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Geosocial Networking: A Case from Ann Arbor, Michigan

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Associated .kmz download.

Social networking is an idea that is familiar to many of us: from Facebook, to Twitter, to LinkedIn, to a host of others that come and go. More recent, however, is the idea of "geosocial networking" or "collaborative mapping." According to Wikipedia (2012),

> "Geosocial Networking is a type of social networking in which geographic services and capabilities such as geocoding and geotagging are used to enable additional social dynamics.[1][2] User-submitted location data or geolocation techniques can allow social networks to connect and coordinate users with local people or events that match their interests. Geolocation on web-based social network services can be IP-based or use hotspot trilateration. For mobile social networks, texted location information or mobile phone tracking can enable location-based services to enrich social networking."

Recently, Washtenaw County, Michigan embarked on a major stream bank erosion control project. When that project entered heavily forested residential lands adjacent to a creek, environmentally-sensitive residents quite naturally became concerned for the trees and wildlife that will be destroyed or disturbed. The project is still on-going and the geosocial network described below remains in place.

The County coded its easement with pink flags. It tagged selected large trees or otherwise interesting vegetation with a blue band if they were to be removed; it tagged trees within the easement with a red band if they were to be left alone. All vegetation within the easement, except trees or shrubs carrying red tags, were to be removed. Color was critical—a simple red/blue confusion could cost a tree its life!

One neighborhood used Google Earth, together with a GPS-enabled smartphone, to make an inventory of trees present, along a half-mile stretch of the creek, before the project began. David E. Arlinghaus did all the photography with a smartphone that geotagged the images. He then transmitted the images to Sandra L. Arlinghaus who did the mapping using a combination of GeoSetter and Google Earth (Figure 1).

