



# THE SUMMIT

News From and For the Washington GIS Community

## GIS in Action: Conference Summary and Highlights

By: Sarah Myers, Josh Greenberg, Heather Glock, and Renee Opatz

**T**his year's conference saw WAURISA joining forces with Oregon to put on a regional conference. It was an exciting opportunity for Washington and Oregon to explore our commonalities and uniqueness. Throughout the year the planning was an excellent chance to exchange ideas and see how another group functions, and to glean new and different ideas from each other. Thus our theme of "Spatial Connections" was born. At the Vancouver Hilton Convention Center we were joined by our keynote speaker, Steve Ressler, from GovLoop.com, who gave us a valuable perspective on governments' roles in making connections.

The pre-conference workshops were held on Monday May 4th and were an example of successful training at affordable prices. There were a number of diverse options for conference-goers: from the Esri-hosted hands-on workshops to the URISA-certified all-day class on Program Management. There were five tracks of workshop offerings, and over half of the workshops had full capacity. Although not a record attendance, with around 120 participants total, some of the limita-

tions could have been class size limits. Cost were kept low in part by having everyone get their own lunch, which was easy due to the great assortment of places to eat in downtown Vancouver. Students were able to sign up for a full day of workshops for as little as \$35 on top of their conference registration. Professional rates were only \$75 additional and most people who attended the workshops also stayed for the entire conference.

This year's program was full of presentation topics ranging from coastal resilience to implementing mobile solutions for industry problems, to vegetation management and asset inventory. There were thoughtful panel discussions about governmental coordination between Cities, Counties and State agencies and how GIS is evolving as a technology and career in today's world. Overall, there was a vibrant representation of new ideas and technical training shared.

Throughout the conference the theme of Spatial Connections played a key role as we interacted with our Oregon counter-

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## President's Column

By: Josh Greenberg

**H**appy Summer to you all. As I write this in between sessions at the Esri User Conference, I can't help think that we are lucky to be in such an amazing field at an amazing time. I feel honored to be able to serve as President for WAURISA which as an organization is following the trend of the GIS industry to continue to get more exciting. I want to thank Heather Glock, now our Past Pres-

ident, for her two great years of service as President of the Board. She is certainly a great role model to follow and I hope I can lead the group with the same poise she did.

I hope many of you were able to make it to our GIS in Action 2015 conference in Vancouver WA this past spring. This is, as far as I know, the first time the Chapters of Washington and Oregon combined their

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# GIS in Action: Conference Summary and Highlights

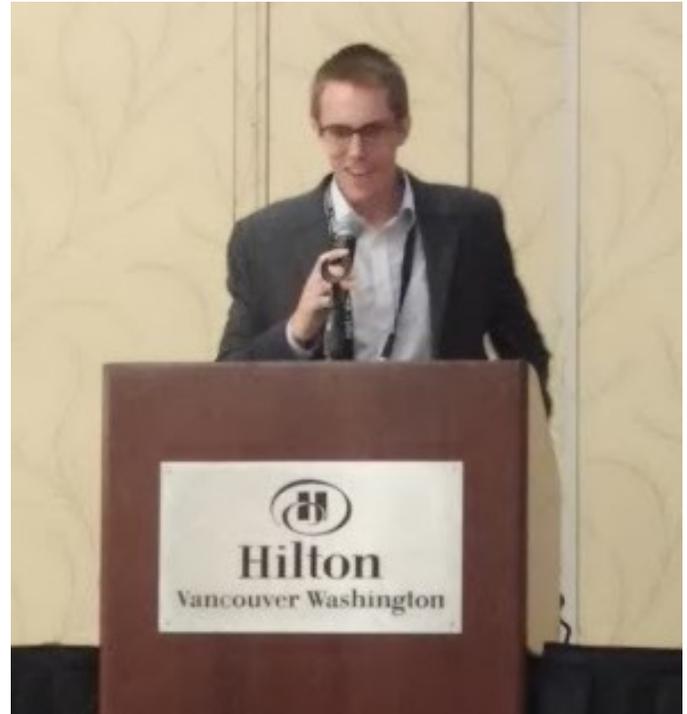
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parts, not only getting the chance to hear presentations from individuals that may not have attended the standard Washington conference, but also networking with different groups of our professional peers.

Combining forces with ORURISA presented an ideal opportunity to host both a collaborative panel and closing session to discuss issues and opportunities between state, regional, and local government to better support geospatial work all levels. The conversations focused on ways local governments in both states could participate more in statewide coordination efforts, and opportunities for the states to better leverage innovative technology to make participation easier for everyone. These discussions resulted in short lists of actions we as GIS professionals can collaborate on going forward:

Actions individuals can and should do:

1. Strive to see activities from an enterprise perspective, the broadest perspective possible. This leads to collaboration, combining resources, getting more done with less expense, and greater efficiency.
2. Develop the collaboration mindset in your organization,



Keynote speaker Steve Ressler from GovLoop.com.

starting with the executive level.

3. Find small ways to collaborate to prove value for sharing resources.
4. Add collaboration as a skill set in job descriptions when hiring.
5. Take every opportunity to educate leadership about the value of GIS and collaboration.
6. Identify opportunities in the State GIS strategic plans for collaboration with local governments.
7. Identify opportunities for non-profits and businesses to help with collaborative activities.

Actions we should work on together to define and implement a plan:

1. Define and identify authoritative data for decision-making.
2. Make funding and resources available in areas where disparity exists in terms of data and technology.
3. Develop and implement regional surveys to identify work being done, data collected, etc., in every jurisdiction.
4. Hold regularly scheduled communication forums to drive efficiencies and new partnerships.

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5. Expose geospatial data via API web services, and code via GitHub; invite developers to leverage it.

a. Plan this to include data from multiple/all sources for particular activities (e.g., finding a campsite)

A huge thank you to all our instructors, workshop leaders, and conference presenters. Without your contributions we would not have a conference. Also, thank you to our vendors who support our group so generously. And one last thank you to all the attendees who journeyed to Vancouver, wheth-

er it was just down the road or across the state, your participation in our community makes us a vibrant and growing group.

Planning for next year's conference is already underway. We are excited to announce our return to the Greater Tacoma Convention and Trade Center, May 23-24, 2016. If you would like to get involved in WAURISA and help make next year the best conference yet, please contact Sarah Myers: [Sarah@penlight.org](mailto:Sarah@penlight.org).



Cy Smith (left) leads the GIS Project Management workshop.

## Agencies Respond to Proposed Land Surveying Definition Changes

By: Greg Babinski, GISP

**O**n April 28, 2015 a proposal was filed with the Department of Licensing to change the definition of the practice of Land Surveying in Washington State. The proposed changes would have a negative impact on agencies that operate GIS. In June a group of Washington State agencies jointly submitted a letter to the Department of Licensing with comments and objections to the proposed definition changes.

### Current Definition of the Practice of Land Surveying

Section 18.43.020 of the Revised Code of Washington defines a land surveyor as:

(7) "Professional land surveyor" means a person who, by reason of his or her special knowledge of the mathematical and physical sciences and principles and practices of land surveying, which is acquired by professional education and practical experience, is qualified to practice land surveying and as attested to by his or her legal

registration as a professional land surveyor.

(9) "Practice of land surveying" means assuming responsible charge of the surveying of land for the establishment of corners, lines, boundaries, and monuments, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries, and monuments of land after they have been established, the survey of land areas for the purpose of determining the topography thereof, the making of topographical delineations and the preparing of maps and accurate records thereof, when the proper performance of such services requires technical knowledge and skill.

### Proposed Changes to the Definition of the Practice of Land Surveying

The current RCW 18.43.020 was last revised in 1947. In recent years the survey communities in Washington and other states have proposed changes to the definition of the practice of

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# Interview with Summit Award Winner Joy Paulus

By: Heather Glock

## Summit: Congratulations on your 2015 Summit Person-of-the-Year award, Joy! What did you do with the award?

Joy: I have it displayed in my office next to my NSGIC (National States Geographic Information Council) plaque, so they are both in good company! I also want to say thank you for the WAURISA award. It was announced at the June CIO Forum meeting in front of all the state IT executives which was nice.

## Summit: How did you start in this industry – what was your path to becoming the Geographic Information Officer (GIO) for the state of Washington?

Joy: (laughing) I don't refer to myself as the GIO. It seems like such a formal title for an office with just one permanent staff person... it doesn't seem fitting. Instead, I use the old title of State GIS Coordinator since much of my work is centers around coordinating opportunities that can benefit the GIS community in the state.

I got started In GIS in 1981 back in Arizona working on one of the first mapping projects at the Arizona Land Information System (ALIS). I cut my teeth on GRID PIOS working with

Paul Tessar, Steve Miller and Gene Trobia. It was a great time.

After that, I spent time at the University of Vermont helping get their GIS up and running under Gary Smith. My initial task was to work with Dave Sousa and Glen Hubreski debugging ESRI's ArcInfo 1.0 on a VAX. It was definitely one of the more interesting collaborative efforts... I knew how the software was supposed to behave, Glen knew the code, and David could fix the code on site. It was brilliant and cost effective! It was also my first introduction to mapping surface water hydrography, something I continued to do for another 20 years.

After that it was on to Washington State and many productive years in a lot of different roles within a number of different natural resource agencies. That was 1985 and back then, everyone pretty much knew everyone else in the industry.

My first introduction into the broader information management and policy arena came when I worked on the Hanford Project at the Department of Ecology. I was shifting out of the technical GIS and more into the management side. It was a remarkable experience working in regulatory oversight and data management at one of the largest Superfund Sites In the country.

Summit: In your nomination it was noted that you have “raised the stature and awareness of GIS within the State of Washington government on a steady and sustained basis, and that you have provided exemplary leadership in advancing the use and coordination of GIS within Washington state government and by all GIS users across Washington.” Let's talk about some of these facets. For example, right now you are working on a pilot project with counties in northeast Washington to help them align their base layer spatial data across county boundaries. Why are you doing this and what is the hoped-for outcome? How has your involvement with WAGIC and NSGIC helped raise the stature and awareness of GIS within our state?

Joy: WAGIC (Washington State Geographic Information Council) was heavily influenced and supported by local gov-

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# Interview with Summit Award Winner Joy Paulus

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ernment participants - people like Tom Nolan, Robyn Trendbeth, Andy Norton, and Kirsty Burt. Both state and local entities were just getting their GIS programs off the ground in the late 80's and early 90's. WAGIC helped foster some of that cross coordination and collaboration and brought stakeholders together to share resources and ideas. Much like we do today with the state GIS Strategic Planning efforts that are conducted every few years. The NE Data Aggregation Pilot that you referenced in your question, is part of my efforts at rebuilding closer ties with local government. Through WAGIC and the Geospatial Program Office I'm trying to re-establish some of those connections that have been lost as a result of us all growing up and becoming more independent.

In northeastern Washington, the counties have recognized the need to coordinate amongst and across their county boundaries because Next Generation 9-1-1 is looming. And, they know that the GIS technology is the solution that will help them meet the new requirements.

