynamis parva</i>	X	X			X					
<i>Eudynamis orientalis</i>					X					
<i>Scythrops novaehollandiae</i>			X							
<i>Chalcites meyeri</i>								X		
<i>Caliechthrus leucolophus</i>								X		
<i>Cacomantis variolosus</i>				X	X				X	
<i>Cuculus optatus</i>									X	
<i>Podargus ocellatus</i>				X						
<i>Podargus papuensis</i>			X							
<i>Eurostopodus papuensis</i>			X		X					
<i>Caprimulgus macrurus</i>						X				

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Aegotheles insignis</i>										X
<i>Aegotheles bennettii</i>									X	X
<i>Hemiprocne mystacea</i>			X		X					
<i>Collocalia esculenta</i>									X	X
<i>Aerodramus vanikorensis</i>					X					
<i>Aerodramus hirundinaceus</i>			X		X				X	
<i>Charadrius dubius</i>					X					
<i>Irediparra gallinacea</i>				X						
<i>Numenius phaeopus</i>	X									
<i>Actitis hypoleucos</i>	X				X					
<i>Pandion haliaetus</i>						X				
<i>Henicopernis longicauda</i>					X					
<i>Harpyopsis novaeguineae</i>			X		X					
<i>Milvus migrans</i>	X		X			X				
<i>Haliastur indus</i>	X							X		
<i>Megatriorchis doriae</i>					X					
<i>Accipiter hiogaster</i>	X	X			X					
<i>Accipiter melanochlamys</i>									X	
<i>Accipiter poliocephalus</i>						X				
<i>Accipiter cirrhocephalus</i>				X						
<i>Ninox rufa</i>							X			
<i>Ninox theomacha</i>									X	
<i>Uroglaux dimorpha</i>			X							
<i>Rhyticeros plicatus</i>			X		X					
<i>Merops ornatus</i>	X						X			
<i>Eurystomus orientalis</i>	X				X	X	2			
<i>Tanysiptera galatea</i>	X		X	X	X					
<i>Tanysiptera nympha</i>					X					

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Melidora macrorrhina</i>				X	X					
<i>Clytoceyx rex</i>				X						
<i>Dacelo gaudichaud</i>	X		X		X	X	X			
<i>Todiramphus nigrocyanus</i>				X						
<i>Todiramphus sanctus</i>	X		X			X				
<i>Syma torotoro</i>					X					
<i>Alcedo atthis</i>	X									
<i>Ceyx pusillus</i>			X	X	X	X				
<i>Ceyx azureus</i>	X	X	X	X	X	X				
<i>Falco berigora</i>					X			X		X
<i>Probosciger aterrimus</i>			X					X		
<i>Cacatua galerita</i>				X	X			X	X	X
<i>Psittichas fulgidus</i>					X			X	X	X
<i>Psittacella brehmi</i>									X	X
<i>Psittacella madaraszi</i>									X	X
<i>Charmosyna wilhelminae</i>									X	
<i>Charmosyna stellae</i>									X	X
<i>Charmosyna pulchella</i>									X	
<i>Neopsittacus musschenbroekii</i>									X	X
<i>Lorius lory</i>			X		X		X	X	X	X
<i>Trichoglossus haematodus</i>		X	X	X	X				X	X
<i>Pseudeos fuscata</i>	X				X	X	X		X	
<i>Psittaculirostris edwardsii</i>			X	X	X					
<i>Alisterus chloropterus</i>								X	X	
<i>Eclectus roratus</i>			X	X	X			X		
<i>Geoffroyus geoffroyi</i>			X	X	X	X				
<i>Micropsitta pusio</i>	X	X			X					
<i>Micropsitta bruijnii</i>									X	
<i>Erythropitta erythrogaster</i>					X					
<i>Pitta sordida</i>				X	X					
<i>Ailuroedus buccoides</i>	X		X	X	X	X	X			

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Ailuroedus melanotis</i>									X	X
<i>Amblyornis germana</i>									X	X
<i>Sericulus bakeri</i>			X							
<i>Clytomyias insignis</i>										X
<i>Malurus alboscapulatus</i>						X	X	X	X	
<i>Myzomela rosenbergii</i>								X	X	X
<i>Myzomela eques</i>			X		X					
<i>Myzomela adolphinae</i>									X	
<i>Xanthotis flaviventer</i>	X	X	X	X	X		X	X	X	
<i>Xanthotis polygrammus</i>								X		
<i>Philemon meyeri</i>			X		X					
<i>Philemon buceroides</i>	X	X	X	X	X	X				
<i>Glycichaera fallax</i>		X	X		X					
<i>Ptiloprora meekiana</i>										X
<i>Ptiloprora guisei</i>									X	X
<i>Pycnopygius ixoides</i>			X							
<i>Pycnopygius stictocephalus</i>			X							
<i>Pycnopygius cinereus</i>									X	X
<i>Melipotes ater</i>									X	X
<i>Melilestes megarhynchus</i>		X	X		X					
<i>Meliphaga aruensis</i>					X		X			
<i>Meliphaga analoga</i>	X		X		X					
<i>Meliphaga orientalis</i>									X	
<i>Meliphaga montana</i>										X
<i>Gavicalis versicolor</i>	X					X				
<i>Melidectes torquatus</i>									X	X
<i>Melidectes ochromelas</i>									X	X

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Melidectes foersteri</i>										X
<i>Pachycare flavogriseum</i>								X		
<i>Crateroscelis murina</i>			X		X		X	X	X	
<i>Crateroscelis robusta</i>									X	X
<i>Sericornis spilodera</i>					X			X		
<i>Sericornis nouhuysi</i>									X	X
<i>Sericornis perspicillatus</i>									X	X
<i>Sericornis arfakianus</i>								X		X
<i>Gerygone chrysogaster</i>			X							
<i>Gerygone palpebrosa</i>					X		X	X		
<i>Gerygone magnirostris</i>					X					
<i>Gerygone ruficollis</i>									X	
<i>Garritornis isidorei</i>					X	X				
<i>Melanocharis nigra</i>			X		X		X	X	X	
<i>Melanocharis versteri</i>									X	X
<i>Melanocharis striativentris</i>									X	X
<i>Oedistoma iliolophus</i>			X				X	X		
<i>Toxorhamphus novaeguineae</i>			X	X	X					
<i>Toxorhamphus poliopterus</i>								X	X	X
<i>Oreocharis arfaki</i>									X	X
<i>Paramythia montium</i>										X
<i>Ptilorrhoa leucosticta</i>									X	X
<i>Ptilorrhoa caerulescens</i>			X		X					
<i>Ptilorrhoa castanonota</i>					X					
<i>Machaerirhynchus flaviventer</i>								X		
<i>Machaerirhynchus nigripectus</i>									X	X

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Peltops blainvillii</i>					X			X		
<i>Peltops montanus</i>								X		X
<i>Cracticus quoyi</i>			X	X						
<i>Cracticus cassicus</i>	X		X		X	X	X			
<i>Artamus maximus</i>			X					X	X	X
<i>Rhagologus leucostigma</i>									X	X
<i>Coracina caeruleogrisea</i>			X					X		
<i>Coracina longicauda</i>										X
<i>Coracina lineata</i>			X							
<i>Coracina boyeri</i>			X			X				
<i>Coracina papuensis</i>		X	X		X					
<i>Lalage atrovirens</i>		X			X					
<i>Edolisoma montanum</i>									X	X
<i>Edolisoma tenuirostre</i>	X		X							
<i>Edolisoma melas</i>			X	X	X					
<i>Aleadryas rufinucha</i>									X	X
<i>Colluricincla megarhyncha</i>		X	X		X		X	X		
<i>Pseudorectes ferrugineus</i>		X	X	X	X		X			
<i>Melanorectes nigrescens</i>									X	
<i>Pachycephala schlegelii</i>									X	X
<i>Pachycephala soror</i>								X	X	X
<i>Pachycephala modesta</i>									X	X
<i>Pachycephala hyperythra</i>					X			X		
<i>Pachycephala simplex</i>			X		X		X	X		
<i>Pitohui kirhocephalus</i>	X		X		X					
<i>Pitohui dichrous</i>			X		X	X	X	X		X
<i>Oriolus szalayii</i>	X		X		X					
<i>Chaetorhynchus papuensis</i>							X	X	X	

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Rhipidura leucophrys</i>	X									
<i>Rhipidura leucothorax</i>	X	X			X	X	X	X		
<i>Rhipidura threnothorax</i>			X		X					
<i>Rhipidura brachyrhyncha</i>									X	X
<i>Rhipidura atra</i>								X	X	X
<i>Rhipidura albolimbata</i>									X	X
<i>Rhipidura hyperythra</i>					X		X	X		
<i>Rhipidura rufiventris</i>			X	X	X	X	X	X		
<i>Dicrurus bracteatus</i>			X	X	X	X	X			
<i>Ifrita kowaldi</i>									X	X
<i>Manucodia chalybatus</i>			X	X	X		X			
<i>Manucodia ater</i>		X	X							
<i>Parotia wahnesi</i>									X	X
<i>Ptiloris intercedens</i>			X		X	X				
<i>Lophorina superba</i>									X	X
<i>Astrapia rothschildi</i>									X	X
<i>Ciccinnurus regius</i>					X					
<i>Ciccinnurus magnificus</i>			X	X	X			X		
<i>Paradisaea guilielmi</i>								X	X	X
<i>Paradisaea minor</i>			X		X					
<i>Paradisaea raggiana</i>							X	X		
<i>Melampitta lugubris</i>										X
<i>Arses telescopthalmus</i>								X		
<i>Arses insularis</i>	X		X	X	X					
<i>Myiagra alecto</i>		X	X	X	X	X				
<i>Symposiachrus rubiensis</i>					X					
<i>Symposiachrus manadensis</i>	X		X	X	X					
<i>Symposiachrus guttula</i>			X	X	X		X			

