



Design Tools for Climate Smart Riparian Restoration

Presentation Outline

1. Point Blue's STRAW Program
2. Riparian Tool 1.0
3. Riparian Tool 2.0 (spoiler alert!)



The story
of STRAW
begins
here



Who am I?

Point Blue's STRAW Program

STRAW: Students & Teachers Restoring A Watershed

- Revegetation
- Biotechnical Erosion Control
- Invasive Plant Control
- Community Engagement
- “One-Stop” Project Management
 - Planning/Design
 - Implementation
 - Maintenance
 - Monitoring & Reporting



Climate Smart Restoration Tools

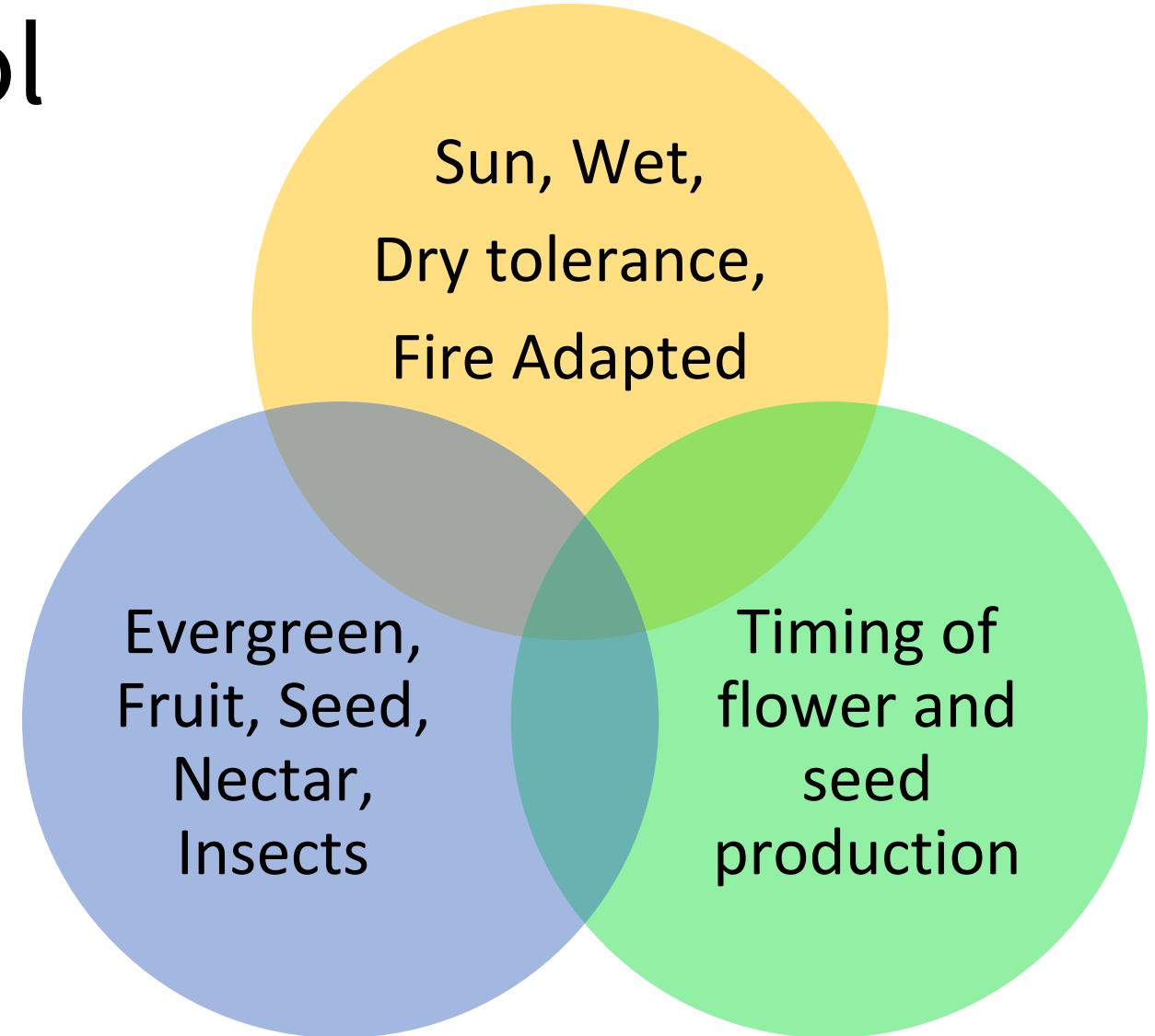


www.pointblue.org/tools-and-guidance

Riparian Restoration Design Database Tool

Tool Goals

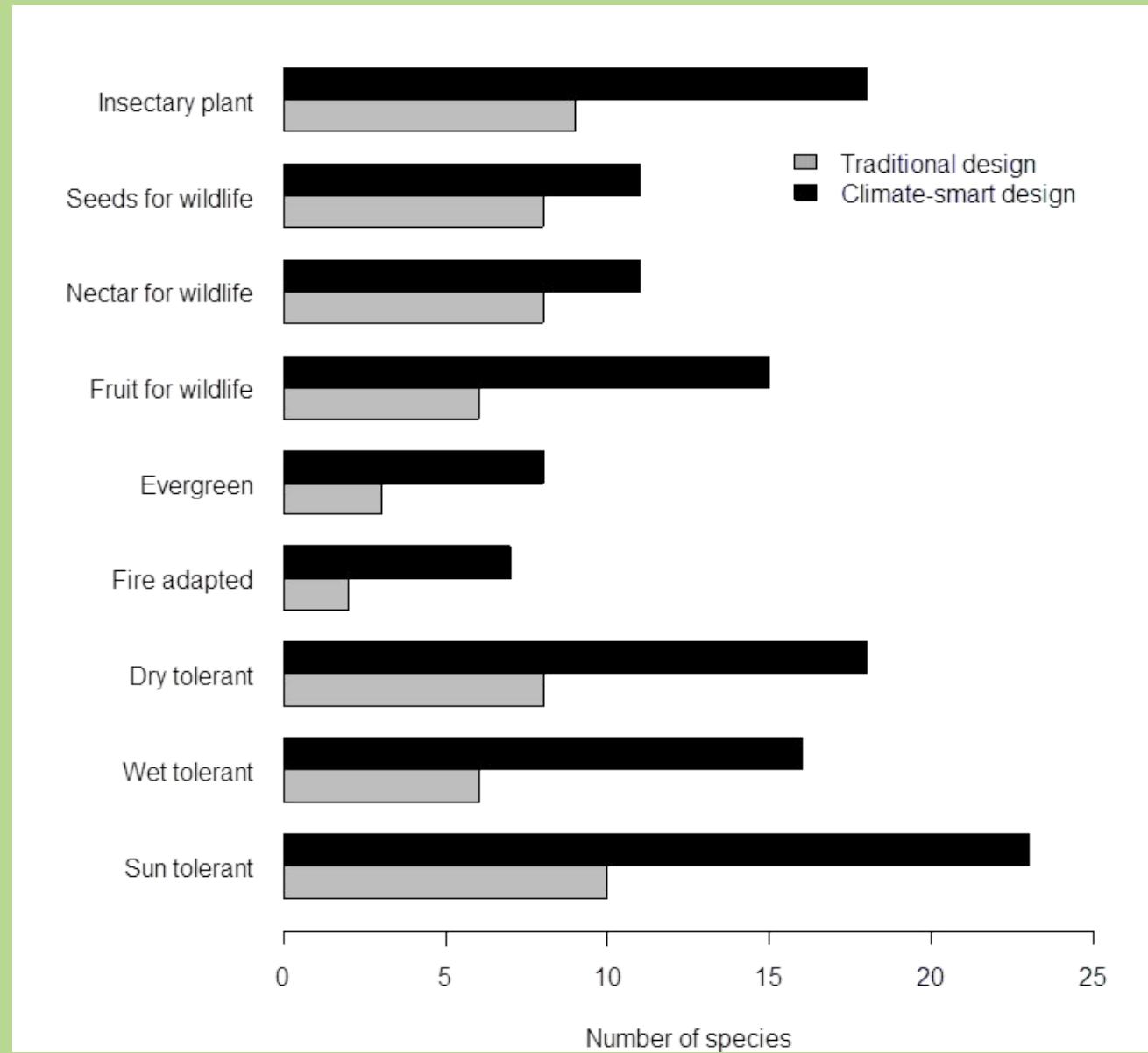
- Increase wildlife habitat quantity, quality and function
- Improve water quality
- Prevent phenological mismatch