For me, I see waste and duplication in state agencies that collect and build the same statewide datasets to meet their business needs. It wastes money and time and puts an unnecessary burden on local government. The state needs good local data on city boundaries, roads, parcels, trails and addresses, but we don't need to do it again and again in a vacuum.

I'm hoping with the NE County Data Aggregation Pilot we'll see a different way of building regional, cross county data sets by focusing on county agreements points for the primary base layers that can then be carried back into their databases. By working with the county IT Managers, their GIS staff and the state agency GIS Manager who is responsible for aggregating this information, we hope to document and streamline the process. It's a win-win situation... If we pull it off we get 7 core data sets that can be easily aggregated in a repeatable manner, on a yearly or quarterly basis and then I'll happily retire! Otherwise, I'd like to repeat this in another region of the state.

On the national scene, my involvement with NSGIC helped

me prioritize geospatial efforts in Washington State as well as develop state policy, standards, best practices that are consistent and sound. This year NSGIC in coordination with WGA (Western Governors Association) and NACo (National

Association of Counties) helped support a bill that was carried forward in Congress called the Geospatial Data Act. This is a significant piece of legislation because it will improve the coordination and oversight of geospatial data development that makes up the NSDI (National Spatial Data Infrastructure).

## Summit: What else do you want to share?

Joy: I'll continue to focus on developing GIS policy and standards that benefit the state. To establish master contracts to make procurement of geospatial products and services more efficient and cost-effective. It's starting to sound like a campaign pitch! Forgive me.

I'll begin work on a pre-approved vendor list for LiDAR and imagery acquisitions

that will be open to state and local entities. These are all things that would be difficult of others to do outside the IT policy making body but doable within the OCIO's office.

I also try to develop fun projects too, such as our current effort to assemble a statewide trails database.

## Summit: Final thoughts?

Joy: If you recall earlier this year during the GIS in Action conference, I spoke about the importance of developing a collaboration mindset. It's important to find ways, even small ones, to work with others. It takes more time and effort to work together than it does on your own, but the payoff is much greater. I'd encourage all of us in the industry to start looking at our daily activities in a more holistic, community perspective.

Doing so will certainly lead to better results and a more rewarding work experience. It's worth a try!

## Summit: Thank you, Joy. It's been a pleasure to talk with you.

Joy: Thank you, the pleasure is all mine!



# Pollinator Habitat Limitation within Seattle's Urban Environment

Authors: David R. Headrick and Mattie J. Wheeler

Co-Authors: Susan Waters, Santiago Lopez, and Marie Clifford

*Editor's Note: This paper won 2nd place in the Richard 'Dick' Thomas Memorial Student Paper Competition and Award at the 2015 GIS in Action Conference. The two students are listed as au-*

## Abstract

Urban gardens are becoming relevant features in national food production systems since they promote socioeconomic equality through local access to nutritious food. However, many of these food sources are supported by native pollinator species that have been reportedly on the decline. This study builds on a current research to test if site availability and characteristics affect pollinator visitation rate within urban gardens in Seattle, Washington. Using geographic information system and statistical frameworks, we conducted our analysis quantifying the relationships between relevant landscape descriptors and pollination visitation data. We hypothesized that pollinator visitation diminishes when nest site availability diminishes. Results show a significant correlation between open developed spaces and bee visitations, which insinuate that there is limitation in nest site availability for these native pollinator species. Furthermore, the results suggest that open developed spaces provide suitable habitats or other important resources for native pollinators; therefore, having urban gardens in a closer proximity to these open developed spaces should improve urban crop yield.

## Introduction

Bees provide important ecosystem services as pollinators. Moreover, insect pollinators contribute to about one third of everything we eat (Tirardo et al., 2013). In commercialized agriculture, managed non-native pollinators along with native pollinators, help offset food prices, contribute to food security and food diversity. It is estimated that native and non-native pollinator services are valued at 200 billion US dollars worldwide (Jha et al., 2013). One scientific review reported that most natural landscapes around the world have been anthropogenically modified and that it is likely that pollinator abundance and richness has declined in many parts of the world (Potts et al., 2010). Furthermore, growing evidence suggest substantial declines of pollinators in many regions of the globe, with the strongest evidence coming from Europe and North America

(Potts et al., 2010). Declines in pollinators are often attributed to habitat degradation, pesticide use, disease, and habitat loss (Greenleaf and Kremen, 2006).

The factors that contribute to the decline in pollinator abundance and diversity are more pronounced in urban areas. These manufactured landscapes contain large amounts of impervious surfaces, which equates to a reduction in habitats for some pollinators. Likewise, these anthropogenically modified landscapes lack vegetation abundance and diversity, which severely reduces the resources needed by pollinators. The uses of pesticide are much more concentrated in these urban environments, as well. Amongst these pollination service providers, special attention seems to be given to bee species. This is likely because bees provide the majority of these pollination services (Depra et al., 2014). The purpose of this research is to determine if pollen limitations within the Seattle urban environment is impacted by habitat availability for native pollinators.

Addressing these concerns at local levels, has given rise to many independent projects. One example is the Urban Pollination Project (UPP) in Seattle, Washington. The mission of UPP is to understand the effects of pollinator services, provided by bumblebees, on urban crop yields. Furthermore, the UPP hopes to continue expanding their project's usability as a tool for science educators to teach the scientific method

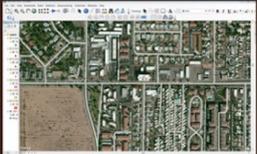
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# Pollinator Habitat Limitation within Seattle’s Urban Environment

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and the practical value of science (UPP website, 2014). UPP is also providing opportunities for people of all backgrounds to engage in scientific research (UPP website, 2014). Moreover, it is the UPP desire to build a diverse community of individuals interested in science, food, bees, and education (UPP website, 2014). The UPP’s purpose is closely tied to the popular trend of community gardens, through community building and sustainable local food production. Community gardens are on the rise, throughout densely populated cities as a means to combat climate change through the reduction of food miles as well as to offset increasing food costs caused by anthropogenic influences. Likewise, these community gardens promote food sovereignty through equitable access to nutritious foods that is improving the quality of life for many individuals.

The UPP has centered its study around *Solanum lycopersicon*, or the cherry tomato plant, and various *Bombus spp.*, or bee species, at sites throughout the greater Seattle area. Specifically, the UPP conducted an experiment using three treatment types of cherry tomato plants that included netted plants to ensure no visitation from pollinators, open pollination or control plants, and plants that were assisted by a tuning fork, which mimics a native pollinator method for releasing pollen. The results from this research concluded that Seattle’s urban environment is pollen limited, which suggests that there is room to improve urban crop yield through increased pollinator services. Therefore, our research hopes to support the ongoing efforts of the Urban Pollination Project in their efforts to understand Seattle’s pollination limitations.

Our research aims to test habitat availability in Seattle, Washington using land cover and land use data in order to determine if Seattle’s urban environments constrict pollinator visitation. Specifically, we asked the question, how does nest site availability

affect pollinator visitation rate in Seattle’s urban gardens? We hypothesize that pollinator visitation diminishes when nest site availability diminish-

es. Our hypothesis is the result of the overwhelming evidence that suggest that pollinator populations are on the decline.

## Methods/Data:

Using geographic information system and statistical frameworks, we conducted our analysis quantifying the relationships between relevant landscape descriptors and pollination visitation data.

### UPP’s Bee Visitation Data

Our research relies on data that was collected by the Urban Pollination Project, which was provided to us by Dr. Susan Waters, a Pollination Ecologist at the University of Washington, and Dr. Waters’s colleague Marie Clifford. Furthermore, our research builds off the UPP’s discovery that Seattle’s urban environment is pollen limited. During the growing season in the Pacific Northwest, the UPP’s citizen scientists recorded bee visitation to several community garden sites throughout Seattle as part of their ongoing research. The data we used to conduct our analysis was collected from June 29, 2014 to August 20, 2014.

Researchers observed and recorded pollinator visitation throughout Seattle’s vast network of community gardens, once a week for a 20-minute interval. However, only 10 sites were used to conduct our analysis due to compromised data from some of the other sites. Furthermore, of our 10 sites there were three types of records. The first of which is labeled Insurance plants (I) that were managed by UPP interns, which there were 10 plants associated with each site excluding Evanston. Second, were Gardener plants (G) that were cared for by gardeners, or participants of that specific community garden, which the number of plant were limited to the gardener’s preference. The conditions for (I) plants are

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Site	Mean G I	Mean G	Mean I	Address	Zipcode	Long x	Lat y
Cascade	1.538461538	NA	1.538461538	310 Minor Ave N	98109	-122.333	47.620984
Delridge	3.502487562	5.673469388	1.436893204	5078 25th Ave SW	98106	-122.3643	47.555824
Estelle Street	2.494623656	3.168539326	1.87628866	3400 Rainier Ave S	98144	-122.2935	47.57286
Evanston	1.433333333	1.433333333	NA	604 N 101st Street	98133	-122.3509	47.702188
Jackson Park	1.403225806	1.659574468	1.246753247	13049 10th Ave NE	98125	-122.3181	47.723978
Magnuson Park	1.525641026	1.475409836	1.557894737	7400 Sand Point Way NE	98115	-122.2637	47.68239
Maple Leaf	2.787096774	NA	2.787096774	5th Ave NE and NE 103rd Street	98125	-122.3232	47.70315
New Holly	3.300330033	4.113744076	1.434782609	32nd Ave S and S Brighton Street	98108	-122.291	47.54133
Picardo Farm	3.456521739	4.5	3.045454545	8040 25th Ave NE	98115	-122.3012	47.687081
UpGarden	0.76744186	1.607142857	0.362068966	300 Mercer Street	98109	-122.3504	47.62458

Figure 1. Shows our spatially referenced Community Garden Sites and Bee Visitation means data table.

# Pollinator Habitat Limitation within Seattle's Urban Environment

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more similar across sites than conditions for the (G) plants. However, our third variable, which is a combination of (G) and (I) mean visits was used as well.

## United States Geological Survey (USGS)

In order to conduct our spatial analysis we made use of the United States Geological Survey (USGS) Land Use Land Cover (LULC) data for Washington. The spatial resolution of our analysis was 30 x 30 meter pixels.

Product	Extracted by	Format	Link
National Land Cover Database 2011 - Land Cover - State Extents 1/1	Current Extent/ (-123.191, 47.178), (-121.394, 47.954)	Geo-TIFF	<a href="#">Click here to download</a>

Figure 2. Data file used for classifying Land Use Land Cover of Seattle, Washington.

Product	Extracted by	Format	Link
National Land Cover Database 2011 - Impervious Surface Percentage - State Extents 1/1	Current Extent/ (-122.764, 47.461), (-121.866, 47.849)	Geo-TIFF	<a href="#">Click here to download</a>

Figure 3. Data file used for Impervious Surfaces of Seattle, Washington.

## Geographic Information Systems Analysis

In order to quantify landscape descriptors using ArcGIS software, we first needed to define the spatial extent of our analysis within the area of study. We relied on Dr. Susan Waters's expertise of pollinators to define species range. Therefore, we limited our range to 1000 meters in four 250-meter intervals. This allowed us to test relationships between landscape descriptors and pollinator visitation within 250 m, 500 m, 750 m, and 1000 m proximities from each site, using the buffer tool.