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Carterornis chrysomela</i>			X		X					
<i>Monarcha cinerascens</i>	X									
<i>Monarcha frater</i>								X		
<i>Corvus tristis</i>	X	X	X		X	X				
<i>Corvus orru</i>						X				
<i>Lanius schach</i>										X
<i>Amalocichla incerta</i>									X	X
<i>Pachycephalopsis poliosoma</i>									X	
<i>Devioeca papuana</i>									X	X
<i>Kempiella flavovirescens</i>			X		X	X				
<i>Monachella muelleriana</i>			X							
<i>Plesiodryas albonotata</i>									X	X
<i>Poecilodryas hypoleuca</i>					X					
<i>Peneothello bimaculata</i>								X		
<i>Peneothello sigillata</i>										X
<i>Peneothello cyanus</i>									X	X
<i>Gennaeodryas placens</i>					X					

Species	Md	N	Mg	Mb	K	F	W	H	Z	S
<i>Hirundo tahitica</i>						X				
<i>Seicercus poliocephalus</i>									X	
<i>Zosterops atrifrons</i>							X	X	X	
<i>Zosterops novaeguinaeae</i>									X	X
<i>Megalurus macrurus</i>									X	
<i>Cisticola exilis</i>									X	
<i>Aplonis metallica</i>			X		X					
<i>Mino dumontii</i>	X	X			X	X	X			
<i>Mino anais</i>			X	X	X					
<i>Saxicola caprata</i>									X	X
<i>Dicaeum geelvinkianum</i>			X		X			X		
<i>Leptocoma aspasia</i>	X	X	X	X	X					
<i>Cinnyris jugularis</i>		X			X					
<i>Erythrura trichroa</i>									X	X
<i>Lonchura tristissima</i>	X			X						
<i>Motacilla cinerea</i>										X
Total number of specimens	74	35	311	82	423	74	67	82	311	281

ROLLO AND IDA BECK IN NEW GUINEA, 1928–1929

On 15 June 1928, Rollo Beck resigned after eight years as Leader of the Whitney South Sea Expedition (WSSE) of the AMNH, and appointed Hannibal Hamlin to succeed him as Leader (later confirmed by authorities at AMNH). With his wife, Ida, Beck departed for a well-earned vacation in Australia. Already during their voyage to Sydney, Beck received a telegram aboard the ship from Leonard C. Sanford advising him that he could expect a proposal, offering him continued employment.

In Sydney, the proposal arrived as an agreement for Beck to be funded for at least a year to collect birds for AMNH in New Guinea. Beck accepted this offer, at first proposed anonymously and later funded by George F. Baker, Jr., AMNH Trustee (letter from Director George H. Sherwood to Sanford, 21 September 1929, box 1216, Central Archives). This fund was known as the New Guinea Fund and was completely separate from WSSE funds.

It seemed a strange offer for Beck to accept, for it was known to AMNH authorities that Beck had spoken on several occasions of leaving the WSSE and returning to California where

he owned property and that Ida, who had accompanied Beck on the WSSE, was also anxious to return home. Rollo and Ida had been married in 1909, shortly after which Rollo departed, in 1911, on an expedition to Alaska with Arthur Cleveland Bent and Alexander Wetmore under the sponsorship of AMNH and Sanford (Dumbacher and West, 2010: 221). When he returned from that expedition, they had vowed never to be separated again. As a result, Ida had accompanied Rollo on the AMNH Brewster-Sanford Expedition around South America, 1912–1917, and she spent eight years in the Pacific on the WSSE. From all accounts she was “tough as nails” and had a delightful sense of humor. She was also known among the participants in the WSSE as a person who had a steadying effect when tempers flared on the tiny expedition vessel *France*. In a letter, Guy Richards, who had recently joined the WSSE, said of Ida: “Mrs. Beck is a truly beautiful character. She is a decided addition to the staff and we [Richards and Hamlin] have both become very fond of her. She puts up with a great deal in this sort of life and does a lot for all of us” (Richards to Robert Cushman Murphy, 31 October 1927, box 1216.1, Central Archives, AMNH).

The reason for the Becks' acceptance of yet more field work was partially explained in a letter written by Ida to Robert Cushman Murphy at the end of their New Guinea trip (28 March 1929, Archives, Department of Ornithology). The Becks had suffered serious financial losses due to bad investments and, quite frankly, needed the money. In the Central Archives at AMNH (box 1130) is a document granting power of attorney to a relative, N.M. Parsons, to sell some property owned by the Becks, and the \$1000 realized from that sale along with another \$1000 (probably supplied by Sanford) prevented the Bank of Italy in California from foreclosing on a loan of \$6000 to Beck and allowed the bank to renew it. Ida, in speaking of this in her letter to Murphy, said: “Owing to an unfortunate investment in which we invested our all we have been compelled to keep on working much longer than we ever dreamed of doing. It is not to our liking to have you bothered with our financial troubles and I am sure Mr. Parsons must have been at his wits-end to know what to do when he went to the Museum. We are grateful for your help and hope it did not trouble you too much.”

Sanford, in a letter to Beck (26 June 1928, Archives, Department of Ornithology), expressed delight that the Becks accepted his proposal and would go to New Guinea, and set forth details of financial arrangements. He also stated some of the collecting emphasis desired by AMNH: not more than 12 specimens of a single species from one locality, with collecting localities widely spaced in order not to deplete a population in any area; training of local people as bird skinners in order to cover the territory more thoroughly; and the importance of recording exact altitudes on the labels. Sanford also stressed the wish of the AMNH to maintain friendly relations with both local people and expatriates that Beck might meet. He included a list of families and genera of birds from New Guinea still not represented in AMNH collections.

Thus, Ida and Rollo enjoyed their stay in Australia and then set forth once again to collect birds, this time on the poorly known island of New Guinea. Beck wrote to Murphy, who had been the Ornithology Department contact with Beck (27 June 1928, Ornithology Archives), that he had applied for a collecting permit and hoped to collect on the Sepik River in the northeastern quarter of the island. This quarter of the island had been the German colony of