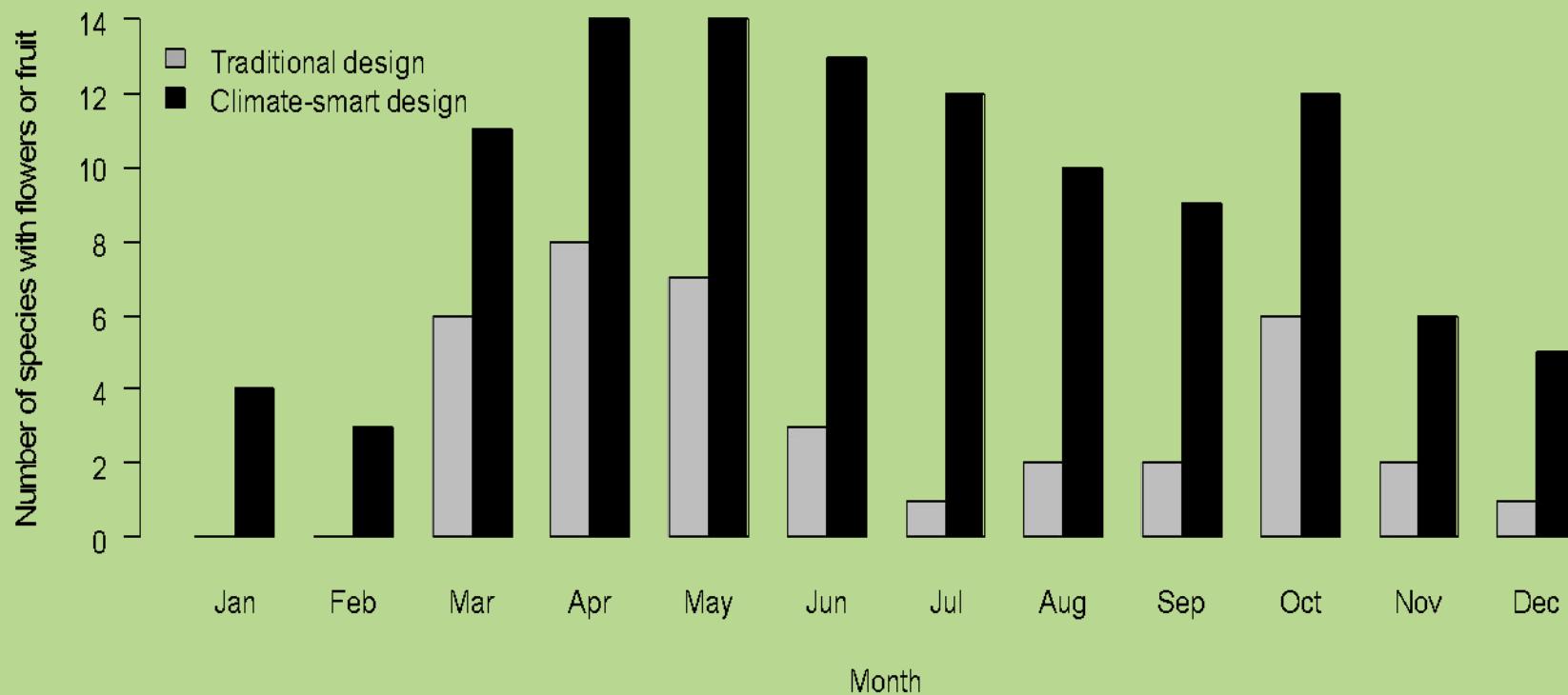
Riparian Restoration Design Database Tool

Climate-Smart Planting: Trees			Climate-related traits						Resources for wildlife				Resource Use & Monitoring				
In planting design?	Vegetation species		(Y = yes, N = no, ? = undetermined)						(Y = yes, N = no, ? = undetermined)				(Y = yes, N = no, ? = undetermined)				
	Common Name	Scientific Name	Tolerates full or partial sun	Tolerates clay soil	Tolerates wet conditions	Tolerates dry conditions	Evergreen	Fire Adapted	Wildlife fruit source	Wildlife Nectar source	Wildlife Seed Source	Insectary Plant	Jan	Feb	Mar	Apr	May
4	Total species		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	big leaf maple	<i>Acer macrophyllum</i>	Y	Y	Y	Y	N	Y	N	N	Y	N	S	S	F	F	F
6	boxelder	<i>Acer negundo</i>	Y	Y	Y	Y	N	N	N	?	Y	Y			F	F	
7	California buckeye	<i>Aesculus californica</i>	Y	Y	Y	Y	N	Y	N	Y	N	Y					F
8	white alder	<i>Alnus rhombifolia</i>	Y	Y	Y	N	N	N	N	?	Y	Y	F	F	F	F	F
9	red alder (coastal)	<i>Alnus rubrifolia</i>	Y	Y	Y	N	N	N	N	?	Y	Y	S	S	F	F	
10	madrone	<i>Arbutus menziesii</i>	Y	Y	N	Y	Y	Y	N	Y	?	Y			F	F	F
11	Oregon ash	<i>Fraxinus latifolia</i>	Y	Y	Y	N	N	Y	?	Y	Y	Y			F	F	F
12	coast silk tassel	<i>Garrya elliptica</i>	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	F	F	F	F	
13	California black walnut	<i>Juglans hindsii</i>	Y	Y	Y	Y	N	Y	N	?	Y	?					F
14	tan oak	<i>Lithocarpus densiflorus</i>	Y	?	N	N	Y	Y	N	?	Y	?					
15	wax myrtle	<i>Myrica californica</i>	Y	Y	Y	Y	Y	N	Y	N	?	?			F	F	F
16	western choke cherry	<i>Prunus virginiana demissa</i>	Y	Y	Y	Y	N	Y	Y	Y	?	Y			F	F	
17	coast live oak	<i>Quercus agrifolia</i>	Y	Y	N	Y	Y	Y	N	N	Y	Y			F	F	
18	black oak	<i>Quercus kelloggii</i>	Y	Y	N	Y	N	Y	N	N	N	Y			F	F	
19	valley oak	<i>Quercus lobata</i>	Y	Y	Y	Y	N	Y	N	N	N	Y			F	F	
20	sandbar willow	<i>Salix exigua</i>	Y	Y	Y	N	N	Y	N	Y	?	Y			F	F	F
21	coastal or Hooker's willow	<i>Salix hookeriana</i>	Y	Y	Y	?	N	Y	N	Y	?	Y					
22	red willow	<i>Salix laevigata</i>	Y	Y	Y	N	N	Y	N	Y	?	Y			F	F	F
23	yellow willow	<i>Salix lasiandra</i>	Y	Y	Y	N	N	Y	N	Y	?	Y					
24	arroyo willow	<i>Salix lasiolepis</i>	Y	Y	Y	N	N	Y	N	Y	?	Y	F	F	F	F	
25	willows	<i>Salix scouleriana</i>	Y	Y	Y	N	N	Y	N	Y	?	Y			F	F	
26	coast redwood	<i>Sequoia sempervirens</i>	Y	N	Y	Y	Y	Y	N	N	Y	N					
27	California bay-laurel	<i>Umbellularia californica</i>	Y	Y	Y	Y	Y	Y	Y	?	Y	?	F	F	F	F	F
28																	
29																	
30																	
31																	

