



Ludwig Buckup's academic life and his contribution to Carcinology

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ZOOBANK <http://zoobank.org/urn:lsid:zoobank.org:pub:27A54805-B52D-4AC2-BA7C-E33A8289D16A>

ABSTRACT

Ludwig Buckup holds a Bachelor's degree in Natural History in 1954 from the Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, and a Ph.D. in Zoology from the University of Tübingen, Germany, in 1958. He joined UFRGS as a Professor in 1958, from where he retired in 1990. During this period he was fully devoted to his career of professor and scientist. His investigations in the area of Carcinology covered mainly the Parastacidae and Aeglidae families. Even after he retired, Professor Buckup participated in numerous research and extension activities inside and outside the University. Always engaged in environmental causes, he actively takes part in debates and lectures about the environment and conservation in the city of Porto Alegre and other cities in the state of Rio Grande do Sul. His career is highlighted by important steps for the construction of academic spaces and the development and consolidation of Carcinology, in particular for the Brazilian Crustacean Society.

KEY WORDS

Biography, Crustacea, crayfish, Aeglidae, Parastacidae.

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SUBMITTED 5 February 2018

ACCEPTED 2 March 2018

PUBLISHED 26 March 2018

Guest Editors

Alessandra A. de Pádua Bueno
and Sandro Santos

DOI 10.1590/2358-2936e2018007



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Nauplius, 26: e2018007

Ludwig Backup, a descendant of German immigrants, was born on March 25, 1932, in the city of São Paulo. His education initiated in São Paulo and later in Rio de Janeiro. Enthusiastic since childhood for matters related to nature, he obtained a bachelor's degree in Natural History in 1954, and a licentiate degree in 1955 (Fig. 1A) at the University of Rio Grande do Sul, now known as the Federal University of Rio Grande do Sul (UFRGS), in Porto Alegre. Looking forward to a good professional career, he applied for a one-year scholarship from DAAD - *Deutscher Akademischer Austauschdienst* (German Academic Exchange Service), to carry out a research internship at the *Zoophysiolgisches Institut* of the University of Tübingen, Tübingen, Germany. Professor Dr. Herman Risler received him and soon he was invited to do a Ph.D. (*Promotion*) on a theme of Entomology. In fact, ten months after his arrival in Tübingen, his doctoral thesis was completed and approved on October 25, 1958, with the distinction "*cum laude*" (with praise).

Returning to Brazil in December 1958, he joined the Federal University of Rio Grande do Sul as a professor, where he was given the task of teaching the newly created discipline of Biogeography, which he fulfilled during 32 years until his formal retirement in 1990. In 1983, he became a Full Professor, with full-time dedication to the Department of Zoology of the Institute of Biosciences at UFRGS, where he developed his research until his definitive departure from the laboratory in 2010. His link with UFRGS lasted 55 years, with outstanding performance in teaching, research and university extension programs, contributing with his point of view, energy and competence to the formative role, integration, and the cultural and social function of the university.

Ludwig Backup always showed an eclectic profile, encouraging the cultural and artistic areas, both inside and outside of UFRGS. He assumed several tasks in the university administration and in the cultural and scientific environment of the city of Porto Alegre. He was president of the Porto Alegre's Symphonic Orchestra Foundation from 1995 to 1998. He also excelled in activities that prioritized the defense of the environment and the preservation of natural resources, especially in Rio Grande do Sul.

He participated in administrative activities at the University in the position of Dean of the University

Extension Programs at UFRGS, from 1980 to 1984. During this period, under his coordination, the *Unicultura* Program was created, with its "Unimúsica", "Unidança", "Unicena", "Doze-e-Trinta e Seis-e-Meia" and "Uniartes" projects. As Dean and enthusiastic he stimulated the new generations to develop an interest in classical music and to play classical instruments. He also created and administered the *Prelúdio Project*, which, alongside with "Unimúsica", remain nowadays in the cultural agenda of UFRGS.