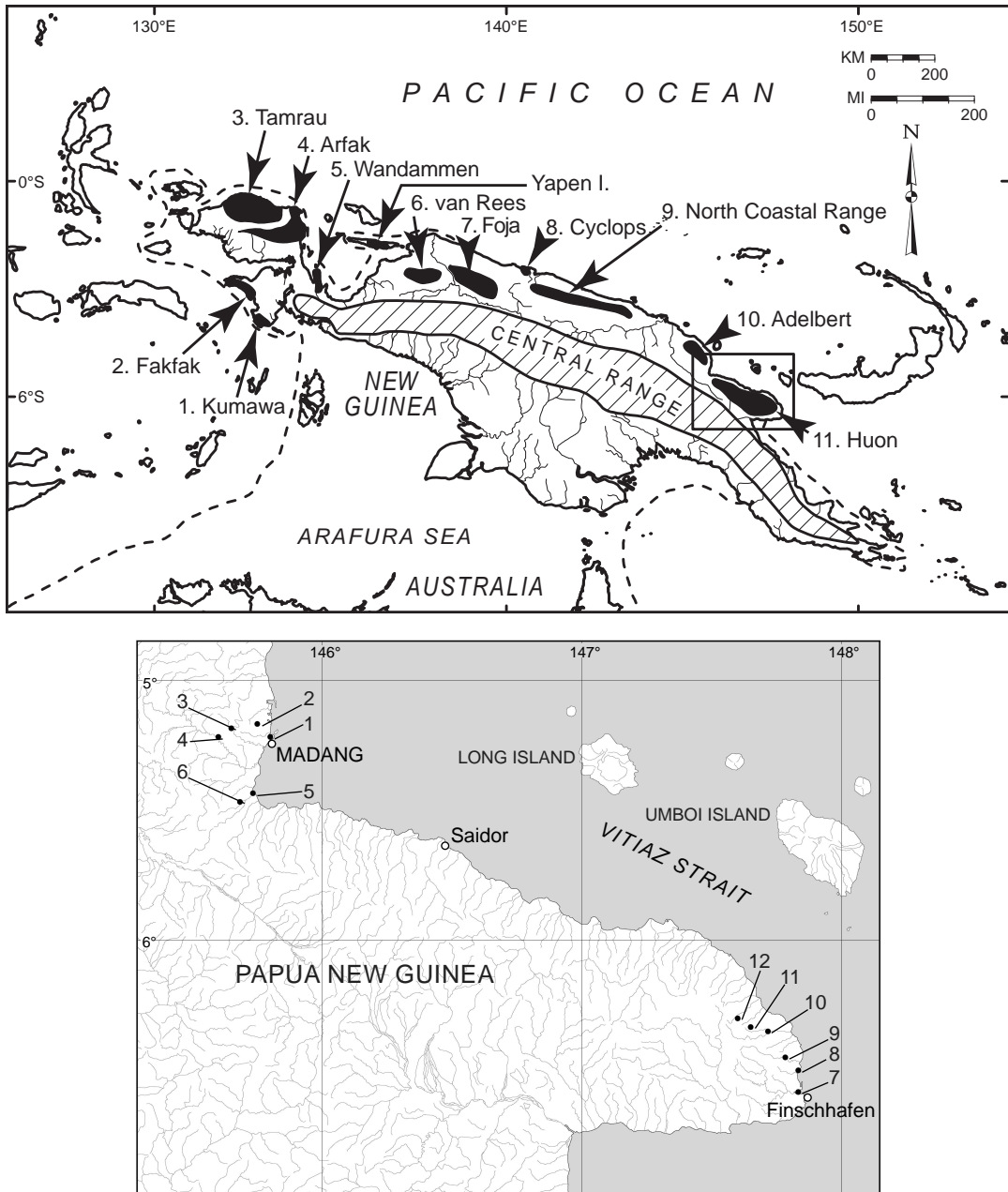


FIGURE 2. **A.** The island of New Guinea, showing the 10 outlying mountain ranges that are along the north and southwest coasts, separated from each other and from the mountains of the Central Ranges by intervening lowlands. The two outlying ranges where Beck collected are the Adelbert Mountains and the Huon Peninsula, marked by being enclosed in a small rectangular box, and shown enlarged in **B.** **B.** Beck's 10 study sites, plus two nearby sites. Study sites in and near the Adelbert Mountains: **1.** Madang ($5^{\circ}13'S$, $145^{\circ}48'E$), **2.** Nobonob ($5^{\circ}10'S$, $145^{\circ}45'E$), **3.** Meganum ($5^{\circ}11'S$, $145^{\circ}39'E$), and **4.** Maban ($5^{\circ}13'S$, $145^{\circ}36'E$). **5.** Bogadjim ($5^{\circ}26'S$, $145^{\circ}44'E$) is on the coast of Astrolabe Bay. **6.** Keku ($5^{\circ}28'S$, $145^{\circ}41'E$) is in the westernmost Huon. The other six sites were in the eastern Huon Peninsula or the adjacent coast: **7.** Finschhafen ($6^{\circ}35'S$, $147^{\circ}50'E$), **8.** Heldsbach ($6^{\circ}30'S$, $147^{\circ}50'E$), a coastal plantation from which Beck set out to Wareo, **9.** Wareo ($6^{\circ}27'S$, $147^{\circ}47'E$), **10.** Hompua ($6^{\circ}21'S$, $147^{\circ}43'E$), **11.** Zagaheme ($6^{\circ}20'S$, $147^{\circ}39'E$), and **12.** Sevia ($6^{\circ}18'S$, $147^{\circ}36'E$).

Kaiser-Wilhelmsland, and since the end of World War I had been administered as the Territory of New Guinea under power granted to Australia by the League of Nations.

It isn't clear why the Sepik River was abandoned, but it most probably was related to the German expedition to the Kaiserin-Augusta-Fluss (as the Sepik River was known to the Germans). In 1912 and 1913 this expedition had collected birds on the Sepik River from the sea-coast to the upper reaches of the river and in the Hunstein and Schrader mountains. The ornithological results were huge and had been published fairly recently by Stresemann (1923). Without doubt, the AMNH would have preferred collections from lesser-known areas.

When the Becks arrived at Madang, the administrative center for the territory, they found that their collecting permit, although granted, was not awaiting them. The permit eventually arrived, having been mistakenly sent to the WSSE vessel *France*, then undergoing repairs at Samarai on the southeastern tip of New Guinea. It was forwarded to Beck in Madang by Hamlin (Hamlin to Beck, 20 September 1928, Archives, Department of Ornithology).

While in Madang awaiting his permit, Beck undoubtedly made contact with Lutheran missionaries. Before World War I, the Lutheran missionaries in German New Guinea had been German nationals, but after the war there had been increasing pressure to replace them with American and Australian missionaries. One of these, Roland Hanselmann, who was in New Guinea from 1926 to 1936 (Wagner and Reiner, 1986: 647), was an American that Beck mentioned in his notes, and it is apparent that the Becks were able to stay at various mission stations in areas that would have been difficult and dangerous of access otherwise.

Beck collected in three main areas: mission stations accessible from Madang; at Keku, a hill station inland from Bogadjim on Astrolabe Bay; and at several mission stations in the Cromwell Mountains, reached from Finschhafen on the eastern coast of the Huon Peninsula (fig. 2B). In our text we have retained Beck's estimates of distances and elevation in miles and feet, recognizing that they were often his inaccurate approximations. To have converted them to kilometers and meters would imply an accuracy they did not possess.

BECK'S COLLECTIONS FROM MADANG AND LOCALITIES NORTH OF ASTROLABE BAY

Beck's most startling discovery as he collected "back of Madang" was the beautiful new bowerbird, *Sericulus bakeri*, of which Beck collected three specimens. The exact collecting locality was not known, and E. Thomas Gilliard on several previous attempts had walked many miles over areas where Beck was thought to have collected without finding the species. In 1959 he rediscovered it in the Adelbert Mountains, a range mistakenly considered not high enough to have harbored such a spectacular endemic species. It was years later that Beck's field notes turned up in the Department of Ornithology in Curator Robert Cushman Murphy's files, and it is from these that we have worked out Beck's itinerary and report for the first time the birds that came from the foothills of the Adelbert Mountains and other areas north of Astrolabe Bay, from Keku in the foothills inland from Bogadjim on Astrolabe Bay, and from the Cromwell Mountains inland from Finschhafen on the coast of the Huon Peninsula.

MADANG, 15–23 AUGUST; 4–17 OCTOBER; 12–27 DECEMBER 1928: The Becks arrived at Madang on 15 August 1928, and during the week they spent there before leaving for the inte-

rior, Beck collected about 30 specimens of coastal species. They returned to Madang from time to time during their stay in New Guinea to ready themselves for travel to other places.

After leaving Meganum around 4 October and before departing for Keku on 17 October, Beck listed another seven birds collected at Madang.

During the Becks' stay in Madang, between their return from Keku on 6 December and the journey to Maban, Beck again collected birds between 12 and 27 December, finding six species that he had not collected previously. He reported that the hotel cat climbed up into the wardrobe and took two small specimens from the top shelf, "leaving only the hind legs of each with label attached."

NOBONOB, 23–25 AUGUST; 28 DECEMBER 1928–3 JANUARY 1929; LATER IN JANUARY 1929: This mission station, headed by American George Hueter (called Hunter by Beck) and his wife Anna from 1926–1929 (Wagner and Reiner, 1986: 164, 647), was close to Madang and was visited several times by the Becks, usually for short stays when they were on their way to and from other stops. Their first visit was from 23–25 August, on their way to Meganum.

After the Becks' visit to Keku (see below), they again left from Madang and traveled inland to Nobonob, where they stayed "for a couple of days" between 28 December 1928 and 3 January 1929, getting "among other birds a white hawk the first I have seen," before traveling on to Maban, probably via Madang. After leaving Maban on 16 January, the Becks again stopped at Nobonob to await the ship that would take them from Madang to Finschhafen on the Huon Peninsula.

MEGANUM, 28 AUGUST–4 OCTOBER 1928: The Becks continued on from Nobonob on a "long hike inland up and down" to their base camp at Meganum, at about 1200 feet altitude and some 20 miles from Madang, where they stayed from 25 August to at least 4 October 1928. It was a "little native village, perched on a ridge, 15 miles from the coast of eastern New Guinea" (fig. 3). From Meganum, Beck collected up to about 2500 feet. From this higher altitude he was able to look down the canyon and see "beyond the head of Astrolabe Bay the Finisteere [sic] Range of mountains." Beck was undoubtedly feeling his age because he commented: "Nowhere on the various trails in the vicinity can one find a level stretch of ground 50 yards long. It is either up or down all day long, and birds of paradise as well as other species prefer the larger and highest treetops to those within reasonable shooting distance."

Beck described his surprise when he collected his first bird of paradise, *Cicinnurus magnificus*:

Walking slowly along a trail through high forest trees, a bird called ahead of me. Answering with a crude imitation of its note, I was not surprised when it perched 20 yards over my head, but when it fell at my feet and I saw the long gray curled tail feathers it was a surprise and how much more surprising to see the same curling feathers change to dark metallic blue when their upper surface was viewed. But the multitudinous colors of the bird when held in hand made one wonder where his eyesight had been when only a dull brownish bird had been the apparent target. Rich green were the underparts while brown, yellows and grays in various shades and patches marked the upperparts. A page would be needed to adequately describe the color combinations of the back alone.



FIGURE 3. "Main Street" in Meganum (AMNH negative no. 115630).

Despite the difficulties of collecting, Beck noted having collected about 320 birds in his six weeks at Meganum. This would have included specimens that Manube (fig. 4), his hired local collector, brought to him from 10 miles farther inland. As Beck described it, Manube left on one day, spent the next day collecting, and returned on the third day. The birds brought in by Manube probably were collected in the Adelbert Mountains, an area the missions considered extremely dangerous at that time but that would have been freely accessible to local people. Manube continued to send Beck birds until 14 September, when Manube accompanied Ida to Madang. Beck continued collecting at Meganum for some time after that, at least until 4 October, and other local men continued to bring Beck specimens on instructions from Manube, who quite possibly had also returned to Meganum from Madang.

This was also a period when there were difficulties between the Lutherans and the Catholics, who had their headquarters at Alexishafen, on the coast north of Madang. The Adelberts were disputed turf. Wagner and Reiner (1986: 149) noted that "Nobonob territory bordered on Roman Catholic mission work spreading west and south from Alexishafen, and therefore suffered much from religious competition." This competition undoubtedly affected Meganum as well, and Beck would have been discouraged from going into that area himself.

MABAN, 3–16 JANUARY 1929: On 3 January 1929, the Becks proceeded from Nobonob to Maban near the "Gogle" (= Gogol) River at an altitude of a few hundred feet. At Maban,



FIGURE 4. Ida Beck and Manube at Meganum (AMNH negative no. 115626).

Beck also secured specimens at a nearby pond. On 16 January they returned to Nobonob for some days to await the arrival of a steamer at Madang bound for Finschhafen on the coast of the Huon Peninsula.

BECK'S COLLECTION AT KEKU

KEKU, 17 OCTOBER–10 DECEMBER 1928: The Becks set out on foot from Madang at 9 am on 17 October for a visit of almost two months at Keku, a Lutheran mission station in hill country inland from the town of Bogadjim on the coast of Astrolabe Bay, and estimated by



FIGURE 5. View of the mission at Keku (AMNH negative no. 115604).

Beck to be 35–40 miles south-southwest of Madang. The hills around Keku constitute the western extremity of the mountains of the Huon Peninsula, and they are separated from the Adelbert Mountains by the Gogol River and by tributaries of the Ramu River. For this trek, Beck hired carriers and crossed two rivers by canoe, the Gom and the Gogol, arriving at “Roy McGregor’s plantation” at Bogadjim at 5 P.M. There Beck met Roland Hanselmann, a missionary from Iowa; and the following morning, with carriers provided by McGregor and Hanselmann, they set out on the four-hour walk inland to Keku situated on a slight knoll (fig. 5).