Increasing Wildlife Habitat and Improving Water Quality



Preventing Phenological Mismatch



Riparian Restoration Design Database

Tool 2.0, in progress

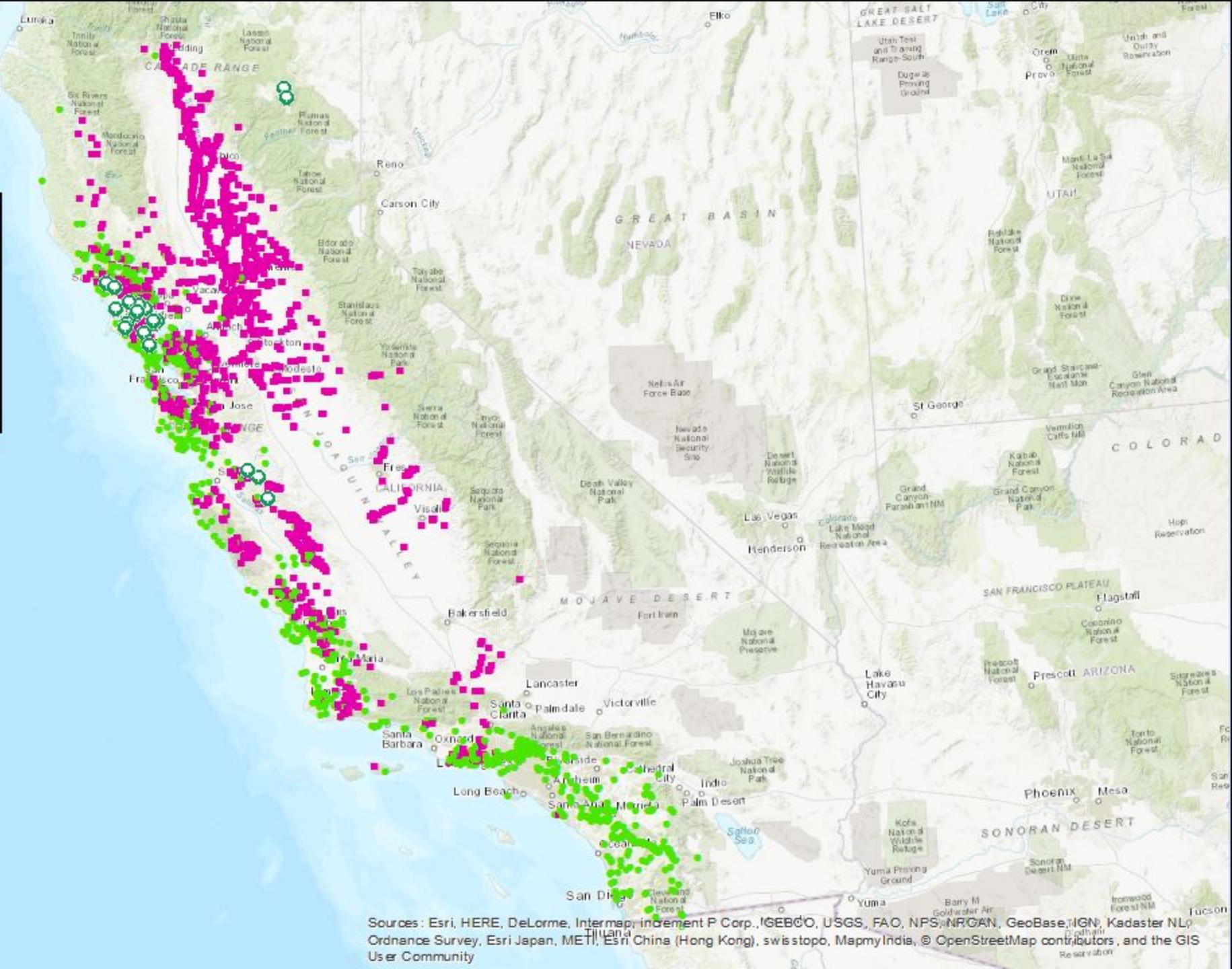
1. Identify plant species that may be vulnerable to future conditions
2. Increase wildlife habitat, water quality, and prevent phenological mismatch → by increasing the redundancy of species providing essential benefits



