



The Urban Threat to Ótakim Séwi (Big Chico Creek)

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Introduction

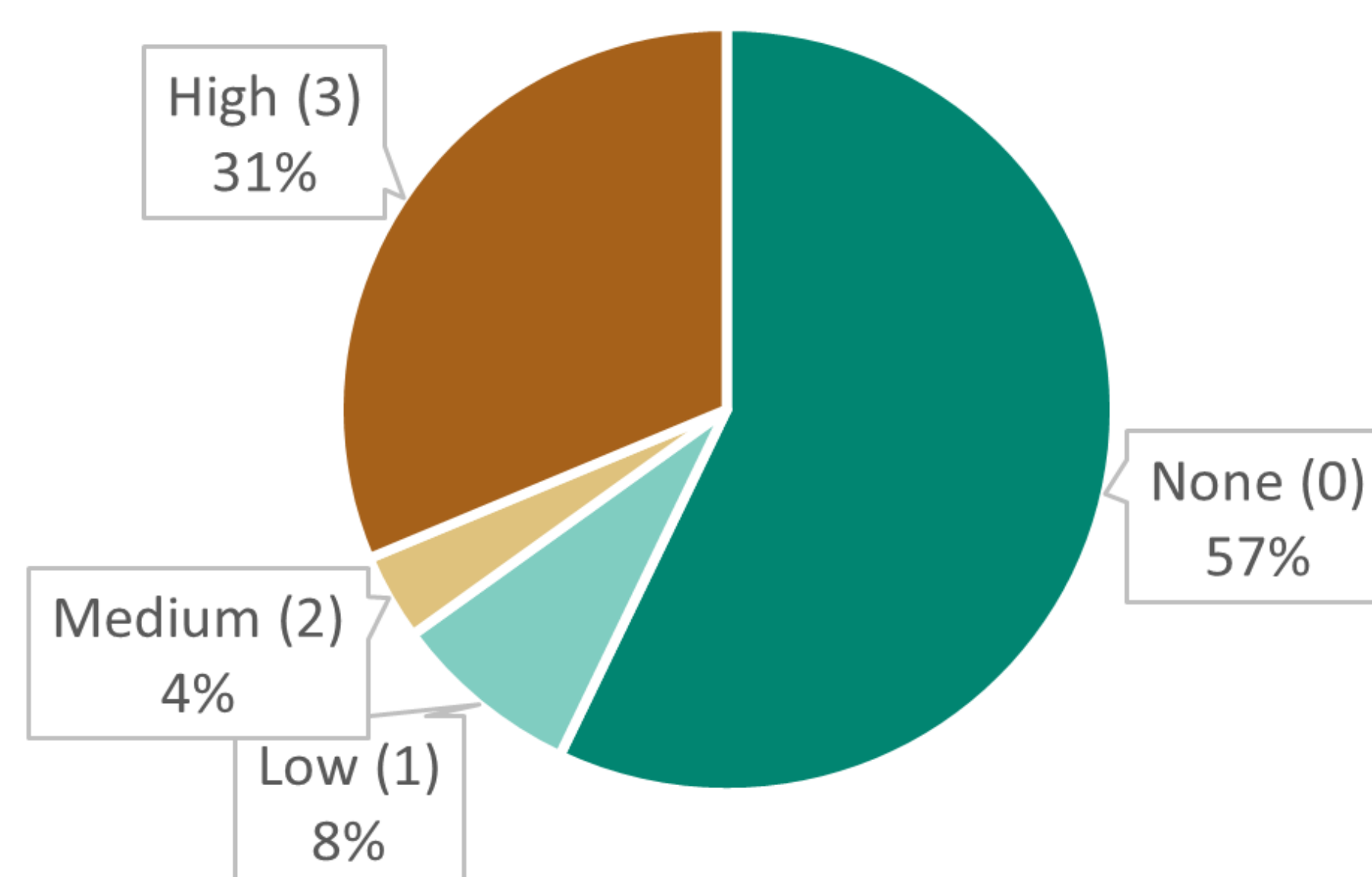
- Site: Big Chico Creek on the Chico State Campus
Urban riparian corridors are especially vulnerable to invasion by neighboring horticultural plantings and noxious species (Aronson et al., 2017). The Ótakim Séwi (Big Chico Creek) corridor flows 45 miles from Colby Mountain (Sierra Nevada) to the Sacramento River. Ótakim Séwi is an ancestral fishing and resource area for the Mechoopda Tribe, yet the creek no longer supports viable salmon populations. Approximately 8 miles of the creek flow through urbanized Chico and the Chico State campus. The urban portion faces unique invasion threats due to the nature of adjacent development.
- Goals: Urban Riparian Management Plan
Species-specific management strategies are needed for 1) emerging and noxious invasive species, 2) native species, and 3) partnerships to address management gaps, such as the federal listed valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), steelhead (*Oncorhynchus mykiss*), and spring-run Chinook salmon (*O. tshawytscha*).
- This poster features preliminary findings based on vegetation surveys and GIS mapping on the Chico State campus, illustrated in one management unit of the mapping project. These data will be used to create a management plan for the riparian corridor on campus to guide rehabilitation and restoration efforts.