The Hanselmann family had been at Keku since 1926 (Wagner and Reiner, 1986: 149, 154) and the Becks found a well-ordered station around which some 20 acres had been cleared for vegetable and fruit gardens (fig. 6). Both Ida Beck and Marie Hanselmann must have welcomed the Becks’ stay at Keku. Photographs of Ida made at that time show her taking an active interest in village happenings, and, as at all of their localities, the activities of the Becks were watched with interest by the local villagers (fig. 7).

While there, Beck frequently made the four-hour walk to the top of a ridge at 3000 feet. This was a season of very heavy rains, particularly in the mornings, with many bird species nesting. Beck frequently mentioned how difficult birds were to see and collect. However, as in other localities he had the assistance of local collectors, especially Whenene at Keku, whom he hired, and



FIGURE 6. Edge of forest at Keku (AMNH negative no. 115594).

young boys who were happy to bring him birds for the small gifts he gave them in return. The "Blue banded Pitta" (*Pitta erythrogastra*) nest was an example of the latter. A small boy had seen the adult fly from the nest in the morning and had returned after dark to capture it on the nest. Although Beck saw pittas, he was unable to collect any himself, but small boys baited their traps with insects and captured a half dozen when they found Beck would pay for them.

Having collected 423 bird specimens at Keku, the Becks returned to Bogadjim on 10 December and were able to board the mission steam vessel *Rheno* to return to Madang.

BECK'S COLLECTING LOCALITIES IN THE CROMWELL MOUNTAINS, HUON PENINSULA

FINSCHHAFEN, 25 JANUARY–9 FEBRUARY; 19–29 APRIL 1929: The Becks reached Finschhafen around 25 January, and birds were collected in the vicinity for about two weeks. On one occasion, Beck followed a stream onto a ridge at about 1500 feet, perhaps 10 miles inland, and commented on the scarcity of birds. He was able to collect only three birds all day. But most of the collecting was done near sea level until their departure for the mountains. They departed Finschhafen at 7 A.M. and traveled by canoe along the coast until they came to Heldsbach, a mission coconut plantation, from which they set out inland along the track to Wareo.

On their return trip from the mountains, on the trail between Wareo and Finschhafen, Beck mentioned that they collected two owls, which were the first ones collected on the entire trip. The Becks spent an additional 10 days at Finschhafen, with some collecting done.

WAREO, 9–11 FEBRUARY; 14–19 APRIL 1929: The trek from Finschhafen to Wareo took six hours, the group reaching Wareo at 1 P.M. by following a winding trail that ended in a slight grade through forest as they neared Wareo, at 2400 ft. (fig. 8). American Leonhard Wagner and his wife, Lukretia, were the missionaries at Wareo (Wagner and Reiner, 1986: 627). Apparently, Wagner gave Beck the altitudes of the various mission stations they visited and it was those that he used as a basis for his collecting altitudes.

Ida Beck wrote: "There we were kindly received by Rev. Wagner and his wife and spent the weekend. A crowd of natives came to see what manner of white woman it was that takes such long walks and decided I had in my favor the fact that I hadn't much extra weight to carry in the way of flesh" (Ida Beck to Murphy, 28 March 1929).

On their return from Hompua on 14 April, the Becks spent an additional few days at Wareo. Beck mentioned the varied habitat present at Wareo: rubber trees planted in the village and thick bush nearby, with forest a quarter mile distant, and a visit by his collectors to a nearby lake.

HOMPUA, 11–18 FEBRUARY; 8–14 APRIL 1929: On the outward trip, after their weekend at Wareo, the Becks started out on 11 February with 24 carriers "for the hills proper." "Mr. Wagner loaned me his horse to go as far as Hompua, with instructions to stand in the stirrups and hang on to the horse's mane in the steep places. It was a long hard trail—the carriers' legs streamed with blood from the leeches and all afternoon it poured with rain. We were a very sorry looking pair when we landed at Hompua" (Ida Beck to Murphy, 28 March 1929).



FIGURE 7. Rollo Beck skinning a hornbill at Keku (AMNH negative no. 115707).

Beck described the trail as climbing to 4000 ft., dropping to 1200 ft. at a river, and ascending again to 3000 ft. at Hompua, where they arrived during a heavy thunderstorm. The morning of the following day was spent drying clothes and gear. The entire stay there was rainy, the surroundings precipitous, and the birds seemingly concentrated in the high treetops and hard to collect. Despite the collecting difficulties presented by the surroundings, Beck certainly appreciated the great productivity of the gardens at Hompua, commenting on the high quality of potatoes, with cabbage, corn, tomatoes, mandarins, and Cape gooseberries also locally grown. The availability of abundant fresh fruit and vegetables at these higher altitudes must have been particularly welcome to the Becks in contrast to limited availability of fresh food at low altitudes (fig. 9).

"We spent a week there and on leaving, the lului [= *luluai*, local village official appointed by the Territory Government] walked some distance with us, ran ahead and held out his hand in a rather dignified manner to bid us adieu. He couldn't speak pidgin [the lingua franca in that part of New Guinea], not many of the natives can up here" (Ida Beck to Murphy, 28 March 1929). They traveled from Hompua to Zegaheme on 18 February. On their return to the coast, the Becks again passed through Hompua 8–14 April.

ZAGAHEME, 18 FEBRUARY–5 MARCH; 29 MARCH–8 APRIL 1929: The Becks came to Zegaheme, at 4000 ft, on 18 February. The village stretched along the track that led to the coast some 15 mi. away as the crow flies. It was surrounded on the upper sides by forest, except where cleared for gardens (fig. 10). Beck hired as his helper the local man who served the Zakaheme station as missionary. Wagner, stationed at Wareo, visited here only several times each year (Wagner and Reiner, 1986: 66).

The day after arriving at Zakaheme, Beck climbed to about 5000 ft, finding 10 species of birds during the day that he had not previously collected, and he noted altitudinal replacements in several pairs of species.

Our next stop was Zegaheme, 4000 feet, not such a hard trip. Great preparations had been made for us there by the black mission people. The lic-lic Doctor as he termed himself [= *lik lik* doctor, pidgin title for a local man trained to administer basic first aid] with a crowd of natives came to meet us and when we arrived, found tomatoes, cape gooseberries and potatoes in the little mission shelter. Outside was water in bamboo containers, t[w]o big black logs with pieces of old iron laid across ready for our cooking utensils and last but not least two bright looking lads assigned to do our cooking. These so-called cook boys up here are fine for looking after the fire and water....

The men folk take great interest in my fancy work. One old fellow looked long and earnestly at my working on a piece of embroidery and then wanted to buy my thimble.... We spent two weeks at Zegaheme and it was there we encountered our first long tailed black bird of paradise. I would like to hear your description of this exquisitely beautiful creature in its dress of velvet, satin and taffeta with collar of fire-burnished gold [*Astrapia rothschildi*] (Ida Beck to Murphy, 28 March 1929).

The Becks left Zegaheme after a stay of about two weeks, and after their stay at Sevia, they returned to Zakaheme on 29 March to remain until 8 April. During this second stay, Beck also reported spending some time collecting in the kunai grassland that extended up to the vicinity of the village as well as collecting at some higher altitudes. He also noted that, a month before, fog regularly came in for a short time in the afternoon and cleared again in a few minutes; now in early April it appeared at 9 or 10 A.M., with rain beginning around noon and continuing in the afternoon, clearing at night.

Specimens from Zegaheme were labeled 4000 and 5000 ft, but his local collectors may have traveled both lower and higher to acquire specimens.

SEVIA, 5–29 MARCH 1929: Leaving Zegaheme soon after sunup on 5 March, the Becks crossed two ridges and dipped into canyons through which fast-flowing streams ran. The trail



FIGURE 8. View of the surroundings at Wareo (AMNH negative no. 115801).

zigzagged up the sides of ridges to tracks across the narrow tops, with spectacular views of gardens on the steep hillsides. They arrived at Sevia, about 5000 ft, at 1 pm, just in time for the almost daily bank of fog to arrive (fig. 11). On one sunny afternoon, Beck followed a local trail to an elevation of 7500 ft. The summit of this ridge apparently marked the height of land in this part of the Cromwells, for the trail led downward to a village on the other side of the mountains. From these higher altitudes on sunny days the mountains of New Britain could be seen to the east.

Again, Beck commented on the productive gardens and the superior quality of the produce, noted that cows and goats had been brought in by the missions, and that constant attention was necessary so that dogs, cats, cockroaches, and mold would not damage the specimens. He also appreciated the help the missionaries had given them: "Houses built for their use by outpost congregations have been offered for our use and have been accepted with knowledge that they were the best houses in the village as they are used but a few times yearly."

Beck called attention to the small stature of the local people, noting that the house they stayed in had a "ceiling of closely woven pandanus leaves, apparently for warmth, but unfortunately for Mrs. Beck and myself, who do not usually go about with bowed heads, it is about eight inches lower than it should be to permit us to walk about in normal fashion."

Ida mentioned the same problem, but then goes on to reflect:



FIGURE 9. Ida Beck cooking at Hompua (AMNH negative no. 115787).

Five thousand ft is not so very high when one remembers living at 12000 ft in the Andes. But I can assure you it is high enough for us now. We feel the cold and find it difficult to keep warm at night. We have had a lot of rain lately and earthquakes several times in a day sometimes. The fog comes rolling up in great fleecy clouds very often like a blanket that shuts out everything but the nearest house. The climate is invigorating after the heat at sea level but my husband has been having a lot of fever and has been greatly concerned lest he should not be able to do justice to Dr. Sanford's faith and generosity in sending him out again. I am thankful for strength to help him by having properly cooked food, dry clothing and hot drinks when he comes in wet and tired (Ida Beck to Murphy, 28 March 1929).