Species Distribution

Taxon

- Quercus agrifolia
- Quercus lobata



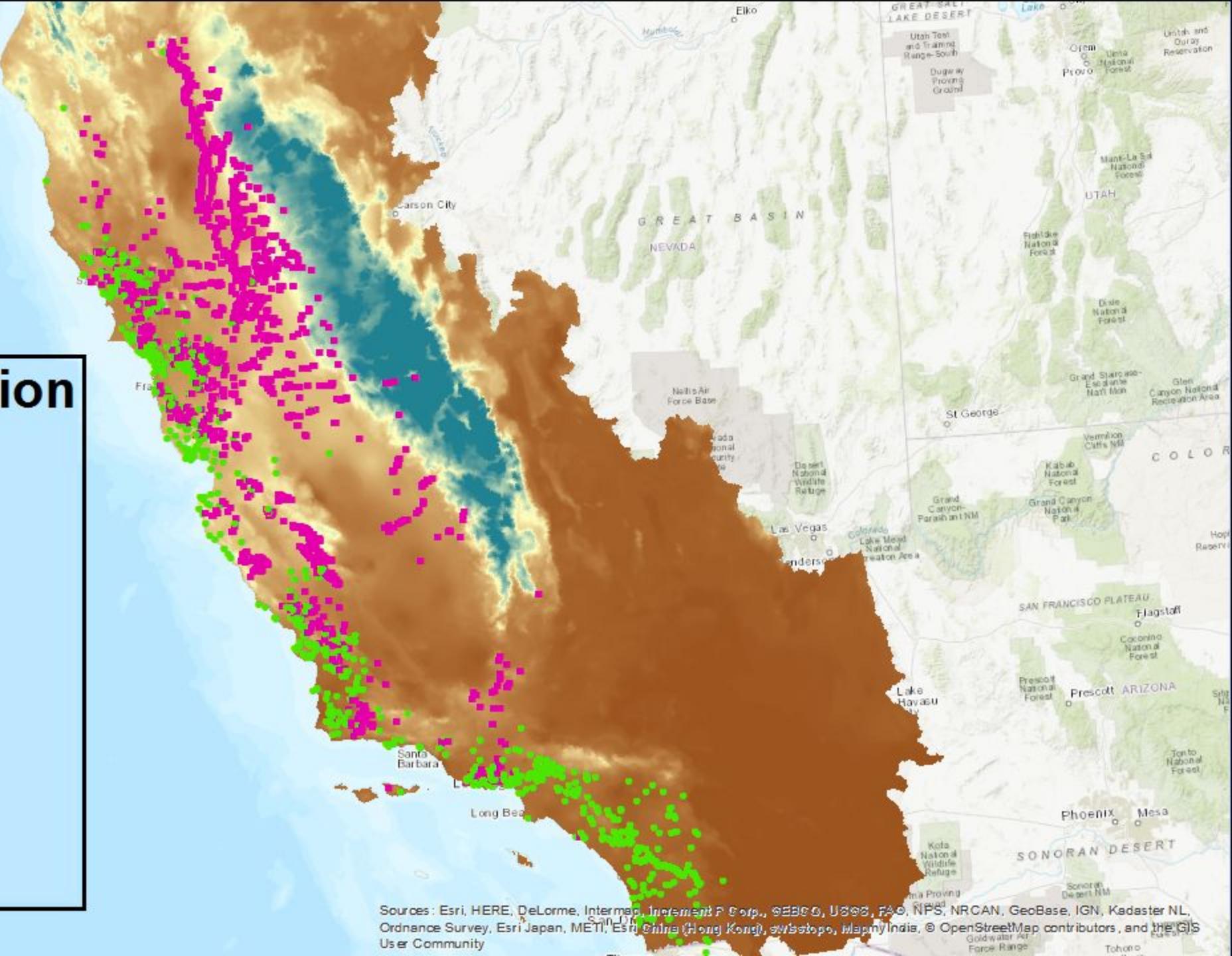
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., IGEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Species Distribution