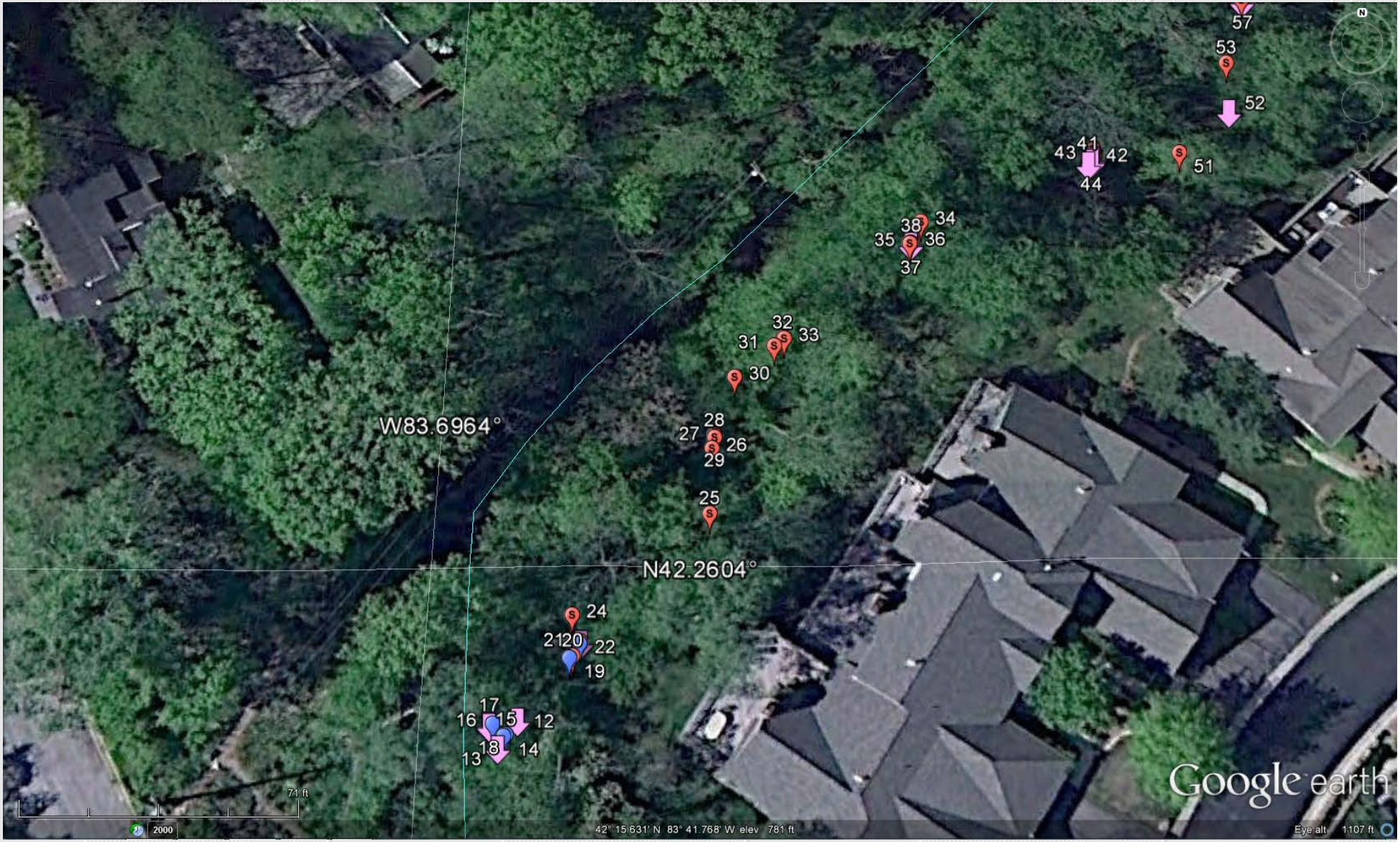

Figure 1. Pink arrows mark flags showing County drain easements. Red balloons mark trees to be saved within the easement. Blue balloons mark trees to be cut.

The accuracy of the geotagging of the photos was limited by several factors. First, the software in the smartphone has limits. Second, the geotagging of the tree is actually the geotagging of where David stood to take the picture of the tree, rather than of the tree position, itself. He attempted to stand at a consistent distance from trees to ensure precision (but that is difficult in a densely wooded area). The level of precision, however, was quite good—trees were in correct relation to each other and in close to correct relation to dwelling units.

The geotagged camera images were downloaded directly to a computer by plugging the smartphone into a recent Windows 7 desktop computer. All 81 images were stored in a single folder. That folder was then uploaded to the free software called "GeoSetter." From there, the geotagged images were batch-uploaded to Google Earth in a single operation (rather than entering each one individually). The GeoSetter software was able to take the underlying geocoded coordinates from the camera images, as well as the images themselves, and make them correspond to the underlying coordinate geometry in Google Earth. We made color decisions to correspond with the actual colors of tags used on vegetation.

Accuracy, of registration of photo and Google Earth coordinates, using this sort of strategy was guaranteed. Hand placement would not offer that level of accuracy of registration. Overall, the results were sufficiently precise (although not accurate) to offer local residents a clear picture of what was going to happen in wooded areas. When the camera GPS coordinates were obtained, a photo of the tagged item was also taken. Figure 2 shows a photo displayed on the Google Earth surface pointing to the identified red-tagged tree. Figure 3 shows a similar configuration of photo in relation to Google Earth base pointing to the identified blue-tagged tree. These pointing associations are all accurate. Download the linked .kmz file, open it in Google Earth, and you will see associations of this sort for all 81 trees marked by the County before the time of photographing.