The Becks departed from Sevia at 7 am on 29 March to return to Zagaheme and, with brief stops at each of their outward sites, to Finschhafen.

DEPARTURE FROM THE TERRITORY OF NEW GUINEA

The final departure of the Becks from New Guinea was delayed, and they waited in Finschhafen for word from the doctor at Salamaua that Europeans would be allowed to depart on the steamship *Montoro*, there having been a quarantine at Finschhafen due to an outbreak of mumps.

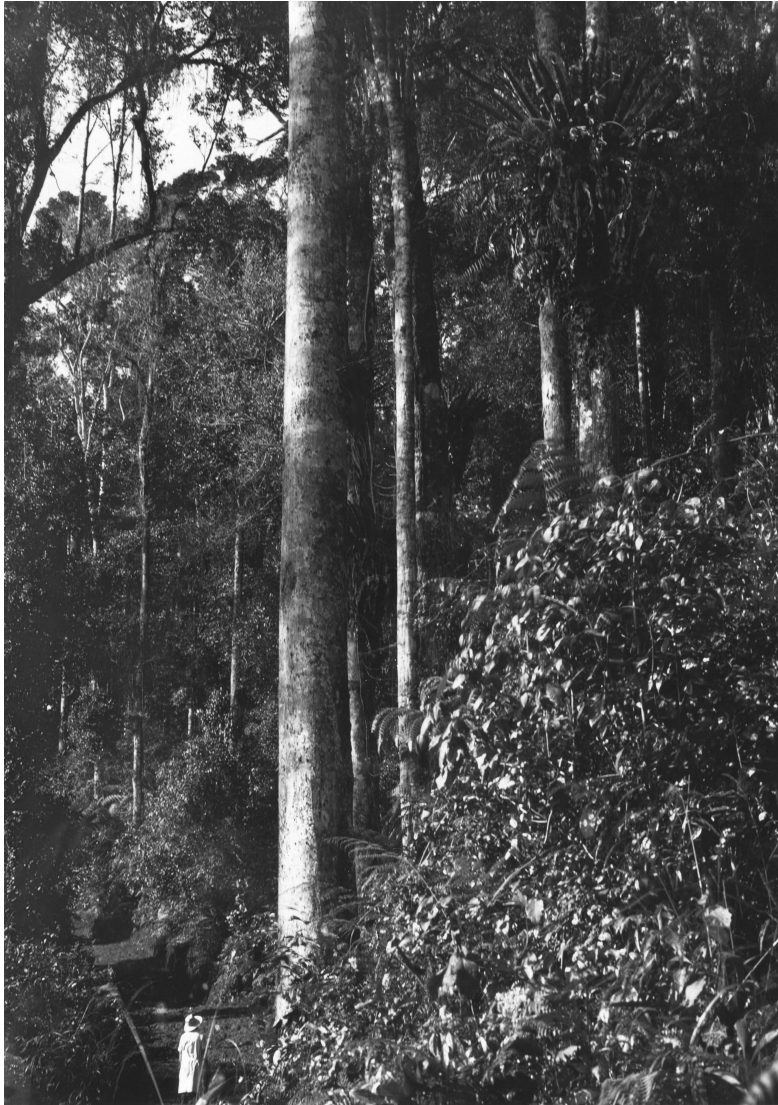


FIGURE 10. Ida Beck in tall trees at Zagaheme (AMNH negative no. 115533).

It was at Finschhafen that one of the great puzzles of the trip occurred. Beck and Ernst Mayr met briefly. Mayr had just returned from the heights above Finschhafen, where he had watched *Paradisaea raggiana* displaying; the Becks were awaiting their ship in order to depart from New Guinea. According to Haffer (2007: 73), “Beck demonstrated with pride a specimen of a new form of forest rail and Mayr did not have the heart to tell him that he had got a large number of specimens of this common, yet shy bird....” Local people had brought Mayr 43 specimens of this rail (*Rallicula forbesi*), catching them at night in sleeping nests occupied by several individuals. Steinheimer (2004) had also heard this same story in an interview that he had with Mayr. In his field journal for 19 April, Beck noted that he had run into a quarantine



FIGURE 11. View of the surroundings at Sevia (AMNH negative no. 115741).

at Finschhafen and he was not sure they could leave aboard the ship *Montoro*. Finally, on 27 April, word arrived from the doctor at Salamaua that Europeans could board the ship. “Dr. Meyr [sic] a German collector has to leave his two Javanese boys while he goes on to Salamaua.” Strangely, no Beck specimen of *Rallicula forbesi* was cataloged with the collection nor is now present in AMNH. We have no explanation for this enigma—unless Beck only told Mayr about the sole rail he collected, one specimen of *Hypotaenidia philippensis*, and Mayr incorrectly remembered that he had been shown a specimen of *Rallicula forbesi*.

Apparently, the Becks and Mayr traveled together to Salamaua. Beck had time on 29 April, when the ship stopped in Salamaua, and collected four species there, all of which had also been

collected at low altitudes in the vicinity of Finschhafen. Beck recorded that Mayr told him that *Paradisaea raggiana* differed slightly between Finschhafen and Salamaua.

Because of this quarantine, Mayr had missed the cable offering him leadership of the WSSE when Hamlin was to leave some months later. Not hearing from Mayr, Murphy, needing a replacement, had offered the leadership to William Coultas, who had accepted. Subsequent events were much affected by this mumps epidemic (see LeCroy, 2005).

The Becks began their homeward journey, embarking on the *Montoro* and reaching Rabaul, New Britain, on 2 May only to find that the ship was fully booked beyond Rabaul. Therefore, they had to book on another ship that involved a wait in Rabaul. Three-quarters of an hour before the *Chronos* (a steamer bound for Sydney) was due to sail, they found they could book passage on it. It is perhaps a measure of their anxiety to return home that Rollo successfully accomplished the following: "Went to Treasury and got clearance as to debts to Government, then to Customs who wrote out description for self and wife to enter Australia. Then up to bank and cash some dollars from letter of credit. Back to hotel and get another car, leaving couple suits at laundry as hotel man could not send and get them in less than hour—three minute walk—but we get away and head for Sydney." They sailed on the *Chronos* to Sydney on 4 May 1929.

Ida expressed their homesickness even more poignantly:

Nevertheless it is with true gladness that we are about to start on the homeward trail for my body cries out for comforts and my mind for the companionship of friends, books, and pretty things.

Our pathway has been unusually rough and steep of late years but we shall not dwell on the hard places but rather we shall remember with pleasure the knowledge we have gained by traveling, the kindly people we have met, and if we live to grow old we shall sit and dream of glorious sunsets and the beautiful coral gardens we have seen and shall hear again the rustle of the coconut leaves and the gentle lapping of the waves along the sandy shores of the many islands we have visited. (Ida Beck to Murphy, 28 March 1929).

Beck's journal at the AMNH does not cover any of the remainder of the trip. However, they were obligated to return to New York and spend time finalizing WSSE records (Box 1216.1, Murphy to Beck, 9 January 1928, Central Archives) and labeling photographs Rollo made in the Territory of New Guinea. These had been made on his own time and at his own expense, but he labeled the photographs and gave the negatives to the AMNH in return for a set of prints from them. It doesn't seem to be recorded how long the Becks spent in New York.

"On their way home...the Becks returned to Australia, and then set out for California via Lahore, where Rollo's sister was an M.D., married to a Methodist missionary. From there they traveled to Egypt, England, Ontario province [Canada], where Ida was born, New York City, Washington D.C., and finally back to their [fig] farm in Planada, California by early 1930." (Dumbacher and West, 2010: 226). It is recorded in the Department of Ornithology Archives that for many years after their return, Beck sent a large box of figs to the department at Christmas.

BECK'S COLLECTIONS

In his eight-and-a-half months in Northeast New Guinea, Beck collected a total of 249 bird species, distributed over three sets of sites as described above: the Madang area (four sites, 129 species, 502 specimens), Keku (one site, 105 species, 423 specimens), and the Cromwell Mountains (five sites, 160 species, 815 specimens). There is much overlap of collected species among sites. The collection includes no seabirds, few species of waders or birds of fresh water or marshes or grasslands, and few winter visitors from Australia or from the Palaearctic. Most specimens are of New Guinea resident forest species. (By forest species, we mean species normally occurring in closed forest). For entry into the AMNH catalog, the specimens were apparently identified by Curator James P. Chapin shortly after the collection arrived at the AMNH. We did not reexamine all of Beck's collected specimens ourselves. Instead, we accepted most identifications in the AMNH register, updated the taxonomy and sequence of species according to Beehler and Pratt (2016), checked the identification of critical specimens in the AMNH collection ourselves, and thereby detected and corrected a few misidentifications. We shall now discuss the collections from each of the three sets of sites, in turn.

MADANG AREA. This collection comprised 502 specimens of 129 species obtained at four sites: Madang, Nobonob, Maban, and Meganum. Almost all the species have wide distributions in New Guinea extending far beyond the Madang area, with the notable exception of *Sericulus bakeri*.

