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Press release issued jointly by the University of Berkeley, the Civic Museums Foundation of Venice and by the Mycological Bresadola.

Even the scientific activities conducted during leisure time by ordinary citizens science enthusiasts, designated by the term English "citizen science" can make a vital contribution to the work of professional researchers, who rely on it with growing interest.

An example of this type of collaboration is an important research project that has had starring the American University of Berkeley, the Natural History Museum of Venice and the Venetian Society of Mycology AMB, which treats and researches collections mushrooms preserved in the museum.

Coordinated by Matthew Garbelotto for the University of Berkeley, and Luca Mizzan, for the Museum of Natural History, the project has involved a mycological collections of the Museum of Natural History (composed of more than 6000 samples of fungi) that have been put available to get a genetic characterization of species, called "DNA barcoding".

This analysis technique allows to associate to each of the species investigated a genetic sequence that characterizes it in a way similar to a barcode. These data in addition to clarifying the evolution of fungi, are freely available on the web allowing any researcher a quick comparison of samples for identification purposes. The project was recently completed with the publication of the results in the prestigious scientific journal PLoS ONE, and it was also disclosed by the University of Berkeley in a press release that emphasizes the important role played by non-professional researchers in many scientific activities.

In fact, what makes it special this research is just the work of non-professional researchers: for the Museum it was followed by mycologist Giovanni Robich which together with other volunteers
collected, prepared and identified all the samples studied in the collection.

The Natural History Museum relies traditionally the help of people who deal with scientific research as a non-professional enthusiasts. In recent years several studies have been conducted on the territory based on reports that hundreds of observers, properly led and coordinated, collected on the local wildlife.

Thanks to this type of activity, the Museum has carried out several major projects, including this year's publication of "The ornithological atlas of the city of Venice, 2006-2011", as he is coming to a close a similar research on butterflies in the Veneto.

The scientific contribution of the "volunteer scientists" who work at the Museum has also allowed the discovery of unknown organisms: many species new to science have been published on the pages of the "Bulletin" of the museum or international scientific journals. It may be surprising, but the role of "Citizen Science" to complete the inventory of the species that inhabit the planet is absolutely critical, so that an analysis published in 2012, again in the journal PLoS ONE, estimates that more than half of the new species animals discovered every year in Europe has been identified by scientists volunteers.

**Citizen Science at UC Berkeley**

Calbug is just the latest example of UC Berkeley putting a call out to the masses for help with large-scale science projects. Before Calbug, there was the search for extraterrestrial intelligence in the form of SETI @ home, one of the earliest and most successful volunteer-oriented research projects in the world. Launched in 1999 SETI @ home enlists the help of people, and their computers' spare processing power, to analyze chunks of radio signal data from space in the search for extraterrestrial intelligence. Citizen science projects That has since evolved to require active involvement from blackberries the Participants, and Researchers from UC Berkeley have not shied away from recruiting volunteers for projects That would be too cost-or time-prohibitive for small research teams to do on Their Own. Physicists UC Berkeley helped build Stardust @ home, an early pioneer in blackberries this interactive version of citizen science. Volunteers help analyze tiny particles of interstellar dust from stars many light-years away from Earth with the aid of a virtual microscope That runs off of a Web browser. Back on earth, members of the public can help track sudden oak death disease through a program called SOD Blitz headed by Matteo Garbelotto, adjunct professor and cooperative extension specialist in the Department of Environmental Science, Policy and Management. Not only are volunteers trained to identify symptoms, they help collect samples for laboratory examination.
Also Garbelotto relied upon citizen scientists for a major project to barcode the entire fungal collection of the Venice Museum of Natural History. Volunteers, many of whom were amateur mycologists, helped the treated samples in the collection. The results of the project were reported in the April 30 issue of the journal *PLoS ONE*. "This study shows that collaboration with volunteers does not have to be limited to collecting organisms, but can expand into basic science," said Garbelotto.

A project fungi Closer to home is being developed through the North American Mycoflora Project, led by Tom Bruns, professor of plant and microbial biology. Citizen scientists are being recruited to help create the continent's first ever comprehensive guide to macrofungi, which includes gill mushrooms, tooth fungi and truffles. "What makes this and other citizen science projects possible are the rise of Web-based tools and platforms," said Bruns. "To really make these contributions to science, people need to be engaged at some level. We need to inspire the general public to become involved at a higher level, and that technology is making possible. The ability to coordinate groups from around the world instantaneously to share all kinds of information is just revolutionizing science."

The AMB is proud of its collaboration with UC Berkeley which will open up new horizons and scientific contribute to the Association's cultural growth. A large part of the material used has been in these studies collected, and preserved in Herbaria determined by AMB members.

The article in *PLoS ONE* is visible to the link:

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062419

The statement of Berkeley link: http://www.cnr.berkeley.edu/garbelotto/english/venice.php