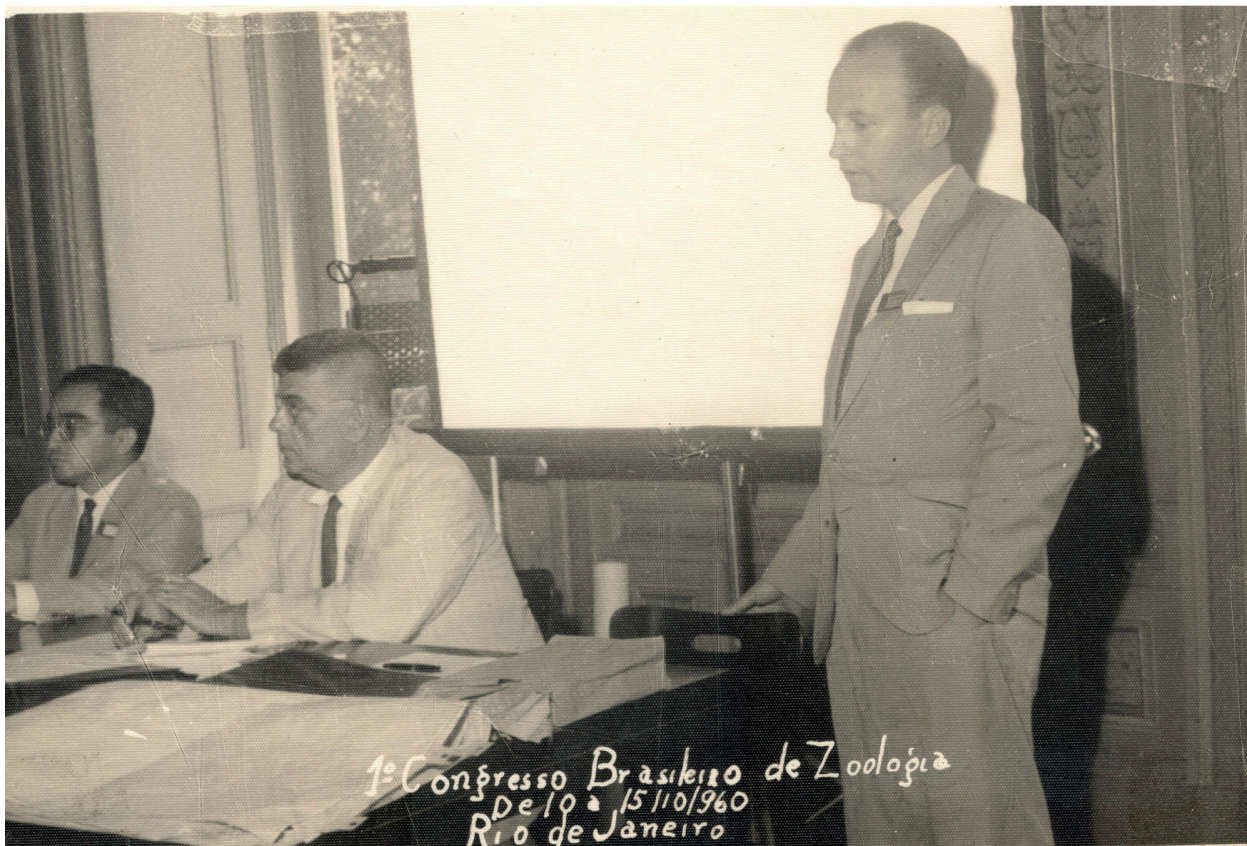
He was an active professor, establishing the disciplines of Biogeography and Biological Oceanography in the Course of Natural History offered by UFRGS, from the 1960's on. In 1971, he encouraged and participated in the creation of the Department of Zoology of UFRGS. In 1975, he acted decisively for the startup of Ecology Specialization Course and, in 1977, for the creation of the Post-Graduate Program in Ecology, and was the first Coordinator of the course. In 1994, he contributed effectively to the creation of the Post-Graduate Program in Animal Biology, where he was a teacher and supervisor until his retirement.

As a researcher, in addition to UFRGS, he worked at the Museu Riograndense de História Natural (Rio Grandense Museum of Natural Sciences), an organ linked to the current Zoobotanic Foundation of Rio Grande do Sul, where he held the position of Director (1962 to 1966) and member of the Advisory Board (1992 to 1996, 2003 to 2007). Together with Professor Padre Balduino Rambo, he was the co-founder of the Rio-Grandense Museum of Natural Sciences of the Culture Division of the Secretary of State for Education and Culture of Rio Grande do Sul (now the Natural Sciences Museum of the Zoological Society of the Environment Secretariat of RGS). At the Museum of Natural Sciences, in 1957, he was one of the founders of the *Iheringia*, a scientific journal, which started with the Zoology Series.