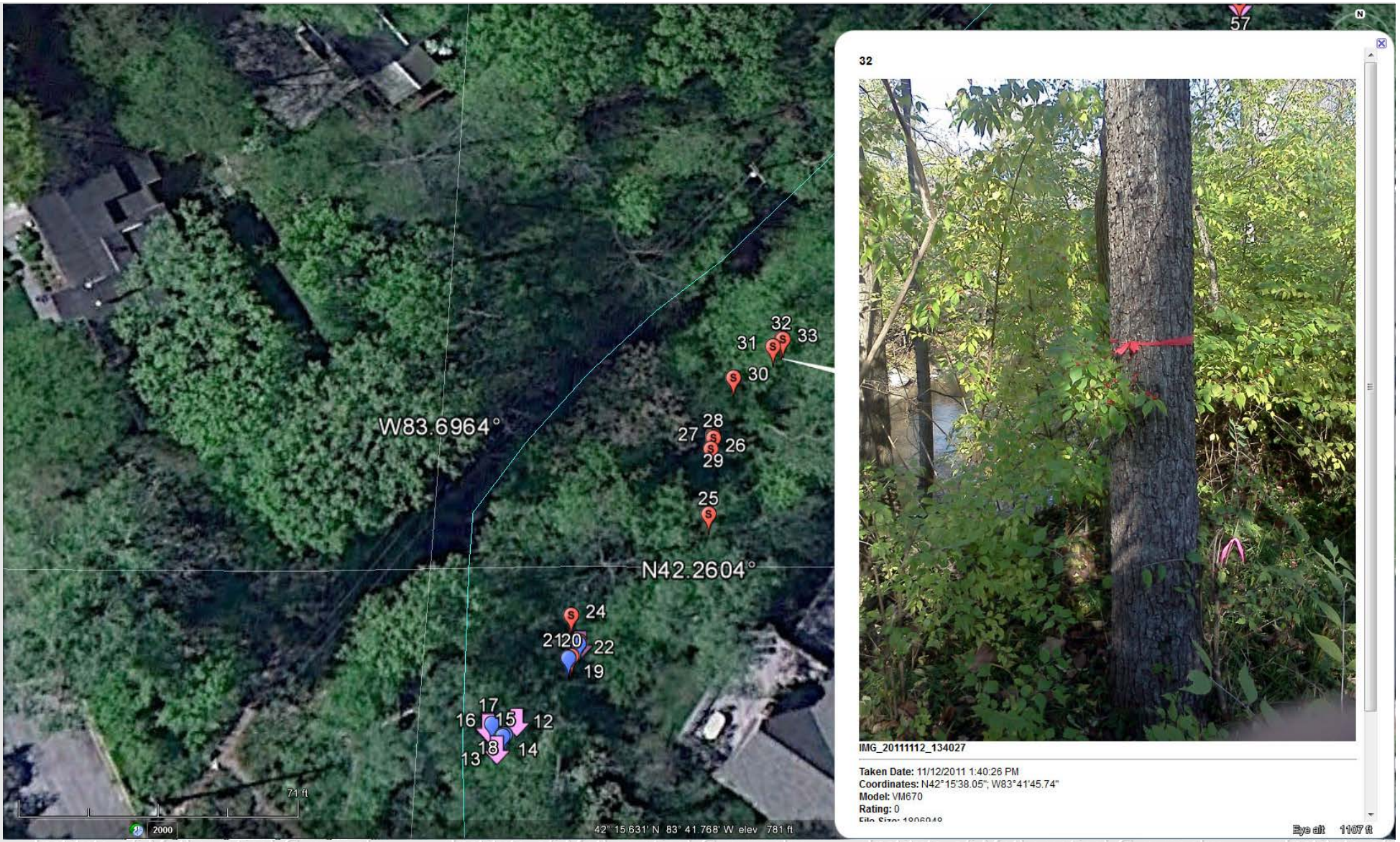

Figure 2. Photo mounted in Google Earth. Note that the photo has a pointer on it that points to the correct balloon location.