Of the 129 species collected, 30 are not forest species. They fall into the following groups. Five are coastal species, all collected in the Madang area only at Madang itself: the palaearctic wintering waders *Actitis hypoleucos* and *Numenius phaeopus*, the kingfisher *Alcedo atthis*, the monarch flycatcher *Monarcha cinerascens*, and the honeyeater *Gavicalis versicolor*. Six are pond or marsh species, all collected only at one pond near Maban, the sole pond at which Beck collected in the Madang area. They are the cormorant *Microcarbo melanoleucos*, the anhinga *Anhinga novaehollandiae*, the heron *Ixobrychus sinensis*, the duck *Dendrocygna guttata*, the rail *Amaurornis cinerea*, and the jacana *Irediparra gallinacea*. Two are river species, both collected at Meganum and one also collected at Maban: the flycatcher *Monachella muelleriana* and the kingfisher *Ceyx pusillus*. Ten are species of nonforested open country: the hawks *Milvus migrans* and *Haliastur indus*, the quail *Coturnix ypsilophora*, the rail *Hypotaenidia philippensis*, the flycatcher *Rhipidura leucophrys*, and five Australian winter visitors (the cuckoo *Scythrops novaehollandiae*, the kingfisher *Todiramphus sanctus*, the bee-eater *Merops ornatus*, the dollarbird *Eurystomus orientalis pacificus*, and the cuckoo-shrike *Edolisoma tenuirostre*). Finally, the 30 nonforest species include eight species of the forest edge: the forest-edge understory and second-growth flycatchers *Rhipidura leucothorax* and *Myiagra alecto*, and the forest-edge hawk *Accipiter hiogaster*, nightjar *Eurostopodus papuensis*, cuckoo-shrike *Coracina papuensis*, warbler *Gerygone magnirostris*, sunbird *Cinnyris jugularis*, and mannikin *Lonchura tristissima*.

The remaining 97 species of the Madang area are forest species, 87 of them species of lowland forests. The other 10 are upland forest species of the Adelbert Mountains, all except one of them collected in the mountains around Meganum. (By upland species, we mean species normally absent from the flat lowlands at or near sea level). These 10 species will be discussed

further below under Meganum, where we explain why they constitute one of the four most significant results of Beck's collections.

Most species collected by Beck in the Madang area are well represented in museum collections. Noteworthy specimens of species that are rare, very uncommon, or local are of the kingfishers *Todiramphus nigrocyaneus* and *Tanysiptera nympa*, the owl *Uroglaux dimorpha*, and the nightjar *Eurostopodus papuensis*.

We now comment separately in turn on the collections from each of the four individual sites within the general Madang area.

MADANG itself is a coastal town. The habitats from which Beck presumably collected during his stays at Madang itself would have been habitats encountered during day trips through a mixture of forest remnants, intact forest pieces, and open habitats, probably all of them near the coast and close to sea level. At Madang Beck made three stays totaling 39 days and obtained about 74 specimens of about 40 species. The exact number of specimens and species is uncertain, because on some dates Beck collected both at Madang and at Nobonob, and at other dates he collected both at Madang and at Meganum, but he labeled all of those specimens from Nobonob and Meganum as well as from Madang simply as "Madang," so that we are uncertain which was the exact locality of specimens collected on those travel days to and from Madang.

As expected from the fact that Madang was Beck's site encompassing the largest human population and largest area of forest clearing, it is the site in the Madang area with the highest percentage of nonforest species: 17 out of the 38 species collected there. Those 17 are the five coastal species listed above for the Madang area in general; nine open-country species (all of the 10 listed above for the Madang area in general, except for *Scythrops novaehollandiae*); and three forest-edge species (*Accipiter hiogaster*, *Rhipidura leucothorax*, and *Lonchura tristissima*). The remainder of the Madang collection is made up of 21 lowland forest interior species.

The Madang collection includes two coastal passerines. One, the honeyeater *Gavicalis versicolor*, occurs in New Guinea only along the coast, distributed locally. The other, the flycatcher *Monarcha cinerascens*, is a small-island specialist or "supertramp" (Diamond, 1974), whose principal habitat is small islands off mainland coasts, remote islands, and recently defaunated volcanic islands. Nonbreeding vagrants of it are rarely observed on the New Guinea mainland or on large islands of the New Guinea region. Beck's specimen labeled "Madang" represents one of the few records for the New Guinea mainland, if in fact it really was collected on the New Guinea mainland rather than having been collected by Beck on an excursion to a nearby small island.

At NOBONOB, where Beck spent about 14 days, he collected 35 specimens belonging to 24 species. Nobonob is an inland location at low elevation near Madang. Of the 24 species collected there, all are forest species except for five forest-edge species (*Accipiter hiogaster*, *Coricina papuensis*, *Rhipidura leucothorax*, *Myiagra alecto*, and *Cinnyris jugularis*). Of the 19 remaining species of forest, only one is an upland species, the pigeon *Gymnophaps albertisii*, which nests in the mountains but commutes to the lowlands.

At MABAN, located inland near the Gogol River at an elevation of a few hundred feet, Beck spent 10 days collecting 82 specimens belonging to 51 species. Notable in Beck's collection at

Maban are the six pond and marsh species listed above. There are also one river species (the kingfisher *Ceyx pusillus*) and three forest-edge species (the warbler *Gerygone magnirostris*, the flycatcher *Myiagra alecto*, and the mannikin *Lonchura tristissima*). All 41 other species collected at Maban are forest interior species, 40 of them species of lowland rainforest and only one an upland forest species: the bird of paradise *Cicinnurus magnificus*, which does descend to low altitudes in the hills. Alternatively, that single specimen might have been brought to Maban from a higher elevation if it was obtained for Beck by a local New Guinea collector; that is suggested by the fact that the specimen is an adult male, which may have been targeted by a New Guinean hunter, and which is less likely than a female to be found at low elevation.

At MEGANUM in the Adelbert Mountains, Beck spent 42 days collecting about 311 specimens belonging to 91 species. Beck himself collected from the elevation of Meganum village up to an elevation of 2500 ft, but New Guinea natives brought specimens collected further inland at unknown elevations. Elevations specified on the labels of 17 specimens range from 1000 to 2500 ft.

The most important part of the Meganum collection is its nine upland species, including *Sericulus bakeri*. From subsequent experience of Adelbert bird distributions gained in the field by one of us (J.D.) and by others, we now know that eight of those nine species can regularly be found in the Adelberts at elevations at or well below 2000 ft; the pigeon *Ptilinopus ornatus*, probably the swiftlet *Aerodramus hirundinaceus*, the cuckoo-shrike *Coracina caeruleogrisea* and *Coracina lineata*, the flycatcher *Monachella muelleriana*, the pitohui *Pitohui dichrous*, the wood-swallow *Artamus maximus*, and the bird of paradise *Cicinnurus magnificus*. The sole exception among the nine upland species of Meganum is *Sericulus bakeri*, which is mostly confined to elevations above 2500 ft in the Adelbert Mountains, although it does descend to 1000 ft at Keki (a birdwatching resort in the Adelbert Mountains, not to be confused with Beck's collecting locality of Keku described below and not lying in the Adelbert Mountains). The sole open-country species in Beck's Meganum collection are the hawk *Milvus migrans*, the cuckoo *Scythrops novaehollandiae*, the swiftlet *Aerodramus hirundinaceus*, the kingfisher *Todiramphus sanctus*, and the cuckoo-shrike *Edolisoma tenuirostre*; the sole river species are the kingfisher *Ceyx pusillus* and flycatcher *Monachella muelleriana*; and the sole forest-edge species are the nightjar *Eurostopodus papuensis*, the cuckoo-shrike *Coracina papuensis*, and the flycatcher *Myiagra alecto*. The other 81 species obtained at Meganum are all forest species.

Beck's Meganum collection is important as the first collected sample of the upland avifauna of the Adelbert Mountains. The significance of the Adelberts is that they are one of the 10 isolated mountain ranges (Diamond, 1985) along New Guinea's north coast, rising from and surrounded by lowlands, which separate them from each other and from New Guinea's much higher and more extensive Central Range (fig. 1). The Central Range has a much richer upland avifauna than do any of the 10 outlying ranges, whose avifaunas are reduced samples of the Central Range avifauna. Among species of the Central Range, there are big differences in their abilities to colonize and persist on the outlying mountain ranges: some species (such as the pigeon *Ptilinopus bellus*) occur on all 10 of the outlying mountain ranges; some species (such as the fairywren *Clytomyias insignis*) are present on only one or two of the outliers; and many species of the Central Range (such as the bird of paradise *Pteridophora alberti*) are absent from

all the outliers. Distributions of species on the outlying mountain ranges thus provide a good data base for understanding what makes some species better colonists and better at persisting than other species. The populations of the outlying ranges (including those of the Adelberts) include many endemic subspecies, plus a few endemic allospecies belonging to more widely distributed superspecies (such as the allospecies *Sericulus bakeri* of the Adelberts, represented on other outlying mountain ranges by the allospecies *S. aureus*). But there are only two endemic full species occupying an outlying range, neither of them in the Adelberts (*Pachycephala meyeri* of the Bird's Head and *Paradisaea guilielmi* of the Huon).

Although Beck thus obtained the first sample of the Adelbert upland avifauna, his sample was a small one of only nine species from modest elevations. Subsequent studies of the Adelbert avifauna have reached the summits, confirmed all of Beck's records, and recorded a total of about 65 upland species, many of them confined to the highest elevations above 4000 or even 5000 feet. The low altitudes to which Beck was confined thus prevented him from recording most Adelbert upland species. Beck's failure to reach high altitudes was not because of laziness on his part but because of mortal danger: at the time of Beck's visit, the people living at higher elevations in the Adelberts still had not been contacted by Europeans and were beyond government control. For example, when Diamond and Bishop visited mountain villages of the Adelberts in the year 2004, villagers related to them that, according to the memories of the oldest people then alive and orally transmitted accounts of the previous generation, first European contacts at high elevations of the Adelberts did not begin until the 1950s. That made it lethally dangerous for Beck himself, in 1928, to attempt to ascend to elevations above 2500 feet. The most that he could do was to send local hunters permitted to go further because of established relations with local people. Even those local hunters may barely have ascended beyond 2500 feet: only the *Sericulus bakeri* specimens provide suggestive but not conclusive evidence that they ascended any higher.