At this point, we discovered two sites that intersect each other's buffer zones at 750 m and 1000 m, UpGarden and Cascadia (Figure 4). This intersection would compromise our data for the statistical analysis. Therefore, we merged the buffer zones and cut the polygon at the points of intersection. In the attribute table, we removed the old buffer layers and



Figure 4. Shows the cut polygons of UpGarden and Cascadia to compensate for overlapping buffer zones.

renamed the new cut polygon buffer layers to reflect the correct data for that point source. The resulting buffers layers are shown in Figure 4.

Similarly, we found that a large portion of Magnuson Park buffer zones crossed the boundary of terra firma, which water is defined as 100% permeable (Figure 5). Likewise, this would compromise our statistical analysis considering that we will define habitat requirements as surfaces 50% or more permeable as suitable pollinator habitats. However, these bodies of water are not suitable, therefore, we compensated for this by using a census boundary file of Seattle, which we clipped our USGS data to include only Seattle's dry land features. The results of the clipped feature is shown in Figure 5.

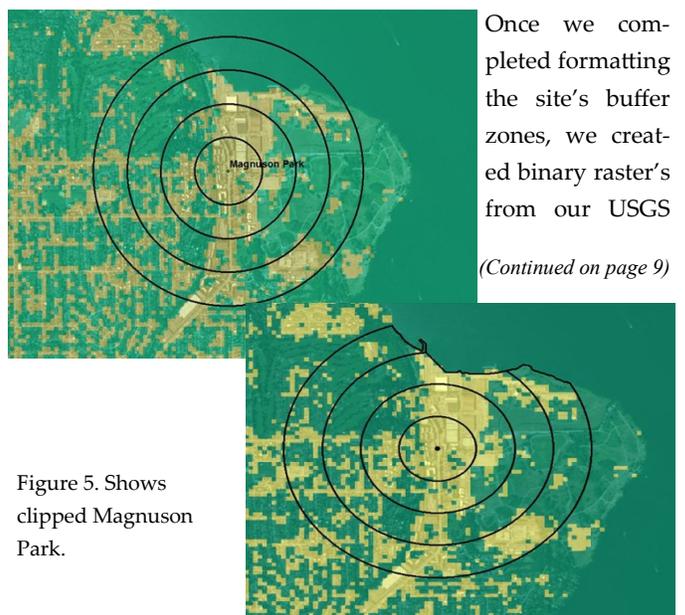


Figure 5. Shows clipped Magnuson Park.

Once we completed formatting the site's buffer zones, we created binary raster's from our USGS

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data files in order to obtain portion of surface types for each site's 4 buffer zones. Using the raster calculator, we defined our surface types as either herbaceous, open developed, forested, and impervious surfaces or not. For example, this calculation returns a value for each 30 x 30 meter pixel value as either herbaceous (1) or not herbaceous (0). This process is repeated for each variable except impervious surfaces, which gives us percentage of impervious surface. Therefore, we defined any surface as 50% or more impervious as impervious, which results in each pixel value as being calculated as either impervious (1) or permeable (0). From this point, we use a zonal statistics as a table to create ratio of pixels that are herbaceous, open developed, forested, and impervious to the total number of pixels contain within each of our 4 buffer zone using the field calculator in the attribute table (Figure 6).

Upon completion of zonal statistics as a table and the field calculation, provided us with several data table that we then joined to our bee visitation table so that we could extract this table for statistical analysis. Contain within our extracted

Site_1	ZONE_CODE	COUNT	AREA	SUM	IMP_250
Cascade	1	219	197100	218	0.995434
Delridge	2	219	197100	94	0.429224
Estelle Street	3	220	198000	171	0.777273
Evanston	4	219	197100	128	0.584475
Jackson Park	5	220	198000	6	0.027273
Magnuson Park	6	218	196200	188	0.862385
Maple Leaf	7	219	197100	158	0.721461
New Holly	8	218	196200	121	0.555046
Picardo Farm	9	217	195300	102	0.470046
UpGarden	10	220	198000	197	0.895455

Figure 6. Shows the proportion of impervious surfaces within 250 meters from each site. Count is the total number of 30 x 30 meter pixels within 250 meter buffer zone while Sum defines the number of pixels that are impervious. Dividing the Sum by the Count ( Sum / Count ) results in our proportion of impervious surface. This process was repeated for each site at all four buffer zones for each landscape descriptor.

data table include site and visitation data along with proportions impervious surfaces at 250 m, 500 m, 750 m, and 1000 m; as well as proportion of herbaceous surfaces for all four buffer zones, proportions of forested surfaces for all four buffer zones, and proportions of open developed surface for all four buffer zones.

## Statistical Analysis

Spearman's Rank-Order Correlation test was conducted using SPSS Statistics software in order check for significant correlation between our landscape descriptors and pollinator visitation. The justification for the use of this test is based off the fact that our sample size is considerably small and that the Spearman correlation is the nonparametric test does not make any assumption about the frequency of pollinator visitations. Furthermore, the Spearman correlation measures levels of association between two variables, pollinator visitation and proportions landscape descriptors, in ordinal, interval, or ratio scales with the assumption of monotonic relationships.

## Results

We found a statistically significant correlation between pollinator visitation and open developed land uses within 250 meters of our sites (Spearman Correlation, correlation coefficient = 0.714, p = 0.047). Therefore, we reject the null hypothesis and accept our hypothesis that pollinator visitation dimin-

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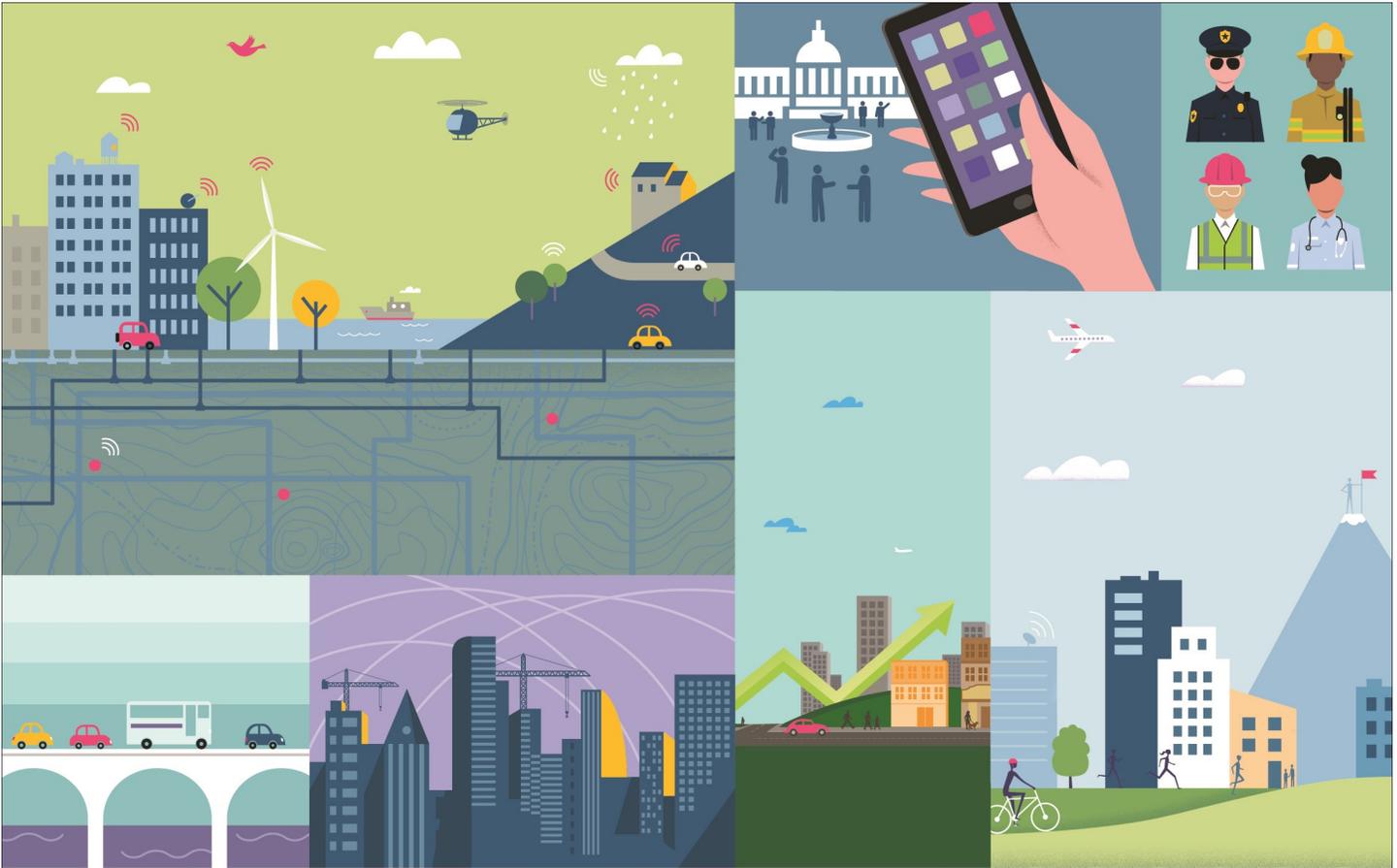


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# Pollinator Habitat Limitation within Seattle's Urban Environment

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ishes when nest site availability diminishes.

## Discussion

The significant results between habitat availability and pollinator visitation suggest that open developed spaces provide suitable habitats or other important resources for native pollinators. Open developed classification represents land uses such as parks and golf courses. Therefore, having urban gardens in a closer proximity to these open developed spaces should improve urban crop yield. Furthermore, restoring nest sites or increasing access resources for pollinators throughout Seattle's urban environment could contribute significantly to the economic viability of localized food production. Simultaneously, increasing biodiversity and promoting food security. Understanding pollinator dispersal patterns and how urban development can limit movements of pollinator species is in need of more research. Especially, when considering possible

shifts in the agricultural sector to more localized food production due to the damaging impacts of commercialized agriculture on the biosphere. Furthermore, understanding how different land uses impact pollinator dispersal and visitation can aid in future urban planning as well as current uses of green spaces or available spaces within urban environments.

We aim to expand our research with this project by replicating our methods to quantify landscape descriptors with a higher spatial resolution, 1 x 1 meter pixels, for starters. However, effort should be made to understand suitable percentage of impervious surfaces that can support ground dwelling pollinator habitats. Similarly, edge density analysis of urban landscapes would provide a broader understanding of habitat and resource availability.

