



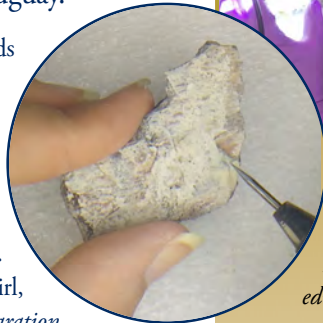
Art Conservation *and interdisciplinary research*

When Uruguayan paleontologist Mariana Di Giacomo was working on her first dig at Arroyo del Vizcaíno (where a stream must be dammed in order to reach the Ice Age fossils beneath the streambed), she quickly came to understand how fragile fossils can be. She watched as fossils that had been buried in wet soil for thousands of years literally cracked apart when they were exposed to air. She also learned the challenges of preserving fossils when working with limited resources, as she frequently had to travel to Argentina to find archival adhesives that were not available in Uruguay.

Mariana's experiences convinced her that finding, devising, and documenting the best methods for preserving fossils, a common laboratory process with newly established best practices, was important and something she wanted to study more thoroughly. But she was stymied after searching unsuccessfully for months for a doctoral program that also was interested in her research. Then, she found the University of Delaware's Ph.D. Program in Preservation Studies, an interdisciplinary course of study focused on the preservation of cultural monuments and material heritage. The program accepted and welcomed Mariana after receiving her proposal in 2014.

Mariana, 32, who has known that she wanted to be a paleontologist since she was a little girl, is now writing about the results of the research she has completed on her topic, *The Effects of Preparation on Paleontological Scientific Analyses and Long-term Stability of Fossils*. Through her research Mariana examined the effects of three different types of fossil preparation: air scribes, acid, and lasers. She determined that air scribes, widely used tools that are powered by compressed air and operate like miniature jackhammers by chipping through the dirt, sediment, and other materials that cover a fossil when it comes out of the ground, worked well. She found that acid preparation, if not done correctly, could damage the fossil or destroy it altogether, along with the material she was trying to remove. Lasers, a relatively new tool in conservation, could work well but their use is limited by the need to have a good technical understanding of the tool and how to use it.

Mariana believes the main importance of her research lies in the fact that it was done at all, as fossil preparation methods have not been extensively researched. She hopes her research will encourage additional studies, as well as better fossil preparation practices in paleontological laboratories internationally.



ARTC Spotlight—June 2018

The University of Delaware's Art Conservation Department educates and trains professional conservators who are well versed in the treatment, analysis, documentation, and preventive conservation of individual artifacts and entire collections. For more news about our students and other department activities visit our web site at www.artcons.udel.edu.

Top: UD Preservation Studies Program doctoral candidate Mariana Di Giacomo examining microscope slides at the Smithsonian's National Museum of Natural History. Above: Mariana using an ultrasonic cutter. Inset: An air scribe is a pneumatic tool that aids in the removal of sediments. Left: Coating fossils with an acrylic consolidant as protection before immersion in an acid bath; Mariana using a GC-1 laser for her research, training provided by the National Collections Program at the Smithsonian Institution. (Photos: Mariana Di Giacomo, Irene Finkelde, and Alyx LeBlanc.)

