

Report to Day Star Research

Nectarivorous birds in the pollination network of the upper montane forest of the Andes

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In 1986, when I was 16 years old, I became part of two institutions: the Universidad Agraria la Molina in Lima, one of the best places to study field Biology in Peru, and the kingdom of God, when I received Jesus Christ as my personal savior. I loved science since very young, and I dreamed of learning how nature works. Becoming a Christian helped me to have a new view of nature; now I see it as God's handiwork and biology as the science to learn the wonders of God's creation.

I began a Masters in Science in Zoology in my hometown in 1998. Later I started another master in science in 2004, this time in Tropical Biodiversity management, and in Spain, thanks to a grant. So this time I could get an international perspective in my career. After working hard in my country, doing environmental impact assessments and sporadic research, I applied for a grant to do Ph.D. studies, which I began at the University of Florida in 2009.

Meanwhile, I did not neglect my spiritual life. By the way, I do not think there is a great difference between professional life and "spiritual" life. The Lord has been with me through all this time. Something else that I needed for my doctoral research was to travel to the Museums where I could fulfill my research. Thanks to the Day Star Science Advocacy Research Grant I could do it. Thank you very much. God bless your ministry.

Washington, National Museum of Natural History, Smithsonian Institution:

Given the permission by Dr. Mercedes Foster in the bird division, I was able to check the specimens of my interest; the nectarivorous birds that dwell in the forest of the high Andes of Peru. The bird collection in this museum is amazing, thousands of birds from all over the world; it took me a while to check what I needed. But everything was well catalogued and ordered. I started looking at the flowerpiercers. They are a distinctive group inside the Thraupidae family, in the order Passeriformes.

I looked for specimens taken in Peru. I found some of them from 1915. The flowerpiercers owe their name to their feeding habits, piercing flowers to extract nectar. They have a hook in the beak that allows to feed in that way. I also looked for hummingbirds that inhabit the tree line in the high Andes; at the limit between puna grasslands and montane forest. Some of them such as the metaltails (*Metallura*) are difficult to differentiate. It was necessary to examine the gorget, the patch on the bird's throat.

Thanks to Dr. Mercedes Foster for the permission to access this collection

New York, American Museum of Natural History:

Here I got the permission of Joel Cracraft, head of the bird division. I did check the same kind of specimens, nectarivorous birds (flowerpiercers and hummingbirds). The morphology of some hummingbirds' beak such as the lancebills suggests that they may use it to catch insects. Even though I do not work in taxonomy, I have high regard for the work of systematic biologists, who work in museums like this and make the collections available to ecologists like me. I see the collected specimens as martyrs of science, which should be handled with the best care.

Thanks to Dr. Joel Cracraft for the permission to access the collection, to Tony Campollo and Merle Okele for the facilities given.