Taxon

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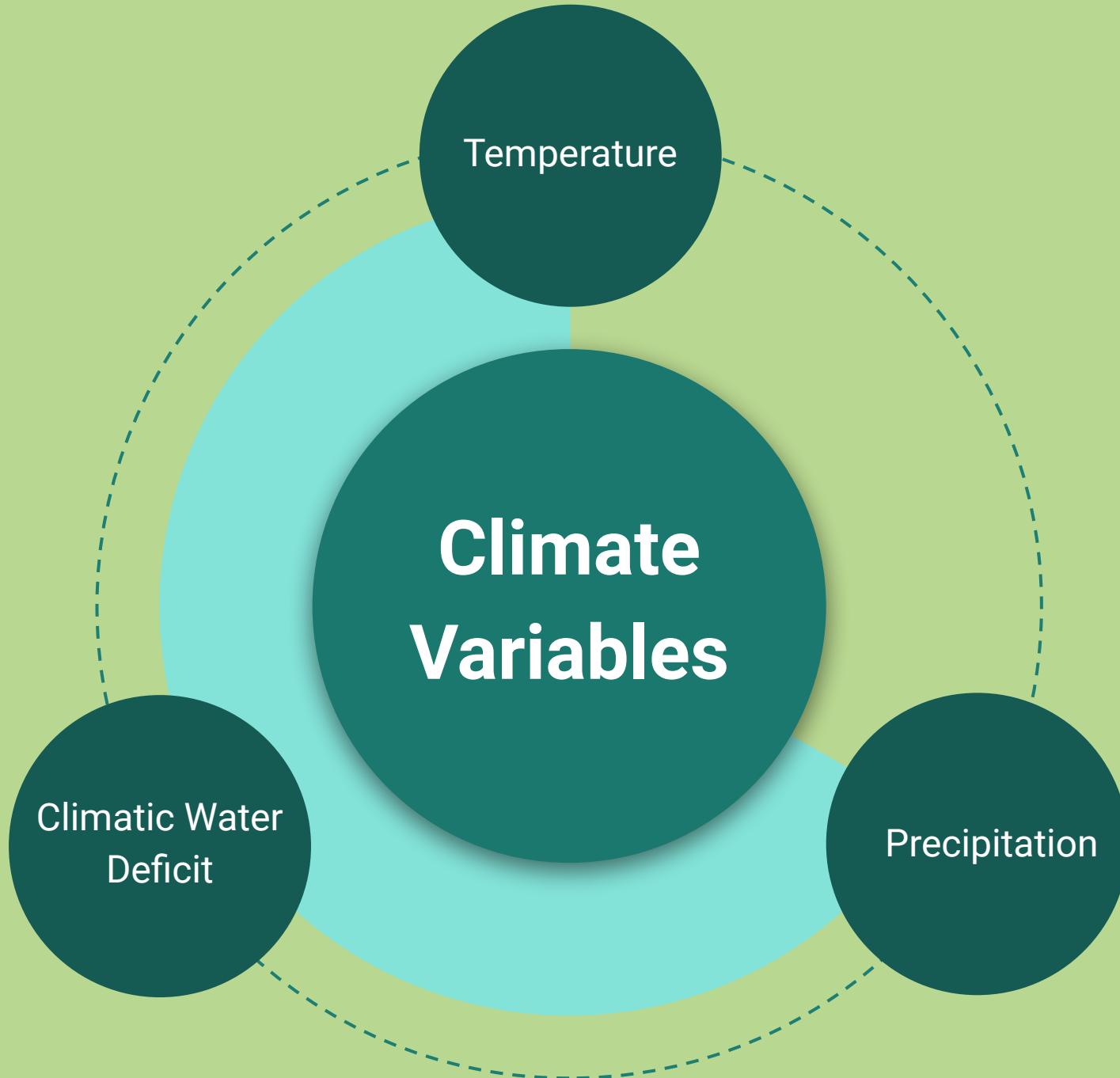
2009 PPT (cm)

