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Exploration

by the Santo 2006 Botany Team

Porter P. Lowry II & Jérôme Munzinger

European botanical exploration of Vanuatu began in 1774, when the Forsters (father and son) and W. Anderson visited the islands of Tanna and Malekula during James Cook's second voyage. Significant collecting expeditions, including to Santo, were conducted by F.A. Campbell in 1872-1873 and by a team led by J.R. Baker in 1933. More recently, scientists from several institutes participated in the 1971 Royal Society-Percy Sladen Expedition; botanists from IRD (formerly ORSTOM) in Nouméa, New Caledonia, visited Santo between 1965 and 1985; and a team from Tsukuba Botanical Garden collected there in 1996-97.

The Santo 2006 Botany team included 16 members from eight institutions in the Pacific, Europe and North America — the largest ever to work in Vanuatu. They focused on two complementary themes: Mountains & Rivers, to document the native flora of largely undisturbed habitats, and Fallows & Aliens, to record plants in human-modified environments. Most field work was conducted in a few key areas, including the Cumberland Peninsula (especially the Penaoru valley), Mt Tabwemasana, the area around Butmas, and the Vatthe Conservation Area near Matantas.

Figure 61: The Santo botany team at the Penaoru base camp, processing plant specimens after a long day in the field.

During the three months when team members were on Santo, they made a total of 1950 fertile collections, almost always in multiple sets. In addition, 943 trees were marked and identified in a series of permanent plots established in the Penaoru area. One duplicate of each fertile collection was deposited at the Vanuatu national herbarium in Port Vila (PVNH) and additional sets were sent to the Muséum in Paris (P) and the herbarium at the IRD Center in Nouméa (NOU); duplicates were sent to specialists working at other institutions.

Members of the Santo 2006 Botany Team made preliminary identifications as material was collected. Most specimens were dried and processed at the Penaoru base camp (Fig. 61), although some were preserved temporarily in alcohol and dried later, especially material collected during the difficult Mt Tabwemasana ascension. Following the expedition, field notes were entered into a database. Most angiosperms collections were identified by M. Tuiwawa, G. McPherson and J. Munzinger in Nouméa in February-March 2007, and by G. McPherson in Paris in June 2007. Ferns were identified by G. Rouhan (April and August 2007) and orchids by M. Pignal (2006-2008), both working in Paris. In parallel, specialists with knowledge on certain groups provided identifications.

Much of the identification work has now been completed, although a few problematical groups still require study. The team documented *c*. 650 species on Santo, belonging to 366 genera and 140 families of flowering plants, gymnosperms, ferns and bryophytes. An estimated 20 species collected during Santo 2006 are new to science and are being named by members of the team.

This exemplary effort has made a significant contribution to our knowledge of the flora of Vanuatu and toward documenting the plants of Santo, the archipelago's largest, highest, and botanically most diverse island. Establishing permanent plots also enabled the first-ever characterization of the structure and composition Santo's humid forests. Our work, summarized in the following pages, has helped fill a major gap in our botanical understanding of the southwest Pacific, and gave the team members an unparalleled opportunity to discover and share some of Santo's most exciting botanical treasures.