Methods

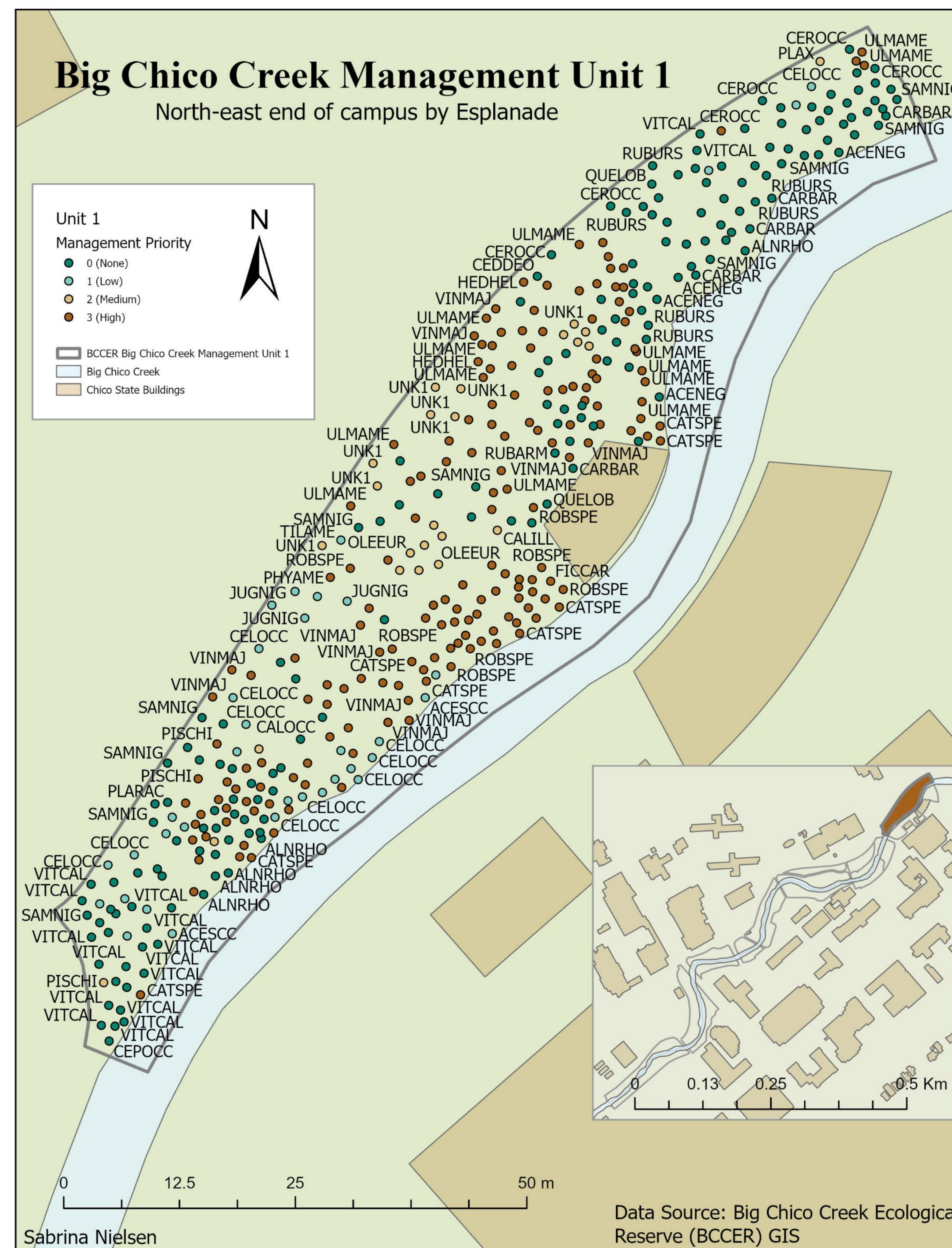
- Data Collection & Mapping
Perennial plant diversity and abundance was estimated and mapped along the creek in 20 management units. Management Unit 1 is along the creek at the north-east end of campus by Esplanade and the Bidwell Bowl Amphitheater. Species were grouped into invasion risk levels.
- Classification of Invasion Risk
 - High (3): High seed production & seedling establishment, or dense clonal spread. >20 seedlings/5m²
 - Medium (2): Medium seed production & seedling establishment, or some clonal spread. 10-20 seedlings/5m²
 - Low (1): Little evidence of new seedling establishment, little clonal spread. <10 seedlings/5m²
 - None (0): No evidence of new seedling establishment or clonal spread

Aronson, MFJ, MV Patel, KM O'Neill & JG Ehrenfeld. 2017. Urban riparian systems function as corridors for both native and invasive plant species. *Urban Invasions* 19: 3645-3657.