## Remote Sensing Analysis and Comparison

Upon our completion of analyzing the data from the USGS

(Continued on page 12)

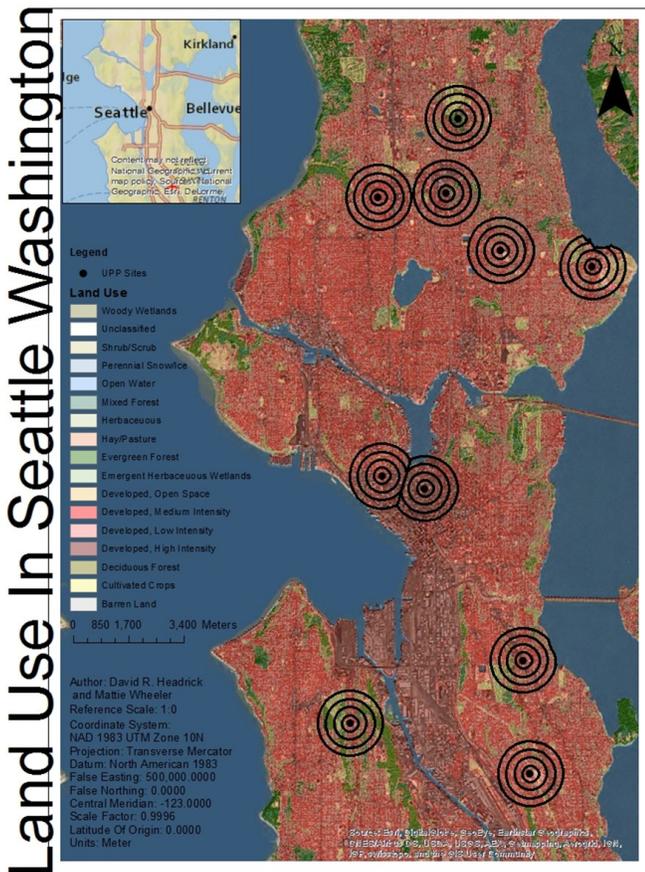


Figure 7. Land Use in Seattle Washington. Show the different landscape descriptors in association with our sites.

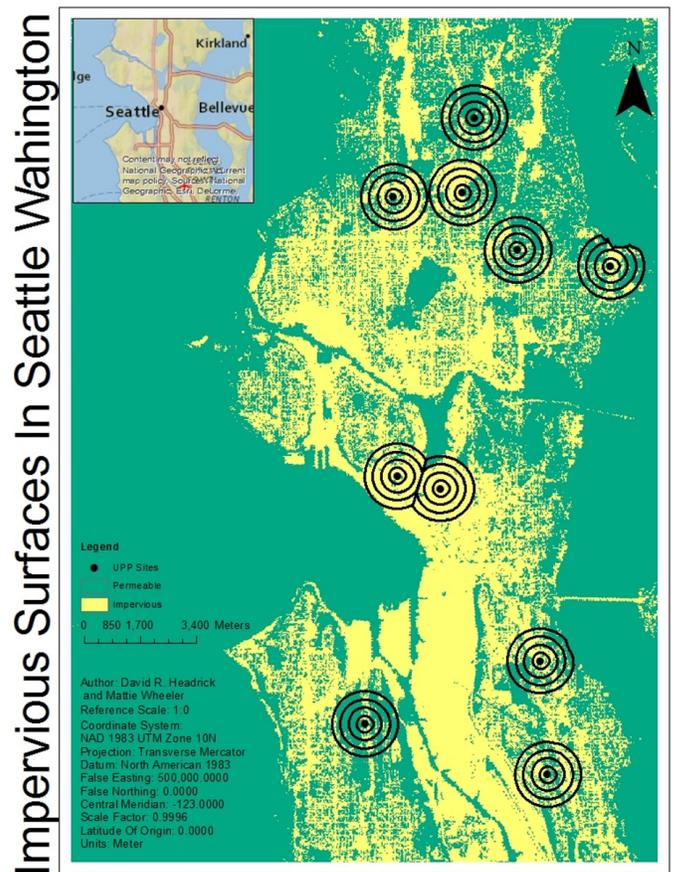


Figure 8. Impervious Surfaces in Seattle Washington. Shows the proportion of impervious surfaces within each sites buffer zone.

# Pollinator Habitat Limitation within Seattle's Urban Environment

(Continued from page 11)

and considering our obtain portions of landscape descriptors at a spatial resolution of 30 m<sup>2</sup>, we decided that creating our own classification of Seattle's urban environment might be more fruitful. Therefore, we retrieved an ortho-image from the USGS with a spatial resolution of 1m<sup>2</sup> so that we could create a more accurate analysis of the proportions of forested and herbaceous landscapes. We created a raster data set and then used the mosaic tool to merge our 16 images into one continuous image. At this point, we clipped our mosaic to the 1000m buffer zone around each site to increase the speed of our analysis. We then proceed to use the ISO Cluster Unsupervised Classification to create 30 new classes with a minimum class size of 60 pixels. Then we reclassified those 30 classes into two new classes, which are herbaceous/open developed and forested while all other pixels were designated as unimportant. Furthermore, we created binary raster's from our two new classes and then repeated the methods from

earlier to obtain our proportion of forested and herbaceous/open developed to compare with our previous analysis.

## References

- Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Grisold. 2010. Patterns of widespread decline in North American bumble bees. PNAS. Early Edition: 1-6.
- Depra, M. S., G. C. G. Delaqua, L. Freitas, and M. C. Gaglianone. 2014. Pollination deficit in open-field tomato crops (*Solanum Lycopersicum L.*, Solanaceae) in Rio de Janeiro State, Southeast Brazil. *Pollination Ecology*. 12: 1-8.
- Greenleaf, S. S. and C. Kremen. 2006. Wild bee species increase tomatto production and respond differently to surrounding land use in Northern California. *Biological Conservation*. 133: 81-87.
- Jha, S., L. Stefanovich, and C. Kremen. 2013. Bumble bee pollen use and preference across spatial scales in human-altered landscapes. *Ecological Entomology* 38: 570-579.

(Continued on page 13)

Forested Surfaces in Seattle Washington

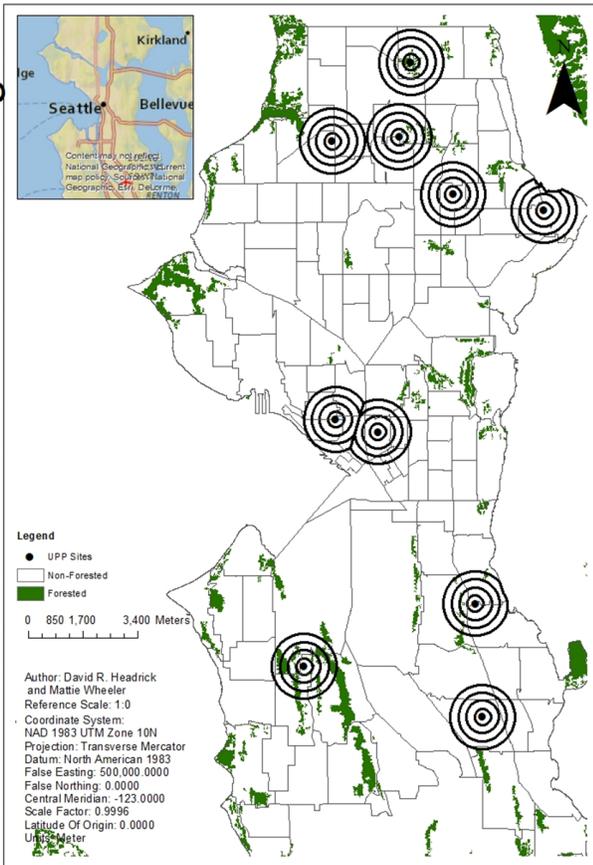


Figure 9. Forested Surfaces in Seattle Washington. Shows the proportion of forested surfaces within each sites buffer zones.

Open Space/Herbaceous Surfaces in Seattle Washington

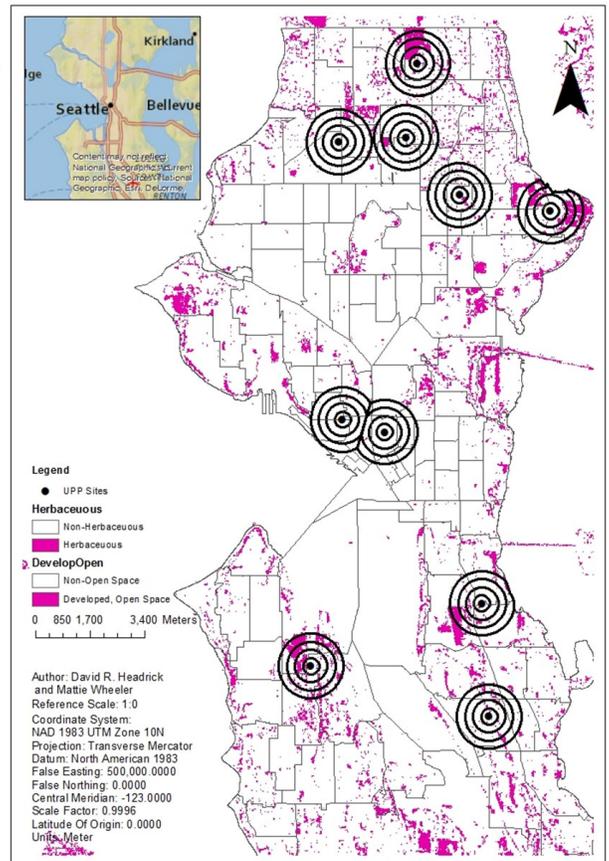


Figure 10. Open Spaces/Herbaceous Surfaces in Seattle Washington. Shows the proportion of herbaceous and open developed surfaces within each of our sites buffer zones.

# Pollinator Habitat Limitation within Seattle's Urban Environment

(Continued from page 12)

McFrederick, Q. S. and G. LeBuhn. 2006. Are urban parks refuges for bumble bees *Bombus* spp. (Hymenoptera: Apidae)? *Biological Conservation*. 129: 372-382.

Potts, S. G., J. C. Biesmeijer, C. Kremen, P. Neumann, O. Schweiger, and W. E. Kunin. 2010. Global pollinator declines: trends, impacts and drivers. *Trends in Ecology and Evolution*. 25: 345-353.

Tirardo, R., Simon, G., and Johnston, P. 2013. Bees in Decline: A review of factors that put pollinators and agriculture in Europe at risk. Greenpeace International. <http://www.greenpeace.org/international/Global/international/publications/agriculture/2013/BeesInDecline.pdf>. Accessed March 2, 2015

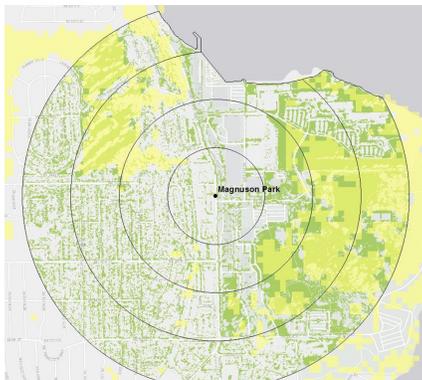


Figure 11. Shows the reclassified herbaceous/open developed 1m<sup>2</sup> ortho-images (green) with the USGS classified herbaceous and open developed spaces at a spatial resolution of 30m<sup>2</sup> (yellow).