KEKU: Beck's next station of Keku lies outside the area of Madang and the Adelbert Mountains and isn't connected to the Adelberts by hills. Instead, it is south-southwest of Madang at the western extremity of the mountains of the Huon Peninsula, the largest and highest of New Guinea's 10 outlying mountain ranges. All or most other collections from the mountains of the Huon Peninsula were made in the central or eastern part of those mountains; significantly, Beck's Keku collection is from their westernmost extension. Keku itself was a four-hour walk inland from Bogadjim, on Astrolabe Bay. It was located on a low hill from which Beck often ascended to the top of a ridge at 3000 ft. In 55 days at Keku Beck collected 423 specimens belonging to 105 species. As at Meganum and Maban, some of Beck's specimens from Keku were actually collected by local New Guinea hunters. Fifty of Beck's Keku specimen labels specify the altitude of collection as between 500 and 3000 ft. One specimen, of the plover *Charadrius dubius* collected on 31 October, a date within the period when Beck was at Keku, is labeled "Astrolabe Bay," suggesting that Beck descended on that date to the coast.

At Keku Beck obtained eight upland species: the pigeon *Gymnophaps albertisi*, the swiftlet *Aerodramus hirundinaceus*, the parrot *Psittichas fulgidus*, the jewel babbler *Ptilorrhhoa castanonotus*, the robin *Gennaedryas placens*, the whistler *Pachycephala hyperythra*, the pitohui

Pitohui dichrous, and the bird of paradise *Cicinnurus magnificus*. All eight of these species also occur in the Adelberts, and all can be found at elevations at or below 2000 feet. The most significant of these records is that for *Gennaedryas placens*, for which there is no other record from the mountains of the Huon Peninsula. This species illustrates the confusion that Beck's collections introduced into the ornithological literature as a result of his collecting localities not being understood. Evidently on the basis of Beck's specimen collected at Keku, Mayr (1941) in his *List of New Guinea Birds* included "Astrolabe Bay" in the geographic range of *Gennaedryas placens* (which was very poorly known at the time of Mayr's 1941 list), and described the habitat of the species as "lowland forest up to 1000 feet." Mayr evidently did not know the location of Keku other than that it was somewhere near Astrolabe Bay, and he thought that it was in the lowlands. Actually, *Gennaedryas placens* does not occur up to 1000 ft but instead occurs from 1000 ft upwards, and Keku is not a lowland locality on Astrolabe Bay but lies inland in foothills.

Most species that Beck collected at Keku are widespread and reasonably common. The least common species that Beck collected at Keku are the hawk *Megatriorchis doriae*, the nightjar *Eurostopodus papuensis*, the flycatcher *Symposiachrus rubiensis*, and the robin *Gennaedryas placens*.

Of the 105 species that Beck collected at Keku, most (91 species) live in the forest interior or canopy. Only 14 species belong to other habitats. Six are species of nonforested open country: the waders *Actitis hypoleucos* and *Charadrius dubius*, the swiftlets *Aerodramus vanikorensis* and *A. hirundinaceus*, the falcon *Falco berigora*, and the dollarbird *Eurystomus orientalis pacificus*. (The first and last of these six species are nonbreeding winter visitors, from the Palearctic and from Australia respectively). Five species inhabit the forest edge: the hawk *Accipiter hio-gaster*, the cuckoo *Centropus bernsteini*, the nightjar *Eurostopodus papuensis*, the cuckoo-shrike *Coracina papuensis*, and the sunbird *Cinnyris jugularis*. Two species (the flycatchers *Rhipidura leucothorax* and *Myiagra alecto*) inhabit the forest edge understory or second growth. Finally, the kingfisher *Ceyx pusillus* is a species whose habitat is streams.

About 13 species (plus many more subspecies) of lowland birds that are widely distributed in northern New Guinea reach the eastern limit of their north New Guinea range somewhere around Astrolabe Bay. Their absence farther east on the north coast may be related to the fact that the mountains of the Huon Peninsula east of Astrolabe Bay rise steeply from the coast, so that the strip of lowland habitat at the northern foot of the mountains is very narrow. From Beck's collection we may inquire whether these species reach their eastern limit somewhere east or west of Keku. Four of the 13 species—the pigeon *Trugon terrestris*, the parrot *Chalcopsitta duivenbodei*, and the birds of paradise *Manucodia jobiensis* and *Seleucidis melanoleucus*—are not informative, because Beck did not collect them at any of his localities. Two of these 13 species—the pigeon *Goura victoria* and the kingfisher *Todiramphus nigrocyaneus*—were collected by Beck at Maban but not at Keku, suggesting that their eastern limit may lie just west of Keku. Beck obtained the remaining seven species at Keku, meaning that their eastern limit lies somewhere east of Keku. Those seven species are the jewel babbler *Ptilorrhhoa caerulescens*, the cuckoo-shrike *Lalage atrovirens*, the pitohui *Pitohui kirhocephalus*, the Australasian babbler *Garritornis isidorei*, the monarch flycatchers *Symposiachrus rubiensis* and *Arses insularis*, and

the starling *Mino anais*. Freeman et al. (2013) recorded two of these species, *Pitohui kirhocephalus* and *Arses insularis*, about 70 miles east of Keku.

While quite a few species thus reach their eastern range limits around Astrolabe Bay, the bay also marks the approximate range border dividing subspecies and allospecies for species and superspecies respectively that are widely distributed both west and east of the bay. Numerous species that Beck collected both in the Cromwell Mountains and in the Madang area are represented by different subspecies in those two portions of his collections. In the case of the parrot *Lorius lory*, whose western subspecies *L. l. salvadorii* differs from its eastern subspecies *L. l. erythrothorax* in the color of the underwing coverts (blue-black versus red respectively), Beck collected only the western subspecies at his westernmost site Meganum, individuals of both subspecies at his intermediate site Keku, and only the eastern subspecies at his easternmost site Zaghame. In two superspecies—the birds of paradise *Paradisaea minor* and *P. raggiana*, and the monarch flycatchers *Arses insularis* and *A. telescopthalmus*—Beck collected different allospecies in the two areas; in each of these cases we cite first the northwestern allospecies collected in the Madang area and Keku, and we cite second the northeastern allospecies collected in the Cromwell Mountains.

CROMWELL MOUNTAINS. In 95 days in the Cromwell Mountains Beck collected 815 specimens belonging to 160 bird species. While Ernst Mayr (1931) and others (e.g., Freeman et al., 2013) collected in the mountains of the Huon Peninsula previously and subsequently to Beck, Beck's collection remains one of the largest and most complete from those mountains, second only to Mayr's.

Beck's five Cromwell sites form an altitudinal transect from sea level to 7500 ft. Table 2 summarizes, for each of the sites, its altitudinal range, the number of days that Beck spent at that site, the number of specimens and species and upland species collected, the number of species divided by the number of days, and the percentage that upland species comprise of all species collected.

At face value, the total number of species at a site is highest at Zaghame, the second highest site (4000–5000 ft), where the species total (82 species) is more than double that at sea level (Finschhafen: only 37 species). In New Guinea one expects a sea level site to have the highest number of species. Finschhafen's low species total is surely an artifact of its low bird population remarked on by Beck, and due to Finschhafen's being a town surrounded by disturbed habitats with bird numbers depleted by hunting. The apparent rise in species number with increasing elevation from Wareo to Hompua to Zaghame is also at face value unexpected, but it fails to take account of the fact that Beck spent increasing amounts of time at sites at higher elevation: 9, 15, and 27 days at Wareo, Hompua, and Zaghame respectively. As a crude way of correcting for that effect of unequal numbers of collecting days, column 6 of table 2 calculates the number of species divided by the number of collecting days. The result is that species number thus corrected for number of collecting days decreases as expected with increasing elevation, from Wareo (the second site) to Sevia (the fifth and highest site). But that correction for number of days remains a crude one, because one doesn't expect the cumulative number of species to increase linearly with number of collecting days; the cumulative number should instead increase asymptotically.

Table 2. Beck's collections at his five sites in the Cromwell Mountains. Column 6 equals column 5 divided by column 3. Column 8 equals column 7 as a percentage of column 5

1. Site	2. Elevation (ft.)	3. Days (no.)	4. Specimens (no.)	5. Species (no.)	6. Species per day	7. Upland species (no.)	8. Upland species (%)
Finschhafen	0–1500	27	74	37	1.37	2	5
Wareo	1000–2500	9	67	30	3.33	4	13
Hompua	3000–4000	15	82	49	3.27	19	39
Zagaheme	4000–5000	27	311	82	3.04	59	72
Sevia	5000–7000	25	281	71	2.84	58	82

As expected, the number of upland species increases with increasing elevation. At Finschhafen (0–1500 ft) Beck obtained only two upland species, of which *Gymnophaps albertisii* as mentioned previously breeds at high elevation but commutes to the lowlands, while *Pitohui dichrous* is predominantly an upland species with occasional sea level populations. Beck obtained a total of 80 upland species in the Cromwell Mountains. The total number of upland species obtained by all collectors and observers for the mountains of the Huon Peninsula is 123 species, so that Beck obtained 65% of the upland avifauna, even though he did not ascend above 7500 ft. and some of the upland species obtained by other collectors are confined to elevations above 7500 ft. That high upland species total of the mountains of the Huon Peninsula, almost double the total number known for the Adelbert Mountains, reflects the fact that the mountains of the Huon Peninsula are the highest and the largest in area of the New Guinea outlying mountain ranges.

Of Beck's 162 Cromwell species, only 23 are species of nonforest habitats; the remaining 139 are forest species. The largest group of nonforest species consists of 15 species of open habitats, including five grassland species (the quail *Coturnix chinensis*, the grass warblers *Cisticola exilis* and *Megalurus macrurus*, the fairywren *Malurus alboscapulatus*, and the chat *Saxicola caprata*) collected in an area of grassland that Beck mentioned visiting at Zagaheme, plus three Palearctic or Australian winter visitors (the kingfisher *Todiramphus sanctus*, the bee-eater *Merops ornatus*, and the wagtail *Motacilla cinerea*). These open-country species are distributed rather uniformly over the five sites (3–6 species per site), except that Beck obtained only one open-country species at Wareo, the site where he spent the least time. The other nonforest species are two coastal species from Finschhafen (the Osprey *Pandion haliaetus* and the honey-eater *Gavicalis versicolor*), two water birds from a pond at Wareo (the grebe *Tachybaptus tricolor* and the duck *Dendrocygna guttata*), the river kingfisher *Ceyx pusillus* at Finschhafen, and three species of forest edge at Finschhafen (the coucal *Centropus bernsteinii* and the flycatchers *Rhipidura leucothorax* and *Myiagra alecto*).