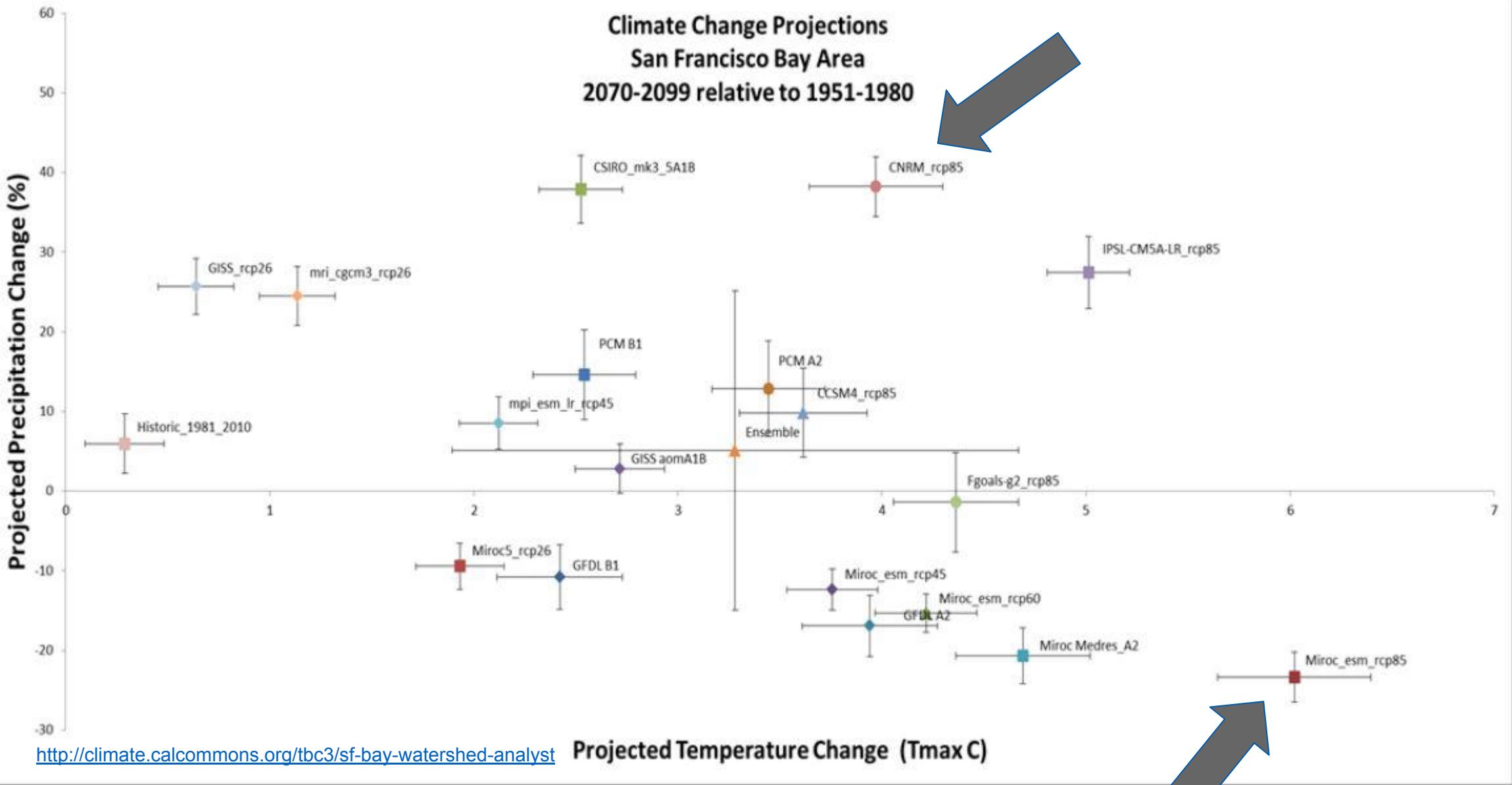


Sources: Esri, HERE, DeLorme, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.