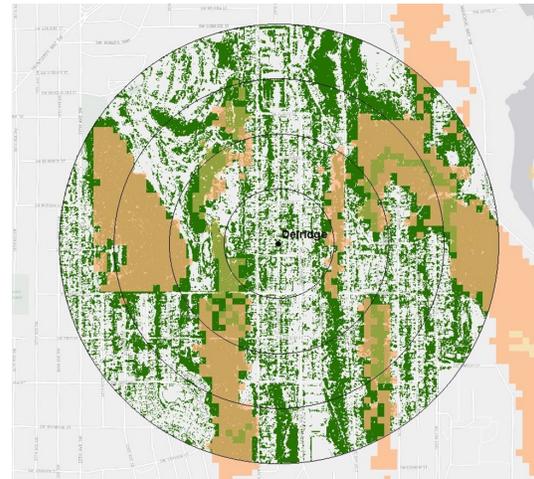


Figure 12. Shows the reclassified forested 1m<sup>2</sup> ortho-images (green) with the USGS classified forests at a spatial resolution of 30m<sup>2</sup> (orange).



Figure 13. Shows the reclassified herbaceous/open developed 1m<sup>2</sup> ortho-images (green) with the USGS classified herbaceous and open developed spaces at a spatial resolution of 30m<sup>2</sup> (yellow).

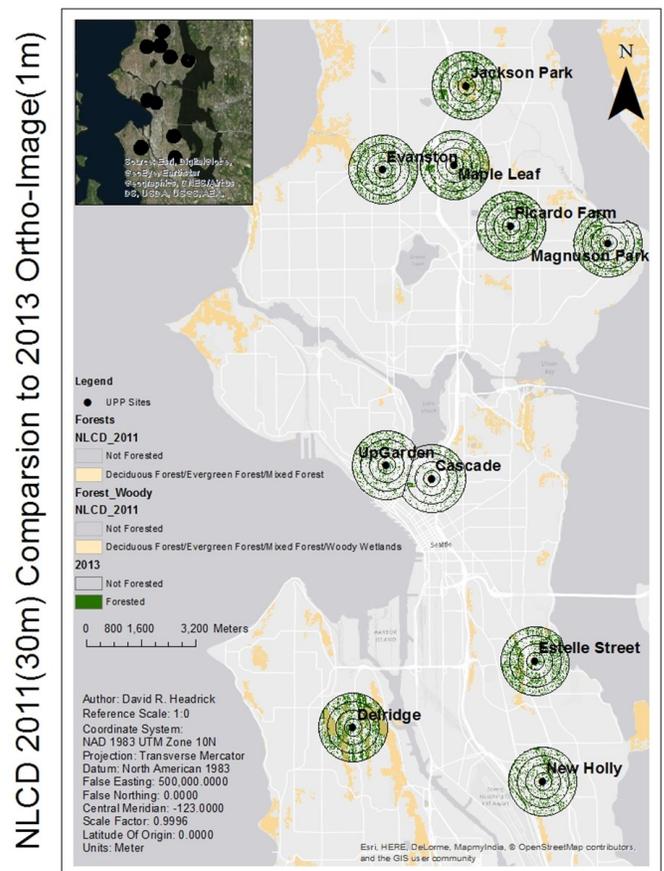


Figure 14. Shows the reclassified herbaceous/open developed 1m<sup>2</sup> ortho-images (green) with the USGS classified herbaceous and open developed spaces at a spatial resolution of 30m<sup>2</sup> (yellow).

# URISA GIS-Pro & NWGIS 2015: A Meeting of the Minds

By: Luke Boggess

**T**his fall everyone involved in the geospatial community has the opportunity to join in a momentous occasion, a meeting of the minds at URISA GIS-Pro & NWGIS 2015: GIS at the Nexus of Collaboration. The Urban and Regional Information Systems Association (URISA) along with the Northwest GIS User Group (NWGIS), in cooperation with the Northern Rockies and Washington State Chapters of URISA are coming together to present 5 days of world class technical and management grade training focused on the geospatial industry.

Beginning on Sunday October 18th with full two-day pre-conference technical courses offered through the Northwest GIS User Group, and followed by URISA Certified Workshops on Monday, the Conference will officially kick off with the Tuesday morning Welcome & Keynote Address featuring Breece Robertson, the National GIS Director for the Trust for Public Land. We have three days of presentations, including panel and individual sessions, covering topics from application development to soft skills development, environmental conservation and management, project implementations and strategies, and many more all centered on the geospatial industry. Check out the Conference online program at <https://gispronwgis2015.sched.org/>.

To finish off the week, a closing keynote will be presented by Este Geraghty, Esri's Chief Medical Officer & Health Solutions Director, on how GIS workflows are supporting the building of healthy communities.

Of course, knowledge can come in many forms, including currently popular on-demand technology such as webinars, YouTube videos, digital and print books, online and in-person courses. The types of excellent educational content presented at URISA GIS-Pro & NWGIS 2015 are by no means offered exclusively at a conference, but what is unique is person-to-person networking. The conference will provide ample opportunity for social interactions with fellow professionals in the geospatial community. Events like Maptionary, the Exhibit Hall Reception, and young professional

meet-ups along with many chances to gather informally at lunch or celebrate happy hour at a local watering hole will give joyous encouragement to strengthen old friendships and make new connections.

URISA GIS-Pro & NWGIS 2015 is an ultimate example of geospatial professionals from all walks of life coming together in the common interest of bettering ourselves technically, managerially, and professionally in a community of friendship.

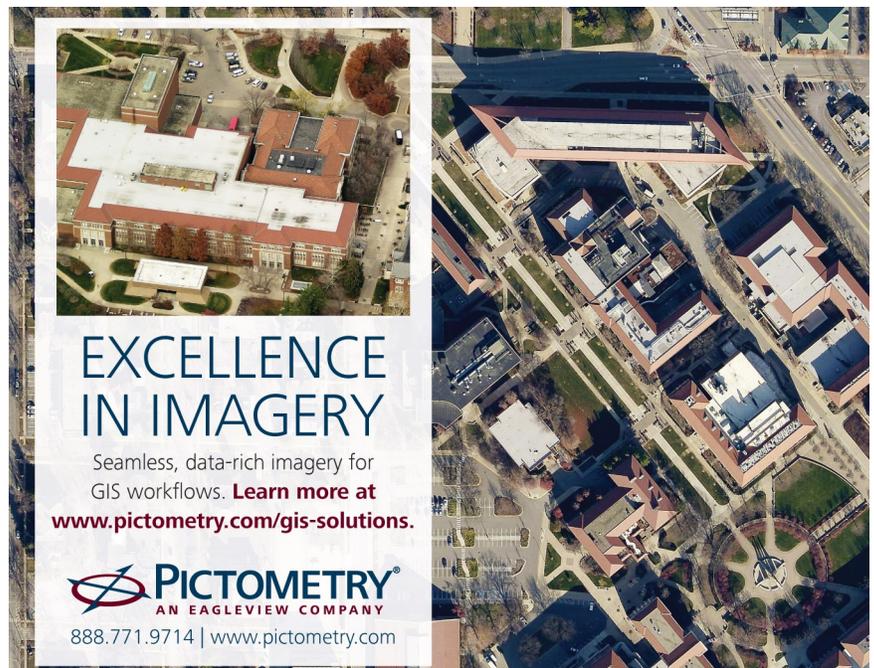
URISA GIS-Pro & NWGIS 2015 is scheduled to be held October 18-22, 2015 in Spokane Washington at the Grand Hotel Spokane. Registration is now open at [www.gis-pro.org](http://www.gis-pro.org) so join us and come on out to Spokane!

Luke Boggess: Conference Chair

Diana Rodriguez: Program Chair

Wendy Peloquin: Associate Program Chair

*Geography at the Nexus of Collaboration*  
**October 18-22, 2015**  
**Spokane, Washington**



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# Agencies Respond to Proposed Land Surveying Definition Changes

*(Continued from page 3)*

land surveying because new technology has put certain tools (GPS and GIS, among others) into the hands of people who do not practice as land surveyors.

The proposed change (creating a new Washington Administrative Code Section 196-29-105) would change the definition of the practice of land surveying to:

WAC 196-29-105 Practice of land surveying.

*Except for the authority granted to the offices of county engineers in chapters 36.75, 36.77, 36.80, 36.81, and 36.86 RCW, and where that authority may be otherwise exempted in state law, the practice of land surveying must be performed by or under the direct supervision of a professional land surveyor as provided in chapter 18.43 RCW.*

*The practice of land surveying, as defined in RCW 18.43.020(9) includes, but is not limited to:*

- (1) Evaluation and interpretation of visible, scientific, written evidence, or oral testimony when used for the establishment of corners, lines, boundaries, and monuments of land, or for the defining and locating of corners, lines, boundaries, and monuments of land after they have been established;*
- (2) The analysis and adjustments of measured, land survey data or the determination and certification of the positional accuracy of measured land survey data when used for the establishment of corners, lines, boundaries, and monuments of land, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries, and monuments of land after they have been established, or for the survey of land areas for the purpose of determining the topography thereof;*
- (3) The analysis of calculated, certified, or recorded land survey data when used for the establishment of corners, lines, boundaries, and monuments of land; the laying out and subdivision of land; the defining and locating of corners, lines, boundaries, and monuments of land after they have been established; or for the survey of land areas for the purpose of determining the topography thereof;*
- (4) The establishment, setting, or resetting of controlling points when used for the establishment of corners, lines, boundaries, and monuments of land, or for the defining and locating of corners, lines, boundaries, and monuments of land after they have been established;*
- (5) Preparation of land or legal descriptions for the establishment of corners, lines, boundaries, and monuments of land, the laying out and subdivision of land, or the defining and locating of corners,*

*lines, boundaries, and monuments of land after they have been established;*

*(6) Preparation of land survey maps and/or other accurate records thereof including data bases that represent topographical delineations; the establishment of corners, lines, boundaries, and monuments of land; the locations of corners, lines, boundaries, and monuments of land after they have been established, when the proper performance of such services requires technical knowledge and skill.*

*As used in this subsection, creation of land survey maps and/or data bases does not include maps or data bases established or maintained solely for internal operations of a party: (a) That are not used to establish property corners or lines, but may represent property corners and lines, location of objects or topography within the map or data base; and (b) are not for sale to or use by another party not related to the internal operations of the creating party;*

*(7) Configuration and establishment of land surveyed ground control which defines vertical and/or horizontal datums that control remote sensing measurement technologies used for the establishment of corners, lines, boundaries, and monuments, the laying out and subdivision of land, the defining and locating of corners, lines, boundaries, and monuments of land after they have been established, the survey of land areas for the purpose of determining the topography thereof, the making of topographical delineations and the preparing of maps and accurate records thereof, when the proper performance of such services requires technical knowledge and skill.*

## **Proposed Rule Making Process**

The proposed rule-making order allowed for the submission of written comments by interested parties to the Department of Licensing, Board of Registration for Professional Engineers and Land Surveyors. The deadline was June 30, 2015. During June, the Board also held public hearings on the proposed changes in Spokane, Seattle, Yakima, Marysville, and Kelso. The Board is required to address all written and public comments in a concise statement, before finalizing any changes to the Rules.