Because most of Beck's specimens were not individually labeled with the altitude of collection, and because those few specimens so labeled bear only approximate indications (to the nearest 500 or 1000 ft), we cannot draw fine conclusions about altitudinal distributions along Beck's Cromwell transect. However, we note that Beck's three species that elsewhere in New Guinea have the highest altitudinal floors—the cuckoo-shrike *Coracina longicauda*, the robin

Peneothello sigillata, and the berry-pecker *Paramythia montium*—were all collected at Sevia, Beck's highest site, where the highest altitude that Beck reached was still only 7500 ft. (By altitudinal floor, we mean the lowest elevation to which a species normally descends. Beck could not have encountered species whose floors in the Cromwell Mountains lie above 7500 ft., because Beck did not ascend above 7500 ft.). He labeled a *Peneothello sigillata* specimen specifically as having been collected at 6000 ft. Beck's altitudes for those three species are low compared to their altitudinal ranges elsewhere in New Guinea. This suggests the possibility that Beck's Cromwell transect, because of its proximity to the coast, may be characterized by a depression of altitudinal ranges by the so-called Massenerhebung effect, as documented for the Fakfak and Kumawa Mountains (Diamond and Bishop, 2015). Of course this conclusion for the Cromwell Mountains requires testing by better data and is currently very tentative because it is based on only three species.

Ernst Mayr was collecting in the mountains of the Huon Peninsula at the same time as Beck, but along a different transect. Comparison of their results yields the following conclusions. In 135 days collecting from sea level up to an elevation of 4000 m = 13,120 ft, Mayr collected and observed 1286 specimens of 202 species, 188 of which he collected and another 14 that he observed but did not collect. In 95 days Beck collected 815 specimens of 160 species up to a maximum elevation of 7500 ft. Mayr obtained somewhat more species because his visit was 40% longer and he reached much higher elevations. Another reason Beck's list is shorter is that it consists solely of species that he collected, whereas Mayr's list includes the 14 species that he observed but did not collect (in many cases because he intentionally did not collect them).

Mayr (1931) listed 272 species that had been recorded for the Huon Peninsula up to and including the time of his visit, but not including Beck's results. Mayr missed 71 species that had been recorded by previous observers. Most (48) of those 71 missed species were nonpasserines, most of them wide ranging without geographic variation, such as sea birds and water birds; Mayr may have missed them because he was intentionally ignoring them and/or their habitats. The other 23 species that Mayr missed were passerines. Mayr missed only one upland species recorded by previous observers, the rare and elusive thrush *Zoothera heinei*.

Among upland species, Mayr collected 108, Beck 80. Mayr missed only four upland species that Beck collected: the pigeon *Ptilinopus ornatus*, the cuckoo-shrike *Coracina longicauda*, the rare hawk *Accipiter melanochlamys*, and the rare parrot *Psittacella madaraszi*. Beck missed 33 upland species obtained by Mayr. Of those 33 missed species, three are confined to rushing streams, a habitat that Beck may not have visited: the duck *Salvadorina waigiensis*, the flycatcher *Monachella muelleriana*, and the torrent-lark *Grallina bruijnii*. Five missed species live mainly or solely at high altitudes above those that Beck reached: the parrots *Neopsittacus pullicauda* and *Oreopsittacus arfaki*, the pipit *Anthus gutturalis*, the thrush *Turdus poliocephalus*, and the honey-eater *Caligavis subfrenata*. Beck also missed 13 species that are rare, cryptic, or both (e.g., the woodcock *Scolopax rosenbergii* and the honey-eater *Timeliopsis fulvigula*). Finally, Beck missed 12 of Mayr's upland species, and it is not obvious why he did not obtain any specimens of them. The most surprising absences are four abundant species that Beck missed:

the log-runner *Ptilorrhoa castanonota*, the flycatcher *Symposiachrus axillaris*, and the robins *Tregellasia leucops* and *Heteromyias albispecularis*.

The total number of upland species now known for the Huon Peninsula is 123, of which 112 were recorded by Mayr, Beck, or both. Most of the new records since the collections by Beck and by Mayr are summarized by Freeman et al. (2013).

There remain five upland species that have not been recorded in the mountains of the Huon Peninsula by Beck, Mayr, or anyone else before or since, but that are widely distributed on the other outlying mountain ranges: the parrot *Geoffroyus simplex*, the robin *Drymodes beccarii*, the warbler *Acanthiza cinerea*, the bellbird *Ornorectes cristatus*, and the bird of paradise *Phonygammus keraudrenii*. Four of these species (all except *Acanthiza cinerea*) are fairly common wherever present and are easily detected by their loud, far-carrying, vocalizations. All are present on either six or seven of the other outliers, including the one with the largest number of upland species (the Bird's Head) and the next three richest outliers (Foja, Wandammen, and North Coastal Range) after the Huon Peninsula, which is the second richest outlier. One of us (J.D.) and D. Bishop searched particularly for these five species in the mountains of the Huon Peninsula in 2004 and 2006 without encountering them, and Mayr (1931: 676) commented explicitly on not hearing *Ornorectes cristatus*. Hence it seems likely that all five species are actually absent from the Huon Peninsula, although none is specialized in its habitat preference and there is no obvious reason why any of the five should be absent. Instead, their absence presumably reflects nothing more than the stochastic and unpredictable elements in colonization and extinction of populations.

DID BECK DELIBERATELY CONCEAL THE TRUE TYPE LOCALITY OF *SERICULUS BAKERI*?

Finally, let's return to the question that we posed at the outset and that has been a source of mystery ever since *Sericulus bakeri* was described in 1929 (Chapin, 1929). Why did Beck's specimen labels give the locality of his three *Sericulus bakeri* specimens as the coastal lowland town of Madang, when the specimens actually came from the Adelbert Mountains?

Several considerations are relevant to Beck's labeling of his New Guinea bird specimens. As leader of the WSSE, Beck had spent the previous eight years collecting birds on Pacific islands, many of them so small that no distinction of localities within an island was required, and all specimens could be labeled with just the island's name. Sanford's offer to Beck to support his collecting in New Guinea did give Beck instructions about how many specimens of a single species to collect at one locality, about recording altitudes of collection, and about which groups of New Guinea birds were still unrepresented in the AMNH collections. There is no indication that Beck had an altimeter in his possession. Nor have we found any instructions concerning specific New Guinea localities at which Beck should collect or information about unanswered scientific questions to guide Beck's collecting activities. Finally, Beck traveled to New Guinea from the Pacific islands where he had been collecting, via a stop only in Australia where for the first time Sanford proposed New Guinea as Beck's next destination. Hence, Beck

arrived in New Guinea completely unprepared with knowledge about New Guinea birds. His handwritten field catalog refers to the New Guinea bird specimens that he was collecting by made-up names or very approximate identifications: e.g., “warbler,” “small blackbird,” “longtail pigeon,” and “vireo-like.” In particular, Beck had no idea that his specimens of *Sericulus bakeri* belonged to a new species, or even that they were of a bowerbird; his field catalog refers to them as “orangenaped bird paradise.”

As a result of all these considerations, when Beck arrived at Madang on 15 August 1928, he began labeling his specimens “Madang,” and continued to do so during the eight days that he was based at Madang (presumably collecting at various localities within one day’s return travel of Madang). He continued labeling his specimens “Madang” during the next three days while he was at Nobonob, then during the next 38 days while he was at Meganum (where he collected *Sericulus bakeri*), then during the next 14 days while he was back at Madang. Only when he moved to Keku for nearly two months did his labels specify a collecting locality (“Keku”) different from Madang, and there he was given the altitude of the mission station. His labels reverted to “Madang” for the following month spent at Madang and at Nobonob, but specified “Maban” for his two weeks there. Only when Beck moved 130 miles east to his five sites at the eastern end of the Huon Peninsula (Finschhafen, Wareo, Hompua, Zagaheme, and Sevia), each separated from the nearest site by an average of 1500 vertical feet, and after he had received the altitudes of the mission stations from Leonhard Wagner at Wareo did Beck finally obey Sanford’s instructions to record altitudes of collection and distinguish among these five sites on his specimen labels.

Beck, first and foremost, was a great collector. He learned from a neighbor how to skin and mount birds, supported himself by becoming a professional collector, and from the age of 29 was sent on many large-scale collecting expeditions—to the Galapagos Islands, Mexico, the Caribbean, South America, and the Pacific islands. He was legendary for his ability to prepare a songbird specimen in five minutes, and for his passion for collecting and preparing seabirds. The total number of bird specimens that he prepared was at least 54,000, probably over 62,000, to which ought to be added an uncounted number of mammal and herpetological specimens (Dumbacher and West, 2010).

In short, Beck labeled the locality of his *Sericulus bakeri* specimens (and all of his other specimens from Meganum and Nobonob) as “Madang” for banal reasons. It is clear that there is no basis for the assumption that he did so intentionally in order to conceal the geographic range of *Sericulus bakeri* so that he could return there and discover more novelties for himself. Instead, Beck didn’t know that *Sericulus bakeri* was a new species, never described nor showed any interest in describing any new species himself, had not been taught to appreciate the importance of geography for New Guinea bird distributions, had no interest in returning to New Guinea or in undertaking any other collecting trip, and instead returned from New Guinea to California with the financial security of the money promised to him by Sanford, to fulfill his goal of retiring in California, where he stayed for the remaining 20 years of his life. The fact that his labels did not meet all of the desiderata of scientists for specimen information should not dim the fact that Rollo Beck had been a great collector.

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