

Arboriculture in Olympic Torino

Striving for Gold

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In April 2011 I had the pleasure of visiting the beautiful city of Torino (Turin), Italy, host of the 2006 Winter Olympics, through the Society of Municipal Arborists Municipal Exchange program. I was graciously hosted by Dr. Gianmichele Cirulli, urban forest manager with the Citta' Di Torino, and his lovely life mate and professional colleague, Stefania Camisassa, who also holds the position of urban forest manager overseeing nursery operations, floral displays, and central park grounds maintenance operations with the Citta' Di Torino.

My visit was preceded by Gianmichele's Municipal Exchange visit to Milwaukee last fall, featured in the May/June 2011 edition of *City Trees*. Participating in the reciprocal leg of the exchange allowed me to get to know my host, as well as learn some details about Torino and their municipal forestry program prior to boarding my plane for the 14-hour journey.

Photo: Village in the Italian Alps



Classic Italian lunch in the home of Dr. Gianmichele Cirulli and Stefania Camisassa



Mature *Celtis australis* trees are dwarfed by the Mole Antonelliana, the major landmark of Turin, 167 meters (548 feet) tall.



Cedrus atlantica in City Park, Città di Varese

The two beautiful Torino travel books and WONDERFUL gourmet Italian chocolate that Gianmichele gave me upon his arrival in Milwaukee prepared me for the old world charm, architecture, and natural beauty that awaited me in Torino. However, his stateside description of their urban forestry operations could not possibly prepare me for the excellent urban forestry program I would observe during my visit.

Upon arrival at the Turin airport, I learned that Gianmichele had scheduled some rest time for my body to recoup the “lost day” experienced by crossing multiple time zones. While some tout the benefits of melatonin for jetlag, I can attest that hyper levels of adrenaline combined with a miniature cup of Italian espresso left this traveler feeling no jetlag or interest in a nap!

Gianmichele and Stefania did a masterful job of integrating a very full itinerary observing forestry operations and program demonstrations with visits to local attractions. My mid-afternoon Friday arrival began with a relaxed tour of several pedestrian “squares” in the city center that surrounded former 17th and 18th century royal palaces (palazzi) that are now public museums. The opulence and majesty of the royal palaces, castles (castellos), and historic churches in Torino featuring sculptured facades, Italian High Renaissance frescoes (painted ceilings), and marble and gilded statues and walls created an unbelievable sense of awe at every turn.

On Saturday morning, Gianmichele, Stefania and I headed out for a full day excursion to visit several villages, an old military fortress, and several Olympic venues in the Alps, where every turn of the head was absolutely breathtaking and filled with quintessential Italian charm. The quaint 17th century villages, each with picturesque mountain chalets and a classic steeple church, hand painted murals, and narrow winding cobble-stone streets tucked amid the valleys and hillsides of the snow capped Alps was an indescribable scene that I knew could not fully be captured through the lens of my camera. Sunday was a day of rest and light touring that began with a worship service (in Italian!), followed by a wonderful lunch, the first of many delicious authentic home-cooked Italian meals I would share with Gianmichele and Stefania in their comfortable home.

Torino’s tree heritage dates back to 1917, when boulevards designed during the Napoleonic era (1799-1815) were first planted with trees. However, as modern arboricultural methods have only been practiced in Torino for the past 15 years or so, thousands of mature trees in the city still show the scars (poor structure, crown imbalance, and extensive decay) caused by decades of improper pruning (severe heading cuts). Trees in similar condition in most American cities would have long since been removed and replaced in the interest of public safety and liability. Yet Torino, which recognizes the importance of its boulevard tree heritage to its past and its future, places a very high emphasis and extraordinary allocation of resources towards corrective crown restoration practices supported by advanced scientific visual tree assessment methods to minimize public safety risks.



Tree-lined boulevard with mature *Platanus acerifolia*

Experience has shown it takes a minimum of three pruning cycles (15-20 years) to redevelop a crown structure and form that is more typical for the species and deemed safe for public use and enjoyment. This emphasis is particularly noteworthy in that Italian cities do not seem to have comparable legal protection for Act of God tree failures afforded to states and cities in America through sovereign immunity doctrine. In Torino, a lack of constructive knowledge of a specific defect or predisposing condition that contributes to a sudden tree failure that causes property damage or injury is not sufficient defense in itself to protect the City from negligence claims.

Like many American cities with professional urban forestry programs, including Milwaukee, Torino follows Klaus Mattheck’s Visual Tree Assessment (VTA) protocols to assess the structural integrity of city trees in urban areas. However, unlike Milwaukee where hazardous trees conditions are effectively identified and managed through an annual windshield survey and during cycle pruning operations, Torino’s much taller and older tree population (60,000 boulevard trees reaching 25-30 meters/82 to 98 feet) demands a very methodical and highly scientific approach.