## **Washington GIS Community Responds**

A number of public agency GIS managers discussed the potential negative impacts that the proposed new definition would have on their long-standing operations. WAURISA was approached to respond to the proposed definition changes on behalf of the Washington GIS community. WAURISA's bylaws permit it to respond in such matters. However, be-

*(Continued on page 18)*

# Students put GIS skills to use on social justice projects

By: Deborah Bach. Reprinted with permission from UW Today, May 21 2015

<http://www.washington.edu/news/2015/05/21/students-put-gis-skills-to-use-on-social-justice-projects/>

**G**eography professor Sarah Elwood sits at the front of a University of Washington classroom on a recent afternoon, listening and making suggestions as students discuss the data challenges they're having.

Some are wondering how to put data in a particular format. Others are muddling through the process of mapping data, or figuring out where to source information.

"Think about who has the data you need, and how do you shake it loose from them?" Elwood says. "There are many public and nonprofit agencies that may be holding data they'd be willing to share with you."

The juniors and seniors in Elwood's GIS Workshop course are applying lessons learned in class to projects with local nonprofits ranging from food banks to criminal justice organizations. The course isn't new, but this quarter is the first time



Sarah Elwood talks with her GIS Workshop class, which is using data skills to help local nonprofits. Photo by Meryl Schenker.

nearly all of the 10 class projects have an inequality or social justice aspect to them.

That focus is intentional: Elwood is the co-founder of the Relational Poverty Network, a UW-based international coalition she launched with fellow geography professor Victoria Lawson to reframe how poverty is perceived and researched (read a story about the initiative [here](#)).

The class projects, Elwood says, dovetail with that goal and offer benefits on both sides.

"It's best-practice learning for everybody, because the students are collaborating on a real project.

They may not know anything about the Salvadoran Civil War or human rights advocacy, and the community partners might not know much about GIS," she says.

"It's a very consultant-like, community organizer-like experience for the students. And it's a way for under-resourced nonprofits to maximize what's possible for them."

A geographic information system, or GIS, is designed to capture, analyze and map various types of spatial and geographic data. Elwood's students are using GIS applications in different ways to meet specific needs identified by the partner organizations. One student team is analyzing census and client data for a coalition of Seattle-area food banks to determine whether they are reaching areas with the greatest need, and to make recommendations on where to locate summer food programs for children and mobile van drop-offs for elderly clients.

Another project is using social media data to examine how public space is used around Pioneer Square, while another seeks to identify areas in three Washington counties where outreach would most benefit former inmates.

Stella Jones is part of a three-person team working with Real Change, a Seattle organization that publishes a weekly newspaper sold on the streets by low-income and homeless people. The students are analyzing data to identify which factors make some sales locations more successful than others and to develop a map showing untapped "hot spots" where vendors aren't yet selling.

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# Students put GIS skills to use on social justice projects

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"This project is showing me how we can apply technology to various social issues in a way that can aid different organizations in their work," says Jones, a junior and geography major. "It really fits my interests as far as where I see myself working in the world."

Another student group is working on the UW Center for Human Rights' Unfinished Sentences project, which is documenting atrocities committed during the El Salvador Civil War from 1980 to 1992. The students are creating an interactive map that will show where massacres occurred throughout the country and enable users to click on locations and get detailed information.

They are also making recommendations about low-cost, low-tech methods researchers can employ to gather geographic data while they're in the field — for example, using paper maps to jot down where bodies are buried or where survivors were when incidents occurred.

Angelina Godoy, the center's director, says the work will put the brutality of the war into a visual context that words alone cannot convey. And looking at the data in new ways, she says, might help identify new patterns or insights.

"It's one thing to see it in an Excel file and another to see it across a map," Godoy says. "I'm very interested in hearing what [the students] have to say, not only about our basic operational details, but also how to think a

little more expansively about how to go about our research."

Student Wyatt Hoffman, a junior in the UW's Community, Environment & Planning Program, says working on the Unfinished Sentences project is a more meaningful way to learn and apply GIS skills than just following a tutorial.

"I feel like I'm working on something significant," he says. "This has a real-world impact on people."

Students have also spent class time learning about team leadership, conflict resolution and collaboration, which means working not just with partner agencies, but also with peers who may come from very different economic backgrounds. Students who grew up in poverty, Elwood says, develop firsthand knowledge their more privileged peers may not have.

"For a student whose family relied on a food bank growing up and maybe still does, they understand in an experiential way what these agencies are doing," she says. "It puts them in a position of authority."



Elwood meets with students Stella Jones, left, Jackie Divita and Kendall Dressel to discuss their project. Photo by Meryl Schenker.

# Agencies Respond to Proposed Land Surveying Definition Changes

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cause of lack of experience in responding to such issues and the little time available, WAURISA declined to respond.

URISA's Policy Advisory Committee was also approached to respond. Several years ago URISA participated with the Survey Community to clarify some professional practice boundary issues, leading to the NCEES *Model Law* and *Model Rules*. Also, in 2014 URISA sent a letter to the Washington Board with comments on an earlier attempt to change the rules related to the practice of land surveying. However, the URISA Policy Advisory Committee declined to respond in this case, unless WAURISA first drafted a letter.

In early June, King County GIS had begun preparing its own response to the proposed changes. In discussion with WAURISA President Joshua Greenberg, it was agreed that the King County response would be prepared in a format that other public agency GIS managers could sign independently. The final response that was submitted to the Board of Registration on June 30 was signed by the GIS managers of 10 public agencies.

## **Response from the Washington GIS Community**

The following is the text of the letter that was submitted to the Board of Registration on June 29, 2015:

Michael R. Villnave, PE, Executive Director

Board of Registration for Professional Engineers and Land Surveyors

Olympia, WA 98507-9025

**Subject: Comments on Proposed Rulemaking (CR-102)**

**WAC 196-29 Professional Practices.**

**Proposal of WAC 196-29-105 Practice of Land Surveying**

Thank you for the opportunity to comment on proposed rulemaking (CR-102) WAC 196-29-105. These comments are submitted jointly by the managers of the public agency GIS operations listed below and on the attached signature sheets.

Geographic information systems (GIS) are operated by almost all Washington State counties, in addition to most large and medium sized cities, public utilities, regional agencies, tribes, and other public entities.

We write to voice our objections to subsections (1), (5), and (6) of the proposed new Washington Administrative Code Section 196-29-105. These would expand the "Practice of

Land Surveying" as defined in RCW 18.43.020(9) to an unnecessary and unacceptable extent.

Our comments are based on our experiences and practices operating geographic information systems. They are also based on the *Model Law* and *Model Rules* published in 2014 by the National Council of Examiners for Engineering and Surveying (NCEES) which is a national nonprofit organization dedicated to advancing professional licensure for engineers and surveyors. The *Model Law* reflects best practices for surveyors as determined by the NCEES Member Boards. It is a model for state practice legislation. The *Model Rules* provides licensure boards with guidelines for engineering and surveying licensing laws and ethics (see: <http://ncees.org/about-ncees/publications/>).

The existing definition of the Practice of Land Surveying, as defined in RCW 18.43.020(9), would be expanded by this proposal from a single paragraph to seven sections.

## **Basis for Comments**

The current definition of the "practice of land surveying" in RCW 18.43.020(9) is qualified in its entirety by the clause "...when the proper performance of such services requires technical knowledge and skills."

The NCEES *Model Law* (110.20.B.1) defines "Professional Surveyor" as a duly licensed individual who is "...a professional specialist in the technique of measuring land, educated in the basic principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence and all requisite to surveying of real property, and engaged in the practice of surveying as herein defined."

The NCEES *Model Law* (110.20.B.4) defines the "Practice of Surveying" as providing " professional services using sciences such as mathematics, geodesy, and photogrammetry..." and "...involving both (1) the making of geometric measurements and gathering related information pertaining to the physical or legal features of the earth, improvements on the earth, the space above, on, or below the earth and (2) providing, utilizing, or developing the same into survey products such as graphics, data, maps, plans, reports, descriptions, or projects."

The NCEES *Model Rules* (210.25.A) further defines the "Practice of Surveying" by citing eight activities included in surveying. Six of these activities reference the "authoritative"

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# Agencies Respond to Proposed Land Surveying Definition Changes

(Continued from page 18)

nature of the survey profession. The other two reference the “certification” or the “affirmation” of positional accuracy with respect to geodetic control.

The NCEES *Model Rules* (210.25.B) further defines activities “Excluded from the Practice of Surveying” stating that:

“...A distinction must be made in the use of electronic systems between making or documenting original measurements in the creation of survey products, versus the copying, interpretation, or representation of those measurements in such systems. Further, a distinction must be made according to the intent, use, or purpose of measurement products in electronic systems to determine a definitive location versus the use of those products as a locational reference for planning, infrastructure management, and general information. The following items are not to be included as activities within the definition of the practice of surveying:

- “1. The creation of general maps...
- “2. The transcription of previously georeferenced data into a GIS...provided the data are clearly not intended to indicate the authoritative location of property boundaries, the precise definition of the shape or contour of the earth, and/or the precise location of fixed works of humans...
- “3. The transcription of public record data, without modification except for graphical purposes, into a GIS- or LIS-based cadastre (tax maps and associated records) by manual or electronic means, and the maintenance of that cadastre, provided the data are clearly not intended to authoritatively represent property boundaries. This includes tax maps and zoning

maps.

“6. Inventory maps and databases created by any organization....of physical features, facilities, or infrastructure that are wholly contained within properties to which they have rights or for which they have management responsibility. The distribution of these maps and/or databases outside the organization must contain appropriate metadata describing, at a minimum, the accuracy, method of compilation, data sources and dates, and disclaimers of use clearly indicating that the data are not intended to be used as a survey product.

“7. Maps and databases depicting the distribution of natural resources or phenomena prepared by....persons qualified to document such data.

“8. Maps and georeferenced databases depicting physical features and events prepared by any government agency where the access to that data is restricted by statute.”

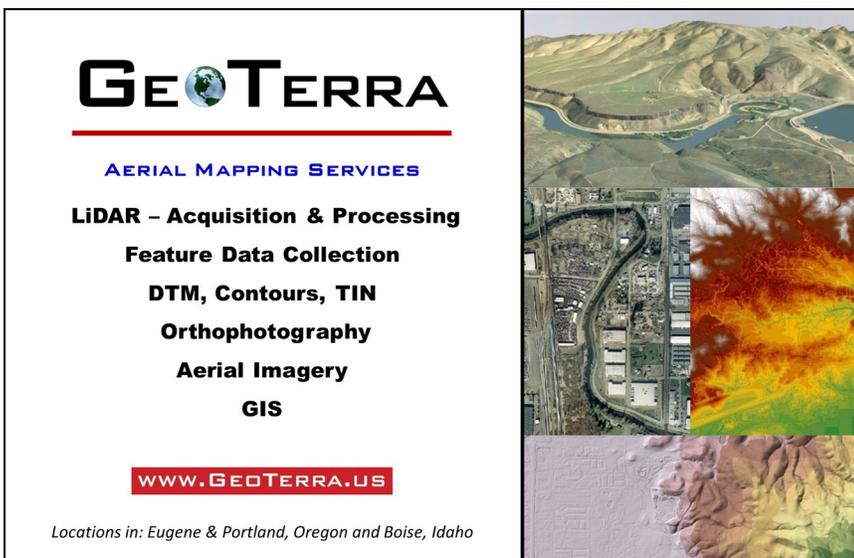
The GIS profession also includes education in and utilization of the basic principles of mathematics, the related physical and applied sciences, geography, and computer science. The scope of the GIS profession has been defined in the *Geographic Information Science & Technology Body of Knowledge*, published by the University Consortium for Geographic Information Science, the *Geospatial Technology Competency Model*, developed by the U.S. department of Labor Employment Training Administration, and many other publications and educational programs. GIS professionals are certified by the GIS Certification Institute.