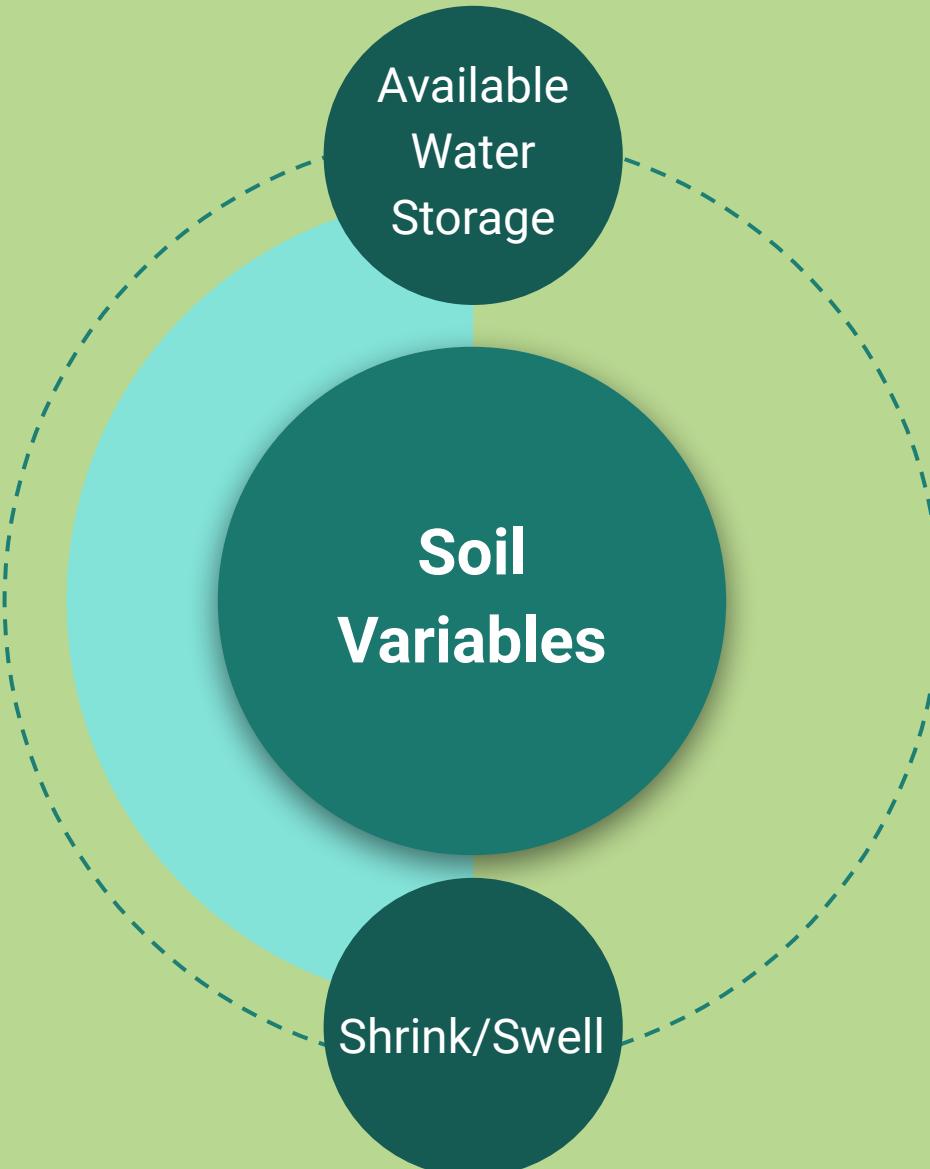


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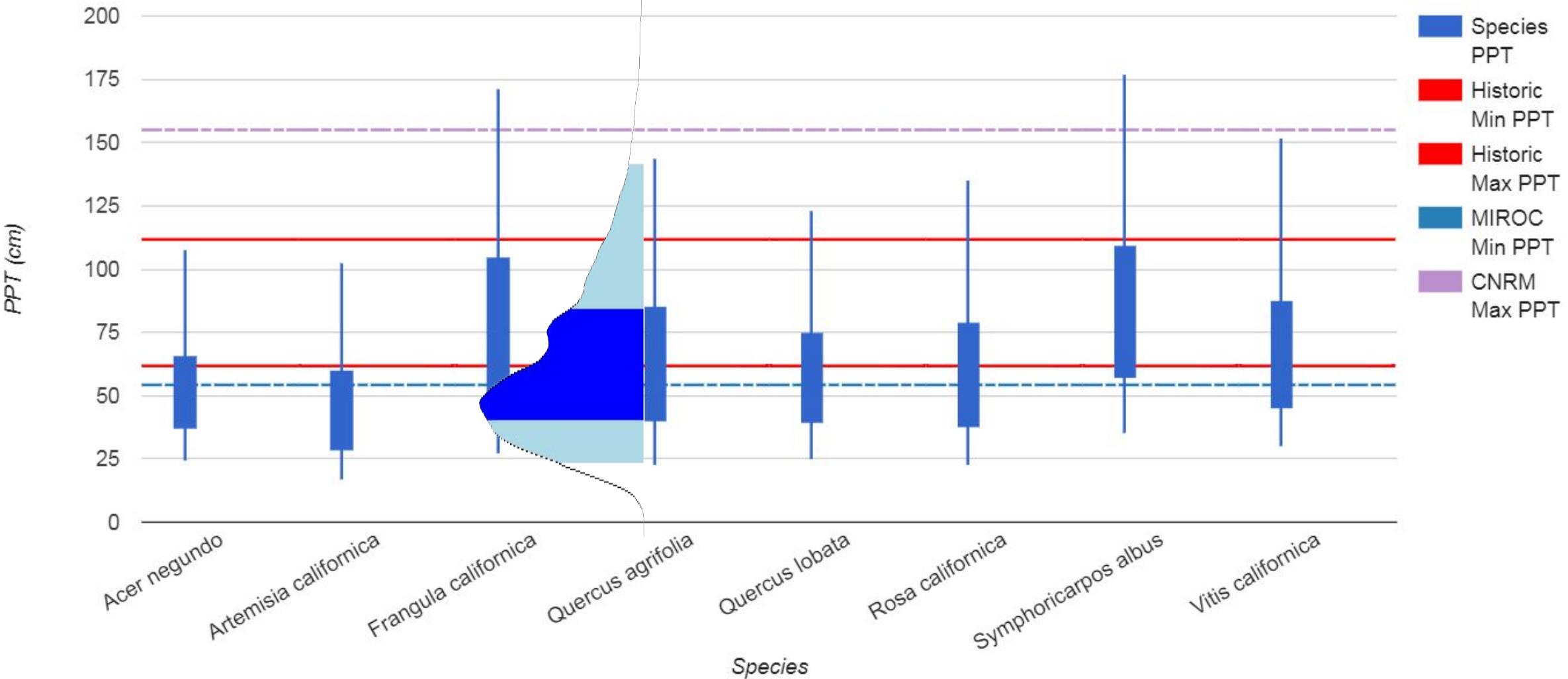




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Species PPT Range



Point Blue

Let's See How it Works!

Climate Smart Species Selection Tool

(and a backup)

Planting List:

Rosa californica
Quercus agrifolia
Quercus lobata
Acer negundo
Frangula californica
Artemisia californica
Symphoricarpos albus
Corylus cornuta



Thank you!

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Questions?

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Mapping:

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