In Torino, Mattheck’s VTA protocols are strictly followed by highly qualified contractors who complete ground-based visual assessment of the crown, trunk, and root flare and utilize advanced instrumentation such as Resistograph drill-



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ing and sonic tomography at their discretion to fully assess the structural condition of trees with suspected defect or decay. Gianmichele arranged for a field demonstration of Resistograph and tomography structural diagnostics testing, which was fascinating. Many municipal arborists in the U.S. have observed or perform structural diagnostic testing using Resistographs; however, in the U.S., tomography is largely limited to the medical profession (e.g., in the CT scan).

Sonic tomography is an advanced computerized imaging technology that is capable of detecting hidden decay and defects (cavities and cracks) in trees based on differential speed transmission of sound waves between sensors placed around the circumference of the trunk. The resulting two-



Structural diagnostics testing using sonic tomography

and three-dimensional color images (tomograms) provide a flat-plane cross sectional view of the wood density in the trunk or branch that a trained technician can use in conjunction with other diagnostic tools.

Under Gianmichele's leadership, Torino has developed a strong partnership with Forest Pathologist Dr. Paolo Gonthier and his staff and graduate students at the University of Turin. In partnership with the University of California–Berkeley, the University of Turin has developed DNA-based assay protocols for detection of many genera and species of wood decay fungi. DNA-based assay protocols are a very useful tool for confirming the presence of wood decay fungi in trees, be they symptomatic or not, and are employed for trees suspected of having decay causing organisms identified during VTA inspections or in trees damaged by storm events, vehicle impacts, or construction operations. This detection capability significantly improves Torino's ability to assess and manage risk in heritage trees with structural defects. Torino also conducts root crown excavations using air spades and pull testing (static integrated assessment) to determine

the structural stability of a high-value tree with known structural defects.

Unlike Milwaukee where all street and boulevard trees are pruned on a straight six-year cycle with in-house crews, Torino's 60,000 boulevard trees are pruned via a contract workforce following a variable cycle that is species and location dependent. Weak-wooded, fast-growing species such as *Ulmus pumila*, *Populus* spp. and *Salix* spp. are pruned quite severely every three to five years through modified crown reduction methods. More moderate-growing shade trees such as *Platanus acerifolia*, *Celtis australis*, *Tilia* spp., and *Aesculus hippocastanum* that occur in highest percentages are pruned on a five- to seven-year cycle. The 100,000 additional trees that exist in parks and hillside forests, on riverbanks, and on school and other public grounds are pruned on an as-needed and funding dependent basis to abate hazardous conditions.

Torino's historic tree-lined boulevards, some of which approach 10 kilometers (6.2 miles) in length, are



Recently pruned *Celtis australis* street trees

comprised of single tree species of similar age. Given Milwaukee's devastating loss of 200,000 elm trees to Dutch elm disease and pending loss of hundreds of thousands of ash trees to Emerald Ash Borer, I consider Torino's boulevard monocultures to be at significant risk to an exotic pest or disease. Gianmichele is confident that the risk can be effectively managed through aggressive sanitation and management, and he indicated that the species designations on boulevards are controlled by ordinance and therefore not within his discretion to change.

I also had the pleasure of visiting the City tree nursery and several floral bed displays and central park grounds managed by Torino Urban Forest Manager Stefania Camisassa and her talented staff of technicians and gardeners. Torino's 7-hectare (17-acre) tree nursery produces high quality trees for boulevard and park reforestation. Field grown and containerized trees maintained by the gardeners were extremely well pruned to a matched specimen standard and efficiently watered with a drip irrigation system. While the timing of my visit limited

the floral beds I was able to personally observe, a photographic tour of floral displays designed and installed by Stefania's staff during and following the 2006 Winter Olympics was very creative and impressive. Like many European cities, Torino has numerous monuments and statues throughout the city that serve as a magnificent canvas for Stefania's floral artistry.

My overall impression of Torino and its forestry operations is very favorable. Gianmichele and Stefania and their talented and dedicated staff went out of their way to welcome me and share their excellent work. The wonderful Italian meals including ravioli and lasagna with home-made ragu sauce prepared by Gianmichele and Stefania from generational family recipes was a special treat. The traditional Italian pizzas cooked in wood-fired ovens, gelato, cannolis, and Italian chocolate served in cafés throughout the city was simply fantastic! And I also learned that Italians are incredibly skilled at parallel parking. Thank you most sincerely to SMA and to exchange sponsor Davey Resource Group for making this learning experience possible. 🍷