The proposed new definition of the practice of land surveying in Washington State would expand far beyond the current definition. In important areas it would include new activities without reference to the qualifying clause in RCW 18.43.020(9) “...when the proper performance of such services requires technical knowledge and skills.”

The proposed new definition of the practice of land surveying in Washington State would be broader than the NCEES *Model Law* definition of a Professional Survey as a person engaged in activities “...all requisite to surveying of real property...” (110.20.B.1).

The proposed new definition of the practice of land surveying in Washington State would be broader

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# Agencies Respond to Proposed Land Surveying Definition Changes

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than the NCEES *Model Law* definition that the practice of land surveying involves "...both (1) the making of geometric measurements and gathering related information pertaining to the physical or legal features of the earth, improvements on the earth, the space above, on, or below the earth and (2) providing, utilizing, or developing the same into survey products such as graphics, data, maps, plans, reports, descriptions, or projects." (110.20.B.4)

The proposed new definition of the practice of land surveying in Washington State would be broader than the NCEES *Model Rules* definition of activities that reference the "authoritative" nature of the survey profession or reference the "certification" or the "affirmation" of positional accuracy with respect to geodetic control (210.25.A).

The proposed new definition of the practice of land surveying in Washington State would include some of the activities defined in the NCEES *Model Rules* as outside the practice of land surveying (210.25.B).

## Comments and Objections

We object to a number of changes in the following proposed subsections as described below:

### Subsection (1)

Subsection 1 as proposed defines as within the practice of land surveying:

*Subsection (1) "Evaluation and interpretation of visible, scientific, written evidence, or oral testimony when used for the establishment of corners, lines, boundaries, and monuments of land, or for the defining and locating of corners, lines, boundaries, and monuments of land after they have been established;"*

**Objection:** This subsection is overbroad and could be interpreted to restrict a wide variety of activities beyond the practice of surveying as currently defined in RCW 18.43.020(9), and as defined in the *Model Law* and *Model Rules*, and which are also within the normal and traditional practice of GIS professionals and other county administrators.

**Reasoning:** "Evaluation," "interpretation," "evidence," and "defining" have broad meanings and application in science, law, philosophy, geology, geography, and other domains. Within counties and other types of jurisdictions there are many policy, program, administrative, and scientific purposes for evaluating and interpreting evidence to define administrative boundaries and the boundaries of other geographic

conditions or features that do not require authoritative definition by land surveyors. These are activities within the realm of the GIS profession. They are excluded from the practice of land surveying as defined in the *Model Rules*.

**Recommendation:** Revise this section to state:

*Subsection (1) "Evaluation and interpretation of visible, scientific, written evidence, or oral testimony when used for the establishment of corners, lines, boundaries, and monuments of land related to real property, or for the defining and locating of corners, lines, boundaries, and monuments of land related to real property after they have been established, when the proper performance of such services requires technical knowledge and skills;"*

### Subsection (5)

Subsection 5 as proposed defines as within the practice of land surveying:

*Subsection (5) "Preparation of land or legal descriptions for the establishment of corners, lines, boundaries, and monuments of land, the laying out and subdivision of land, or the defining and locating of corners, lines, boundaries, and monuments of land after they have been established;"*

**Objection:** This subsection is overbroad and could be interpreted to restrict a wide variety of activities beyond the practice of surveying as currently defined in RCW 18.43.020(9), and as defined in the *Model Law* and *Model Rules*, and which are also within the normal and traditional practice of GIS professionals and other county administrators.

**Reasoning:** The term "...legal descriptions for the establishment of....boundaries..." has meaning beyond the practice of land surveying. The normal practice of GIS professionals and other county administrators includes the preparation of written descriptions of various administrative boundaries that do not require authoritative definition by a land surveyor. Preparation of land or legal descriptions is not included in RCW 18.43.020(9), nor is it even mentioned in *Model Law*, or *Model Rules*.

**Recommendation:** Revise this section to state '...when used for the authoritative definition of real property.'

*Subsection (5) "Preparation of land or legal descriptions for the establishment of corners, lines, boundaries, and monuments of land related to real property, the laying out and subdivision of land, or the defining and locating of corners, lines, boundaries, and monuments of land related to real property after they have been estab-*

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# Agencies Respond to Proposed Land Surveying Definition Changes

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lished, *when the proper performance of such services requires technical knowledge and skills;*"

## **Subsection (6)**

Subsection 6 as proposed defines as within the practice of land surveying:

*Subsection (6) "Preparation of land survey maps and/or other accurate records thereof including data bases that represent topographical delineations; the establishment of corners, lines, boundaries, and monuments of land; the locations of corners, lines, boundaries, and monuments of land after they have been established, when the proper performance of such services requires technical knowledge and skill.*

*"As used in this subsection, creation of land survey maps and/or data bases does not include maps or data bases established or maintained solely for internal operations of a party: (a) That are not used to establish property corners or lines, but may represent property corners and lines, location of objects or topography within the map or data base; and (b) are not for sale to or use by another party not related to the internal operations of the creating party;"*

**Objection:** This section is confusing and poorly written. The first paragraph is confusing, and could be interpreted to restrict many activities beyond the practice of surveying as currently defined in RCW 18.43.020(9), and as defined in the *Model Law* and *Model Rules*. "Data bases" is a general term that is not defined. The term is used to refer to "land survey maps", "accurate records", and "topographic delineations." However, databases are used by many professions.

The second paragraph appears to represent an unwarranted restriction on the preparation of general maps by a county. The section also seems to establish a restraint of trade by prohibiting the use or sale of such maps outside the organization that created them.

**Reasoning:** This section expands the definition of land surveying beyond RCW 18.43.020(9). Databases have meaning and use in many professions. Their restricted use within the practice of land surveying is not included in the *Model Law* or *Model Rules*. The revised definition does not include reference to real property as in the *Model Law*. Mapping is an integral part of geography, GIS, and many other professions and domains of science. General mapping has been a part of municipal administration for thousands of years. There is no justification to restrict how a county distributes or sells maps or database that it has otherwise lawfully created.

**Recommendation:** Revise this section to state:

*Subsection (6) "Preparation of land survey maps and/or other accurate records thereof related to real property including data bases that represent topographical delineations; the establishment of corners, lines, boundaries, and monuments of land; the locations of corners, lines, boundaries, and monuments of land related to real property after they have been established, when the proper performance of such services requires technical knowledge and skill.*

*"As used in this subsection, creation of land survey maps and/or data bases does not include maps or data bases established or maintained solely for internal operations of a party: (a) That are not used to establish property corners or lines, but may represent property corners and lines, location of objects or topography within the map or data base; and (b) are not for sale to or use by another party not related to the internal operations of the creating party;"*

Thank you for your consideration of these comments. We the undersigned understand and appreciate the overall purpose of the proposed rulemaking: "to help clarify terminology that has become unclear since the Engineer's Registration Act (RCW 18.43.020(9)) was first adopted in 1947." In parallel with developments in the survey profession, GIS has developed during the past half century and it has been in use by counties, cities, and other agencies in Washington State for much of that same time. We stand willing to continue discussion with the Board on how the rules can be revised to achieve this end, while respecting the expertise and practice of allied professions, including GIS professionals.

Signed by the following agencies:

King County GIS

Alderwood Water and Wastewater District

City of Arlington GIS

City of Bothell GIS

Columbia County GIS

Cowlitz County GIS

Pierce County

Skagit County GIS

City of Renton GIS

City of Tumwater GIS

## **Additional Response**

As the joint letter was being circulated for signature, I identi-

(Continued on page 22)

# Agencies Respond to Proposed Land Surveying Definition Changes

*(Continued from page 21)*

fied another aspect of the proposed revised definition that I objected to and that I believe would impact all public agencies that use GIS for mapping functions. I submitted a personal letter to the Board of Registration with the following text:

I write both as a GIS professional and as a concerned citizen to voice my objections to subsections (6) of the proposed new Washington Administrative Code Section 196-29-105. This would expand the "Practice of Land Surveying" as defined in RCW 18.43.020(9) to an unnecessary and unacceptable extent.

The wording of this section would contravene the Federal Freedom of Information Act (FOIA) and the Washington State Public Records Act (RCW 42.56).

Specifically, Subsection 6 as proposed defines as within the practice of land surveying:

*Subsection (6) "Preparation of land survey maps and/or other accurate records thereof including data bases that represent topographical delineations; the establishment of corners, lines, boundaries, and monuments of land; the locations of corners, lines, boundaries, and monuments of land after they have been established, when the proper performance of such services requires technical knowledge and skill.*

*"As used in this subsection, creation of land survey maps and/or data bases does not include maps or data bases established or maintained solely for internal operations of a party: (a) That are not used to establish property corners or lines, but may represent property corners and lines, location of objects or topography within the map or data base; and (b) are not for sale to or use by another party not related to the internal operations of the creating party;"*

In essence, the second paragraph in Subsection (6) would include within the practice of land surveying the creation of maps that might include 'property corners and lines, location of objects or topography within the map or data base' and that are intended '...for sale to or use by another party not related to the internal operations of the creating party.'

Every public agency in the United States at some point creates maps that would fall within this definition. In addition to being a restraint of trade, this wording would contravene the long history of open records in the United States, going back to the writings of Thomas Jefferson over 200 years ago.

Maps created for use by a public agency in Washington State are public records, as defined by RCW 42.56.010. Every public record in Washington State must be considered as '...for use by another party not related to the internal operations of the

creating party.' Public access to government records is a fundamental bedrock of our democracy.

The entire second paragraph of this section should be deleted to ensure that there is no conflict with the normal function of government agencies and no conflict with the FOIA and RCW 42.56.

Thank you for the opportunity to comment on this proposed rulemaking.

Sincerely,

Greg Babinski, MA, GISP

Past-President, Urban and Regional Information Systems Association

## **The Future of this Issue**

This issue is all about boundaries. But the survey community is not the only interested party in defining the boundary of their professional practice. The development of technology and the emergence and maturation of new professions has created a tension about those boundaries.