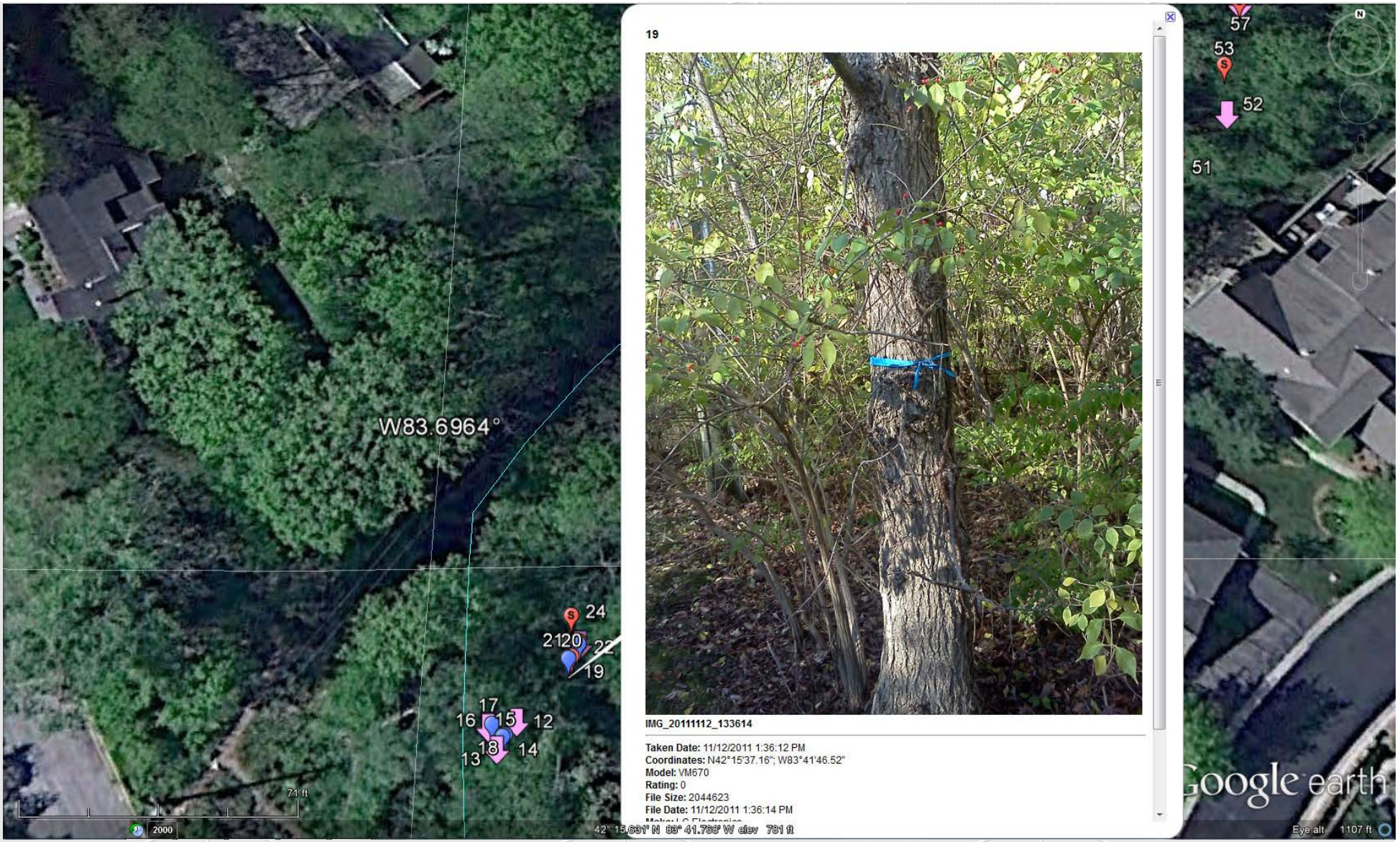

Figure 3. Blue-tagged tree.

The neighborhood association established a tree monitoring committee. The committee was given a Google Earth file showing tree location and associated tag color. The easement was also geocoded. Prior to using the file, the neighborhood association president and the creator of the Google Earth display met with the lead County official and the lead engineer on the project to ensure a cooperative approach to file usage. Subsequently, the tree monitoring committee used the information in conjunction with field-checking vegetation. Geosocial networking was, and is (through remaining tree restoration scheduled in late fall 2012), critical in developing a constructive relationship among the various parties adjacent to this well-meant and successful evironmental stream-bank restoration project.

References

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- **Google Earth.** Last accessed June 15, 2012: http://www.google.com/earth/index.html
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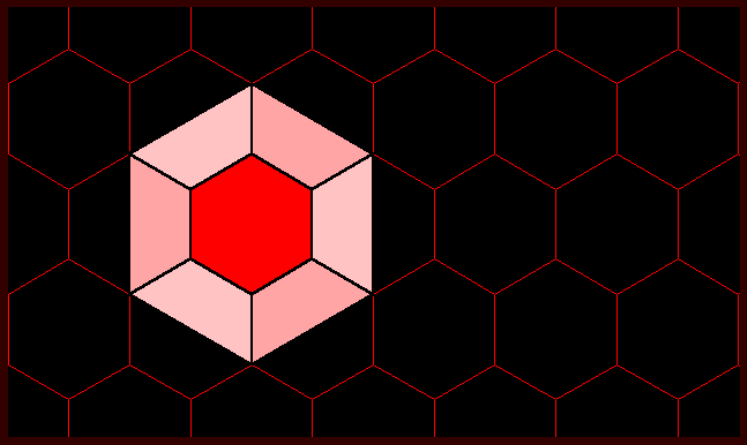

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Congratulations to all *Solstice* contributors.

Remembering those who are gone now but who contributed in various ways to *Solstice* or to IMaGe projects, directly or indirectly, during the first 25 years of IMaGe:

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