He participated actively in the creation and as a counselor of scientific entities boards. It is worth mentioning the foundation of the Brazilian Crustacean Society, of which he was president from 1983 to 1986 and member of the Council from 2009 to 2012. In the years 1980 to 1990 he was an active member of the Sociedade Brasileira para o Progresso da Ciência (Brazilian Society for the Progress of Science) - Rio Grande do Sul (SBPC), occupying the position of



A



B

Figure 1. Ludwig Buckup in the beginning of his career. A, As a student, in a field trip (1952); B, During the I Brazilian Congress of Zoology, Rio de Janeiro, 1960. Photographs of L. Buckup's personal collection.

regional secretary from 1992 to 1994. He was a full member of the Federal Council of Biology, composing the first Council Board. He had intense participation in the regulation of the Biologist profession at the national level. He served as a full member of the Superior Council of the Foundation for Research Support of the State of Rio Grande do Sul in the 1990s.

He was honored in 2012 with the “Medalha Cidade de Porto Alegre”, awarded by the Porto Alegre City Hall for his work and activities in the area of ecology and zoology (Fig. 2A). He was awarded with the Alexandre Rodrigues Ferreira Prize by the Brazilian Society of Zoology and received the Biology Merit Prize 2000 - *Trajetória Profissional*, from Regional Council of Biology - 3rd Region (Paraná, Santa Catarina and Rio Grande do Sul). In the same year, he was honored with a tribute by the Brazilian Crustacean Society. In 2014, he received from UFRGS the title of *Professor Emeritus* in recognition of his vision of the university, innovative spirit and relevant services to the University (Fig. 2B).

In his academic activities, he interacted with a hundred collaborators, which is reflected in the co-authorship of his scientific production. His intellectual contribution, involving several themes, first in Entomology (Buckup, 1957a; 1959) and later in Carcinology (several publications), comprises complete original scientific articles published in peer-reviewed journals, including the description of new species (Tab. 1). He also participated in the publication and organization of books, books chapters, and took part in scientific events, gave lectures, carried out technical works (advice, consultancy, opinions and technical reports) and guided undergraduate (undergraduate scientific advice and scholarships) and graduate courses (monographs, master's and doctorate theses). Professor Buckup also organized and coordinated national and international scientific events (Fig. 1B). He has been a consultant for more than 20 scientific journals, and several science and education funding agencies in Brazil and abroad. Many of his former students excelled in their areas of specialization, occupying positions in several Higher Education Institutions in Brazil. Professor Buckup and his former students currently represent an important source of knowledge about the taxonomic, biological and ecological diversity of Neotropical freshwater carcinofauna. Particularly, his pioneering investigation on the composition of the



A



B

Figure 2. Special recognitions received by Ludwig Buckup. A, Ludwig Buckup receiving the “Medalha Cidade de Porto Alegre” (2012); photograph of L. Buckup’s personal collection. B, Ludwig Buckup receiving from Dr. Carlos Alexandre Netto, Rector of UFRGS, Honor to Merit at the Federal University of Rio Grande do Sul (2016); photograph: Gustavo Diehl/UFRGS.

southern Brazilian limnic fauna should be emphasized (Buckup and Thomé, 1962; Buckup and Bento, 1999; Buckup and Bond-Buckup, 1999; Buckup *et al.*, 2007a; Melo *et al.*, 2008). Several articles published by his research group constitute an essential basis for the continuation of research on Neotropical biota. The family Parastacidae was extensively investigated by his research group (Fontoura and Buckup, 1989a; 1989b; 1991; Buckup and Rossi, 1993; Buckup and Bond-Buckup, 1994; Almeida and Buckup, 1997; 1999; 2000; Buckup, 1999b; 2003; Crandall *et al.*,

Table 1. New species described by Ludwig Backup.