Ótakim Séwi Invasion Threat Rating Distribution in 9 Units



Mapping, Monitoring, and Managing Biodiversity in our Urban Riparian Corridors is Essential for Long-term Habitat Quality



Discussion

Unit 1 Management Priorities

- Of 36 non-native woody perennial species mapped in the largest management unit, invasion risk was high for 11, medium for 6, and low for 4. There were 15 species that were native or showed no evidence of spread. Alarming high-priority invasives include *Ulmus americana* (American Elm), *Robinia pseudoacacia* (Black Locust), *Ailanthus altissima* (Tree of Heaven), and *Catalpa speciosa* (Catalpa). High risk species should be prioritized for control. Medium-risk species could be cut down periodically to restrict fruit production in the short term, such as for *Olea europaea* (European Olive). All the invasives are commonly planted around Chico which potentially led to the invasion of the creek.
- A cumulative picture for the 9 units currently mapped showed that 57% of individual stems/patches are in the no-risk category.

Riparian Management Plan

- Both non-native and native species must be managed regularly in urban riparian corridors due to the constant influx of propagules from developed areas. Longer term goals should be to increase native plant establishment for greater invasion resistance, and to improve overall habitat quality for wildlife in partnership with other stakeholders.

Conclusion

- Creeks in urban areas are important and biodiverse habitats often degraded by human activity. Proactive, species-specific management is essential to improve and maintain overall habitat quality and native species composition over time. This study is a first step towards cataloguing, monitoring, and managing this corridor for native biodiversity today and for the future.

Unit 1 Species List			
Invasion Threat	Code	Latin name	Common name
0	ACENEG	<i>Acer Negundo</i>	box elder
0	ALNRHO	<i>Alnus rhombifolia</i>	white alder
0	ARICAL	<i>Aristolochia californica</i>	California pipevine
0	CALOCC	<i>Calycanthus occidentalis</i>	sweet shrub
0	CARBAR	<i>Carex barbarae</i>	white root basket sedge
0	CEDDEO	<i>Cedrus deodara</i>	deodar cedar
0	CEPOCC	<i>Cephalanthus occidentalis</i>	button bush
0	CEROCC	<i>Cercis occidentalis</i>	western redbud
0	HETARB	<i>Heteromeles arbutifolia</i>	toyon
0	PLARAC	<i>Platanus racemosa</i>	western sycamore
0	POPFRE	<i>Populus fremontii</i>	Fremont cottonwood
0	QUELOB	<i>Quercus lobata</i>	valley oak
0	RUBURS	<i>Rubus ursinus</i>	California blackberry
0	SAMNIG	<i>Sambucus nigra</i>	blue elderberry
0	VITCAL	<i>Vitis californica</i>	California wild grape
1	CELOCC	<i>Celtis occidentalis</i>	hackberry
1	JUGNIG	<i>Juglans nigra</i>	black walnut
1	LAUNOB	<i>Laurus nobilis</i>	bay laurel
1	TILAME	<i>Tilia americana</i>	basswood
2	ACESCC	<i>Acer saccharinum</i>	silver maple
2	CALILL	<i>Carya illinoensis</i>	pecan
2	OLEEUR	<i>Olea europaea</i>	European olive
2	PLAX	<i>Platanus x acerifolia</i>	London plane tree/sycamore
2	QUENIG	<i>Quercus nigra</i>	water oak
2	UNK1	Unknown species	Unknown species
3	AILALT	<i>Ailanthus altissima</i>	tree of heaven
3	CATSPE	<i>Catalpa species</i>	catalpa
3	FICCAR	<i>Ficus carica</i>	fig
3	HEDHEL	<i>Hedera helix</i>	English ivy
3	LIQSTY	<i>Liquidambar styraciflua</i>	sweetgum
3	PHYAME	<i>Phytolacca americana</i>	pokeweed
3	PISCHI	<i>Pistacia chinensis</i>	Chinese pistache
3	ROBSPE	<i>Robinia pseudoacacia</i>	black locust
3	RUBARM	<i>Rubus armeniacus</i>	Himalayan blackberry
3	ULMAME	<i>Ulmus americana</i>	American Elm
3	VINMAJ	<i>Vinca major</i>	periwinkle