First and foremost, the GIS community should define the boundaries of its professional practices. Then the survey and GIS communities need to come together to agree on hard boundaries and also areas of overlap. URISA will be attempting to raise awareness about this issue during its annual conference, GIS-Pro 2015 in Spokane in October. The conference will include a two-part session called 'Understanding the Boundaries of Professional Practice.' This will bring together surveyors and GIS professionals to explore common ground and look for agreement so that these two groups can work together in harmony.

*Greg Babinski, GISP, is the Finance & Marketing Manager for the King County GIS Center in Seattle, where he has worked since 1998. Previously he worked for nine years as GIS Mapping Supervisor for the East Bay Municipal Utility District in Oakland. He holds an MA in geography from Wayne State University. Babinski is Past-President of URISA and founder and Past-Chair of URISA's GIS Management Institute. In 2005 he founded The Summit – the Washington GIS Newsletter. In addition to GIS consulting, he is a GIS researcher, author, and instructor. He has spoken about GIS across North America, Europe, Asia and Australia.*

# President's Column

(Continued from page 1)

conferences. It was a great learning experience - not just by attending sessions, but by working together remotely with two conference planning committees. Vancouver turned out to be a great site for holding a conference and it was nice to meet the large number of Oregon members that attended.

We are lucky this year to have the International URISA annual conference being held in Spokane this fall. The GIS-Pro conference is always top-notch, and this year will be hosted by the NW User group and the Rocky Mountain URISA chapter, along with WAURISA. Our Vice-President Ian Von Essen has been working closely with the Conference committee to help make this a great, smoothly-run event. If you have the opportunity to head to Spokane in mid-October, I recommend signing up for the conference.

As mentioned in the Editorial of this issue, our wonderful editor Eadie Kaltenbacher will be stepping down as Editor

since she and her family have moved to Portland. She has done amazing things with *The Summit* publication, building off the work Greg Babinski put in before her. All of us on the board and I am sure all of *The Summit* readers appreciate the professional look and content of the quarterly journal and we will miss her. The consolation is she is not too far away and has agreed to help transition with a new editor. We hope that we have a WAURISA member who would love to pick up the editorial work from Eadie and help continue our flagship publication.

I am looking forward to serving as president for the next two years. If you are not currently involved with WAURISA I encourage you to attend our monthly call-in meetings. If you already are involved, spend some time to reflect on what WAURISA provides for you and what could make WAURISA better. We need to continuously re-evaluate ourselves and make sure we are doing the best job we can. Your involvement, no matter how small, will get us on that path.

Have a happy and safe rest of the summer.

Josh

## VOLUNTEER OPPORTUNITY

WAURISA has a volunteer opportunity available immediately with *The Summit*. The role is **Editor-in-Chief**. This volunteer will manage and execute the solicitation and publication of meaningful stories from and for the Washington State GIS community, and promote the activities of WAURISA.

This is a great role for a self-motivated individual who likes reading and writing, and is interested in expanding their professional network.

The volunteer should be able to commit up to 20 hours per issue; there are 4 issues per year. He or she will need access to MS Publisher, and be familiar with it or willing to learn it. Responsibilities include:

- planning newsletter schedule and deadlines
- researching prospective story leads
- collaborating with writers and other volunteers to produce stories
- editing submissions for clarity and content
- communicating with vendor contacts to include appropriate ads, logos, and company descriptions
- creating each issue's layout in MS Publisher
- working with copy editing team to edit for typos and other errors
- working with technology and marketing volunteers to distribute and advertise each issue
- sending thank-you notes and gift cards to contributors as appropriate
- attending monthly WAURISA board meetings to provide status updates

For more information or to volunteer for the role, please email Josh Greenberg at [president@waurisa.org](mailto:president@waurisa.org) with a brief statement of interest.

# Editorial

By: Eadie Kaltenbacher, GISP

**A**s always, I have enjoyed sharing with you the news of the Washington GIS community. There has been a lot of positive news, especially with the success of the Spring conference. On Page 4 you can read about the Summit Award being presented to Joy Paulus, and the accomplishments for which she was honored. Washington State students continue to impress with their GIS research (see one story on Page 6 and another on Page 16).

This issue also touches on the themes of boundaries and transitions, as you can read in the story about proposed land surveying definitions beginning on Page 3. What is the boundary between a land surveyor and a GIS professional, and how does changing technology affect those definitions?

On a personal note, I am also going through some transitions and this issue of *The Summit* has been bittersweet for me to put together. As you have read in Josh Greenberg's President's Column, I recently moved to Oregon. While the move

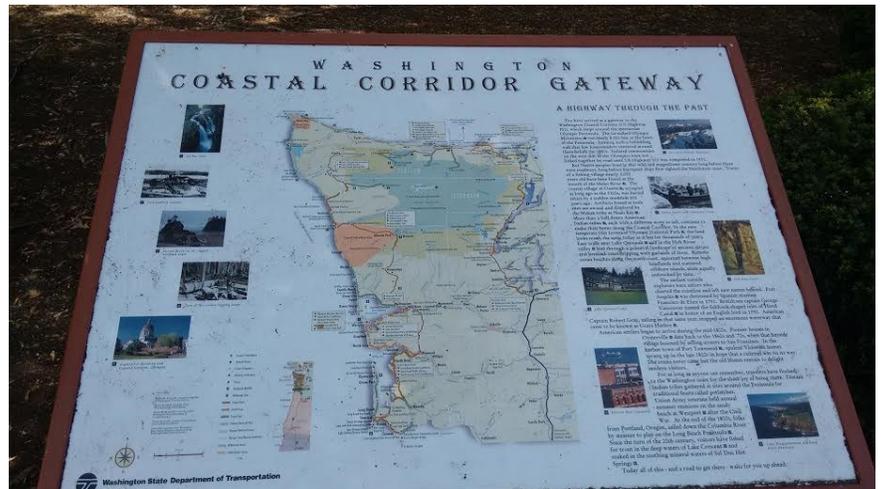
is an exciting opportunity for my family and myself, the unfortunate trade-off is that I am no longer able to continue as Editor of *The Summit*.

I am grateful to Greg Babinski, who founded *The Summit* in 2005, and trusted me to carry on his work for the past two years. I would also like to thank all the contributors and volunteers who have made this publication the strong voice it is today. The writers are the ones who make *The Summit* relevant and valuable. It has been such a pleasure to work with people who care about their community and volunteer their time and their skills to improve it. I have truly been blown away by the amazing talent in Washington State. Oregon has big shoes to fill!

You will see an announcement for a volunteer opportunity to fill the Editor role on Page 23. I will help WAURISA transition to the new Editor as much as possible. I wish the entire Washington State GIS community all the best.

## Public Maps in Washington

Map seen at the Historical Park in Tumwater.  
Photo by Matt Stull, GISP.



### UPCOMING DEADLINES

Submit articles to *The Summit* for publication by:

	Autumn Issue	Winter Issue
First Draft (optional)	10/16/2015	1/15/2016
Final Draft	10/23/2015	1/22/2016

*The Summit* is the newsletter of WAURISA. To encourage the discussion of issues and ideas of importance to the Washington GIS community, we welcome letters to the editor or opinion essays. Letters should be a maximum of 100 words and essays should be limited to 500 words.

**Chief Editor:** Eadie Kaltenbacher

**Editorial Board:** Eadie Kaltenbacher, Greg Babinski, Effie Moody

**Interview Editor:** Michelle Lortz

**Copy Editing:** Karl Johansen, Greg Babinski

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# King County GIS CENTER



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Alesa Geospatial, Inc. (AGI) incorporated in Oregon in 1996 and quickly developed a core natural resource GIS services business. AGI has grown into an IT company providing mobile apps, custom software development, database administration, GIS analysis and cloud hosted web mapping sites. We build software and web mapping sites that are intuitive and easy to use. We provide both custom and commercial off-the-shelf products that cater to the needs of today's mobile workforce. Our software engineers, database developers, technical writers and GIS analysts are experienced in delivering products that integrate maps and data. Our clients include large federal land management and research agencies, state and regional governments, municipalities, private and public corporations, and non-profit organizations.

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GeoCue Group was founded in 2003 by a group of engineers with extensive experience in developing hardware and software solutions for primary remote-sensed data acquisition. Today GeoCue workflow management tools are used by a majority of North American geospatial production shops. In 2009 GeoCue acquired QCoherent Software LLC, the creator of the point cloud exploitation toolset, LP360. GeoCue is the largest supplier of kinematic LIDAR processing tools in North America and LP360 is the world's most widely used tool for exploiting point cloud data, from both LIDAR and sUAS systems, in an ArcGIS® environment. For more information visit [www.LP360.com](http://www.LP360.com).



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The Urban Studies Program offers a Master of Science in Geospatial Technologies degree. Admission is open during autumn quarter only and will be comprised of a 20 student cohort. The degree will provide advanced training in GIS, training students to use and apply geospatial hardware, software, and data in urban and environmental planning scenarios. It will also prepare students to become leaders in the management and utilization of geospatial technologies within the job market -- public, private, and not-for-profit sectors. It will also offer training in the development and deployment of location-based mobile applications and management of web-based geospatial data. This program will maintain a theoretical/critical focus on the application of these technologies to urban and environmental problem solving.

## GIS User Groups in Washington

### ACSM – Washington State Section

[www.wss-acsm.org](http://www.wss-acsm.org)

### Cascadia Users of Geospatial Open Source

[groups.google.com/group/cugos](http://groups.google.com/group/cugos)

Contact [Karsten Venneman](#)

### Central Puget Sound GIS User Group

Join Listserve [here](#)

### Central Washington GIS User Group

<https://www.linkedin.com/groups?home=&gid=8252704>

Meets the 2nd Wednesday of each month.

Contact [Amanda Taub](#)

### Cowlitz-Wahkiakum GIS User Group

Meets the last Wednesday of each month at 3:00 pm at the Cowlitz-Wahkiakum Council of Governments meeting room, 207 North 4th Ave, Kelso WA.

Contact [TJ Keiran](#)

### King County GIS User Group

[www.kingcounty.gov/operations/GIS/UserGroups.aspx](http://www.kingcounty.gov/operations/GIS/UserGroups.aspx)

Meets 1st Wednesday every other month at 11:00am at the KCGIS Center, 201 S. Jackson Street, Seattle WA, Conf Room 7044/7045.

### Northwest Washington GIS User Group

[www.wvu.edu/huxley/spatial/nwwgis/nwwgis\\_mtg.htm](http://www.wvu.edu/huxley/spatial/nwwgis/nwwgis_mtg.htm)

### Southeast Washington/Northwest Oregon GIS User Group

<http://gisgroup.wordpress.com>

### Washington Geographic Information Council (WAGIC)

[geography.wa.gov/wagic](http://geography.wa.gov/wagic)

Join Listserve [here](#)

### Washington Hazus Users Group

<http://www.usehazus.com/wahug>

Contact [Kelly Stone](#)

To have your GIS-related group or event listed in future issues of *The Summit*, notify the editor at: [Summit@waurisa.org](mailto:Summit@waurisa.org)

To be added to *The Summit* mailing list, contact:

[Marketing@WAURISA.org](mailto:Marketing@WAURISA.org)

Back issues of *The Summit* are available at:

<http://waurisa.org/thesummit/>

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