| Class | Order | Family | Species |
|---|----------|----------------|---|
| Insecta | | Pentatomidae | <i>Agroecus tenebricosus</i> Backup, 1957 <i>Agroecus brevicornis</i> Backup, 1957 |
| | | Reduviidae | <i>Apiomerus riograndensis</i> Backup, 1957 |
| | | Dubioniscidae | <i>Novamundoniscus meridionalis</i> (Araujo & Backup, 1994) |
| | | Philosciidae | <i>Benthana taeniata</i> Araujo & Backup, 1994 |
| | | Platyarthridae | <i>Trichorhina acuta</i> Araujo & Backup, 1994 <i>Trichorhina bicolor</i> Araujo & Backup, 1996 |
| Crustacea | Decapoda | Aegliidae | <i>Aegla camargoi</i> Backup & Rossi, 1977 |
| | | | <i>Aegla franciscana</i> Backup & Rossi, 1977 |
| | | | <i>Aegla leptodactyla</i> Backup & Rossi, 1977 |
| | | | <i>Aegla plana</i> Backup & Rossi, 1977 |
| | | | <i>Aegla serrana</i> Backup & Rossi, 1977 |
| | | | <i>Aegla grisella</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla inconspicua</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla inermis</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla intercalata</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla itacolomiensis</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla jarai</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla lata</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla leptochela</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla ligulata</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla longirostri</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla marginata</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla micropthalma</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla obstipa</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla parva</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla ringueleti</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla rossiana</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla septentrionalis</i> Bond-Backup & Backup, 1994 |
| | | | <i>Aegla spinipalma</i> Bond-Backup & Backup, 1994 |
| <i>Aegla spinosa</i> Bond-Backup & Backup, 1994 | | | |
| <i>Aegla violacea</i> Bond-Backup & Backup, 1994 | | | |
| <i>Aegla pomerana</i> Bond-Backup & Backup, 2010 | | | |
| <i>Aegla muelleri</i> Bond-Backup & Backup, 2010 | | | |
| <i>Aegla renana</i> Bond-Backup & Backup, 2010 | | | |
| <i>Aegla leachi</i> Bond-Backup & Backup, 2012 | | | |
| <i>Aegla lancinhas</i> Bond-Backup & Backup, 2015 | | | |
| | | Parastacidae | <i>Parastacus laevigatus</i> Backup & Rossi, 1980 <i>Parastacus fluviatilis</i> Ribeiro & Backup, 2016 |

2000; Horn *et al.*, 2004; 2008; Vinagre *et al.*, 2004; Reid *et al.*, 2006; Backup *et al.*, 2007b; 2007c; Noro *et al.*, 2007; 2008; Noro and Backup, 2010; Silva-Castiglioni *et al.*, 2010). From 1979 on, he published several articles about the family Aegliidae (Backup and Rossi, 1977; Bond-Backup and Backup, 1994; 1999a; 2000; Backup and Bond-Backup, 1998; Bueno *et al.*, 2000; Noro and Backup, 2002; 2003; Boos *et al.*, 2006; Sokolowicz *et al.*, 2006; Bond-Backup *et al.*, 2008; 2010a; 2010b; Gonçalves *et al.*, 2009; Santos *et al.*, 2009; 2010). In relation to the aquatic biota, one can highlight the publications with caridean prawns such as Setz and Backup (1977) and Bond-Backup and Backup (1982; 1983; 1988; 1989; 1999b). Terrestrial

crustaceans, particularly the Isopoda, were also the focus of several studies (Araujo and Backup, 1994a; 1994b; 1996a; 1996b; Araujo *et al.*, 1996). Professor Backup also had active participation in discussions about the conservation of species of the Brazilian fauna (Amaral *et al.*, 2008; Magris *et al.*, 2010). Species were described in his honor, reflecting his intense effort to generate knowledge about the South American fauna (Tab. 2).

After his departure from the University, Professor Backup continued to collaborate with several scientists and to publish scientific articles, although at a less intense pace (Fig. 3). Currently, he dedicates most of his time to other activities such as gastronomy, bromeliads,

Table 2. Species described in honor of Ludwig Buckup.

| | Higher taxa | Species |
|-----------|------------------------------------|--|
| Mollusca | Olividae | <i>Olivancillaria buckuporum</i> Thomé, 1966 |
| | Decapoda, Alpheidae | <i>Alpheus buckupi</i> Almeida, Terossi, Araújo-Silva & Mantelatto, 2013 |
| Crustacea | Decapoda, Aeglidae | <i>Aegla ludwigi</i> Santos & Jara, 2013 |
| | Isopoda, Oniscidea, Scleropactidae | <i>Circoniscus buckupi</i> Campos-Filho & Araujo, 2011 |

**Figure 3.** Ludwig Buckup in the present time (2017) at the Carcinology Laboratory of UFRGS. Photograph: Georgina Bond- Buckup.

fishing and travel, sharing his joy and good humor with his friends. This special series is dedicated to Professor Ludwig Buckup for opening many avenues for young scientists who, with his example and encouragement, continued his pioneering work, advancing the field of Carcinology. We are very grateful to him who made these opportunities possible and with whom we are still learning and sharing good moments until today.

ACKNOWLEDGEMENTS

Our thanks to Georgina Bond-Buckup for her kindness in providing us with information about the life, career and photographs of Dr. Ludwig Buckup. To CNPq for the Research Productivity fellowship to PBA and SS.

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